Geo Plexus, Inc.

Health & Safety Training • Geo/Environmental Personnel • Engineering Geology Consultants • Environmental Management Consultants

December 28, 1993
Project C93013

Ms. JoAnn Stewart, General Manager
Good Chevrolet
1630 Park Street
Alameda, California 94501

Subject: Work Plan for Installation of Additional Ground Water Monitoring Wells at Good Chevrolet, 1630 Park Street, Alameda, CA.

Dear Ms. Stewart:

We are please to submit this Work Plan to perform an additional site characterization investigation for installation of additional ground water monitoring wells to further define the lateral extent of ground water contamination detected at the site in accordance with the directives from the Alameda County Department of Environmental Health.

BACKGROUND AND SUMMARY OF PREVIOUS WORK

A 300 gallon waste oil storage tank and a 500 gallon underground gasoline storage tank were reportedly removed from the property by Petroleum Engineering, Inc. in October, 1986. Soil samples obtained beneath the gasoline tank (at a depth of 10 feet) contained 2,509 parts per million (ppm) of Total Petroleum Hydrocarbons as gasoline. The excavation was reportedly continued to a depth of 14 feet and re-sampled. The second sample reportedly contained 1,441 ppm Total Petroleum Hydrocarbons as gasoline. A ground water sample was reportedly obtained from the excavation and reportedly contained 240,000 parts per billion (ppb) of Total Petroleum Hydrocarbons as hydrocarbons. The excavated soil was reportedly aerated on-site and re-introduced back into the excavation as backfill material.

A subsurface investigation which included installation of three ground water monitoring wells and advancing two exploratory borings (see Figure 1) was performed by Groundwater Technology, Inc. in January, 1987 (Groundwater Technology, Inc. Report Dated April 29, 1987). The soil borings identified low concentrations of Total Petroleum Hydrocarbons as gasoline and Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) in the immediate vicinity of the former tanks. Intermittent monitoring of the ground water monitoring wells identified variable concentrations of Total Petroleum Hydrocarbons as gasoline and Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) in the ground water at the site.

The three existing ground water monitoring wells located at the project site have been monitored by Geo Plexus personnel on a quarterly basis from July, 1992 through October, 1993 to evaluate the ground water conditions and to establish the directions of ground water flow at the project site.

1900 Wyatt Drive, Suite 1 • Santa Clara, California 95054 • Phone 408/987-0210 • FAX 408/988-0815

GOOD CHEVROLET
1630 Park Street • Phone 510/522-9221
ALAMEDA, CA 94501

January 21, 1994

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HAZMAT
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Ms. Juliet Shin
Alameda County Health Care Services
Department of Environmental Health
800 Swan Way, Room 200
Oakland, CA 94621

Mr. Richard Hiett
Regional Water Quality
Control Board
San Francisco Bay Region
2101 Webster Street #500
Oakland, CA 94612

Re: 1630 Park Street, Alameda, CA

Dear Ms. Shin and Mr. Hiett:

Enclosed please find a copy of our work plan for installation of additional ground monitoring wells at the above referenced address.

Should you have any questions, please call or write Mr. David Glick at Geo Plexus, Inc.

Thank you,

GOOD CHEVROLET

JoAnn Stewart

JKS:js

Enclosures

Ground water elevations recorded during the past year suggest that ground water has varied from 7 to 11 feet below the ground surface with flow directions varying from northwest to northeast directions (see Figure 1). The quarterly monitoring has also determined that Total Petroleum Hydrocarbons as gasoline and Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) exist at various concentrations in the ground water across the northern portion of the project site.

Recent investigations, which included advancing borings in the "up-gradient" and "down-gradient" directions of the former tank area and collection/analytical testing of ground water samples, did not detect Total Petroleum Hydrocarbons as gasoline and/or Volatile Aromatic Compounds (Benzene, Toluene, Ethyl Benzene, and Xylene) up-gradient of the former underground storage tanks but did detect soil and ground water contamination immediately adjacent to and down-gradient of the former tank area and extending in the down-gradient direction beyond the property boundary.

Based on the findings of the quarterly monitoring throughout the last year, combined with the analytical testing of the soil samples obtained from the recent subsurface investigation, it is concluded that a "source" of petroleum hydrocarbon exists in the immediate vicinity of the former underground gasoline storage tank and/or dispenser pump and that this "source" is responsible for the continued leaching of hydrocarbon products into the ground water. The observed soil and ground water contamination extends laterally to beyond the property boundary (extends beneath Park Street and beneath the adjacent Winner Ford property) and is confined to depths ranging from 8 - 13 feet below the ground surface.

