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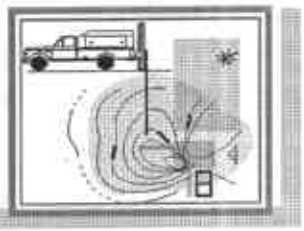


December 01, 2003

Barney M. Chan
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-9335

Telephone: (510) 567-6765
FAX: (510) 337-9335

SUBJECT: WORKPLAN FOR INSTALLATION OF THREE (3) ADDITIONAL, FOUR (4) INCH DIAMETER GROUNDWATER EXTRACTION WELLS AND EXCAVATION OF ONE (1) 40 FOOT DEEP SOIL BORING RELATED TO THE FORMER UNDERGROUND STORAGE TANKS AT THE FORMER BILL CHUN SERVICE STATION @ 2301 SANTA CLARA AVENUE, ALAMEDA, CA 94501

Dear Barney:

Enclosed are the details of a plan to perform a subsurface hydrogeologic investigation for the above designated site as recommended in the **August 11, 2003 report entitled, "AQUIFER TESTING RELATED TO THE FORMER UNDERGROUND STORAGE TANKS."** The three (3) recommended groundwater extraction wells will be installed to provide better areal coverage of the existing dissolved hydrocarbon plume by entraining those portions of the plume not currently covered by the three (3) existing groundwater extractions wells. In addition, these wells will also serve as dual phase extraction wells to provide much needed additional hydrocarbon vapor recovery extraction points in the same vicinity.

One soil boring will be drilled to a depth of 40 feet bgs for the purpose of determining the thickness of the confined aquifer (i.e. the thickness of the aquifer is necessary to refine the dimensions of the estimates of the capture zones for the groundwater extraction wells).

Sincerely,

Franklin J. Goldman

Franklin J. Goldman
Certified Hydrogeologist No. 466

REGISTERED GEOLOGIST
FRANKLIN J. GOLDMAN
CERTIFIED HYDROGEOLOGIST
NO. 466
STATE OF CALIFORNIA

DPE

SUBSURFACE INVESTIGATION

SITE LOCATION AND DESCRIPTION

The site is located in a commercial area on the Island of Alameda. The site is bordered on the southeast by a flower shop which has residents living on the second story. A one story office building is located to the north and Oak and Santa Clara Avenues border the remainder of the site.

WORK ACTIVITIES TO BE COMPLETED

The four soil boring excavation locations will be marked at the site in white paint. The soil boring locations will be marked for Underground Service Alert which will be contacted prior to drilling. Each soil boring location will be hand augered to a depth of 5 feet bgs prior to excavation with the hollow-stem auger drill rig to avoid damage to underground piping and utility lines.

Three (3) groundwater extraction wells EW-15, EW-16, and EW-17 will installed to a depth of 25 feet bgs. One exploration soil boring (ESB-1) will be drilled to an approximately a depth of 40 feet bgs (See Figure 1 for extraction well and soil boring locations). The depth for the exploratory soil boring was chosen based upon comparison with similar soils described in Water Well driller's logs from sites near the subject site. verify

SOIL SAMPLING PROCEDURES FOR EXTRACTION WELL EXCAVATIONS AND LAB RESULTS

Three (3) soil borings will be drilled by a C-57 drilling licensed driller. All borehole logging will be performed by a qualified geologist who keep a detailed hydrostratigraphic log of each borehole, noting lithologic changes, hydrogeological characteristics, sample locations, and well construction. Soil sampling will be performed on the day of the subsurface investigation. Soil sampling will be performed where appropriate in order of identify significant changes in soil hydrostratigraphy. The well excavations will be sampled at a minimum of every five (5) vertical feet.

The 40 foot soil borings will be continuously cored between 25 and 40 feet bgs to obtain a representative section of the aquifer. Drilling will proceed deeper, if necessary, to determine the bottom of the confined aquifer. OK

Soil samples will be collected with a two (2) inch inner diameter, three (3) foot long, split spoon sampler depending upon the soil stratigraphy and contaminants encountered. The soil samples will obtained by the compressive force of a 140 lb hammer dropped from a height of 18 inches. The soil samples will be extruded into six (6)-inch long steel sample liners. Soil samples will be chosen for lab analyses based upon obvious olfactory and visual evidence of contamination.

No more than two soil samples will be analyzed from each of three extraction well soil borings. No samples will be analyzed from the exploratory soil boring. Groundwater samples will be collected and analyzed from each of the three newly constructed extraction wells.

