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DATE: ***JULY 17,*** 2015
FILE: RO0003163

Karel Detterman
Hazardous Materials Specialist
Environmental Health Services
Environmental Protection
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RECEIVED
By Alameda County Environmental Health 2:29 pm, Aug 03, 2015

SUBJECT: ***PERJURY STATEMENT - REMEDIATION WORK AT ELEGANT CLEANERS #RO0003163, LOCATED AT 1208 LINCOLN AVENUE, ALAMEDA, CALIFORNIA 94501-2326***

I, Mr. Reza Sheikhai, the responsible party for the subject project, hereby, "declares , under penalty of perjury, that the information and/or recommendations contained in the attached document and/or report is true and correct to the best of my knowledge."

This letter is also signed by Dave Fagorala, the representative of the consulting firm (Dave Drilling Environmental Engineering, Inc.), that, I retained to implement the remediation work at the subject site.

If you have any questions regarding this letter, please call me at (510) 377 – 0233, or email me at: cpareza@aol.com

Sincerely,

Reza Sheikhai
Elegant Cleaners
1208 Lincoln Avenue
Alameda, CA 94501-2326

Dave A. Fagorala
Dave Drilling Environmental Engineering, Inc.
2283/2285 Willow Avenue, Bay Point, CA 94565

TECHNICAL REPORT

WORKPLAN - REMEDIAL INVESTIGATION FOR SOIL, GROUNDWATER

Case #RO0003163 AND GEO TRACKER GLOBAL ID TI0000006546

AT ELEGANT CLEANER LOCATED AT 1208 LINCOLN AVENUE, ALAMEDA, CALIFORNIA 94501-2326

Prepared for:

Mr. REZA SHEIKHAI, 1208 LINCOLN AVENUE, ALAMEDA, CA 94501/**Open Bank, 1000 Wilshire Blvd. Suite 500 Los Angeles, CA 90017**

Prepared by:

Dave Drilling Environmental Engineering, Inc. (DDEE)

2283/2285 Willow Avenue, Bay Point, CA 94565. Phone: (510) 258 – 5167

July 30, 2015.

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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

Information provided in this Workplan, prepared by DDEE, is intended exclusively for the use of DDEE and Regulatory Agencies for the evaluation of subsurface conditions regarding the subject site. The professional services provided, have been performed in accordance with practices generally accepted by other geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in the environmental engineering field. No other warranty, either expressed or implied, is made. As with all subsurface investigations, there is no guarantee that the work conducted will identify all sources or locations of contamination.

DDEE reserves the right to deviate from the proposed scope of services outlined in this Workplan as needed to obtain the required information. If such deviation is necessary, DDEE will seek prior approval from the regulatory agency overseeing this project.

This Workplan is issued for review and consideration for approval by the appropriate regulatory agency. This Workplan has been reviewed by a geologist/engineer who is registered in the State of California and whose signature and license number appears below.

_______________________ _________________________

Hassan Ibrahim, PE.
Civil Engineer/Environmental Professional

Dave A. Fagorala
Environmental Professional

1.0 INTRODUCTION

DDEE has prepared this workplan for installation of borings/monitoring wells to be utilized for collecting soil gas vapor, soil and groundwater samples, and for determining **groundwater gradient and vertical extent of contamination.**

DDEE scope of work will be implemented with the objective to calculate groundwater gradient and determine the local groundwater flow direction by plotting groundwater elevations to identify any shift in the direction of groundwater flow direction calculated in the previous site investigation (ENCON, ESA III January 2015). DDEE also plans to determine vertical extent of contamination in soil and groundwater during this stage.
Thereafter, groundwater will be monitored quarterly for one monitoring cycle from 2015 to 2016. EPA Methods agreed to by ACEH will be utilized for laboratory analysis of samples collected from the site.

This remedial site investigation (RI) workplan is prepared and submitted for review and approval. DDEE seeks approval for the RI workplan from ACEH, the lead regulatory agency, prior to implementation of fieldwork. The RI workplan contains information describing the scope of work and the methodology to be applied for drilling and sampling from existing wells and soil borings and monitoring wells that will be constructed for groundwater monitoring for this stage of the project scope of work.

Groundwater elevations will be measured over two monitoring cycles, and the data from the elevation measurements will be utilized to calculate groundwater gradient and plot groundwater flow direction(s) for the site. Soil and groundwater samples will be collected and analyzed at a State of California certified laboratory. Laboratory results will be evaluated and interpreted, to determine the vertical extent of contamination in soil and groundwater.

The scope of work for this investigation includes:

- Drilling 6 soil borings to depth of approximately 20 feet;
- Collecting samples to characterize soil and groundwater quality where tested;
- Chemical Analysis of soil and groundwater samples;
- Collecting air quality samples;
- Collecting soil gas vapor samples; and
- Final Report detailing the results of the investigation.

1.1 PROJECT OBJECTIVE

The objective of the project is to further evaluate the extent and nature of soil and groundwater contamination at the subject site and implement insitu removal of dry cleaning products (PCE) in the environment. Analytical results from the vapor, soil and groundwater investigation will be examined with respect to regulatory criteria and published guidelines. A previous soil and groundwater investigation (ENCON, ESA III Report, January 15, 2015), which included the installation of 3 monitoring wells, indicated low levels impact of groundwater and soil and vapor by PCE and its breakdown products. ENCON ESA III report of January 2015, reported that, there is

Impact in shallow groundwater (approx. 20 feet deep) is measured at 29 ug/L for PCE. Maximum contaminant level for PCE in drinking water is 5ug/L. The measured PCE value in shallow groundwater is less than one order of magnitude of its MCL value.

1.2 SITE DESCRIPTION AND BACKGROUND HISTORY

The subject property is located at 1208 Lincoln Avenue, Alameda, California, in the partly commercial and residential area of the city of Alameda, California. The Property is a 5,500 square-foot irregularly shaped parcel that is developed with two-story 2,500 square-foot commercial building currently occupied by a dry cleaning business name Elegant Cleaner. The northern portion of the building's first floor features a main entrance door leading into a reception area and clothes racks. The southern portion features a large dry cleaning machine, storage and various pressers and dryers. The second floor is used as storage. There is an unpaved parking area at the southern end of the Property. Access to the Property is achieved from the north along Lincoln Avenue and southwest along Bay Street (ENCON ESA III 2015).

