

June 28, 2012

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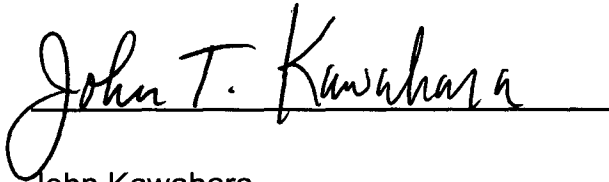
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SUBJECT: RESPONSIBLE PARTY PERJURY STATEMENT FOR ALAMEDA COUNTY FTP  
WEBSITE TECHNICAL REPORT SUBMITTAL REQUIREMENT FOR REPORTING OF  
Workplan for a Subsurface Investigation of the Former UST and the  
Installation of a Down Gradient Groundwater Monitor Well for the  
Kawahara Nursery Located at 16550 Ashland Ave., San Lorenzo, CA

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To Alameda County Environmental Health,

"I declare under penalty of perjury that the information and/or recommendations  
contained in the technical document designated above is true and correct to the best of  
my knowledge."



John Kawahara  
Kawahara Nursery, Inc.  
689 Burnett Ave.  
Morgan Hill, CA 95037

PHONE: (408) 640-4289  
JKawahara@KawaharaNurseries.com

**RECEIVED**

*4:09 pm, Jul 09, 2012*

Alameda County  
Environmental Health

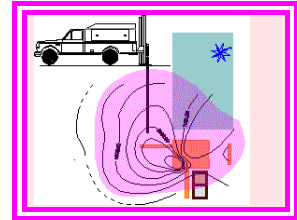
## Franklin J. Goldman

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**SUBJECT:** Workplan for Former UST Location Confirmation Soil Sampling & Down Gradient Groundwater Monitor Well Installation for the Kawahara Nursery, 16550 Ashland Ave., San Lorenzo, CA

Ms. Jakub,

This workplan summarizes the procedures to be performed to drill eight (8) confirmation soil borings in the vicinity of the former underground storage tank (UST) location as identified on November 30, 2011 during a backhoe trenching subsurface investigation.

This workplan is provided as required in your May 09, 2012 letter. In addition, this workplan proposes the installation of a down gradient groundwater monitor well to define the extent of the dissolved TPHg plume west of groundwater monitor well MW-3.

The proposed subsurface investigation work complies with the "phased approach" to performing corrective action as outlined in State Board Resolution 92-49 which states;

*"WHEREAS: 15. A phased approach to site investigation should facilitate adequate delineation of the nature and extent of the pollution, and may reduce overall costs and environmental damage, because: (1) investigations inherently build on information previously gained; (2) often data are dependent on seasonal and other temporal variations; and (3) adverse consequences of greater cost or increased environmental damage can result from improperly planned investigations and the lack of consultation and coordination with the Regional Water Board. However, there are circumstances under which a phased, iterative approach may not be necessary to protect water quality, and there are other circumstances under which phases may need to be compressed or combined to expedite cleanup and abatement;"*

State Board Resolution 92-49 also states that the cost of corrective action must also be taken into consideration;

*The Regional Water Board shall:*

*B. Consider whether the burden, including costs, of reports required of the discharger during the investigation and cleanup and abatement of a discharge bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports;*

*C. Require the discharger to consider the effectiveness, feasibility, and relative costs of applicable alternative methods for investigation, and cleanup and abatement. Such comparison may rely on previous analysis of analogous sites, and shall include supporting rationale for the selected methods;*

Considering that the concentrations of residual hydrocarbons, as identified in the subsurface beneath the site to date, pose no immediate and significant threat to human health and the waters of the state, the iterative approach is warranted in order to save costs.

The data obtained from the completion of the proposed subsurface investigation will help determine the course of corrective action for this site and the parameters necessary for UST site closure.

Sincerely,



Frank Goldman  
Certified Hydrogeologist No. 466

## SUBSURFACE INVESTIGATION WORKPLAN

### RATIONALE FOR PROPOSED SOIL BORING DEPTHS AND LOCATIONS

Proposed soil borings Z1, Z2, Z3, and Z4 are to be located on all four sides of the former UST excavation identified on November 30, 2011 (**FIGURE 1 PROPOSED SOIL BOREHOLE LOCATION MAP**). Z1 thru Z4 will be continuously cored to a depth of 9 ½ feet bgs to verify soil stratigraphic relationships and associated hydrocarbons to a depth in excess of the bottom of the former UST pit.

