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Engineering • Environmental • Compliance

September 30, 2004

Mr. Bob Schultz
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

SUBJECT: WORKPLAN TO PERFORM ADDITIONAL SUBSURFACE SITE ASSESSMENT FOR THE MISSION VALLEY ROCK COMPANY FACILITY LOCATED AT 7999 ATHENOUR WAY, SUNOL, CALIFORNIA

Dear Mr. Schultz:

Tait Environmental Management, Inc. (TEM), on behalf of Mission Valley Rock Company (MVR), is pleased to submit this workplan to perform additional subsurface Site assessment at the MVR Facility (Site) located at 7999 Athenour Way, Sunol, California (Figure 1). All work described in this workplan will be performed in accordance with the Alameda County Health Care Services Agency (ACHCSA), California Regional Water Quality Control Board (CRWQCB), and EPA guidance documents including SW-846 (1986). This workplan has been prepared by or under the direct supervision of a California Registered Geologist.

SITE DESCRIPTION

The Site is a fully operational gravel quarry and production facility located within Coast Range physiographic province of California. The Site is at an elevation of approximately 260 feet above mean sea level (ft-msl). Depth to groundwater at the site has ranged from approximately 1.3 feet to 8 feet below ground surface (bgs). Surface drainage at the Site has a southeasterly to northwesterly topographic gradient. The Alameda Creek (a seasonal creek) is located approximately 2000 feet east-northeast of the former underground storage tanks (UST's). Several other silt ponds are located throughout the Site (Tank Protect Engineering (TPE), 1997)).

REGIONAL GEOLOGY

The Site is located in Alameda County which is at the northern end of the Diablo Range of Central California. It is bounded on the north by the south flank of Mount Diablo, one of the highest peaks in the Bay Area, reaching an elevation of 1173 meters (3,849 ft). San Francisco Bay forms the western boundary, the San Joaquin Valley borders it on the east, and an arbitrary line from the Bay into the Diablo Range forms the southern boundary. Alameda is one of the nine Bay Area counties that drain to San Francisco Bay. Most of the terrain is mountainous with steep rugged topography (USGS, 1997).

The Quaternary deposits in Alameda County are comprised of three distinct depositional environments. One, forming a transgressive sequence of alluvial fan and fan-delta facies, is mapped in the western one-third of the county. The second, forming only alluvial fan facies, is mapped in the Livermore Valley and San Joaquin Valley in the eastern part of the county. The third, forming a combination of Eolian dune and estuarine facies, is restricted to the Alameda Island area in the northwestern corner of the county. (USGS, 1997)

The site lies within the Mesozoic Franciscan Rock Complex of Alameda County. The Franciscan Complex is primarily composed of Cretaceous and Jurrasic sandstone with smaller amounts of sometimes sheared and fragmented shale, chert, limestone, and conglomerate (DMG, 1977).

SITE BACKGROUND

Two (2) diesel UST's and one (1) gasoline UST were removed from the Site between the months of May and June, 1996. Tank removal, excavation, and subsequent soil sampling activities were performed by TPE of Northern California. The activities are documented in the *Tank Closure Report, Mission Valley Rock, TPE, August, 1996.*

TPE installed and sampled three (3) monitoring wells at the Site in June 1998. Commencing in January 1999, and continuing through March 2000, TPE conducted quarterly groundwater monitoring at the Site. Quarterly groundwater monitoring at the Site has indicated levels of petroleum constituents above their respective detection limits. Refer to Figure 2 for locations of former UST's, structures, and groundwater monitoring wells MW-1, MW-2, and MW-3.

In June 2000, TEM, Inc. assumed the lead consultant role at MVR to perform all future technical environmental activities at the Site. Quarterly groundwater monitoring performed by TEM has continued through the first quarter of 2004. Work conducted prior to June 2000 is documented in reports on file at the ACHCSA and the CRWQCB, San Francisco Bay Region.