Each soil sample collected will be covered at each end of the metal cylinder with Teflon tape, plastic end caps, and sealed with non-VOC "duct tape" to adhere the caps to the liners at each end, to hermetically seal the samples. The soil samples will be collected, the sample number, and the project name and inserted into a plastic Zip-Lock bag and then placed into an ice chest for transport back to the laboratory. The chain-of-custody will be similarly designated and will include the date and time the sample was collected as well as the depth interval. All soil samples will be analyzed for TPH(g)/BTEX by EPA Method 8015 modified/8020.

The sampler will be decontaminated before and after each use by rinsing with an Alconox solution wash and fresh tap water rinse. All rinseate water, purge water, and

soil waste will be stored in 55 gallon DOT approved drums. The drums will be stored onsite until authorization for transport to legal point of disposal is made.

WELL CONSTRUCTION

The three (3) wells will be constructed with a 0.02 inch PVC schedule 40 slotted casing from 25 to 7 feet bgs and schedule 40, 2 inch diameter PVC blank casing from 7 to approximately ½ foot bgs. No. 212 silica sand pack will be placed in the annular space between the screened casing and the open borehole to one foot above the top of the screen. The bentonite seal will be three feet thick and will be placed on top of the sand pack in the annular space from 6 to 3 feet bgs. A Type II Cement bentonite grout will then be tremmied from the bottom up to within approximately 1 foot from the top of the surface cover. A continuous concrete pour will then be placed on top of the grout to the surface where it will be finished with a 3 inch high concrete apron around a Boart Longyear well box and locking well cap (See Figure 2 for extraction well construction detail).

WELL DEVELOPMENT, PURGING, AND SAMPLING

The wells will be swabbed, bailed and pumped by a qualified field technician until the water is relatively clear.

A Slope Indicator water level meter will be used to measure the depth to groundwater in the groundwater extraction wells prior to well development and sampling. The measurements will be read to the nearest 100th of an inch from the top of casing.

The three wells will be purged and developed to obtain a representative groundwater samples. Each well will be purged of approximately three (3) borehole volumes allowing the water level to recover to at least 80% of the original, static level. Temperature, electrical conductivity, and pH will be monitored during each purging, so that the three parameters were within a 10% error difference from one another, over a minimum of three consecutive readings. The data will be used to verify that water has been removed from well casing storage and that the well water is representative of the aquifer, prior to sampling.

Water samples will be collected by lowering a plastic disposable check valve bailor down the center of each PVC well casing after the static water level had recovered. The bailor will be lowered to the bottom of the well casing and pulled to the surface to be decanted from the bottom of the bailor by temporarily unplugging the check valve until water flowed freely into the glass sample container. Water samples will be contained in 40-milliliter VOA vials for TPH-g, MTBE, BTEX, oxygenates, and lead scavenger analyses. The samples will be labeled and stored on ice at 4 degrees centigrade until delivered, under chain-of-custody procedures, to State-certified analytical laboratory. All samples will be analyzed by appropriate and applicable EPA test methods.

