Oakland Housing Investors, LP.
3 East Stow Rd
Marlton, NJ 08053

RECEIVED
By Alameda County Environmental Health 2:18 pm, Jan 14, 2016

December 30, 2015

Re: 1396 5th Street Oakland, CA

To whom it may concern:

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Respectfully Submitted,

Michael Boettger
Vice President

mboettger@themichaelsorg.com
Ph: 209-370-1559

CITADEL ENVIRONMENTAL SERVICES, INC.

assess
resolve
strengthen

December 29, 2015

Mr. Michael L. Boettger
Vice President
MICHAELS DEVELOPMENT
2020 W. Kettleman Lane
P. O. Box 1570,
Lodi, California 95241

Re: CITADEL Project No. 0849.1001.0
Phase II Subsurface Investigation Work Plan
Former Red Star Senior Living Apartments Development
1396 Fifth Street
Oakland, California 94607
SLIC Case Number: R00002896

Dear Mr. Boettger:

Citadel Environmental Services, Inc. (Citadel) is pleased to submit this Work Plan to perform a Phase II Subsurface Investigation at the above referenced location. The scope of Citadel's services is outlined on the following pages.

If you have any questions or require additional information, please telephone me at (818) 246-2707.

Sincerely,
CITADEL ENVIRONMENTAL SERVICES, INC.

Mark Drollinger

Digitally signed by Mark Drollinger
DN: cn=Mark Drollinger, o=Citadel Environmental Services, Inc., ou, email=mdrollinger@citadelenvironmental.com, c=US
Date: 2015.12.30 13:48:51 -08'00'

Mark Drollinger, M. Eng., CSP, CHMM, EIT
Director, Environmental Geology and Engineering

Enclosures

CITADEL ENVIRONMENTAL SERVICES, INC.

assess
resolve
strengthen

Michaels Development
2020 W. Kettleman Lane
P. O. Box 1570
Lodi, California 95241

Phase II Subsurface Investigation Work Plan

December 29, 2015

Citadel Project Number 0849.1001.0

Former Red Star Senior Living Apartments Development
1396 Fifth Street
Oakland, California 94607

www.citadelenvironmental.com

Table of Contents

1.0 INTRODUCTION 1
2.0 SITE DESCRIPTION 2
3.0 GEOLOGY/HYDROGEOLOGY 2
4.0 BACKGROUND 2
5.0 PROPOSED WORK PLAN 3
6.0 REFERENCES 4
7.0 SIGNATURES 6

FIGURES

Figure 1 Aerial View of Site
Figure 2 Excavation Detail, Previous Sampling Locations, and Proposed Boring Locations
Figure 3 UST and UST Soil Sampling Locations

APPENDIX

Appendix A Health and Safety Plan

1.0 INTRODUCTION

Citadel Environmental Services, Inc. (Citadel) has prepared this Work Plan for Michaels Development (Client) to complete a Phase II Subsurface Investigation of the former Red Star Yeast property located at 1396 Fifth Street, Oakland, California, (Site). The Site is currently overseen by the Alameda County Health Care Service Agency, Environmental Health Services (ACEH) and has been assigned Spills, Leaks, Investigations and Cleanups (SLIC) Case ID RO0002896 and GeoTracker Global ID T06019794669.

ACEH REPORT REVIEW

ACEH reviewed Citadel's, "*Soil Excavation Report*," dated August 21, 2012; revised September 22, 2015 (Citadel, 2015a); and received by ACEH on October 8, 2015 (Revised Excavation Report). The Revised Excavation Report presented results from excavation of shallow soil containing elevated concentrations of metals, confirmation sampling, and soil disposal conducted in August 2011. In correspondence dated April 18, 2013, ACEH provided technical comments on a version of this report dated March 21, 2013. ACEH's April 18, 2013 correspondence identified several major and minor items that required additional information, clarification, or correction.

The Revised Excavation Report addressed several of ACEH's previous comments. However, the Report did not address several major items that ACEH believes are necessary to evaluate the case for closure. Specifically, the ACEH comments were related to the following three items:

1. **Fill Material.** The Revised Excavation Report indicated that Citadel Environmental was not responsible for and had no direct control of the material used for backfilling the excavation. The source and types of quality control used for the imported fill appear to be unknown. Additional soil sampling is necessary to verify that the imported fill material is suitable for the Site. ACEH requested that soil sampling be conducted for characterization of the fill material. The proposed soil sampling should include sampling of shallow soil in areas outside the building where fill material or contaminated soil potentially may be contacted directly.

2. **Oil Seepage from North Sidewall.** The Revised Excavation Report indicated that oil was observed along the north side wall of the excavation near the west side of the property. The oil and contaminated soil was reported to be removed from on-site soil but there was no discussion of placement of any barriers to prevent further migration of oil beneath the site. ACEH requested the advancement and sampling of one soil boring to assess whether oil continues to seep into the site at the location of the observed oil seepage.

3. **Underground Storage Tanks (USTs).** Three small USTs were discovered in the sidewalk along Fifth Street. In order to assess current site conditions in the areas around the USTs discovered at the site, ACEH requested that soil and groundwater samples be collected in the areas of each of the three USTs. Two of these USTs have been removed, and one was left in-place with the approval of the Oakland Fire Department (OFD) (Citadel, 2015b).

Citadel has prepared the following Work Plan to address the above outstanding major items that the ACEH considers necessary to evaluate the case for closure.

2.0 SITE DESCRIPTION

The proposed development is located at 1396 Fifth Street, in Oakland, County of Alameda, California, and is identified in the County of Alameda as Assessor's Parcel Number 004-69-004 (Site) (Figures 1 and 2). The Site totals approximately 0.88 acres and is an irregular shaped parcel of land situated along the north side of Fifth Street, between Mandela Parkway to the east, and Kirkham Street to the west. An elevated BART track is situated along the northern boundary of the Site. The Site is currently comprised of a concreted podium remaining from an extensive fire in 2012.

3.0 GEOLOGY/HYDROGEOLOGY

The City of Oakland has identified three Oakland-specific soil types that can be used for determining site specific target levels. These soil categories are Merritt Sands, Sandy Silts and Clayey Silts. Merritt sands are primarily located in flatlands to the west of Lake Merritt and consist of fine-grained silty sand with lenses of sandy clay and clay. Merritt Sands typically feature low moisture content and high permeability. Sandy Silts are generally found throughout the East Bay and consist of unconsolidated, moderately sorted sand, silt, and clay. These are considered moderate permeability deposits. Clayey Silts are found primarily along the bay and estuary and typically contain organic material, peat, and thin lenses of sand. Clayey Silts are typically low permeability deposits.

