



KAPREALIAN ENGINEERING
INCORPORATED

KEI-P94-0903.P3
May 6, 1997

Tosco Marketing Company
Environmental Compliance Department
2000 Crow Canyon Place, Suite 400
San Ramon, California 94583

Attention: Ms. Tina Berry

RE: Work Plan/Proposal
Unusual Service Station #7376
4191 - 1st Street
Pleasanton, California

Dear Ms. Berry:

INTRODUCTION

Per your request, this work plan/proposal for the installation of additional wells at and in the vicinity of the subject site is presented for your review and consideration. The purpose of these wells is to further define the extent of hydrocarbon impacted soil and ground water in the vicinity of the subject site. Site background information, recent field activities, and historical monitoring and sampling data is included in Kaprealian Engineering, Inc's. (KEI) report (KEI-P94-0903.R3) dated April 27, 1995, and MPDS Services, Inc's. (MPDS-UN7376-08) dated February 3, 1997.

PROPOSED FIELD WORK

DEFINING THE EXTENT OF SUBSURFACE CONTAMINATION

1. KEI proposes the installation of three additional two-inch diameter monitoring wells, designated as ~~MW7~~, MW8, and MW9 on the attached Figure 1, by the use of hollow-stem auger equipment. Two additional suitable well locations have been identified and their locations are also shown on the attached Figure 1. These two additional wells may be considered for installation pending evaluation of this phase of investigation for the installation of monitoring wells MW7, MW8 and MW9, and future ground water sample results from all monitoring wells. Permits will be obtained from the Alameda County Flood Control and Water Conservation District (ACFC&WCD) and the Alameda County Department of Public Works, as necessary, prior to beginning work.

The wells will be drilled about 10 feet into the saturated zone of the first encountered ground water. If a clay aquitard of at least 5 feet in thickness is encountered beneath the water table, drilling will be halted and the well will be constructed so as to terminate above the aquitard. Ground water is anticipated at approximately 77 feet below grade, based on the ground water levels measured in the three existing wells on December 21, 1996.

2. Soil samples will be collected at a maximum spacing of 5 foot intervals, at significant changes in lithology, at obvious areas of contamination, and at/or within the soil/ground water interface, beginning at a depth of about 4 to 5 feet below grade. Sample intervals will be chosen so that an accurate profile of the subsurface soil conditions can be determined. Sampling for laboratory analyses and lithologic logging purposes will continue until the first water table is encountered. Sampling for lithologic logging purposes only will continue below the water table to the total depth drilled. Classification of soil will be done using the Unified Soils Classification System (USCS) by KEI's field geologist. Samples will be collected in a California-modified split-spoon sampler lined with two-inch diameter brass liners. The sampler will be advanced ahead of the drilling augers at designated depths by dropping a 140 pound hammer 30 inches. Blow counts will be recorded. Samples will be removed from the sampler and retained in the brass liners. The liners will then be sealed with Teflon-lined plastic caps and placed in individually sealed plastic bags. They will be labeled and stored in a cooler, on crushed ice or "blue ice," for delivery to a state-certified laboratory. Properly executed Chain of Custody documentation will accompany all soil samples.
3. During drilling operations, all soil materials will be stored on-site in DOT-approved, 55-gallon drums, or else covered by visqueen. Each drum (if used) will be properly labeled and will include, at a minimum, the date, the well that the soil materials were obtained from, and an appropriate contact phone number.
4. Finalized Boring Logs will be prepared from the field logs and submitted to the Alameda Flood Control and Water Conservation District (ACFC&WCD), the Alameda County Health Care Services (ACHCS) Agency and the Department of Water Resources.

*Screen
Length?*

5. Well Construction:

The well casing will consist of two-inch diameter schedule 40 PVC with flush threaded joints and 0.010 inch factory slot. The screen will extend from the total depth of the well to approximately 5 feet above the depth of the first encountered ground water. Monterey sand (#2/12) will fill the annular space from total depth to 2 feet above the perforated casing interval. The choice of screen slot size and sand filter pack material is based on soils encountered in previous borings and particle size analysis. A 2-foot thick bentonite seal will be placed in the annular space on top of the sand pack. Neat cement grout will be placed on top of the bentonite seal to the surface. A Proposed Well Construction Diagram is attached to this proposal.

