ALISTO ENGINEERING GROUP

ENVIRONMENTAL PROTECTION

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June 9, 2000

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

10-479-03-001

Subject: Work Plan for Well Rehabilitation and Replacement
6301 San Pablo Avenue
Oakland, California

Dear Mr. Chan:

On behalf of Ms. Connie Lam, Alisto Engineering Group is pleased to submit this work plan for rehabilitation and destruction of monitoring wells at 6301 San Pablo Avenue, Oakland, California.

The proposed scope of work is to address the concerns of the Alameda County Health Care Services Agency as set forth in the March 3 and May 3, 2000 letters. As discussed in the February 28, 2000 work plan submitted by Alisto, this revised work plan includes the scope of work to rehabilitate Monitoring Wells MW-2 and MW-3 and replace MW-4.

Please call if you have questions or need additional information.

Sincerely,

ALISTO ENGINEERING GROUP

Brady Nagle
Project Manager

Enclosure

cc: Ms. Connie Lam (with enclosure)
Mr. Brad Ledesma, ExxonMobil (with enclosure)

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CONTRACTORS LICENSE NO. A-652544

WORK PLAN
FOR
MONITORING WELL REHABILITATION AND REPLACEMENT

6301 San Pablo Avenue
Oakland, California

Project No. 10-479-03-001

Prepared for:

Ms. Connie Lam
200 Dorado Terrace
San Francisco, California

Prepared by:

Alisto Engineering Group
1575 Treat Boulevard, Suite 201
Walnut Creek, California

June 6, 2000

Brady Nagle
Project Manager

Al Sevilla, P.E.
Principal

REGISTERED PROFESSIONAL ENGINEER
ALBERTO SANCHEZ SEVILLA
26392
Exp. Date 12/31/01
CIVIL
STATE OF CALIFORNIA

WORK PLAN
MONITORING WELL REHABILITATION AND REPLACEMENT

6301 San Pablo Avenue
Oakland, California

Project No. 10-479-03-001

INTRODUCTION

Alisto Engineering Group has been retained by Ms. Connie Lam to prepare a work plan to rehabilitate and replace groundwater monitoring wells at the former Mobil Oil site at 6301 San Pablo Avenue, Oakland, California. A site vicinity map is shown as Figure 1, and a site plan showing the locations of the monitoring wells is shown as Figure 2.

The proposed scope of work is to address the concerns of the Alameda County Health Care Services Agency as set forth in letters dated March 3 and May 3, 2000 requesting a revised work plan.

PROJECT BACKGROUND

The project background regarding the groundwater monitoring well installation and destruction is as follows:

- On March 1, 1996, four groundwater monitoring wells, MW-1 through MW-4, were installed onsite by Mobil Oil Corporation to assess the extent of petroleum hydrocarbons in soil and groundwater.

- In the spring of 1999, Monitoring Well MW-4 was partially excavated during installation of a garage bay associated with an oil changing facility being constructed at the site. Subsequently, Well MW-4 could not be located and, as such, cannot be properly destroyed.

- Review of plans for the oil changing building indicated that Well MW-1 would also eventually be damaged during construction. As such, Well MW-1 was properly destroyed on May 28, 1999, and a report documenting the destruction was prepared by Alisto in June 1999.

- During ongoing site construction, Mobil Business Resources Corporation noted that Wells MW-2 and MW-3 were damaged. Site inspection by Alisto in January 2000, however, noted that the well casing for Well MW-2 was intact with a cap in place. The condition of Well MW-3 could not be observed due to standing water and saturated site conditions.

- On April 25, 2000, Alisto visited the site to inspect the conditions of Wells MW-2 and MW-3 and remove construction debris from the wells. Debris was removed from MW-3 to the total depth of the casing at approximately 19 feet. Debris, which could not be removed from MW-2 using the equipment available, was measured at a depth of approximately 11 feet below grade. Additionally, during site construction, the casing was removed to a depth of approximately 2 feet below grade, and a temporary 6-inch-diameter riser was installed.

SCOPE OF WORK

The proposed scope of work consists of the following tasks: (1) rehabilitate Wells MW-2 and MW-3; (2) replace Well MW-4; and (3) prepare a report documenting field procedures. The scope of work is presented in detail below.

