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SITE INVESTIGATION WORK PLAN

1038

APR 0 9 2001

SITE LOCATION:
Express Gas & Mart
2951 High Street
Oakland, California

PREPARED FOR:
Mr. Aziz Kandahari
Himalaya Trading Company
2951 High Street
Oakland, CA 94619

SUBMITTED TO:
Alameda County Health Care Services
Hazardous Materials Division
1131 Harbor Bay Parkway
Alameda, California 94502

W. A. CRAIG, INC. PROJECT # 3936

March 26, 2001

PROFESSIONAL CERTIFICATION

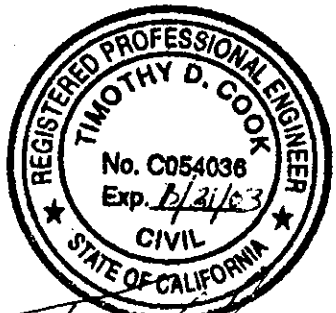
Site Investigation Workplan

Express Gas & Mart
2951 High Street
Oakland, California

Job No. 3936
March 26, 2001

This document has been prepared by the staff of W. A. Craig, Inc., under the professional supervision of the persons whose seals and signatures appear hereon. No warranty, either expressed or implied, is made as to the professional advice presented herein. The site descriptions contained in this document are based upon our current understanding of site conditions. These conditions are subject to change as W.A. Craig, Inc. evaluates additional information.

Opinions or conclusions presented in this document are professional opinions based solely upon a review of existing environmental data. We recognize that the limited scope of services performed in execution of this investigation may not be appropriate to satisfy the needs, or requirements of other state agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein is at the sole risk of the user.



Tim Cook, P.E.
Principal Engineer

William A. Craig II
President

1.0 INTRODUCTION

1.1 Site Location and Description

The site is located at 2951 High Street, in Oakland, California **(Figure 1)** and is located at the base of the Oakland Hills. The site topography runs southerly toward High Street. Regionally, the topography slopes westerly toward San Francisco Bay. Site soils are primarily clayey silt, sandy silt, silty sand with minor amounts of gravelly sand. Groundwater occurs at approximately 21 feet below grade (fbg) in monitoring wells MW-5 and MW-6 located on site. Potentiometric surface maps for this site have generally shown groundwater flow to the southeast (ASE, November 14, 2000). Site structures and other features are indicated on **Figure 2**.

1.2 Objectives

The objectives of this site investigation is to determine the lateral and vertical extent of contaminated soils in the vicinity of pump dispensers located on the south side of the site. A subsequent source removal action will abate soils with concentrations greater than the Site Specific Threshold Levels (SSTLs) established in a Tier 2 Risk Based Corrective Action computer model (Palmer, August 22, 1997).

1.3 Background

The owner provided insufficient data to WAC to summarize previous site investigation and remediation activities. Reportedly, there are six monitoring wells onsite. Monitoring wells MW-1, MW-3, and MW-6 have consistently yielded non-detectable concentrations of petroleum hydrocarbon constituents. Between May 28 and June 24, 1997, 2,550 pounds of ORC slurry was injected into borings along the northern and eastern side of the old USTs to promote aerobic biodegradation of petroleum hydrocarbons dissolved in groundwater. On August 21, 1998, ORC socks were installed in wells MW-4 and MW-5 (ASE, November 14, 2000). The location of these USTs and the six monitoring wells are shown on **Figure 2**.

Tim Cook of W.A. Craig, Inc (WAC) sampled a pipe trench located on the south side of the property in the vicinity of pump dispensers on February 28, 2001. High concentrations of petroleum hydrocarbons were detected in six soil samples collected from this area (W.A. Craig, March 9, 2001). The locations of the six soil samples are shown on **Figure 3**. Soil sample results are summarized in **Table 1**.

WAC met with Mr. Hernan Gomez of the City of Oakland Fire Services Agency and Mr. Amir Ghoulani of the Alameda County Health Care Services, Hazardous Materials Division (ACHCS) on March 19, 2001 to discuss the approach to corrective action. The regulatory agencies requested submittal of this Site Investigative Work Plan prior to implementing remediation of contaminated soil.

2.0 PROPOSED SCOPE OF WORK

The scope of services proposed herein will be performed to characterize the lateral and vertical extent of petroleum hydrocarbon contaminated soil in the vicinity of the pump island dispensers located on the southern portion of the site.