The well casings will be secured with a waterproof cap and a padlock. A round, watertight, flush-mounted well cover will be concreted in place over the top of each casing. The elevations of the well casings will be surveyed by a licensed land surveyor to Mean Sea Level and to a vertical accuracy of 0.01 foot.

6. The wells will be developed approximately one week after well completion. Prior to development, the wells will be checked for depth to the water table (by the use of an electronic sounder), and the presence of free product (by the use of an interface probe). After recording the monitoring data, the wells will be developed by the use of a surge block and a subsurface pump. Effluent generated during well development will be contained in DOT-approved drums and hauled from the site by a licensed hazardous materials hauler.

7. Ground Water Sampling (Performed by MPDS Services, Inc.):

The wells will be checked for free product (by the use of an interface probe) prior to sampling. The wells will also be checked for the presence of a sheen prior to sampling.

The wells will be purged (by the use of a pump or bailer) of a minimum of three casing volumes. Purging will be conducted prior to sampling and at least 72 hours after development. During purging operations, the field parameters pH, temperature, and electrical conductivity will be recorded and presented in a tabular form. Once the field parameters are observed to stabilize and a minimum of approximately three casing volumes have been removed from each well, water samples will then be collected by the use of a clean Teflon bailer and promptly decanted into 40 ml VOA vials and/or one-liter amber bottles, as appropriate. The vials and/or bottles will then be sealed with Teflon-lined screw caps, labeled and stored, on

ice, for delivery to a state-certified laboratory. The sampling bailer will be cleaned with non-phosphate soap and clean water rinses between uses.

Properly executed Chain of Custody documentation will accompany all water samples. This work will be presented in a separate MPDS report.

8. Laboratory Analyses:

Ground water and selected soil samples will be analyzed by Sequoia Analytical Laboratory, a state-certified laboratory, for total petroleum hydrocarbons (TPH) as gasoline by EPA method 5030/modified 8015, benzene, toluene, ethylbenzene, and xylenes by EPA method 8020, and TPH as diesel by EPA methods 3550/modified 8015 (soil) and 3510/modified 8015 (water). Ground water samples will also be analyzed for methyl tert butyl ether (MTBE) by EPA method 8020. The ground water sample from proposed monitoring wells MW7, MW8 and MW9 indicating the highest concentration of MTBE, based on the EPA method 8020 analysis, will be analyzed by EPA method 8260 for verification.

The analytical results will be presented in tabular form, showing the sample depths (soil), and results. The analytical results will be used to delineate the vertical and lateral extent of the contaminants in soil and ground water.

9. Hydrology:

The ground water flow direction and ground water gradient will be determined from the water level elevations measured in both the new and existing monitoring wells. The flow direction will be shown on a site plan in the MPDS report.

10. Conclusions:

Conclusions and results of this work will be described in a technical report. The technical report will be submitted to the ACHCS, and to the RWQCB, San Francisco Bay Region.

11. The installation of the proposed monitoring wells will commence within 30 days of obtaining all necessary off-site access agreements.

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DISTRIBUTION

A copy of this work plan should be sent to Mr. Scott Seery of the Alameda County Health Care Services (ACHCS) Agency and to Mr. Ron Winter of Pine Street Properties.

LIMITATIONS

Soil deposits and rock formations may vary in thickness, lithology, saturation, strength and other properties across any site. In addition, environmental changes, either naturally-occurring or artificially-induced, may cause changes in the extent and concentration of any contaminants. Our studies assume that the field and laboratory data are reasonably representative of the site as a whole, and assume that subsurface conditions are reasonably conducive to interpolation and extrapolation.

The results of this study will be based on the data obtained from the field and laboratory analyses obtained from a state-certified laboratory. We will analyze this data using what we believe to be currently applicable engineering techniques and principles in the Northern California region. We make no warranty, either expressed or implied, regarding the above, including laboratory analyses, except that our services will be performed in accordance with generally accepted professional principles and practices existing for such work.

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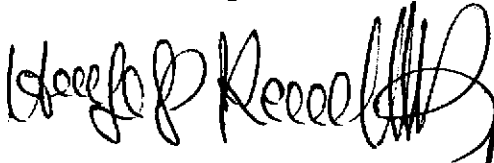
Should you have any questions regarding this revised work plan/proposal, please do not hesitate to call our office at (510) 602-5100.

