

R 2435



GETTLER-RYAN INC.

TRANSMITTAL

TO: Mr. Thomas Bauhs
Chevron Products Company
P.O. Box 6004
San Ramon, California 94583

DATE: January 25, 2002
PROJ. #: DG93600G.4CT1
SUBJECT: Chevron Station #9-3600
2200 Telegraph Avenue
Oakland, California

FROM:

Tony P. Mikacich
Project Geologist
Gettler-Ryan Inc.
3140 Gold Camp Drive, Suite 170
Rancho Cordova, California 95670

JAN 29 2002

WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	January 24, 2002	Work Plan for Monitoring Well Installation, dated January 24, 2002.

THESE ARE TRANSMITTED as checked below:

- For review and comment Approved as submitted Resubmit __ copies for approval
- As requested Approved as noted Submit __ copies for distribution
- For approval Return for corrections Return __ corrected prints
- For your files

COMMENTS:

Copies of the above referenced work plan will be distributed to the following:

Mr. Don Hwang, Alameda County Health Care Services Agency, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502-6577

Mr. James Brownell, Delta Environmental Consultants, Inc., 3164 Gold Camp Dr., Suite 200, Rancho Cordova, CA 95670-6021

If you have any questions please call us in Rancho Cordova at 916.631.1300.



GETTLER-RYAN INC.

FACSIMILE COVER SHEET

TO: Don Hwang DATE: 01/25/02

COMPANY: ACHCSA

FAX NUMBER: (510) 337-9335

FROM: Tony Mikacich

SUBJECT: Work Plan for 2200 Telegraph Ave., Oakland - CHEVRON #9-3600.

COMMENTS: Don:

As I mentioned to you yesterday, I have scheduled the drilling for February 14, 2002. Please call if you have any questions regarding this work plan. I will send a hardcopy via mail.

Thanks again,
Tony

Total Pages Including Cover Sheet: 13

If there are any problems with this transmission, please call 916.631.1300.



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WORK PLAN FOR MONITORING WELL INSTALLATION

at

Chevron Service Station No. 9-3600
2200 Telegraph Avenue
Oakland, California


Report No. DG93600G.4CT1
Delta Project No. DG93-600-G

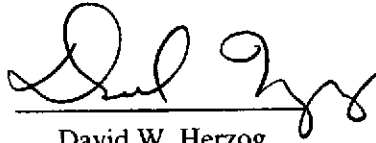
Prepared for:

Mr. Thomas Bauhs
Chevron Products Company
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Prepared by:

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Tony P. Mikacich
Project Geologist


David W. Herzog
Senior Geologist
R.G. 7211



January 24, 2002

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WORK PLAN FOR MONITORING WELL INSTALLATION

at

Chevron Service Station #9-3600
2200 Telegraph Avenue
Oakland, California

Report No. DG93600G.4CT1
Delta Project No. DG93-600-G

INTRODUCTION

At the request of Chevron Products Company (Chevron), Delta Environmental Consultants, Inc. network associate Gettler-Ryan Inc. (GR) has prepared this Work Plan for the installation of three groundwater monitoring wells to delineate the extent of dissolved hydrocarbons in groundwater at the subject site. The proposed scope of work includes: obtaining the required well installation permit from the Alameda County Public Works Agency (ACPWA); updating the site safety plan; installing three groundwater monitoring wells; collecting soil samples from the well borings for description and possible analysis; developing and sampling the newly installed groundwater monitoring wells; analyzing selected soil and groundwater samples; surveying the new wellhead elevation; and preparing a report that presents the findings of the investigation. This work has been requested by Alameda County Health Cares Services Agency (ACHCSA) in letter dated January 2, 2002.

The scope of work described in this work plan is intended to comply with the California Code of Regulations, Title 23, Division 3, Chapter 16, *Underground Tank Regulations*, the California Regional Water Quality Control Board (CRWQCB) *Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites*, and ACHCSA guidelines.

SITE DESCRIPTION

The subject site is an active Chevron service station located on the southeast corner of the intersection of Telegraph Avenue and West Grand Avenue in Oakland, California (Figure 1). Site facilities consist of a kiosk, three gasoline underground storage tanks (USTs), five fueling dispenser islands, and canopy. Bay Area Regional Transit (BART) tracks run beneath the center of the site in an underground tunnel at a depth of approximately 30 feet below surface grade (bsg). The approximate location of the BART right-of-way is presented on Figure 2. The proposed monitoring well locations are outside the BART right-of-way. Locations of pertinent site features are shown on Figure 2.