The proposed scope of services includes collecting soil and groundwater samples from eight soil borings. Upon completion of the proposed scope of services, WAC will review the soil and groundwater quality data and recommend remedial actions as necessary to comply with SSTLs for soil. WAC's scope of services was developed based on our present knowledge of site conditions.

The scope of work proposed for this investigation includes the following:

- Prepare this Work Plan and a Site-Specific Health and Safety Plan for submittal to the ACHCS;
- Obtain appropriate regulatory permits and approvals;
- Obtain utility clearance through Underground Service Alert;
- Install eight temporary borings;
- Collect two soil samples per temporary boring;
- Collect one groundwater sample per temporary boring;
- Analyze soil and groundwater samples for TPH-g, benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tert-butyl ether (MTBE); and
- Prepare a Site Investigation Report that documents the results of the site investigation and makes recommendations regarding the volume of contaminated soil to be excavated from the site.

3.0 SITE INVESTIGATION PROCEDURES

Temporary borings for soil and groundwater sampling will be situated in the approximate locations shown on **Figure 4**. Borings TB-1 through TB-8 will be located south of the dispenser pumps located at the front (High Street side) of the property.

constructed to obtain a representative groundwater sample. The temporary boring will constructed with approximately 5 feet of 0.02-inch slotted well screen and the remainder of the well will be flush-threaded blank schedule 40 PVC casing. The screened portion will be placed to the bottom of the boring. No glues or other solvents will be used in the construction of the wells.

Groundwater samples will be decanted from the bailer into laboratory prepared containers. The samples will be immediately placed in refrigerated storage for delivery to the laboratory. The samples will be labeled in such a manner as to maintain client confidentiality. Samples will be delivered under chain of custody control to an analytical laboratory that is certified by the State of California to perform the requested analyses. Groundwater samples will be analyzed for TPH-g, BTEX, and fuel oxygenates (DIPE, MtBE, TAME, ETBE, and TBA).

Upon completing the sampling, the temporary casing will be removed and the boring will be sealed from the bottom to the ground surface using a Portland Type II or III cement/bentonite grout mixture.

3.4 Field Equipment Decontamination Procedures

The sampler will be decontaminated before and after each use by steam cleaning or washing in a laboratory grade detergent solution, followed by tap water, or deionized water rinses. Potable water will be used for decontamination of drilling equipment.

All rinseate water used in the decontamination process and all purge water and soil cores from the temporary wells will be stored on-site in steel DOT approved drums. Drums will be labeled as to contents, date container filled, company name, and sealed. The drums will be left on-site for subsequent disposal pending analytical results.

4.0 SITE SPECIFIC THRESHOLD LEVELS

Site Specific Threshold Levels (SSTLs) for soil and groundwater were established in a Tier 2 Risk Based Corrective Action (RBCA) model for the site (Palmer, April 27, 1997). The RBCA onsidered four likely scenarios for onsite and offsite migration of the contaminant plume, 1) vapors entering a residence 30 feet from the property boundary; 2) vapors entering a commercial building directly over the contaminated area; 3) dermal and inhalation exposure to a construction worker directly over the contaminated area; and 4) vapors entering a commercial building directly above monitoring well MW-5. **Table 2** summarizes SSTLs for groundwater and subsurface soil assuming an excess human health risk of 1×10^{-6}.

5.0 INTERIM REMEDIAL ACTION PLAN

An Interim Remedial Action Plan will be prepared and submitted to the ACHCS. The IRAP will include site history, figures identifying sample locations, drilling logs, laboratory analytical reports, a summary of work performed, a tabulation of analytical results, a figure projecting the

limit of contaminated soil and an engineer's estimate of the volume of soil above the SSTL's that will require excavation and disposal.

A pre-approval for excavation and offsite disposal of the contaminated soil will be prepared and submitted to the State Water Resources Control Board prior to implementing corrective action at the site.

6.0 REFERENCES

Aqua Science Engineers, Inc., *Groundwater Monitoring Report, September 2000 Sampling at Zima Center Corporation, 2951 High Street, Oakland, California, 94619*, November 14, 2000.

Palmer, Christopher M., *Addendum to Risk Assessment for Zima Center Corporation, 2951 High Street, Oakland, CA*, August 22, 1997.

W.A. Craig, Inc., *Soil Sample Report, 2951 High Street, Oakland, California*, March 9, 2001.