Z5 will be drilled, as a confirmation soil boring, adjacent to former soil boring SB-4 where 0.87 ppm benzene was identified at a depth of 15 feet bgs on August 09, 1999.

Z6 will be drilled, as a confirmation soil boring, adjacent to groundwater monitor well MW-3 where 0.20 ppm benzene was identified at a depth of 15 feet bgs on June 10, 1993 (**SEE FIGURE 1 FOR PROPOSED SOIL BOREHOLE LOCATION MAP**).

Both soil borings Z5 & Z6 will each be drilled to a depth of 15 feet bgs to confirm the presence/absence of residual concentrations of hydrocarbons in soil at these two locations. A hollow-stem auger will be employed to obtain soil samples from below the groundwater first encountered to prevent cross contamination of the soil sample from contact with potentially contaminated groundwater as recently identified in MW-3 at 480 ppb TPHg on 11/14/11.

Proposed soil boring Z7 will be drilled adjacent to former soil gas boring SG-10 where 0.08 ug/L benzene, as soil gas, was identified at a depth of ten (10) feet bgs on October 03, 1994.

Proposed soil boring Z8 will be drilled adjacent to former soil gas boring SG-14 where 0.07 ug/L benzene, as soil gas, was identified at a depth of nine (9) feet bgs on October 03, 1994 (**SEE FIGURE 2 FOR MAP OF PROPOSED SOIL BOREHOLE LOCATIONS ADJACENT TO PAST SOIL GAS CONCENTRATIONS**).

Both soil borings, Z7 and Z8 will be drilled to a depth of 9 feet bgs to confirm the presence/absence of residual concentrations of hydrocarbons in soil at these two locations.

### SOIL SAMPLING PROCEDURES

A soil boring and well permit will be obtained from the Alameda County Public Works Agency prior to the drilling of eight (8) investigative soil borings and the installation one groundwater monitor well.

A site health and safety plan to protect site workers will be prepared and kept on site during field activities. A health and safety meeting will be held with drilling staff and the client's representative on site prior to the commencement of field activities.

Alameda County Environmental Health staff will be given a 72 hour notice prior to the initiation of field work. County staff is welcome to come to the site during field activities and observe, document field activities, ask questions, collect duplicate samples, and

make recommendations.

The borehole locations will be marked at the site in white paint prior to the commencement of drilling excavation activities for Underground Service Alert.

The proposed soil borings will be drilled with a limited access, five (5) foot wide rubber track hollow stem auger rig with an auto hammer for taking samples in the soil borings and for installing the groundwater monitor well.

Soil borings Z1 thru Z4, to be drilled on all four sides of the former UST location, will be continuously cored to a depth of 9 ½ feet bgs.

Each of the four soil borings will be either hand augured or drilled with a four (4) inch diameter solid-flight auger to approximately three (3) feet bgs. The auger will be removed from the sample depth and an 18 inch to 2 foot long soil sampler with a two (2) diameter acetate liner will be inserted to the bottom of the hole and driven until the full length of the acetate liner is filled. The sampler will then be pulled out of the borehole, opened, and the liner with soil will be removed for inspection, sectioning with hack saw, and screening with a photo ionization detector (PID).

The next sample run will be performed by cleaning out the hole with a 4" diameter solid flight auger and then repeating the same sampling procedure by inserting another clean sampler and driving the sampler another 18" to 24" depth interval. This shorter sampling interval (e.g. not 4 foot long sample runs that compress the soil in the liner) guarantees 100% recovery from each zone due to lower wall friction inside the sampler. This process will be repeated until the desired total boring depth is attained.

Soil borings Z5 and Z6 will be drilled to a depth of fourteen (14) feet bgs with an 8 inch diameter hollow stem auger. Soil sampling will be performed as described above, except that the hollow stem auger will prevent infiltration of groundwater into the borehole after groundwater is first encountered. The hollow-stem auger will be removed from the sample depth of 14 feet bgs and an 18 inch to 2 foot long soil sampler with a two (2) diameter acetate liner will be inserted to the bottom of the hole and driven until the full length of the acetate liner is filled (i.e. from 14 to 15 ½ to 16 feet bgs). The sampler will then be pulled out of the borehole, opened, and the liner with soil will be removed for inspection, sectioning with hack saw, and screening with a photo ionization detector (PID).

