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May 10, 1993

PROPOSAL PR93129.3

Dougherty Regional Fire Authority
c/o Aztec Consultants
Construction Managers
2110 Omega Road, Suite B
San Ramon, CA 94587

RECEIVED
MAY 11 1993
AZTEC CONSULTANTS

Attention: Mr. Glenn D. Miller, P.E.
Construction Manager

Subject: Proposal For Installation of Three Groundwater Monitoring Wells and Quarterly Monitoring for ~~Two~~ Years
Dougherty Regional Fire Authority - Station No. 1
7494 Donohue Drive
Dublin, California

ONLY REQUIRED FOR 1 YR. AS DISCUSSED W/ Alm. County Health Agency EVA Chen
5/19/93

Dear Mr. Miller:

As requested, BSK & Associates has prepared this proposal for the installation of three groundwater monitoring wells, and subsequent quarterly groundwater monitoring of the wells for two years (eight quarters). The site location is shown on Figure 1, Vicinity Map.

BACKGROUND

Three underground storage tanks (UST) containing gasoline and diesel were in use at the site in the 1960's. The tank group was located behind the truck garage, in the western portion of the site. The largest tank was 4000 gallons in capacity and was used to store gasoline. The two smaller tanks were each 550 gallons in capacity. One stored diesel fuel, and the other stored gasoline.

At the time of tank removal, soil in close proximity to the tanks was observed to be contaminated with petroleum products. The contaminated soil was removed, aerated on-site under a permit from the Bay Area Air Quality Management District, and returned to the excavation with the approval of the Alameda County Environmental Health Department (ACEH).

As part of the site preparation for the construction of the new DRFA Station No. 1, hydrocarbon contaminated soil was removed from the subsurface in the vicinity of the former fire station garage, at 7494 Donohue Drive, Dublin, California. The contaminated soil resulted from leakage of underground fuel storage tanks at the station.

Specification 5.4 of the Soil Remediation and Groundwater Monitoring Plan prepared for the contaminated soil removal, recommends the installation of three shallow groundwater monitoring wells; and monitoring of those wells to assess the impact of the soil remediation activities at the site.

WORK PLAN

1.0 PURPOSE AND SCOPE

This work plan has been prepared for the installation and monitoring of three shallow groundwater wells, to comply with the Alameda County Department of Environmental Health (ACDEH) acceptance of the specification for remediation (R92022-SR-01, August 27, 1992).

Groundwater monitoring well installation and monitoring would comprise the following:

1.1 Groundwater Well Installation

The groundwater monitoring wells would be installed at the locations shown on Figure 2, Site Plan. Each well would be constructed of two inch diameter PVC case and screen, sand annular fill, cement or grout seal and surface well box, as detailed on Figure 3, Typical Well Construction Details. The screened portion of the well would be installed approximately 10 feet into the water bearing horizon.

1.2 Soil And Water Sampling

Discrete samples of the encountered soils would be obtained at 5 foot intervals, beginning at the depth of the bottom of the former USTs, and as necessitated by subsurface soil conditions. Soil obtained from the borings would be screened for hydrocarbons using a Photo-Ionization Detector (PID).

Following installation, each well would be developed by surging and pumping, and later purged and sampled using appropriate methods, materials and protocol.

1.3 Chemical Testing

Soil and water samples would be tested for leaded gasoline constituents and indicators in accordance with Tri-Regional Water Quality Control Board recommendations (10 August 1991). Tests would be performed on the selected samples for Total Petroleum Hydrocarbons as Gasoline (TPHg) and Diesel (TPHd); Benzene, Toluene, Ethylbenzene and Xylenes (BTEX), and Total Lead.

1.4 Reporting

Upon completion of the field work and receipt of the chemical analysis results, an initial report summarizing our work, observations and the chemical data would be prepared. Conclusions, and recommendations for additional work, if necessary, would be presented. Quarterly monitoring reports would be submitted following each sampling event, describing the field work and protocol, and presenting our observations and chemical test data.