SCOPE OF WORK

The scope of work for the current phase of investigation includes advancing four soil borings and completion of the borings as ground water monitoring wells. One of the borings/wells is proposed to be installed in the parking lot area south of existing Monitoring Well MW-1 (see attached Figure 2) with two of the wells proposed to be installed in Park Street. The fourth well is proposed to be installed on the adjacent Winner Ford property as indicated on the attached Figure 2.

Encroachment Permits would be required to be obtained from the City of Alameda to install the monitoring wells on Park Street and Right-of-Entry agreements with Winner Ford would be required to install the well on their property.

Specifics of the proposed investigation are presented on the following pages.

Subsurface Exploration Borings

The borings would be drilled by Exploration Geoservices, State of California Licensed Drilling Contractor, C57 License No. 489288 and would be logged under the supervision of a State of California Certified Engineering Geologist. Well Permits would be obtained from Alameda County Water Conservation and Flood Control District (Zone 7) prior to advancing the borings.

The drill cuttings and soil samples obtained from the boring would be monitored during drilling to observe moisture changes in the soils and to determine the depth of the first saturated zone. Based on available regional ground water data ground water fluctuates from 7 to 10 feet below the ground surface in the vicinity of the project site.

It is intended that the borings for the ground water monitoring wells would be advanced a maximum of 15 feet into the saturated zone unless a low permeable material is encountered prior to achieving this depth. Should a low permeable zone be encountered prior to achieving the 15 foot depth, the screened interval of the well would be reduced such that the low permeable zone is not penetrated to protect underlying aquifers.

The soil borings would be advanced using an eight-inch, nominal diameter, continuous flight hollow stem auger. Drilling and sampling equipment used for advancing the exploratory borings would be thoroughly steam cleaned before drilling begins to prevent the introduction of off-site contamination. Sampling equipment would be cleaned between sample events by steam cleaning or using a phosphate-free detergent bath and double rinsed in hot water baths to prevent cross contamination. Pre-cleaned stainless steel or brass liners would be placed in the sampler to retain the soil. The drilling and sampling equipment would be steam cleaned subsequent to completion of the field activities. Soil cuttings and rinsate waters derived from the boring/cleaning would be retained in 55-gallon containers and stored on-site during the drilling pending results of the analytical testing. Disposal of the cuttings remains the responsibility of the client.

Soil samples would be obtained at five (5) foot intervals throughout the borings, at changes in lithology, and where obvious soil contamination exists through the use of a 2 inch I.D. split-barrel sampler advanced into the undisturbed soil by a 140 pound hammer repeatedly falling 30 inches. Sand catchers would be used as necessary to retain the samples. A split-barrel, standard penetration sampler would be used should the 2 inch sampler prove ineffective at obtaining the samples. The drill cuttings and soil samples would be monitored in the field for evidence of hydrocarbon content through the use of a portable photo-ionization detector (PID), organic vapor meter (OVM), or similar device.

The soil samples would be immediately sealed in the liners using aluminum foil and plastic caps and properly labeled including: the date, time, sample location, and project number. The samples would be placed on ice immediately for transport to the laboratory under chain-of-custody documentation.

Monitoring Well Construction

The monitoring wells would be constructed in accordance with Alameda County Monitoring Well Construction Guidelines by installing 2-inch diameter polyvinyl chloride (PVC) flush-threaded casing and slotted pipe directly through the hollow stem auger. The slotted section of the PVC pipe installed through the saturated zone would have 0.020 inch factory perforations. The slotted pipe would extend a minimum of two feet above the current ground water level to monitor fluctuations in the ground water level. Materials used in the well construction would be thoroughly cleaned prior to introduction into the boring.

The monitoring wells would be filter-packed with clean monterey silica sand throughout the screened interval. The filter material would be determined based on lithology encountered during drilling and would likely consist of No. 2/12 Lonestar Sand. The filter-pack material would be installed in the annular spacing between the monitoring well pipe and the auger as the auger is removed and would extend a minimum of two feet above the top of the screened interval. To assure continuity and integrity of the filter material, and to prevent the bore hole from caving, no more than five foot of auger would be removed at a time.