The Property was developed with the current site building in the late 1800s or early 1900s. The building was originally developed as a meat market and was occupied by a store until the mid-1900s. In the 1970s it was occupied by a general store, and in 1980 it was occupied by a pet store. The current occupant, Elegant Cleaners, began occupying the building in 1986. The dry cleaners upgraded to an eco-friendly dry cleaning machine (Appendix B) in 2005, which replaced the previous machine that used Tetrachloroethylene (PCE) (ENCON ESA III 2015).

The property on the east of the Elegant Cleaner is a two stories building used for church ministry, while the property on the west is the Faith Bible Church building. The Elegant Cleaner building toward the north is facing the Lincoln

Road and the south side of the Elegant building is an open area. The second floor of the Elegant Cleaner building is the lunch area for the cleaner's staff.

1.3 GEOLOGY AND HYDROGEOLOGY

There are distinct hydrogeologic sub-areas in the Alameda Island. The Berkeley sub-area is a single hydrogeologic unit, containing numerous alluvial fan units. Individual wells provided water for most homes. There were no historic municipal well fields and no large-scale groundwater sources. The Oakland sub-area is filled with alluvial fan material. It contains two main aquifers, the Merritt Sand and the deeper gravels. Both were primary sources of groundwater for more than 60 years in the Alameda Island. A series of historical municipal well fields extended from the eastern end of Alameda, through the Oakland Coliseum, and mark a major hydrogeologic trend (Appendix C).

The site is located within the Coast Ranges geomorphic province of Northern California. The Coast Ranges are characterized as parallel mountain ranges and valleys displaced by strike-slip earthquake faults. The site is underlain by Quaternary-aged beach and dune sand.

Alameda Island, once a peninsula that connected the cities of Alameda and Oakland, is composed of wetlands, lagoons, and several artificial bodies of water. The Oakland Estuary, also known as the Oakland Inner Harbor, was originally San Antonio Creek, whose branches extended into Lake Merritt in downtown Oakland and the Brooklyn Basin. The peninsula became an island when a shipping lane known as the Tidal Canal was dredged in 1901, turning San Antonio Creek into the Oakland Estuary. Freshwater creeks are not a part of the natural landscape of Alameda Island due to its flat topography and porous sand.

1.4 LOCAL GEOLOGY

The local geology as indicated from drilling program during previous site investigation showed shallow zone groundwater was first encountered at depths of approximately 10 to 15 feet bgs. Shallow Zone groundwater quality at the site has been partially investigated. The shallow zone groundwater gradients is 0.003 and the groundwater flow direction is defined as northwest at the site. The groundwater flow direction will be confirmed during remedial investigation and cleanup activities. The Shallow Zone hydraulic gradient at this part of Alameda has been reported as being relatively flat and may also be influenced by other groundwater extraction systems operating on nearby properties, dewatering and/or pumping. Some portions of the site are covered by buildings or paving that inhibits infiltration of rainfall except in the unpaved areas.

Based on Boring logs from site investigations, the soil predominantly consists of fill material overlying alluvial deposits. In the previous investigation report, the soil beneath the fill material was classified primarily as silts and silt sands (see Appendix D).

1.5 REGIONAL STRUCTURE

The regional tectonic features are shown on Appendix E and Appendix F. San Francisco Bay rests in the core of a broad Franciscan (basement) synform. The Hayward Fault and the San Andreas Fault form the current eastern and western boundaries of the synform. Both faults are major tectonic features, with the Hayward Fault separating Franciscan units (on the west) from Cenozoic units (on the east). Basement structural trends was reported to exert strong control over the initial depositional patterns, but their influence lessened as the basin filled. Several faults have been defined within the basin fill. The San Pablo fault in Richmond was identified as a possible fault by Tolman (1931), and it has appeared on California Division of Mines and Geology geologic maps of the area ever since. Wakabayashi and Hengesh (1995), showed a fault in the same location, but called it the Point Richmond Fault. The original Silver Creek fault in San Jose was mapped as a thrust by Crittenden (1951), who also suggested that it might continue north beneath the basin fill. The proposed fault was reported to extend from the original outcrop of the Silver Creek fault in San Jose, beneath the Santa Clara basin, and then north to the Coyote Hills in the Niles Cone. Based on additional gravity measurements, DWR (1967) refined the location of the northern end of the fault to one and on-half miles east of Coyote Hills. However, in 1975, DWR indicated that the Silver Creek fault was cut off by the Edenvale fault (also defined by gravity) just north of the Silver Creek area. They did not comment on whether or not they still believed that a buried fault still extended from the San Jose area north to the Coyote Hills area, but no fault was shown on their regional fault trace map (DWR, 1975,). Both the Silver Creek and the San Pablo faults have been referred to by many subsequent workers, and claims have been made that they could be potentially seismically active. Except for a possible alignment of gravity features, there is no reported direct evidence for their existence or seismic activity.

1.6 REGIONAL STRATIGRAPHY

The depositional history of the San Francisco Basin has been well described in many previous studies (Rogers and Figuers, 1991, for example). The lower part of the San Francisco basin was reported to be filled with several hundred feet of continental alluvial fan/plain deposits (Santa Clara or equivalent units). Outside of their approximate thickness, little is known about those units. Seas then encroached into the bay, filling it with several hundred feet of an alternating sequence of estuarine and alluvial deposits of the Alameda formation. The more recent units have been named: Yerba Buena or Old Bay Mud, San Antonio, Merritt, Posey, Young Bay Mud, and Temescal. Many of these units have been given informal formational status, but it was reported that, their limited extent both in distance and in time indicates that they should be referred to as units or members rather than formations. Little information was reported about stratigraphic units within the San Pablo Basin. Information from the Richmond sub-area suggests that the stratigraphic units are similar to those found in the San Francisco Basin, but it appears that the marine units (Alameda formation) are thinner. It will require deep drilling in the central part of the basin to determine the nature of the units. It was reported that, all of the basins (Santa Clara, San Francisco, and San Pablo) developed contemporaneously and have a common depositional history, but there are a plethora of stratigraphic/hydrogeologic names. Several stratigraphic nomenclature changes are proposed. They are:

- The term Alameda Formation is restricted to the marine units beneath the bay (up to and including the Young Bay Mud). It does not include the alluvial fan units between the bay and the hills (bay plains).
- The Yerba Buena Clay (Old Bay Mud), San Antonio, Merritt, Posey, and Young Bay Mud are members within the Alameda Formation.
- The deeper continental section, identified as the continental Alameda by Rogers and Figuers (1991), is a combination/continuation of Santa Clara and Merced Formations (DWR, 1967; Brabb and Pamyeyan, 1983). Little is known about the nature of the deep units. (Only within the past year or so has this section been specifically sampled, as a result of the Caltrans borings along the San Mateo and Bay Bridges.)
- The deeper alluvial fan material along the east side of the bay has historically been mapped as part of the Alameda, San Antonio, or Temescal Formations. These units are reported to be equivalent in time, depositional environment, and lithology with the Santa Clara and/or Merced Formations. Correlations have not yet been made, but it was suggested that these units are outcrops of the Santa Clara (and possibly the Merced) Formation. DWR (1967, p. 21) recognized this equivalence, but continued using the traditional names.