Groundwater in the local area reportedly flows to the southwest and is part of the East Bay Sub Basin of the Santa Clara Valley Basin (Number 2-9.04). Existing beneficial uses include municipal, agricultural, and industrial process supply; however, it is probable that the groundwater is not suitable for these uses due to high total dissolved solid (TDS) content (reportedly as high as 2,400 milligram per liter (mg/L)) (Citadel, 2015a).

4.0 BACKGROUND

The Site had been developed and occupied by yeast manufacturing, vinegar production, and various brewery operations from at least 1880. Environmental concerns identified at the Site have included above ground and underground fuel tanks, the use of various chemicals with several documented releases, and an unauthorized release of mercury to the sewer system with apparent impacts to the subsurface soil.

The owner of the Site, Oakland Housing Investors, LP, proposed to construct an affordable mid-rise senior housing project at the Site. The five-story building was expected to include four levels of apartments above the on-grade first level that would include retail, office space and lobby areas.

In mid-August 2011 Advent Companies, the general contractor for the project, initiated the excavation program and the required heavy excavation equipment was brought to the Site. On August 22, 2011, oil was observed oozing from the north side wall of the excavation near the west side of the property. The location is shown on Figure 2, and indicates the area was on the extreme north end of the excavation and clearly emanates from the property to the north. Further exploration or remediation of the oil could not be performed without access to the adjoining property; however, the material was removed from the on-site soil.

Citadel was not responsible and had no direct control of the material used for backfilling the excavation. Citadel collected samples from fill material on one occasion and labeled the samples A and B to provide an indication on the quality of the fill as referenced in Citadel (2015a). Citadel

repeatedly contacted the contractor to obtain additional details of the backfill materials. Due to the non-responsiveness of the contractor, sampling of the in-place backfill will be performed as part of this Phase II Investigation to address this issue.

On November 29, 2011 soils were excavated by Sequoia Construction and Development, Inc., (Sequoia) from above and along the sides of the USTs (see Figure 3 for UST locations) to expose their tops and walls in preparation for removal. The volumes for the USTs were determined visually and were reportedly 250 gallons (UST No 1), 2,500 gallons (UST No. 3) and 10,000 gallons (UST No. 4). Suspected UST No. 2 was found to be a disconnected standpipe. No associated structure for this standpipe was located. UST Nos. 1 and 3 were removed and transported off-site for recycling. The condition of both USTs were fair with no observable holes, significant corrosion or scaling evident. UST No. 4 was filled with a concrete slurry and sealed prior to being closed in-place. Analytical results for UST No. 1 were reported to be 9 mg/kg for TPH; for UST No. 3, TPH was reported at a high of 37 mg/kg; and for UST No. 4 a high of 36 mg/kg. No significant findings were reported for TPH and VOCs in the groundwater samples collected and analyzed from the Site.

A major fire occurred at the Site in 2012 significantly damaging the structure and surrounding properties. The remaining structure consists of the shell of a slab on grade parking structure. According to views of the Site from Google Map images, the remaining slab appears to take up nearly the entire 0.9 acre lot.

5.0 PROPOSED WORK PLAN

The purpose of this Phase II Subsurface Investigation is to address the three concerns of the ACEH regarding 1) the nature of the material used by Advent Companies to backfill the excavation in 2011, 2) the presence and extent of any oil seepage from the adjacent property into the northwestern edge of the Site, and 3) assess soil and groundwater conditions in the vicinity of the three abandoned USTs at the Site. Therefore, Citadel will provide the following services to meet the objectives of the Scope of Work:

HEALTH AND SAFETY PLAN

A site-specific health and safety plan (HASP) has been prepared prior to on-site activities. This HASP identifies existing and potential hazards for workers at the Site during drilling and sample collection activities. A copy of the HASP can be found in Appendix A.

Citadel will contact Underground Service Alert (USA) to mark underground utilities prior to advancing soil/groundwater borings at the Site. Citadel will also review any existing plans, including online and paper substructure maps available from the City of Oakland, showing utilities and other subsurface structures at the Site.

PERMITTING

Citadel will obtain boring permits from the Alameda County Public Works Agency (ACPWA), Water Resources Section prior to on-site drilling activities. Permits are required for all work pertaining to wells and boreholes at any depth.

SOIL BORINGS

Prior to advancing the borings, the boring locations will be cleared using geophysical methods across the Site. In order to characterize the fill material at the Site, Citadel proposes to advance eight soil borings across the Site (SB-1 through SB-8) using a hand auger or equivalent method

(Figure 2). The borings will be advanced to a depth just above the base of the 2011 imported backfill. Boring SB-1 will be advanced to approximately 4 feet bgs; borings SB-2 through SB-4 will be advanced to approximately 5 feet bgs; borings SB-5 and SB-6 will be advanced to approximately 2 feet bgs; and borings SB-7 and SB-8 will be advanced to approximately 3 feet bgs. Soil samples will be collected at the bottom of each boring to confirm the presence or absence of potential contamination within the subsurface. The soil borings will be logged in the field and screened with a PID for the presence of VOCs. Soil samples will be collected in stainless steel or brass sleeves sealed with Teflon tape and airtight plastic caps.

To evaluate the potential for continued seepage of oil from the adjoining property to the north of the Site, Citadel proposes to advance one soil boring (SB-9) to a depth of approximately five feet, in the northwestern edge of the property, using a hand auger. As in borings SB-1 through SB-8, SB-9 will be logged in the field and screened with a PID for the presence of VOCs. A soil sample will be collected in a stainless steel or brass sleeve sealed with Teflon tape and airtight plastic caps.

To assess current site conditions in the vicinity of the UST abandoned in place and the two USTs formerly located at the Site, Citadel will advance three borings (SB-10/GW-1 through SB-12/GW-3) to a depth of 15 feet, with soil samples collected at 10 feet. The soil samples will be collected in a stainless steel or brass sleeves sealed with Teflon tape and airtight plastic caps.

Proposed soil boring locations are indicated on Figure 2.

LABORATORY ANALYSIS

The soil samples will be placed in an ice-packed cooler and delivered to a state-certified laboratory for analysis. Soil samples will be analyzed for total petroleum hydrocarbons (TPH) full range, volatile organic compounds (VOCs), and Title 22 metals, by Environmental Protection Agency (EPA) methods 8015, 8260, and 6010B, respectively.

