May 25, 2017 | Removal Action Workplan

Comprehensive Modernization Project
Venice High School

for Los Angeles Unified School District

Prepared for:

Los Angeles Unified School District
Contact: Patrick Schanen
Environmental Health Manager
333 South Beaudry Avenue, 21-224-05
Los Angeles, California 90017
213.241.3356

Project Number:
LASD1-32.0

Prepared by:

PlaceWorks
Contact: Eric Longenecker, PE
700 South Flower Street, Suite 600
Los Angeles, California 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

Table of Contents

Table of Contents

Table of Contents

List of Figures

List of Tables

List of Appendices

List of Acronyms

ACM	asbestos-containing material
AETL	American Environmental Testing Laboratory
AOC	Area of Concern or Area of Contamination
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society for Testing and Materials
bgs	below ground surface
BMP	best management practice
^{o}C	degrees Celsius
CAAQS	California Ambient Air Quality Standard
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
CAMU	Corrective Action Management Unit
CCR	California Code of Regulations
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHHSL	California Human Health Screening Level
CMP	Comprehensive Modernization Project
COC	chemical of concern
cy	cubic yard
DOT	Department of Transportation
DTSC	California Department of Toxic Substances Control
DQO	data quality objective
EE/CA	Engineering Evaluation/Cost Analysis
ESA	Environmental Site Assessment
ft	foot
ft^2	square foot
H&SC	Health and Safety Code
HASP	Health and Safety Plan
HERO	Human and Ecological Risk Office
HSO	Health and Safety Officer
LAUSD	Los Angeles Unified School District
IS/MND	Initial Study and Mitigated Negative Declaration
mg/kg	milligram per kilogram
mg/m^3	milligram per cubic meter
mph	miles per hour
NAAQS	National Ambient Air Quality Standard
NCP	National Contingency Plan
NIOSH	National Institute of Occupational Safety and Health
NOI	Notice of Intent
OCPs	organochlorine pesticides

List of Acronyms

OEHHA	Office of Environmental Health Hazard Assessment
OEHS	Office of Environmental Health and Safety
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PEA	Preliminary Environmental Assessment
PEA-CMP	Preliminary Environmental Assessment for the Comprehensive Modernization Project
PEA-SMP	Preliminary Environmental Assessment for the Seismic Modernization Project
PM_{10}	respirable particulates
PPE	personal protective equipment
PT&R	proven technologies and remedies
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RACR	Removal Action Completion Report
RAO	Removal Action Objective
RAP	Remedial Action Plan
RAW	Removal Action Workplan
RCRA	Resource Conservation and Recovery Act
RECs	Recognized Environmental Conditions
SCAQMD	South Coast Air Quality Management District
Site	Portion of Venice High School undergoing a Comprehensive Modernization Project
SMP	Seismic Modernization Project
SSCG	site-specific cleanup goal
SSI	Supplemental Site Investigation
STLC	Soluble Threshold Limit Concentration
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TA	Technical Addendum
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TTLC	Total Threshold Limit Concentration
µg/kg	microgram per kilogram
$\mu g/m^3$	microgram per cubic meter
UCL	Upper Confidence Limit
USA	Underground Service Alert
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VHS	Venice High School
VOC	volatile organic compound
WDID	waste discharger identification
XRF	X-Ray Fluorescence

Certification

This Removal Action Workplan has been prepared to guide a soil removal action at the Los Angeles Unified School District's Venice High School Comprehensive Modernization Project. The report was prepared in a manner consistent with the level of care and skill ordinarily exercised by professional engineers, geologists, and environmental scientists, under the technical direction of the undersigned.

Robyn Chaconas, EIT
Associate Planner III
PlaceWorks

Eric B. Longenecker, PE
Senior Engineer
PlaceWorks

May 25, 2017
Date

Executive Summary

This *Removal Action Workplan* (RAW) has been prepared in support of a Comprehensive Modernization Project (CMP) for the Los Angeles Unified School District's (LAUSD's) Venice High School ("Site" or "VHS"). Venice High School is located at 13000 W. Venice Boulevard, Los Angeles, California 90066. The CMP involves campus-wide upgrades of existing infrastructure and athletic fields as well as the construction of new classrooms, a gymnasium, and field bleachers. Several existing buildings and portable classroom units will be removed to make way for the Site improvements.

A *Phase I Environmental Site Assessment* (ESA) was conducted as a first step to assess environmental conditions at the Site. The Phase I ESA identified several recognized environmental conditions associated with historical Site activities. These included potential soil and soil gas impacts related to the operation of underground hydraulic lifts, an oil/water separator, and other historical activities that may have occurred within the shop area of the Site. In addition, the possible use of lead-based paint and polychlorinated biphenyls in existing buildings/ structures was investigated, as was the possible application of pesticides or herbicides that may have contained organochlorine pesticides or arsenic.

Based on the findings of the ESA, a *Preliminary Environmental Assessment* (PEA) Equivalent Report was conducted in accordance with relevant California Department of Toxic Substances Control (DTSC) guidance, including the *PEA Guidance Manual* and the *Interim Guidance, Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers*. After extensive soil and soil vapor sampling and analyses the PEA Equivalent investigation was able to rule out all environmental concerns except for soil with elevated concentrations of lead and arsenic. Elevated is defined as lead concentrations above the DTSC-prescribed residential screening level of 80 milligrams per kilogram (mg/kg) and arsenic concentrations above a presumed background concentration of 12 mg/kg. The highest detections of arsenic and lead were 342 mg/kg and 336 mg/kg, respectively. Due to scheduling constraints, only an approximate in-place volume of arsenic- and lead-impacted soil could be determined during the PEA investigation: 174 cubic yards from 19 separate locations. The PEA Equivalent recommended that a RAW be prepared to guide the excavation, transport, and off-site disposal of this soil.

A *Technical Addendum* (TA) to the PEA Equivalent was prepared to more accurately define the limits of the proposed soil removal. The TA amended the in-place removal volume to approximately 185 cubic yards by adjusting the boundaries of 2 of the 19 areas. Most of the removed soil can be managed as non-hazardous waste and a small volume (approximately 10 cubic yards) will require management as California non-Resource Conservation and Recovery Act (RCRA) hazardous waste.

Three remedial action alternatives were identified and evaluated in accordance with procedures outlined in the National Oil and Hazardous Substances Pollution Contingency Plan and applicable DTSC guidance, including Alternative 1 (No Action), Alternative 2 (Excavation and Off-Site Disposal), and Alternative 3 (Excavation with

On-Site Burial, Capping, and Land Use Restrictions). The volume of soil analyzed for each alternative was increased ten percent to 204 cubic to account for the results of post-excavation confirmation samples. Alternative 2 was selected as the preferred alternative because it was less expensive than Alternative 3, was easily implemented, and protective of future occupants of the Site and the environment. A comparative cost analysis estimated the cost for this alternative to range from $121,420 to $260,190.

The preferred remedy (Alternative 2) involves the excavation and off-site disposal of the impacted soil from 19 identified areas spread throughout the Site. Approximately 204 cubic yards (in-place) of impacted soil would be excavated to depths of 1.5 feet and 2.5 feet below ground surface. Once the impacted soil has been removed soil samples will be collected from some of the exposed excavation sidewalls and bottoms to confirm the site-specific cleanup goals have been met and the remedial action objectives have been achieved. Excavations will be backfilled and graded with clean soil from new Site construction operations.

This RAW also contains the following elements: a discussion of the applicable or relevant and appropriate requirements to be followed during implementation of the proposed remedial actions; a detailed narrative of the remedial process and logistics, including air monitoring and dust control; a Sampling and Analysis Plan; a Health and Safety Plan (Appendix B); a Quality Assurance Project Plan (Appendix C); a Transportation Plan (Appendix D); and an implementation schedule. All work outlined in this RAW will be performed under LAUSD oversight, who will issue a “no further action” determination and certify the Site as safe for school construction upon successful completion of the response action.

1. Introduction

This *Removal Action Workplan* (RAW) has been prepared in support of a Comprehensive Modernization Project (CMP) for the Los Angeles Unified School District's (LAUSD's) Venice High School ("Site"). Venice High School is located at 13000 W. Venice Boulevard, Los Angeles, California 90066 (Figure 1). This RAW has been prepared for LAUSD's Office of Environmental Health and Safety (OEHS). The CMP involves campus-wide upgrades of existing infrastructure and athletic fields as well as the construction of new classrooms, a gymnasium, and field bleachers. Several existing buildings and portable classroom units will be removed to make way for the Site improvements. Based on prior environmental assessments it has been recommended (PlaceWorks, 2016) that a RAW be prepared to address approximately 204 cubic yards of soil containing elevated concentrations and arsenic and/or lead at 19 locations.

1.1 PURPOSE

The RAW was developed in accordance with applicable regulatory guidance, including criteria specified in the California Health and Safety Code (H&SC), Section 25356.1. It was prepared in general accordance with the DTSC's *Remedial Action Plan (RAP) Policy* (DTSC, 1995). Additionally, the RAW was prepared in a manner consistent with the federal Comprehensive Environmental Response Compensation and Liability Act (CERCLA, 42 U.S.C. 9601 et seq.), as amended; the National Contingency Plan (NCP, 40 Code of Federal Regulations [CFR] Part 300), as amended; the California H&SC (Section 25300 et seq.), as amended; applicable United States Environmental Protection Agency guidance (USEPA, 1988); Resource Conservation and Recovery Act (RCRA); and other applicable State and local laws and regulations.

The RAW identifies and evaluates candidate remedial approaches to clean up the Site so that it is suitable for continued use as a public school. Using prescribed screening criteria, a preferred remedial alternative is selected for detailed discussion. The RAW also summarizes previous field investigation results and establishes site-specific cleanup goals that are protective of human health and the environment. After the proposed removal action has been completed, a *Removal Action Completion Report* (RACR) will be prepared and submitted to the LAUSD for review and approval. The RACR will include a discussion of remedial field activities, any variances to the approved RAW, confirmation sampling results, data validation, laboratory reports, waste manifests, and other applicable information associated with the removal action.

1.2 REMOVAL ACTION OBJECTIVES

Based on the results of previous soil sampling, soil at various locations within the proposed CMP area are impacted with arsenic and/or lead at concentrations greater than the site-specific cleanup goals (SSCGs) of 12 and/or 80 mg/kg, respectively (see Section 4 for a more detailed discussion of how these SSCGs were developed). The primary objectives of the removal action described in this RAW are to mitigate and minimize exposure of humans to the chemicals of concern (COCs, in this case arsenic and lead) in shallow soil through inhalation, dermal absorption, and ingestion identified within the CMP area to. To achieve these removal action objectives (RAOs), soil with COC concentrations above the SSCGs will be handled as described later in this document.

1.3 REPORT ORGANIZATION

The organization of the RAW is consistent with the format recommended in the DTSC guidance documents *Remedial Action Plan (RAP) Policy* (DTSC, 1995) and *Further Action/Response Actions at School Sites* (DTSC, 2003). An overview of the contents of the RAW is provided below:

- Section 1.0 describes the purpose, objectives, and structure of the RAW.
- Section 2.0 presents background information regarding the Site, including its location, current and historical uses, physical setting, and previous site investigations.
- Section 3.0 presents an overview of the nature, source, and extent of contamination at the Site, based on the results of the previous site investigations.
- Section 4.0 presents an updated health risk evaluation and identifies the site-specific cleanup goals that will be used for remediation.
- Section 5.0 identifies and describes three remedial alternatives and provides a detailed evaluation of each alternative in accordance with criteria prescribed by the National Contingency Plan (NCP). The rationale for the selection of a preferred remedial alternative is also included in this section.
- Section 6.0 summarizes the applicable or relevant and appropriate requirements (ARARs) for the project, including federal, state and local regulations, agency guidelines, and public participation requirements.
- Section 7.0 provides a detailed description of the preferred remedial alternative, including tasks associated with field preparation, soil removal and management, air monitoring and dust control, confirmation sampling and analysis, and site restoration.
- Section 8.0 provides the proposed project organization, implementation schedule and reporting requirements.
- Section 9.0 lists the references used in preparing this RAW.

Copies of a *Health and Safety Plan*, *Quality Assurance Project Plan*, and *Transportation Plan* that will be followed during implementation of the RAW are appended to this report.

2. Site Background

The LAUSD's Venice High School is located at 13000 W. Venice Boulevard, Los Angeles, California 90066 (Figure 1). The high school occupies one parcel of land approximately 28.9 acres in size and identified as Los Angeles County Assessor Parcel Number 4236-011-900. For purposes of this RAW, the "Site" is considered to be areas of Venice High School campus subject to demolition and construction activities during the upcoming CMP.

2.1 SITE DESCRIPTION

2.1.1 Site Name

The Site is identified by the LAUSD as the CMP portion of Venice High School.

2.1.2 Site Owner

The Site is currently owned by the Los Angeles Unified School District.

2.1.3 Site Address and Current Occupants

The Site is located at 13000 W. Venice Boulevard, Los Angeles, California 90066. It is currently occupied by Venice High School and has been since about 1913.

2.1.4 Designated Contact Person

Mr. Dane Robinson, Site Assessment Project Manager, is the designated manager for this project. Contact information for general inquiries regarding the project should be directed to Mr. Patrick Schanen, Environmental Health Manager, as follows:

LOS ANGELES UNIFIED SCHOOL DISTRICT
Office of Environmental Health and Safety
333 South Beaudry Avenue, 21st Floor
Los Angeles, California 90017
Telephone: (213) 241-3356
Fax: (213) 241-6821.

2.1.5 Other Site Names

Venice High School was originally known as Venice Union Polytechnic High School. The LAUSD's Phoenix Continuation High School occupies the southeast corner of the high school and uses the address of 12971 West Zanja Street. Venice High School Indoor Pool, which is jointly operated by the LAUSD and the City of

Los Angeles Department of Recreation and Parks, occupies the southwest corner of the high school and uses the address of 2490 South Walgrove Avenue.

2.1.6 Regulatory Agency Identification Numbers

As of the date of this RAW, Venice High School has been issued United States Environmental Protection Agency (USEPA) generator identification number CAD982025058 for proper management of hazardous waste. The South Coast Air Quality Management District (SCAQMD) issued three permits to Venice High School for the operation of boilers under 2 million BTUs in 2009. The Site is not listed in either the DTSC's Envirostor or State Water Resources Control Board's (SWRCB's) GeoTracker databases.

2.1.7 Site Zoning and Land Use

According to the Los Angeles County Assessor, the parcel is zoned [Q]PF-1XL for Public Facilities.

2.1.8 Geographical Coordinates

The approximate geographic coordinates for the center of the Site are 33°59' 49.56" North Latitude and 118° 26' 35.88" West Longitude.

2.2 PHYSICAL SETTING

Much of the information presented in this section is summarized from the Phase I ESA Report previously prepared for the Site (AECOM, 2014). Knowledge of the Site environmental setting is essential for evaluating the actual or predicted migration of contaminants through soil, water, and air pathways.

2.2.1 Topography

The Site is located within the U.S. Geological Survey, 7.5-Minute Topographic Map -- Venice, California Quadrangle. The elevation of the Site is shown as approximately 35 feet above mean sea level on this map. The topographic gradient in the vicinity of the Site slopes gently toward the southwest.

2.2.2 Geology

The Site is located within the southwestern block of the Los Angeles Basin, also referred to as the Los Angeles Depositional Basin, between the Peninsular Ranges and Transverse Ranges geomorphic provinces of California. The basin is known for its active tectonics, structural complexity, and abundant oil production. The southwestern block of the Los Angeles Basin is defined as the area between the Newport-Inglewood belt of hills and the Pacific Ocean, extending from along the coastal margin of the basin from the Santa Monica Mountains to Long Beach. Topographically, the block is characterized by a gentle west-sloping plain and coastal sand dunes, bounded by prominent topographic features, such as the Santa Monica Mountains to the north, the Newport-Inglewood Hills to the east, and the Palos Verdes Hills on the south. Stratigraphically, the Los Angeles Basin is underlain by several hundred feet of unconsolidated Holocene alluvium, which locally consists of Los Angeles River floodplain and alluvial fan deposits of silt, sand, and gravel from the hills and mountain ranges to the north. Beneath the alluvial deposits are consolidated sedimentary strata of the Late Miocene Puente or Modelo Formations (CDWR, 1961).

A northwest structural trend is evident in many folding and faulting features of the regional geology, characteristic of the Peninsular Ranges geomorphic province. Near the Site, these include the Newport-Inglewood and Santa Monica Fault Zones. The Santa Monica Fault, which extends approximately 40 kilometers through the Los Angeles region and offshore along the Malibu coast, is part of a system of west-trending reverse, oblique-slip, and left-lateral strike-slip faults that extends along the southern edge of the Transverse Ranges. The Santa Monica fault extends east-west along the southern edge of the Santa Monica Mountains, the southernmost of the Transverse Ranges (Yerkes et. al., 1997).

During the Seismic Modernization Project PEA (Ninyo & Moore, 2016), soils beneath the Site were described as fill and alluvial material consisting of silty sand and silty clay to the total depth of 5 feet below ground surface (bgs) explored. Soils encountered during the current PEA were observed to consist of artificial fill to a depth of approximately 3 feet bgs, moderate brown clayey sand between 3-10 feet bgs, light to medium silty sand between 10-15 feet bgs, and light brown sand between 15-20 feet bgs. No odors, staining, or other evidence of contamination were observed by the field geologists.

2.2.3 Hydrogeology

The Site is located within the Santa Monica Sub-basin of the Coastal Plain of Los Angeles County, often referred to as the Santa Monica Basin, which is bounded on the south by the Ballona Escarpment, on the east by the Newport-Inglewood Fault Zone, on the west by the Pacific Ocean, and on the north by the consolidated rocks of the Santa Monica Mountains. The principal water-bearing deposits of the Santa Monica Basin include unconsolidated and semi-consolidated marine and continental alluvial sediments of Holocene, Pleistocene, and Pliocene ages. Further subdivision of the Santa Monica Basin includes the Charnock Sub-basin, significant portions of which are located southwest of the Site on the opposite side of the Overland Avenue Fault.

Groundwater within the Santa Monica Basin generally flows from north to south and west, with pumping and flow to the Santa Monica Bay as the main discharge mechanisms for water in the basin. The primary recharge occurs from the average 14 to 17 inches of rain that fall annually on the ground surface in the area and in the tributary canyons of the Santa Monica Mountains to the north.

Groundwater information specific to the Site is not available, but groundwater was not encountered to the total depth explored during the current PEA (i.e., 20 feet bgs). According to information obtained from the SWRCB's GeoTracker website, uppermost groundwater is present at depths of approximately 20 feet bgs and flows in a southwesterly direction at locations approximately 0.5 mile west-southwest of the Site (SGI, 2009). According to the Los Angeles County Department of Public Works website, the depth to groundwater is about 9 feet bgs at locations approximately 0.75 mile south-southwest of the Site (AECOM, 2014).

2.2.4 Surface Water

The surface water body nearest to the Site is Marina del Rey, which is located approximately 1 mile to the south. Stormwater drains as sheet flow to adjacent streets, where it is directed by curb and gutter systems to the City-maintained storm sewer system.

2.2.5 Surrounding Land Uses and Sensitive Receptors

Venice High School is bordered by W. Venice Boulevard to the northwest, S. Walgrove Avenue to the southwest, W. Zanja Street to the southeast, and residential properties fronting Lyceum Avenue to the northeast (Figure 2). A commercial building with a dog groomer and ballet school as tenants adjoins the northeast corner of the campus. Properties across bordering streets are exclusively residential, except for a few commercial buildings across from the north end of the campus along W. Venice Boulevard.

The Site and surrounding area do not support natural vegetation or provide native wildlife or habitat and ecologically sensitive species are not known to not exist within 1 mile of the Site. Based on review of area maps, the nearest location of ecological interest is the Ballona Wetlands Ecological Reserve, which is located approximately 1.5 miles south of the Site.

2.3 PREVIOUS SITE INVESTIGATIONS

2.3.1 Phase I ESA (2014)

In 2014, the LAUSD commissioned a Phase I ESA for the entire high school campus, including CMP areas, in anticipation of planned modernization projects (AECOM, 2014). The Phase I ESA was performed in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM Standard E 1527-13). The purposes of the Phase I ESA were described as follows:

- To identify historical and/or current activities that resulted in, or potentially could have resulted in, environmental impairment to the Site through the release of hazardous substances (including petroleum compounds) to soil or groundwater (referred to as "recognized environmental conditions," or RECs).

- To acquire information regarding site screening issues that are of specific interest to the LAUSD in the remodeling of existing school sites, including geologic hazards and the proximity of the Site to potentially hazardous activities (e.g., fuel pipelines, airports, railroads, high voltage power transmission lines, major roadways, etc.).

The Phase I ESA included an inspection of the Site and surrounding area, acquisition and evaluation of a standard environmental database search report from Environmental Data Resources, agency file reviews, historical research (using Sanborn fire insurance maps, aerial photographs, topographic maps, city directories, etc.), and interviews with personnel knowledgeable about the school and its history. The following significant limitations and assumptions were noted in the report:

- Site access was limited due to the presence of students. It was assumed that areas not accessed contained only small amounts of hazardous materials such as cleaning supplies, art supplies, and laboratory chemicals.

- LAUSD did not provide any agency documents, previous environmental reports, or site plans or drawings. It was assumed that LAUSD would have provided relevant documents, if such were available.

- The evaluation of indoor air vapor intrusion as a potential environmental concern was not included in the assessment.

- The LAUSD indicated that the assessment was to include the entire school property, with a focus on the courtyard area, which included the cafeteria and shop building areas (i.e., automotive, printing, and former mechanical shop areas).

The Phase I ESA recommended that a Preliminary Environmental Assessment (PEA) be conducted to investigate the following campus-wide RECs:

1. Two underground hydraulic lifts were observed in the automotive repair shop. These lifts contain hydraulic oil. Mr. Frank Nunez, Assistant Principal of Venice High School, indicated that there have been some problems with leaks from these lifts in the past, but could not provide any additional information or details. There is a potential for leaking hydraulic oil to have impacted soil in the area of these lifts.

2. An oil/water separator is located in the shop yard area and is connected to floor drains located in the automotive repair shop. Mr. Nunez indicated that this oil/water separator is serviced on a regular basis by the LAUSD. There is a potential for impacts to the subsurface due to leakage from this oil/water separator.

3. The shop yard area was formerly occupied by a shop building that included an electrical shop and auto repair shop. There is a potential that underground storage tanks or other structures associated with these shops remain under the asphalt paved yard area.

4. Due to the age of the structures on-site, lead, arsenic, and organochlorine pesticides in soil testing is recommended in accordance with the DTSC's *Interim Guidance Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers*, revised June 9, 2006.