The Santa Clara, San Francisco, and San Pablo basins were reported to be formed and filled in similar (if not identical) tectonic and stratigraphic environments. However, they are reported to have been viewed as separate features, with each side of the basin being viewed as independent. Here are the following stratigraphic nomenclature reported:

Temescal - The Temescal is reported as an early Holocene alluvial unit deposited along the east side of San Francisco Bay. It was reported that, the unit varies from 1 to 50 feet thick, thinning towards the bay, and consist primarily of silts and clays, but near the bay it was reported to contain graded sequences upwardly fining to clay. In the vicinity of Alameda Island, it was reported that, the base of the unit is a layer of gravel with cobbles up to 8 inches thick.

Young Bay Mud - The Young Bay Mud was reported as the estuarine mud being deposited today in San Francisco Bay, as black, unconsolidated, saturated, organic rich clay, containing occasional gravel and sand layers, shell fragments/layers, peat, and organic debris. It was reported to range in thickness between 50 to 75 feet, but can be up to 150 feet thick in channels. It was reported to cut into the San Antonio/Merritt Sand during the late Wisconsin glacial stage.

San Antonio/Merritt/Posey - The San Antonio (first defined by Lawson, 1914) was reported as a sequence of alluvial fans (0 to 120 feet thick) deposited between the Young Bay Mud and the Yerba Buena Mud. The lower San Antonio was reported to contain Franciscan pebbles, suggesting that it derived from the Berkeley Hills. As with all alluvial fan deposits, it contains a wide variety of lithologies, ranging from stream deposits to flood plains to lakes and swamps. It was reported that, the Merritt and Posey are considered facies within the San Antonio unit. Both Lawson (1914) and Trask and Rolston (1951) identified an erosional surface between the San Antonio and the Posey. Lawson kept the Posey as part of the San Antonio, whereas Trask and Rolston created a separate unit. The Merritt Sand (0-60 feet thick) was defined as a fine grained, well sorted, aeolian sand deposit on Alameda Island and western Oakland. It was reported to be deposited contemporaneously with the upper San Antonio/Posey.

Yerba Buena Mud (Old Bay Mud- This unit was originally called the Old Bay Mud (Trask and Rolston, 1951) until it was renamed the Yerba Buena Mud by Sloan (1981, 1990). It is said to be a widespread, homogeneous estuarine mud deposited approximately 115,000 years ago. Like the Young Bay Mud, it is reported to be initially deposited within earlier stream channels and consists of an over-consolidated black, organic rich clay. It averages 25 to 50 feet thick, and typically has a gravel/sand/shell layer in the middle part of the unit.

Alameda formation - This is reported to be the main basin-filling unit (originally defined by Lawson, 1914), varying in thickness from 100 feet near Richmond to more than 400 feet near the San Mateo Bridge. It has been defined in the central part of the basin, but has not been defined along the margins of the basin. It is reported that, the Alameda formation is restricted to the sequence of estuarine muds separated by alluvial fan deposits and includes the Yerba Buena, San Antonio, Merritt, and Posey. The estuarine units were first identified by Atwater (1979). Below it are the continental units of the Santa Clara/Merced formations (300-600 feet thick). They consist of alluvial fan units interfingered with lake, swamp, river channel, and flood plain deposits.

1.7 REGIONAL GROUNDWATER AQUIFERS

The wells of the east bay region were reported to draw water from three separate zones or aquifers lying at varying depths below the present ground surface, each zone or aquifer being distinct in manner and age of deposition, source of water, transmission of ground water, and quantity of ground water in storage, but these characteristics were reported to vary in the aquifers locally from the Alameda south to Irvington, as follows: 1) The deep or lowest zone comprises of more or less stratified alluvial deposits as subsidence proceeded the alluvium became buried by a fine silt laid down in the sea water which entered and covered the land. This silt covering now lies as impermeable clay, sealing the aquifer. The wells of depths greater than 280 feet penetrate this zone, the source of the ground water which now penetrates the deep zone is said to be principally that external water which seeps into the Santa Clara Valley and is transmitted northerly at depth. 2) The intermediate zone - is unlike the deep zone in character in that it is not stratified and varies in composition and method of deposition locally. San Leandro and San Lorenzo creeks built up short debris cones near their debouchures, dropping their heavier load, and carrying the lighter sand and silt to the bay through channels in the bay clays similar to those that exist at present in the salt marsh. It was reported that these channels were left, with the shifting of the stream, as stringers of open porous material in a matrix of fine clay. With recurrent submergence the sea encroached upon the porous materials, to a limited extent, leaving blankets of clay within the zone. The depth of the intermediate zone varies from 50 to 300 feet. The intermediate zone varies in character with different localities. In the Niles cone, the zone consists of a buried mass of detrital material laid down by Alameda Creek - lenticular bodies of gravel, sand, and stream deposited silt - with but few and relatively thin tongues or blankets of marine clay. In the San Leandro and San Lorenzo Cones it consists of isolated stringers of sand and gravel enclosed in a matrix of marine clay as well as some shallow thicknesses of buried alluvial debris cones. It was reported that, the source of water of the intermediate zone varies in each cone. The Niles cone intermediate zone materials were reported to be in direct contact with and a continuation of the materials which lie at the apex of the cone and extend to the present surface. The intermediate zone materials of the two northerly cones are imperfectly connected with their apexes and intercommunication between water yielding stringers is imperfect. These stringers were reported to contain much water but when drawn upon the ground water moves slowly towards areas of depletion and replenishment is meager. 3) Shallow or surface zone were said to be made up by the recent alluvial cones of Alameda, San Lorenzo and San Leandro Creeks which coalesce with one another and with the limited cones of small intervening drainage area. The deposits are unconsolidated, porous and permeable, and absorb the water falling upon or flowing over their surfaces. [they were deposited] subsequent to a blanket-like clay body sealing the [intermediate] zone. This zone still is said to be in the course of active aggradation. With few exceptions, there is no transmission of ground water from one zone to another, in a state of nature. Draft upon the deep zone does not affect the ground water supply of the upper zones except where some deep well may be perforated at upper levels and allow drainage of water from upper levels down its casing." (Forbes, 1925 and S. Figuers 1998)

2. CLIMATE

The City of Alameda in California, receives precipitation of average 23 inches of rain per year. The US average is 37 inches per year. Snowfall is 0 inches. The average US city receives average of 25 inches of snow per year. The number of days with any measurable precipitation is 64.