Sincerely,

Kaprealian Engineering, Inc.

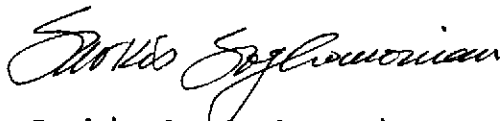


Doug Lee
Senior Geologist



Hagop Kevork, P.E.
Senior Staff Engineer

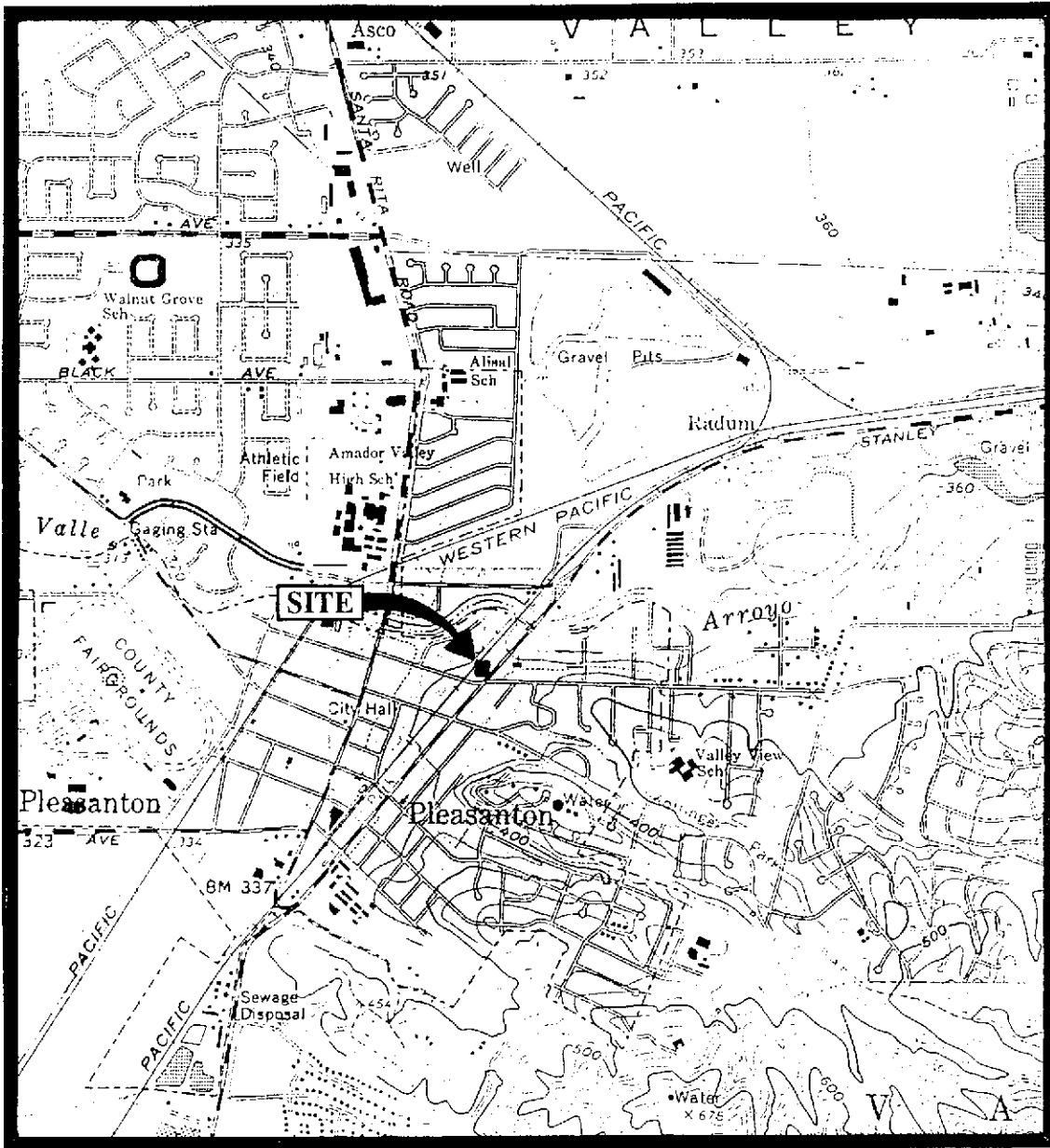
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Sarkis A. Soghomonian
Project Engineer