WORK PLAN FOR MONITORING WELL INSTALLATION

Chevron Service Station No. 9-3600

2200 Telegraph Avenue

Oakland, California

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PREVIOUS ENVIRONMENTAL WORK

In October 1986, Blaine Tech Services Inc. of San Jose, California, collected and analyzed soil and groundwater samples from a re-excavated backfilled tank pit from which a tank had been previously removed. Total Petroleum Hydrocarbons as gasoline (TPHg) were detected at concentrations as high as 44 parts per million (ppm) in a soil sample from a depth between 2 and 3 feet bsg. TPHg were detected at concentrations of 4.5 ppm from an additional soil sample collected from a depth of approximately 13 feet bsg in the former tank pit area. On October 24, 1986, one water sample was collected from the re-excavated tank pit location. TPHg and benzene were detected in groundwater at concentrations of 480,000 and 10,000 parts per billion (ppb), respectively. The samples were not analyzed for fuel oxygenating compounds. During station reconstruction around 1986-87, sixteen vapor wells equipped with vapor sensors were installed because of the BART tracks that run beneath the center of the site in an underground tunnel. It is GR's understanding that the vapor wells and sensors were abandoned and removed from the site.

On October 13, 1992, Groundwater Technology, Inc. collected and analyzed one groundwater sample from former vadose well (VW-2-1). TPHg and benzene were detected at concentrations of 42,000 and 3,300 ppb, respectively. Depth to groundwater was 4.43 feet bsg during the October 13, 1992 sampling event. Groundwater samples were not analyzed for fuel oxygenating compounds.

On July 25, 1994, gasoline product lines were removed in order to upgrade the system. Touchstone Developments of Santa Rosa, California, were onsite to observe the removal of product piping and collect soil samples for analysis from product line trenches at depths between 4.5 and 5.5 feet bsg. TPHg were detected at concentrations as high as 3.6 ppm in a soil sample collected at a depth of 5.5 feet bsg. Samples were not analyzed for fuel oxygenating compounds.

Based on the available analytical soil data, relatively low concentrations of hydrocarbons were detected in soil samples collected from beneath the former product piping to depths as great as 5.5 feet bsg. Additionally, soil samples collected from the former UST re-excavation area indicate a decrease in TPHg concentrations with depth. The highest concentration of hydrocarbon-impacted soil detected onsite is in the area of the former USTs. The analytical results of groundwater samples collected indicate the highest concentrations of dissolved hydrocarbons in groundwater were collected from the UST re-excavation. Lateral extent of hydrocarbon-impacted groundwater is not delineated. Sample locations are shown on Figure 2.

Soil Boring Investigation

Eight hand auger soil borings were advanced by GR on November 8, 2000, to depths between 4 feet bsg and 16 feet bsg. Due to encroachment permit restrictions, none of the borings drilled in the BART right-of-way could be advanced deeper than 10 feet bsg.

TPHg or fuel oxygenates were not detected in any of the soil samples analyzed. Groundwater was encountered in borings B-1 and B-7. TPHg, BTEX, or fuel oxygenate compounds were not detected above the laboratory reporting limit in the grab groundwater sample from boring B-7. The grab groundwater sample from boring B-1 contained 29,000 ppb of TPHg, 180 ppb of benzene, 730 ppb of methyl tertiary-butyl ether (MtBE) and 380 ppb of tertiary-butyl alcohol (TBA).

WORK PLAN FOR MONITORING WELL INSTALLATION

Chevron Service Station No. 9-3600

2200 Telegraph Avenue

Oakland, California

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Geology and Hydrogeology

The subject site is located on the East Bay Plane, approximately 4 miles east of San Francisco Bay and approximately 1 mile west of Lake Merritt. The site is a relatively flat lot at an elevation of approximately 20 feet above mean sea level. The nearest surface water is Lake Merritt, located approximately 1 mile east of the subject site, which drains into the Oakland Inner Harbor. Soil encountered during a previous investigation consisted predominately of light brown to black, moist, silty sand, sandy clay, and poorly graded sand to a maximum explored depth of 16 feet bsg. Groundwater was encountered beneath the site at a depth of approximately 5 feet bsg on October 13, 1992. Groundwater has been encountered recently at depths of approximate 12 and 16 feet bsg. Current groundwater flow direction and gradient are not known for the site. Based on information gathered by GR, groundwater flow direction on an adjacent UST site (Former Texaco Station located directly across Telegraph Avenue at 2225 Telegraph Avenue) was estimated to be south-southwest on June 24 and July 11, 1988.