On average, there are 259 sunny days per year in Alameda, CA. The July high is around 72 degrees. The January low is 45. Our comfort index, which is based on humidity during the hot months, is a 64 out of 100, where higher is more comfortable. The US average on the comfort index is 44 (www.bestplaces.net/climate/city/california/alameda).

3.0 PRE-FIELD ACTIVITIES

This section describes the tasks DDEE will perform prior to initiating any field activities. These tasks include: 1) attending the ACEH Meeting; 2) identifying borehole locations; 3) preparing the Pre-Work Site Visit Checklist; 4) marking site location and notifying Underground Service Alert (USA) to facilitate location of underground utilities; 5) obtaining drilling permits: and 6) reviewing the Work Plan and reviewing our site specific Health and Safety Plan

3.1 MEETINGS

Meetings with ACEH will continue as needed. The primary purpose of the meeting was to familiarize ACEH STAFF with site conditions that may impact field operations. A secondary purpose of the Meeting was to identify the boring locations and to prepare a Pre-Work Site Visit Checklist. Topics specified in the Checklist included identification of the borehole locations, confirmation of underground utility clearance, location of sewer lines, location of water/power supply sources, and storage areas for drill cuttings.

3.2 HEALTH AND SAFETY PLAN

Prior to the commencement of field activities at the site, DDEE site-specific Health and Safety Plan (HSP) will be reviewed in compliance with 29 CFR 1910.120.. The HSP is designed to address the potential hazardous materials that may be encountered during field activities at the site. Further, the HSP will be designed to minimize the exposure to potentially hazardous materials and unsafe working conditions to on-site personnel.

3.3 UTILITY CLEARANCE

At least two working days (48 hours) prior to drilling activities, DDEE will contact Underground Service Alert (USA) to identify utility lines that may underlie the areas of investigation. DDEE will clear boring locations prior to drilling. Additionally, DDEE will provide any drawings that indicate where utility lines are located at the site.

3.4 DRILLING PERMIT

Prior to drilling, DDEE will obtain a drilling permit from the Alameda County Department of Environmental Management when drilling below ground surface will extend deeper than 5 feet. .

4.0 SUBSURFACE INVESTIGATION

This section describes the methodology to conduct soil, groundwater and soil vapor investigation at the site. The objectives of these sampling procedures are to establish protocols for conducting an investigation that will provide an accurate assessment of the current soil, groundwater and soil vapor conditions at the subject site, and to minimize the potential for cross-contamination during sampling operations.

SCOPE OF WORK FOR SUBSURFACE BORING AND SAMPLING

The scope of work for subsurface boring and sampling at the subject site is as follow:

- Subsurface drilling permit will be obtained from Alameda County Health Services Department.

- Underground Service Alert will be notified.

- Approximately 6 subsurface borings will be drilled, soil gas vapor, soil and groundwater samples will be collected from the borings. Approximately 48 soil samples, and 6 groundwater samples from 6 borings will be collected from below ground surface (bgs) at the site. Soil samples will be collected from vertical intervals of 1, 2, 3,4, 5, 10,15 and 20 feet, intervals bgs, groundwater samples will be collected from below groundwater table.

- The soil and groundwater samples will be analyzed for volatile organic compounds (VOCs), using appropriate EPA Methods approved by the ACEH

- This Workplan is prepared for air quality, soil, soil gas vapor and groundwater investigation at the site to confirm PCE contaminant levels at the Elegant Cleaner.

4.1 SOIL BORINGS

Six borings (MW4 to MW9) are scheduled to be drilled to investigate the soil and groundwater quality at the site. Soil and groundwater samples will also be tested for the new dry cleaning chemicals (DF-2000 Fluid). The area of drilling is presented in Figure 2. A State of California licensed driller will provide the drilling services. The borings will be drilled to a depth of approximately 20 feet below ground surface (bgs) using an hydraulic drill rig. Soil samples will be collected at 1,

2, 3, 4, 5, 10, 15 and 20 feet intervals. DDEE anticipates that 8 soil samples and one groundwater sample will be collected from each boring for chemical analysis. Fieldwork for drilling and soil sampling activities will be conducted in accordance with the field procedures described in this workplan.
Soil gas vapor will be collected and tested, and locations for fenton's chemical reactions will be identified.

4.2 SOIL SAMPLING PROTOCOL

Soil gas, soil and groundwater samples will be collected by DDEE field personnel working under the supervision of a State of California Registered Civil Engineer. The soil samples will be collected in 0.46-meter (1.5-foot) long acetate tubes. Upon retrieval of the sampler, a representative soil sample will be preserved for chemical analyses. The groundwater, gas vapor samples will be collected and be preserved for chemical analyses.

The samples will be logged on chain-of-custody records and transported to a California certified laboratory for analyses.

4.3 SOIL CLASSIFICATION

Soil will be described by a DDEE engineer and recorded on a field-boring log for each boring drilled. The data recorded on the logs will be based on examination of soil samples retrieved and drilling conditions observed in the field. Boring logs will include information regarding the location of the boring, type of sampler used and geologic descriptions of materials encountered.

Soils will be classified according to the "Soil and Rock Logging Classification Manual" consistent with the unified soil classification system. Other information to be recorded on the logs will include indications of contamination and the occurrence of groundwater. Organic vapor analyzer (OVA) measurements for soil samples will be recorded on the field boring logs.

4.4 SURVEY GRADE.

A State of California licensed surveyor will be utilized to determine the horizontal location to 0.03 meters (0.1 feet) and the vertical elevation to 0.003 meters (0.01 feet).