A one foot thick layer (1 foot maximum) of bentonite pellets would be placed above the filter material to provide an annular seal and the remainder of the boring (minimum 5 foot) would be filled with an 11-sack sand-cement slurry to within one foot of grade. Should ground water exist in the boring/well in excess of two feet above the bentonite seal, the cement slurry would be placed using the tremmie-method. The well casings would have a locking cap and will be enclosed inside a watertight cast iron or aluminum traffic box installed in concrete flush with the surface.

Well Development and Sampling

The monitoring wells would be allowed to stabilize for a minimum of 72 hours following construction prior to development activities. The initial well development would be through the use of a 1.7 inch Brainard-Kilman mechanical lift hand pump, an air-lift or nitrogen-lift pump, or a positive displacement bladder pump dependent on the depth to ground water and the screened interval. The wells would be developed until a minimum of four well volumes have been purged and the discharged water appears clear of sediment. Electrical conductivity, temperature, and pH of the ground water would be recorded throughout the development process. The well development would continue until the electrical conductivity, temperature, and pH of the discharged water have stabilized. Depth to water measurements would be recorded prior to and following the well development activities.

The wells would be allowed to recover for a minimum of 72 hours between development and sampling activities. Free product measurements would be obtained utilizing a product/ground water interface probe or through the use of an acrylic or teflon bailer lowered into the well to obtain a surface water sample. The teflon bailer would be used to collect a surface water sample to observe the presence of hydrocarbon odors, visible sheen, or free product. Depth to water measurements would be also be recorded at this time using an electronic water level probe.

Prior to sampling the wells, a minimum of four well volumes would be purged from the well through the use of a positive displacement bladder pump or teflon bailer. Electrical conductivity, temperature, and pH of the ground water would be recorded throughout the purging process. The purging activities would continue until the electrical conductivity, temperature, and pH of the discharged water have stabilized. Water samples for analytical testing would be obtained through the use of the bladder pump or teflon bailer. The water developed from the monitoring well would be contained on-site pending receipt of the laboratory test results.

The water samples would be collected in sterilized glass vials with Teflon lined screw caps. The samples would be immediately sealed in the vials and properly labeled including: the date, time, sample location, project number, and indication of any preservatives added to the sample. The samples would be placed on ice immediately for transport to the laboratory under chain-of-custody documentation.

Free Product Measurements

Free product measurements would be obtained at the time of sample acquisition utilizing a product/ground water interface probe or through the use of an acrylic or teflon bailer lowered into the well to obtain a surface water sample. The bailer would be used to collect a water sample to observe the presence of hydrocarbon odors, visible sheen, or free product.

Analytical Testing

The soil and ground water samples would be submitted to and tested by a State of California, Department of Health Services certified testing laboratory. Analytical testing would be scheduled and performed in accordance with the State of California, Regional Water Quality Control Board Guidelines and Alameda County protocols.

The soil and ground water samples would be tested for Total Petroleum Hydrocarbons as gasoline by RWQCB Method GCFID (5030/8015) and Volatile Aromatics by EPA Method 602 (modified for BTEX distinction).

Report

A report documenting the findings and observations of the investigation and the results of the analytical laboratory testing would be prepared to include: the findings and boring/well logs for the subsurface investigation; analytical test data, chain-of-custody records, and other pertinent information obtained throughout the investigative process.

SCHEDULE

It is anticipated that the field investigation could be accomplished within two weeks following notification to proceed and receipt of the City of Alameda Encroachment Permit (2-4 week processing time) and verification that a Right-of-Entry Agreement was obtained from Winner Ford.

The subsurface investigation is anticipated to be accomplished in two days (anticipated that the wells to be installed in Park Street will require off-hour and/or night-time drilling) and that the other wells would be installed on the second day.

Standard analytical testing turnaround time of two (2) weeks is anticipated to be used unless directed otherwise. The report would be submitted within three weeks following receipt of all analytical test data (soil and ground water samples).

It has been a pleasure to be of service to you on this project. Should you have questions regarding the scope of work or estimated schedule presented herein, please contact us.

