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# TRANSMITTAL

TO: Mr. Dick Groth  
Groth Brothers Oldsmobile-GMC  
59 South L Street  
Livermore, California 94550  
Phone No. (510) 447-3190

DATE: March 31, 1994  
PROJECT #: 6136.01  
SUBJECT: Work Plan

FROM:

Robert D. Campbell 551-8777  
Project Geologist  
GeoStrategies Inc.  
6747 Sierra Court, Suite G  
Dublin, California 94568

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cc: **Ms. Eva Chu, ACHCSA**  
**Mr. Sumadhu Arigala, RWQCB**



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**WORK PLAN FOR A SUBSURFACE INVESTIGATION  
RELATING TO WASTE-OIL HYDROCARBONS**

For Robert Campbell 4/6/94 :

- ① Angle boring cannot be done since building structure prohibits. If boring done from previous location, soil samples will be collected at least 10' beneath VST.
- ② Content of VSTs were only fresh motor oil.

Mr. Dick Groth  
Groth Brothers Oldsmobile-GMC  
59 South L Street  
Livermore, California

March 31, 1994

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**CONTENTS**

INTRODUCTION ..... 1  
SITE DESCRIPTION AND BACKGROUND ..... 2  
  General ..... 2  
  Regional Geology and Hydrogeology ..... 2  
PREVIOUS ENVIRONMENTAL WORK ..... 3  
PROPOSED WORK ..... 4  
SCHEDULE OF OPERATIONS ..... 6  
PROJECT STAFF ..... 6  
DISTRIBUTION ..... 7  
REFERENCES ..... 9

**PLATES**

- PLATE 1: VICINITY MAP
- PLATE 2: SITE PLAN
- PLATE 3: PRELIMINARY TIME SCHEDULE



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**WORK PLAN FOR  
A SUBSURFACE INVESTIGATION  
RELATED TO WASTE-OIL-HYDROCARBONS  
at  
59 L Street  
Livermore, California**

**For Groth Brothers Oldsmobile-GMC**

**INTRODUCTION**

At the request of Groth Brothers Oldsmobile-GMC (Groth Bros.), GeoStrategies Inc. (GSI) has prepared this work plan to conduct a subsurface investigation in the immediate vicinity of the former 280-gallon motor-oil tanks and the former waste-oil tank pit at the subject site. This work plan was initiated in response to the Alameda County Health Care Services Agency (ACHCSA) *Second Notice of Violation dated September 30, 1993*. Details of the proposed work were discussed in telephone conversation with Ms. Eva Chu on March 21, 1994. The purpose of this proposed work is to evaluate the lateral and vertical extents of motor-oil and waste-oil hydrocarbons in the soil and groundwater in the immediate vicinity of the former 280-gallon motor-oil tanks and former waste-oil tank pit beneath the above referenced site.

The work to be performed includes: (1) Obtaining a drilling permit from the Alameda County Flood Control and Water Conservation District, Zone 7 (ACFCWCD), preparing a site safety plan, and scheduling underground line and drilling contractors; (2) drilling four soil borings, collecting soil samples from the borings for description and possible laboratory analyses, and completing one of the downgradient borings as a groundwater monitoring well; (3) developing and sampling the groundwater monitoring well; (4)

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Groth Brothers Oldsmobile-GMC  
Work Plan

March 31, 1994

submitting selected soil and water samples for laboratory analyses; and (5) preparing a report, which presents field procedures, results and conclusions.

### **SITE DESCRIPTION AND BACKGROUND**

#### **General**

Groth Bros is an automotive retail facility located on the north corner of South L and First Streets in Livermore, California, as shown on Plate 1, Vicinity Map. The site is bounded by First Street to the south and South M Street to the west. An operating BP Oil Service Station is on the southeastern corner of First Street and South L Street. The elevation of the site is approximately 485 feet above mean sea level. In October 1990, two (2) 280-gallon motor-oil tanks located beneath the service bay were abandoned in-place, and a 550-gallon waste-oil tank located in front of the service bay was excavated and removed from the site (see Previous Environmental Work below). The former waste-oil tank location is covered by a large concrete utility-pad. The locations of the former underground waste-oil tank, the former 280-gallon motor-oil tanks, and pertinent site features are shown on the Site Plan (Plate 2).