Task 1: Rehabilitate Wells MW-2 and MW-3

Debris will be removed from Well MW-2 to the total depth of the casing at approximately 20 feet below grade using a vacuum device connected to a compressor to airlift the debris out of the well casing. A 12-inch-diameter core will be made through the existing concrete slab at each monitoring well location to allow installation of the well vault and repair of the well casing. An annular space of approximately 3 inches around the well casing will be hand excavated to the top of the existing well seal. A coupling will be installed onto the existing 4-inch-diameter well casing to extend the casing to approximately 6 inches below grade. The neat cement seal will be extended to approximately 12 inches below grade, and traffic-rated utility vaults and watertight locking well caps will be installed on each well. All work will be preformed by state-licensed well drillers.

Task 2: Install Replacement Groundwater Monitoring Well

After obtaining a permit from the Alameda County Public Works Agency, one groundwater monitoring well will be installed at the location shown on the attached site plan to replace Well MW-4. The location of the proposed well has been changed from that proposed in the February 28, 2000 work plan as per the ACHCSA comments on March 3, 2000.

The construction of the proposed monitoring well will be based on site-specific hydrogeologic conditions and the nature of contamination encountered. However, it is anticipated that the construction of the proposed monitoring well will be similar to the existing wells onsite.

The proposed monitoring well will be constructed using a truck-mounted, CME 75 drilling rig or equivalent. Soil samples will be collected at 5-foot intervals and at significant stratigraphic changes beginning at 5 feet below grade and continuing to the total depth of the borings. Samples will be collected from a split-spoon sampler lined with stainless steel tubes and logged in the field by a qualified geologist or engineer using the Unified Soils Classification System. Each sample will also be field screened using a photoionization detector (PID) or combustible gas indicator to assist in selecting samples for laboratory analysis. One or two soil samples from near the groundwater surface from ~~each~~ the boring will

be submitted for chemical analysis based on PID readings. The samples selected for analysis will be sealed airtight with Teflon sheeting, plastic caps, and adhesive tape, and placed immediately into an iced cooler.

The proposed well will be constructed using Schedule 40 PVC casing, with 0.010-inch perforations installed from approximately 5 to 20 feet below grade, and the associated filter pack. The wells will be surged to consolidate the sand pack prior to installing a 1-foot-thick bentonite spacer. The remainder of the annulus will be sealed with Portland Type I/II neat cement. The top of the well will be secured with a watertight locking cap and well vault finished flush with the ground surface.

Task 3: Develop and Survey Groundwater Monitoring Wells

The rehabilitated and replacement wells will be developed a minimum of 72 hours after installation of the neat cement seal. Development will be accomplished by purging up to 10 saturated well casing volumes.

To calculate the hydraulic gradient and groundwater flow direction of the shallow aquifer, each well will be surveyed by a state-licensed surveyor from the top of the casing to within 0.01-foot accuracy in reference to an established benchmark or a common datum.

Task 4: Analyze Soil Samples

Selected soil samples will be transported to a state-certified laboratory and analyzed for the following:

- Total petroleum hydrocarbons as gasoline (TPH-G) using Environmental Protection Agency (EPA) Methods 5030/8015
- Benzene, toluene, ethylbenzene, and total xylenes using EPA Methods 5030/8020
- Methyl tert-butyl ether (MTBE) using EPA Method 5030/8020

Task 5: Dispose of Investigative Derived Wastes

Soil accumulated during well installation and rehabilitation will be placed in drums or stockpiled onsite pending the results of laboratory analysis and disposal approval by an appropriate facility. Water from equipment decontamination and well development will be placed in an Alisto Engineering tank truck for disposal at a recycling facility.

Task 6: Prepare Report

A report documenting field procedures and results of the above task will be submitted to the ACHCSA and ExxonMobil. The report will include analytical results, boring log, field notes, and sampling protocol and documentation.

SITE SAFETY PLAN

All field procedures and activities related to the well destruction will be conducted in accordance with the site-specific safety plan. The site safety plan was developed in accordance with applicable requirements of the California Environmental Protection Agency (Cal-EPA) and the federal and state Occupational Safety and Health Administration (OSHA and Cal-OSHA).

IMPLEMENTATION SCHEDULE

The proposed scope of work will be completed and a report submitted within 45 days after receipt of written approval of the work plan from the appropriate regulatory agencies.

The estimated schedule for completion of the tasks is as follows:

Task/Activity	Days After Work Plan Approval
- Rehabilitate and replace wells	20
- Develop and survey wells	30
- Prepare report	45

SOURCE:
USGS MAP, OAKLAND WEST QUADRANGLE,
7.5 MINUTE SERIES. 1959.
PHOTOREVISED 1980.