GROUNDWATER SAMPLING

Citadel will collect three groundwater grab samples at a depth of 15 feet from SB-10/GW-1 through SB-12/GW-3 to assess current site conditions in the vicinity of the UST abandoned in place and the two USTs formerly located at the Site. Groundwater in each boring will be collected using a disposable bailer. The bailer will be lowered into the water column until the bailer is submerged. Samples will be placed in the appropriate preserved sample container and labeled.

LABORATORY ANALYSIS

The groundwater samples will be placed in an ice-packed cooler and delivered to a state-certified laboratory for analysis. Groundwater samples will be analyzed for TPH full range and VOCs by EPA methods 8015 and 8260, respectively.

REPORT

Upon completion of all on-site activities, a final report will be submitted documenting Citadel's methodologies, procedures, and laboratory analytical results. The report will provide a discussion of findings, conclusions and recommendations regarding the current environmental condition of the Site.

6.0 REFERENCES

Citadel Environmental Services, Inc. (Citadel), 2015a. Soil Excavation Report, Red Star Yeast Company, 1396 Fifth Street, Oakland, California. Dated August 21, 2012; revised September 22, 2015.

Citadel, 2015b. Underground Storage Tank Removal and Closure Report, Red Star Living Apartments Development, 1396 Fifth Street, Oakland, California. Dated August 21, 2012, revised September 23, 2015.

7.0 SIGNATURES

Report Prepared by:

Jay Schneider

Digitally signed by Jay Schneider
DN: cn=Jay Schneider, o=Citadel Environmental Services, Inc., ou, email=jschneider@citadelenvironmental.com, c=US
Date: 2015.12.30 13:48:29 -08'00'

Jay Schneider, PG, QSD
Project Geologist

Report Reviewed and Approved by:

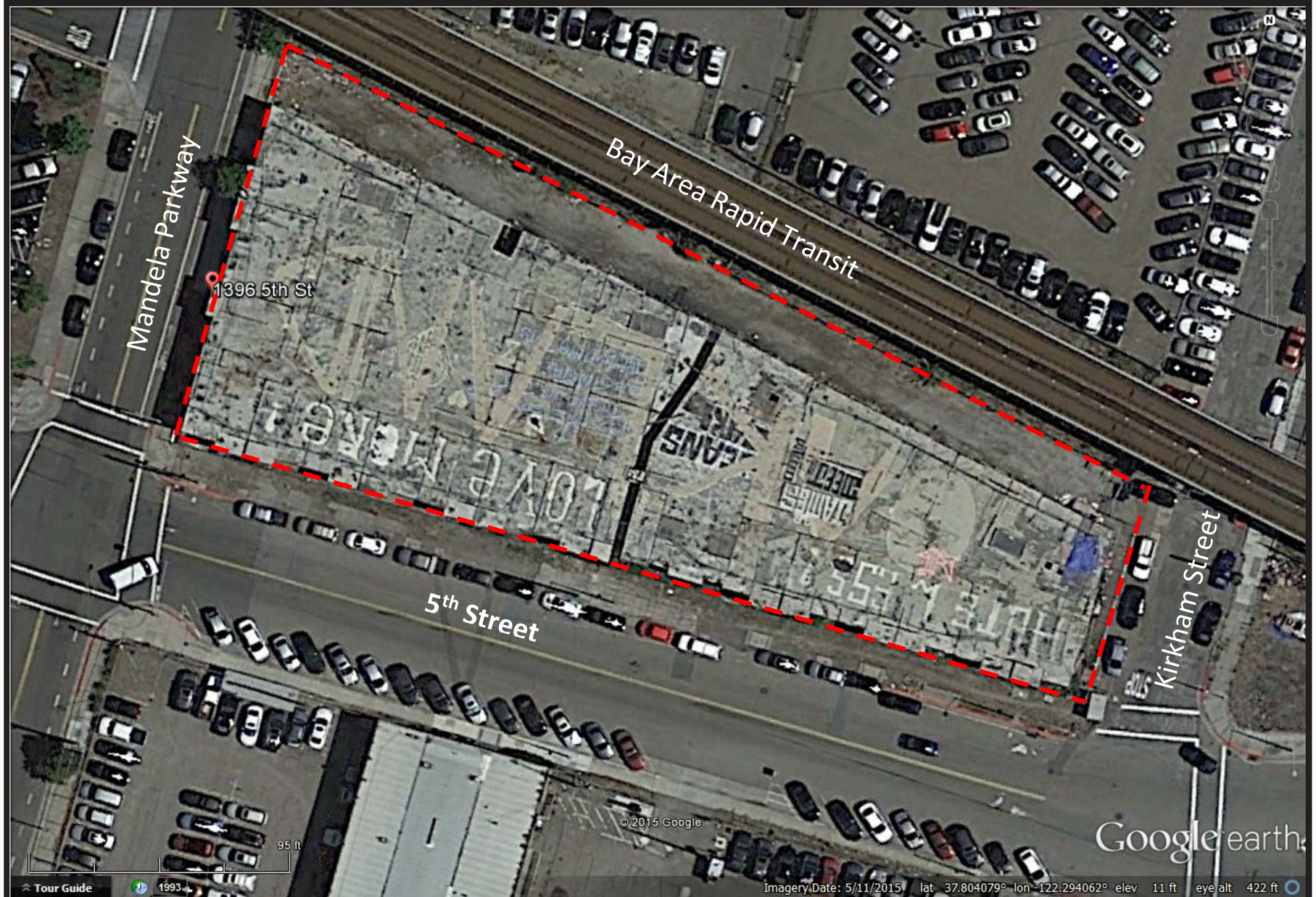
Mark Drollinger

Digitally signed by Mark Drollinger
DN: cn=Mark Drollinger, o=Citadel Environmental Services, Inc., ou, email=mdrollinger@citadelenvironmental.com, c=US
Date: 2015.12.30 13:48:33 -08'00'

Mark Drollinger, M. Eng., CSP, CHMM, EIT
Director of Environmental Geology and Engineering

CITADEL
ENVIRONMENTAL SERVICES, INC.

Figures



= Site Boundary

Scale bar = approximately 50 feet

N

CITADEL ENVIRONMENTAL SERVICES, INC.