PROPOSED SCOPE OF WORK

To further evaluate and delineate the extent of the dissolved petroleum hydrocarbon plume in the vicinity of the subject site, GR proposes to install three groundwater monitoring wells at the locations shown on Figure 2. GR's Field Methods and Procedures are included in Appendix A. To implement the scope of work, GR proposes the following six tasks:

Task 1. Pre-field Activities

GR will update the site safety plan. The required well installation permit will be obtained from the Alameda County Public Works Agency. Underground Service Alert (USA) will be notified at least 48 hours prior to drilling.

Task 2. Well Installation and Soil Sampling

GR will install three groundwater monitoring wells at the locations shown on Figure 2. Drilling and well construction will be performed by a California licensed driller using 8-inch diameter hollow-stem augers and a truck-mounted drill rig. A GR geologist will monitor the drilling activities and prepare a log of each boring. Soil samples for description and possible chemical analysis will be obtained from the borings at 5-foot intervals, as a minimum. Selected soil samples will be submitted for chemical analysis as described in Task 5.

The groundwater monitoring wells will be constructed with 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) well casing and 0.02-inch machine-slotted well screen. The proposed wells will be constructed with 15 feet of screen as shown on the Proposed Well Construction Detail (Figure 3). However, the actual screen interval will depend on the conditions encountered during drilling.

Soil from each sampled interval will be screened in the field for the presence of volatile organic compounds using a photoionization detector (PID). This data will be collected for reconnaissance purposes only, and will not be used as verification of the presence or absence of petroleum hydrocarbons. Screening data will be recorded on the boring logs. Drill cuttings will be stored at

WORK PLAN FOR MONITORING WELL INSTALLATION

Chevron Service Station No. 9-3600

2200 Telegraph Avenue

Oakland, California

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the site pending disposal.

The drill cuttings will be stockpiled on and covered with plastic sheeting or stored in properly labeled 55-gallon drums. Soil samples will be collected from the drill cuttings as described in Appendix A. Stockpile samples will be analyzed as described in Task 5. Drill cuttings will be removed by Chevron's contractor Integrated Wastestream Management (IWM) for disposal, and steam cleaning rinsate wastewater will be transported by IWM for disposal at McKittrick.

Task 3. Well Development and Groundwater Sampling

Newly installed groundwater monitoring wells will be developed after standing a minimum of 72 hours following completion. During development, the clarity of the discharged well water and selected groundwater parameters (pH, temperature, and conductivity) will be monitored. When the discharge water runs clear and the groundwater parameters have stabilized, a groundwater sample will be collected. The groundwater sample will be analyzed as described in Task 5. Groundwater removed from the well during development and sampling will be transported by IWM to McKittrick for disposal.

Task 4. Wellhead Survey

Following installation, a California licensed surveyor will survey the top of casing elevation of the well to mean sea level, and establish horizontal coordinates of the well. GPS measurements will also be obtained for the wells.

Task 5. Laboratory Analyses

Soil and groundwater samples will be submitted for chemical analysis to Lancaster Laboratories (ELAP #2116). Selected soil and groundwater samples will be analyzed for TPHg by EPA Method 8015 (Modified), and for the gasoline constituents benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary-butyl ether (MtBE) by EPA Method 8021B. Additionally, the samples will be analyzed for the fuel oxygenates MtBE, TBA, ethyl tertiary-butyl ether (EtBE), tertiary-amyl methyl ether (TAME), and di-isopropyl ether (DIPE) by EPA Method 8260B. The soil samples from the drill cuttings stockpile will be analyzed as required by the disposal facility.

Task 6. Report Preparation

Following receipt and analysis of all data, a report will be prepared which summarizes the procedures and findings associated with this investigation. This report will be submitted to Chevron for their use and distribution.