/jfc

Attachments: Location Map
Figure 1
Proposed Well Construction Diagram



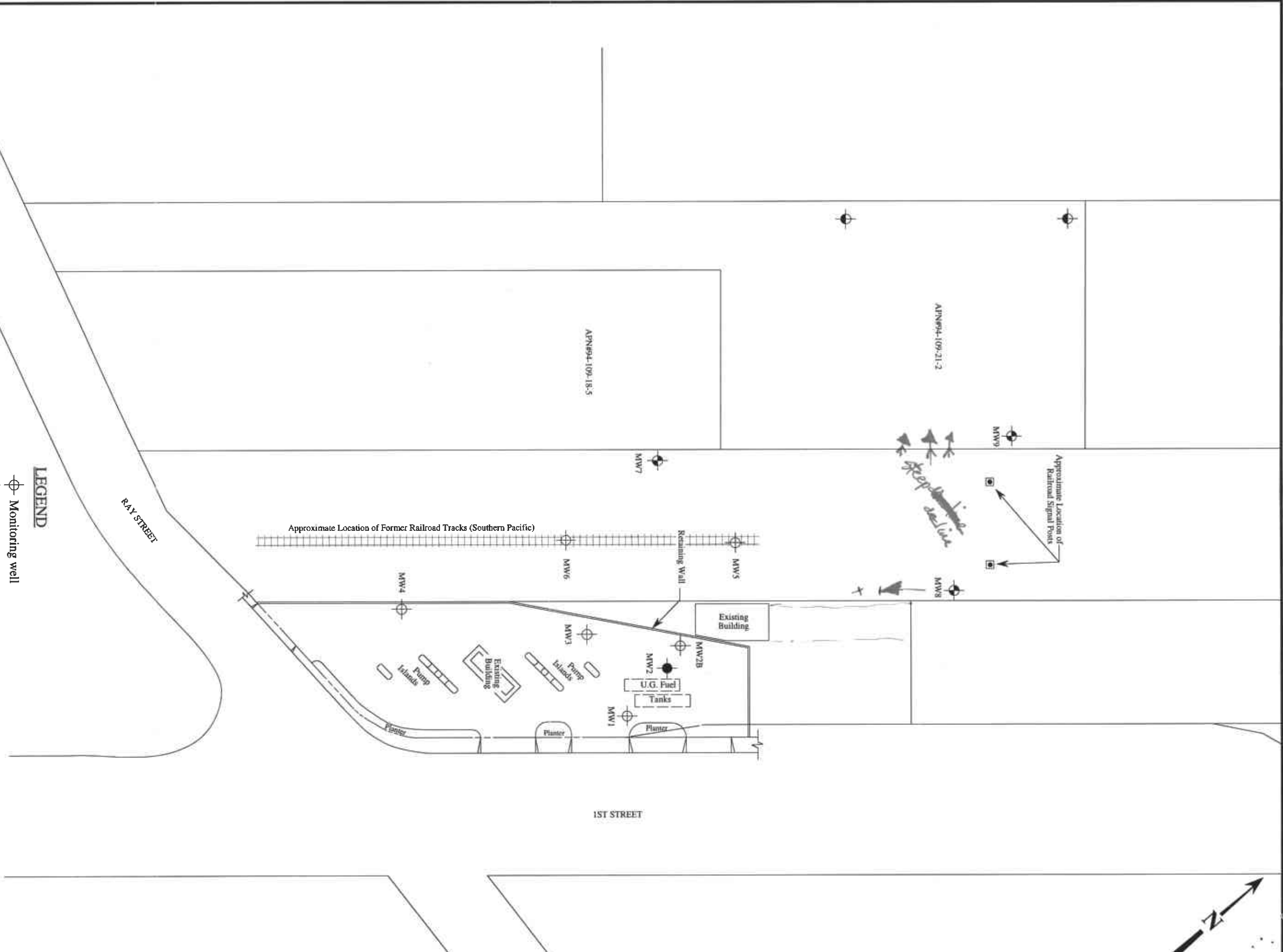
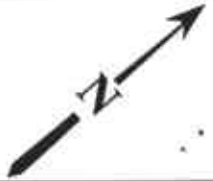
Base modified from 7.5 minute U.S.G.S. Dublin and Livermore Quadrangles
(both photorevised 1980)