MICHAELS DEVELOPMENT

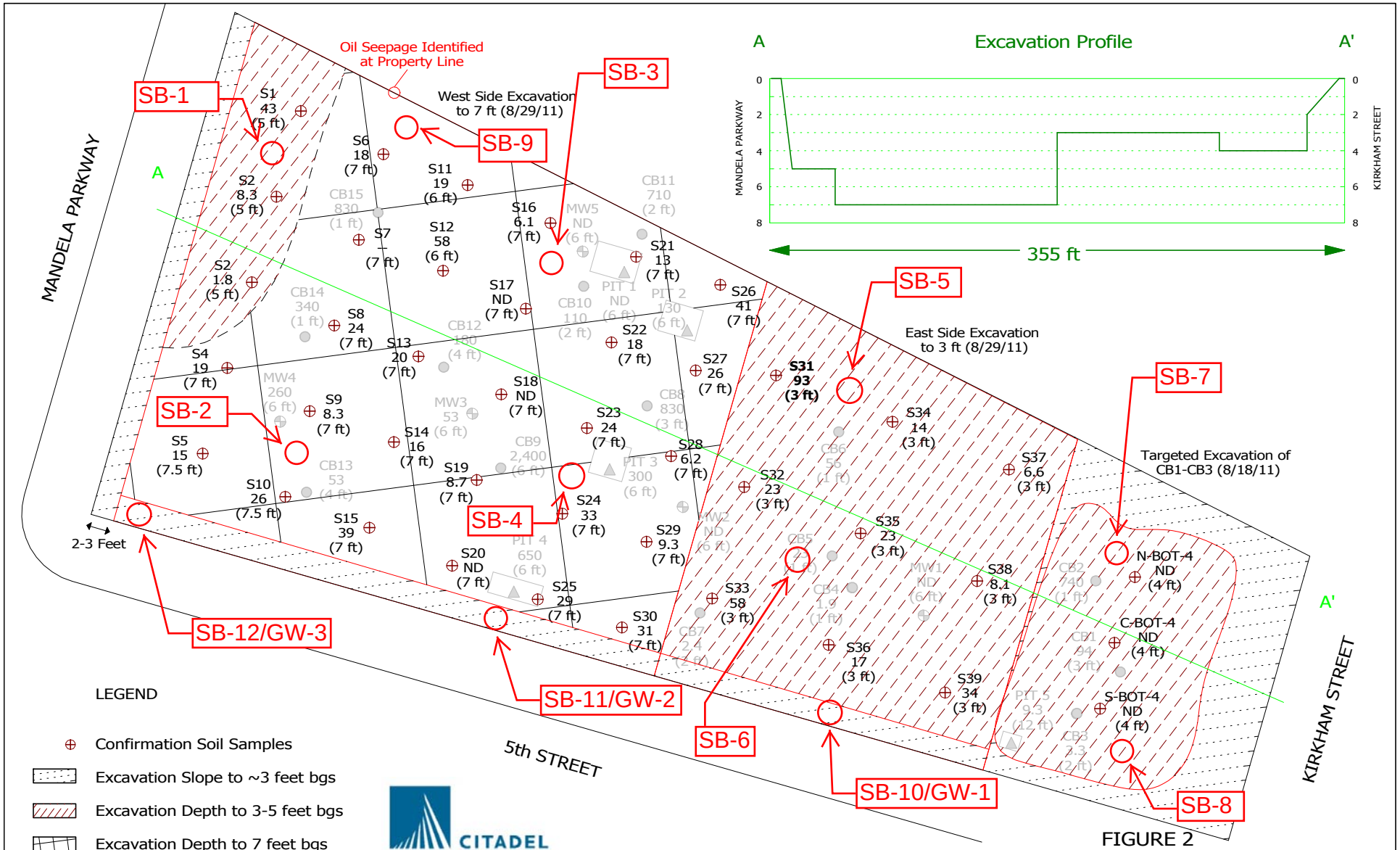
Red Star Senior Living Apartments Development
1396 5th Street
Oakland, California 94607

Figure 1

PROJECT NO.: 0849.1001.0

DATE: December 2015

Aerial View of Site



CITADEL ENVIRONMENTAL SERVICES, INC.

PROJECT NO.: 0849.1001.0

DATE: December 2015

MICHAELS DEVELOPMENT

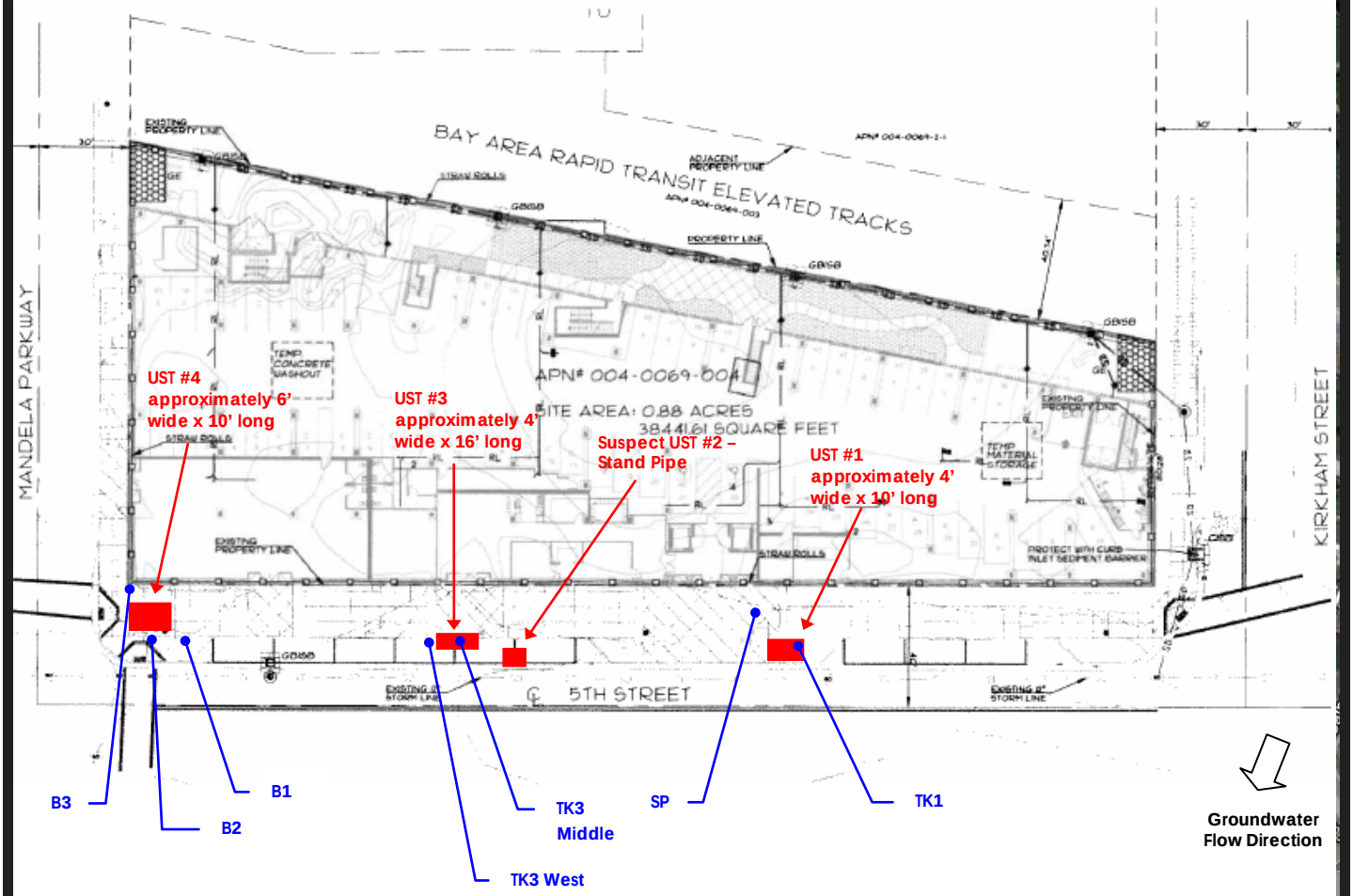
Red Star Senior Living Apartments Development