2.0 GENERAL DETAILS

2.1 Drilling And Logging

Drilling activities would be performed using a truck-mounted Mobile B-53 auger rig, turning 8-inch outside diameter, hollow stem auger. Logging of the boring samples and cuttings, and direction of site activities would be performed by a Staff level geologist/engineer, under the supervision of a Registered Geologist or Licensed Civil Engineer. Classification of subsurface materials would be performed in accordance with the U.S.C.S. Soil Classification System (ASTM Method D2487).

2.2 Sampling

Soil sampling would be performed using a 2.0 I.D. modified California split-spoon sampler, holding three 2x6-inch stainless steel or brass sample liners. The sampler holding the liners is driven by slide hammer ahead of the auger into undisturbed soil,

and then withdrawn. The soil filled liners are removed, and the chosen sample(s) sealed with Teflon® sheeting and a pressure-fitted plastic cap, labeled, and refrigerated for delivery to our State-certified analytical laboratory for analysis.

Water samples would be obtained by Teflon® bailer or bladder pump after purging. Samples would be obtained in order of decreasing constituent volatility, and placed in the appropriate container, with preservative as necessary. The sample would be labeled, sealed and refrigerated for delivery to our laboratory.

2.3 Waste Handling

Soil and water waste generated by drilling, cleaning and sampling activities would be stored in DOT-approved 55 gallon drums. Water and soil would be stored separately. Each drum would be labeled with the date of waste accumulation, source, owner, and other pertinent data. The drums would be stored on-site until chemical analyses determine the character of the drum contents. Disposal of drummed waste is the responsibility of the client.

2.4 Decontamination

Drilling and sampling equipment would be thoroughly cleaned by high-pressure/temperature wash prior to site entry, exit, and between borings and samples in order to reduce the chance of cross-contamination between samples and sites.

2.5 Well Development And Purging

Seventy-two hours following groundwater monitoring well installation, the well would be developed after 72 hours to help set the well pack, and aid in conditioning the well with the surrounding subsurface environment. The well would be developed by surging and pumping. Removed water would be monitored for physical parameters such as sediment load, temperature, conductivity and pH. The well would be developed until the parameters exhibit a degree of stability.

Twenty-four hours after development, the well could be purged and sampled. Purging involves the removal, by pumping or bailing, of three to ten well casing volumes of water in order to obtain fresh formation water for sampling.

2.6 Well Location

Following well installation, a California-licensed surveyor would be retained to vertically and horizontally locate the wells with respect to the U.S. Coast and Geodetic Survey. Each wellhead would be vertically located to 1/100th of a foot, horizontally located to an accuracy of one foot. Well survey is required for the determination of groundwater flow direction at the site.

3.0 SCHEDULE AND FEES

3.1 Schedule

We would begin work on this project promptly following our receipt of your authorization to proceed. Based on ready access to the site, and receipt of the necessary permits, our report would be completed within four to six weeks of your authorization.