PROJECT STAFF

Mr. David W. Herzog, a Registered Geologist in the State of California (R.G. No. 7211) will provide technical oversight and review of the work. Mr. Greg A. Gurss, Senior Project Manager, will supervise implementation of field and office operations. GR employs a staff of geologists, engineers, and technicians who will assist with the project.

WORK PLAN FOR MONITORING WELL INSTALLATION

Chevron Service Station No. 9-3600

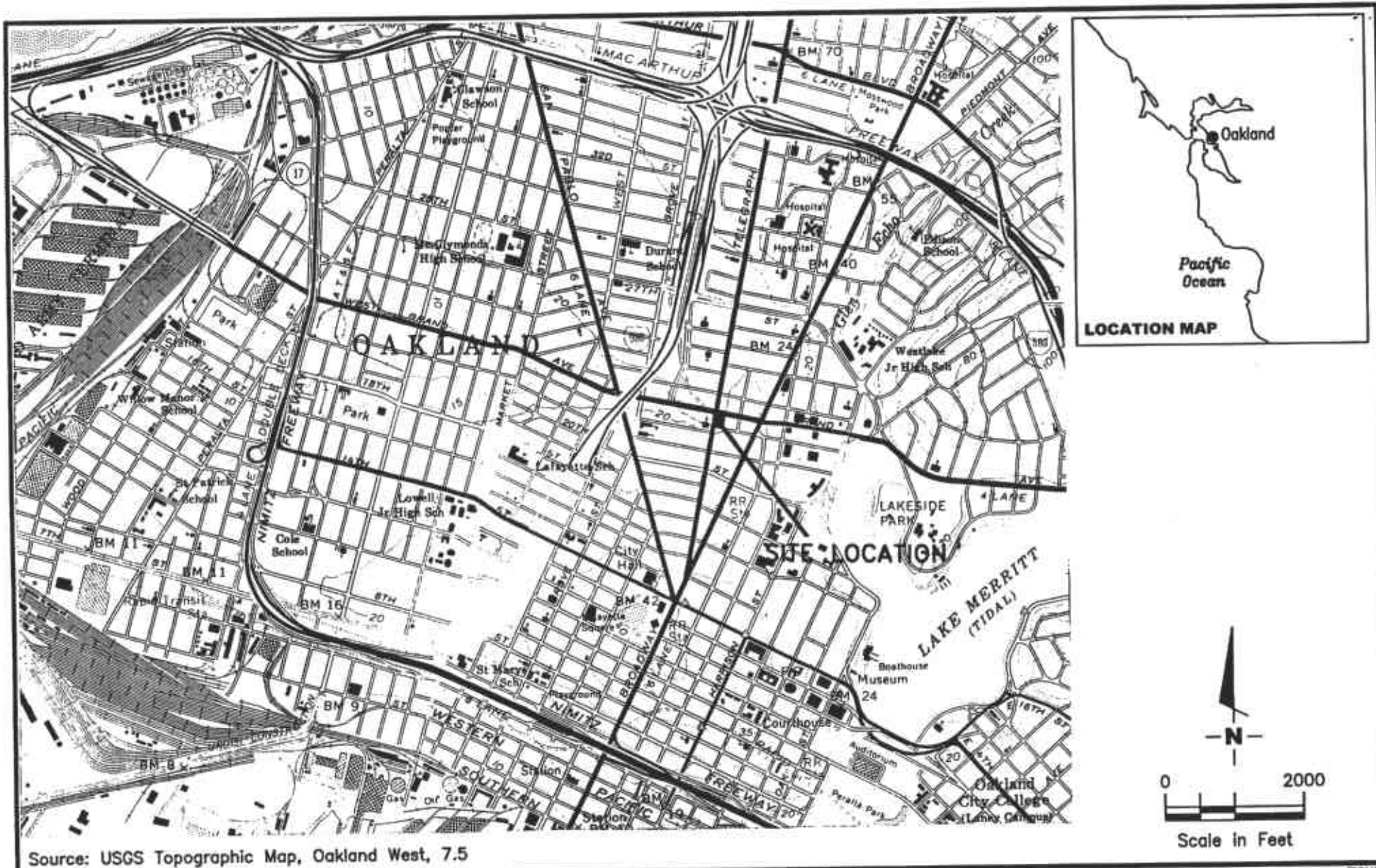
2200 Telegraph Avenue

Oakland, California

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SCHEDULE

Upon approval of the Work Plan, GR will implement the proposed scope of work. The report of the findings will follow approximately 60 days after completion of the field work.