**KAPREALIAN ENGINEERING
INCORPORATED**

**UNOCAL SERVICE STATION #7376
4191 1ST STREET
PLEASANTON, CALIFORNIA**

**LOCATION
MAP**



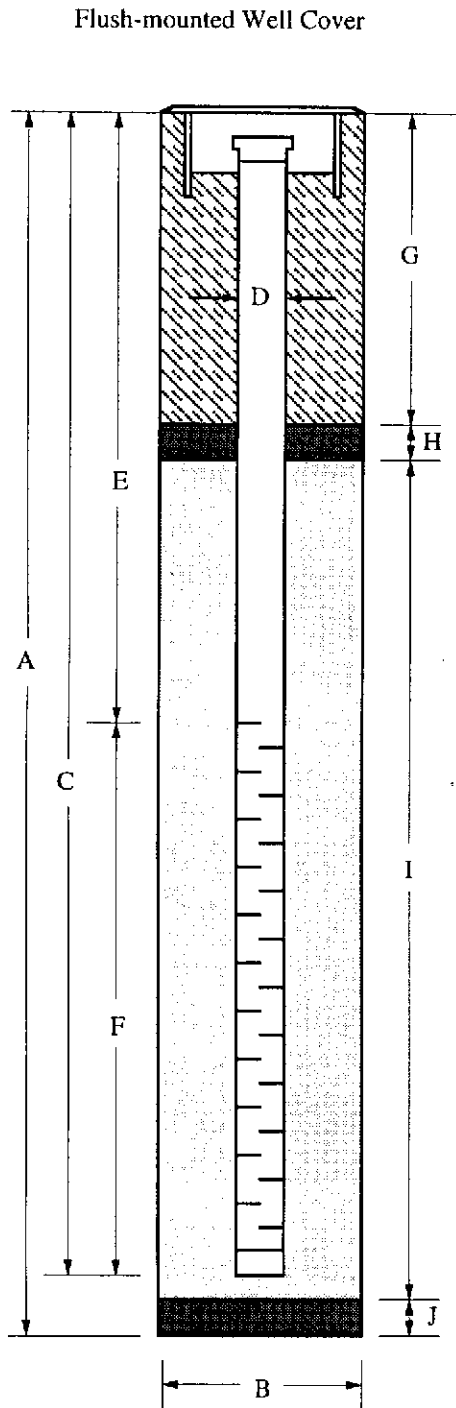
MONITORING WELL LOCATION MAP

JSEI
KAPREALIAN ENGINEERING
INCORPORATED

UNOCAL SERVICE STATION #7376
4191 1ST STREET
PLEASANTON, CALIFORNIA

FIGURE
1

PROPOSED WELL CONSTRUCTION DIAGRAM



WELL DETAILS*

1. Well will be terminated 10 feet into the first encountered ground water, unless an aquitard five feet or greater in thickness is encountered below the water table, in which case drilling will be halted and the well will be constructed so as to terminate within the aquitard [A].
2. Boring diameter [B] is 8 inches for 2 inch wells, 10 inches for 4 inch wells, and 12 inches for 6 inch wells.
3. Perforated interval [F] will extend from bottom of casing to five feet above the first encountered ground water table (unless water <5 feet deep).
4. Schedule 40 PVC casing, 2 inch in diameter [D], will be used. Screen is 0.020 or 0.010 inch factory machined slots, depending on filter pack grain size.
5. Filter pack will be placed from bottom of casing to two feet above perforated interval [I]. (Bottom seal [J] is not installed unless required.) One to two feet of bentonite [H] will be placed above the filter pack. Concrete grout [G] will be placed from top of bentonite seal to the surface (unless modified due to shallow water). Blank casing [E] will extend from the top of the perforated casing to the top of the hole.
6. The well will be installed with a waterproof cap, padlock and a flush-mounted well cover.

