



FAX 415-726-(2)17

Telephone: 726-7700

March 16, 1995

Mr. Barney Chan
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Ste 250
Oakland, California 94502-6577

① - will not examine vertical extent (double casing to next aquifer)

② - call Kevin re: screening interval

I okayed ~~screening interval~~ @ 20' (20-30') - ③ consider a MW in brick walkway for better triangulation + to cover the presumed downgradient direction of contaminated soils.

VIA FACSIMILE TRANSMISSION AND PRIORITY MAIL

RE: Foothill Square Shopping Center, 10700 MacArthur Blvd., Oakland;
Additional Phase of Site Investigation at Youngs Cleaners

If MW not possible, how about Geoprobe w/ soil + GW syde.?

Dear Mr. Chan:

As you have requested in your correspondence dated January 5, 1995, I have enclosed a Work Plan to define the lateral extent of ground water contamination at the Youngs Cleaners site. In order for us to gather additional soil and ground water analytical data before the enforcement hearing for this site, scheduled on March 28, 1995, we would like to begin this additional investigation next Wednesday, March 22, 1995. I anticipate completing the investigation by Thursday, March 23, 1995.

Please call me at (415) 726-7700 if you have any questions at all about the proposed work. Thank you very much.

Sincerely,

Charles D. Conway

Charles D. Conway, R.G.



ENVIRONMENTAL
PROTECTION

95 MAR 22 PM 2:15

March 16, 1995

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Sincerely,

A handwritten signature in cursive script that reads "Charles D. Conway". The signature is written in dark ink and is positioned above the typed name.

Charles D. Conway, R.G.



**Work Plan for
Additional Site Investigation**

**at
Young's Cleaners**

**Foothill Square Shopping Center
10700 MacArthur Boulevard
Oakland, California**

March, 1995

**Augeas Corporation
780 Purissima Street
P.O. Box 940
Half Moon Bay, CA 94019
Telephone: (415) 726-7700
Facsimile (415) 726-1217**



A U G E A S

This work plan was prepared under the supervision of a registered geologist. All statements and recommendations are based solely upon field observations made by Augeas Corporation and upon available analytical results.

Site conditions are subject to change with time; therefore, our recommendations result only from the interpretation of present conditions and available site information. This work plan was prepared in accordance with accepted professional standards and technical procedures as certified below.

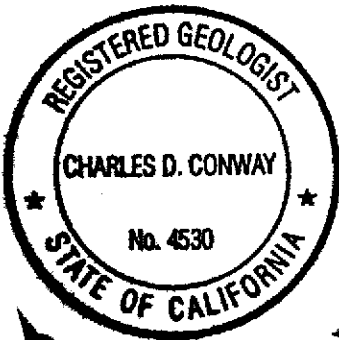
Reviewed by:

Charles D. Conway

Charles D. Conway, R.G. No. 4530

March 16, 1995

Date





A U G E A S

1.0 INTRODUCTION

In response to the request of our client and in compliance with directives from the Alameda County Health Care Services Agency dated January 5 and February 25, 1995, Augeas Corporation has prepared this Work Plan for additional site investigation of the subject site located at 10700 MacArthur Boulevard, Oakland, California. The site is located in the Foothill Square Shopping Center at the intersection of Foothill Boulevard and MacArthur Boulevard. The site location is shown in Figure 1, "Site Location Map".

2.0 BACKGROUND

A summary of the site history is presented in Augeas Corporation's 1994 "Report of Site Investigation" for Young's Cleaners. Figure 2, "Site and Boring Location Plan", presents the layout of the dry cleaners with respect to the southwest corner of the shopping center site. Figure 3, "Site and Proposed Boring Location Plan", is an expanded view of the dry cleaners showing all of the existing wells and borings in its vicinity, and two additional wells proposed for the current investigation .

The site has been under investigation by Alameda County Health Care Services Agency since March 23, 1993. On this date, they requested in a letter to the property owner that the vertical and lateral extent of perchloroethylene contamination, discovered on the shopping center site by ARCO (Figure 2) while investigating its release from adjacent underground tanks, be investigated. According to the correspondence from the Alameda County Health Care Services Agency, "data generated by ARCO's investigation suggests that perchloroethylene detected in ground water samples from their monitoring wells came from [the shopping center] site."