4.5 DECONTAMINATION PROCEDURES

Decontamination procedures will be implemented to maintain sample integrity and to prevent cross-contamination between sampling locations. All re-usable equipment will be cleaned with a non-phosphate detergent and rinsed twice with de-ionized water prior to use at a new sampling location. Sampling equipment includes:

- Stainless-steel sampling equipment,
- Drilling equipment,
- Groundwater sampling equipment, and
- Gas vapor probes and photoionization detector (ppbREA 3000)

4.6 STORAGE AND DISPOSAL OF GENERATED WASTES

Water from equipment cleaning activities will be stored in individually labeled 55-gallon drums. Disposition of the water will be determined upon receipt of laboratory analytical results of the soil samples. DDEE will arrange for the management and appropriate disposal of soil and water generated during the field activities.

5.0 LABORATORY ANALYSIS PROGRAM

The soil, gas vapor and groundwater samples collected during this investigation will be submitted to a State of California Department of Health Services certified hazardous waste laboratory. All of the soil samples collected will be analyzed according to the analytical methods presented below.

- Volatile Organic Compounds (VOC) (incl. oxygenates) EPA Method 8260B

One soil sample from each of the borings will be analyzed for pH according to EPA Method 9045.

Samples will be submitted to McCampbell Analytical Labs, Inc. The soil and groundwater samples collected will be analyzed for the following chemical constituents, according to the indicated methods:

Matrix	Test
Solid	Hold VOCs: EPA 8260B
Liquid	VOCs: EPA 8260

Laboratory analyses will be completed according to standard turnaround (2 weeks).

6.0 FIELD QUALITY ASSURANCE/QUALITY CONTROL

The following equipment calibration procedure and field documentation procedures will be implemented by DDEE field personnel.

6.1 SAMPLE IDENTIFICATION

Soil samples collected in the field will be labeled according to standard protocol, as described in Appendix A.

6.2 CHAIN-OF-CUSTODY PROCEDURES

Chain-of-Custody records will be used to document sample handling and shipping procedures. Chain-of-Custody records will trace the samples from collection, through any custody transfers to the analytical laboratory. Information recorded on the Chain-of-Custody records will include location of sample collection, sample identification, number, date and time of collection, number and type of sample containers, and analyses requested. The shipping conditions will also be described on the Chain-of-Custody records. The name of the sampler(s) as well as the name of the person relinquishing the samples will be documented. Chain-of-Custody procedures are described in Appendix A.

6.3 FIELD INSTRUMENTS

An organic-vapor analyzer (OVA) will be used in the field for health and safety monitoring, as well as site assessment purposes. An OVA will be calibrated prior to arrival at the site using a reference calibration gas. Calibration gas is pre-bottled by a laboratory supply house and has a listed calibration value in parts per million for each specific gas.

The following list of instruments will also be used in the field for gas vapor sampling:

GAS — MiniRAE 3000 PID Monitor,this is an advanced portable handheld volatile organic compounds (VOCs) monitor. It includes three seconds response time, extended range of 0.1 to 15,000 ppm, humidity compensation, a large display for easy viewing and numerical and graphical readout.

Sub-slab GVP Kit (gas vapor probe) – use to sample for VOCs beneath floor slabs and for vapor intrusion investigations. It is designed to allow repeated sampling over time so as to assess the potential of contaminated vapor intrusion beneath the floor slab of a building. The GVP Kit use an electric rotary drive hammer and GVP drive extentions to insert a stainless steel GVP tip to desired sampling depth. Fluoropolymer tubing is attached to a barb fitting on the GVP tip to remote sampling from the surface.

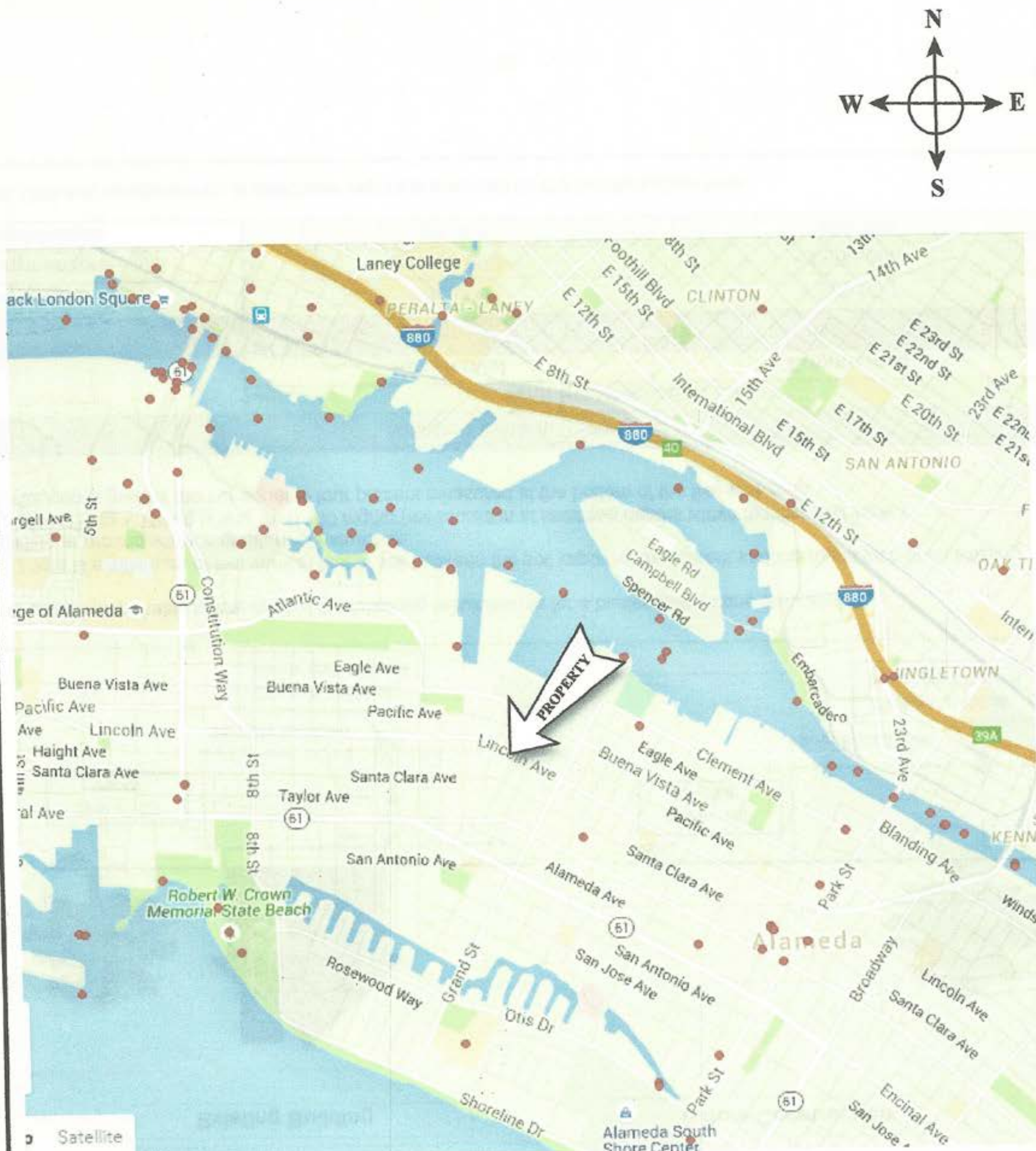
7.0 SITE INVESTIGATION REPORT PREPARATION