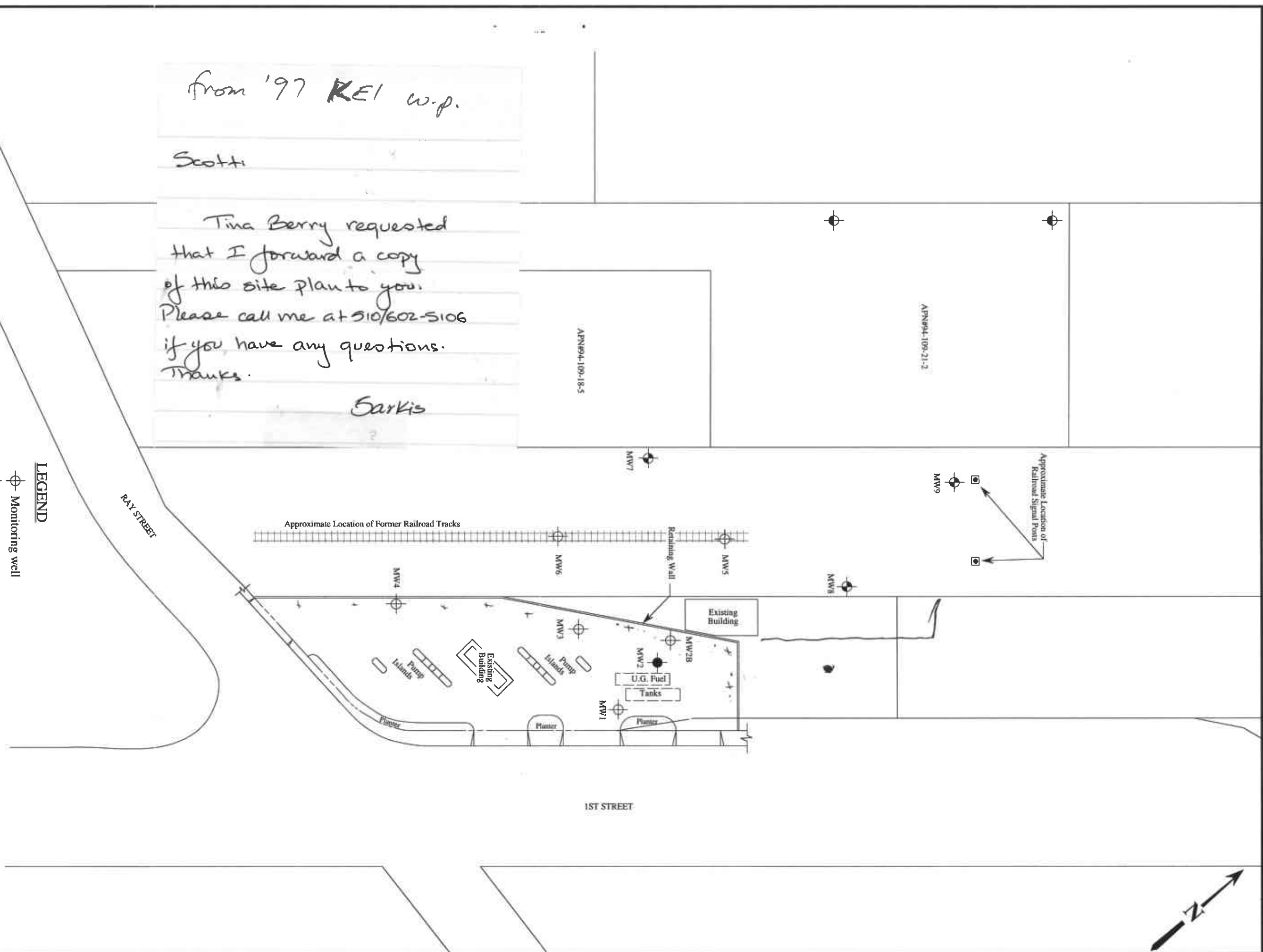
* See text for additional information.

from '97 REI w.p.

Scott:

Tina Berry requested that I forward a copy of this site plan to you. Please call me at 510/602-5106 if you have any questions. Thanks.

Sarkis



| | | |
|--|--|----------------------------|
| <p>KAPREALIAN ENGINEERING INCORPORATED</p> | <p>UNOCAL SERVICE STATION #7376 4191 1ST STREET PLEASANTON, CALIFORNIA</p> | <p>FIGURE 1</p> |
| | | |