1396 Fifth Street Oakland, California 94607

FIGURE 2

EXCAVATION DETAIL, PREVIOUS SAMPLING LOCATIONS, AND PROPOSED BORING LOCATIONS, FORMER RED STAR YEAST COMPANY, 1396 Fifth Street Oakland, California

Maximum Lead Concentrations Shown in mg/Kg (Depth of Sample).
Pre-Excavation Levels Shown in Grayscale.



Source: Robertson & Dominick, Inc., Erosion/Sediment Control Plan

CITADEL
ENVIRONMENTAL SERVICES, INC.

MICHAELS DEVELOPMENT

Red Star Senior Living
Apartments Development
1396 Fifth Street, Oakland,
California 94607

Figure 3

PROJECT NO.: 0849.1001.0

DATE: December 2015

UST and UST Soil Sampling Locations

CITADEL
ENVIRONMENTAL SERVICES, INC.

Appendix A
Health and Safety Plan

CITADEL ENVIRONMENTAL SERVICES, INC.

assess
resolve
strengthen

Michaels Development
2020 W. Kettleman Lane
P. O. Box 1570
Lodi, California 95241

Health and Safety Plan

December 29, 2015

Citadel Project Number 0849.1001.0

Former Red Star Senior Living Apartments Development
1396 Fifth Street
Oakland, California 94607

www.citadelenvironmental.com

Table of Contents

1.0 SITE DESCRIPTION 1
2.0 BACKGROUND 1
3.0 SAFETY POLICY 1
4.0 WORK DESCRIPTION 2
5.0 KEY PROJECT PERSONNEL AND RESPONSIBILITIES 2
PROJECT MANAGER 2
SITE SAFETY OFFICER/PROJECT MONITOR 2
SUBCONTRACTOR PERSONNEL 3
6.0 SITE CONTROL MEASURES 3
7.0 STANDARD OPERATING PROCEDURES 3
GENERAL SAFETY 3
HAZARD EVALUATION 3
COMMUNICATION PROCEDURES 4
FIELD VEHICLES 4
MANUAL LIFTING 4
HEAT EXPOSURE 4
8.0 PERSONAL PROTECTIVE EQUIPMENT 5
9.0 DECONTAMINATION PROCEDURES 6
10.0 EMERGENCY PROCEDURES 6
SIGNATURE PAGE 10

1.0 SITE DESCRIPTION

The Site is located at 1396 Fifth Street, Oakland, Alameda County, California.

Citadel Environmental Services, Inc., (Citadel) has prepared this Health and Safety Plan (HASP) for use during boring activities to be conducted at the Site. Activities conducted under Citadel's direction at the Site will be in compliance with applicable Occupational Safety and Health Administration (OSHA) regulations, particularly those in Title 8 California Code of Regulations (CCR) 5192, and other applicable federal, state, and local laws, regulations, and statutes. A copy of this HASP will be kept onsite during scheduled field activities.

2.0 BACKGROUND

The Site is located at 1396 Fifth Street, in Oakland, County of Alameda, California, and is identified in the County of Alameda as Assessor's Parcel Number 004-69-004 (Site) (Figures 1 and 2). The Site totals approximately 0.88 acres and is an irregular shaped parcel of land situated along the north side of Fifth Street, between Mandela Parkway to the east, and Kirkham Street to the west. An elevated BART track is situated along the northern boundary of the Site. The Site is currently comprised of vacant land.

Historically, the Site has been developed and occupied by yeast manufacturing, vinegar production, and various brewery operations from at least 1880. Environmental concerns identified at the Site have included above ground and underground fuel tanks, the use of various chemicals with several documented releases, and an unauthorized release of mercury to the sewer system with apparent impacts to the subsurface soil.

The owner of the Site, Oakland Housing Investors, LP, proposed to construct an affordable mid-rise senior housing project at the Site. The five-story building was expected to include four levels of apartments above the on-grade first level that would include retail, office space and lobby areas. Nearly the entire Site was to be covered with paved surfaces or poured concrete.

In mid-August 2011 Advent Companies, the general contractor for the project, initiated an excavation program to the Site. On August 22, 2011, oil was observed oozing from the north side wall of the excavation near the west side of the property. On November 29, 2011 soils were excavated by Sequoia Construction and Development, Inc., (Sequoia) from above and along the sides of the USTs (see Figure 3 for UST locations) to expose their tops and walls in preparation for removal.

A major fire occurred at the Site in 2012 significantly damaging the structure and surrounding properties. The remaining structure consists of the parking podium. According to views of the Site from Google Map images, the remaining slab appears to take up nearly the entire 0.9 acre lot.