Table 1. Soil Sample Results from Pipe Trench Investigation

Sample ID	TPH-g	MtBE	TAME	benzene	toluene	ethylbenzene	xylenes
S-1	180	4	0.17	0.14	5.8	3.2	22
S-2	71	6.8	0.19	0.20	2.8	1.7	6.2
S-3	370	2.9	0.13	0.26	2.1	2.5	15
S-4	180	0.3	<0.01	0.12	0.95	1.3	16
S-5	3,600	2.3	<1	2.6	15	49	340
S-6	730	85	4.7	4.0	49	8.6	62

Table 2. Site Specific Threshold Levels

	SSTLs	
Constituent	Groundwater (ug/l)	Subsurface Soil (mg/kg)
benzene	200	2.6
ethylbenzene	180	1.9
toluene	270	1.6
total xylenes	470	2.8
MtBE	8,400	9.7

Note: SSTLs were established in *Addendum to Risk Assessment for Zima Center Corporation, 2951 High Street, Oakland, CA,*, Christopher M. Palmer Consulting Hydrogeologist, August 22, 1997.

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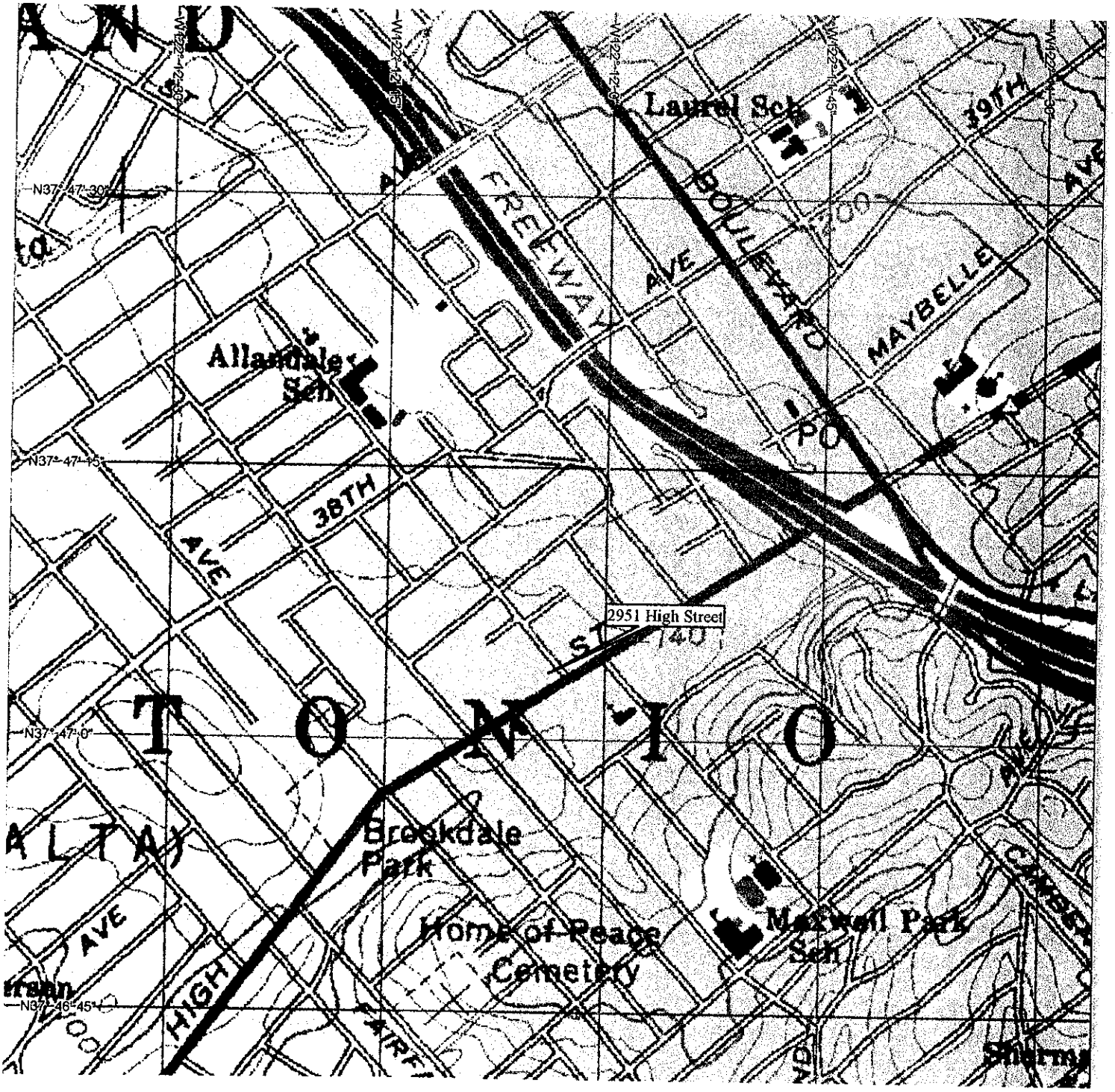

