WORK PLAN
FOR
PRELIMINARY SITE INVESTIGATION

Former Mobil Oil Corporation Station 04-334
2492 Castro Valley Boulevard
Castro Valley, California

Project No. 10-198-01-001

Prepared for:

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CIVIL
STATE OF CALIFORNIA

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INTRODUCTION

The proposed scope of work to conduct a preliminary site investigation at former Mobil Oil Corporation Station 04-334, 2492 Castro Valley Boulevard, Castro Valley, California, is based on available reports and information. The work will be conducted to assess the presence and extent of petroleum hydrocarbons in the subsurface soil and groundwater in accordance with the requirements of the Alameda County Health Care Services Agency, Alameda County Flood Control and Water Conservation District, and the California Regional Water Quality Control Board, San Francisco Bay Region. A site vicinity map is shown in Figure 1.

SITE DESCRIPTION

The former Mobil Oil site is located on the northwest corner of the intersection of Castro Valley Boulevard and Stanton Avenue. Three gasoline underground storage tanks and one used oil tank were removed from the site before November 1983. Judd Hull and Associates performed soil compaction tests during tank pit backfilling activities. Soil samples were not collected for chemical analysis from the tank pit excavation.

In 1986, Giles Engineering drilled six borings as part of a geotechnical investigation. Chemical analyses were not performed on soil samples collected during drilling. Slight to moderate petroleum odors were noted from 3 to 8.5 feet below grade while drilling in the backfill of the former tank excavation. The site is currently an operating Jiffy Lube Facility.

Twelve wells have been installed during an ongoing environmental investigation at former Thrifty Oil Company Service Station No. 054, across Stanton Avenue from the subject site. Petroleum hydrocarbons were detected in soil and groundwater samples collected from groundwater Monitoring Well RS-9, which was installed in the Stanton Avenue sidewalk adjacent to the former Mobil Oil site.

SCOPE OF WORK

The proposed scope of work for this investigation includes: installing four 4-inch-diameter groundwater monitoring wells; collecting and analyzing soil and groundwater samples; and preparing a report presenting the results and findings of the investigation. The schedule to conduct the scope of work is dependent on obtaining site access from the current property owner. The locations of the proposed monitoring wells are shown on the site plan in Figure 2.

Task 1: Acquire Permits

Before commencing field work, all necessary permits and authorization for well drilling will be obtained, and field activities will be coordinated with the appropriate agencies. Underground utilities and interferences that may be encountered during drilling, will be located prior to field work.

Task 2: Drill Exploratory Soil Borings and Install Groundwater Monitoring Wells

To investigate the presence and lateral extent of petroleum hydrocarbons in the soil and groundwater, four exploratory soil borings will be drilled onsite using a truck-mounted CME 75 drilling rig equipped with 12-inch-diameter hollow-stem augers. Soil samples will be collected at 5-foot intervals and at significant stratigraphic changes beginning at 5 feet below grade and continuing to the total depth of the borings. Samples will be collected from a split-spoon sampler lined with stainless steel tubes and logged in the field by a qualified geologist or engineer using the Unified Soils Classification System. Each sample will also be field screened using a photo-ionization detector or combustible gas indicator to assist in selecting samples for laboratory analysis. The samples selected for analysis will be sealed airtight with Teflon or aluminum sheeting, plastic caps, and adhesive tape, and placed immediately into a cooler containing blue or dry ice.

The borings will be converted into 4-inch-diameter groundwater monitoring wells to a depth of approximately 10 to 15 feet below the top of the first saturated zone. The proposed wells will be installed and constructed based on site-specific hydrogeologic conditions and the nature of contamination encountered. Each well will be constructed using Schedule 40, polyvinyl chloride casing with 0.020-inch perforations, and the associated filter pack. An approximately 1-foot-thick bentonite spacer will be installed above the sand pack, and the remainder of the annulus will be sealed with Portland Type I/II neat cement. The top of each well will be secured with a watertight locking cap and utility box finished flush with the ground surface.