3.0 SAFETY POLICY

Safety will be given primary importance in the planning and operation of this project. It is the policy of Citadel to conform to current OSHA standards in construction and local government agency requirements having authority over the project as regards to Citadel employees, subcontractors and public safety.

Each subcontracting firm will assume primary responsibility for the safety of their own work in regards to their employees and other persons. Subcontractors will assume the duty to comply

with OSHA, and all other federal, state and local regulations. Their HASP must be as stringent as that for Citadel.

The subcontractors work will be monitored by Citadel project managers for implementation of the Citadel HASP, while adhering to their own safety program. Citadel will retain the authority and power to enforce this HASP during the progress of the work. Any deficiencies in safe work practices will be brought to the attention of the subcontractor firm's supervisor for immediate corrective action. If the subcontractor fails or refuses to take corrective action promptly a stop work order shall be issued and the subcontractor or the subcontractor employee may be removed from the project.

4.0 WORK DESCRIPTION

A Citadel contractor will to core up to 12 locations into concrete slab at the Site. The Citadel Site Safety Officer (SSO) will supervise this work directly. The approximate locations are shown on Figure 2.

Citadel personnel will hand-auger nine boreholes at the Site. The boreholes will be hand-augered up to five feet in depth or less. Soil samples will be collected at the base of each of these eight boreholes. Citadel will advance three additional borings to a depth of 15 feet using a limited access rig. Soil samples will be collected at a depth of 10 feet and groundwater grab samples will be collected at a depth of 15 feet.

Hazards that may be associated with the project include heavy and rotating equipment, hand augering equipment, and soil, soil vapor, and groundwater potentially impacted with volatile organic compounds (VOCs), lead, and metals.

5.0 KEY PROJECT PERSONNEL AND RESPONSIBILITIES

Project Manager	Mark Drollinger (Citadel)
SSO/Project Monitor	Jay Schneider (Citadel)
Subcontractor Personnel	Drilling Subcontractor
	Concrete Coring Subcontractor
	Geophysical Subcontractor
Site Representative	Alameda County Health
	City of Oakland

PROJECT MANAGER

The Project Manager has the ultimate responsibility for the health and safety of personnel at the Site. The Project Manager is responsible for:

- Ensuring that project personnel review and understand the requirements of this HASP;
- Keeping on-site personnel, including subcontractors, informed of the expected hazards and appropriate protective measures at the Site; and
- Providing resources necessary for maintaining a safe and health work environment.

SITE SAFETY OFFICER/PROJECT MONITOR

The SSO is responsible for enforcing the requirements of this HASP once site work begins. The SSO has the authority to immediately correct situations where noncompliance with this HASP is noted

and to immediately stop work in cases where an immediate danger to site workers or the environment is perceived. Responsibilities of the SSO also include:

- Obtaining and distributing PPE and air monitoring equipment necessary for this project;
- Limiting access at the Site to authorized personnel;
- Communicating unusual or unforeseen conditions at the Site to the Project Manager;
- Supervising and monitoring the safety performance of site personnel to evaluate the effectiveness of health and safety procedures and correct deficiencies;
- Conducting daily tailgate safety meetings before each day's activities begin; and
- Conducting a site safety inspection prior to the commencement of each day's field activities.

SUBCONTRACTOR PERSONNEL

Subcontractor personnel are expected to comply with the minimum requirements specified in this HASP. Failure to do so may result in the dismissal of the subcontractor or any of the subcontractor's workers from the job site. Subcontractors may employ health and safety procedures that afford them a greater measure of personal protection than those specified in this plan as long as they do not pose additional hazards to themselves, the environment, or others working in the area.

6.0 SITE CONTROL MEASURES

The SSO or Project Manager has been designated to coordinate access and security on site.

7.0 STANDARD OPERATING PROCEDURES

GENERAL SAFETY

- Maintain good housekeeping at all times in all project work areas.
- Check the work area to determine what problems or hazards may exist.
- Designate specific areas for the proper storage of materials.
- Store tools, equipment, materials, and supplies in an orderly manner.
- Provide containers for collecting trash and other debris.
- Clean up all spills quickly.
- Report unsafe conditions or unsafe acts to your supervisor immediately.
- Report all occupational illnesses, injuries, and vehicle accidents.
- Do not wear loose clothing, wristwatches, and other loose accessories when within arm's reach of moving machinery.
- Emergency exits and evacuation areas should be clearly marked during work activities.
- Personnel fall protection is required when climbing to perform maintenance six feet or higher above ground.
- Inspect hand tools and use proper PPE.
- Ensure proper grounding and guarding of equipment.
- Keep hands and fingers out of pinch points.
- Use good ergonomic posturing when working with heavy items.

HAZARD EVALUATION

The following substances are known or suspected to be on site. The primary hazards of each are identified as follow:

Substances	Concentration	Primary Hazards
VOCs	various	ingestion, inhalation, skin

Lead	various	ingestion, inhalation, skin
Cadmium	various	ingestion, inhalation, skin

COMMUNICATION PROCEDURES

Due to the close proximity of all field crew members the necessity for radio communication is not necessary.

The following standard hand signals will be used:

Hand drawn across throat ..... Cease operation immediately
Hand gripping throat ..... Out of air, can't breathe
Grip partner's wrist or both hands around waist ..... Leave area immediately
Hands on top of head ..... Need assistance
Thumbs up ..... OK, I am alright, understood
Thumbs down ..... No, negative

FIELD VEHICLES

- Equip vehicles with emergency supplies and equipment.
- Maintain both a first aid kit and fire extinguisher in the field vehicle at all times.
- Utilize a rotary beacon on vehicle if working adjacent to active roadway.
- Always wear seatbelt while operating vehicle.
- Tie down loose items.

MANUAL LIFTING

- Personnel shall seek assistance when performing manual lifting tasks that appear beyond their physical capabilities.
- Assess the situation before lifting, ensure good lifting and body positioning practices, and ensure good carrying and setting down practices.