Augeas Corporation conducted a subsurface investigation of Young's Cleaners during November and December, 1994, in order to comply with the Alameda County March 23, 1993 directive. We prepared a report of this investigation in December, 1994 that showed elevated concentrations of tetrachloroethene (PCE) in the shallow soil (< 10 feet below ground surface) beneath the dry



- Well development and sampling of the three newly proposed wells; sampling of the three existing wells installed by Augeas Corporation; and sampling of well WGR MW-2 installed by Western Geologic Resources (Figure 3);
- Chemical analysis of soil and groundwater samples to assess the presence and concentrations of solvents;
- Arrange for a survey of the horizontal locations of the proposed monitoring wells and the mean sea level elevations of their wellheads. We will measure the water levels in the five wells in front of the dry cleaners and in the two wells in the back, and prepare a local ground water gradient map showing ground water elevation contours.
- Preparation of a written report to present our findings, conclusions and recommendations.

4.0 TECHNICAL APPROACH

Based upon review of previous investigations conducted at the subject property and published data regarding local geographic and hydrologic conditions, Augeas Corporation has developed the following technical approach for the proposed additional investigation.

In order to accomplish the goals established for the proposed investigation, the project would be separated into three distinct work items as follows:

Field Investigation to advance three exploratory soil borings for the purpose of logging subsurface conditions and obtaining soil samples for chemical analysis. These borings will be completed as monitoring wells to about 30 feet below ground surface. Their exact depths will be dependent on the depth to ground water at each well location. Since the depth to the first appearance of ground water is expected at about 20 feet below grade, the screened intervals will extend from approximately 20 feet to 30 feet below grade.



Laboratory Analysis of soil and ground water samples obtained from the field investigation to evaluate the presence and concentration of chlorinated solvents and petroleum constituents.

Report Preparation summarizing the results of the chemical analysis and the evaluation of applicable mitigating and/or remedial technologies appropriate for the site based upon data obtained from current and previous investigations.

Further description of these work phases is presented in the following discussion.

4.1 Phase I - Field Testing

Augeas Corporation proposes to install three monitoring wells on the subject property at the locations shown in Figure 3, "Site and Proposed Boring Location Plan". These wells will provide additional data regarding the lateral and vertical extent of chlorinated solvents in the soil and ground water. Field screening of the soil samples will be used to detect variations of contaminant concentrations with depth. A photoionization detector (PID) meter calibrated for sensitivity to the presence of chlorinated solvents will be used to screen the samples.

Augeas Corporation will arrange for a survey of the horizontal locations of all the existing monitoring wells with respect to streets and property lines, as well as the mean sea level elevations of their wellheads. The water level in each well will be measured, and a local ground water gradient map will be completed showing ground water elevation contours.

4.2 Phase II- Laboratory Analysis

Soil and ground water samples will be maintained and transported under proper chain-of custody protocol to a State-approved laboratory for chemical analysis. All samples will be analyzed to detect the presence and concentration of chlorinated solvents (EPA Method 8010/601).



4.3 Phase III - Report of Findings

Augeas Corporation will prepare an investigation report that will detail the findings of the investigation, and include provisions for control of contaminated ground water, if analytical data indicate a need for such control. We will also prepare a remedial action plan to evaluate remedial and mitigating alternatives based upon data obtained. All reports will be prepared under the supervision of and signed by a State of California Registered Civil Engineer or Geologist.

5.0 METHODOLOGY

5.1 Drilling and Soil Sampling

Drilling of the monitoring wells will be performed utilizing a track mounted limited access drill rig equipped with 8-inch continuous flight hollow-stem augers. Augeas Corporation's geologist or engineer will be present during drilling to assist in obtaining relatively undisturbed samples of the subsurface materials, to maintain a log of borings, to field screen samples with a device capable of detecting volatile organic hydrocarbons as a trace gas, and to make observations of the site conditions.

Soils will be sampled at approximately 5-foot vertical intervals (or more frequently as deemed appropriate by the field geologist or engineer), commencing at an approximate depth of five feet below the existing grade. Samples will be obtained by means of a California Modified sampler lined with stainless steel sleeves or rings. Soil will be classified according to the Unified Soil Classification System.

Upon retrieval, samples retained for chemical analysis will be contained with a plastic caps over Teflon™ seals, and taped at each end. The samples will be stored in a chilled container and shipped under proper chain-of-custody protocol to a certified analytical laboratory. All the soil samples will be submitted for analysis. Field screening results will be utilized to augment the soils analytical data.