OBJECTIVE

The objective of the proposed scope of work is to:

- Further assess the vertical and lateral extent of petroleum fuel hydrocarbons in the subsurface.
- Abandon and replace groundwater-monitoring well MW-2.

SCOPE OF WORK

The scope of work that TEM has developed to meet the objectives includes the following tasks:

Task 1: Health and Safety Plan Preparation

A health and safety plan (HSP) will be prepared for the proposed scope of work. The HSP is designed primarily to minimize exposure of TEM personnel and its subcontractors to potentially hazardous materials. The plan will be prepared under the direction of the Corporate Health and Safety Officer and will be implemented in the field by the Site Safety Officer.

Task 2: Permitting, Utility Clearance, and Agency Notification

A well construction permit for the installation of four (4) groundwater monitoring wells will be filed with the Alameda County Food Control and Water Conservation District, Water Resources Management, Zone 7 prior to the initiation of drilling.

Underground Service Alert will be notified a minimum of 48 hours prior to initiating fieldwork for the demarcation of underground utilities. The ACHCSA and the CRWQCB will also be notified a minimum of 48 hours prior to the start of fieldwork.

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Task 3: Drilling and Soil Sampling

Eight (8) borings will each be drilled out using 11-inch outside diameter hollow stem augers. The borings will be drilled to a depth of approximately 30 feet bgs. Samples collected from the borings will be used to assess the vertical and lateral impact in the soil. A TEM geologist, trained and supervised by a California Registered Geologist, will describe soil samples using the Unified Soil Classification System (USCS).

Soil samples will be collected at five-foot depth intervals and/or where changes in lithology are observed. Soil samples will be collected in 2-inch diameter by 6-inch long decontaminated brass or stainless steel cylinders. The field geologist will use a Photoionization Detector (PID) to screen the soil samples in the field for the presence of volatile organic compounds (VOC's) and to select soil samples for laboratory analyses. The ends of the selected cylinders will be covered with Teflon lined polyethylene caps. The samples will be labeled, placed into an ice-chilled cooler (4°C), and transported to a State-Certified laboratory for analyses under chain-of-custody protocol. Upon completion of sampling, soil borings SB-1 through SB-4 will be grouted to the surface.

Task 4: Groundwater Well Installation

Four (4) soil borings will each be converted into 2-inch diameter nested groundwater monitoring wells. The monitoring wells will be constructed with two-inch diameter, flush-threaded, schedule-40 PVC blank and screened (.010 slot) casing. Refer to Table 1 for a list of wells and screen intervals, and Figure 2 for proposed locations of the wells. The annulus of each borehole will be filled with bentonite chips at the blank intervals of the casing, and with No. 2/16 sand at the screened intervals. Each borehole will be sealed by a 2-foot thick Portland cement seal and completed with an eight 8-inch traffic-rated well box surrounded by a 2- foot square concrete pad. A typical well construction diagram is presented in Figure 3.

Task 5: Groundwater Well Development

The newly installed groundwater monitoring wells will be developed using a Grunfos pump. Well development will continue until turbidity readings reach a value of 10 NTU or less, or a minimum of five (5) well volumes of water have been removed from each well, as per ACHCSA regulatory guidelines. Development water will be contained in a DOT-approved 55-gallon drum.

Task 6: Groundwater Monitoring Well Abandonment

Existing well MW-2 will be properly abandoned. The well box will be removed and the well will be overdrilled five (5) feet. It will then be filled to the surface with bentonite grout followed by a 2-foot thick Portland cement seal.

Task 7: Well Box Repair

Groundwater monitoring wells MW-1 and MW-3 well boxes were damaged by cement plant vehicle traffic. The boxes will be removed and replaced, and completed with a 2-foot square concrete pad slightly above grade.