HEAT EXPOSURE

- Limit exposure to the sun, or take extra precautions when the UV index rating is high.
- Take lunch and breaks in shaded areas.
- Create shade by using umbrellas, tents, and canopies.
- Wear proper clothing: long sleeved shirts with collars, long pants, and UV-protective sunglasses or safety glasses.
- Apply sunscreen generously to all exposed skin surfaces at least 20 minutes before exposure. Re-apply sunscreen at least every 2 hours, and more frequently when sweating or performing activities where sunscreen may be wiped off.
- Communicate any concerns regarding heat stress to a supervisor.
- Keep hydrated throughout the day (about 4 cups per hour).
- OHSA's Heat Index:

Heat Index	Risk Level	Protective Measures
Less than 91°F	Lower (Caution)	Basic heat safety and planning
91°F to 103°F	Moderate	Implement precautions and heighten awareness
103°F to 115°F	High	Additional precautions to protect workers

Greater than 115°F	Very High to Extreme	Triggers even more aggressive protective measures

Utilities (Under Ground and Above Ground): Low Hazard. Utilities have been cleared during a geophysical survey.

Biological Hazards: Low to medium Hazard. Beware of spiders, insects and other possible animals.

Site Instability: Low to medium Hazard. The Site will be inspected prior to equipment placement and closely monitored. Any settling of the equipment will cause the work to stop immediately.

Equipment Refueling: Low Hazard. Equipment shall not be refueled with the engine running. Cigarettes, open flames, or other ignition sources are not allowed within 50 feet of the fueling location.

Personnel Injury: Upon notification of an injury the Project Field Leader should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement. The Project Field Leader shall initiate the appropriate first aid, and contact should be made for an ambulance and with the designated medical facility (if required).

Fire/Explosion: The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Other Equipment Failure: If any other equipment on site fails to operate properly, the Project Team Leader shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, work will cease until the situation is evaluated and appropriate actions taken.

8.0 PERSONAL PROTECTIVE EQUIPMENT

The purpose of PPE is to protect employees from hazards and potential hazards they are likely to encounter during site activities. The amount and type of PPE used will be based on the nature of the hazard encountered or anticipated. Respiratory protection will be utilized when an airborne hazard has been identified using real-time air monitoring devices, or as a precautionary measure in areas designated by the SSO, elevating to level C. If this occurs, contractor personnel shall be respirator-approved.

Dermal protection, primarily in the form of chemical-resistant gloves and coveralls, will be worn whenever contact with chemically affected materials (e.g. soils, groundwater, sludge) is anticipated, without regard to the level of respiratory protection required.

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Location	Job Function	Level of Protection
Controlled Area	All workers	A B C (D) Other

Specific protective equipment for each level of protection is as follows:

Level A
- Fully-encapsulating suit
- SCBA

Level C
- Splash gear
- Half-face canister respirator with H_2S/VOC cartridge

Disposable coveralls

Mouth/nose canister respirator
Efficiency 100 (HEPA)

Level B
Splash gear
SCBA

Level D
Hard hat
Ear plugs
Neoprene or leather gloves - nitrile gloves
Safety vests and Glasses
Hard toe boots

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SSO OR PROJECT MANAGER.

9.0 DECONTAMINATION PROCEDURES

Despite protective procedures, personnel may come in contact with potentially hazardous compounds while performing work tasks. If so, decontamination needs to take place using an Alconox or tri-sodium phosphate (TSP), followed by a rinse with clean water. Standard decontamination procedure for levels C and D are as follows:

- Equipment drop
- Boot cover and outer glove wash and rinse
- Boot cover and out glove removal
- Suit wash and rinse
- Suit removal
- Safety boot wash and rinse
- Inner glove wash and rinse
- Respirator removal
- Inner glove removal
- Field wash of hands and face

Workers should employ only applicable steps in accordance with level of PPE worn and extent of contamination present. The SSO shall maintain adequate quantities of clean water to be used for personal decontamination (i.e. field wash of hands and face) whenever a suitable washing facility is not located in the immediate vicinity of the work area. Disposable items will be disposed of in an appropriate container. Wash and rinse water generated from decontamination activities will be handled and disposed of properly. Non-disposable items may need to be sanitized before reuse. Each site worker is responsible for the maintenance, decontamination, and sanitizing of his/her own PPE.

Used equipment may be decontaminated as follows:

- An Alconox or TSP and water solution will be used to wash the equipment.
- The equipment will then be rinsed with clean water.

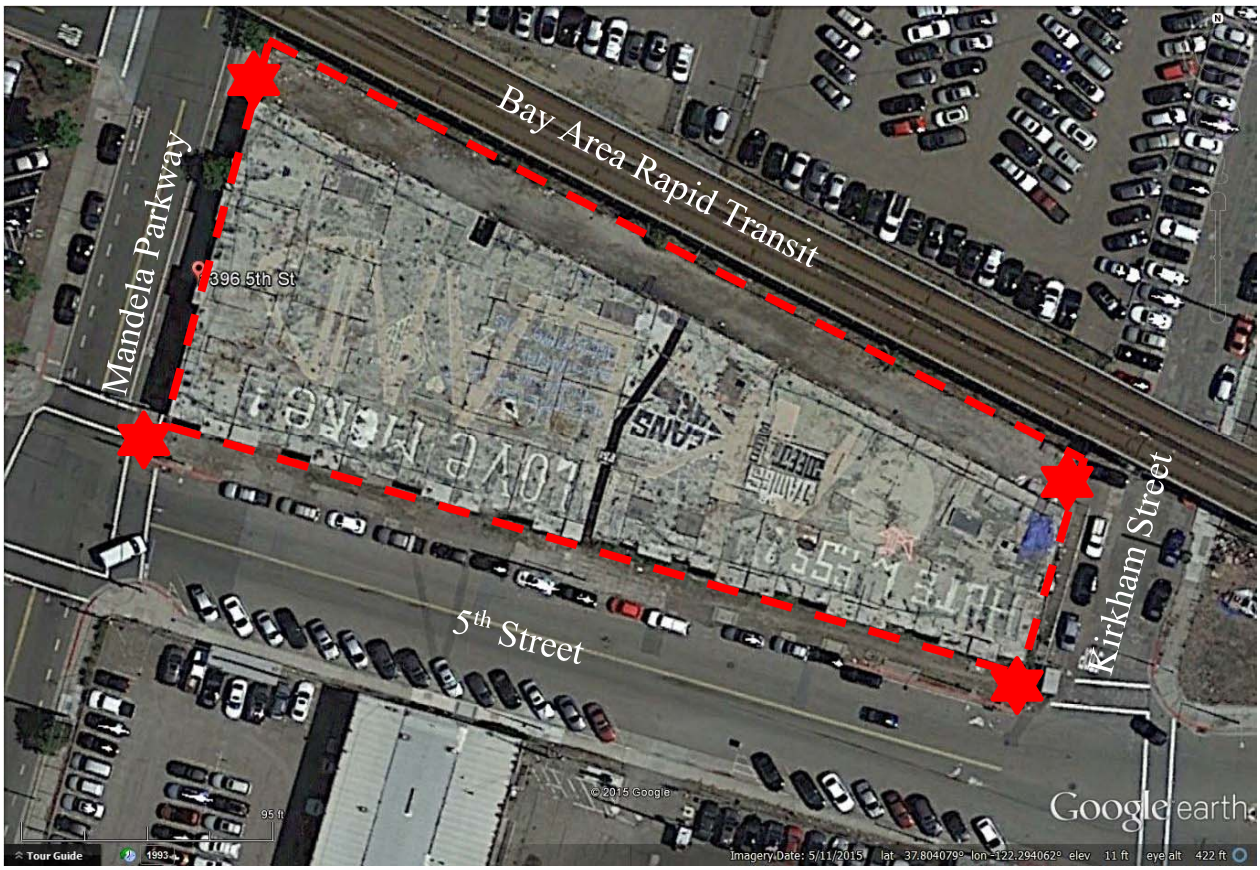
Each person must follow these procedures to reduce the potential for transferring chemically affected materials offsite.

