KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX. (707) 746-5581

89-1106.P3
y 12, 1990

Addendum Work Plan

to

UNOCAL CORPORATION

for

Unocal Service Station #3072

at

2445 Castro Valley Blvd.

Castro Valley, California

Submitted By:

Mardo Kaprealian, PE
President
Civil # C29326
3-31-91

KAPREALIAN ENG[illegible]EERING, INC.
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January 12, 1990

Scott Seery
Alameda County Health Agency
80 Swan Way, Room 200
Oakland, CA 94621

Re: [illegible]ocal Service Station #3072
[illegible]45 Castro Valley Blvd.
Castro Valley, California

Dear Mr. Seery:

Enclosed please find the addendum work plan/proposal per our conversation of January 12, 1990. As stated, these wells will be installed to determine the ground water flow direction.

Should you have any questions or comments, please do not hesitate to call our office at (707) 746-6915.

Kaprealian Engineering, Inc.

Mardo Kaprealian
President

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Enclosure

1.0 INTRODUCTION

Per our telephone conversation with Mr. Scott Seery of the Alameda County Health Agency on January 12, 1990, please find the addendum to our work plan/proposal (KEI-P89-1106.P2 dated January 8, 1990) for three monitoring wells at the referenced site. These wells will be installed to determine ground water flow direction.

SCOPE OF WORK

KEI proposes to install three two-inch diameter monitoring wells using truck mounted eight-inch outside diameter hollow stem auger drilling equipment. Permits will be obtained from the Alameda County Flood Control and/or the Alameda County Health Agency as necessary prior to beginning work.

The wells will be drilled 15 feet into the saturated zone of the first encountered ground water unless a five foot thick clay aquitard is encountered first, at which time drilling will be terminated.

Soil samples will be collected at five foot intervals, changes in lithology, and obvious areas of contamination beginning at a depth of five feet. Sampling will continue until the first water table is encountered. Classification of soil will be done using the Unified Soil Classification System (USCS) by KEI's field engineer or geologist. Samples will be collected in a California modified split-spoon sampler 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. The samples will be removed from the sampler, retained in the brass liners, and sealed with aluminum foil, plastic caps and tape. They will be labeled and stored in a cooler on ice for delivery to a state certified laboratory. The wells will be constructed in the following manner:

Casing Type: Schedule 40 PVC, flush threaded joints, 0.02 inch factory slot, two-inch diameter. Screen to run from total depth of the well to approximately 5 feet above first encountered ground water. Monterey sand (#3) will fill the annular space from total depth to 2 feet above the screened interval. A [illegible] foot thick bentonite seal will be placed in the annular space on top of the sand pack. Concrete will be poured from the top of the bentonite seal to the surface.

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 the casing.

Drilled cuttings will be stored on-site in DOT-approved, 55-gallon drums, or under visqueen, until appropriate disposal can be determined.

Casing elevations will be surveyed to an established benchmark and to an accuracy of 0.01 feet.

The wells will be developed using a surface pump approximately one week after well completion. Wells will be pumped until expelled water is clear and free of turbidity. Effluent generated during well development will be contained in barrels and hauled from the site by a licensed hazardous waste hauler.

Wells will be checked for depth to the water table, the presence of free product and sheen (using an interface probe and/or paste tape) prior to both development and sampling. Water levels will be measured with an electronic sounder or paste tape.

The wells will be purged with a surface bailer of a minimum of four casing volumes prior to sampling, at least 24 hours after development. Samples will be collected using a clean Teflon bailer and will be promptly decanted into 40 ml VOA vials and/or one liter amber bottles as appropriate. Vials and/or bottles will be sealed with Teflon-lined screw caps, labeled and stored in a cooler on ice for delivery to a state certified laboratory. Properly executed chain of custody documentation will accompany all samples. The sampling bailer will be cleaned with soap and a clean water rinse prior to each use.

Selected soil and all water samples will be analyzed by Sequoia Analytical Laboratory in Redwood City, California, a state certified laboratory, for TPH as gasoline and BTX&E using EPA analytical methods (EPA 5030/8015/8020) as recommended by the RWQCB, and specified in the Tri-regional guidelines.

Analytical results will be presented in tabular form, showing sample depths, results and detection limits. The results will be used to delineate the vertical and lateral extent of the subsurface contaminants. A cross sectional profile will be constructed as appropriate showing subsurface lithology to depth drilled and first water table depth.