Soil borings Z7 and Z8, will be drilled to a depth of 9 feet bgs. Each of these two soil borings will be either hand augured or drilled with a four (4) inch diameter solid-flight auger to approximately three (3) feet bgs. The auger will be removed from the sample depth of nine (9) feet bgs and an 18 inch to 2 foot long soil sampler with a two (2) diameter acetate liner will be inserted to the bottom of the hole and driven until the full length of the acetate liner is filled (i.e. 9 to 10 ½ to 11 feet bgs). The sampler will then be pulled out of the borehole, opened, and the liner with soil will be removed for inspection, sectioning with hack saw, and screening with a photo ionization detector (PID).

All soil borehole logging will be performed by a State of California licensed field geologist who will keep a detailed hydrostratigraphic log of each borehole, noting lithologic changes, hydrogeological characteristics, and sample locations. Soil sampling

will be performed, where appropriate, in order to identify significant changes in soil hydrostratigraphy and to provide a sufficient representation of the distribution of contaminants in the subsurface. Soil samples will be collected for analyses from soil borings Z1 through Z4 from a general minimum average distribution of (5) foot vertical intervals as well as from other depths as determined according to the feedback provided by the soil stratigraphy and hydrogeologic characteristics encountered. Soil samples will also be chosen for lab analyses based upon obvious olfactory and ~~or~~ visual evidence of contamination and or by photoionization detector (PID) screening. Soil samples will be collected from soil borings Z5 thru Z8 from the depths specified above; specifically, Z5 and Z6 will be sampled at a depth of 14 feet bgs and Z7 and Z8 will be sampled at a depth of 9 feet bgs.

Each soil sample will be cut into six (6) inch to one (1) foot long sections, capped with plastic end caps, labeled with a non-toxic ink field marker as to the depth and location the sample was collected, the sample number, and the project name, and inserted into a plastic Zip-Lock bag. The bagged soil samples will then be placed on ice in an ice chest at 4 degrees centigrade to be transported under, proper chain of custody a State Certified laboratory. The chain-of-custody will be similarly designated and included with the date and time the sample was collected as well as the depth interval. Soil samples will be analyzed and reported for Gasoline Range Organics (GRO), BTEX, and MTBE by EPA Method 8260b.

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 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.

#### RATIONALE FOR PROPOSED GROUNDWATER MONITOR WELL LOCATION

The location of proposed groundwater monitor well MW-6 (**FIGURE 2 FOR MAP OF PROPOSED GROUNDWATER MONITOR WELL LOCATION RELATIVE TO UP GRADIENT WELL MW-3 AND MW-5**) was chosen to define the down gradient extent of the dissolved gasoline plume.

Since down gradient well MW-5 has shown non-detectable concentrations of TPHg, benzene and MTBE, as recently as November 14, 2011, there is no reasonable justification for placing a down gradient monitor well in, or on the opposite side of, Ano Street. The location for proposed groundwater monitor well MW-6 was chosen because MW-3 identified TPHg at 480 ppb in groundwater, as recently as November 14, 2011. No benzene or MTBE was identified recently in MW-3.

#### GROUNDWATER MONITOR WELL CONSTRUCTION AND SOIL SAMPLING PROCEDURES

The soil boring for proposed down gradient groundwater monitor well MW-6 will be drilled to a depth of seventeen (17) feet bgs with an eight (8) inch diameter hollow-stem auger. The screen will be set between 7 and 17 feet bgs to complement the fact that the depth to groundwater has been rarely been less than seven (7) feet bgs in groundwater monitor well MW-3 and MW-5. This will allow for the detection of free product if present in the new well. The final decision as to the depth of the screen will be determined in the field based upon the depth to groundwater first encountered and the depth to groundwater as stabilized in the open borehole.

After the borehole is drilled to the desired depth bgs, depth to groundwater level measurements will be made at periodic time intervals until the depth to water stabilizes. The time and depth to water will be recorded to help establish if unconfined, semi-confined, and or confined aquifer conditions exist in groundwater beneath the site. This will also help to assure that the completed well construction will be effective at its use as a portal to obtain representative groundwater samples in the future.

The soil sampling for MW-6 will be performed with an 8 inch hollow-stem auger with the exception that continuous core sampling will not be performed. Soil sampling will be performed at approximate 5 ft. depth intervals and/or at changes in lithology, or field evidence of petroleum hydrocarbons to the total depth.