5. There is a potential for arsenates in shallow soils beneath the asphalt pavement of the Site from application of weed killing arsenic bearing herbicides based upon conditions found at similar LAUSD school sites.

6. The western corner of the Site is currently used as a garden and appears to have been since before 1970. Organochlorine pesticides may have been used in this area.

7. Due to their age, many of the buildings located on the Site may contain asbestos-containing materials (ACM) and lead based paint.

2.3.2 Seismic Modernization Project PEA Equivalent (2016)

In 2016 the LAUSD commissioned a PEA Equivalent for a small area of the school campus that was scheduled for seismic upgrades as part of the overall modernization program (Ninyo & Moore, 2016). Designated as the Seismic Modernization Project (SMP), it included the Lunch Pavilion and five smaller buildings to its north and west (see Ninyo & Moore Figure 2 in Appendix A). The investigation/report shall be hereinafter referred to as "PEA-SMP". One of the buildings was later determined to be not fully delineated and an additional boring (W-B4-15S) was completed as part of the PEA for the CMP. This is further discussed in Section 2.3.3.

The objective of the PEA-SMP was to evaluate REC Nos. 4 and 5 (see Section 2.3.1) as they related to the SMP area. Field work was performed in accordance with a *PEA Equivalent Workplan* (Ninyo & Moore, 2015), as modified based on subsequent discussions with the LAUSD. The investigation consisted of the completion of 23 initial soil borings around the perimeters of the SMP buildings (SMP-B1 to SMP-B19 and W-B1 to W-B4), followed by 64 additional step-out borings to further evaluate locations where elevated arsenic concentrations (i.e., >12 mg/kg) were identified. Boring locations are shown on Ninyo & Moore Figure 2 in Appendix A. The soil borings were completed to a maximum depth of 5 feet bgs and depth-discrete soil samples were collected and analyzed variably for arsenic (USEPA Method 6020), lead (USEPA Method 6010B and x-ray fluorescence [XRF]), and organochlorine pesticides (OCPs, USEPA Method 8081A).

Lead concentrations in the initial borings ranged from 1 to 91 mg/kg when analyzed in the field by XRF. Ten percent of the total soil samples having the highest lead concentrations were then submitted to a stationary laboratory for analysis of lead by USEPA Method 6010B. Lead concentrations in the confirmation samples ranged from 6.1 to 69 mg/kg. Because the stationary laboratory results were considered to be more reliable than the XRF results and all of the lead concentrations in the laboratory samples were below the DTSC-prescribed residential screening level of 80 mg/kg, the lead concentrations were judged to not be of health risk concern. Four of the soil samples with lead concentrations greater than 50 mg/kg were further analyzed for their soluble lead content using the California Soluble Threshold Limit Concentration (STLC) test and/or the USEPA Toxicity Characteristic Leaching Procedure (TCLP) test. Because all of the soluble lead concentrations were less than 5 mg/L, the tested soil would be deemed non-hazardous for waste disposal purposes if it were removed.

The soil samples analyzed for OCPs were composited prior to analysis (two to four samples per composite). OCPs were not detected above the laboratory reporting limits in the eight composite samples analyzed.

Arsenic concentrations in the initial borings ranged from 2.5 to 60 mg/kg and exceeded the DTSC screening level of 12 mg/kg in seven of the soil samples analyzed. Three rounds of step-out sampling were conducted to delineate the lateral and vertical extents of the elevated arsenic concentrations, during which time arsenic concentrations as high as 100 mg/kg were detected. Four of the soil samples with arsenic concentrations greater than 50 mg/kg were further analyzed for their soluble lead content using the STLC test and/or the Waste Extraction Test procedure. Because all of the soluble lead concentrations were less than 5 mg/L, the tested soil would be deemed non-hazardous for waste disposal purposes if it were removed. The PEA-SMP concluded that the arsenic-impacted soil was non-hazardous and posed no health risk to the students, faculty and staff at the school because it was under pavement where it would not be directly contacted.

The report recommended that a *Removal Action Workplan* (RAW) be prepared to remove arsenic-impacted soil within eleven defined areas (Areas A to K) to a maximum depth of 4 feet bgs. The volume of impacted soil to be removed was estimated to be approximately 72 cubic yards (approximately 100 tons).

2.3.3 Comprehensive Modernization Project PEA Equivalent (2016)

In 2016 the LAUSD also commissioned a PEA Equivalent for the comprehensive modernization project (PEA-CMP, PlaceWorks, 2016). The CMP involves campus-wide upgrades of existing infrastructure and athletic fields as well as the construction of new classrooms, a gymnasium, and field bleachers. Several existing buildings and portable classroom units will be removed to make way for the Site improvements. One of the buildings, identified as the Storage Building, was initially included in the PEA-SMP, but was removed from the project before sampling could be completed and is discussed below.

The objective of the PEA-CMP was to evaluate REC Nos. 1 through 5 (see Section 2.3.1) as they related to the CMP. Field work was performed in accordance with a narrative scope of services, a sampling summary table, and three sample location figures (LAUSD, 2016). The initial investigation consisted of the

- Completion of 89 soil borings (B-1 to B-89) to a depth of 2.5 feet below ground surface (bgs) around school buildings and field bleachers. Soil samples were analyzed for lead, arsenic, organochlorine pesticides (OCPs), and/or polychlorinated biphenyls (PCBs.)

- Completion of 49 soil borings (B-90 to B-138) to a depth of 2.5 feet bgs in athletic fields, hardcourts, parking lots, and other outdoor areas. Soil samples were analyzed for lead, arsenic, OCPs, and/or PCBs.

- Completion of 4 soil borings (B-139 to B-142) to a depth of 2.5 feet bgs inside the Shop 8-9 building (metal shop) to assess for potential impacts associated with historical activities conducted in this building. Soil samples were analyzed for total petroleum hydrocarbons (TPH) with carbon chain range delineation, metals, volatile organic compounds (VOCs), and PCBs,

- Completion of 6 soil borings (B-143 to B-148) to a depth of 20 feet bgs inside the Shop 5-7 building (auto shop) to assess for potential impacts associated with hydraulic hoists observed in this building. Soil samples were analyzed for TPH, metals, VOCs, and PCBs,

- Completion of 2 soil borings (B-149 and B-150) to a depth of 20 feet bgs outside the Shop 5-7 building (auto shop) to assess for potential impacts associated with a clarifier observed at this location. Soil samples were analyzed for TPH, metals, VOCs, and PCBs,

- Completion of 1 soil boring (W-B4-15S) to a depth of 2.5 feet bgs outside the Storage Building to delineate the southerly limit of arsenic contamination identified during the PEA-SMP, and the

- Installation of nested soil gas probes at two locations (SG-1 and SG-2) at depths of 5 and 15 feet bgs in the shop building courtyard to assess for potential solvent and fuel spills and naturally occurring oilfield gases. Soil gas samples were analyzed for VOCs, methane, and hydrogen sulfide.

Detectable concentrations of PCBs, VOCs, and TPH were not present in soil analyzed from the initial samples. Detected concentrations of OCPs and metals (except arsenic and lead), VOCs in soil gas, methane, and hydrogen sulfide were all below levels of regulatory concern. Therefore, they were all ruled out as COCs. Arsenic concentration at twelve locations (maximum 299 mg/kg at B3-0.5') exceeded the screening level of 12 mg/kg. Lead concentration at six locations (maximum 336 mg/kg at B94-0.5') exceeded the screening level of 80 mg/kg. In addition, the southern limit of arsenic contamination adjacent to the Storage Building was defined.

Eventually 79 additional soil borings were completed as part of this assessment. Of these borings, the maximum concentrations for arsenic and lead were 342 mg/kg (B3-E5-0.5') and 146 mg/kg (B94-N5-0.5'), respectively.

The results of the PEA-SMP indicated that arsenic impacted soil was non-hazardous even when the concentration exceeded the SSCG. Therefore, no STLC or TCLP analyses were completed for soil containing elevated concentrations of arsenic. However, these analyses were performed on the soil samples with the highest lead concentrations as presented in the following table.

TCLP and STLC Results for Lead

Sample ID	Laboratory Report No.	Total Lead Concentration (mg/kg)	TCLP Lead Concentration (mg/L)	STLC Lead Concentration (mg/L)
B94-0.5'	84771	336	<0.5	**7.17**
B94-N5-0.5'	85347	146	<0.5	3.33
DUP-12	85346	102	--	1.24
B67-E13-0.5'	85347	81.1	--	1.96

Values in **bold** exceed levels used to characterize a waste as hazardous
"—" = not analyzed
mg/kg = milligrams/kilogram
mg/L = milligrams/liter

As indicated in the preceding table, because the TCLP lead concentrations did not exceed the 5 mg/L regulatory threshold (and in fact, were non-detect), any soil excavated at the Site would not need to be managed as a RCRA hazardous waste. The sample with the highest lead concentration of 336 mg/kg (B94-0.5') had an STLC lead concentration of 7.17 mg/L, which exceeds the 5 mg/L threshold used by the State of California to define a waste as non-RCRA hazardous. Therefore, any soil excavated from the B-94 removal area must be managed as California non-RCRA hazardous waste.

Overall the assessment identified 19 discrete locations where approximately 174 total in-place cubic yards of arsenic- and lead-impacted soil exceed the SSCGs. The soil is all characterized as nonhazardous except 9.4 in-place cubic yards from the excavation around location B-94 which is considered California non-RCRA hazardous waste. The report identified that 9 of the locations were not fully defined and they would be sampled as part of a future Technical Addendum (TA). The locations of the soil borings in relation to Site landmarks are displayed in Table 1. The report recommended that a RAW be prepared to guide the excavation, transport, and off-site disposal of this soil.

2.3.4 Technical Addendum (2017)

Based on time constraints the lateral limits of soil with concentrations above the SSCGs could not be determined at 9 (6 arsenic and 3 lead) of the 19 identified locations with soil concentrations exceeding the SSCGs during the PEA-CMP. Therefore, additional assessment activities were conducted and summarized in the TA (PlaceWorks, 2017). Based on the results of samples from 11 additional borings conducted in two rounds of sampling the limits of two excavations (B-36 and B-114) grew. This increased the estimated in-place volume of arsenic- and lead-impacted soil to 185 cubic yards. As the volume of B-94 did not increase, the volume of California non-RCRA hazardous waste did not increase. Figures identifying the boring locations and the removal areas from the PEA Equivalent and TA investigations are included in Appendix A.

3. Nature, Source, and Extent of Chemicals of Concern

Based on the results of the investigations presented in the PEA-CMP (PlaceWorks, 2016) and the TA (PlaceWorks, 2017) arsenic and lead have been determined to be the COCs for the Site. Summaries of the nature, source, and extent of the COCs are presented below.

3.1 SOURCE AND LOCATIONS OF CHEMICALS OF CONCERN

The source of the arsenic-impacted soil may be the historical use of arsenical-based herbicides for weed control in both paved and unpaved areas. Historically, arsenic was widely used as a pesticide and herbicide and was commonly used at industrial sites as a soil sterilizer. Presently, about 90 percent of all arsenic produced is used as a preservative for wood to make it resistant to rotting and decay.

The source of the lead-impacted soil may be the historical use of lead-based paint in previously demolished and existing buildings. In response to the potential harmful effects from lead, the U.S. Consumer Product Safety Commission banned the application of paint containing more than 600 mg/kg of lead on residential structures in 1978. Weathering, scraping, chipping, and abrasion can cause lead to be released to, and accumulated in, soil around old structures constructed before 1978.

The 19 locations where arsenic- and/or lead-impacted soil has been identified are shown on the figures from the TA included in Appendix A.

3.2 EXTENT AND VOLUME OF CONTAMINATION

Per the TA, the total estimated in-place volume of soil is approximately 185 cubic yards. Adding a 10% contingency for extra volume based on confirmation sample results this volume increases to 204 cubic yards. Of this volume, the majority of impacted soils (approximately 193 cubic yards) can be classified as non-hazardous for offsite disposal purposes and a small portion (approximately 11 cubic yards) is classified as non-RCRA California hazardous for offsite disposal purposes. Anticipated volumes and disposal classifications for the impacted soil are detailed in Table 2.

3.3 HEALTH EFFECTS OF CHEMICALS OF CONCERN

Potential exposures to the COCs could result from dermal contact and direct ingestion of the affected soil, as well as inhalation of airborne dust particulates.

Arsenic is a metalloid. Inhalation of high levels of arsenic can cause a sore throat or irritated lungs. Ingesting very high levels can result in death. Exposure to lower levels of arsenic can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Low level exposures can also cause a darkening of the skin and the appearance of small corns or warts on the palms, soles, and torso. Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the lungs, bladder, liver, kidney, and prostate; and inhalation can increase the risk of lung cancer. Children and pregnant women are believed to be at an increased risk to arsenic exposures.

Lead is a bio-accumulative substance and a reproductive and developmental toxin. Lead poisoning is one of the most commonly reported occupational diseases among adults due to inhalation of dust or fumes. Lead can impair the nervous system, affecting hearing, vision, and muscle control. It is toxic to lungs, kidneys, blood, and heart. Possible exposure pathways include ingestion and inhalation. Symptoms develop more quickly through inhalation exposure than ingestion since absorption takes place through the respiratory tract rather quickly. Acute lead poisoning is most common in children with history of pica; symptoms include anorexia, vomiting, malaise, and convulsions due to increased intracranial pressure, which may lead to permanent brain damage. Exposure in children can cause irreversible learning deficits, mental retardation, weight loss, weakness, anemia, cognitive dysfunction, and delayed neurological and physical development. Lead is considered a teratogen, but is not a suspected carcinogen.

3.4 TARGETS POTENTIALLY AFFECTED BY THE SITE

A Conceptual Site Model was developed to identify the receptors that may come into contact with affected soil and dust and to indicate potential exposure pathways; they include the following:

- Arsenic and lead are the COCs at the Site.
- Residential exposure conditions were assumed, as directed by the LAUSD. This is the most sensitive exposure scenario used to characterize properties without land restrictions.
- Exposure to COCs during and following implementation of this RAW considered ingestion, inhalation, and dermal contact pathways from shallow soils at the Site.
- Exposure to COCs can occur only if a complete pathway exists by which human receptors may be exposed to chemicals in soil, water, or air.
- During the implementation of this RAW, the receptors will be construction workers, occupants of neighboring properties, students, faculty, administrative staff, maintenance workers, and custodial workers.
- Following the CMP, the receptors will be students, faculty, administrative staff, maintenance workers, and custodial workers.

4. Cleanup Goals

Based on the results of the investigations presented in the PEA-CMP (PlaceWorks, 2016) and the TA (PlaceWorks, 2017) arsenic and lead have been determined to be the COCs for the Site. Analytical results for lead and arsenic concentrations in excavation areas can be found in Table 4. Summaries of the SSCGs for these COCs are discussed below.

4.1 SITE-SPECIFIC CLEANUP GOALS

4.1.1 Arsenic

SSCG: 12 mg/kg

Arsenic has proven problematic in the evaluation of school sites, since the risk-based soil concentration of approximately 0.03 mg/kg is nearly always below the concentrations detected at a site. Therefore, the DTSC conducted a statistical evaluation of nineteen LAUSD school sites and five southern California counties to determine the level of arsenic that is representative of background concentrations (DTSC, 2008). The term "background" collectively referred to both naturally-occurring and anthropogenic sources of arsenic in shallow soil. The study determined that an arsenic concentration of 1.5 mg/kg most likely represents the upper bound concentration of naturally-occurring arsenic, while a concentration of 12 mg/kg represents the upper bound concentration of naturally-occurring plus anthropogenic arsenic. Based on this study, the DTSC currently uses an arsenic concentration of 12 mg/kg as a screening level for new school sites.

4.1.2 Lead

SSCG: 80 mg/kg

Adverse health effects associated with exposure to lead have been correlated with concentrations of lead in whole blood, rather than with intake of lead by an individual. The US Centers for Disease Control considers a blood lead level of 10 micrograms/deciliter (μg/dl) to be cause for concern. The DTSC used this criterion for toxicity evaluations until 2007, when the California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard Assessment (OEHHA) developed a new criterion based on a source-specific "benchmark change" of 1 μg/dl, which is the estimated incremental increase in children's blood lead that would reduce their Intelligence Quotient (IQ) by up to 1 point. Using this new approach, CalEPA established a preliminary remediation goal (action level) of 80 mg/kg for lead in soil (CalEPA, 2009). This standard represents the concentration of lead in soil that will result in a 90th percentile estimate of a 1 μg/dl increase in blood lead in the most sensitive receptor (i.e., child or fetus).

The DTSC Office of Human and Ecological Risk (HERO) has implemented the risk-based soil concentration as a residential land use scenario exposure point concentration, calculated as the 95 percent upper confidence limit of the arithmetic mean (95% UCL) of 80 mg/kg or less for lead in soil (DTSC, 2013a). With regard to the assessment of lead risk, if sufficient data are available, HERO recommends calculating the 95% UCL lead concentration for each exposure area. If individual samples exceed 80 mg/kg, the exposure would still be acceptable as long as the 95% UCL is below 80 mg/kg and hot spots or data outliers are not present.

5. Engineering Evaluation/Cost Analysis

This Engineering Evaluation/Cost Analysis (EE/CA) was conducted for the proposed removal action in accordance with USEPA's *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA* (USEPA, 1993). It was prepared to aid in the evaluation of remedial alternatives for the mitigation of impacted soil at the Site. The proposed removal action will be conducted in general accordance with protocols of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Under 40 CFR 300.415 of the NCP, an EE/CA is required to address the implementability, effectiveness, and cost of a non-time-critical removal action.

5.1 REMOVAL ACTION SCOPE

This RAW was prepared to address soil impacted with elevated concentrations of arsenic and lead at the Site. The estimated volume of soil proposed for remediation is calculated to total approximately 204 cubic yards, (see Table 2 and Section 3.2). The goals and objectives of the removal action are presented in Section 1.2, while SSCGs for each of the COCs are identified in Section 4.1.

5.2 CRITERIA FOR EVALUATING REMOVAL ACTION ALTERNATIVES

The process of development and screening of remediation alternatives may be viewed conceptually as occurring in several phases:

- <u>Identification of Impacted Areas and Volumes</u> – Definition of areas and volumes to be remediated is necessary for full evaluation of alternatives. Definition will depend on the remediation objectives previously defined. Cost estimates are particularly sensitive to changes in volume estimates.

- <u>Identification and Evaluation of Technologies</u> – Applicable technologies are identified and evaluated. Inappropriate technologies are screened out.

- <u>Assembly of Technologies into Alternatives</u> – Remedial alternatives are developed from applicable technologies.

- <u>Screening of Alternatives</u> – Alternatives are evaluated on a general basis to determine effectiveness, implementability, and cost. Those alternatives not screened out are selected for detailed analysis.

- <u>Evaluation of Alternatives</u> – Alternatives are evaluated in more detail, as described on the following page.

The NCP establishes nine criteria for the evaluation and analysis of remedial alternatives and selection of the preferred alternative, as follows:

- Overall Protection of Human Health and the Environment – This criterion evaluates overall protectiveness of the remedy and provides adequate short-term and long-term protection to human health and the environment.

- Compliance with Applicable or Relevant and Appropriate Requirements – This criterion evaluates the alternative's ability to comply with chemical-, action-, and location-specific laws and regulations. That is, laws or regulations that address specific chemicals, apply to various sorts of actions such as air emission regulations for soil excavation, or define restrictions based on location such as land use covenants. Potential ARARs are outlined and discussed in Section 7.

- Long-Term Effectiveness – This criterion addresses issues related to the management of residual risk remaining after the remedial action has been performed. The primary focus is on long term protection of human health and the environment, including controls that may be required to manage risk posed by treatment residuals and/or untreated wastes.

- Reduction in Toxicity, Mobility, or Volume – This criterion focuses on the degree to which a remedial action reduces contaminant toxicity, mobility, and volume or otherwise minimizes residual risk.

- Short-Term Effectiveness – This criterion evaluates the effects of the remedial alternative during the construction and implementation phases, such as the risk of exposure of workers and the community during remedial activities, and environmental impacts that result from implementing the action. It also focuses on how quickly the remedy achieves environmental protection.

- Implementability – This criterion evaluates remedial actions with respect to technical and administrative applicability to Site conditions. Implementability includes such items as regulatory approval, ability to obtain necessary permits, and availability of resources such as labor and equipment. For this project, the likelihood that technical problems associated with implementation could lead to schedule delays is an important balancing criterion.

- Cost – This criterion evaluates the relative cost of alternatives, including capital and operation and maintenance (O&M) expenses. Actual costs will be influenced by a number of factors, including true labor and material cost, competitive market conditions, final project scope, and implementation schedule.

- Community Acceptance – This criterion considers the potential for agreement or opposition by members of the community to the remedial alternative.

- State Acceptance – This criterion considers the likelihood that the alternative will be acceptable to the regulatory agencies involved.

The first two criteria (overall protection of human health and the environment and compliance with ARARs) are considered threshold criteria, and alternatives that do not satisfy these criteria are eliminated from consideration. The next five criteria are referred to as balancing criteria, and are used to evaluate, compare, and rank the remedial alternatives. Guidance under the CERCLA poses a series of appropriate questions to be addressed when evaluating each alternative against the balancing criteria. These questions were addressed during the analysis process to provide consistency in evaluation of the alternatives. The final two criteria (community and State acceptance) can only be fully addressed after lead agencies and other interested parties have reviewed and commented on the proposed alternatives.

5.3 IDENTIFICATION AND EVALUATION OF REMEDIAL ACTION ALTERNATIVES

The DTSC (2008b) guidance, *Proven Technologies and Remedies Guidance, Remediation of Metals in Soil* (PT&R Guidance) was used to identify and screen remedial alternatives that might be appropriate for the Site. DTSC conducted a study that reviewed and screened data for 188 sites where the primary contaminants were metals. This study found that "excavation and off-site disposal" and "containment by capping" were the most frequently selected cleanup alternatives. Therefore, this guidance was prepared to streamline the cleanup process for sites that are suitable for these PT&R alternatives. It has been determined that Venice High is one such site. Therefore, based on the PT&R Guidance and RAOs presented in Section 1.2, the following three alternatives were identified and developed for the proposed remedial action at the Site.

- Alternative 1 – No Further Action
- Alternative 2 – Excavation and Offsite Disposal
- Alternative 3 – Excavation with On-Site Burial, Capping, and Land Use Restrictions

A description and evaluation of each of the three removal action alternatives is discussed in the following sections.

5.3.1 Alternative 1 – No Further Action

Consideration of the "No Action" alternative is required by CERCLA and the NCP as a baseline by which all other remedial alternatives can be compared. This alternative involves taking no action toward a remedy, implying no active management or expectation that Site RAO would be achieved over time.