FIGURE 1

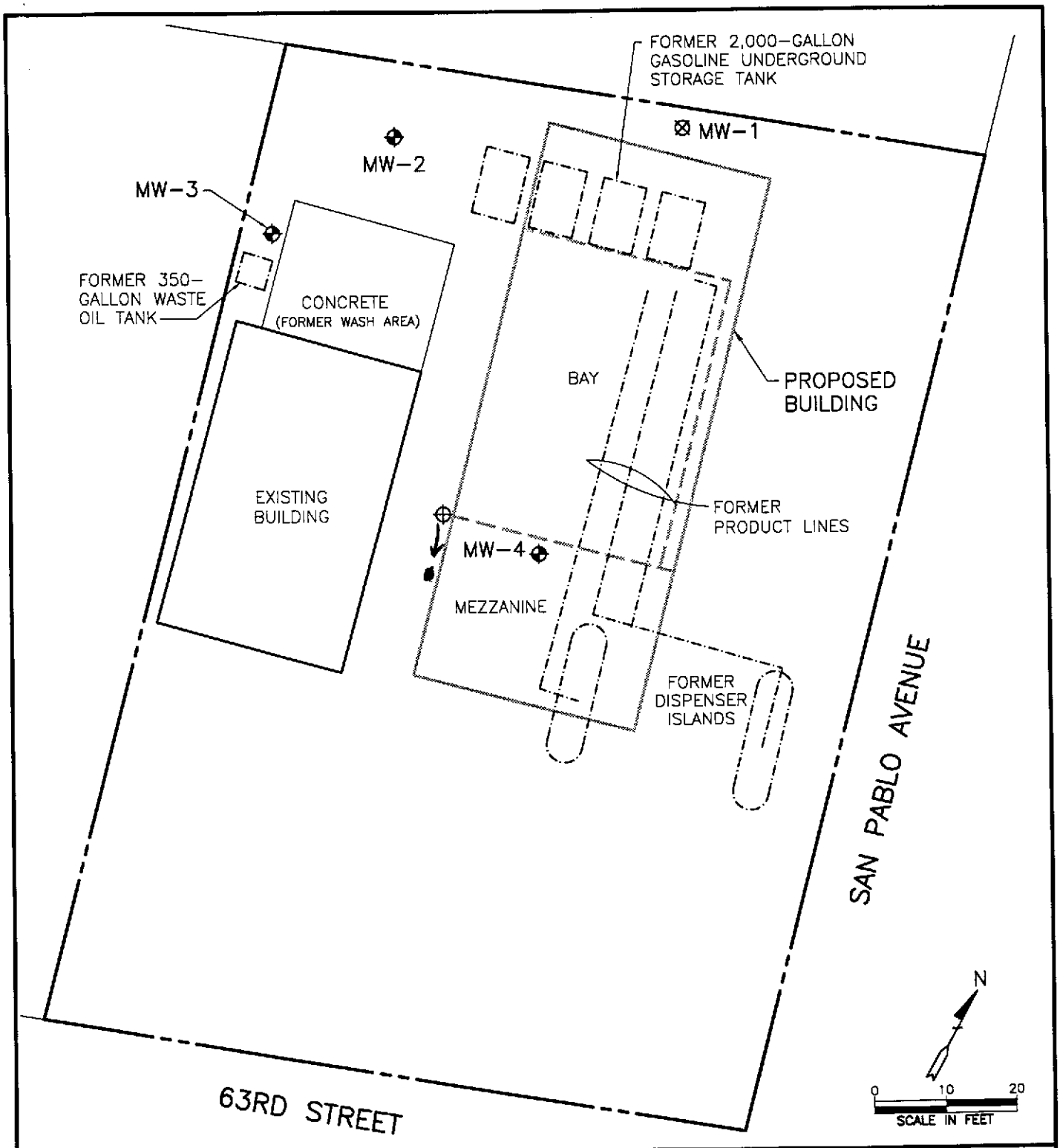
SITE VICINITY MAP

6301 SAN PABLO AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-309

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

10309B---.DWG 9-22-95 MAP 1=1



LEGEND

- ⊕ GROUNDWATER MONITORING WELL
- ⊠ DESTROYED WELL
- ⊕ PROPOSED REPLACEMENT WELL

FIGURE 2

SITE PLAN

6301 SAN PABLO AVENUE
OAKLAND, CALIFORNIA

PROJECT NO. 10-479

ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

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