Upon completion of the field activities described in this Workplan, a report will be prepared presenting the investigative methodology implemented, findings, and conclusions for the subject site. The report will include the following elements:

- Title sheet,
- Signature page,
- Table of contents,
- Investigative summary,
- Introductory narrative of the project,
- Investigative methods,
- Investigative results and field observations,
- Data evaluation and discussion,
- Figures,
- Summary table (s) indicating laboratory results,
- Contaminant concentrations, analytical methods, and detection limits,
- Copies of original laboratory documentation,
- Field procedure forms, and chain-of-custody records,
- Conclusions, and
- Recommendations.

FIGURES

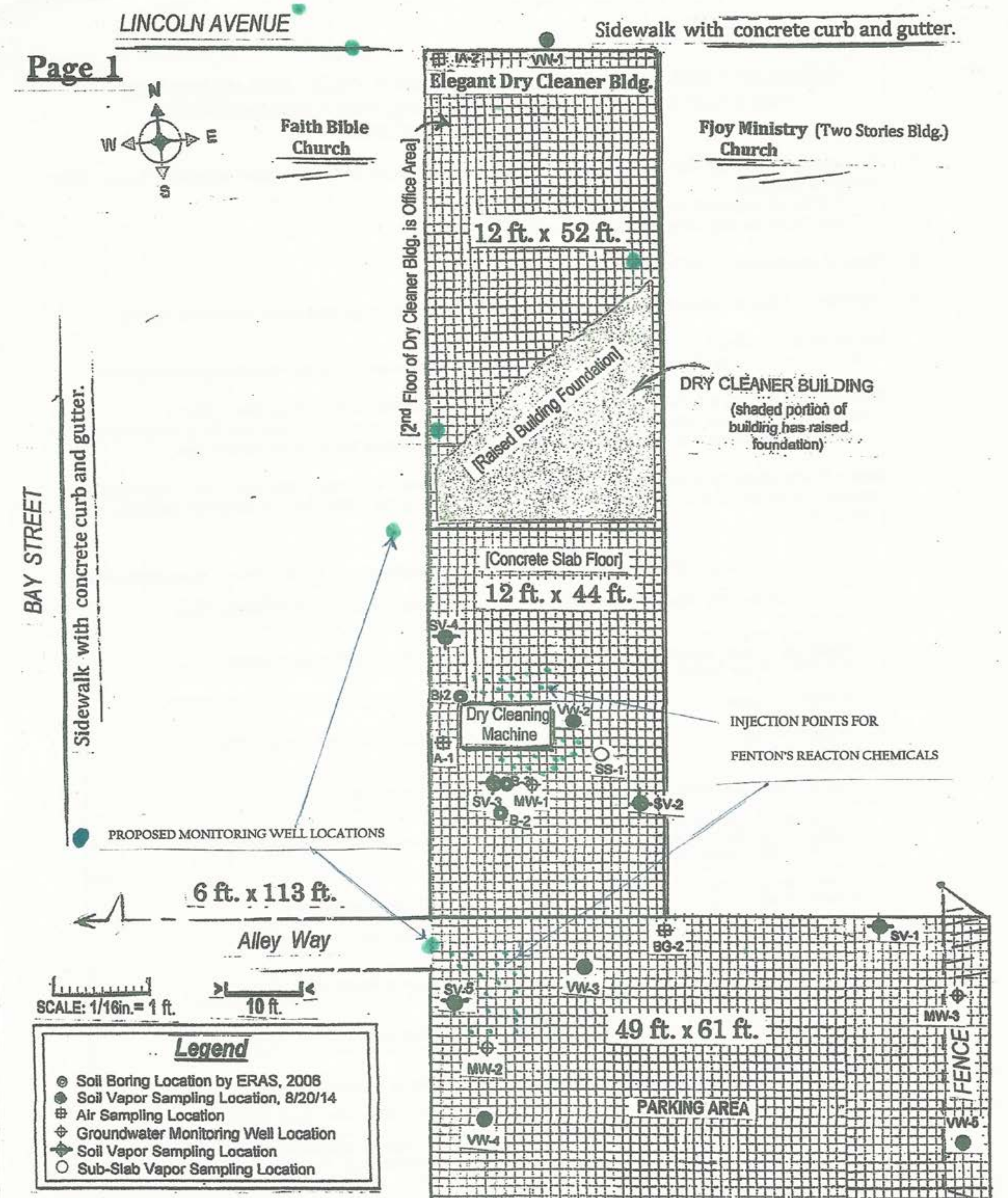
1.SITE LOCATION MAP



Scale: 1: 24,000

FIGURE 1	Site Location Map	Dave Driling Environmental Engineering, Inc. Water well drillers & Environmental Engineering Consultants
SITE ADDRESS:	**ELEGANT CLEARNER** 1208 Lincoln Avenue, Alameda, CA 94501	

FIGURE
2. SITE PLAN SHOWING BORING LOCATIONS



FLOOR PLAN SKETCH

FACILITY NAME: Elegant Dry Cleaning

ADDRESS: 1208 Lincoln Ave. Alameda, CA 94501

APPENDIX A

FIELD PROCEDURES

1.0 Field Quality Assurance/Quality Control

Equipment calibration procedures and field documentation procedures will be implemented by DDEE field personnel.