An evaluation of this alternative with respect to the feasibility criteria is presented below.

- Overall Protection of Human Health and the Environment -- Alternative 1 would not result in any reduction in the potential risk associated with the COCs detected in soil at the Site and the RAOs would not be met.
- Compliance with ARARs -- Alternative 1 fails to meet ARARs, because contamination would be left in place that could potentially endanger public health and the environment. The remedial action is being conducted in general accordance with DTSC regulations and guidelines applicable to school sites, including the remediation or mitigation of any detected contamination to levels that are protective of human health. Therefore, Alternative 1 does not meet this NCP threshold criterion.

- Long-Term Effectiveness -- Alternative 1 would not address the impact due to elevated concentrations of COCs in soil. Consequently, there would be no reduction in the potential health risks and hazards at the Site and the RAOs would not be satisfied. Without a reduction in the potential health risks and hazards, the COCs would continue to pose a threat to future occupants of the Site.

- Reduction in Toxicity, Mobility, or Volume -- Alternative 1 would not result in a reduction in the toxicity, mobility, or volume of pesticides in Site soil and the RAOs would not be satisfied.

- Short-Term Effectiveness – Alternative 1 would not result in activities that would disturb the impacted soil, nor would it address the risk posed to persons that may access the project area. If the Site were not developed and access were restricted, there would be no short-term risks associated with implementation of this alternative. However, under the present use of the Site as a school, there are potential short-term exposures for the areas that are not currently paved. During the planned redevelopment of the Site, there is a potential for on-site workers to experience exposure to residual COCs, particularly those in near surface soil, during construction grading and excavation activities. These same activities would also increase the short-term risks to the surrounding community as impacted soil was released to the atmosphere during construction without proper controls and monitoring.

- Implementability – Alternative 1 does nothing and as much as doing nothing can be implemented, it can be implemented. However, this would not likely be an acceptable option if the Site were to be subject to agency oversight.

- Cost – Alternative 1 has no associated cost.

- Community Acceptance -- Alternative 1 is unlikely to garner community acceptance due to the use of the Site as a school.

- State Acceptance – The Site is not under state oversight. However, if it were it is unlikely to be an acceptable option.

In summary, Alternative 1 (No Action) does not meet RAOs or ARARs, nor does it result in a reduction of the toxicity, mobility, or volume of impacted soil present at the Site. Because the impacted soil would remain in place without monitoring, it would pose a short-term risk to Site workers and the surrounding community if it were disturbed during new school construction. Thereafter, the COC-impacted soil would continue to pose a long-term health risk and hazard to future occupants of the Site. As a result, acceptance by the State and the community for this alternative would not be obtainable

5.3.2 Alternative 2 – Soil Excavation and Off-Site Disposal

Alternative 2 involves the excavation and off-site disposal of soil impacted by COCs above the SSCGs. An estimated 204 in-place cubic yards of impacted soil would be excavated to depths of 1.5 and 2.5 feet bgs. Excavation and off-site disposal would be an effective means of removing impacted soil and would allow the project RAOs to be met.

An evaluation of this alternative with respect to the feasibility criteria is presented below:

- Overall Protection of Human Health and the Environment – Alternative 2 would meet the RAOs and is overall protective of human health and the environment.
- Compliance with ARARs – Alternative 2 could be conducted in accordance with all federal and state ARARs.
- Long-Term Effectiveness – Alternative 2 would reduce the concentrations of COCs in Site soil to levels that no longer present a threat to human health or the environment, thereby eliminating the long-term risk of exposure.
- Reduction in Toxicity, Mobility, or Volume – Although COC-impacted soil would be removed from the Site, the toxicity and volume of the impacted soil would not change from an off-site perspective, because the soil would merely be moved from one location to another. However, by placing the impacted soil in an engineered landfill licensed to accept such waste, the mobility of the COCs will be reduced.
- Short-Term Effectiveness – Potential short-term risks to onsite workers, public health, and the environment could result from dust or particulates that may be generated during soil excavation and handling. These risks could be mitigated using personal protective equipment (PPE) for on-site workers and engineering controls, such as dust suppression and additional traffic and equipment operating safety procedures, for protection of the surrounding community. The short-term risks are viewed as low to moderate.
- Implementability – Alternative 2 is technologically feasible and easily implemented. This alternative relies on proven technology, uses readily available equipment, and requires minimal or no permitting.
- Cost – Alternative 2 costs are driven primarily by the costs associated with soil excavation, transport, and off-site disposal. These costs depend on the method of excavation, the excavated volume, and the waste classification of the excavated soil, which in turn determines the costs of transportation and disposal. It has been assumed that the redevelopment project will result in a net export of soil due to the size of the footings necessary to support the proposed buildings. Therefore, the cost to import soil to make up for any void has been excluded from the cost and the small incremental cost savings has been ignored. The estimated cost to implement Alternative 2 is discussed in Section 5.4.
- Community Acceptance -- Alternative 2 is likely to be perceived by the community as acceptable, because it would mitigate the identified hazards and risks associated with the COCs in soil and render the Site safer for renovation and future school use.
- State Acceptance -- Alternative 2 would be viewed favorably by regulatory agencies, because it is protective of human health and the environment. It is anticipated that regulatory approval would be readily granted, because this alternative makes use of common and proven technologies. Because all of the impacted soil would be removed for off-site disposal, Alternative 2 would not limit future development of the Site.

In summary, Alternative 2 (Soil Excavation and Off-Site Disposal) is a proven, readily implementable remedial approach commonly used to address shallow soil contamination. The process is straightforward and the equipment and labor required to implement this alternative are uncomplicated and readily available. Based on the past success related to the excavation and off-site disposal of shallow soil contamination at other school sites, it is anticipated that this approach would be acceptable to the community and would receive regulatory approval, if requested.

5.3.3 Alternative 3 – Soil Excavation with On-Site Burial, Capping, and Land Use Restrictions

As with Alternative 2, Alternative 3 involves the excavation of approximately 204 in-place cubic yards of COC-impacted soil. However, rather than off-site disposal, the majority of the excavated soil would be placed in an engineered on-site burial cell and covered by a protective cap. The cap could either be clean soil or pavement. Only the small amount of California non-RCRA hazardous soil (approximately 11 cubic yards) would be disposed of off-site. In this manner, the impacted soil would be inaccessible for direct contact via ingestion, dermal adsorption, or inhalation, thereby rendering these exposure pathways incomplete.

A detailed engineering design package for the burial cell, including its precise location, dimensions, and means of construction, would be developed and submitted to the LAUSD for approval prior to initiating field work. In general, the construction of the burial cell would involve the following steps:

- The location of the burial cell would be excavated and the clean soil stockpiled. A geotextile fabric would be placed to line the bottom and sides of the excavation.
- Impacted soil would be placed and compacted in lifts until it reached a depth of at least 2 feet below the finish grade. A layer of geotextile fabric would be placed over the impacted soil. Iron rods would be installed at the corners for future identification of the limits of the area with a metal detector.
- Finally, a cover/cap would then be constructed over the entire burial cell. The cell would be either covered with asphalt in a parking lot or other hardscaped area or entirely within a landscaped area.

Alternative 3 would require some level of post-construction institutional controls, including a LAUSD-approved land use restriction, so that future projects at the Site would be of the presence of buried COC-impacted soil and the conditions applicable to its disturbance.

In addition, a long-term operation and maintenance (O&M) program involving periodic inspections and as-needed maintenance would be required to ensure that the cap remains undisturbed and continues to function as intended.

An evaluation of this alternative with respect to the feasibility criteria is presented below:

- <u>Overall Protection of Human Health and the Environment</u> – If properly conducted, burial of COC-impacted soil would isolate the soil from direct human exposure and would be protective of the environment. The PEA and TA soil sampling has demonstrated that the COCs are restricted to shallow soil, where they are relatively immobile and unlikely to migrate to groundwater. Leaving impacted soil on-site with the additional protection afforded by a protective soil cover would ensure that the COCs can no longer be entrained in air or surface water and dispersed via these secondary transport pathways.

- Compliance with ARARs – Alternative 3 could be conducted in accordance with most federal and state ARARs. LAUSD would need to concur that impacted soil could be left on-site and land use restrictions would need to be applied to the property to prevent inadvertent disturbance of the buried soil.

- Long-Term Effectiveness – Alternative 3 would be effective as long as the buried impacted soil was not disturbed. The property land use restriction would ensure that the soil is not disturbed during the lifetime of the school and would provide notice of its presence, and conditions for its disturbance, should the property be redeveloped in the distant future.

- Reduction in Toxicity, Mobility, or Volume – The removal of the California non-RCRA lead-impacted soil would improve the traits of the remaining on-site soil, but after that burying the remaining arsenic-and lead-impacted soil on-site would not reduce its toxicity or volume. The soil would be inaccessible for direct contact and therefore, would no longer pose a threat to human health. In addition, burying the impacted soil on-site would prevent arsenic- and lead-laden dust or sediments from becoming entrained in air or surface water and further distributed throughout the environment, thereby greatly reducing their mobility.

- Short-Term Effectiveness – Potential short-term risks to onsite workers, public health, and the environment could result from dust or particulates that may be generated during soil excavation and handling. These risks could be mitigated using PPE for on-site workers and engineering controls, such as dust suppression and additional traffic and equipment operating safety procedures, for protection of the surrounding community. Air monitoring conducted during periods when impacted soil was being disturbed would further mitigate the potential risks. With appropriate protective measures in place, the short-term risks are viewed as low to moderate.

- Implementability – Alternative 3 is technologically feasible and easily implemented. This alternative relies on proven technology, uses readily available equipment, and requires minimal or no permitting.

- Cost – The cost of Alternative 3 is driven primarily by the costs associated with construction of the burial cell and the excavation and on-site transfer of impacted soil. As such, this alternative can be generally viewed as an earthmoving project, with costs directly dependent on the volumes of soil to be excavated, transferred, and backfilled. This is the alternative with the highest cost. The relative cost to implement Alternative 3 versus 2 is discussed in Section 5.4.

- Community Acceptance -- Alternative 3 is likely to be perceived by the community as acceptable, because it would mitigate the identified hazards and risks associated with the metals in soil and render the Site safe for redevelopment.

- State Acceptance -- Alternative 3 would be viewed favorably by regulatory agencies, because it is protective of human health and the environment as compared to current conditions. The PT&R Guidance (DTSC,

2008) considers this commonly used remedial alternative to be acceptable, and state agencies are generally receptive to alternative approaches that are similar in cost, yet still meet the health and environmental RAOs. However, given the amount of impacted soil, there are no cost advantages over Alternative 2. Because the impacted soil would be left on-site in a secure burial cell, Alternative 3 would require a land use restriction and might limit future development options for the Site.

In summary, Alternative 3 would reduce the mobility of the COCs by removing and placing the impacted soil in an on-site burial cell. By isolating the soil, there would no longer be opportunities for direct human contact, nor could the impacted soil be dispersed in the environment via windblown or surface water conveyance. Thus secured, the COC concentrations are stable. Accordingly, a land use restriction would need to be applied to the Site and future development options might be limited. Alternative 3 meets project RAOs, would be easy to implement, is likely to be favorably received by the community and acceptable to involved regulatory agencies, but costs more than Alternative 2.

5.4 REMEDIAL ALTERNATIVE COST ANALYSIS

Cost is not applicable to Alternative 1 (No Action), because it is not feasible (i.e., it does not meet the RAOs for the Site and would not result in any reduction in potential risk associated with the COCs).

Alternatives 2 (Soil Excavation and Off-Site Disposal) and 3 (Soil Excavation with On-Site Burial, Capping, and Land Use Restrictions) allow the RAOs to be met and are both viewed favorably with respect to the nine evaluation criteria. The majority of the costs for Alternatives 2 and 3 are identical: excavation and stockpiling, off-site disposal of California non-RCRA soil, confirmation sampling and initial reporting.

The $80 per cubic yard ($55 per ton) transportation and disposal costs of Alternative 2 is offset by the $10,000 cost to design the burial cell plus the $33 per cubic yard cost to construct plus the present worth of the never ending $2,500 annual cost of inspection and reporting. The breakeven point where the T&D extras equal the burial cell cost is approximately 1,000 cubic yards. Therefore, it is expected that the 204 cubic yards of soil to be removed from the Site would cost less than creating the burial cell and maintaining it.

As indicated in Table 3, the estimated cost for Alternative 2 is $173,460, with a NCP contingency range of $121,420 to $260,190. The highest cost alternative is Alternative 3 with an estimated cost of $204,240, with an estimated NCP range of $142,970 to $306,360. A comparison of costs shows that the cost savings for Alternative 2 over Alternative 3 is estimated to be $30,780.

5.5 RECOMMENDED REMOVAL ACTION ALTERNATIVE

Alternative 1 (No Action) was eliminated from further consideration, primarily because it did not meet RAOs and would allow current conditions that pose potential risks to human health and the environment to remain unaddressed. Alternatives 2 (Soil Excavation and Off-Site Disposal) and 3 (Soil Excavation with On-Site Burial, Capping, and Land Use Restrictions) allow the RAOs to be met and are both viewed favorably with respect to the nine evaluation criteria. However, based on the quantity of soil involved with this project (<1,000 cubic yards) Alternative 2 is less costly than Alternative 3. In addition, unlike Alternative 3, upon completion

Alternative 2 does not require any additional inspection or reporting. **Alternative 2 (Soil Excavation and Off-Site Disposal) is selected as the preferred alternative**.

6. Applicable or Relevant and Appropriate Requirements

Based on the EE/CA presented in Section 5.0, Alternative 2 (Soil Excavation and Off-Site Disposal) has been selected as the preferred remedial response to address arsenic- and lead-impacted soil at the Site. This section discusses the ARARs for the proposed removal action.

6.1 PUBLIC PARTICIPATION

Public participation is an integral component of the environmental investigation and remediation process.

Prior to conducting the PEA at the Site, the public was notified of the planned investigation activities via a PEA Fieldwork Notification Letter. The letter was prepared in English and Spanish to DTSC standards and was produced on LAUSD letterhead. In September 2016, the letter was mailed to the parents of the students of Venice High School and copies delivered to VHS, nearby residents, and businesses. The letter was also posted at the Site prior to the commencement of fieldwork. It provided advance notice that the fieldwork would be occurring, along with the telephone number of the LAUSD Project Manager for further information. A copy of this letter is included in Appendix E. In February 2017, another notification letter was distributed to inform the public of the results of the PEA, that the PEA-CMP and TA were available on the LAUSD OEHS website, and that the preparation of a RAW was recommended. The letter was prepared in a similar format and distributed to the same parties as the September 2016 letter. A copy of this letter is also included in Appendix E.

This RAW is considered final now that the public has had an opportunity to review and comment on it. On March 14, 2017, a Public Notice was published in the Daily Breeze (English language) and La Opinión (Spanish language) newspapers. The notice identified the quantity of soil containing elevated COC concentrations; dates of the public comment period (i.e. March 14 to April 13, 2017); locations where hard copies of the draft RAW could be found; location and time for a public meeting to be held on March 28, 2017 to discuss the CMP and this RAW; how to submit comments; and the deadline to submit comments (i.e. April 13, 2017). A copy of the notice for each newspaper notice is included in Appendix E. Upon completion of the public comment period, this RAW has been amended as necessary to incorporate public comments received at the meeting or received by LAUSD. The date of this RAW has been updated, and the following has been added to Appendix E: public comments received by LAUSD, public meeting presentation, and proof of publication from each newspaper.

6.2 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The California Environmental Quality Act (CEQA), modeled after the federal National Environmental Policy Act (NEPA) of 1969, was enacted in 1970 as a system of checks and balances for land-use development and management decisions in California. It is an administrative procedure to ensure comprehensive environmental review of cumulative impacts prior to project approval. It has no agency enforcement tool, but allows challenge in courts. CEQA applies to all discretionary activities proposed to be carried out or approved by California public agencies, unless an exemption applies.

In order to comply with CEQA, an Initial Study and Mitigated Negative Declaration (IS/MND) was prepared for the CMP that includes the components of this RAW. The IS/MND was adopted by the Board May 9, 2017 and is available for review on the OEHS website. A mailer was prepared separate from the newspaper notices discussed in Section 6.2 to inform the public about the common CEQA/RAW meeting that was held on – March 28, 2017. A copy of this notice is included in Appendix E.

6.3 HAZARDOUS WASTE MANAGEMENT

The impacted soils to be removed have been characterized as either non-hazardous or non-RCRA hazardous waste, based on the results of soil sampling conducted during the PEA and TA. Additional sampling and analysis will be conducted, as necessary, to ensure that any soils generated by the removal action have been properly characterized and profiled before they are transported off-site for disposal. Based on the available data, a very small volume of soil generated during the removal action (<10 cubic yards) will require management as non-RCRA hazardous waste. Compliance with federal and state requirements for hazardous waste generation, temporary on-site storage, transportation, and disposal will be required of the Remediation Contractor performing the excavation activities and will be monitored by the Environmental Consultant overseeing the field work. The waste characterization process is further described in Section 7.6.1.

As a hazardous waste generator, the District has secured a USEPA Identification Number of CAD982025058 for proper management of the hazardous waste. Any container used for the temporary on-site storage of hazardous waste will be properly labeled and placed at a secure Site location in accordance with applicable regulations. Within ninety (90) days after its generation, the hazardous waste will be transported off-site for disposal. All shipments of hazardous waste will be transported by a registered hazardous waste hauler under a uniform hazardous waste manifest. Waste profiles will be developed and approved by the receiving facility before the soil is transported off-site. Only disposal facilities licensed to accept hazardous waste will be used.

6.4 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

The Site is located in jurisdiction of the South Coast Air Quality Control District (SCAQMD). The SCAQMD has two rules that address excavation (Rules 1150 and 1166), and one that addresses fugitive dust (Rule 403). Rule 1150 applies to the excavation of sanitary landfills, and does not apply to this project. Rule 1166 is not expected to apply to this project, because it governs the excavation of soils containing significant concentrations of VOCs, which were not detected during previous Site investigations.

Several elements of Rule 403, such as protocols for mitigation of potential fugitive dust emissions, have been incorporated into this RAW. Specifically, air monitoring will be conducted during the excavation, loading, and transport of impacted soils and mitigation measures will be implemented to minimize the generation of fugitive dust. Access to the Site will be controlled and excavation will not be conducted during times of high wind conditions (e.g., wind speed in excess of 15 miles per hour). Notification of the SCAQMD is required for medium or large excavation/grading operations that disturb more than 100 acres or move more than 5,000 or 10,000 cubic yards per day, respectively. This project does not qualify as a medium or large operation; therefore, agency notification or the filing of a Fugitive Dust Emission Control Plan is not required.

6.5 STATE WATER RESOURCES CONTROL BOARD

SWRCB Order No. 99-08-DWQ, National Pollutants Discharge Elimination System (NPDES) General Permit No. CAS000002, "Waste Discharge Requirements for Discharges of Stormwater Runoff Associated with Construction Activity" (General Permit) describes the implementation of a Stormwater Pollution Prevention Plan (SWPPP) for construction projects. As a standard operating procedure, the LAUSD will prepare a site-specific SWPPP for implementation by the remediation and construction contractors. A copy of the SWPPP will be maintained on-site and implemented by the construction contractor throughout the duration of the project. The LAUSD will also file a Notice of Intent (NOI) with the SWRCB to comply with the General Permit and obtain a waste discharger identification (WDID) number prior to beginning remedial excavation and construction.

If excavation is conducted during the rainy season, provisions will be made to prevent off-site migration of impacted soil in runoff. Best management practices will be implemented for runoff control in accordance with regulatory requirements and the site-specific SWPPP. Measures may include placement of sandbags, straw rolls, hay bales, and the like to control runoff and to act as filters. If precipitation accumulates within any excavation, it will be pumped out and held in storage tanks or other containment until it can be properly disposed of in accordance with Federal, State, and local regulations.

6.6 HEALTH AND SAFETY PLAN

All personnel conducting fieldwork at the Site will be responsible for operating in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations, as outlined in Title 8 of the California Code of Regulations (i.e., "General Industry and Construction Safety Orders" [Section 5192]), Title 29 of the Code of Federal Regulations (i.e., "Standards for Hazardous Waste Operations and Emergency Response" [Section 1910.120] and "Construction Industry Standards" [Section 1926]), and other applicable Federal, State and local laws and regulations.

A site-specific Health and Safety Plan (HASP) has been prepared for this project in accordance with current health and safety standards (see Appendix B). The Remediation Contractor, Environmental Consultant, and any subcontractors doing fieldwork in association with this RAW will either adopt and abide by the HASP or will develop their own safety plans that, at a minimum, meet the requirements of the HASP. The designated project Health and Safety Officer (HSO) will be responsible for maintaining compliance with the HASP. Daily tailgate health and safety meetings will be held and meeting participation will be documented in field forms that will be maintained with project records.

6.7 QUALITY ASSURANCE PROJECT PLAN

Quality assurance/quality control (QA/QC) measures that will be used during project execution are documented in the site-specific Quality Assurance Project Plan (QAPP), a copy of which is included as Appendix C. The QAPP will assure that the sampling procedures and analytical data gathered during the project meet specified Data Quality Objectives (DQOs) and are of sufficient quality to support decisions for redevelopment of the Site for school use.

7. Removal Action Implementation

Based on the results of the EE/CA presented in Section 5, the preferred remedial alternative for the Site is Alternative 2 (Soil Excavation with Off-Site Disposal). The following sections present the general procedures and methods that will be used to implement the remedial action embodied in this alternative. Remedial activities will be performed by a California-licensed remedial engineering contractor under the oversight of a California registered professional engineer and/or registered professional geologist. Successful completion of the remedial action will be demonstrated by the collection and analysis of confirmation soil samples after all of the impacted soils have been excavated.

7.1 FIELD DOCUMENTATION

The LAUSD's Remediation Contractor and Environmental Consultant will be responsible for maintaining field forms and logbooks that document all phases of fieldwork. Field forms and logbooks will serve to document observations, personnel on-site, equipment arrival and departure times, and other vital project information. Information and data entries will be complete and accurate enough to permit reconstruction of field activities. Logbooks will be bound with consecutively numbered pages. Each day's entries will be dated and the time of entry noted. All entries will be legible, written in blue or black ink, and signed by the individual making the entries. Language will be factual and objective. Corrections will be made by a single line-out through the incorrect information, and will be dated and initialed.

At the minimum, the following information will be documented on field forms and/or logbooks:

- Site name and address
- Recorder's name
- Time of Site arrival and departure
- Team members and affiliations
- Other personnel on-site
- Summary of any on-site meetings
- Summary of remediation activities
- Truckloads and description of off-site waste shipments and/or imported fill material (including receipts or manifest copies)

- Health and safety monitoring results
- Deviations from this RAW.