#### **Regional Geology and Hydrogeology**

The site is located in the Livermore Valley, which is an intermontane valley in the Coast Ranges Geomorphic Province. The valley is approximately 13 miles long in an east-west direction and is four miles wide. The valley is surrounded by hills of the Diablo Range (California Department of Water Resources, 1974). The valley floor slopes gently toward the west. The principal streams in the area are the Arroyo Valley and Arroyo Mocho, which flow toward the western end of the valley. Arroyo Mocho is approximately ½-mile to the south of the site.

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Groth Brothers Oldsmobile-GMC  
Work Plan

March 31, 1994

Livermore Valley is underlain by non-water-bearing rocks, water-bearing units, and sediments. The water-bearing units and sediments comprise the Livermore Valley groundwater basin. Water-bearing units include the Tassajara Formation, the Livermore Formation, and valley-fill materials (California Department of Water Resources, 1966, 1974). The Livermore Valley groundwater basin is divided into sub-basins on the basis of fault traces or other hydrologic discontinuities (California Department of Water Resources, 1974). The groundwater system in Livermore Valley is a multilayered system with an unconfined aquifer overlying a sequence of leaky or semiconfined aquifers. Groundwater in the basin flows downslope toward the east-west-trending axis of the valley and then flows generally to the west (Alameda County Flood Control and Water Conservation District - Zone 7, 1991).

### **PREVIOUS ENVIRONMENTAL WORK**

On October 11, 1990, Western Environmental Science and Technology of Davis, California, excavated and removed a 550-gallon waste-oil tank. The excavation was approximately 12 feet in length by 5 feet in width, and approximately 7½ feet in depth. On March 25, 1991, Scott Company of Oakland, California contracted Century West Engineering of Dublin, California, to drill an angled boring (TB-1) and collect soil samples from beneath the southernmost former 280-gallon motor-oil tank for laboratory analysis. The purpose of this boring was to evaluate the presence or absence of hydrocarbons beneath the motor-oil tanks in order to pursue in-place closure for the tanks. The 280-gallon motor-oil tanks are located inside a service bay, and could not be removed without demolishing the overlying building structure. Boring TB-1 was drilled using 8-inch outside diameter hollow-stem augers at an angle of approximately 38 degrees from horizontal. The location of boring TB-1 was approximately 8 feet south of the service bay (see Plate 2). The depth of the angled boring TB-1 was approximately 18 feet (which corresponds to a vertical depth of

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Groth Brothers Oldsmobile-GMC  
Work Plan

March 31, 1994

approximately 11 feet below grade [fbg]). Two soil samples (TB-1.1 and TB-1.2) were collected from boring TB-1 at angled depths of 13 and 18 feet (approximately 8 and 11 vertical fbg), respectively. Soil sample TB-1.1 was collected approximately 1 vertical foot below the south end of the former 280-gallon south tank and TB-1.2 was collected approximately 4 feet beneath the north end of the former 280-gallon south tank (see Plate 2). Laboratory analytical results of the soil samples indicated nondetectable concentrations of: Benzene, toluene, ethylbenzene, and total xylenes (BTEX) (less than 0.005 parts per million [ppm]); total petroleum hydrocarbons as diesel (TPH-D) (less than 10 ppm); and oil and grease (O&G) (less than 10 ppm), but detectable concentrations of TPH as motor oil (TPHmo) in sample TB-1.1 (88 ppm) and in sample TB-1.2 (260 ppm). The 280-gallon motor-oil tanks were then filled with an inert substance and left in-place.

### **PROPOSED WORK**

Based on the analytical results of soil samples collected during the drilling of angled boring TB-1, GSI proposes project steps 1 through 5 listed below to evaluate the lateral and vertical extents of possible waste-oil hydrocarbons in the soil and groundwater in the vicinity of the former 280-gallon motor-oil tanks and former waste-oil tank pit.

- Step 1** Obtain Groundwater Protection Ordinance Permit from the ACFCWCD Zone 7, prepare a site safety plan, and schedule underground line and drilling contractors.
  
- Step 2** Drill four soil borings (B-1 through B-4) using 6-inch diameter hollow-stem augers in the immediate vicinity of the former 280-gallon motor-oil tanks and former waste-oil tank pit, as shown on Plate 2, Site Plan. Drill borings B-1 through B-3 to approximately fifteen (15) fbg and boring B-4 to approximately ten (10) feet into groundwater, and collect soil samples at

## **GeoStrategies Inc.**

**Groth Brothers Oldsmobile-GMC  
Work Plan**

**March 31, 1994**

**Step 2 (Cont.)** five foot intervals for soil classification and possible laboratory analysis. During drilling activities, an organic vapor analyzer (OVA) will be used to screen the soil samples for the presence of hydraulic oil. Once borings B-1 through B-3 have been drilled, they will be backfilled with 10 sack sand-cement slurry mix from the total depth of the borings to grade.