a. SAMPLE IDENTIFICATION - Soil samples collected will be labeled with unique ID, with date and time of sampling, and initials of the sampler. The samples will be shipped under proper chain of custody procedures to McCampbell Analytical Analytical Labs, Inc., a State certified laboratory.

b. CHAIN-OF-CUSTODY PROCEDURE – Chain of custody records will be used to document sample handling and shipping procedures. Chain of custody records will trace the samples from collection, through any custody transfers to the analytical laboratory. Information recorded on the Chain of custody records will include location of sample collection, sample identification (I.D.) number, date and time of collection, number and type of sample containers and analyses requested. The shipping conditions will also be described on the Chain of custody records. The name of the sampler as well as the name of the person delivering the samples will be documented. Chain of custody procedures are outlined in the field procedure.

c. DIARY AND TIME LOG - A project diary/time log will be developed for the activities performed at the site, which will include:

- Project name and location;
- Contract number;
- Name, title, company performing work, including subcontractors;
- Date work is being performed;
- Actual begin and end times of work;
- Description of work being performed;
- Equipment utilized on site;
- Any observations or remarks to clarify work being performed; and
- Change orders issued if any.

d. DATA MANAGEMENT – Project documents and file may include, but not limited to the following:

- Chemicals of concern from previous investigation..
- Project Field Logs: The project notebook and all field memorandums.
- Correspondence: All written correspondence and telephone conversation records.

- Data Presentation: All maps and tables generated from basic data analyses.
- Data Verification: Documentation that all tables, maps and texts using basic information have been reviewed.
- Field procedures, forms, maps, and analytical data

2.0 DRILLING, AND SAMPLING PROCEDURE

The goal of this sampling procedure is to introduce protocols for soil and groundwater sampling and to minimize the potential for cross-contamination during sampling.

Based on this Work Plan, soil borings will be drilled at approximately 6 locations.

Soil borings, MW4 to MW9 will be drilled to approximately 20 feet below ground surface (bgs), at the Elegant Cleaner located at 1208 Lincoln Avenue, Alameda, California 94501. Soil borings, MW4 to MW9, will be drilled to approximately 20 feet below ground surface (bgs), at the Elegant Cleaner. Soil samples will be collected from 1, 2, 3, 4, 5, 10, 15, and 20 feet bgs from each boring and groundwater will be collected from below groundwater table from each of the borings.

2.1 Drilling

The direct push and/or the hollow stem auger method will be used to drill borings at the site for collection of soil samples. A C57, State of California licensed driller, will be subcontracted to perform this work. The soil samples will be collected using 2-inch diameter spilt spoon.

2.2 Collection of Soil Samples

Six borings, MW4 to MW9 will be advanced to approximately 20 feet bgs. The soil samples will be collected using 2-inch diameter stainless steel samplers. During drilling, the continuous soil samples will be observed for lithology. Lithologic logs of the borings will be developed at the site during drilling, and included in Appendix of the site Investigation report. Soil samples will be collected from 6 soil borings at 1, 2, 3, 4, 5, 10, 15, and 20 feet deep bgs, depending on the target depth of sampling in a boring. Stainless steel samplers with disposable PVC liners will be used for collecting soil samples. The liners will be removed from the stainless steel sampler, capped at both ends, labeled and kept in ice chest. The soil samples will be delivered to a State-certified hazardous waste laboratory McCampbell Laboratory, Inc. within 24 hours under proper chain-of-custody record.

To prevent cross-contamination the soil sampling equipments will be washed with an Alconox solution prior to sampling from each location, and followed by two rounds of rinsing with water, and a final rinsing with de-ionized water.

2.3 Collection of Groundwater Samples

All of the 6 borings will be advanced to approximately 20 feet below ground surface (bgs) for collection of groundwater samples. The groundwater samples will be collected using PVC bailers. During drilling, the continuous soil samples will be observed for lithology. Groundwater samples will be collected from temporary wells to be installed in the boring locations at MW4 to MW9. Disposable PVC bailers will be used for collecting groundwater samples. The groundwater samples will be placed in containers collected from the laboratory, capped, labeled and kept in ice chest. The groundwater samples will be delivered to a State-certified hazardous waste laboratory McCampbell Laboratory, Inc. within 24 hours under proper chain-of- custody record.

To prevent cross-contamination separate PVC bailers will be used for collecting groundwater samples from each temporary well. The groundwater sampling equipments will be washed with an Alconox solution prior to sampling from each location, and followed by two rounds of rinsing with water, and a final rinsing with de-ionized water.

2.4 Gas Vapor Sample Collection

Gas vapor will be collected with the goal of mapping the vapor cloud zone at the Elegant Cleaner. Gas vapor will also be collected next door to the Elegant Cleaner. The blower will be turned off to monitor worse case senario of the air quality inside the Elegant Cleaner. The following is the steps for installing a sub-slab gas vapor probe for collecting gas vapor (VOCs): 1. Create recess hole for the tamper-resistant cap, 2. Drill through sub slab, 3.Check for obstruction if necessary, 4. Insert the assembled GVP kit-grouting above rubber plug, 5. Use the ball-valve to connect sampler to the GVP, and begin collecting samples

2.5 DECONTAMINATION PROCEDURE

The following decontamination procedures will be applied to prevent cross-contamination between samples and to maintain true representative sample from each location:

All sampling and measuring equipments will be cleaned with a non-phosphate detergent and rinsed twice with water, and a final de-ionized water rinse, prior to use at a new sampling location. Sampling equipment includes:

Hydraulic Powered Rig, Split Core Soil Sampler and 2 in diameter PVC Bailers.

The reinstate will be retained and stored in labeled 55-gallon drums and disposed off-site at a permitted recycling facility

2.6 Borings Abandonment

Soil borings will be backfilled to the ground surface with a ratio of neat cement grout of one sack of Portland Type I/II cement (94 Ibs.) to five gallons of clean water. A 2 in steel casing will be used to tremie the grout into the borings for proper seal. The steel casing will be withdrawn as the grout gradually fill the borings.