The 8 inch diameter hollow stem auger will be drilled to the desired sample depth and an 18" to 2' long soil sampler with a 2" diameter acetate liner will be inserted to the bottom of the hole and driven until the full length of the acetate liner is filled. The sampler will then be pulled out of the inside of the hollow stem, opened, and the liner with soil will be removed for inspection, sectioning with a hack saw, and screened with a photo ionization detector (PID).

Each soil sample will be cut into 6" to one foot long sections, capped with plastic end caps, placed in plastic Zip-Lock bags and then placed on ice in an ice chest at 4 degrees centigrade to be transported under, proper chain of custody, to a State Certified Laboratory. The next sample run will be performed by drilling out the hole with an 8" diameter hollow stem auger to the next desired depth and then repeating the same sampling procedure by inserting another clean sampler and driving the sampler another 18" to 24" depth interval. This shorter sampling interval (e.g. not 4 foot long sample runs that compress the soil in the liner) guarantees 100% recovery from each zone due to lower wall friction inside the sampler. This process will be repeated until the desired total boring depth has been attained.

Borehole logging of the proposed groundwater monitor well will be performed by a State of California licensed field geologist who will keep a detailed hydrostratigraphic log of each borehole, noting lithologic changes, hydrogeological characteristics, sample locations, and well construction. Soil sampling will be performed, where appropriate, in order to identify significant changes in soil hydrostratigraphy and to provide a sufficient representation of the distribution of contaminants in the subsurface.

After the final soil sample is collected from the bottom of the borehole, all of the auger sections will be pulled from the hole and the bottom of the hole will be tagged for total depth to make sure there are no obstructions.

The groundwater monitor well will be constructed with two (2) inch diameter threaded schedule 40 PVC well casing consisting of an approximate ten (10) foot long section of 0.020-inch factory-slotted well screen. The blank PVC casing will extend from approximately ½ foot to 7 feet bgs. The screened interval is anticipated to be from approximately 7 to 17 feet bgs. The 17 foot long casing string will be placed inside to the bottom of the open borehole.

A #212 grade sand or equivalent will be used to construct the well filter pack which will extend to one (1) foot above the last screened slot (e.g. between 6 to 7 feet bgs). The

sand will be slowly poured down the annular space and tagged with a down-hole tape until sufficiently settled to within one foot above the top of the screen. The augers will be gradually pulled up and the top of the sand measured for depth to make sure there is no bridging.

An approximate 2-foot thick bentonite seal spacer will be placed above the sand pack (e.g. between 4 and 6 feet bgs) in the monitoring well. The bentonite seal will be placed on top of the sand, by pouring the bentonite pellets, in very small lifts, that will be gradually hydrated in place, in the annular space, as they are dropped to the top of the sand and tagged with a measuring tape to secure the proposed depth and thickness.

A cement grout surface seal will be placed above the bentonite to within 6 inches of the grout surface (e.g. between ½ foot and 4 feet bgs). A County approved Type II cement bentonite grout will then be tremmied from the bottom up within approximately ½ foot from the top of the surface cover. The grout will be allowed to cure before applying a continuous concrete pour to be placed on top of the grout to the surface where it will be finished with a flush concrete apron finish around a well box and locking well cap. The top few inches a casing will be trimmed so as to make room for the well cover inside the well box. The concreted well head will be finished from the top of the grout with a locking cap and traffic rated street vault completed flush with the existing surface (**FIGURE 3 FOR GROUNDWATER MONITOR WELL DETAIL FOR PROPOSED WELL MW-6**). The completed well will then be developed 72 hours after the well head has been constructed.

#### GROUNDWATER MONITOR WELL DEVELOPMENT AND LAND SURVEY

The newly installed well will be swabbed, bailed and pumped by a qualified field technician from Clearheart drilling until the water is relatively clear 72 or more hours after well installation is completed. A water level meter will be used to measure the depth to groundwater in the newly constructed well. The measurement will be read to the nearest 100th of a foot from the top of casing.

A certified land survey of the top of casing location and elevation will be performed and tied into the previously surveyed wells, building corners, and property lines. The survey data will be incorporated into the subsurface investigation technical report submittal.

#### GROUNDWATER MONITOR WELL PURGING AND GROUNDWATER SAMPLING PROCEDURES

72 hours after well development is completed, a water level meter will be used to measure the depth to groundwater in the newly installed groundwater monitor well prior to purging and sampling. The measurement will be read to the nearest 100th of a foot from the top of casing. Depth to water level measurements will be similarly taken from groundwater monitor wells MW-3, MW-4, and MW-5 to determine the groundwater gradient flow and direction beneath the investigation area.