Site Location Map

Project No: 3936

March 26, 2001

EXPRESS GAS & MART
2951 High Street
Oakland, CA

Figure 1

NORTH

Checked by: TDC

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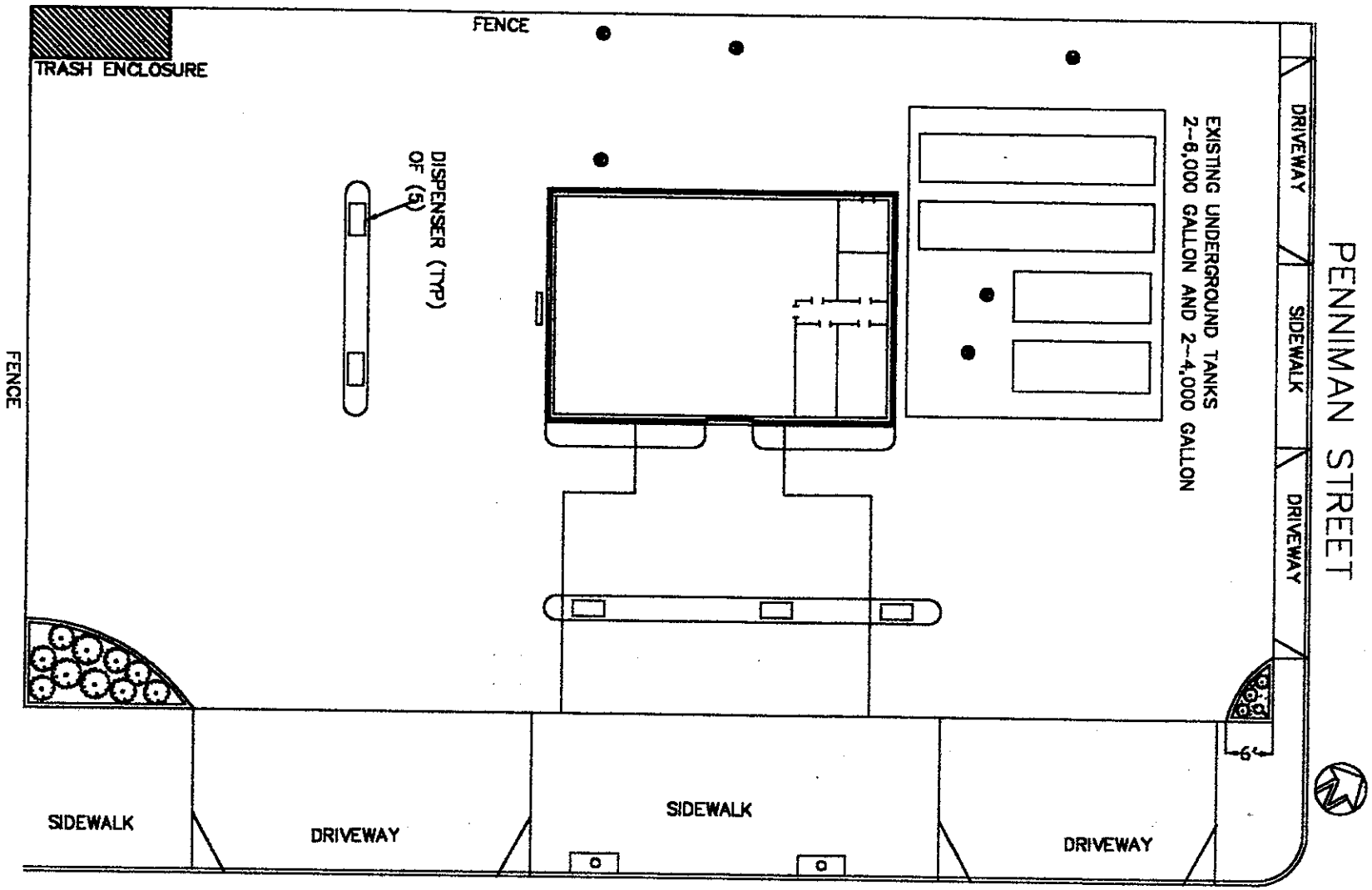