3.0 SCHEDULING

KEI is prepared to start the work as soon as permission is obtained from Alameda County Health Agency and from Alameda County Flood Control and Water Conservation District.

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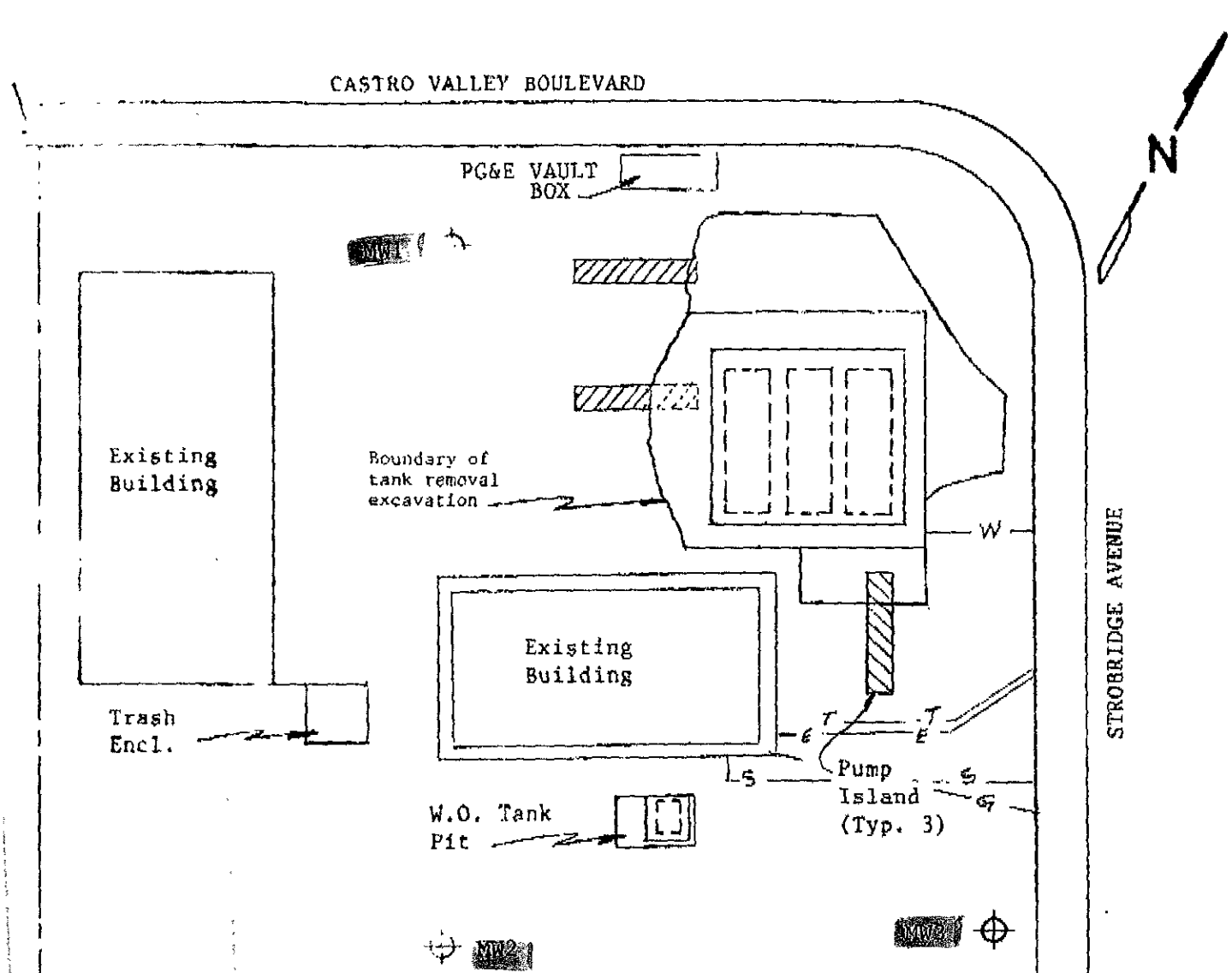

SITE PLAN

30 0 30
Approx. Scale feet

⊕ Monitoring Well

Unocal S/S #3072
2445 Castro Valley Blvd.
Castro Valley, CA