Source: USGS Topographic Map, Oakland West, 7.5



Gettler - Ryan Inc.

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VICINITY MAP

Chevron Service Station No. 9-3600
2200 Telegraph Avenue
Oakland, California

FIGURE

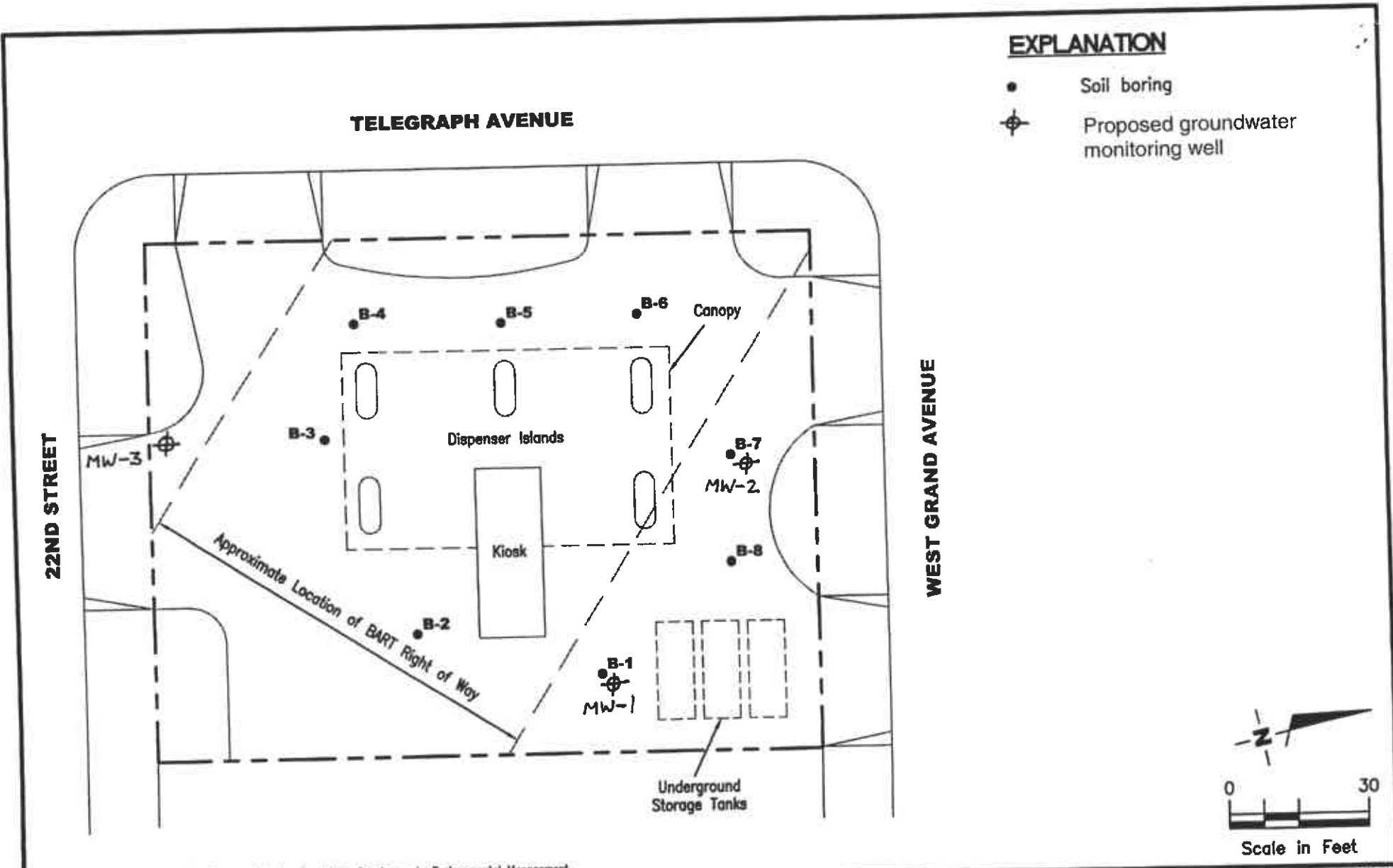
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JOB NUMBER
346895

REVIEWED BY

DATE
11/00

REVISED DATE



EXPLANATION

- Soil boring
- ⊕ Proposed groundwater monitoring well

Source: Figure modified from drawing provided by Touchstone Developments Environmental Management.