Task 3: Develop, Sample, and Survey Groundwater Monitoring Wells

Well development will be performed to: (1) consolidate and stabilize the filter pack; (2) optimize well production; and (3) reduce the turbidity of subsequent groundwater samples. The proposed wells will be developed a minimum of 24 hours after installation of the bentonite spacer and neat cement seal. Development will continue to a maximum of 10 saturated well volumes or until the groundwater is relatively free of sediment.

The wells will be sampled a minimum of 72 hours after development. Before sampling, the water level at each well will be measured and the wells will be observed for free product or sheen. The wells will then be purged to allow groundwater representative of the aquifer to enter. They will be purged using a bailer or pump so as not to agitate the groundwater or expose it to air. Purging will continue until a minimum of 3 and a maximum of 10 saturated well casing volumes have been evacuated and indicator parameters have stabilized. Indicator parameters will be pH, temperature, and specific conductivity. Stabilization of the parameters will be determined when they vary no more than the following values:

- pH - 0.2 units
- Temperature - 0.5 degrees Celsius
- Specific conductivity - 10 percent

The samples will be placed in an iced cooler and transported to a state-certified laboratory for analysis. Purged water from sampling and development, as well as decontamination rinsate, will be stored onsite in Department of Transportation approved 55-gallon drums for transport and disposal.

To calculate the hydraulic gradient and groundwater flow direction of the shallow aquifer, each well will be surveyed by a state-licensed surveyor from the top of the casing to within 0.01 foot accuracy in reference to an established benchmark or a common datum.

Task 4: Analyze Soil and Groundwater Samples

Soil and groundwater samples will be transported to a state-certified laboratory and analyzed for total petroleum hydrocarbons as gasoline and benzene, toluene, ethylbenzene, and total xylenes using Environmental Protection Agency (EPA) Methods 5030/8015/8020.

Additionally, soil and groundwater samples collected from the monitoring well near the former used oil tank will be analyzed for the following:

- Total oil and grease using EPA Method 5520 DF
- Total petroleum hydrocarbons as diesel using EPA Methods 5030/8015 (modified)
- Halogenated volatile organic compounds using EPA Method 8010

Task 5: Evaluate Data and Prepare Report

On completion of sample analysis, a detailed evaluation of results and available information will be conducted to assess the nature and extent of petroleum hydrocarbons in the soil and groundwater, if any.

A report presenting the results, findings, conclusions, and recommendations of the investigation will be submitted to the regulatory agencies.

SITE SAFETY PLAN

All field procedures and activities related to the site investigation will be conducted in accordance with a site-specific safety plan. The site safety plan will be developed in accordance with applicable requirements of the California EPA and the federal and state Occupational Safety and Health Administration.

IMPLEMENTATION SCHEDULE

The proposed preliminary site investigation will be completed and a report submitted within 75 days after receipt of site access from the current property owner and approval of the proposed work plan from the appropriate regulatory agencies. The estimated schedule for completion of the tasks is as follows:

Task/Activity	Days After Receipt of Site Access and Work Plan Approval
- Acquire permits	15
- Install wells	25
- Develop and sample wells	30
- Analyze samples	45
- Evaluate data	60
- Prepare report	75

SOURCE:
USGS MAP, HAYWARD QUADRANGLE, CALIFORNIA, 7.5 MINUTE SERIES, 1959, PHOTOREVISED 1980.