10.0 EMERGENCY PROCEDURES

In the event of an emergency, site personnel will signal distress with three blasts of a horn (a vehicle horn will be sufficient), or other predetermined signal. Communication signals, such as hand signals, must be established where communication equipment is not feasible or in areas of loud noise.

The SSO will designate evacuation routes and refuge areas to be used in the event of an emergency. Site personnel will stay upwind from vapors or smoke and upgradient from spills. Workers should exit through the established decontamination areas wherever possible. If evacuation cannot be done through an established decontamination area, site personnel will go to the nearest safe location and remove contaminated clothing there. Personnel will assemble at the predetermined refuge following evacuation and decontamination. The SSO will count and identify site personnel to verify that all personnel have been evacuated safely. Please refer to Figure 1.0 for the evacuation route and refuge location.

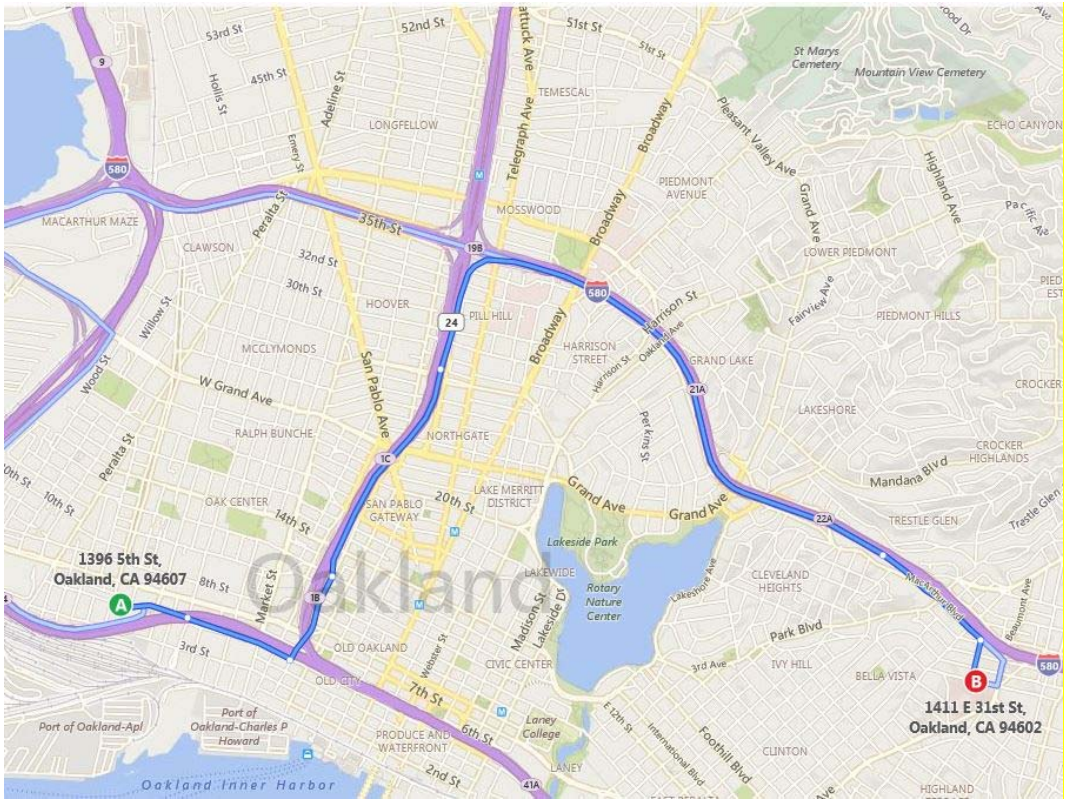
FIGURE 1.0 – EVACUATION ROUTE AND REFUGE AREAS



= Approximate Site Boundaries = Refuge Areas

The designated medical facility is:

Highland Hospital
1411 E 31st St
Oakland, CA 94602
510-437-4865



Directions:

Depart 5th St toward Kirkham St (east)	0.3 mi
Take ramp on right for I-880 South toward Alameda/Broadway	0.4 mi
Turn left onto Castro St	0.4 mi
Take ramp left for I-980 East toward San Francisco/Walnut Creek	1.0 mi
Take ramp right for I-580 East toward Hayward	2.6 mi
At exit 22, take ramp right for MacArthur Blvd towards Park Blvd	0.5 mi
Turn right on Stuart St	0.2 mi
Turn left onto 31st St	95 ft
Arrive at 1411 E 31st St	

11 minutes, 5.4 mi

Local ambulance service is available from:

Name Local Paramedics
Phone 911

First-aid equipment is available in the SSO's vehicle.

List of emergency phone numbers:

Agency/Facility	Phone#
Police	911
Fire	911
Hospital	510-437-4865

This HASP has been prepared by:

Jay Schneider

Digitally signed by Jay Schneider
DN: cn=Jay Schneider, o=Citadel Environmental Services, Inc., ou, email=jschneider@citadelenvironmental.com, c=US
Date: 2015.12.29 15:47:48 -08'00'

Jay Schneider, PG, QSD
Project Geologist

SIGNATURE PAGE

The following signatures indicate that this Health and Safety Plan (HASP) has been read and accepted by all site personnel.

NAME	COMPANY	SIGNATURE	DATE