Copies of this Work Plan should be forwarded to:

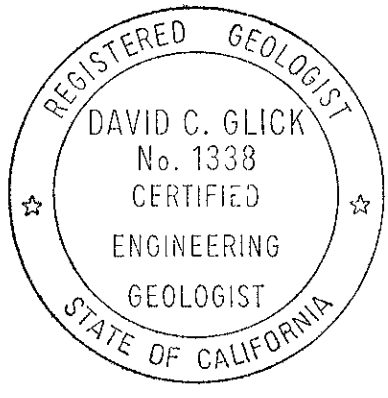
Ms. Juliet Shin
Alameda County Health Care Services
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

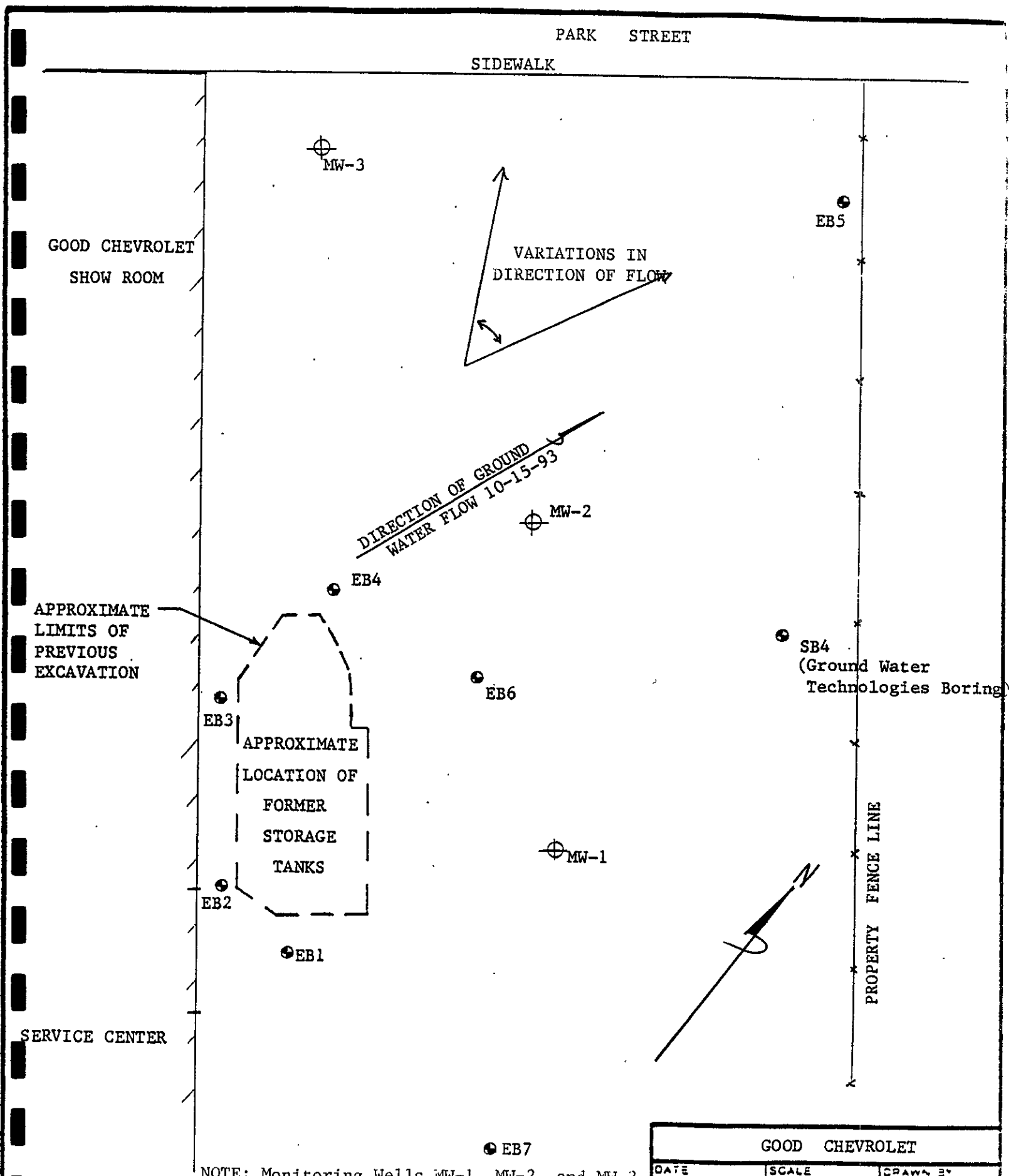
Mr. Richard Hiett
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Room 500
Oakland, CA 94612