Task 8: Well Survey

Following the installation of the groundwater monitoring wells, the ground surface, casing tops, and x-y coordinates for all new and existing wells will be surveyed to a common datum at each location. Differential leveling of the locations (0.01-foot accuracy) to mean sea level shall be included in the survey. If no benchmark has been identified within two (2) blocks of the Site, a temporary benchmark will be used. Surveying services may be provided by Tait and Associates, a State-licensed surveyor.

Task 9: Disposal of Solid/Liquid Waste

Soil cuttings and decontamination and development water generated during the well installation, development and sampling activities will be contained in DOT-approved 55-gallon drums. Following receipt of the analytical results, TEM, on behalf of MVR, will arrange for the disposal of solid and liquid waste generated during the well installation activities.

Task 10: Groundwater Monitoring & Sampling

The new and existing groundwater monitoring wells will be gauged for liquid petroleum LPH thickness (if present), depth to water, and total depth. Should LPH become significant a LPH recovery program will be initiated and tabulated quarterly, per an ACHCSA letter dated February 18, 1999.

Three (3) well volumes will be pumped from each well, or until the well goes dry. The wells will be purged using a Grunfos pump. To prevent the possibility of cross-contamination between monitoring wells, all downhole equipment will be decontaminated prior to purging each well using a non-phosphate wash followed by two (2) de-ionized water rinses, and dried with new towels.

The groundwater level in each well will be allowed to recover to at least 80 percent of the initial level or two hours from initial purge, prior to sampling. Groundwater samples will be collected from discharge end of the pump at low flow levels (one gallon per minute or less) into laboratory-supplied containers. Care will be taken to insure no headspace is allowed in the containers. The samples will be labeled and placed into an ice-chilled cooler (4°C). The collected samples will be transported to a State-Certified laboratory for analyses under chain-of-custody protocol.

Task 11: Laboratory Analyses

A total of approximately forty (40) soil samples will be collected from each of the eight (8) borings and submitted to a laboratory for analyses. The soil samples will be analyzed for the diesel and gasoline fraction of total petroleum hydrocarbons (TPHg) by EPA Method No. 8015M. In addition, all soil samples will be analyzed for VOC's including benzene, toluene, ethylbenzene, and total xylenes (BTEX), methyl tertiary-butyl ether (MTBE), and other oxygenates using EPA Method No. 8260B.

Eleven (11) groundwater samples collected will be analyzed for TPHg, VOC's (BTEX, MTBE, and oxygenates). All analytical data will be reported by a California State-Certified laboratory.

Task 12: Report Preparation

Upon completion of the field work and receipt of the analytical results, a report will be prepared by TEM. The report will include descriptions and observations during field activities, lithological boring logs, groundwater monitoring well construction details, analytical results of soil and groundwater samples, a groundwater contour map depicting the hydraulic gradient and direction of groundwater flow across the Site, and isoconcentration maps for TPHg, benzene, and MTBE.

PROJECT SCHEDULE

The proposed work can be initiated upon written approval of the work plan by ACHCSA. A final report can be submitted to the ACHCSA within 60 days of completion of the field work and receipt of all laboratory reports.

REFERENCES

Division of Mines and Geology (DMG, 1977), Charles Jennings, *Geological Map of California*, 1977 (5th Printing 2000).

Tank Protect Engineers (TGE, 1997), *Stockpile and Soil Remediation and Exploratory Trenching Report*, Mission Valley Rock Company, Sunol, CA, October 20, 1997.

Tank Protect Engineers (TGE, 1996), *Tank Closure Report*, Mission Valley Rock Company, Sunol, CA, August, 1997.

United States Geological Survey (USGS, 1997), Helley & Graymer, *Quarternary Geology of Alameda County, and Parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, California*. Publication OF97-97, 1997.

CLOSURE

If you should have any questions regarding this proposal, please contact the undersigned at (714) 560-8200, at your convenience.

Very truly yours,

TAIT ENVIRONMENTAL MANAGEMENT, INC.