Boring B-4 will be completed as a 2-inch inner-diameter, schedule 40 polyvinyl chloride (PVC) casing groundwater monitoring well (MW-1), located downgradient from the properly abandoned waste-oil tanks and former waste-oil tank pit. The screened portion of the well will consist of 2-inch inner-diameter, 0.020-inch wide machine slotted schedule 40 PVC casing set from the total depth of the borings to a field determined height. The well annulus will be backfilled with Lonestar #2/12 sand to approximately two feet above the well screen, and overlain with approximately 2 feet of bentonite pellets. The bentonite will then be hydrated, and the remaining well annulus will be filled with grout cement to approximately 1 foot below grade. The wells will be secured with locking caps and traffic-rated christie boxes will be cemented in-place over the wells.

**Step 3** Develop and sample groundwater monitoring well MW-1 using a surge-block and submersible pump. The well will be sampled at least 48-hours after development to insure representative samples from the formation.

**Step 4** Submit selected soil and water samples, following Chain of Custody protocol, to a State-certified laboratory and analyzed for total petroleum hydrocarbons as gasoline (TPH-G), TPH-D, and TPHmo using Environmental Protection Agency (EPA)



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Groth Brothers Oldsmobile-GMC  
Work Plan

March 31, 1994

- Step 4 (Cont.)** Method 8015; BTEX using EPA Method 8020; O&G using Standard Method 5520 D&F; volatile organic compounds (VOCs) using EPA Method 8240; pesticides and polychlorinated biphenals (PCBs) using EPA Method 8270; and metals cadmium (Cd), chromium (Cr), lead (Pb), zinc (Zn), and nickel (Ni) using EPA Methods 6010 and 7000 series.
- Step 5** Prepare a report detailing field methods, results, and conclusions of the investigation.

### **SCHEDULE OF OPERATIONS**

A preliminary time schedule to perform the steps described above is shown on Plate 3, Preliminary Time Schedule. This time schedule is an estimate and is subject to change. Time is estimated in weeks after gaining regulatory approval of the Work Plan and any changes which must be incorporated into this Work Plan due to regulatory request. GSI can initiate work at the site within 1 week after receiving authorization to proceed. If regulatory approval of this work plan has not been received within 60 days, Groth Bros will proceed as stated in Title 23, Article 11, Chapter 16, Sections 2722 (b)(5) and 2726 (c).

### **PROJECT STAFF**

Mr. Gary Pischke, a Certified Engineering Geologist in the State of California (C.E.G. No. 1501), will be in overall charge of hydrogeologic facets. Mr. Robert D. Campbell, Project Manager, will provide supervision of field and office operations of the project. GSI and Gettler-Ryan employ a staff of geologists, engineers, and technicians who will assist with the project.

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Groth Brothers Oldsmobile-GMC  
Work Plan

March 31, 1994

**DISTRIBUTION**

It is recommended that copies of this report be forwarded to:

**Ms. Eva Chu**  
Alameda County Health Care Services Agency  
Department of Environmental Health  
80 Swan Way, Room 200  
Oakland, California 94621

**Mr. Sumadhu Arigala**  
Regional Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street, Suite 500  
Oakland, California 94612

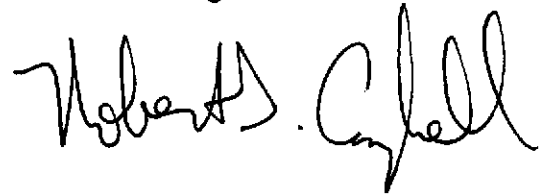
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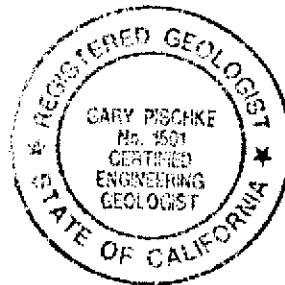
March 31, 1994

If you have any questions or comments, please call us at (510) 551-8777.

Sincerely,  
GeoStrategies Inc.



Robert D. Campbell  
Project Geologist



Gary Pischke  
Senior Geologist  
C.E.G. 1501

**REFERENCES**

Alameda County Flood Control and Water Conservation District - Zone 7,  
January 16, 1991. Fall 1990 Groundwater Level Report.