Respectfully submitted,

Geo Plexus, Incorporated

David C. Glick, CEG 1338
Director, Geological and
Environmental Services

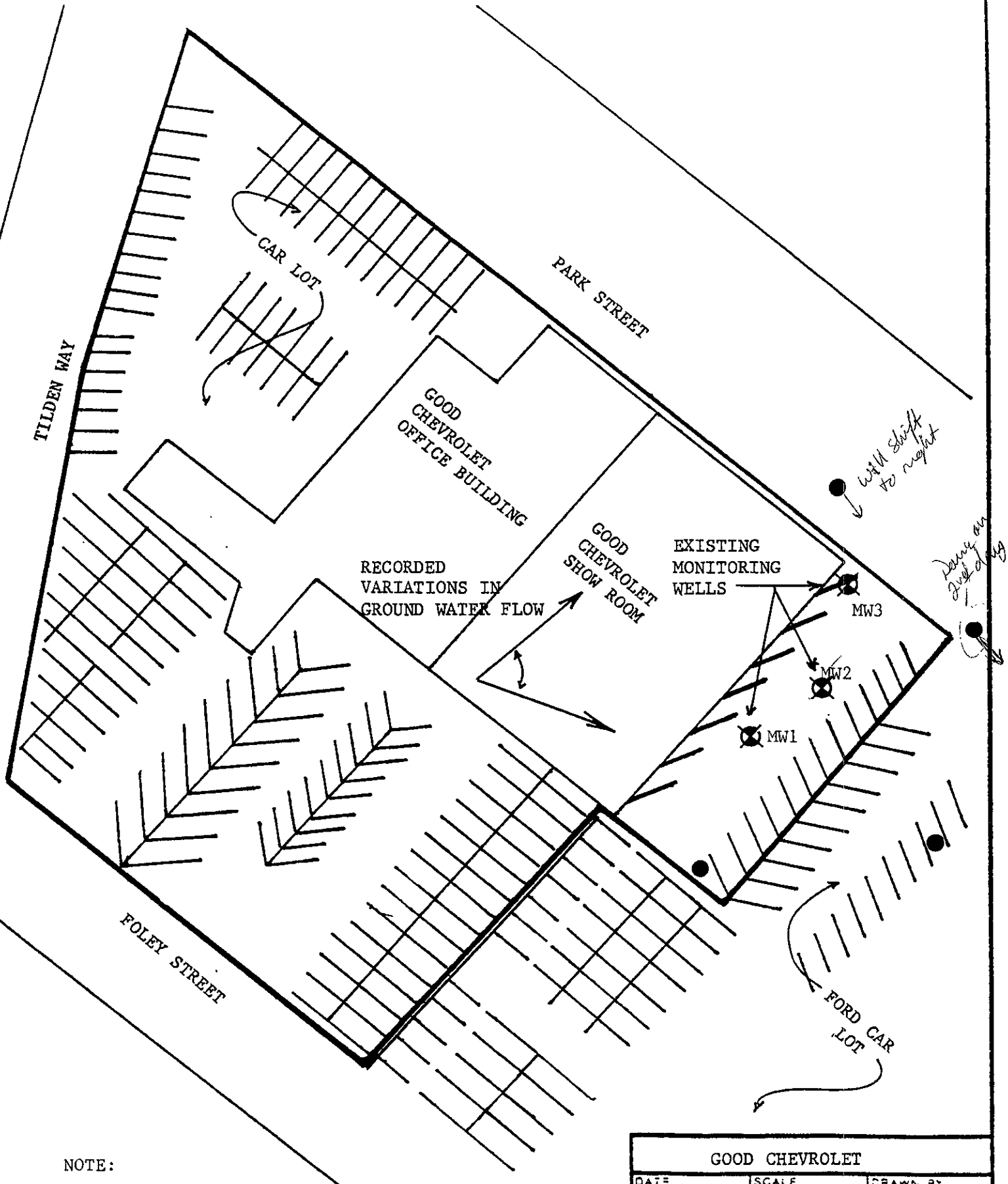




NOTE: Monitoring Wells MW-1, MW-2, and MW-3 and Boring SB4 by Ground Water Technologies, all others by Geo Plexus

GOOD CHEVROLET		
DATE 10/25/93	SCALE 1"=10'	DRAWN BY dcg
SOIL BORING LOCATION PLAN		
	Figure 1	

Geo Plexus, Inc.



NOTE:

● INDICATES PROPOSED LOCATION OF ADDITIONAL MONITORING WELLS

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GOOD CHEVROLET		
DATE	SCALE 1"=50'	DRAWN BY twf
SITE PLAN		
	Figure 2	