FIGURE

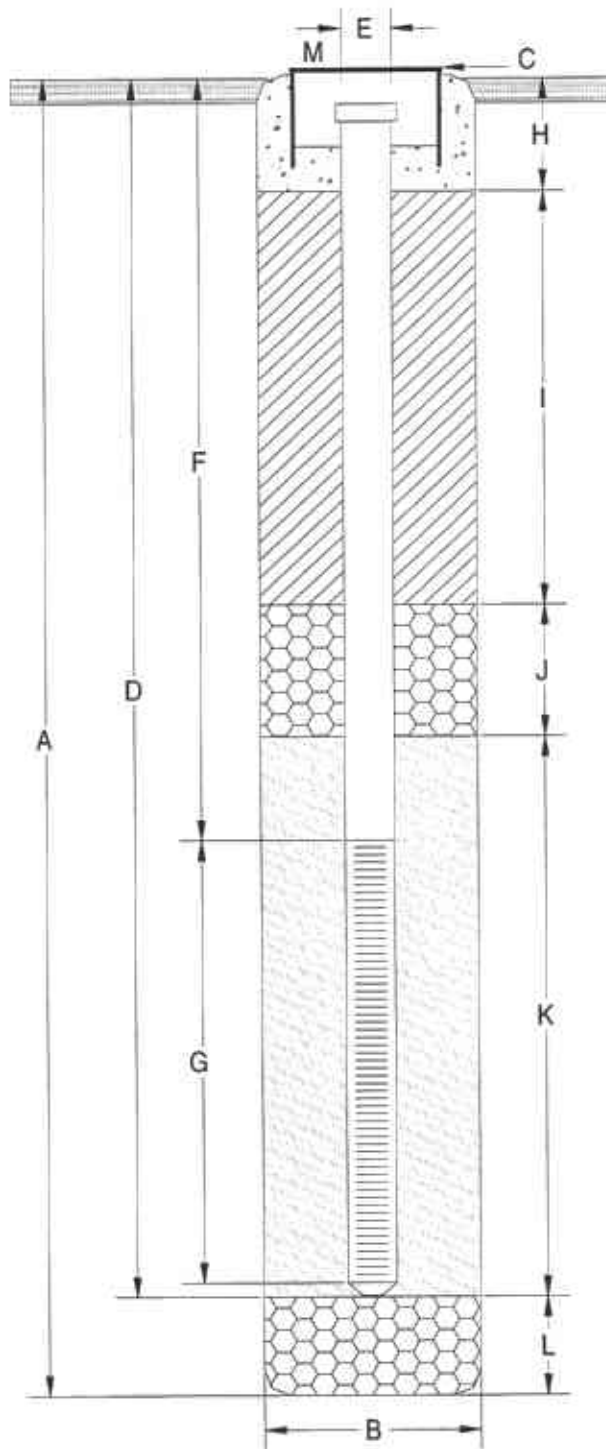
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SITE PLAN
 Chevron Service Station No. 9-3600
 2200 Telegraph Avenue
 Oakland, California

2

PROJECT NUMBER 346895	REVIEWED BY	DATE 11/00	REVISED DATE
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PROPOSED WELL CONSTRUCTION DETAIL



- A Total Depth of Boring 20 ft.
- B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger
- C Top of Casing Elevation NA ft.
 Referenced to Mean Sea Level
 Referenced to Project-Datum
- D Casing Length 20 ft.
Material Schedule 40 PVC
- E Casing Diameter 2 in.
- F Depth to Top Perforations 5 ft.
- G Perforated Length 15 ft.
Perforated Interval from 5 to 20 ft.
Perforation Size 0.02 in.
- H Surface Seal from 0 to 1 ft.
Seal Material Concrete
- I Backfill from 1 to 3 ft.
Backfill Material Neat Cement
- J Seal from 3 to 4 ft.
Seal Material Bentonite
- K Gravel Pack from 4 to 20 ft.
Pack Material Lonestar Sand #3
- L Bottom Seal NA ft.
Seal Material NA
- M Vault box, locking well cap, and lock.