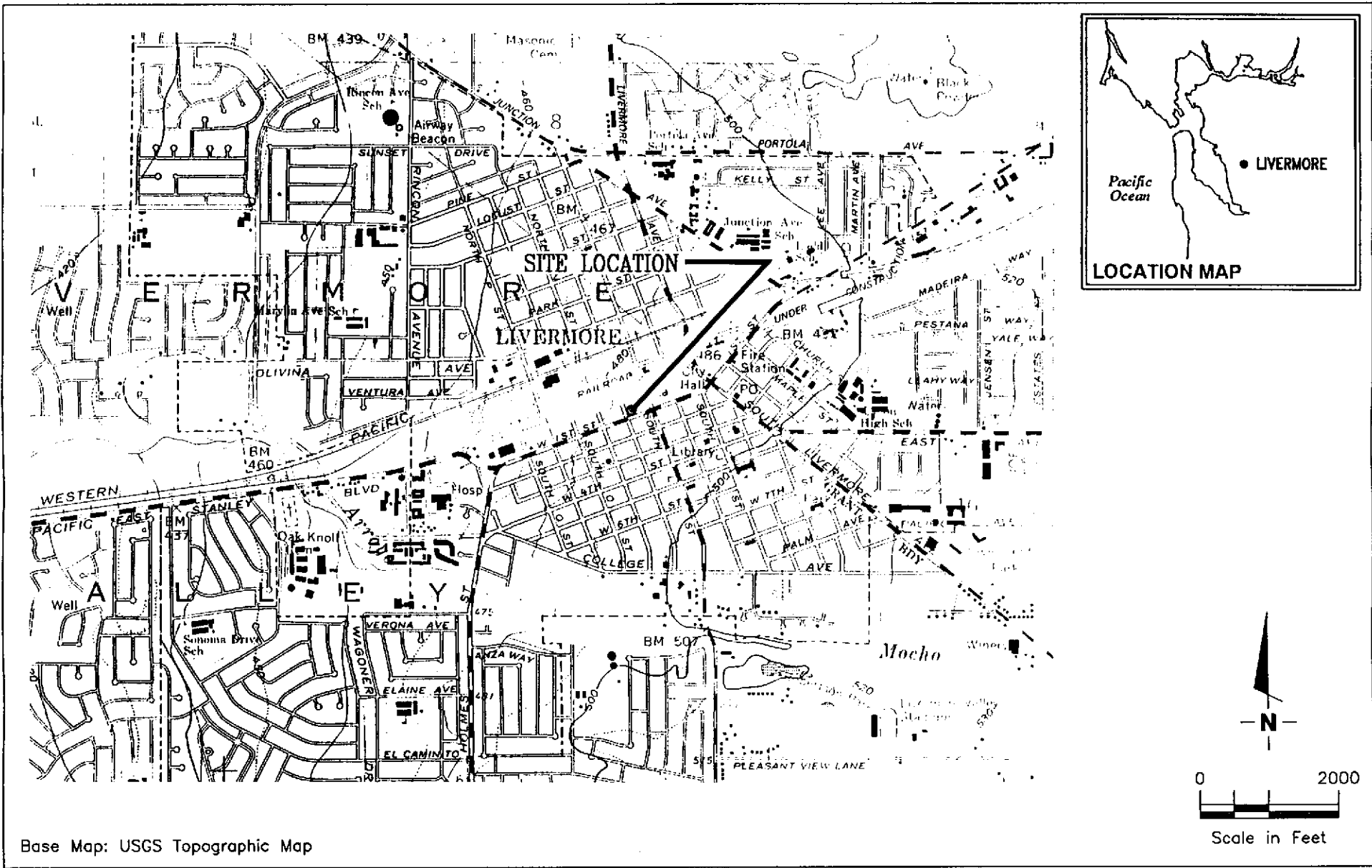
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"Analytical Results of Composite Soil Samples Collected During  
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Base Map: USGS Topographic Map



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VICINITY MAP  
 Groth Brothers Oldsmobile-GMC  
 59 South L Street  
 Livermore, California

