HARZA

ENGINEERING COMPANY OF CALIFORNIA *Consulting Engineers*

ALCO HAZMAT
94 APR 20 PM 12:42

April 18, 1994
K763-G, 25397
(KE1025-3B-718)

Alameda County Health Care Services
80 Swan Way, Room 200
Oakland, California 94621

Attention: Ms. Juliet Shin

RE: WORKPLAN FOR ADDITIONAL GROUND WATER QUALITY INVESTIGATION
MILLS HALL/TOYON MEADOW
MILLS COLLEGE
OAKLAND, CALIFORNIA

Dear Ms. Shin:

At the request of Mr. David Johnson of Mills College, we are submitting for your review this workplan for relocating monitoring well MHW-1 at the Mills Hall/Toyon Meadow project at Mills College in Oakland, California. This work is being conducted to replace well MHW-1, which was destroyed under permit by a licensed contractor working directly for Mills College. This workplan is prepared in response to the March 28, 1994, letter from the Alameda County Health Care Services Agency (ACHCS).

BACKGROUND

A small capacity underground fuel-oil storage tank was removed from the parking lot of the former Mills Kitchen building in June, 1989. This area is now developed as an open lawn and landscape area referred to as Toyon Meadow. Total petroleum hydrocarbons (TPH) as diesel were detected at concentrations of 16 to 11,000 milligrams per kilogram, or parts-per-million (ppm), in soil samples collected from the excavation at the time of removal, and approximately 250 cubic yards of soil were excavated from the vicinity of the former tank and disposed off-site.

Harza, formerly Kaldveer Associates, performed a soil and ground water investigation at the site in 1989. A drilling and soil sampling program was initiated to determine the areal extent of impact. TPH as diesel was detected in soil samples to a depth of 12 to 15 feet below ground surface, approximately 2 feet below the ground water level. Monitoring well MHW-1 was

425 Roland Way Oakland, California 94621
Tel: (510) 568-4001 Fax: (510) 568-2205

installed in July, 1989, approximately 50 feet downgradient from the former tank location, as shown in Figure 1. Two additional wells (MHW-2 and MHW-3) were installed in June, 1991, at the location of the former tank and crossgradient from the former tank location. Ground water monitoring was conducted in June, 1991, and March and October, 1992. TPH as diesel concentrations have been below detection limits to 0.09 milligrams per liter, ppm, in well MHW-1 and 0.1 to 3.2 ppm in well MHW-2. TPH as diesel has not been detected in well MHW-3. Benzene, toluene, ethylbenzene, and xylenes have not been detected in any of the three wells. These results are presented in a report titled Ground Water Sampling Report for Mills Hall/Toyon Meadow, dated December 7, 1992. The measured ground water flow direction at the site has consistently been toward the southwest.

During recent landscape renovation activities, monitoring well MHW-1 was destroyed under permit by a licensed drilling contractor. This workplan details the replacement of well MHW-1.

SCOPE OF SERVICES

The scope of work to be performed during this investigation is based on the ACHCS letter of March 28, 1994. The investigation will include the following:

1. Preparation of this workplan for submittal to ACHCS outlining the installation of one ground water monitoring well, and performing one round of ground water sampling at the Mills Hall/Toyon Meadow site.

2. Performing a ground water sampling program consisting of:

   a) Supervising the installation of one ground water monitoring well to a depth of approximately 25 feet, located about 50 feet downgradient (southwest) of the former tank at Mills Hall, as shown in Figure 1.

   b) Collecting ground water samples from the new well and the two existing wells previously installed around Mills Hall. All ground water samples will be analyzed for total petroleum hydrocarbons as diesel using EPA Method 3550/GC-FID, and for purgeable aromatic compounds using EPA Method 8020.

      Applicable local regulations will be followed in permitting and installing the well.

3. Surveying the new well-top elevation relative to the existing wells MHW-2 and MHW-3, and measuring ground water levels in all wells for use in developing a ground water elevation contour map.

4. Submittal of a report describing the investigation, results of the laboratory analyses, and our conclusions concerning the extent of petroleum hydrocarbons in ground water at the site.

SCHEDULE

The monitoring well will be installed within 30 days of ACHCS approval of this workplan. The investigation summary report will be submitted to ACHCS within four weeks of the date of well installation.

If you have any questions regarding this workplan, please do not hesitate to call.

Very truly yours,

Dennis Laduzinsky, C.E.G.
Head, Geology and Hydrogeology

DL:ms
Copies: Addressee (1)
Mills College (1)
Attention: Mr. David Johnson

letter

MONITORING WELLS

The boring will be converted to a monitoring well, utilizing 2" schedule 40 threaded PVC pipe and slotted screen. The perforations will extend approximately 10 to 15 feet below, and 5 feet above, the upper zone of saturation. The perforated section annulus will be packed with clean graded sand to a level approximately two feet above the highest screen slots, and a one foot thick bentonite plug will be placed above the sand pack. The remaining annulus will be backfilled with cement grout to grade.