Photographs will be taken during the removal action to document representative or key field activities. When photographs are taken, the following summary information will be written in the logbook or will be recorded in a separate field photography log:

- Time, date, and location
- Description of the subject photographed
- Name of the person taking the photograph.

7.2 FIELD PREPARATION

Prior to equipment mobilization, Site preparation activities may include visual inspections of the Site, surveying, boundary staking, establishment of staging areas and construction traffic patterns, subsurface utility clearance, utility connection or disconnection, and fencing installation.

7.2.1 Delineation of Excavation Areas

Appendix A contains figures of the areal limits of each removal area taken from the TA (PlaceWorks, 2017). The limits of all excavations will be delineated by the Remediation Contractor, in consultation with the LAUSD and the Environmental Consultant, before commencement of removal activities. It is expected that the existing aboveground portions of several buildings will be demolished and removed prior to starting soil removal activities, leaving an open and level hardscape area consisting of concrete foundation pads, asphalt pavement, and landscape. During the demolition of buildings and hardscape areas, precautions will be taken (e.g., placement of plastic sheeting, plywood, etc.) to prevent contaminated soil from spreading and impacting "clean areas" of the Site. Within paved areas, the soil removal limits will be demarcated with high visibility paint using visible reference points, including soil boring patches, drain grates, fence posts, and building footprints. Landscaping flags will be placed at the corners of excavations within landscaped areas. Table 1 has been prepared to assist with locating borings within landscaped areas.

7.2.2 Utility Clearance

Underground Service Alert (USA) will be notified at least 48 hours prior to beginning any excavation or invasive field activities to identify the locations of utilities that enter the property. A geophysical survey will also be conducted within the planned excavation areas to help identify utilities or possible subsurface obstructions.

If <u>active</u> utilities are present that cannot be removed or relocated during soil excavation (e.g., electric, water storm drain lines, etc.), impacted soil will be excavated above and alongside the utilities to the extent feasible, leaving a <u>one-foot safety separation</u> between the excavation and utility, while being careful not to damage the utilities or expose workers to hazardous conditions.

If inactive, or to be removed, utilities are present impacted soil will be excavated to the utility or its encasement (no separation). The contractor, and not the Environmental Consultant, shall be responsible for making sure construction workers are safe when working around such lines.

7.2.3 Security Measures

Appropriate barriers and/or privacy fencing will be installed prior to beginning remediation activities and will be maintained throughout the project duration to ensure that the work area is secure and safe. Existing and/or new fencing will be fitted with wind screen to provide privacy and to reduce air speeds and the potential for dust generation across the excavation areas. To prevent trespassers or unauthorized personnel from entering the work area, security measures may include, but are not limited to, the following:

- Posting notices directing visitors to the Site construction manager's office
- Recording visitors in the field logbook or maintaining a log for visitors to sign in and out; visitors must have prior approval from the Site construction manager to enter the Site
- Maintaining a safe and secure work area, including areas where equipment is stored or stationed, at the close of each workday
- Retaining a security company for on-site security during non-work hours.

7.2.4 Permits and Plans

Federal, State, or local permits or agency approvals are not expected to be required to implement the RAW.

7.3 EXCAVATION

Soil impacted by arsenic and lead will be excavated from designated soil removal locations at the Site. The lateral extents of impacted soil have been bounded by obstructions (e.g. buildings or utilities) "clean" soil sample analytical results. The vertical extents have been bounded by "clean" soil sample analytical results. Excavation locations and depths are shown on Figures 3-13 of Appendix A. Table 2 provides a summary of the dimensions and estimated soil volumes for individual excavation areas. As can be seen from these figures and table, the maximum excavation depth is 2.5 feet bgs, and most excavation areas are 1.5 feet deep. The total initial in-place volume of impacted soil is estimated to be approximately 185 cubic yards. This RAW increases this volume by ten percent (10%) to account for step-out sampling for a total estimated in-place volume of 204 cubic yards. This equates to approximately 286 (204 times 140%) "loose" cubic yards of stockpiled soil to be loaded into trucks.

All fieldwork will be completed by properly trained and equipped hazardous waste workers using conventional construction equipment, including excavators, dozers, and front-end loaders. Buckets used for excavation shall have a smooth blade edge (no teeth). At locations where concrete or asphalt exists above the proposed removal area, the pavement will be removed with minimum disturbance to the soil below. Pavement materials will be temporarily stockpiled on-site for disposal as inert construction debris.

As the soil is excavated, it will be either direct-loaded to open-top trailers or dump trucks for immediate off-site transport or staged in temporary stockpiles. Said stockpiles shall not be placed on bare ground, but instead on a hard surface (e.g. pavement or plywood) covered with aplastic liner next to the excavation. Excavation will proceed in lateral and vertical directions until the SSCGs are demonstrated to have been met, as determined from confirmation soil sampling results (see Section 7.6.2). Excavation in lateral directions will also be halted if the removal of additional soil threatens to undermine any permanent structures or utilities that are not being replaced as part of the project.

Excavation areas will be controlled to avoid dust generation with physical barriers (such as perimeter fencing with windscreen), soil wetting, and air monitoring. Following removal of the impacted soil, the excavated areas will be secured with high-visibility fencing or caution tape, as necessary, to prevent unauthorized entry and render them safe until they can be backfilled or otherwise returned to level grade.

7.3.1 Shoring

Due to the relatively shallow excavation depths, the need for engineered shoring is not anticipated. All final decisions regarding the need for shoring or sidewall sloping will be made prior to excavation in consultation with the Geotechnical Engineer of record. In no instance will personnel be allowed to enter excavations 5 feet deep or greater unless the sidewalls have been shored or sloped.

7.3.2 Soil Staging and Storage Operations

It is anticipated that trucks will be loaded directly at the work area whenever possible and excavated soil will be transported immediately to the disposal facility. Alternatively, the excavated soil may be temporarily stockpiled in a staging area until off-site transportation can be arranged. A third option would involve using a front-end loader to transfer stockpiled soil to trucks, while equipment operations continue to deposit excavated soil into the staging area. If circumstances dictate, portable roll-off bins or 55-gallon DOT-approved drums could be used to temporarily contain the excavated soil prior to off-site disposal. In no case, will the stockpiled or contained soil be stored longer than 90 days after its generation.

Stockpiled soil will be placed on heavy-gauge plastic sheeting or an impermeable barrier base (e.g., asphalt or concrete pavement). During non-working hours or when otherwise not in use, the stockpile will be covered with plastic sheeting secured with sandbags to prevent the airborne or waterborne dispersion of impacted soil. If significant rainfall is anticipated, the staging areas will be bermed to contain any run-off. Stockpile volumes will be limited to the extent feasible based on Site conditions and safety, and stockpiles will be no higher than the surrounding Site fence. Daily inspection of the stockpiles will be conducted to verify the integrity of plastic covers. Any gaps, tears, or other deficiencies will be corrected immediately.

7.3.3 Waste Segregation Operations

The soil excavated from individual excavation areas will be managed as non-hazardous or non-RCRA hazardous waste, based on waste characterization sampling and analysis conducted during the PEA and TA. The approach used to characterize the soil as hazardous or non-hazardous waste is discussed in Section 7.6.1 and the waste characterizations assigned to individual excavation areas are summarized in Table 2. The Remediation

Contractor and Environmental Consultant will oversee truck loading operations to ensure that a properly completed waste manifest accompanies the truck and that it is directed to the appropriate disposal facility, based on its waste classification.

If impacted soil is temporarily stockpiled on-site, the plastic covering will be marked with large letters, applied with spray paint, to indicate the source of the soil and its waste classification. Labels that indicate the waste generator, waste type, accumulation start date, and contact information will be applied to the outside of any drums or roll-off bins used to temporarily store impacted soil. Strict segregation of soil based on waste type will be maintained to avoid any mixture of hazardous and non-hazardous soils. This segregation will minimize the amount of hazardous soils generated and their associated disposal cost.

7.3.4 Decontamination Procedures

Entry of personnel and equipment into the soil removal excavation areas (exclusion zones) will be limited to avoid unnecessary exposure and related transfer of contaminated soil. The surfaces of excavation equipment will be brushed off to remove loose soil prior to their removal from the exclusion zone. If necessary, equipment that comes into direct contact with impacted soil will be decontaminated in a pre-designated area on pallets or plastic sheeting. Clean bulky equipment will be stored on plastic sheeting in uncontaminated areas.

After soil is loaded into transport trucks, it will be covered to prevent loss of material during transport to the disposal facility. Trucks leaving the Site will stop at a decontamination station lined with plastic sheeting and/or rumble plates, where they will be inspected to ensure the loads are properly covered and secured. Any soil adhering to the tires or exterior surfaces will be brushed off and collected on plastic sheeting. Vehicle exit routes may be prepared with washed gravel beds or temporary asphalt pavement to minimize dirt track-out. Street sweeping of adjacent public streets will be conducted, as necessary, to reduce the potential for fugitive dust and migration of contamination.

Any sampling equipment that is reused will be decontaminated to assure the quality of samples collected and/or to avoid cross contamination. Disposable equipment intended for one time use will not be decontaminated, but will be packaged for appropriate disposal. Decontamination will occur prior to and after each designated use of reusable sampling equipment, using the following procedures:

- Non-phosphate detergent and tap water wash, using a brush if necessary
- Initial deionized/distilled water rinse
- Final deionized/distilled water rinse
- Allowed to air dry.

7.4 DUST CONTROL

Dust control measures will be performed during remedial activities to reduce the potential for fugitive dust and migration of contamination in compliance with requirements contained in SCAQMD Rule 403. Factors considered in providing dust control include wind speed and direction. The on-site Health and Safety Officer will have the authority to stop work in the event that on-site activities generate dust levels in excess of established action levels or if wind conditions change creating an uncontrollable condition.

During remediation activities, the Site perimeter will be secured with fencing fitted with windscreen to minimize the off-site migration of windborne dust. The generation of dust will be controlled with the use of water as a dust suppressant. The water will be available from an on-site water service, via a water truck, or through a metered discharge from a fire hydrant located on or proximate to the Site. Dust suppression will be performed by applying a light water spray to soil stockpiles, exposed excavation surfaces, excavator buckets, and internal roadways, as necessary, to maintain dust concentrations below action levels (see Section 7.5.3).

While on-site, all vehicles will maintain slow speeds (i.e., less than 5 miles per hour) for safety purposes and to control dust generation. Efforts will be made to minimize the soil drop height from excavator or loader buckets into the transport trucks. Soil stockpiles will remain covered until load-out, with only the working face uncovered during stockpiling activities. If wind speeds exceed an amount at which engineering controls are determined to be ineffective (e.g., sustained 25 mph windspeed for 15 minutes), excavation and loading will cease.

7.5 AIR AND METEOROLOGICAL MONITORING

Air monitoring will be conducted during Site remediation activities to assess the effectiveness of the various dust control measures (see Section 7.4). Air monitoring strategies and methodologies are designed to achieve several goals:

- Identify and measure the air contaminants generated during soil removal and decontamination activities in order to assign the appropriate PPE to Site workers and safety systems specified for those activities.

- Provide feedback to Site operations personnel regarding potential hazards from exposure to hazardous air contaminants generated through Site activities.

- Identify and measure air contaminants at points outside of the soil removal and decontamination exclusion zones. Air monitoring will be conducted during work activities to measure potential exposure of sensitive receptors to Site chemical constituents as a result of removal activities.

To assist in the air monitoring activities, weather conditions, including wind direction and speed, will be continuously monitored using a portable meteorological monitoring station.

7.5.1 Air Monitoring Responsibilities

In consultation with the LAUSD-OEHS, air monitoring will be performed during all Site activities in which soil is being disturbed or handled. The LAUSD's Environmental Consultant will staff the Site with a Health and Safety Officer (HSO), whose responsibilities will include:

- Monitoring dust levels in the exclusion zone and other locations. The HSO will have the authority to stop work in the event that on-site activities generate dust levels that exceed Site or community action levels (see Section 7.5.3).

- Monitoring on-site meteorological instrumentation to identify conditions that require cessation of work, such as excessive wind speeds.

- Coordinating general Site safety activities, including all daily hazard communication, safety practices and procedure briefings.

- Oversight of personal decontamination practices.

- General Site safety leadership, support and recordkeeping activities.

7.5.2 Meteorological Monitoring

On-site meteorological monitoring will be performed concurrently with the soil removal activities to ensure that all necessary precautions have been taken. Ambient weather conditions (e.g., wind speed, wind direction,

No specific regulatory wind velocity restrictions for soil excavation in the subject area were found to exist. However, a self-imposed action level for work stoppage will be set at a sustained wind velocity of 25 miles per hour (mph) for a duration of 15 minutes.

7.5.3 Dust Monitoring

The Site's COCs – arsenic and lead – are not volatile, but can adhere to soil particles and become airborne contaminants associated with dust generated during soil handling. During periods of active remediation, air monitoring for dust will be performed at the perimeter of the active work area (i.e. exclusion zone") to ensure that unsafe concentrations of dust are not migrating outside the active work area. Air monitoring will also be conducted within the active work zone to ensure the health and safety of remediation workers. An upwind/downwind sampling approach will be used, with monitoring positions established based on an ongoing assessment of wind speed and direction, as follows:

- One upwind location

- One location proximate to the exclusion zone (within the breathing zone of the equipment operator)

- Three downwind locations.

Dust monitoring will be conducted using continuous, real-time particulate dust monitors equipped with data loggers. The dust monitors will be positioned at selected Site locations that may vary depending on the location(s) of daily activities and shifting wind directions. The real-time and time weighted average (TWA) readings will be checked and recorded by on-site personnel approximately every 30 minutes, and the logged data will be downloaded at the end of the day. In addition, a portable hand-held dust monitor will be used to spot-check particulate levels at various Site locations if visible dust is observed.

The National Ambient Air Quality Standard (NAAQS) for dust is 50 micrograms per cubic meter ($\mu g/m^3$), based on dust particles measuring 10 micrometers or less (PM_{10}). The NAAQS dust standard (50 $\mu g/m^3$), steady for 5 minutes, has been selected as the action level for dust monitoring activities at the perimeter of the active work area (difference between upwind and downwind readings). This is also the action level as specified in SCAQMD Rule 403. LAUSD will fully comply with applicable Rule 403 requirements including concurrent upwind and downwind measurements.

The action level for dust for equipment operators and workers will be set at 1 milligram per cubic meter (mg/m^3) steady for 5 minutes. This action level will trigger increased dust suppression activities to mitigate dust levels below 1 mg/m^3. Respiratory protection will be worn by the equipment operators if dust levels exceed 1 mg/m^3 for greater than 5 minutes. Additional dust suppression activities will be applied to reduce dust levels below 1 mg/m^3. If dust emissions cannot be controlled reliably within 15 minutes, all work will cease and a certified Industrial Hygienist will be consulted.

7.6 SAMPLING AND ANALYSIS PLAN

7.6.1 Waste Profile Confirmation Sampling

Federal and State regulations that govern waste classification are found in Title 40, CFR, Part 261 and Title 22, CCR, Chapter 11, "Identification and Listing of Hazardous Waste," respectively. These regulations were used to characterize the impacted soils at the Site as either non-hazardous, non-RCRA hazardous (i.e., State hazardous) for purposes of disposal. Based on the analytical results, none of the soil would be characterized as RCRA hazardous waste under federal regulations.

The Total Threshold Limit Concentration (TTLC) and STLC for lead that define a waste as non-RCRA hazardous are 1,000 mg/kg and 5 mg/L, respectively. The TTLC and STLC concentrations for arsenic that define a waste as non-RCRA hazardous are 500 mg/kg and 5 mg/L, respectively.

It is anticipated that the results of the soil samples collected as part of the CMP will be outdated and unacceptable to the disposal facilities when the RAW is executed. This means that once the removal areas have been delineated, but before excavation activities begin, the Environmental Consultant shall collect and analyze soil samples to confirm the waste classification. These soil samples will be collected as near as possible and at the same depth as the original samples Each sample shall be analyzed to determine its TTLC (for comparison to the original sample), STLC, and if necessary (i.e. result greater than 5 mg/L), its TCLP concentration. This shall be repeated for the highest to the lowest sample concentration until the STLC concentration is below 5 mg/L. The results of these samples will be used to confirm the soil is either non-hazardous, California non-RCRA hazardous, or RCRA hazardous, and the soil will be handled accordingly.

At a minimum, waste profile confirmation soil samples will be collected and analyzed as follows:

- Arsenic - Locations B2-N5-0.5', and B3-E5-0.5'

- Lead – Locations B3-0.5', B14-1.5', B67-E13-0.5', and B94-0.5'

Figures 8, 10, 11 and 12 of Appendix A illustrate the above boring locations.

The off-site laboratory is to create a composite of all the samples above determined to be non-hazardous and additionally run the composite sample for the following:

- Title 22 Metals
- OCPs
- TPH with carbon chain speciation
- VOCs

7.6.2 Post-Removal Confirmation Sampling

7.6.2.1 CONFIRMATION SOIL SAMPLING

For locations with elevated COC concentrations found during PEA/TA activities, the excavation will extend to the depth of the first non-elevated sample and laterally to the next non-elevated initial sample. This will be done in consultation with LAUSD at the time of RAW implementation. Once these planned excavation limits have been reached, confirmation soil samples will be collected from the exposed excavation sidewalls and bottoms to determine if the SSCGs have been met and RAOs have been achieved. Confirmation soil sampling and analysis will be conducted in accordance with the site-specific QAPP that is included in Appendix C.

The number of confirmation soil samples collected from each excavation will vary, depending on the dimensions of the excavation and proximity to clean sample locations. Soil removal area confirmation sample totals are presented in Table 5. In general, soil sampling is anticipated to be conducted at a frequency of one sample collected at the midpoint per eight linear feet of excavation sidewall and one sample at the center per 100 square feet of excavation bottom. Excavation areas bordering utilities to be protected in place will cease one foot from all utility lines. For excavation areas bordering utilities to be removed, excavations will be taken to the utility or encasement limit. In either case, sidewall samples will not be collected. Once foundationless (portable) buildings are removed, the line of the former exterior wall be used as the excavation boundary and sidewall samples will be collected. The locations of the initial excavation areas are illustrated in Figure 3 and the number, types, and locations of the individual initial soil samples are shown in the Confirmation Soil Sample Location Figures.

Confirmation soil samples will be collected directly into laboratory-supplied, pre-cleaned 4-ounce glass jars or new metal sleeves, using a decontaminated hand trowel or disposable utensil to facilitate collection. The soil samples will be labeled as to identification and date/time of collection, and stored on ice in a chilled cooler at 4 degrees Celsius (^{o}C). A chain-of-custody form will be used to log the samples and ensure their secure delivery to the off-site laboratory.

Samples from each excavation will be analyzed only for the COCs associated with the excavation. Depending on the excavation, confirmation soil samples will be analyzed variably using the following test methods:

- Arsenic – USEPA Method 6020
- Lead – USEPA Method 6010B

The excavations will be considered completed if the confirmation sample results do not exceed the SSCGs. If concentrations of COCs in confirmation soil samples exceed the cleanup goal for that specific contaminant, an additional increment of soil (typically 6 inches) will be removed horizontally or vertically from the location represented by the confirmation soil sample. Additional confirmation soil samples will then be collected and analyzed and the process repeated, if necessary, until the cleanup goals have been met. This methodology will ensure that the least amount of soil possible is excavated in order to minimize disposal costs. Horizontally, the excavation will be considered completed if the SSCGs are achieved or the excavation reaches the Site boundary.

As explained in Section 4.1.2, the 95% upper confidence limit (UCL) concentration of lead in the post-remediation data set (confirmation samples and PEA/TA samples that remain in place) will be calculated to evaluate the concentration of lead remaining in place at the Site.

7.6.3 Import Soil Sampling

The clean soil generated during new building footing construction will be used to backfill the soil removal areas and for other school construction grading purposes. At this time, the need to import soil from off-site locations or sources is not anticipated. If it is later determined that imported soil is required for construction purposes, any such soil imported to the Site will be tested and certified in accordance with LAUSD Specification Section 01 4524 *Environmental Import/Export Materials Testing* (LAUSD, 2011), which includes provisions for LAUSD-OEHS review and approval prior to soil import.

7.7 TRANSPORTATION PLAN FOR OFF-SITE DISPOSAL

The preferred remedial alternative involves the excavation, load-out, transport, and off-site disposal of an estimated 286 "loose" cubic yards of impacted soil. Details regarding soil management and off-site disposal are provided below.

Based on the estimated soil volumes presented in Table 2, it is anticipated that approximately 24 truckloads of impacted soil (at 12 cubic yards per load) will be transported off-site for lawful disposal. If additional soil needs to be excavated based on confirmation sampling results, the number of truckloads will increase. The excavated soil will be segregated and managed as non-hazardous and non-RCRA hazardous waste, as explained in Section 7.6.1. Waste classifications for the various soil removal areas are summarized in Table 2. Non-hazardous soils will be transported to an approved Class 3 landfill for disposal or use as daily cover. Non-RCRA hazardous soil will be transported to a licensed and properly permitted Class 1 disposal facility or an out-of-state facility permitted to accept non-RCRA waste. Examples of facilities and the transportation routes that may be used for off-site disposal of the impacted soil are provided in the Transportation Plan (Appendix D). The final determination as to which facilities are used will be made by the Remediation Contractor that is awarded the contract and will be subject to approval by LAUSD-OEHS prior to beginning soil removal activities.

Prior to soil load-out, the Remediation Contractor will prepare waste profiles using analytical data from the PEA/TA investigations and receive approvals from the LAUSD's Environmental Compliance Manager and the receiving facilities. As the soil is removed, hazardous and non-hazardous waste manifests will be prepared appropriate for the waste designation, which will contain a unique identifier, the address of the receiving facility, the Site address, LAUSD contact information, and waste classification. The manifests will be signed and dated by the Environmental Consultant on behalf of the LAUSD and a copy will be provided to the truck driver before departing the Site.

Trucks will be loaded directly from the excavation or from temporary stockpiles, based on project logistics. Trucks will be internally routed and the stockpile areas will be located so as to avoid having trucks pass through areas of impacted soil. The truck loads will be wetted and tarped prior to exiting the Site. All soil hauled from the Site will comply with the following:

- Materials will be transported only to approved treatment/disposal facilities under properly completed, signed, and approved manifests. Trucks will follow designated commercial transportation routes and will proceed immediately to the designated facility without side stops or delay.
- No excavated material will extend above the sides or rear of the truck/trailer.
- Truck beds will be completely tarped/covered to prevent particulate emissions to the atmosphere. Prior to covering, the surface of the loaded impacted soil will be moistened, as needed.
- The exterior of the trucks/trailers will be cleaned off prior to leaving the Site to eliminate tracking of material off-site.