PLATE

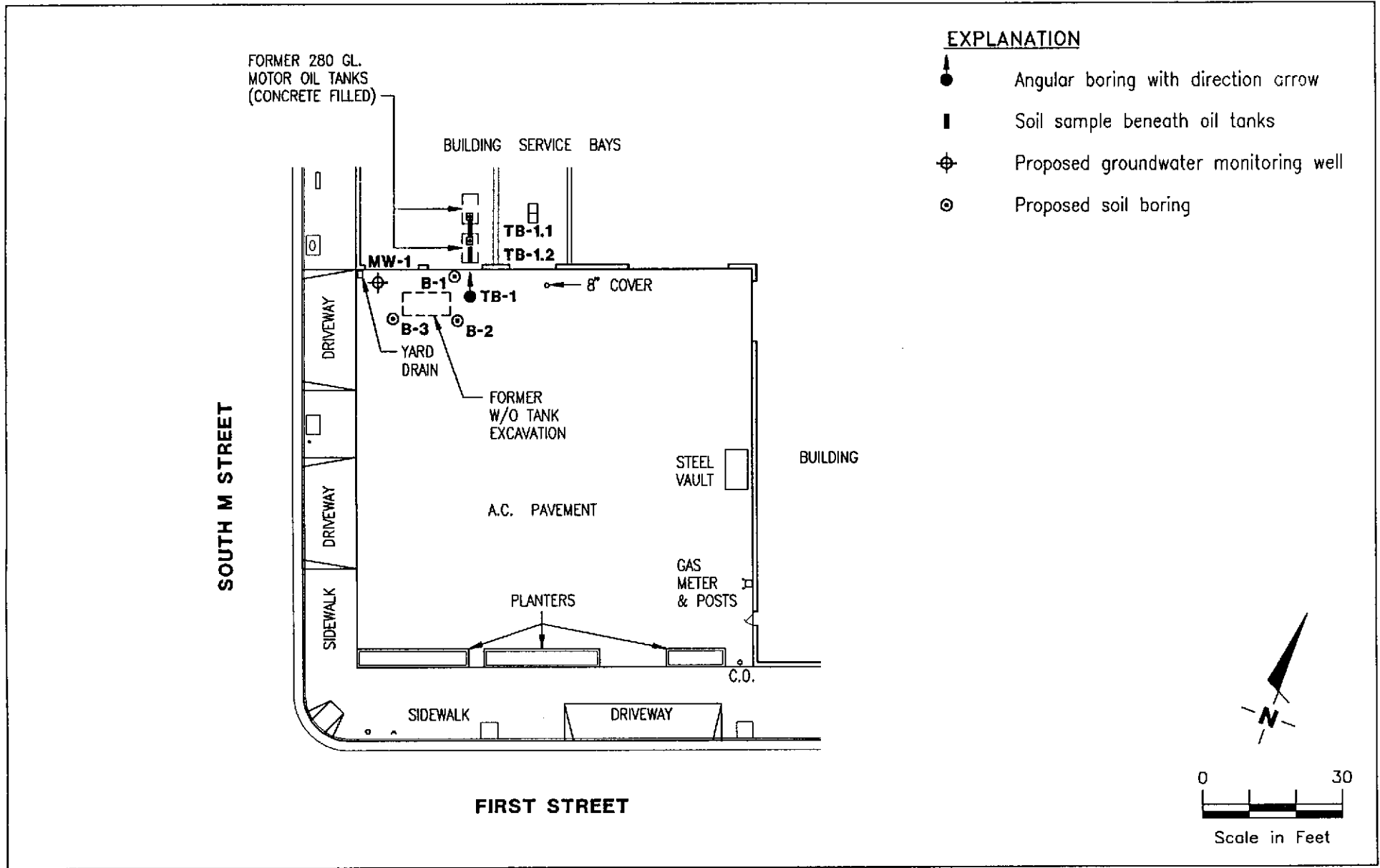
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REVIEWED BY

DATE  
 3/94

REVISED DATE



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**SITE PLAN**  
 Groth Brothers Oldsmobile-GMC  
 59 South L Street  
 Livermore, California

PLATE

**2**

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3/94

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# PRELIMINARY TIME SCHEDULE

| PROJECT STEPS                                | ESTIMATED TIME IN WEEKS (AFTER ACQUIRING REGULATORY APPROVAL) |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | COMMENTS |  |
|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----------|--|
|  | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |          |  |
| (1) OBTAIN DRILLING PERMIT AND SCHEDULE      |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |  |
| (2) DRILL FOUR BORINGS/INSTALL ONE WELL      |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |  |
| (3) DEVELOPE AND SAMPLE WELL                 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |  |
| (2) SUBMIT SOIL & WATER SAMPLES FOR ANALYSIS |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |  |
| (3) PREPARE REPORT                           |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |          |  |

### LEGEND

ESTIMATED SCHEDULE



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PRELIMINARY TIME SCHEDULE  
 Groth Brothers Oldsmobile-GMC  
 59 South L Street  
 Livermore, California

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3

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