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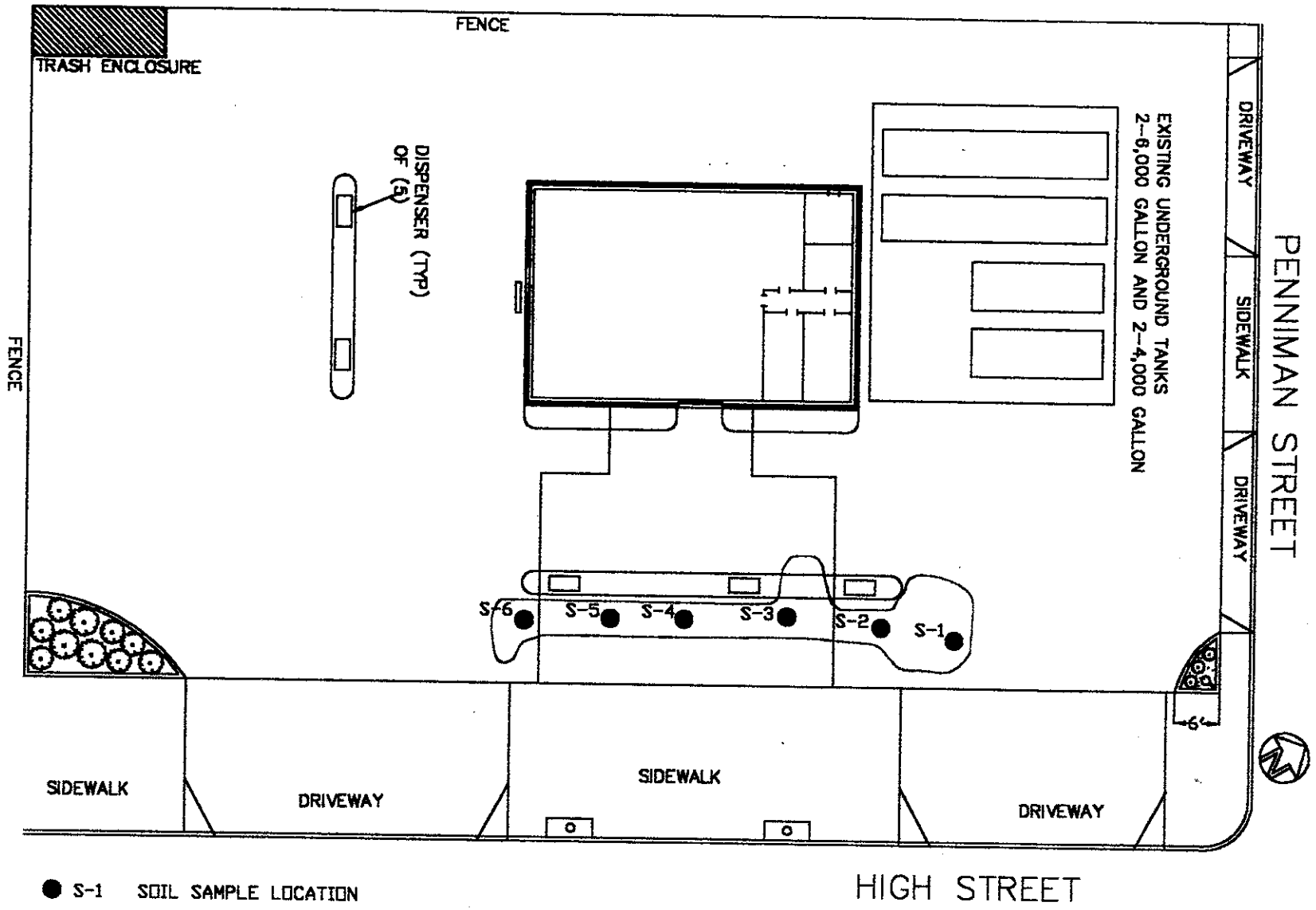
MONITORING WELL LOCATIONS
2951 High Street
Oakland California