Additional information pertaining to management of the excavated soils, including hauling considerations, candidate disposal facilities, and transportation routes, is included in the Transportation Plan provided in Appendix D.

7.8 EXCAVATION BACKFILL

Prior to any removal excavation being backfilled, the Environmental Consultant shall request from the LAUSD Project Manager written (email is acceptable) approval to do so. Such clearance shall be based on achieving the RAOs for that excavation.

For health and safety purposes, and without undue delay upon completion of the soil removal, it is anticipated that the excavated areas will be backfilled and compacted to return them to a grade consistent with school construction plans. As explained in Section 7.6.3, soil from other portions of the Site will be considered clean and can be used as backfill without additional testing.

Backfilling of remedial excavations will be completed to the standards requested by the Geotechnical Engineer of record, as recommended in the project geotechnical investigation reports. Typically, backfilling proceeds in approximately 8- to 12-inch lifts, with compaction between each successive lift. In-situ density tests will be conducted under the direction of the Geotechnical Engineer to achieve the project standards (typically, a minimum relative compaction of 90%). Dust control measures and air monitoring will be conducted during all excavation backfill activities, as discussed in Sections 7.4 and 7.5, respectively.

7.9 PROGRAM VARIANCES

As conditions in the field can vary, it might become necessary to implement minor modifications to the recommended procedures presented in this RAW. Field personnel will notify the LAUSD-OEHS Project Manager when deviations from the RAW are necessary and a verbal or written concurrence will be obtained before implementing the modification, as appropriate. Modifications to the approved RAW will be documented in the field logbook and in the RACR prepared at the conclusion of remedial activities (see Section 8.3).

8. Project Organization, Schedule, and Reporting

Parties responsible for the implementation of this RAW are identified in the following sections. A tentative implementation schedule and reporting requirements are also discussed.

8.1 PROJECT ORGANIZATION

In selecting the remediation contractor and environmental consultant for this project, the LAUSD will ensure that they have the proper OSHA training and qualifications, experience, licenses, bonding and insurance necessary to conduct the field work. LAUSD will oversee the implementation of the RAW. Contact information for the current Project Managers for these organizations is as follows:

LAUSD-OEHS Project Manager

Dane Robinson, PG
Site Assessment Project Manager
333 South Beaudry Avenue, 21st Floor
Los Angeles, California 90017
Telephone: (213) 241-4122

LAUSD-Facilities Services Division Project Manager

Scott Singletary
333 South Beaudry Avenue, 28th Floor
Los Angeles, California 90017
Telephone: (213) 241-4179

LAUSD-Facilities Development Manager

Scott Singletary
333 South Beaudry Avenue, 23rd Floor
Los Angeles, California 90017
Telephone: (213) 241-4179

Environmental Consultant Project Manager

PlaceWorks
Eric Longenecker, PE
Senior Engineer
700 S Flower Street, Suite 600
Los Angeles, California 900017
Telephone: (213) 623-1443 ext. 2101

Remediation Contractor Project Manager

TBD

8.2 PROJECT SCHEDULE

Remediation field activities will begin in accordance with a construction schedule established for the redevelopment project by the LAUSD. At the present time, the LAUSD expects to initiate field activities for the RAW the fourth quarter of 2018. The following table provides the anticipated schedule of implementation and subsequent reporting once field activities are initiated:

Task	Working Days to Complete	Cumulative Days	Notes
1. Field Preparation	5	5	Contractor coordination, waste profile/disposal site approvals, mobilization, and set-up
2. Confirm Soil Profile	5	10	Collect and analyze soil profile confirmation samples
3. Soil Removal and Confirmation Soil Sampling	15	25	Assumes minimal weather delays and minimal requirements for over-excavation
3. LAUSD Approval of Final Soil Removal Area for Backfill	0 (milestone)	25	It is expected that the LAUSD will review the confirmation sample results for individual removal areas and approve them for backfill as they are completed. This milestone reflects LAUSD approval to backfill the final removal area.
4. Data Compilation and Preparation of Draft RACR	10	35	Preparation of draft RACR to begin during field activities
5.LAUSD Review/Comment on Draft RACR	10	45	
6. RACR Revision and Finalization	5	50	
7. LAUSD prepares Site certification	5	65	

As summarized in the table above, it is anticipated that field work for the soil removal action can be completed within approximately five weeks of the initiation of remedial activities. Assuming the removal action certification does not need to be expedited to meet the construction schedule, six additional weeks will be required to prepare the RACR and obtain final LAUSD approval. The entire removal action then, including final LAUSD site certification, is expected to require approximately two and a half months to complete.

8.3 REMOVAL ACTION COMPLETION REPORT

After the remedial actions described in this RAW are completed, a draft RACR will be prepared and submitted to the LAUSD for review and approval. The RACR will be prepared as expeditiously as possible upon completion of field activities and receipt of final analytical data. At the minimum, it will include the following information:

- Site description and background

- Description of soil removal and confirmation sampling activities
- Tabulated analytical results for confirmation soil samples, supported by copies of laboratory reports
- Quality assurance review and a data validation memorandum
- Figures of soil removal excavations showing selected analytical results
- Volumes of soil removed and treatment/disposal methods, including copies of manifests
- Discussion of variances to the RAW, if any
- 95% UCL calculations for arsenic and lead using datasets that include confirmation soil sampling results
- Findings, conclusions, and recommendations
- Appendices and other supporting documentation.

Once the LAUSD approves the RACR, OEHS will certify the completion of environmental investigation and response activities at the Site.

9. References

AECOM. 2014. *Phase I Environmental Site Assessment Report,* Venice High School, 13000 Venice Boulevard, Los Angeles, CA 90066. Prepared for Los Angeles Unified School District, Office of Environmental Health and Safety. April 4 [draft].

California Air Resources Board (CARB). 2003. Meteorological Wind Roses, Data for the ISCST3 Air Quality Model. Powerpoint Presentation by T. Servin, Planning & Technical Support Division. July 8.

California Environmental Protection Agency (CalEPA). 2009. *Revised California Human Health Screening Levels for Lead.* Integrated Risk Management Branch, Office of Environmental Health Hazard Assessment. September.

Department of Toxic Substances Control (DTSC), State of California. 2006. *Interim Guidance, Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers*. June 9 [revised].

DTSC. 2008a. *Determination of a Southern California Regional Background Arsenic Concentration in Soil*. G. Chernof, B. Bosan, and D. Oudiz. March.

DTSC. 2008b. *Proven Technologies and Remedies Guidance, Remediation of Metals in Soil*. August 29.

DTSC. 2009. *Arsenic Strategies, Determination of Arsenic Remediation, Development of Arsenic Cleanup Goals*. January 16.

DTSC. 2013a. *Human Health Risk Assessment* (HHRA) Note Number 3. Office of Human and Ecological Risk. May 21.

DTSC. 2013b. *Preliminary Endangerment Assessment Guidance Manual*. October [interim final-revised].

DTSC/Los Angeles and San Francisco Regional Water Quality Control Boards (DTSC/RWQCB). 2015. *Advisory – Active Soil Gas Investigations*. July.

California Department of Water Resources (CDWR). 1961. *Planned Utilization of the Groundwater Basins of the Coastal Plain of Los Angeles County*. Bulletin No. 104. June.

Los Angeles Unified School District. 2011. Specification Section 01 4524 Environmental Import/Export Material Testing. October 1

Los Angeles Unified School District (LAUSD). 2016. *Scope of Services, Preliminary Environmental Assessment Equivalent*, Venice High School Comprehensive Modernization. Office of Environmental Health and Safety. August 29.

References

Ninyo & Moore. 2015. *Preliminary Environmental Assessment Equivalent Work Plan*, Venice High School, 13000 West Venice Boulevard, Los Angeles, California 90066. October 5.

Ninyo & Moore. 2016. *Preliminary Environmental Assessment Equivalent Report, Seismic Modernization Project*, Venice High School, 13000 West Venice Boulevard, Los Angeles, California 90066. Prepared for LAUSD Office of Environmental Health and Safety. Project No. 208571011. July 5.

PlaceWorks. 2016. *Preliminary Environmental Assessment Equivalent Report*, Comprehensive Modernization Project, Venice High School. December 7.

PlaceWorks. 2017. *Technical Addendum, Completion of Site Assessment*, Comprehensive Modernization Project, Venice High School. January 17.

Source Group, Inc. (SGI). 2009. Letter Report to the Los Angeles Regional Water Quality Control Board re: *Request for Site Closure*, World Oil Marketing Company, Former Service Station #58, 2005 Lincoln Boulevard, Venice, California, LARWQB File #9021025A. April 13.

Yerkes, R. F. 1997. *Preliminary Geologic Map of the Los Angeles 7.5-Minute Quadrangle*, Southern California: A Digital Map. Open File Report 97-432.

Tables

TABLE 1
NON-PAVED AREA BORING LOCATIONS
LAUSD Venice High School CMP

Boring ID	Distance Relative to Landmark
TRACK AND FIELD	
B-90	20' south of fence
	50' east of fence
	In larger of two grassy spots
B-94	10' south of fence
	15' west of fence
	In grassy area
BASEBALL FIELD	
B-105	15' south of fence
	103' west of boring B-106 (to avoid utilities)
	75' north of boring B-108
	49' east of center of home plate
SOFTBALL FIELD	
B-120	21' west of baseball backstop
	4' south of baseball backstop
B-123	93' north of perimeter fence
	24' east of perimeter fence

Table 2
ESTIMATED SOIL REMOVAL VOLUMES
LAUSD Venice HS CMP

Count				Removal Area	COC	Areal Dimensions		Area	Depth	Volume	Waste Type
Tot	As	Pb	A&P			(ft)	(ft)	(sq ft)	(ft)	(cu yd)	
1	1			B-2	Arsenic	18.0	3.5	63.0	1.5	3.5	Non-hazardous
1				B-3	Arsenic Only	14.0	14.0	196.0	1.5	10.9	Non-hazardous
						-8.0	7.0	-56.0	1.5	-3.1	Non-hazardous
			1		Lead + Arsenic	8.0	7.0	56.0	1.5	3.1	Non-hazardous
1		1		B-14	Lead	11.0	5.0	55.0	2.5	5.1	Non-hazardous
1	1			B-16	Arsenic	3.5	3.5	12.3	1.5	0.7	Non-hazardous
						6.5	3.0	19.5	1.5	1.1	Non-hazardous
						3.5	1.5	5.3	1.5	0.3	Non-hazardous
1	1			B-36	Arsenic	15.0	8.0	120.0	1.5	6.7	Non-hazardous
						15.0	8.0	120.0	1.5	6.7	Non-hazardous
						10.0	8.0	80.0	2.5	7.4	Non-hazardous
1	1			B-48	Arsenic	20.0	7.5	150.0	1.5	8.3	Non-hazardous
1	1			B-66	Arsenic	20.0	10.0	200.0	1.5	11.1	Non-hazardous
1		1		B-67	Lead	28.0	3.0	84.0	1.5	4.7	Non-hazardous
1	1			B-72	Arsenic	7.5	3.0	22.5	2.5	2.1	Non-hazardous
1	1			B-79	Arsenic	14.0	6.0	84.0	1.5	4.7	Non-hazardous
1	1			B-88	Arsenic	10.0	4.5	45.0	1.5	2.5	Non-hazardous
1	1			B-90	Arsenic	20.0	20.0	400.0	1.5	22.2	Non-hazardous
1		1		B-94	Lead	17.0	10.0	170.0	1.5	9.4	Non-RCRA Hazardous
1	1			B-105	Arsenic	8.0	10.0	80.0	1.5	4.4	Non-hazardous
1	1			B-114	Arsenic	25.0	22.5	562.5	1.5	31.3	Non-hazardous
1		1		B-120	Lead	20.0	8.0	160.0	1.5	8.9	Non-hazardous
1		1		B-123	Lead	10.0	8.5	85.0	1.5	4.7	Non-hazardous
1	1			WB-1	Arsenic	21.5	9.0	193.5	1.5	10.8	Non-hazardous
1	1			WB-4	Arsenic	19.0	17.0	323.0	1.5	17.9	Non-hazardous
19	13	5	1	Totals		Total In-place Initial Soil Removal Volume				185.3	
						Total In-place Initial Non-hazardous				175.9	
						Total In-place Initial Non-RCRA Hazardous				9.4	
					Estimated In-place Post-confirmation Soil Removal Volume					203.8	
					Estimated In-place Post-Conformation Non-hazardous					193.4	
					Estimated In-Place Post-Confirmation Non-RCRA Hazardous					10.4	

Table 3
ESTIMATED COSTS FOR REMEDIAL ALTERNATIVES
LAUSD Venice HS CMP

Activity	Number	Units	Unit Cost	Alternative 1 No Action	Alternative 2 Excavation and Off-Site Disposal	Alternative 3 Excavation and On-Site Reburial
Remediation Contractor						
Common to Alternatives 2 and 3						
Mobilization/Demobilization and Temporary Facilities	10	EA	$4,500	$0	$45,000	$45,000
Asphalt Removal and Disposal	5	EA	$1,750	$0	$8,750	$8,750
Excavation (204 cy X 1.6 = cy/ton)	326	ton	$23	$0	$7,510	$7,510
Stockpile soil (within 100' of excavation)	326	ton	$4	$0	$1,310	$1,310
Load Non-RCRA Hazardous Soil (10 cy x 1.6 ton/cy)	16	ton	$14	$0	$220	$220
T & D of Non-RCRA Hazardous Soil (10 cy x 1.6 tons/cy)	16	ton	$105	$0	$1,680	$1,680
Subtotals				$0	$64,470	$64,470
Specific to Alternative 2 only						
Load-Out Non-Hazardous Soil (333 tons -16 tons)	310	ton	$7	$0	$2,170	$0
T & D of Non-Hazardous Soil	310	ton	$55	$0	$17,070	$0
Subtotals				$0	$19,240	$0
Specific to Alternative 3 only						
Excavate Burial Cell (includes 300 cy extra for cap)	508	cy	$14	$0	$0	$7,110
Relocate and Compact Impacted Soil in Burial Cell	208	cy	$20	$0	$0	$4,160
Relocate and Compact Clean Soil in Burial Cell	300	cy	$8	$0	$0	$2,400
Subtotals				$0	$0	$13,670
Remediation Contractor Totals				$0	$83,710	$78,140
Post-Remediation O&M (30 years)						
Annual Inspection and reporting	30	year	$2,500	$0	$0	$75,000
Present Worth of O&M Costs (7%, 30 years)[1]	--	--	--	$0	$0	$31,020
Environmental Consultant						
Design and Engineering for On-Site Burial Cell	1	EA	$10,000	$0	$0	$10,000
Pre-Field Plannning and Preparation	1	EA	$1,500	$0	$1,500	$1,500
Field Oversight and Confirmation Sampling	20	day	$1,500	$0	$30,000	$30,000
Field XRF Sample Screening	20	day	$1,550	$0	$31,000	$31,000
Confirmation Sample Lab Analysis	150	sample	$15	$0	$2,250	$2,250
Project Management and Coordination	1	unit	$5,000	$0	$5,000	$5,000
Preparation of Removal Action Completion Report	1	unit	$20,000	$0	$20,000	$20,000
Subtotals				$0	$89,750	$99,750
Total Costs				$0	$173,460	$208,910
Contingency Cost Range (30% below estimate)				$0	$121,420	$146,240
(50% above estimate)				$0	$260,190	$313,370

[1] O&M cost that reflects a net present value of annual inspections, reporting, and cap maintenance using a net discount rate of 7% for 30 years (USEPA "A Guide to

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS
LAUSD Venice High School CMP

Location	Sample ID	Sample Date	Sample Depth	Lead	Arsenic
		Units	**ft bgs**	mg/kg	mg/kg
		USEPA Test Method	--	6010B	6010B
		Screening Level	--	80	12
COMPREHENSIVE MODERNIZATION PROJECT PEA					
B-2	B2-0.5'	10/8/16	0.5	3.59J	55.2
	B2-1.5'	10/8/16	1.5	--	11.2
B2-N5	B2-N5-0.5'	11/6/16	0.5	--	181
	B2-N5-1.5'	11/6/16	1.5	--	8.36
B2-N10	B2-N10-0.5'	11/6/16	0.5	--	92.7
	B2-N10-1.5'	11/6/16	1.5	--	6.71
B2-N15	B2-N15-0.5'	12/3/16	0.5	--	10.5
B-3	B3-0.5'	10/8/16	0.5	127	299
	B3-1.5'	10/8/16	1.5	4.24J	7.68
B3-W3	B3-W3-0.5'	11/6/16	0.5	6.99	8.25
B3-E5	B3-E5-0.5'	11/6/16	0.5	7.57	342
	B3-E5-1.5'	11/6/16	1.5	--	7.02
B3-E10	B3-E10-0.5'	11/6/16	0.5	--	191
	B3-E10-1.5'	11/6/16	1.5	--	8.37
B3-S5	B3-S5-0.5'	11/6/16	0.5	32.2	16.4
	B3-S5-1.5'	11/6/16	1.5	--	7.38
B3-S10	B3-S10-0.5'	11/6/16	0.5	--	25.3
	B3-S10-1.5'	11/6/16	1.5	--	8.54
B-14	B14-0.5'	10/2/16	0.5	82.7	4.30J
	B14-1.5'	10/2/16	1.5	130	--
	B14-2.5'	10/2/16	2.5	4.02J	--
B14-N5	B14-N5-0.5'	11/5/16	0.5	20.1	--
B14-S5	B14-S5-0.5'	11/5/16	0.5	7.95	--
B-16	B16-0.5'	10/2/16	0.5	6.90	23.0
	B16-1.5'	10/2/16	1.5	--	5.32
B16-S5	B16-S5-0.5	11/5/16	0.5	--	5.28
B16-SE5	B16-SE5-0.5	11/5/16	0.5	--	4.81J
B16-SW5	B16-SW5-0.5	11/5/16	0.5	--	4.66J

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS
LAUSD Venice High School CMP

Location	Sample ID	Sample Date	Sample Depth	Lead	Arsenic
		Units	ft bgs	mg/kg	mg/kg
		USEPA Test Method	--	6010B	6010B
		Screening Level	--	80	12
B-36	B36-0.5'	10/8/16	0.5	3.88J	15.7
	B36-1.5'	10/8/16	1.5	--	6.29
B36-E5	B36-E5-0.5'	11/5/16	0.5	--	45.4
	B36-E5-1.5'	11/5/16	1.5	--	7.65
B36-E10	B36-E10-0.5'	11/5/16	0.5	--	42.1
	B36-E10-1.5'	11/5/16	1.5	--	5.87
B36-E15	B36-E15-0.5'	12/3/16	0.5	--	6.60
B36-S5	B36-S5-0.5'	11/5/16	0.5	--	45.2
	B36-S5-1.5'	11/5/16	1.5	--	8.60
B36-W5	B36-W5-0.5'	11/5/16	0.5	--	24.6
	B36-W5-1.5'	11/5/16	1.5	--	39.0
	B36-W5-2.5'	11/5/16	2.5	--	5.84
B36-W10	B36-W10-0.5'	11/5/16	0.5	--	54.1
	B36-W10-1.5'	11/5/16	1.5	--	7.29
B36-W15	B36-W15-0.5'	12/3/16	0.5	--	24.7
	B36-W15-1.5'	12/3/16	1.5	--	<2.5
B36-W20	B36-W20-0.5'	12/3/16	0.5	--	26.4
	B36-W20-1.5'	12/3/16	1.5	--	<2.5
B36-W25	B36-W25-0.5'	12/27/16	0.5	--	<2.5
B-48	B48-0.5'	10/1/16	0.5	12.4	52.8
	B48-1.5'	10/1/16	1.5	--	5.79
B48-E4	B48-E4-0.5'	11/5/16	0.5	--	23.6
	B48-E4-1.5'	11/5/16	1.5	--	7.38
B48-N5	B48-N5-0.5'	11/5/16	0.5	--	8.15
B48-S5	B48-S5-0.5'	11/5/16	0.5	--	15.5
	B48-S5-1.5'	11/5/16	1.5	--	5.96
B48-S10	B48-S10-0.5'	11/5/16	0.5	--	21.2
	B48-S10-1.5'	11/5/16	1.5	--	8.09
B48-S15	B48-S15-0.5'	12/3/16	0.5	--	10.4

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS
LAUSD Venice High School CMP

Location	Sample ID	Sample Date	Sample Depth	Lead	Arsenic
		Units	ft bgs	mg/kg	mg/kg
		USEPA Test Method	--	6010B	6010B
		Screening Level	--	80	12
B-66	B66-0.5'	10/2/16	0.5	32.6	14.8
	B66-1.5'	10/2/16	1.5	--	7.60
B66-E5	B66-E5-0.5'	11/5/16	0.5	--	8.17
B66-S5	B66-S5-0.5'	11/5/16	0.5	--	46.3
	B66-S5-1.5'	11/5/16	1.5	--	10.8
B66-W5	B66-W5-0.5'	11/5/16	0.5	--	19.8
	B66-W5-1.5'	11/5/16	1.5	--	7.76
B66-W10	B66-W10-0.5'	11/5/16	0.5	--	20.6
	B66-W10-1.5'	11/5/16	1.5	--	6.01
B66-W15	B66-W15-0.5'	12/3/16	0.5	--	6.68
B-67	B67-0.5'	10/2/16	0.5	81.5	8.63
	B67-1.5'	10/2/16	1.5	9.30	--
B67-W5	B67-W5-0.5'	11/5/16	0.5	52.6	--
B67-E13	B67-E13-0.5'	11/5/16	0.5	81.1	--
	B67-E13-1.5'	11/5/16	1.5	26.8	--
B67-E25	B67-E25-0.5'	12/3/16	0.5	26.4	--
B-72	B72-0.5'	10/1/16	0.5	25.5	13.8
	B72-1.5'	10/1/16	1.5	--	7.49
B72-N4	B72-N4-0.5'	11/5/16	0.5	--	112
	B72-N4-1.5'	11/5/16	1.5	--	18.6
	B72-N4-2.5'	11/5/16	2.5	--	6.49
B-79	B79-0.5'	10/1/16	0.5	3.74J	53.3
	B79-1.5'	10/1/16	1.5	--	6.80
B79-N5	B79-N5-0.5'	11/5/16	0.5	--	26.9
	B79-N5-1.5'	11/5/16	1.5	--	6.20
B79-S5	B79-S5-0.5'	11/5/16	0.5	--	34.3
	B79-S5-1.5'	11/5/16	1.5	--	7.11
B79-W3	B79-W3-0.5'	11/5/16	0.5	--	51.8
	B79-W3-1.5'	11/5/16	1.5	--	6.87
B-88	B88-0.5'	10/1/16	0.5	79.5	63.4
	B88-1.5'	10/1/16	1.5	--	4.49J
B88-E5	B88-E5-0.5'	11/5/16	0.5	--	6.39
B88-W5	B88-W5-0.5	11/5/16	0.5	--	9.05