The new well, MW-6, will then be purged with a 1½ inch diameter weighted, plastic, disposable bailer to obtain a representative groundwater sample. The well will be



purged of approximately three (3) or more well casing 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 are 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. Well purging logs will be provided in the technical report.

Water samples will be collected by lowering a weighted plastic disposable check valve bailer down the center of the PVC well casing after the static water level has recovered to at least 80% of its original static water level. Water samples will be collected by lowering a plastic disposable check valve bailer down the center of each well casing and then pulled to the surface to be decanted from the bottom of the bailer by temporarily unplugging the check valve, with a low flow bottom draining plastic tube inserted into the bottom of the bailer, until water flows freely into the glass sample container.

The groundwater sample will be contained in, two (2) to three (3), 40-milliliter VOA vials for VOC analyses. The sample bottles will contain an HCL preservative provided by the laboratory. The filled sample bottles will be inverted and inspected for air bubbles prior and labeled with a non-toxic ink field marker as to the time and location the sample was collected, the sample number, and the project name, and inserted into a plastic bubble wrap bag provided by the laboratory.

The groundwater sample will then be placed on ice in an ice chest at 4 degrees centigrade to be transported under, proper chain of custody a State Certified laboratory. The chain-of-custody will be similarly designated and included with the date and time the sample was collected as well as the sample well designation and project name.

The water samples will be analyzed for Gasoline Ranged Organics (GRO) and BTEX, and MTBE by EPA Method 8260b and delivered, under chain-of-custody procedures, to American Analytics, Inc. of Chatsworth, California, a State-certified analytical laboratory.

## FIELD CLEANUP

Soil waste, rinseate water, and monitor well development and purge water will be placed in properly labeled 55 gallon Department of Transportation (DOT) approved drums left on-site for transport to a legal point of disposal.

## REPORTING

All field activities and observations made will be summarized in a technical report with all appropriate interpretations and interpolations along with conclusions and recommendations.