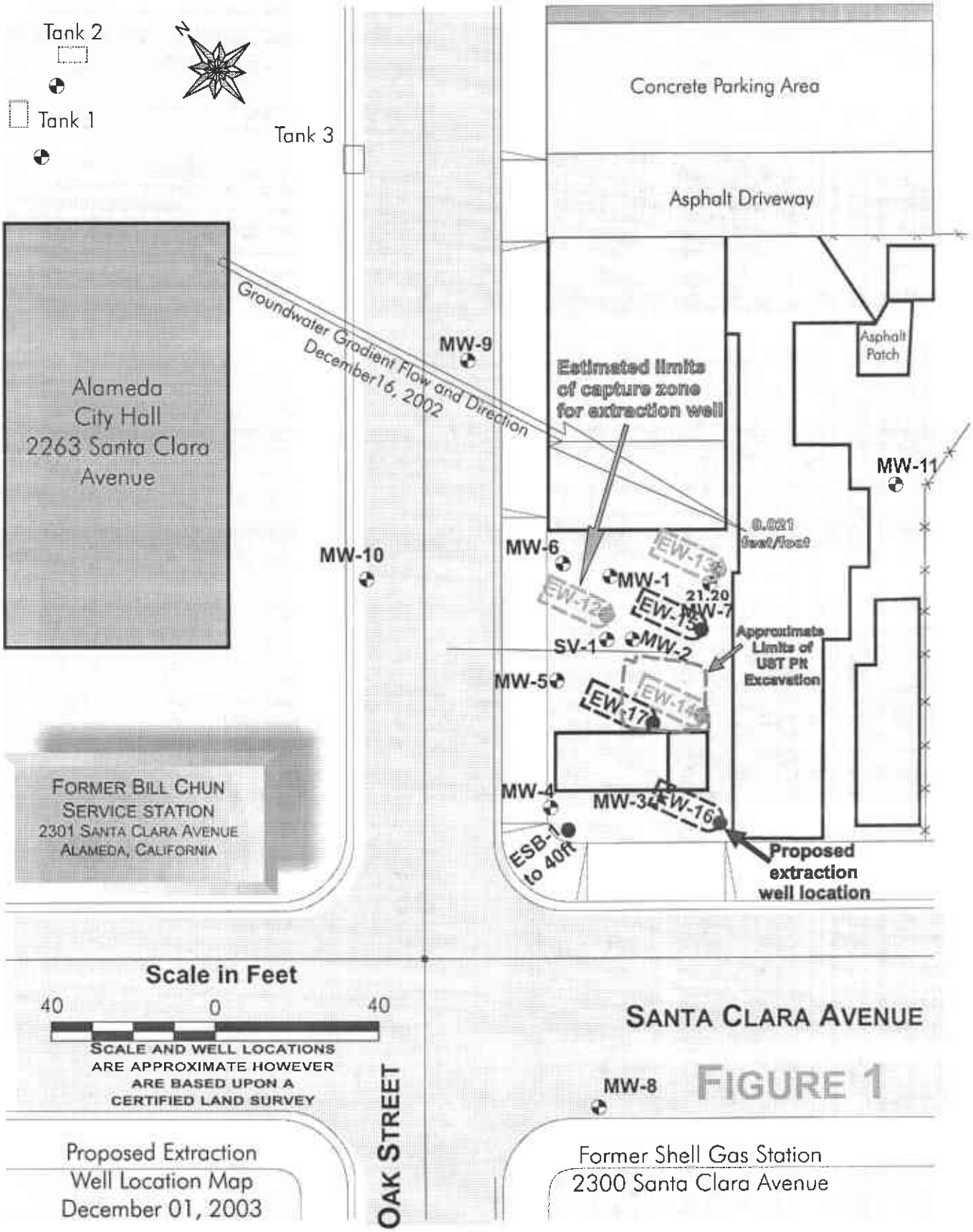
LAND SURVEY

The three wells will be surveyed by a certified land surveyor and past discrepancies related to the benchmark elevation will be addressed.

LIMITATIONS

This report has been prepared in accordance with generally accepted environmental, geological and engineering practices. No warranty, either expressed or implied, is made as to the professional advice presented herein. The analyses, conclusions and recommendations contained in this report are based upon site conditions as they existed at the time of the investigation and they are subject to change. The conclusions presented in this report are professional opinions based solely upon visual observations made within individual soil excavations and of the site and vicinity as

well as on interpretations of available information as designated in this report. Franklin J. Goldman, maintains that the limited scope of services performed in the execution of this investigation may not be sufficient to satisfy the needs, and/or requirements of all regulatory agencies or other users. Any use or reuse of this document, its findings, its conclusions and/or recommendations presented herein, is done so at the sole risk of the said user.


Tank 2
Tank 1
Tank 3
N
Concrete Parking Area
Asphalt Driveway
Asphalt Patch
Alameda City Hall 2263 Santa Clara Avenue
Groundwater Gradient Flow and Direction December16, 2002
MW-9
Estimated limits of capture zone for extraction well
0.021 foot/foot
MW-11
MW-10
MW-6
MW-1
21.20
MW-7
EW-13
EW-12
EW-15
SV-1
MW-2
Approximate Limits of UST PR Excavation
MW-5
EW-17
EW-14
MW-4
MW-3
EW-16
ESB-1 to 40ft
Proposed extraction well location
FORMER BILL CHUN SERVICE STATION
2301 SANTA CLARA AVENUE
ALAMEDA, CALIFORNIA
Scale in Feet
40
0
40
SCALE AND WELL LOCATIONS ARE APPROXIMATE HOWEVER ARE BASED UPON A CERTIFIED LAND SURVEY
SANTA CLARA AVENUE
OAK STREET
MW-8
FIGURE 1
Proposed Extraction Well Location Map
December 01, 2003
Former Shell Gas Station
2300 Santa Clara Avenue