5.2 Monitoring Well Installation

The design of the groundwater monitoring wells will comply with the State of California Department of Water Resources Bulletin 74-90 Monitoring Well Standards (DWR 163907). The monitoring wells will be constructed through hollow stem augers using 2-inch-diameter flush threaded PVC Schedule 40 casing. A No. 2/12 medium graded sand will be used as a filter medium around the screened interval and completed to a depth of about one foot to two feet above the well screen. A seal composed of bentonite pellets will be placed to an approximate thickness of one foot to two feet above the sand. The pellets will be hydrated to prevent the entry of portland cement grout into the screened interval. The remaining annulus will be back-filled to the well vault with a neat cement grout with approximately 3 per cent bentonite added. Expansion locking caps will be installed on the wellheads, and a water-tight, traffic-rated surface vault will be placed at grade for security.

If it is determined in the field that the groundwater at the subject site is confined, the Augeas Corporation geologist or engineer may install the monitoring wells in a manner that will prevent cross-contaminating shallower subsurface materials with potentially contaminated groundwater rising from the depth at which it was initially encountered during drilling. This may involve sealing off the shallowest subsurface materials from ground water contact by using a short screen in each well. This design is in accordance with generally recommended procedures for monitoring well construction in confined aquifers.

5.3 Well Development and Sampling

Augeas Corporation personnel will develop the newly installed wells to improve water production. To develop the wells, we will be purge them by hand bailing or by using a submersible pump until we have removed about eight well volumes of ground water from each, or until they are relatively free of sediment and turbidity. As we purge the wells, we will also surge them with a heavy 2-inch diameter bailer to remove as much silt and residual sediment from them as possible. We will sample each of the newly installed wells immediately



following stabilization of the water quality parameters of pH, temperature, and specific conductivity, and after the water volume has recovered to at least 80 per cent of the pre-purge volume.

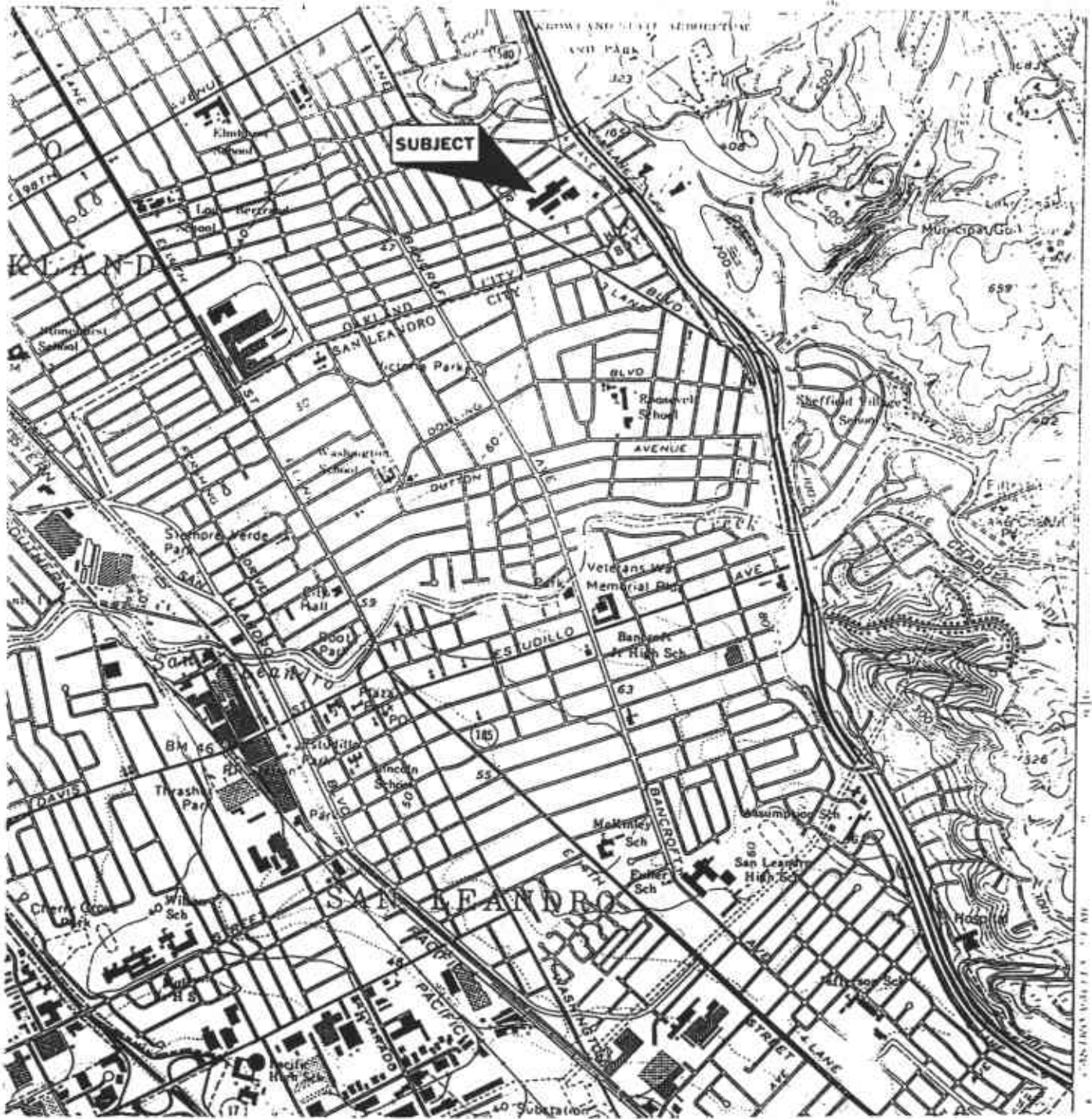
We will also sample the previously installed wells with a disposable PVC bailer. The depths to ground water will be initially measured with a well sounder. Each well will then be purged of a minimum of four well casing volumes, and it will be sampled following stabilization of pH, temperature and specific conductivity, and following recovery to 80 percent of its original pre-purge well volume.