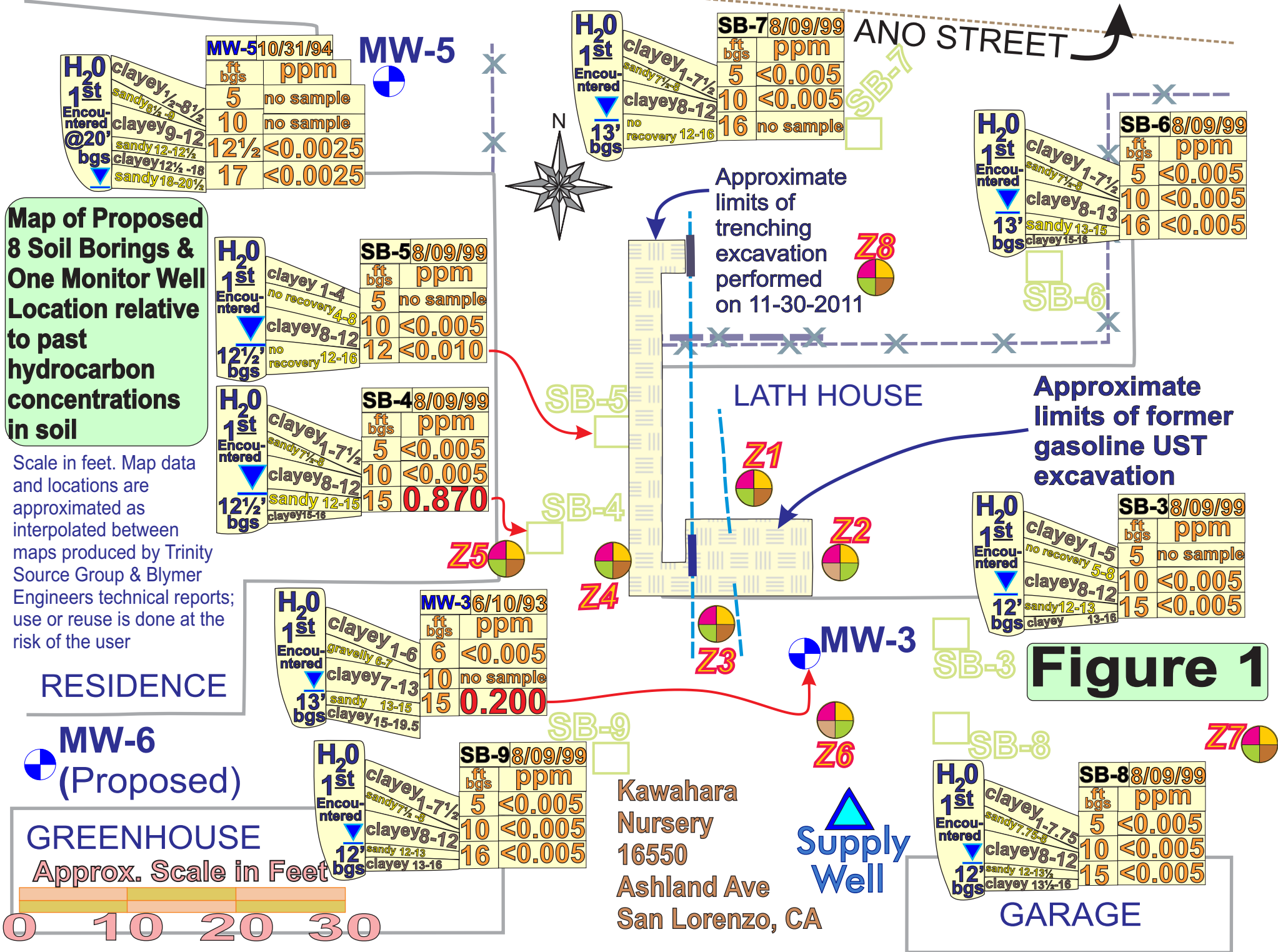
## LIMITATIONS

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 of the site and vicinity, and interpretation of available information as described in this report. All users of this technical report, recognize that the limited scope of services performed in execution of this investigation may not be appropriate to satisfy the needs, or requirements of other state agencies, or of other users. Any use or reuse of this document or its findings, conclusions or recommendations presented herein, is done so at the sole risk of the said user.

# Map of Proposed 8 Soil Borings & One Monitor Well Location relative to past hydrocarbon concentrations in soil

Scale in feet. Map data and locations are approximated as interpolated between maps produced by Trinity Source Group & Blymer Engineers technical reports; use or reuse is done at the risk of the user



**Map of Proposed 8 Soil Borings & One Monitor Well Location relative to past soil gas analyses (10-03-94) and the most recent groundwater monitoring event concentrations**

<b>MW-5</b>	<b>MW-5</b>	<b>11/14/11</b>
	ppb	
TPHg	<50	
Benzene	<0.5	
MTBE	<0.5	

Approximate limits of trenching excavation performed on 11-30-2011

SB-7

ANO STREET

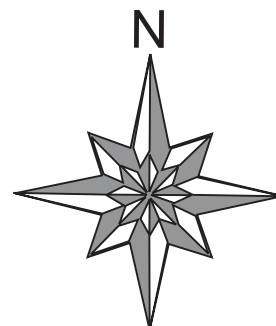
Scale in feet. Map data and locations are approximated as interpolated between maps produced by Trinity Source Group & Blymer Engineers technical reports; use or reuse is done at the risk of the user