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS
LAUSD Venice High School CMP

Location	Sample ID	Sample Date	Sample Depth	Lead	Arsenic
		Units	**ft bgs**	mg/kg	mg/kg
		USEPA Test Method	--	6010B	6010B
		Screening Level	--	80	12
B-90	B90-0.5'	10/8/16	0.5	4.71J	49.3
	B90-1.5'	10/8/16	1.5	--	4.05J
B90-E5	B90-E5-0.5'	11/6/16	0.5	--	242
	B90-E5-1.5'	11/6/16	1.5	--	3.63J
B90-E10	B90-E10-0.5'	11/6/16	0.5	--	13.2
	B90-E10-1.5'	11/6/16	1.5	--	<2.5
B90-E15	B90-E15-0.5'	12/3/16	0.5	--	85.2
	B90-E15-1.5'	12/3/16	1.5	--	<2.5
B90-N5	B90-N5-0.5'	11/6/16	0.5	--	104
	B90-N5-1.5'	11/6/16	1.5	--	3.72J
B90-N10	B90-N10-0.5'	11/6/16	0.5	--	5.15
B90-S5	B90-S5-0.5'	11/6/16	0.5	--	16.3
	B90-S5-1.5'	11/6/16	1.5	--	2.85J
B90-S10	B90-S10-0.5'	11/6/16	0.5	--	<2.5
B90-W5	B90-W5-0.5'	11/6/16	0.5	--	10.4
B-94	B94-0.5'	10/8/16	0.5	336	8.34
	B94-1.5'	10/8/16	1.5	3.48J	--
B94-E5	B94-E5-0.5'	11/6/16	0.5	61.6	--
B94-N5	B94-N5-0.5'	11/6/16	0.5	146	--
	B94-N5-1.5'	11/6/16	1.5	5.63	--
B94-N9	B94-N9-0.5'	11/6/16	0.5	103	--
	B94-N9-1.5'	11/6/16	1.5	11.7	--
B94-N12	B94-N12-0.5'	12/3/16	0.5	12.5	--
B94-S5	B94-S5-0.5'	11/6/16	0.5	6.21	--
B94-W2.5	B94-W2.5-0.5'	11/6/16	0.5	4.27J	--
B-105	B105-0.5'	10/9/16	0.5	6.00	14.2
	B105-1.5'	10/9/16	1.5	--	8.88
B105-E3	B105-E3-0.5'	11/6/16	0.5	--	5.01
B105-N5	B105-N5-0.5'	11/6/16	0.5	--	4.29J
B105-S5	B105-S5-0.5'	11/6/16	0.5	--	2.90J
B105-W5	B105-W5-0.5'	11/6/16	0.5	--	4.01J

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS
LAUSD Venice High School CMP

Location	Sample ID	Sample Date	Sample Depth	Lead	Arsenic
		Units	**ft bgs**	mg/kg	mg/kg
		USEPA Test Method	--	6010B	6010B
		Screening Level	--	80	12
B-114	B114-0.5'	10/9/16	0.5	40.2	29.4
	B114-1.5'	10/9/16	1.5	--	8.00
B114-E5	B114-E5-0.5'	11/6/16	0.5	--	24.8
	B114-E5-1.5'	11/6/16	1.5	--	6.10
B114-E10	B114-E10-0.5'	11/6/16	0.5	--	24.7
	B114-E10-1.5'	11/6/16	1.5	--	5.46
B114-E15	B114-E15-0.5'	12/3/15	0.5	--	23.2
	B114-E15-1.5'	12/3/15	1.5	--	7.61
B114-E20	B114-E20-0.5'	12/3/16	0.5	--	11.4
B114-N5	B114-N5-0.5'	11/6/16	0.5	--	19.5
	B114-N5-1.5'	11/6/16	1.5	--	8.79
B114-N10	B114-N10-0.5'	11/6/16	0.5	--	11.7
B114-S5	B114-S5-0.5'	11/6/16	0.5	--	13.0
	B114-S5-1.5'	11/6/16	0.5	--	7.97
B114-S10	B114-S10-0.5'	11/6/16	0.5	--	27.1
	B114-S10-1.5'	11/6/16	1.5	--	7.57
B114-S15	B114-S15-0.5'	12/3/16	0.5	--	6.15
B-120	B120-0.5'	10/1/16	0.5	87.7	7.51
	B120-1.5'	10/1/16	1.5	14.6	--
B120-E5	B120-E5-0.5'	11/6/16	0.5	56.3	--
B120-N3	B120-N3-0.5'	11/6/16	0.5	16.2	--
B120-S5	B120-S5-0.5'	11/6/16	0.5	36.7	--
B120-W5	B120-W5-0.5'	11/6/16	0.5	83.2	--
	B120-W5-1.5'	11/6/16	1.5	16.8	--
B120-W10	B120-W10-0.5'	11/6/16	0.5	83.7	--
	B120-W10-1.5'	11/6/16	1.5	24.4	--
B120-W15	B120-W15-0.5'	12/3/16	0.5	22.6	--
B-123	B123-0.5'	10/1/16	0.5	44.5	7.90
	DUP-12	10/1/16	0.5	102	6.43
	B123-1.5'	10/1/16	1.5	4.43J	--
B123-N5	B123-N5-0.5'	11/6/16	0.5	64.7	--
B123-S5	B123-S5-0.5'	11/6/16	0.5	38.5	--
B123-W5	B123-W5-0.5'	11/6/16	0.5	33.1	--

TABLE 4
SUMMARY OF SOIL ANALYTICAL RESULTS
LAUSD Venice High School CMP

Location	Sample ID	Sample Date	Sample Depth	Lead	Arsenic
		Units	ft bgs	mg/kg	mg/kg
		USEPA Test Method	--	6010B	6010B
		Screening Level	--	80	12
SEISMIC MODERNIZATION PROJECT PEA					
W-B1	W-B1-0.5	1/7/16	0.5	14.2	24
	W-B1-1.5	1/7/16	1.5	21	7.0
	W-B1-2.5	1/7/16	2.5	12	--
W-B1-5W	W-B1-5W-0.5	3/22/16	0.5	--	91
	W-B1-5W-1.5	3/22/16	1.5	--	5.8
W-B1-8W	W-B1-8W-0.5	3/22/16	0.5	--	55
	W-B1-8W-1.5	3/22/16	1.5	--	7.0
W-B1-5E	W-B1-5E-0.5	3/22/16	0.5	--	100
	W-B1-5E-1.5	3/22/16	1.5	--	6.4
W-B1-10E	W-B1-10E-0.5	3/22/16	0.5	--	23
	W-B1-10E-1.5	3/22/16	1.5	--	6.2
W-B1-5N	W-B1-5N-0.5	3/22/16	0.5	--	23
	W-B1-5N-1.5	3/22/16	1.5	--	5.9
W-B4	W-B4-0.5	1/7/16	0.5	15	12
	W-B4-1.5	1/7/16	1.5	9	9.8
	W-B4-2.5	1/7/16	2.5	4	--
W-B4-5W	W-B4-5W-0.5	3/21/16	0.5	--	8.2
W-B4-10W	W-B4-10W-0.5	3/21/16	0.5	--	16
	W-B4-10W-1.5	3/21/16	1.5	--	9.6
W-B4-5S	W-B4-5S-0.5	3/21/16	0.5	--	13
	W-B4-5S-1.5	3/21/16	1.5	--	6.8
W-B4-10S	W-B4-10S-0.5	3/21/16	0.5	--	17
	W-B4-10S-1.5	3/21/16	1.5	--	12
W-B4-15S	W-B4-15S-0.5'	11/5/16	0.5		8.57
W-B4-5E	W-B4-5E-0.5	3/21/16	0.5	--	8.4
	DUP-3A	3/21/16	0.5	--	8.9
W-B4-10E	W-B4-10E-0.5	3/21/16	0.5	--	1.2

Notes:
1. Lead analyzed by XRF during Seismic Modernization Project PEA
2. Arsenic analyzed by USEPA Method 6020 during Seismic Modernization Project PEA
(a) Confirmed as 69 mg/kg by stationary laboratory using USEPA Method 6010B
ft bgs = feet below ground surface
mg/kg = milligrams/kilogram
"--" = not analyzed

Concentration exceeds screening level (yellow)   Step-out boring (tan)

Table 5
CONFIRMATION SAMPLE TOTALS
LAUSD Venice HS CMP

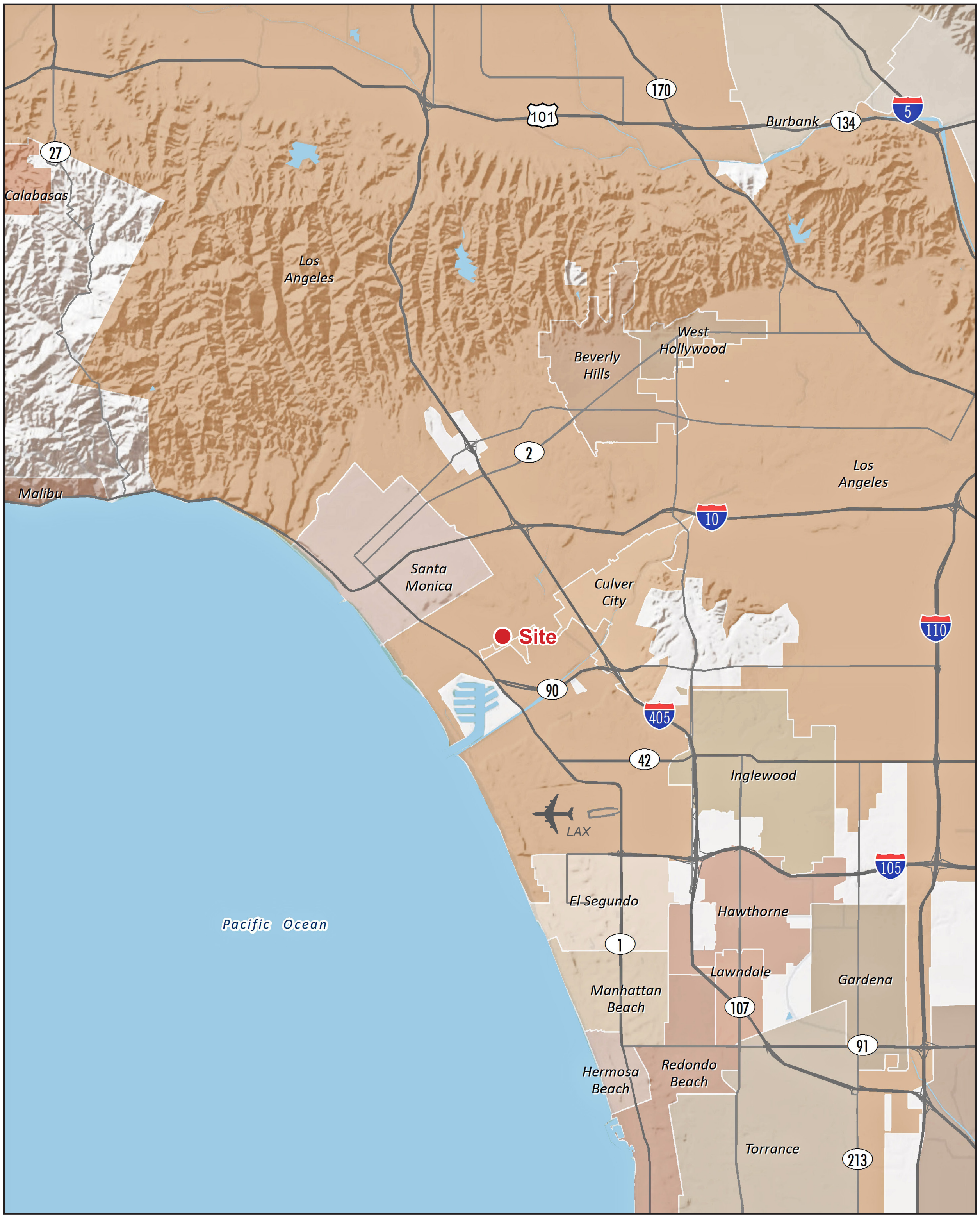
Soil Removal Area	Count			
	Total	As	Pb	As & Pb
B-2	2	2		
B-3	3	2		1
B-14	4		4	
B-16	2	2		
B-36	3	3		
B-48	3	3		
B-66	2	2		
B-67	0		0	
B-72	0	0		
B-79	0	0		
B-88	1	1		
B-90	6	6		
B-94	2		2	
B-105	1	1		
B-114	6	6		
B-120	2		2	
B-123	0		0	
WB-1	1	1		
WB-4	6	6		
Subtotals	44	35	8	1
Duplicates[1]	5	4	1	1
Step-Out[2]	5	4	1	1
Totals	54	43	10	3

1) Assumes 10% Duplicates

2) Assumes 10% more samples due to step-outs

Figures

Figure 1 - Site Location



Note: Unincorporated county areas are shown in white.

Venice High School
13000 Venice Boulevard
Los Angeles, California 90066

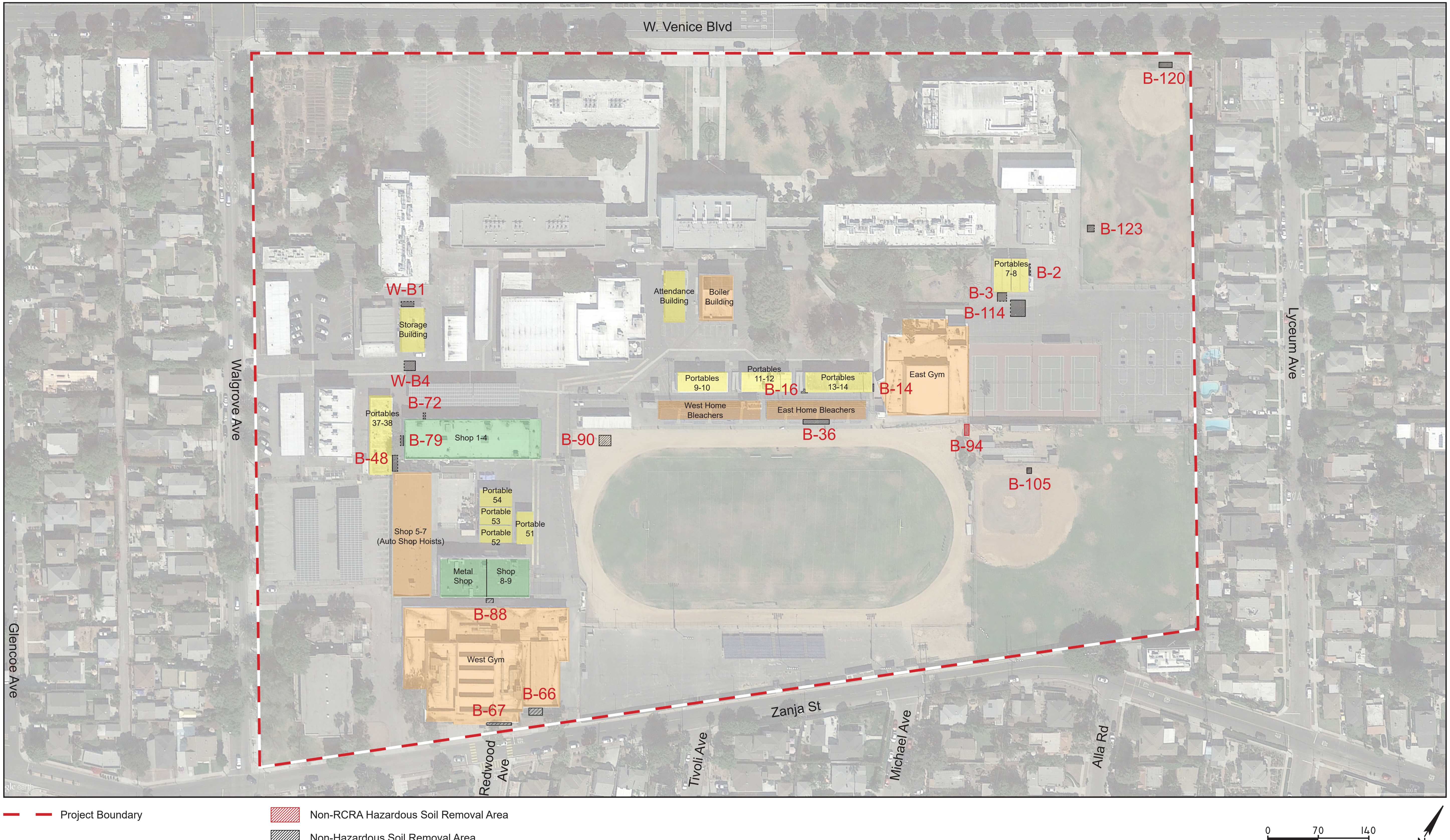
0 1.5 3
SCALE (IN MILES)
N

Base Map Source: ESRI, USGS, NOAA, 2016

Figure 2 - Aerial Photograph

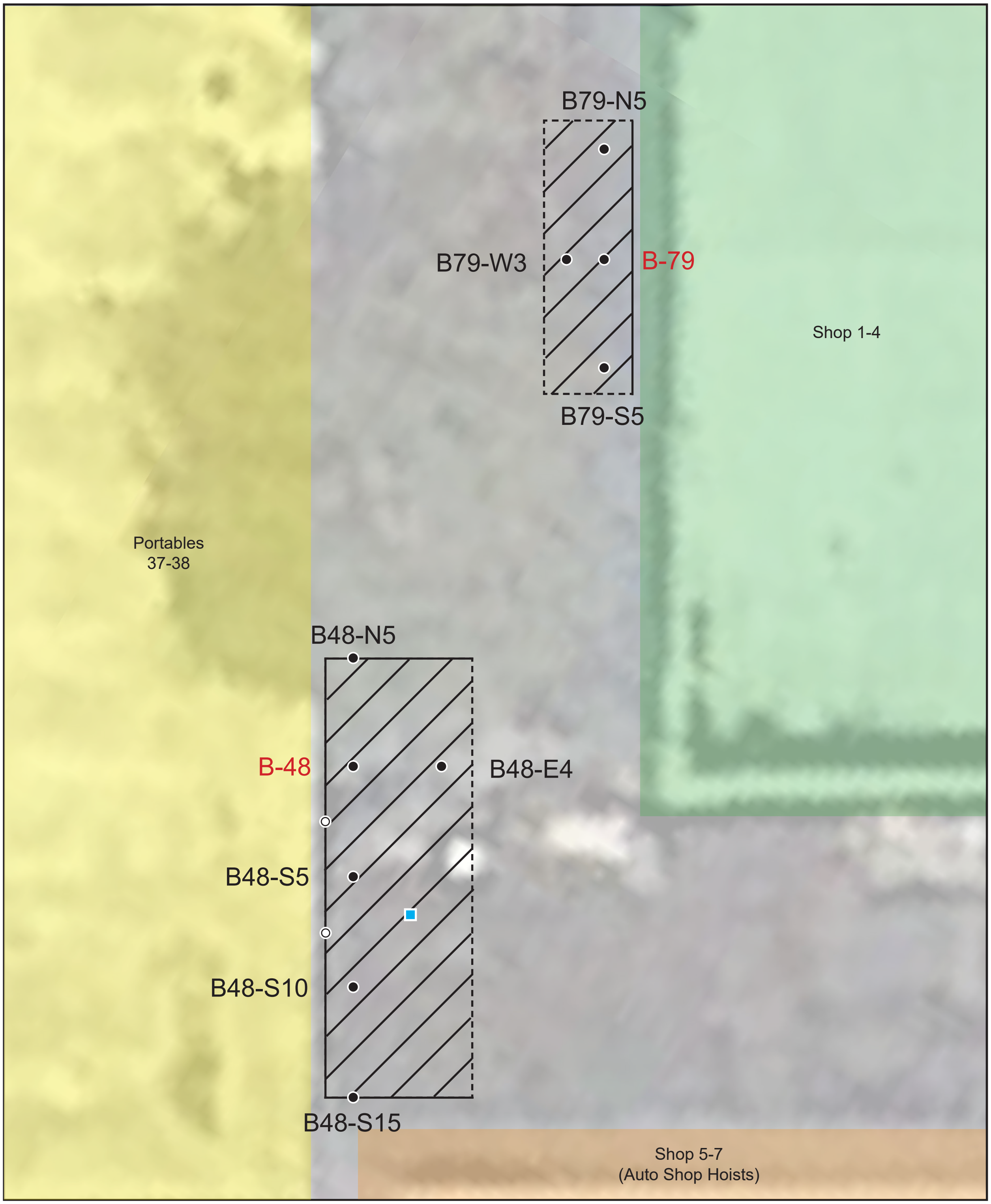
Base Map Source: Google Earth Pro, 2016

Figure 3 - Soil Removal Locations



Base Map Source: Google Earth Pro, 2017

4A - B-48 and B-79 Confirmation Soil Sample Locations



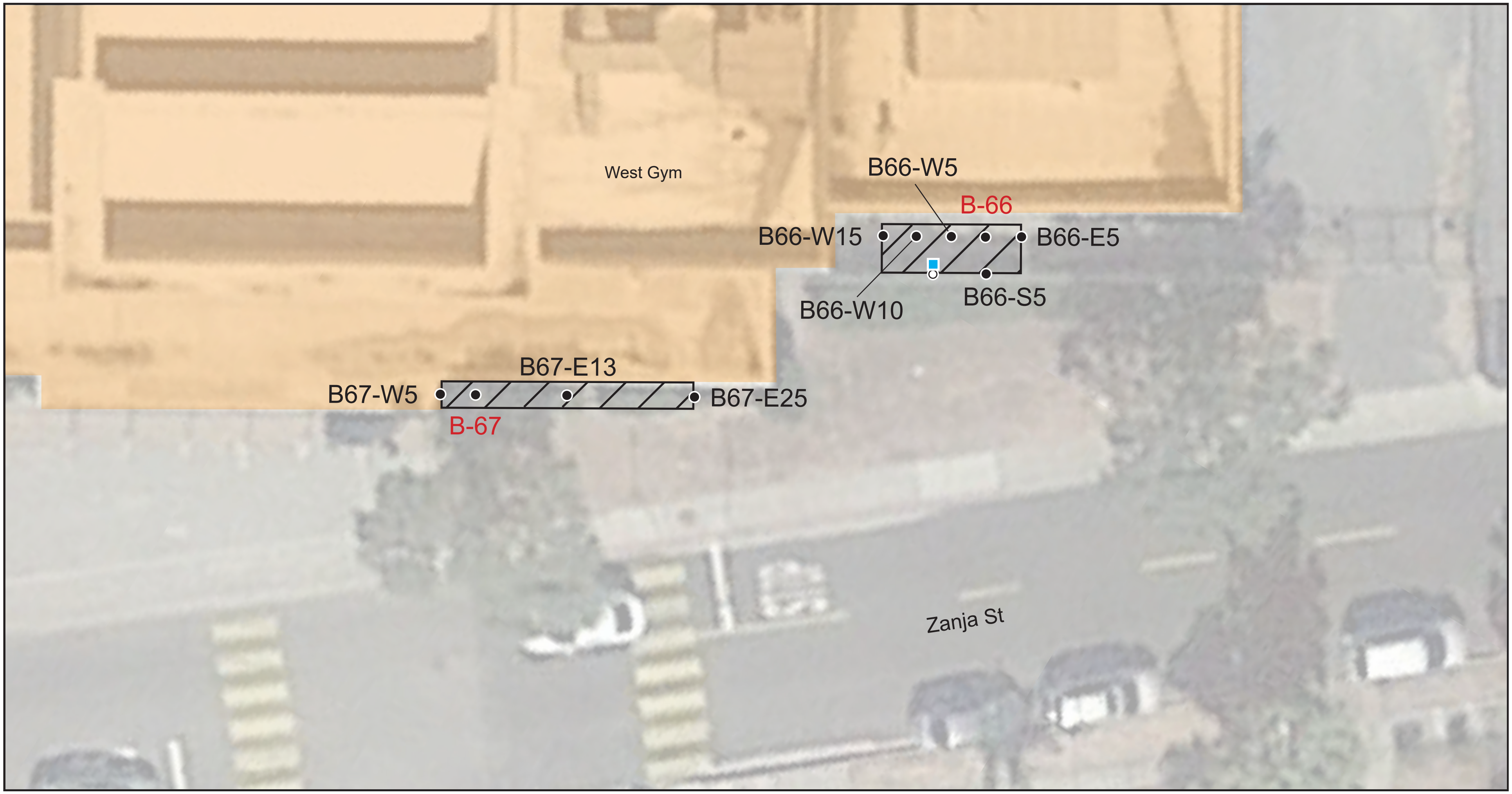
- Soil Boring Location
- Sidewall Confirmation Sample Location
- Bottom Confirmation Sample Location
- Utility Line Forms Boundary
- Non-Hazardous Soil Removal Area