5.4 Drill Cuttings

Auger cuttings from the drilling operation will be placed in drums and retained on-site. The results of chemical analysis will be used to evaluate the appropriate disposal of any contaminated auger cuttings.

6.0 PROJECT SCHEDULE

Augeas Corporation will begin this study upon receipt of approval for the work from Drake Builders. The Alameda County Health Care Agency will request notification before starting any work at the site. We estimate that the currently proposed scope of work will require about four to six weeks to complete. This schedule is partially dependent on the scheduling of drilling equipment, local weather restrictions, access to the site, permitting requirements, and time required for specific chemical analyses. A visit to the site for the field portion of the investigation is to be arranged through the subject property owners.



SCALE 1:24 000



SAN LEANDRO, CALIF.

NW 4 HAYWARD 15 QUADRANGLE
N3737 5—W12207 5 7 5

1959
PHOTOREVISED 1980
DMA 1559 II NW-SERIES V895



QUADRANGLE LOCATION

AUGEAS CORPORATION	Figure 1- Site Location Map	jf
	10700 MacArthur Boulevard, Oakland, CA	09/16/93

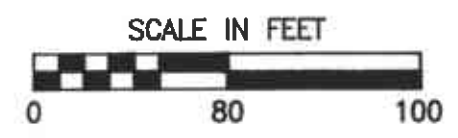
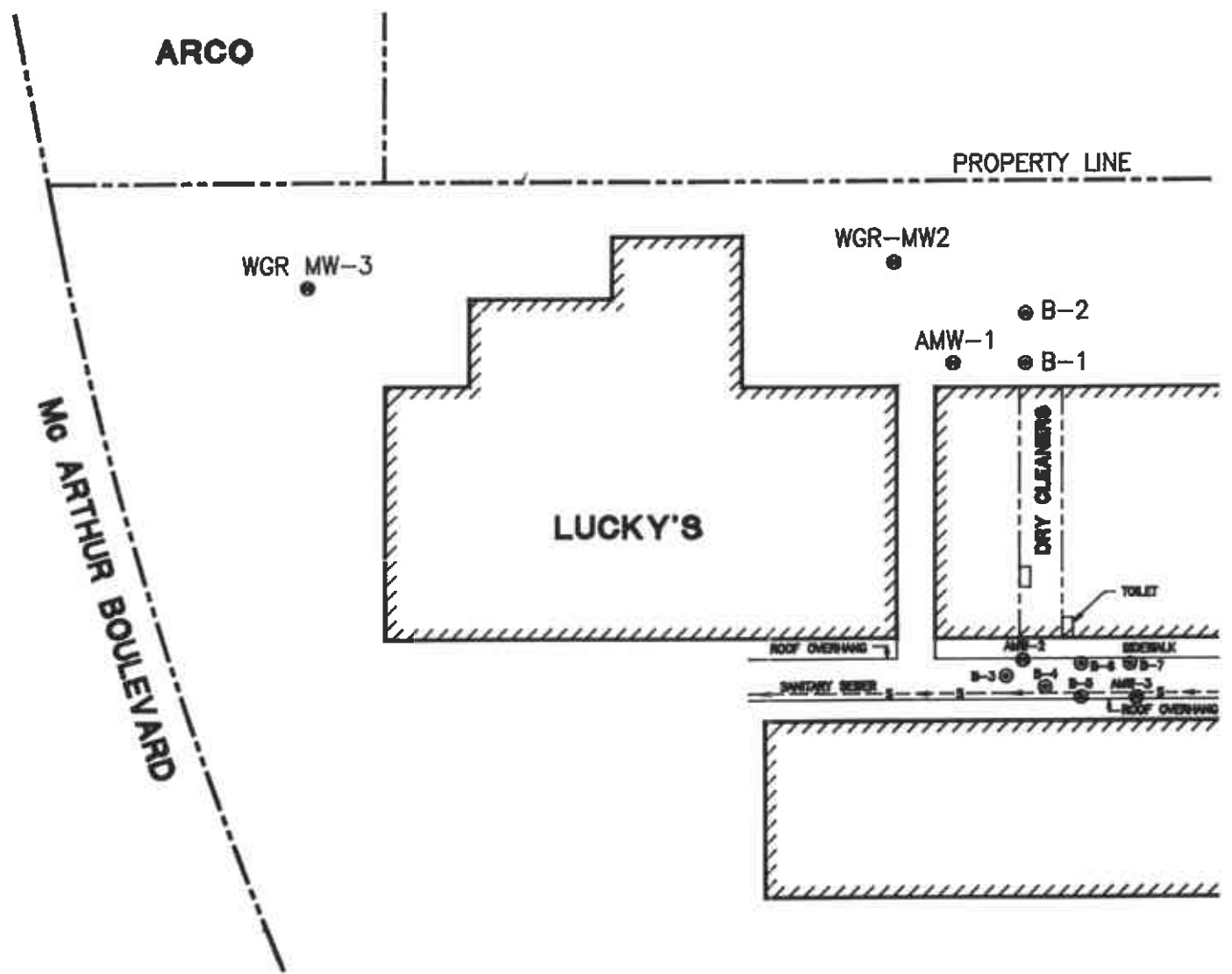
BENCHMARK


CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

ELEV = 55.172' MSL (USGS 1929)
 TO OBTAIN ELEVATION PER CITY DATUM,
 SUBTRACT 300 FEET FROM USGS ELEVATION.

LEGEND

- ⊙ AUGEAS SOIL BORING
- AMW-2 AUGEAS MONITORING WELL
- WGR-MW2 WESTERN GEOLOGIC RESOURCES MONITORING WELL
- MW-3 APPLIED GEOSYSTEMS MONITORING WELL



 AUG E A S CORPORATION HALF MOON BAY	SITE AND BORING LOCATION PLAN	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 12, 1994	Figure 2

BENCHMARK

CUT SQUARE IN CURB RETURN AT THE SOUTHEAST CORNER OF 107th AVE AND McARTHUR BLVD.