**SG-8**  
 <0.01 ug/L  
 @ 9.0' bgs

**SG-14**  
 0.07 ug/L  
 @ 9.0' bgs

LATH HOUSE @ 9.0' bgs

Approximate limits of former gasoline UST excavation



RESIDENCE

SB-5  
 SB-4  
 Z5  
 Z4

<b>MW-3</b>	<b>MW-3</b>	<b>11/14/11</b>
	ppb	
TPHg	480	
Benzene	<0.5	
MTBE	<0.5	

**SG-11** <0.01 ug/L @ 9.0' bgs

**MW-6** (Proposed) <0.01 ug/L @ 9.0' bgs

<b>MW-3</b>	<b>MW-3</b>	<b>11/14/11</b>
	ppb	
TPHg	480	
Benzene	<0.5	
MTBE	<0.5	

Supply Well

**SG-10**  
 0.08 ug/L  
 @ 10.0' bgs

GREENHOUSE

Approximate Scale in Feet



0 Kawahara Nursery  
 16550 Ashland Ave  
 San Lorenzo, CA 50

**SG-4**  
 <0.01 ug/L  
 @ 9.0' bgs

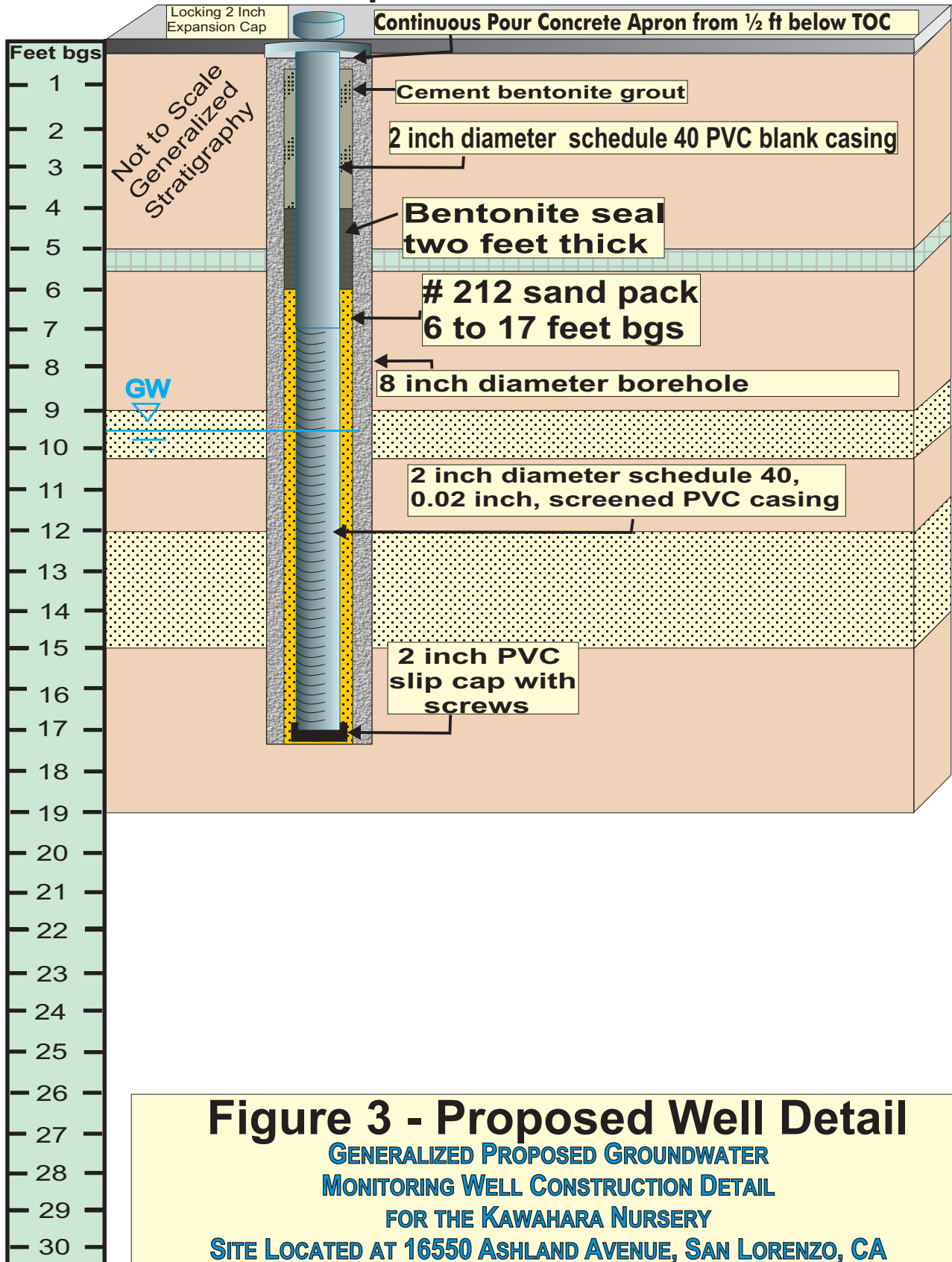
**SG-9**  
 <0.01 ug/L  
 @ 9.0' bgs

**SG-15**  
 <0.01 ug/L  
 @ 10.0' bgs

BARN

**Figure 2**

# MW-6 Proposed



## Figure 3 - Proposed Well Detail

GENERALIZED PROPOSED GROUNDWATER  
MONITORING WELL CONSTRUCTION DETAIL

FOR THE KAWAHARA NURSERY

SITE LOCATED AT 16550 ASHLAND AVENUE, SAN LORENZO, CA