- Portables to be Removed
- Buildings to be Removed
- Historical Buildings to be Removed

Depth = 1.5' Unless Otherwise Noted

Base Map Source: Google Earth Pro, 2017

4B - B-66 and B-67 Confirmation Soil Sample Locations



- ● Soil Boring Location
- ○ Sidewall Confirmation Sample Location
- ■ Bottom Confirmation Sample Location
- ---- Utility Line Forms Boundary

Buildings to be Removed

Historical Buildings to be Removed

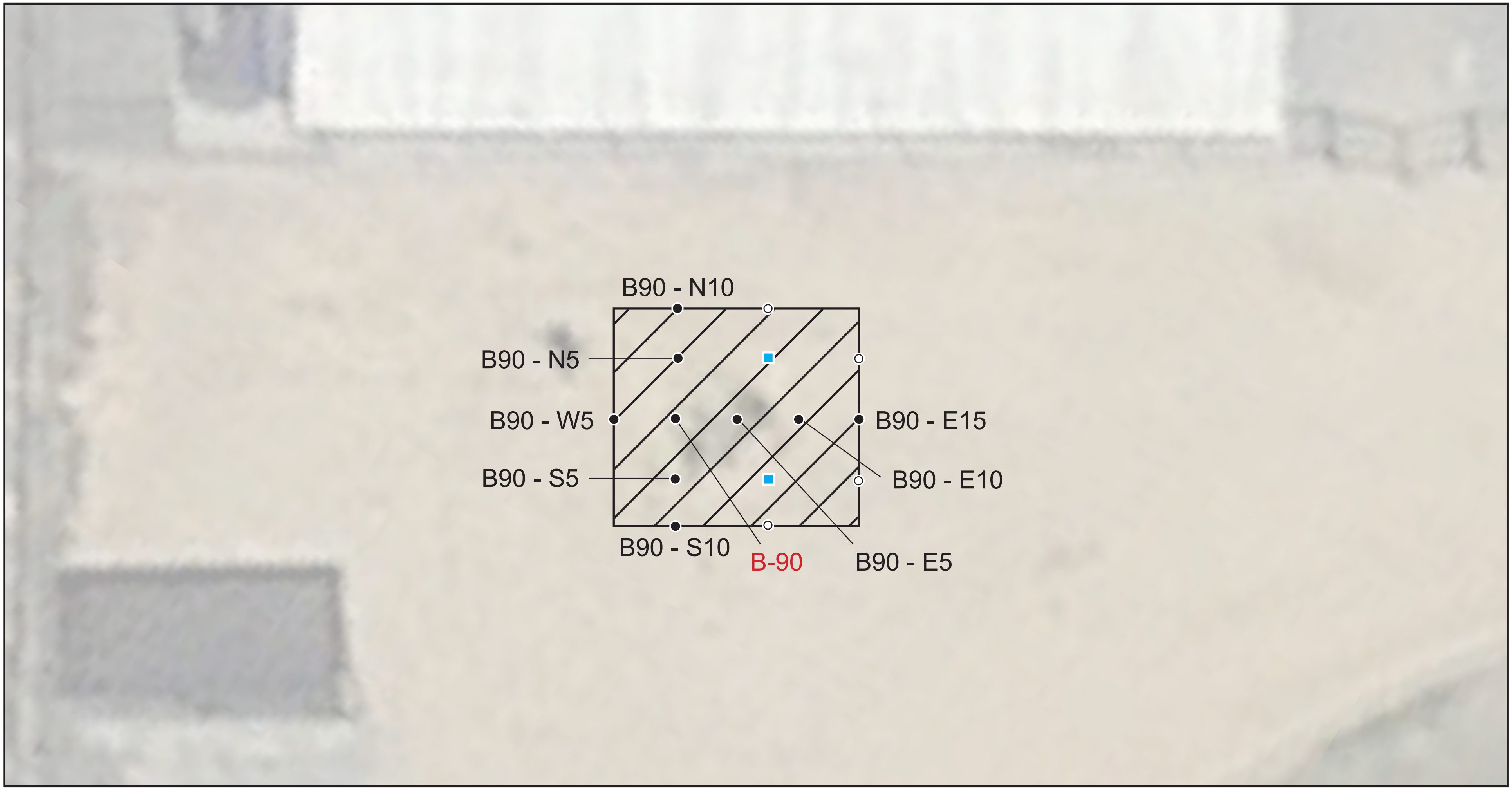
Non-Hazardous Soil Removal Area

Depth = 1.5' Unless Otherwise Noted

0 10 20
SCALE (IN FEET)

N

4C - B-90 Confirmation Soil Sample Locations



Soil Boring Location
Sidewall Confirmation Sample Location
Bottom Confirmation Sample Location

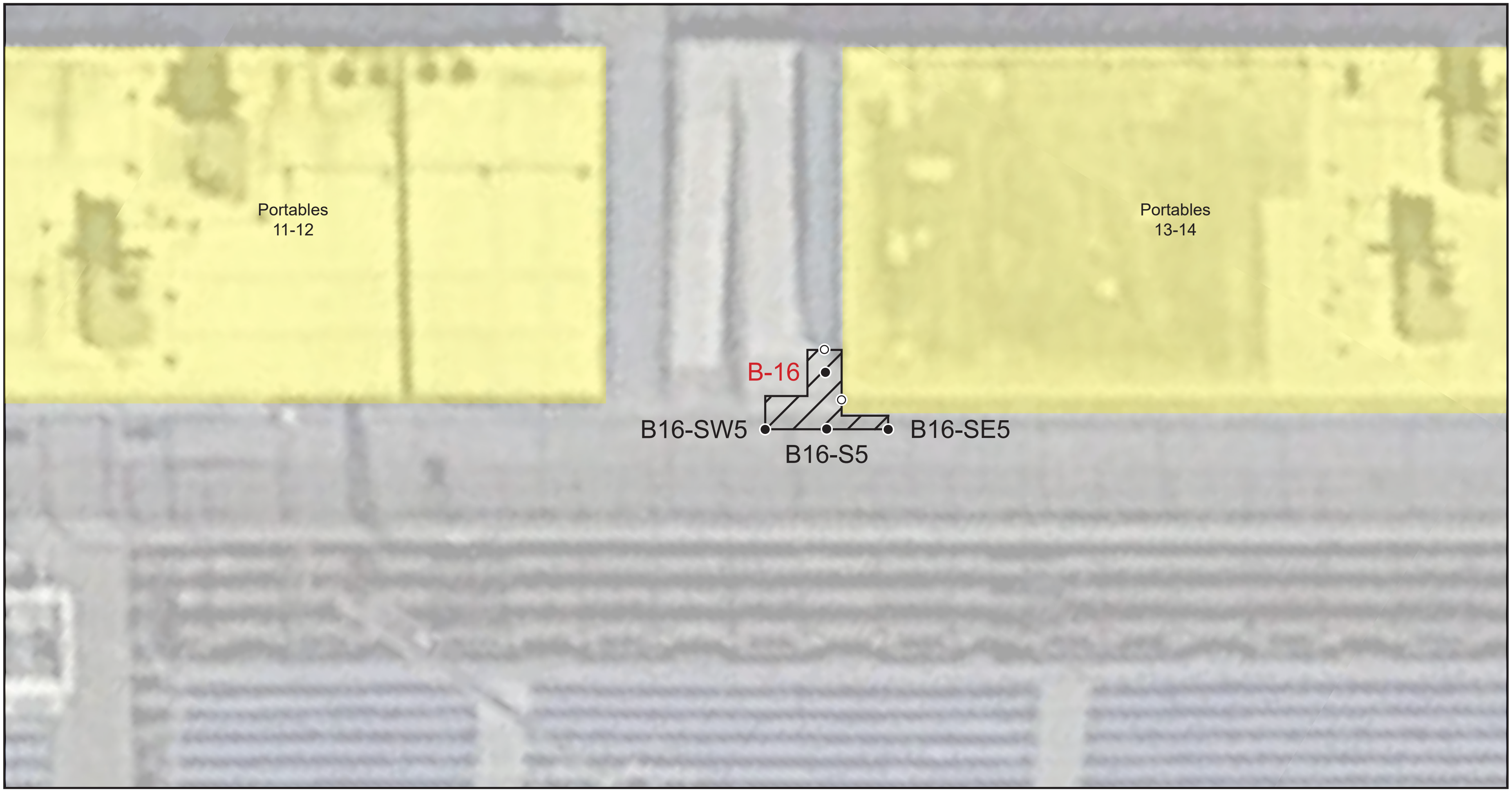
Non-Hazardous Soil Removal Area
Utility Line Forms Boundary
Depth = 1.5' Unless Otherwise Noted

0 5 10
SCALE (IN FEET)

N

Base Map Source: Google Earth Pro, 2017

4D - B-16 Confirmation Soil Sample Locations



- ● Soil Boring Location
- ○ Sidewall Confirmation Sample Location
- ---- Utility Line Forms Boundary
- Portables to be Removed
- Non-Hazardous Soil Removal Area

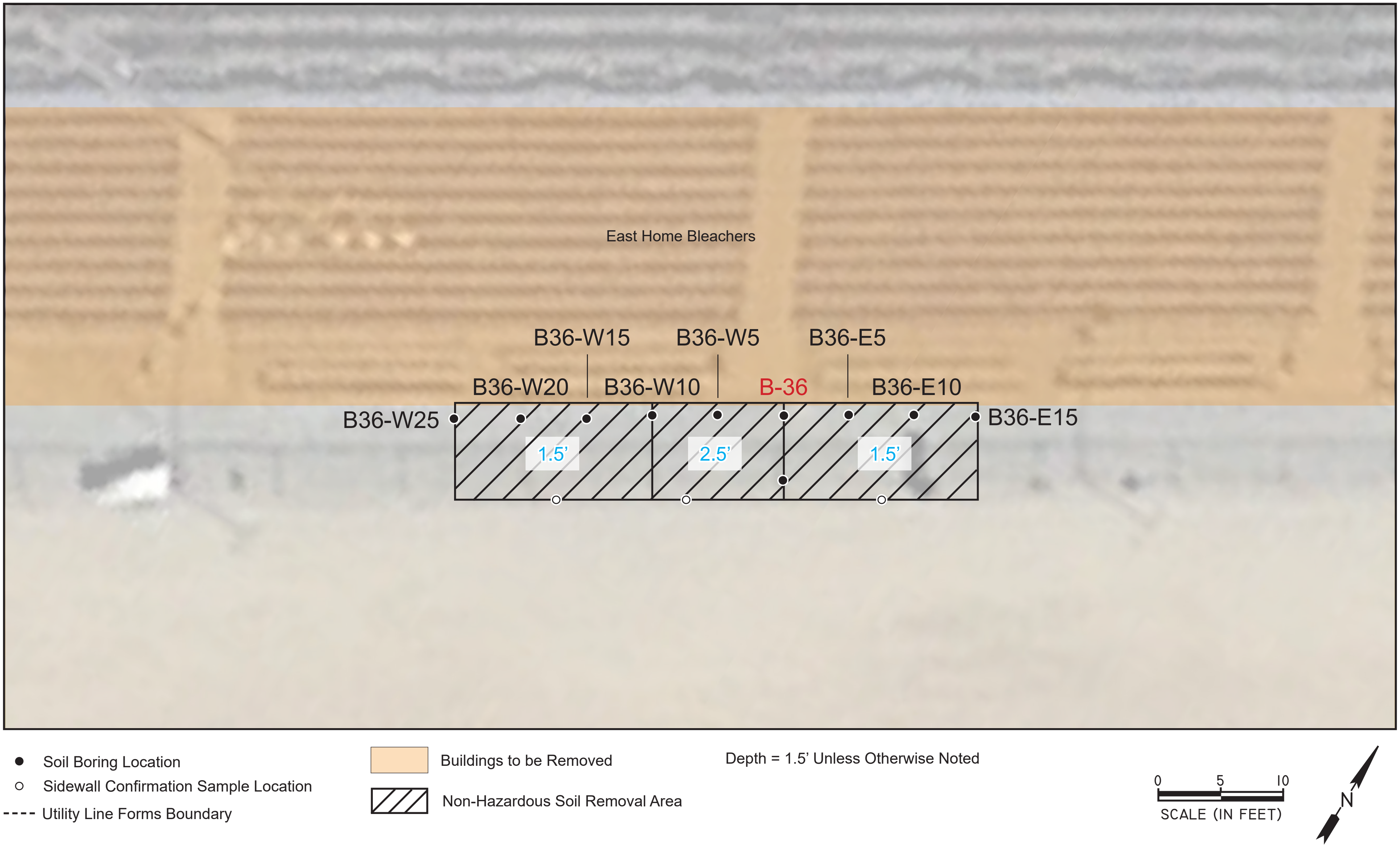
Depth = 1.5' Unless Otherwise Noted

0 5 10
SCALE (IN FEET)

N

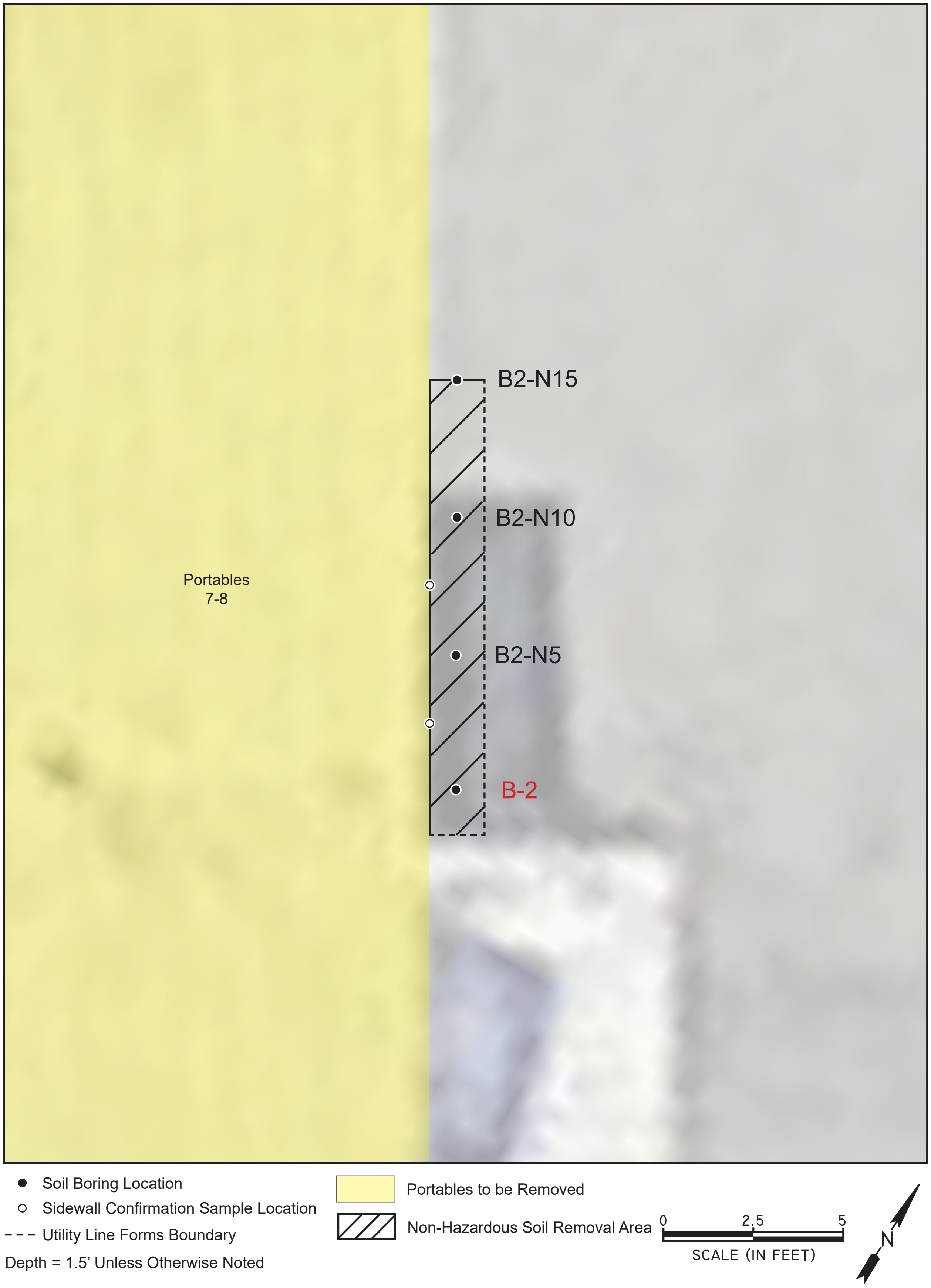
4E - B-14 Confirmation Soil Sample Locations

4F - B-36 Confirmation Soil Sample Locations



4G - B-3 and B-114 Confirmation Soil Sample Locations

4H - B-2 Confirmation Soil Sample Locations



4I - B-94 Confirmation Soil Sample Locations

- Soil Boring Location
- Sidewall Confirmation Sample Location
- Utility Line Forms Boundary

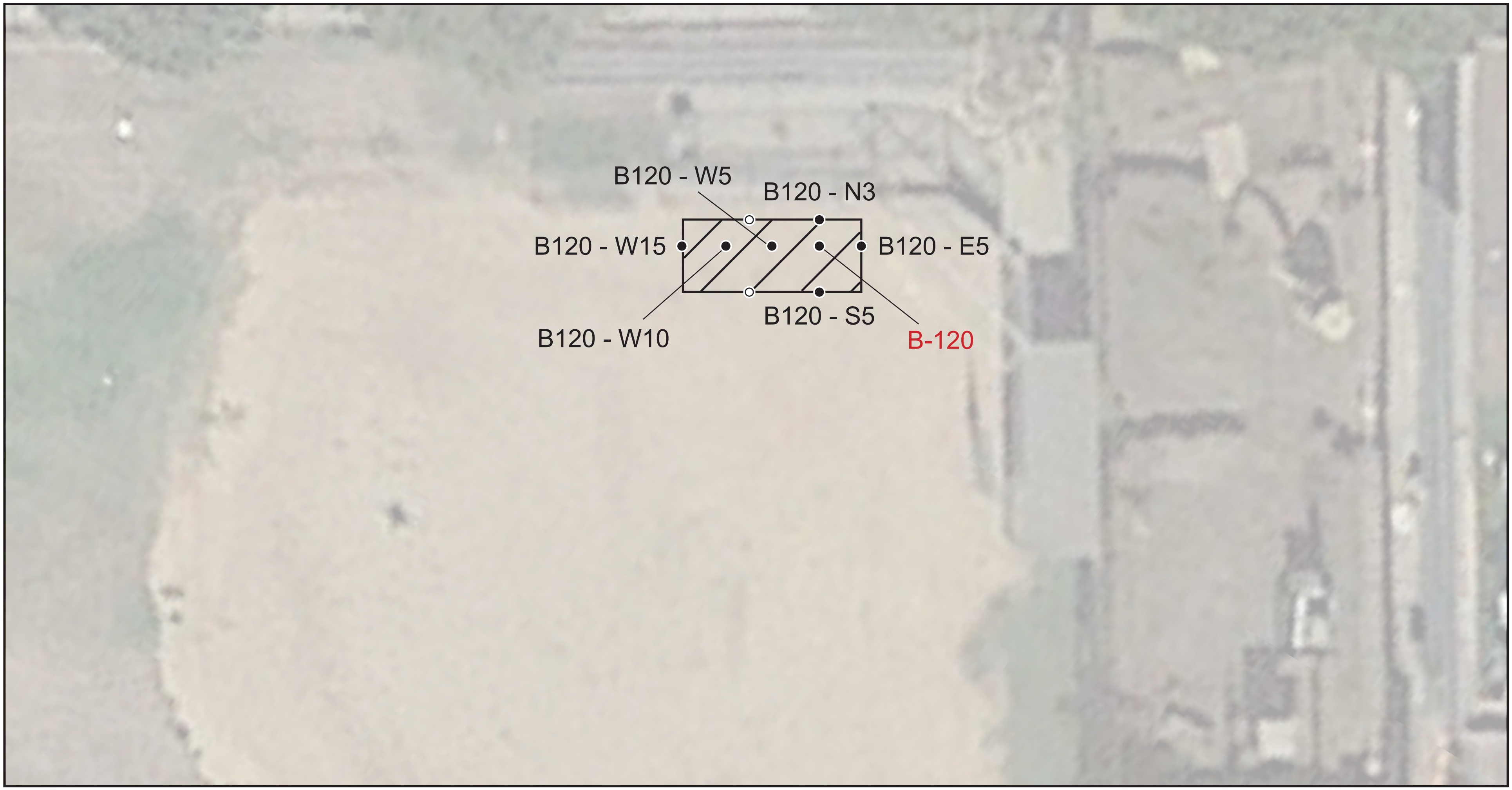
Depth = 1.5' Unless Otherwise Noted

Non-Hazardous Soil Removal Area

0 5 10
SCALE (IN FEET)