Note: Depths measured from initial ground surface.
Wells installed in the City of Oakland will be completed at surface as required by ACPWA permit conditions.

FIGURE

3



GETTLER - RYAN, INC.

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voice: 916.631.1300 fax: 916.631.1317

JOB NUMBER

DG93600G. 4CT1

REVIEWED BY

DATE

01/21/02

REVISED DATE

REVISED DATE

GETTLER-RYAN INC.

FIELD METHODS AND PROCEDURES

Site Safety Plan

Fieldwork performed by Gettler-Ryan Inc. (G-R) is conducted in accordance with G-R's Health and Safety Plan (revised January 16, 1995) and the Site Safety Plan. G-R personnel and subcontractors who perform work at the site are briefed on the contents of these plans prior to initiating site work. The G-R geologist or engineer at the site when the work is performed acts as the Site Safety Officer. G-R utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

Collection of Soil Samples

Soil borings are drilled by a California-licensed well driller. A G-R geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples are collected from the soil boring with a split-barrel sampling device fitted with 2-inch-diameter, clean brass tube or stainless steel liners. The sampling device is driven approximately 18 inches with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler each successive 6 inches is recorded on the boring log. The encountered soils are described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with Teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based on:

- a. depth relative to underground storage tanks and existing ground surface
- b. depth relative to known or suspected groundwater
- c. presence or absence of contaminant migration pathways
- d. presence or absence of discoloration or staining
- e. presence or absence of obvious gasoline hydrocarbon odors
- f. presence or absence of organic vapors detected by headspace analysis

Field Screening of Soil Samples

A PID is used to perform headspace analysis in the field for the presence of organic vapors from the soil sample. A small volume of sample (20-30 cm³) is placed in a Ziplock®-type plastic bag with headspace. After allowing the sample to warm for approximately 10 minutes, the PID sample tube is inserted into the headspace above the sample and a measurement taken. PID screening results are recorded on the boring log as reconnaissance data. G-R does not consider field-screening techniques to be verification of the presence or absence of hydrocarbons.

Construction of Monitoring Wells

Monitoring wells are constructed in the exploratory soil borings with Schedule 40 polyvinyl chloride (PVC) casing. All joints are thread-joined; no glues, cements, or solvents are used in well construction. The screened interval is constructed of machine-slotted PVC well screen that generally extends from the total well depth to a point above the groundwater. Appropriately sized sorted sand is placed in the annular adjacent to the entire screened interval. A bentonite seal is placed in the annular space above the sand, and the remaining annular space is sealed with neat cement or cement grout.

Wellheads are protected with water-resistant traffic-rated vault boxes placed flush with the ground surface. The top of the well casing is sealed with a locking waterproof cap. A lock is placed on the well cap to prevent vandalism and unintentional introduction of materials into the well.

Measurement of Water Levels

The top of the newly installed well casing is surveyed by a California-licensed Land Surveyor to mean sea level (MSL). Depth-to-groundwater in the well is measured from the top of the well casing with an electronic water-level indicator. Depth-to-groundwater is measured to the nearest 0.01-foot, and referenced to MSL.

Well Development and Sampling

The purpose of well development is to improve hydraulic communication between the well and the surrounding aquifer. Prior to development, each well is monitored for the presence of floating product and the depth-to-water is recorded. Wells are then developed by alternately surging the well with a vented surge block, then purging the well with a pump or bailer to remove accumulated sediments and draw groundwater into the well. Development continues until the groundwater parameters (temperature, pH, and conductivity) have stabilized. After the wells have been developed, groundwater samples are collected. Well development and sampling is performed by Gettler-Ryan Inc. of Dublin, California.

Storing and Sampling of Drill Cuttings

Drill cuttings are stockpiled on plastic sheeting and samples are collected and analyzed on the basis of one composite sample per 100 cubic yards of soil. Stockpile samples are composed of four discrete soil samples, each collected from an arbitrary location on the stockpile. The four discrete samples are then composited in the laboratory prior to analysis.

Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass sample tube into the stockpiled material with a hand, mallet, or drive sampler. The sample tubes are then covered on both ends with Teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.