Gregory Buchanan
Project Geologist

Mehmet Pehlivan, R.G.
Senior Project Hydrogeologist

REGISTERED GEOLOGIST
MEHMET PEHLIVAN
No. HG0377
CERTIFIED HYDROGEOLOGIST
STATE OF CALIFORNIA

Attached:

Figure 1 – Site Vicinity Map
Figure 2 – Site Plan with Proposed Boring/Well Locations
Figure 3 – Well Construction Detail (Typical)

Table 1 – Well Completion Details

Cc: Mort Calvert, Mission Valley Rock Company

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TABLE 1

WELL COMLETION DETAILS

MISSION VALLEY ROCK

7999 ATHENUR WAY

SUNOL, CALIFORNIA

Monitoring Well	Screen Interval (FEET)
MW-2S	3-8
MW-2M	15-20
MW-2D	25-30
MW-4S	3-8
MW-4D	17-22
MW-5S	5-15
MW-5D	25-30
MW-6S	5-15
MW-6D	25-30

NOTE: APPROXIMATE DEPTHS ARE MEASURED FROM THE TOP OF CASING, AND MAY BE MODIFIED BY THE FIELD GEOLOGIST BASED ON THE LITHOLOGY ENCOUNTERED.

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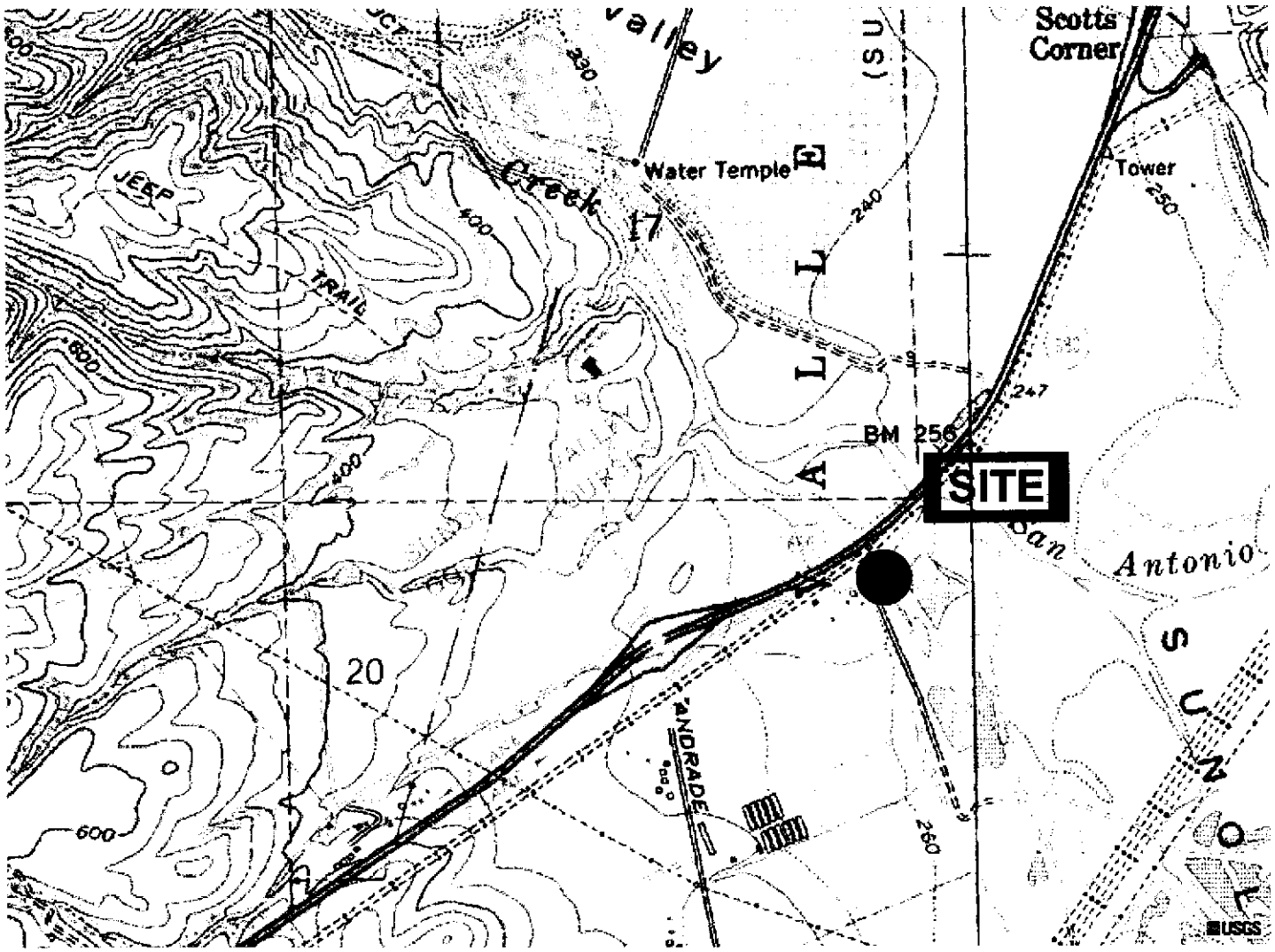