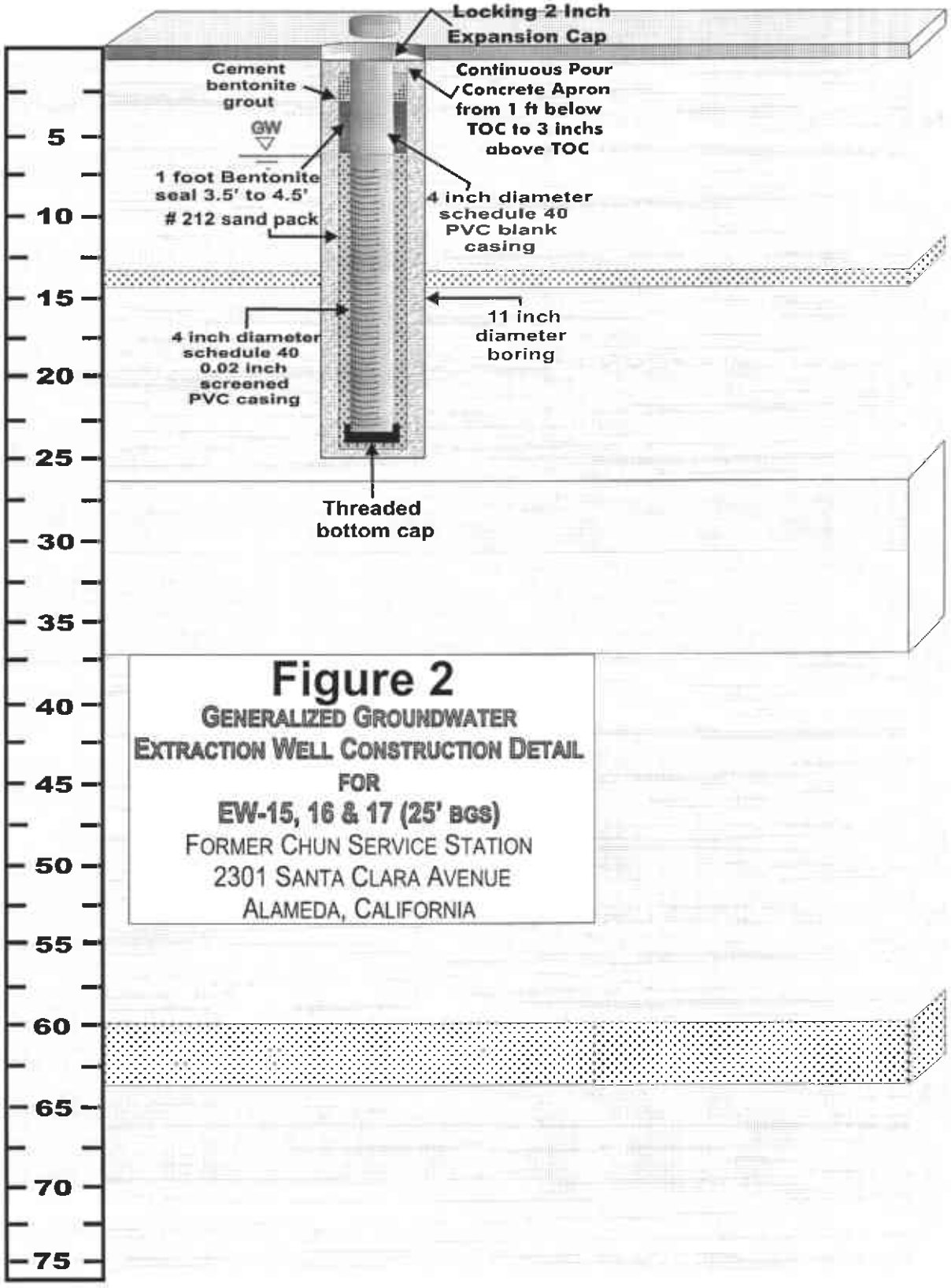


Figure 2

GENERALIZED GROUNDWATER EXTRACTION WELL CONSTRUCTION DETAIL FOR EW-15, 16 & 17 (25' BGS)

FORMER CHUN SERVICE STATION
2301 SANTA CLARA AVENUE
ALAMEDA, CALIFORNIA