Project: 3936	Figure: 2
Date: 3/27/01	
Scale: 1" = 20'	



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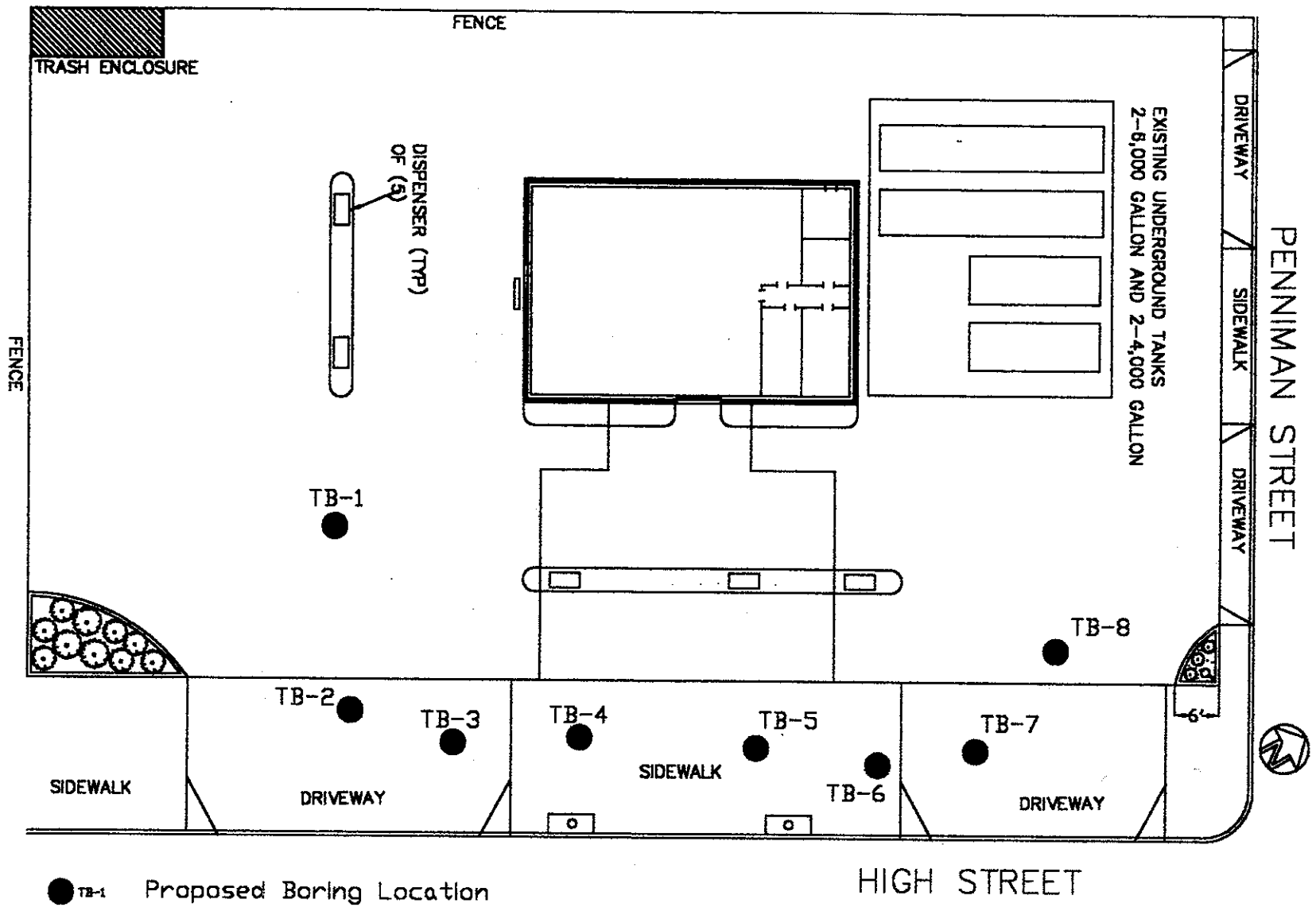
SOIL SAMPLE LOCATIONS

2951 High Street
Oakland California

Project: 3936	Figure: 3
Date: 3/27/01	
Scale: 1" = 20'	



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Proposed Soil Boring Locations

2951 High Street
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Project: 3936	Figure: 4
Date: 3/27/01	
Scale: 1" = 20'	