0 2000

1" = 2000'

NORTH

SOURCE:
U.S.G.S. 7.5 Minute Series Topographic Maps
Freemont Quadrangle
California - Alameda County, July 1, 1998

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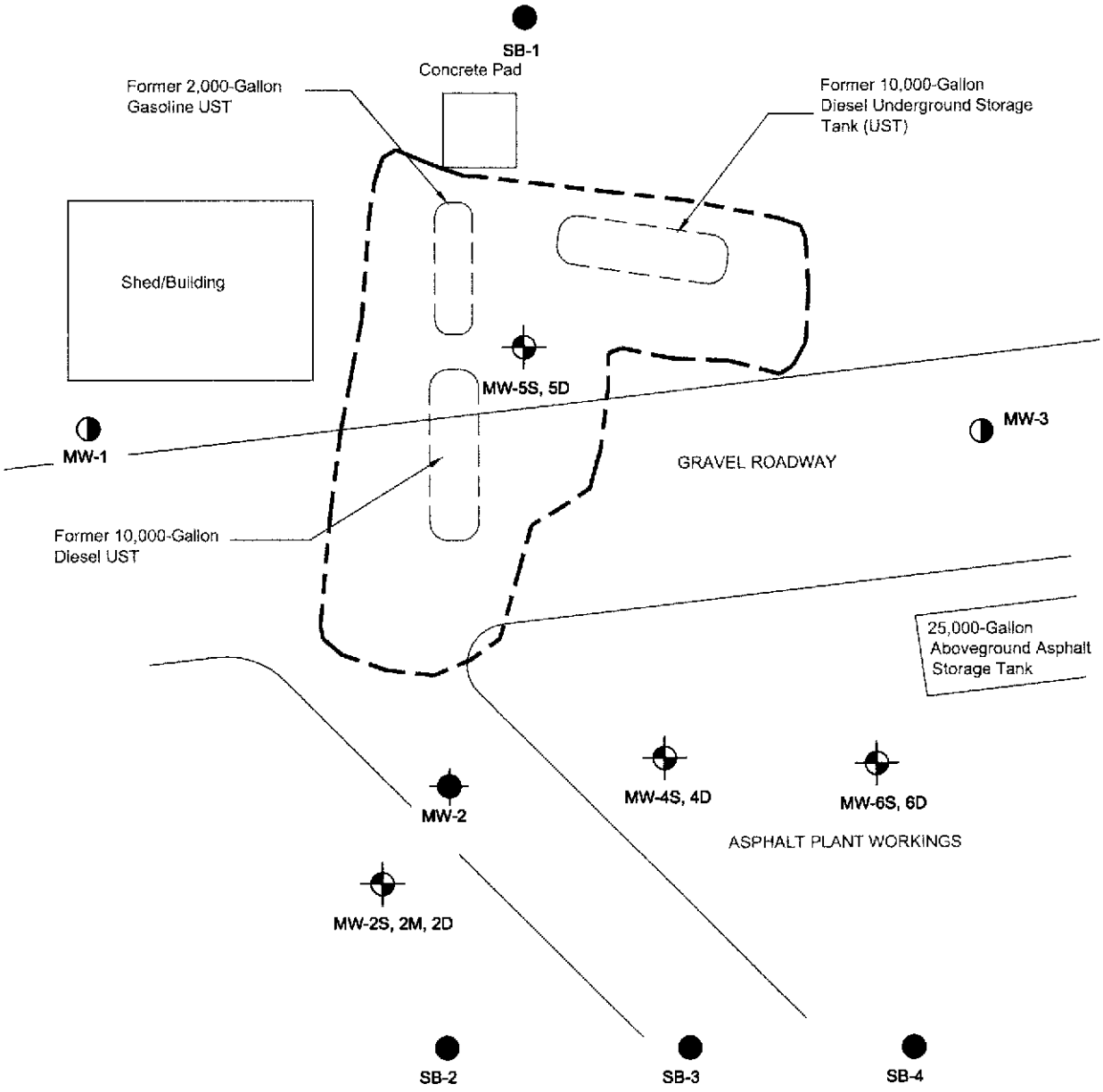
SITE VICINITY MAP
ADDITIONAL SITE ASSESSMENT WORKPLAN
Mission Valley Rock Company
7999 Athenour Way
Sunol, California