2.7 HANDLING OF INVESTIGATION DERIVED WASTE

DDEE will arrange with Clean Harbors Environmental Services, 1021 Berryessa, San Jose (408-451-5000) for appropriate disposal of waste, and decontaminated water generated during boring construction activities. All contaminated wastes, decontamination water will be stored in DOT- approved 55- gallon drums, and will be disposed off-site, at a permitted landfill or a permitted recycling facility (Clean Harbors Environmental Services, 1021 Berryessa, San Jose (408-451-5000)). A generator EPA ID will be obtained.

2.8 Field Quality Assurance/Quality Control

Equipment calibration procedures and field documentation procedures will be implemented by DDEE field personnel.

a. SAMPLE IDENTIFICATION – Gas vapor, Soil and groundwater samples collected will be labeled with unique ID, with date and time procedures to McCampbell Analytical Labs, Inc., a State certified laboratory.

b. CHAIN-OF-CUSTODY PROCEDURE – Chain of custody records will be used to document sample handling and shipping procedures. Chain of custody records will trace the samples from collection, through any custody transfers to the analytical laboratory. Information recorded on the Chain of custody records will include location of sample collection, sample identification (I.D.) number, date and time of collection, number and type of sample containers and analyses requested. The shipping conditions will also be described on the Chain of custody records. The name of the sampler as well as the name of the person delivering the samples will be documented. Chain of custody procedures are outlined in the field procedure.

c. DIARY AND TIME LOG - A project diary/time log will be developed for the activities performed at the site, which will include:

- Project name and location;
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3.0 FIELD PROCEDURE

a. SOIL SAMPLING

- Soil sampling equipment will be washed prior to sampling from each boring. The washing will be followed by two rounds of rinsing with water, and a final rinsing with de-ionized water.

- Stainless steel samplers with disposable Teflon liners will be used for collecting soil samples.
- The liners will be removed from the stainless steel samplers, capped at both ends, labeled and kept in ice chest.
- Soil samples will be delivered to the State-certified hazardous waste laboratory within approximately 48 – hours of collection.
- The soil description will include the color, texture, structure, and consistence.

b. TEMPORARY WELLS DEVELOPMENT AND GROUNDWATER SAMPLING

The six temporary wells (MW4 to MW9) will be installed at the Elegant Cleaner property area.

DDEE geologist and geotechnical engineer will develop temporary monitoring wells with disposable bailers using "surge and purge method". Each temporary well will be purged with a separate disposable PVC bailer.

Prior to purging the temporary wells, depth to water level will be measured using a Solinst groundwater level meter probing to an accuracy of approximately 0.01 foot. The measurement will be made to the top of the well casing on the surveyed side. While purging, the parameters for temperature, pH, specific conductivity, and turbidity will be monitored for stabilization. After the parameters stabilized, and a minimum of three well volumes will be purged, groundwater samples will be collected from each well. Groundwater will be decanted from the disposable Teflon bailer into the appropriate laboratory-certified containers with the appropriate preservatives for chemical analysis. The containers will be sealed, labeled with a unique sample ID, the Facility name, project number, name of sampler, and date and time of sample collection; and will be placed into ice-chilled coolers. Samples will be placed under chain-of-custody for transportation to the laboratory.

To prevent cross-contamination all sampling equipments will be washed with an Alconox solution prior to sampling each of the wells, this will be followed by two rounds of rinsing with water, and a final rinsing with de-ionized water. Purged water and other rinsate will be contained in 55-gallon drums for proper disposal.

c. FIELD DOCUMENTATION OF SAMPLING PROCEDURES

The following outline describes the procedures to be utilized by DDEE for proper sampling documentation.

1. Sampling procedures will be documented in a field notebook that will contain:

- Sample collection procedures
- Date and time of collection
- Date of shipping
- Sample collection location
- Sample identification number(s)
- Intended analysis
- Quality control samples
- Sample preservation
- Name of sampler
- Any pertinent observation

2. Samples will be labeled with the following information:

    - Sample number
    - Boring number
    - Date and time sample was collected
    - Sampler's name
    - Sample preservatives

    The following is the sample designation system for the site: For soil boring samples (i.e., S4 to S9). For groundwater samples (i.e ,MW4 to MW9).

3 Handling of samples will be recorded on a chain-of-custody form which shall include:

    - Site name
    - Signature of Collector
    - Date and time of collection
    - Sample identification number
    - Number of containers in sample set
    - Description of sample and container
    - Name and signature of persons, and the companies or agencies they represent, who are involved in the chain of possession
    - Analyses to be completed

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TECHNICAL REPORT **ELEGANT CLEANERS**

SIGNATURE PAGE

LIMITATIONS

This report describes the methodology for the engineering work (i.e.; Site Investigation, Remedial Investigation, Remedial Action, Remedial Action plan, Geotechnical, Environmental, Drilling, Soil and Groundwater samplings) at the subject facility. The report has been reviewed by a registered civil Engineer in State of California, his signature and licence appears below.

DDEE will focus on locating the most significant sources or potential sources and plume size and migration pathway and implement soil and groundwater remediation. DDEE will conclude a clean-up and /or monitoring program until the concentrations of the contaminant of concern will reach acceptable clean-up levels to the agencies.

DDEE's liability to our Clients for injury or damages to persons or property arising out of work performed for our Clients and for which legal liability may be found to rest upon DDEE, other than for professional errors and omissions, will be limited to its general liability insurance coverage maximum limit.

For any damage on account of any error, omission, or other professional negligence, DDEE's liability will be limited to a sum not to exceed our fees.

The Client shall indemnify DDEE against any claims or costs, which exceed the limitation on DDEE's liability provided in our insurance coverage, or results from acts or omissions of the Client.

6/17

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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

The information provided in this technical report, prepared by DDEE, is intended exclusively for the use of DDEE and Regulatory Agencies for the evaluation of subsurface conditions regarding the subject site. The professional services provided have been performed in accordance with practices generally accepted by other environmental professionals practicing in the environmental engineering field. No other warranty, either expressed or implied is made. As with all subsurface investigations, there is no guarantee that the work conducted will identify all sources of locations of contamination.

DDEE reserves the right to deviate from the proposed scope of services outlined in this Workplan as needed to obtain the required information. If such deviation is necessary, DDEE will seek prior approval from the regulatory agency overseeing this project.

This Proposal is issued for review and consideration for approval by the appropriate regulatory agency. This Proposal has been reviewed by a geologist/engineer who is registered in the state of California and whose signature and license number appears below.

Hassan Ibrahim, PE.

Civil Engineer

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David A Fagorala

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