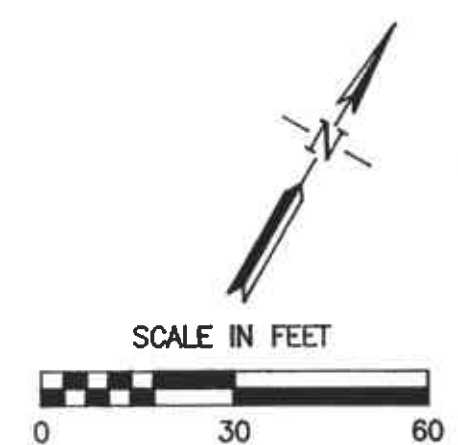
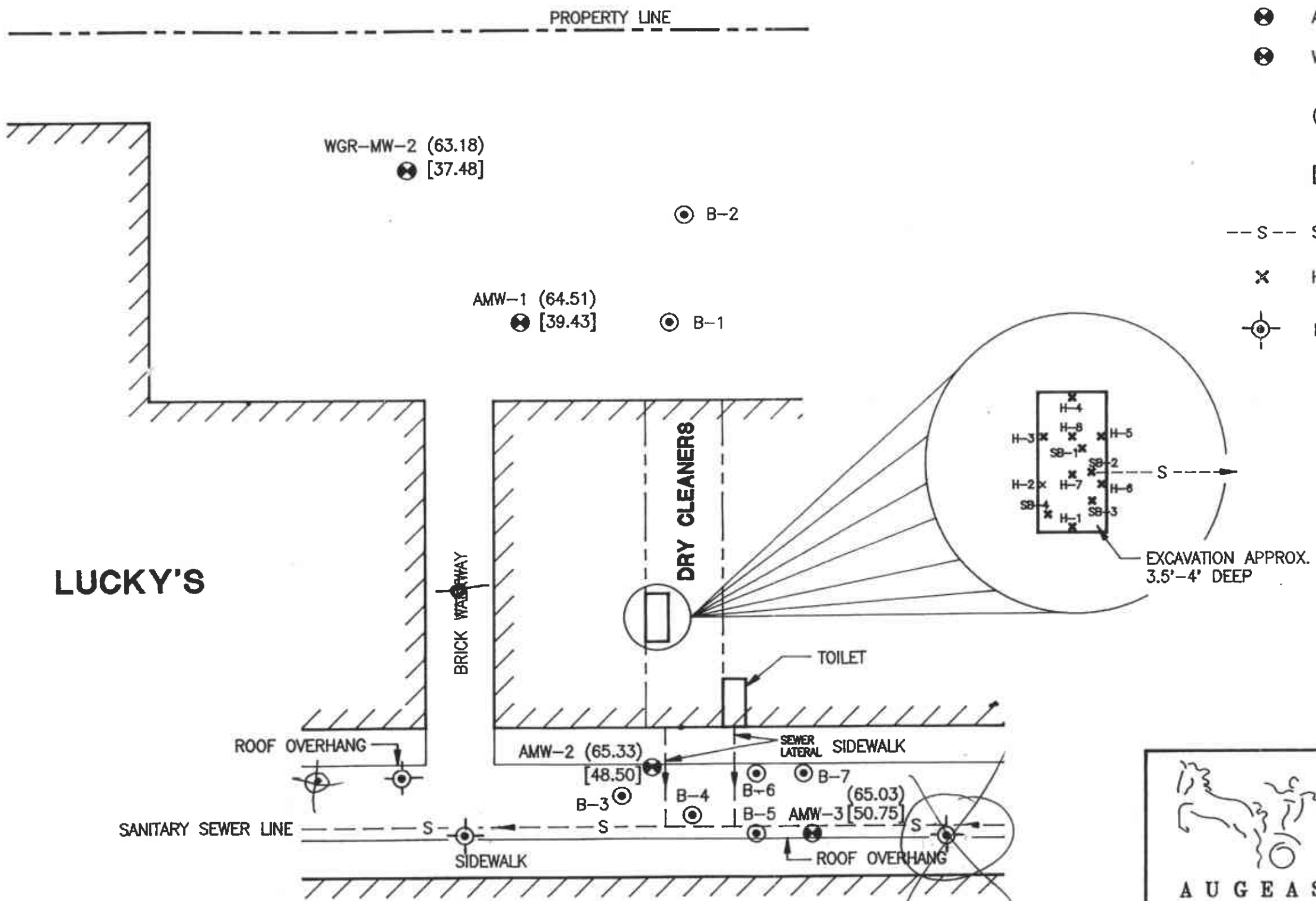
ELEV = 55.172' MSL (USGS 1929)
TO OBTAIN ELEVATION PER CITY DATUM,
SUBTRACT 300 FEET FROM USGS ELEVATION.

NOTE

ALL ELEVATIONS ARE AT MARK AT TOP OF PVC CASING.

LEGEND

- ⊙ AUGER SOIL BORING
- ⊗ AMW-2 AUGER MONITORING WELL
- ⊗ WGR-MW-2 WESTERN GEOLOGIC RESOURCES MONITORING WELL
- (65.33) MSL ELEVATION OF TOP OF PVC CASING
- [48.50] MSL ELEVATION OF GROUNDWATER SURFACE
- - S - - SANITARY SEWER
- X H-8 HAND AUGER SAMPLE
- ⊕ PROPOSED MONITORING WELL



 AUGER CORPORATION HALF MOON BAY	SITE AND PROPOSED BORING LOCATION PLAN	
	FOOTHILL SQUARE SHOPPING CENTER OAKLAND ALAMEDA, CA	
	December 12, 1994	Figure 3