PROJECT NO. EM-5009A	FIGURE 1



LEGEND

Base map referenced from Tank Protect Engineers

All locations and dimensions are approximate

0 20

Scale (1" = 20')

North

MW-4S, 4D — Proposed location of soil boring/ dual completion moinitoring wells

MW-1 — Existing groundwater monitoring well location

MW-2 — Destroyed monitoring well to be abandoned

SB-2 — Proposed Soil Boring

Approximate limits of former UST excavation

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SITE PLAN WITH SOIL BORING LOCATIONS/
GROUNDWATER MONITORING WELL LOCATIONS
MISSION VALLEY ROCK CO.
7999 ATHENOUR WAY
SUNOL, CALIFORNIA

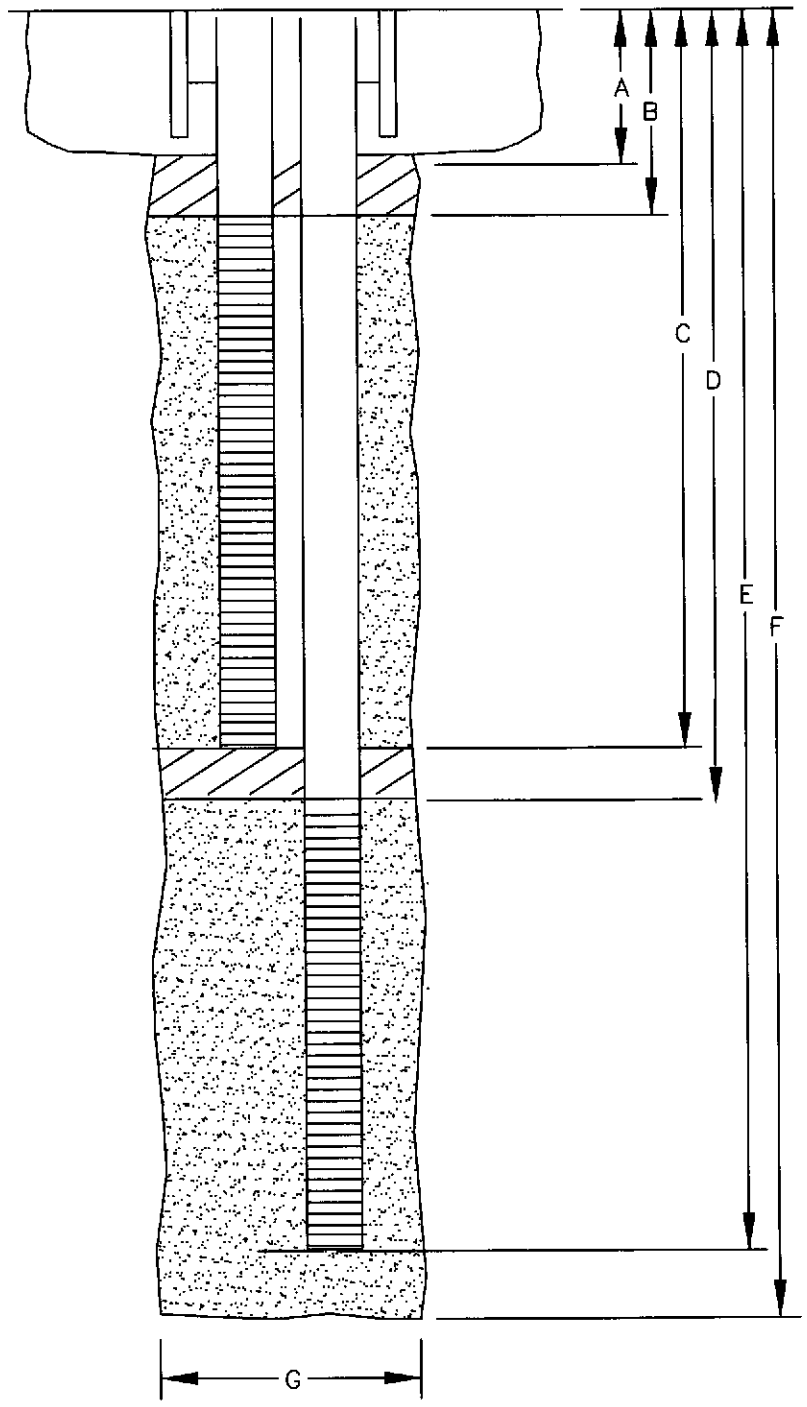
PROJECT NO. EM-5009A	FIGURE 2

M:\Tem2\Clients\Mission Valley Rock\Proposals\Fig 1 - MVR - Site Plan with Proposed Soil Boring Locations

NESTED GROUNDWATER MONITORING WELL CONSTRUCTION DETAIL

PROJECT NUMBER EM-5009A
PROJECT NAME MISSION VALLEY ROCK