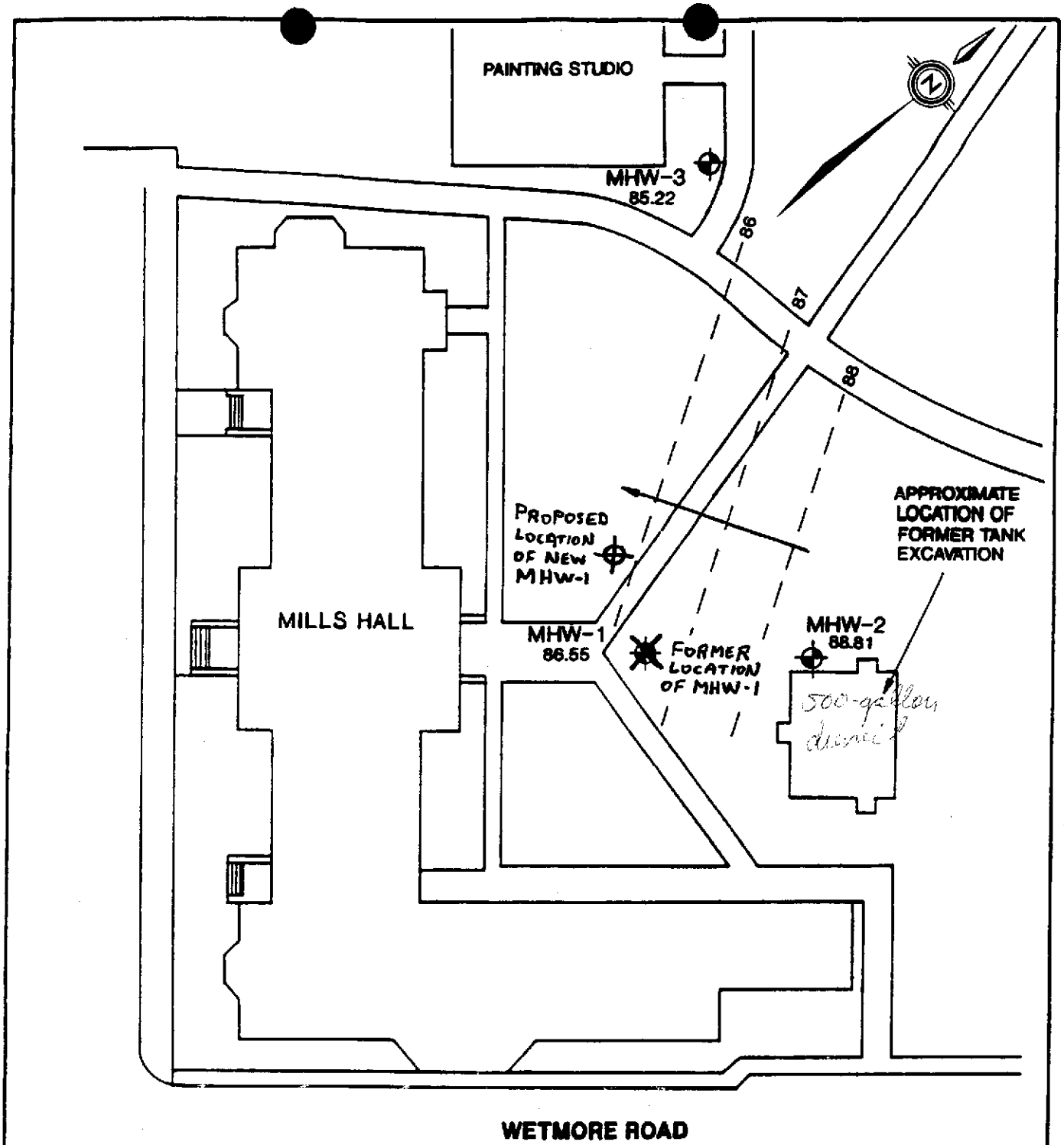
The well will be finished with a traffic rated concrete or metal box grouted to match the existing grade. The well will be completed with a locking cap to guard against vandalism. No solvents or glues will be used during monitoring well construction.

A minimum of 24 hours after installation, the well will be developed utilizing hand bailing or a submersible pump. Development will consist of the rapid removal of water from the well until the water is relatively free of sand, silt, and turbidity.

MONITORING WELL SAMPLING

A minimum of 24 hours after well development, and following an initial water level measurement, the monitoring well will be sampled using a Teflon bailer. Prior to sample collection, a minimum of four well-casing volumes of water will be purged in an attempt to collect a representative formation sample. Should the well become completely evacuated during purging, samples will be collected after the well has recovered to 80 percent of this initial water elevation. Water generated during well development and sampling will be stored in properly labeled drums at the site.

All samples collected will be placed in containers approved for the type of analyses required. Following the addition of any preservatives required per EPA approved sampling protocols, the samples will be labeled and immediately placed in refrigerated storage. A chain-of-custody form will be initiated by the sampler and accompany the samples to American Environmental Network (AEN) of Pleasant Hill, California, or other certified laboratory, for analysis. AEN is approved by the California Environmental Protection Agency for the type of analyses to be performed.



LEGEND

MHW-1 86.56 — APPROXIMATE LOCATION OF MONITORING WELL

88 — GROUND WATER CONTOURS APPROXIMATED BY STRAIGHT LINE INTERPOLATION BETWEEN WELLS

DIRECTION OF GROUND WATER FLOW

APPROXIMATE SCALE IN FEET

0 40 80

BASE: Provided by Mills College, Dated 3/88

HARZA KALDVEER
Consulting Engineers

SITE PLAN

MILLS HALL/TOYON MEADOW
Oakland, California

PROJECT NO.	DATE	Figure
	APRIL 1994	1