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0 1000' 2000'

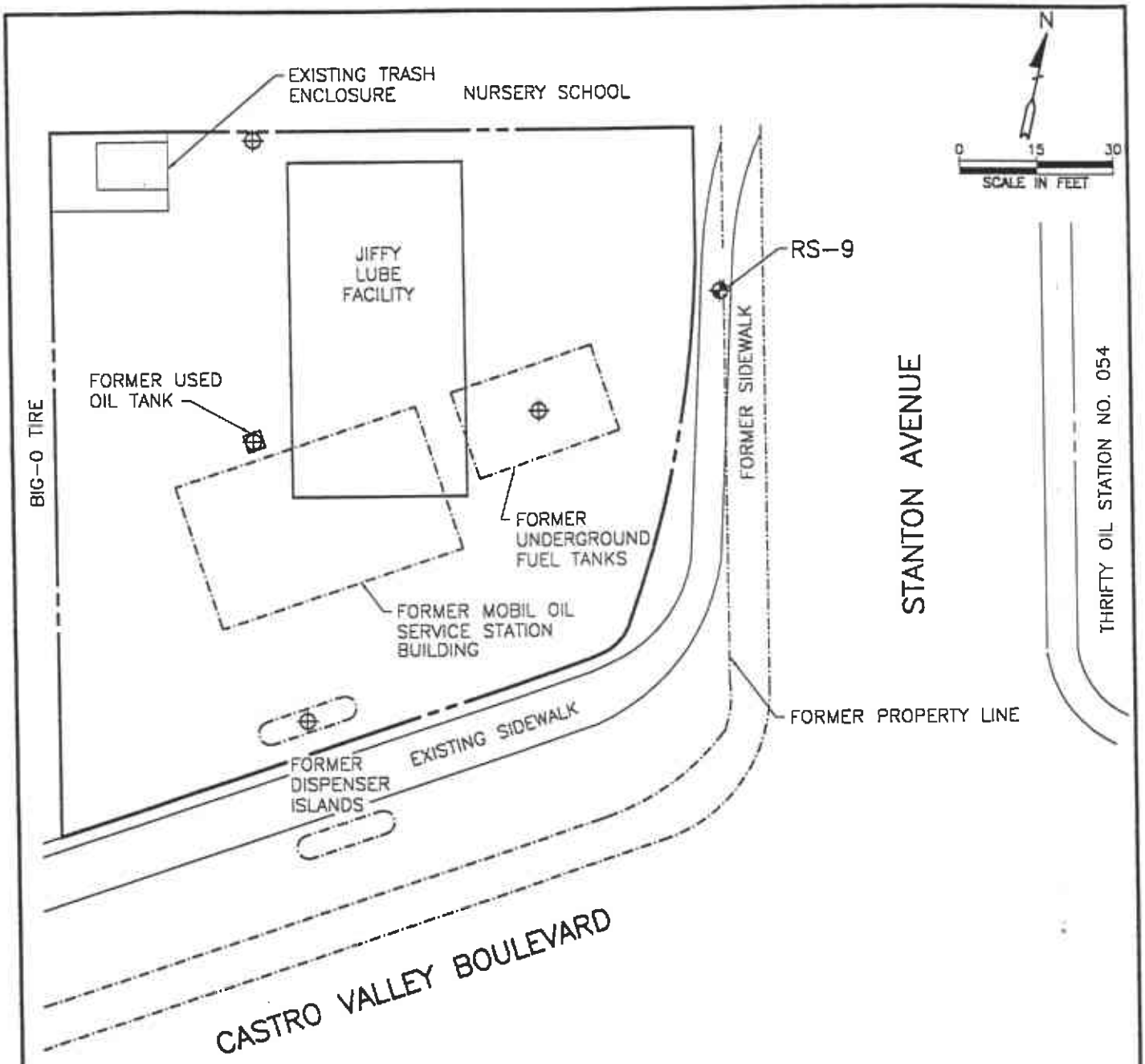
FIGURE 1

SITE VICINITY MAP

FORMER MOBIL OIL CORPORATION
STATION 04-334
2492 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA

PROJECT NO. 10-198

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA



LEGEND

- EXISTING GROUNDWATER MONITORING WELL INSTALLED BY THRIFTY OIL COMPANY
- PROPOSED GROUNDWATER MONITORING WELL

FIGURE 2

SITE PLAN

FORMER MOBIL OIL CORPORATION
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2492 CASTRO VALLEY BOULEVARD
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