LOCATION 7999 ATHENUR WAY
SUNOL, CALIFORNIA
WELL HEAD CONSTRUCTION CONCRETE
FILTER PACK BRIDGE MATERIAL BENTONITE GROUT
FILTER PACK MATERIAL MONTEREY #3 SILICA SAND
WELL CASING MATERIAL 2-INCH SCHEDULE 40 PVC

WELL NUMBER TYPICAL
TOP OF CASING ELEVATION
GROUND SURFACE ELEVATION
DATE INSTALLED



A. DEPTH TO BOTTOM OF WELL HEAD AND TOP OF UPPER SEAL

B. DEPTH TO BOTTOM OF SHALLOW BLANK CASING AND TOP OF UPPER WELL SCREEN AND BOTTOM OF UPPER SEAL

C. DEPTH TO BOTTOM OF UPPER FILTER PACK, UPPER WELL SCREEN AND TOP OF INTERMEDIATE SEAL.

D. DEPTH TO BOTTOM OF INTERMEDIATE SEAL AND TOP OF LOWER WELL SCREEN

E. DEPTH TO BOTTOM OF LOWER WELL SCREEN

F. DEPTH TO BOTTOM OF BORING ~30 FEET

G. DIAMETER OF BORE HOLE 11-INCHES

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TEL. (714) 560-8200
FAX (714) 560-8235
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PROJECT No. EM5009A | FIGURE 3