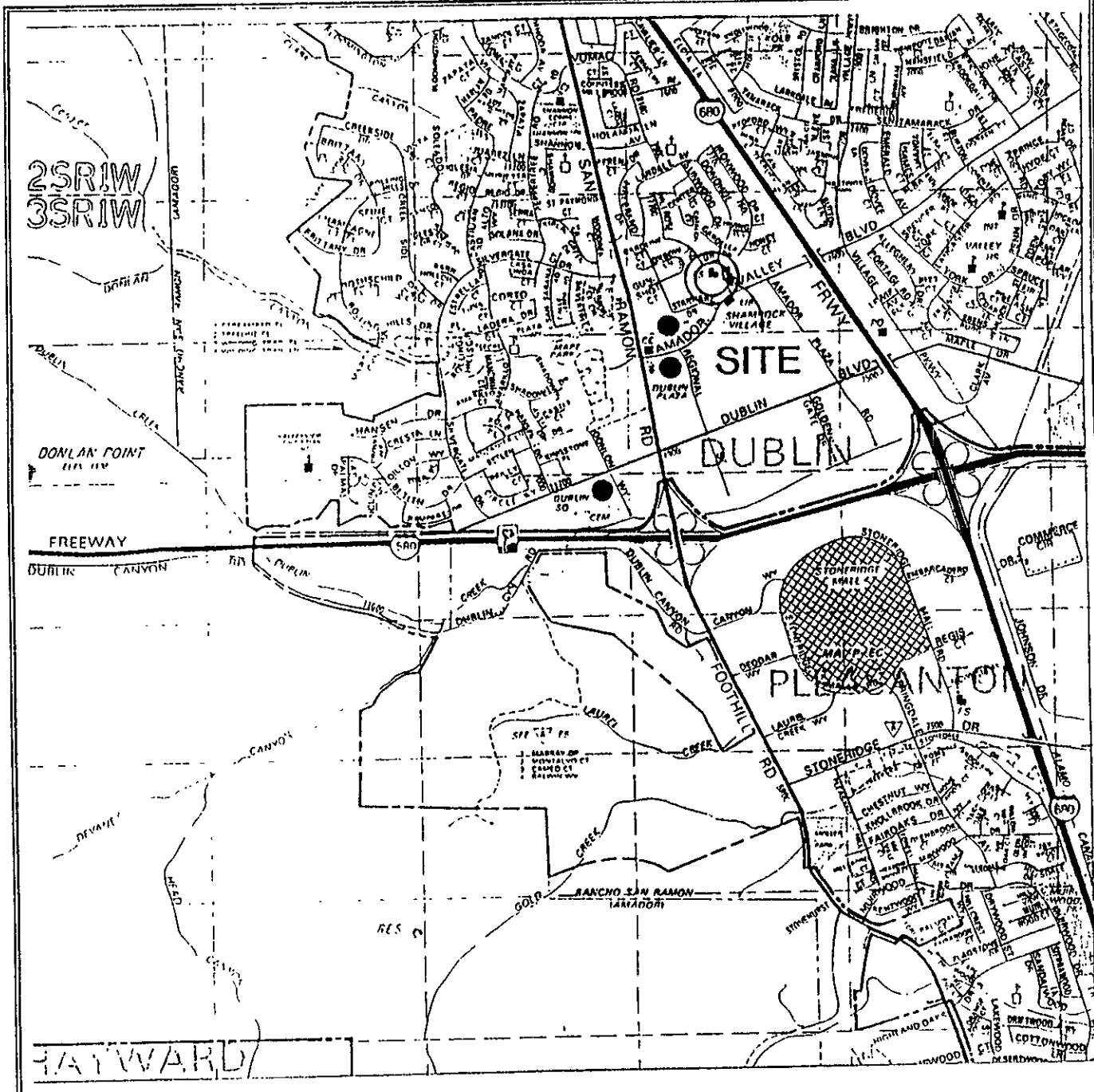
3.2 Fees

Our fees for this work would be computed in accordance with our 1993 Fee Schedule. The total charges for the scope of work outlined herein are separately estimated for 1) well installation and initial sampling; and, 2) quarterly monitoring for [redacted] years:

1. Well Installation and Initial Soil and Water Sampling $ [redacted]

2. Quarterly Monitoring For [redacted] Years at [redacted]/Yr. . . $ [redacted]

The preceding fee estimates would not be exceeded without prior client notification and authorization.



Source: Thomas Guide to Alameda and Contra Costa Counties, 1990

Scale: 1" = 2200'

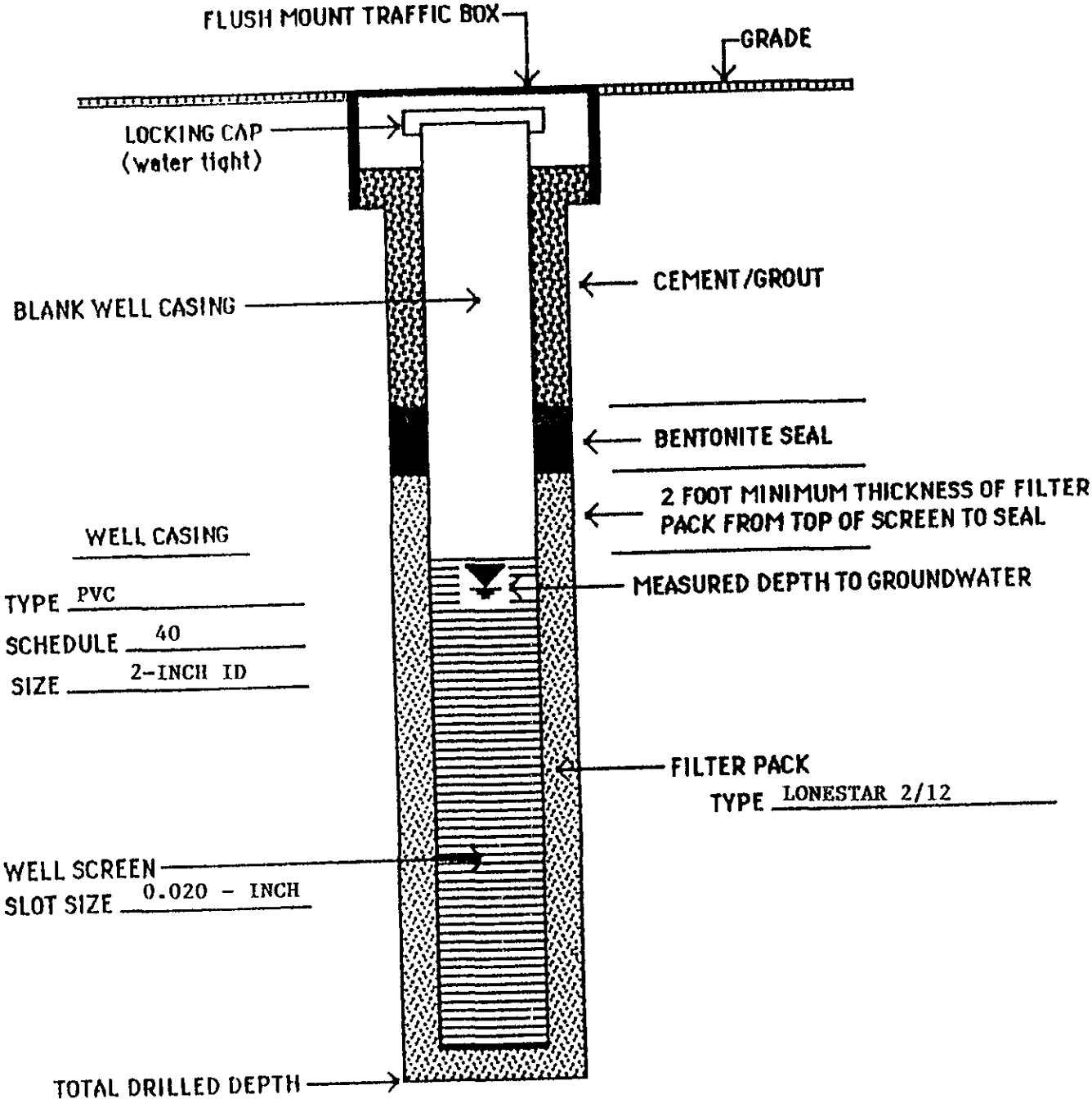
GROUNDWATER MONITORING WELL INSTALLATION AND QUARTERLY MONITORING D.R.F.A. STATION NO. 1 7494 DONOHUE DRIVE DUBLIN CALIFORNIA	**VICINTY MAP** Proposal Number PR93129.3 May 1993 FIGURE: 1	**BSK** & ASSOCIATES

LEGEND:

- Proposed Groundwater Monitoring Well Location

Scale: 1" = 40'

GROUNDWATER MONITORING WELL INSTALLATION AND QUARTERLY MONITORING D.R.F.A. STATION NO. 1 7494 DONOHUE DRIVE DUBLIN CALIFORNIA	**SITE PLAN** Proposal Number PR93129.3 May 1993 FIGURE: 2	BSK & ASSOCIATES



TYPICAL MONITORING WELL CONSTRUCTION DETAILS

Proposal No. PR93129.3
May 1993
FIGURE: 3

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& Associates