N

4J - B-120 Confirmation Soil Sample Locations



- Soil Boring Location
- Sidewall Confirmation Sample Location
- Utility Line Forms Boundary

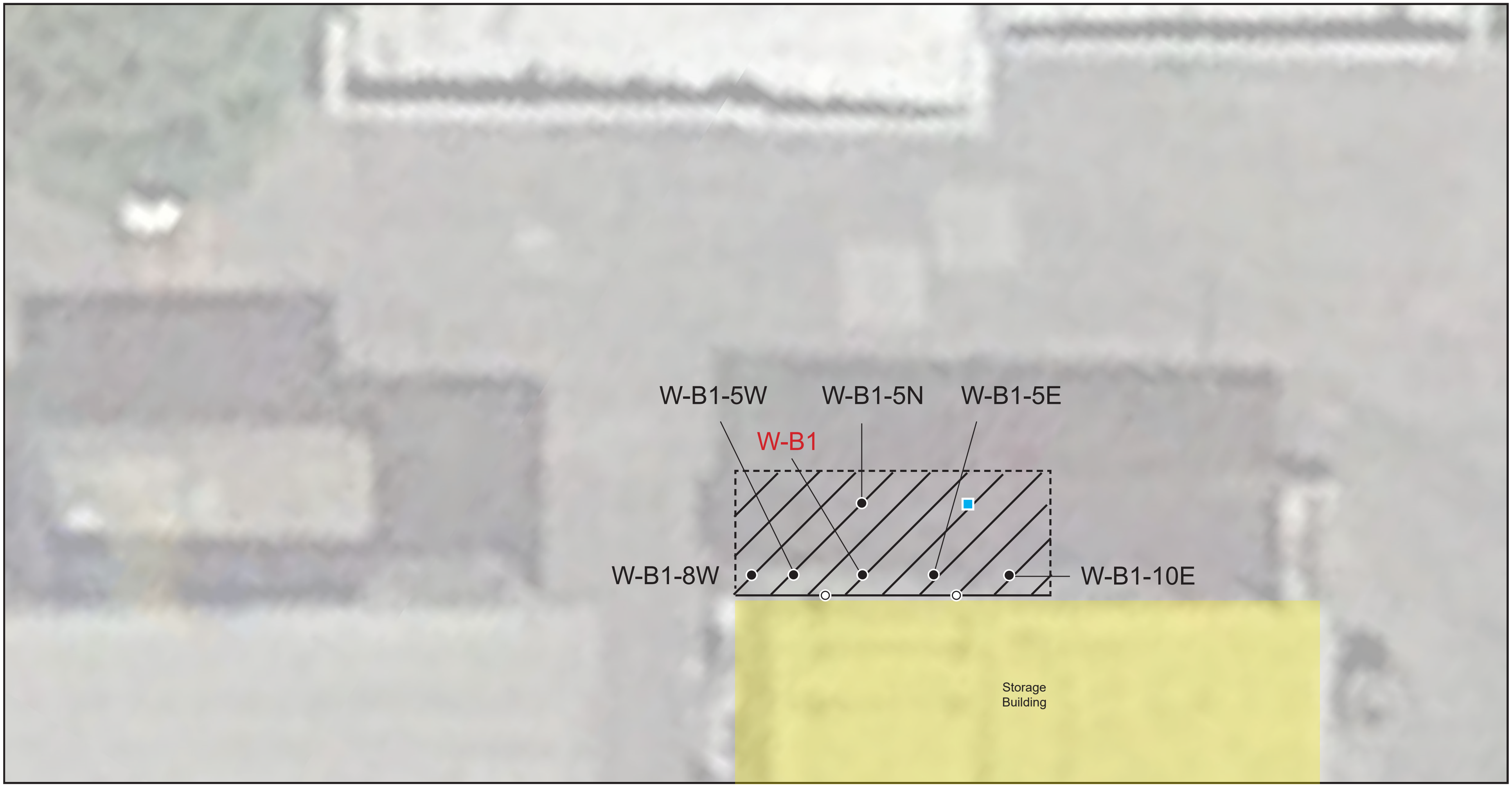
Non-Hazardous Soil Removal Area

Depth = 1.5' Unless Otherwise Noted

0 5 10
SCALE (IN FEET)

N

4K - W-B1 Confirmation Soil Sample Locations



- ● Soil Boring Location
- ○ Sidewall Confirmation Sample Location
- ■ Bottom Confirmation Sample Location
- - - - Utility Line Forms Boundary

Non-Hazardous Soil Removal Area

Portables to be Removed

Depth = 1.5' Unless Otherwise Noted

0 5 10
SCALE (IN FEET)

N

Base Map Source: Google Earth Pro, 2017

4L - W-B4 Confirmation Soil Sample Locations

- ● Soil Boring Location
- ○ Sidewall Confirmation Sample Location
- ■ Bottom Confirmation Sample Location
- - - - Utility Line Forms Boundary

Non-Hazardous Soil Removal Area

Portables to be Removed

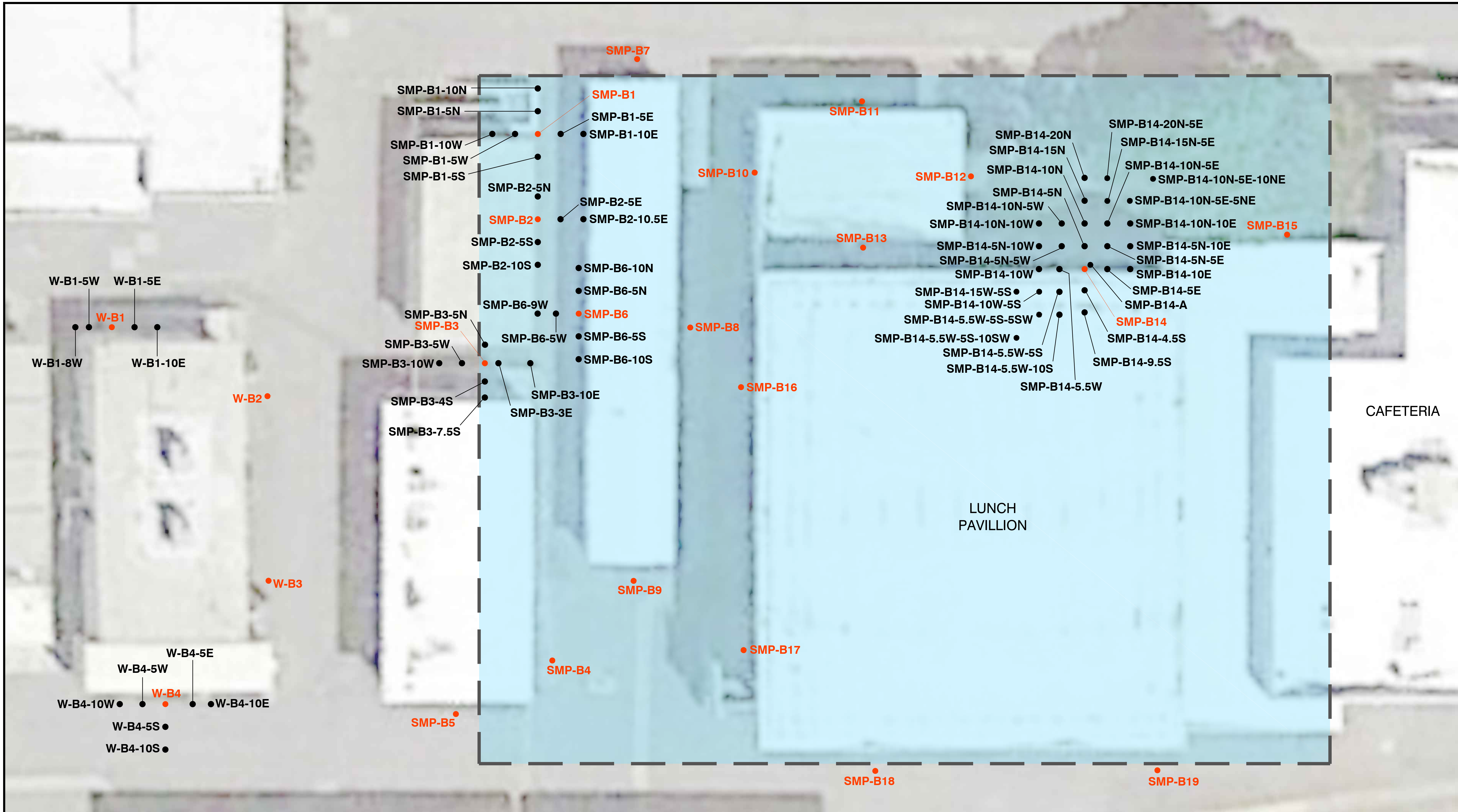
Depth = 1.5' Unless Otherwise Noted

Base Map Source: Google Earth Pro, 2017

0 5 10
SCALE (IN FEET)

N

Appendix A. Figures from Previous Investigations



N

SCALE IN FEET

0 20 40

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

NOTE:

1. W-B2 AND W-B3 ARE 4 FEET AWAY FROM THE WALL. REMAINING SAMPLES ARE 2 FEET AWAY FROM THE WALL.

LEGEND

(dashed box)	SEISMIC MODERNIZATION PROJECT (SMP) SITE BOUNDARY
SMP-B1 ●	SOIL BORING
SMP-B1-5W ●	STEP-OUT LOCATION

REFERENCE: GOOGLE EARTH IMAGERY, 2015.

Ninyo & Moore		SITE PLAN AND STEP-OUT PEA SAMPLING LOCATIONS	FIGURE
PROJECT NO.	DATE	VENICE HIGH SCHOOL 13000 VENICE BOULEVARD LOS ANGELES, CALIFORNIA	2
208571011	7/16		

Figure 3 - Site Details and Area Wide Soil Sample Locations

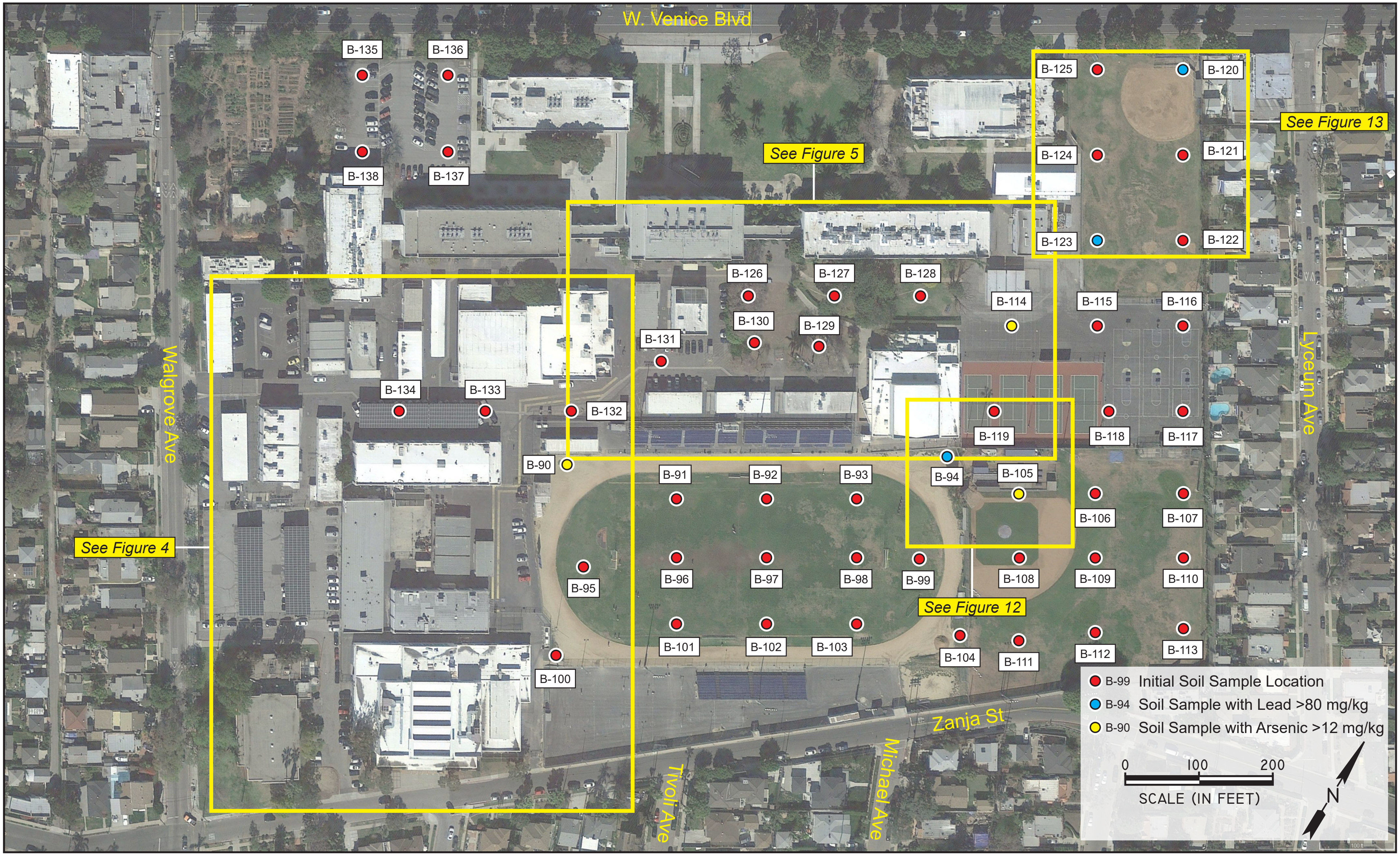
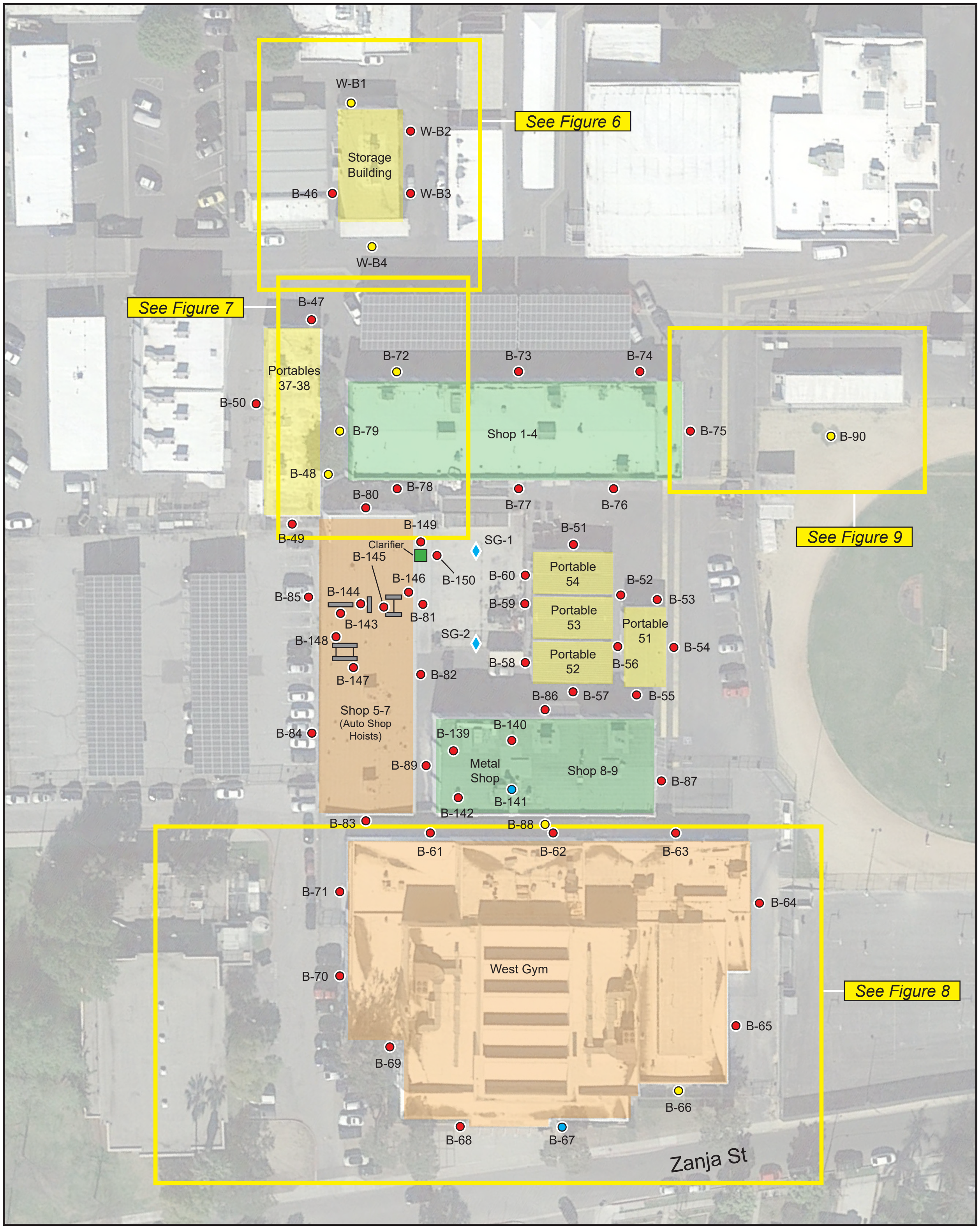


Figure 4 - Building Soil and Soil Gas Sample Locations - Detail 1



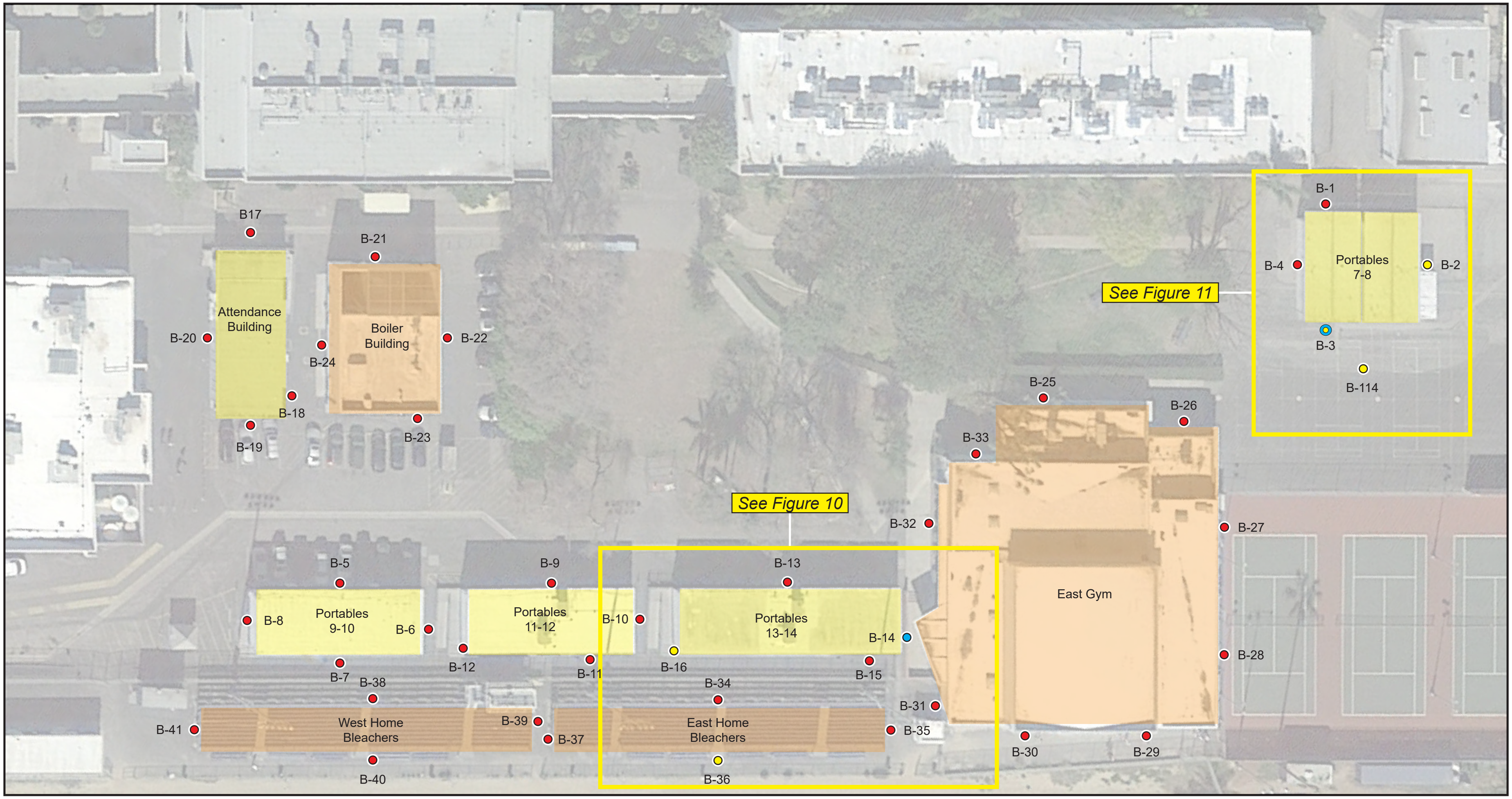
- B-68 Initial Soil Sample Location
- B-67 Soil Sample with Lead >80 mg/kg
- B-66 Soil Sample with Arsenic >12 mg/kg
- SG-1 Soil Gas Sample Location

- Portables to be Removed
- Buildings to be Removed
- Historical Buildings to be Removed

0 35 70
SCALE (IN FEET)

N

Figure 5 - Building Soil Sample Locations - Detail 2



B-1 Initial Soil Sample Location
B-14 Soil Sample with Lead >80 mg/kg
B-36 Soil Sample with Arsenic >12 mg/kg
B-3 Soil Sample with Lead >80 mg/kg and Arsenic >12 mg/kg

Portables to be Removed
Buildings to be Removed

0 35 70
SCALE (IN FEET)
N

Figure 6 - Step-Out Sample Locations and Removal Areas - Storage Building

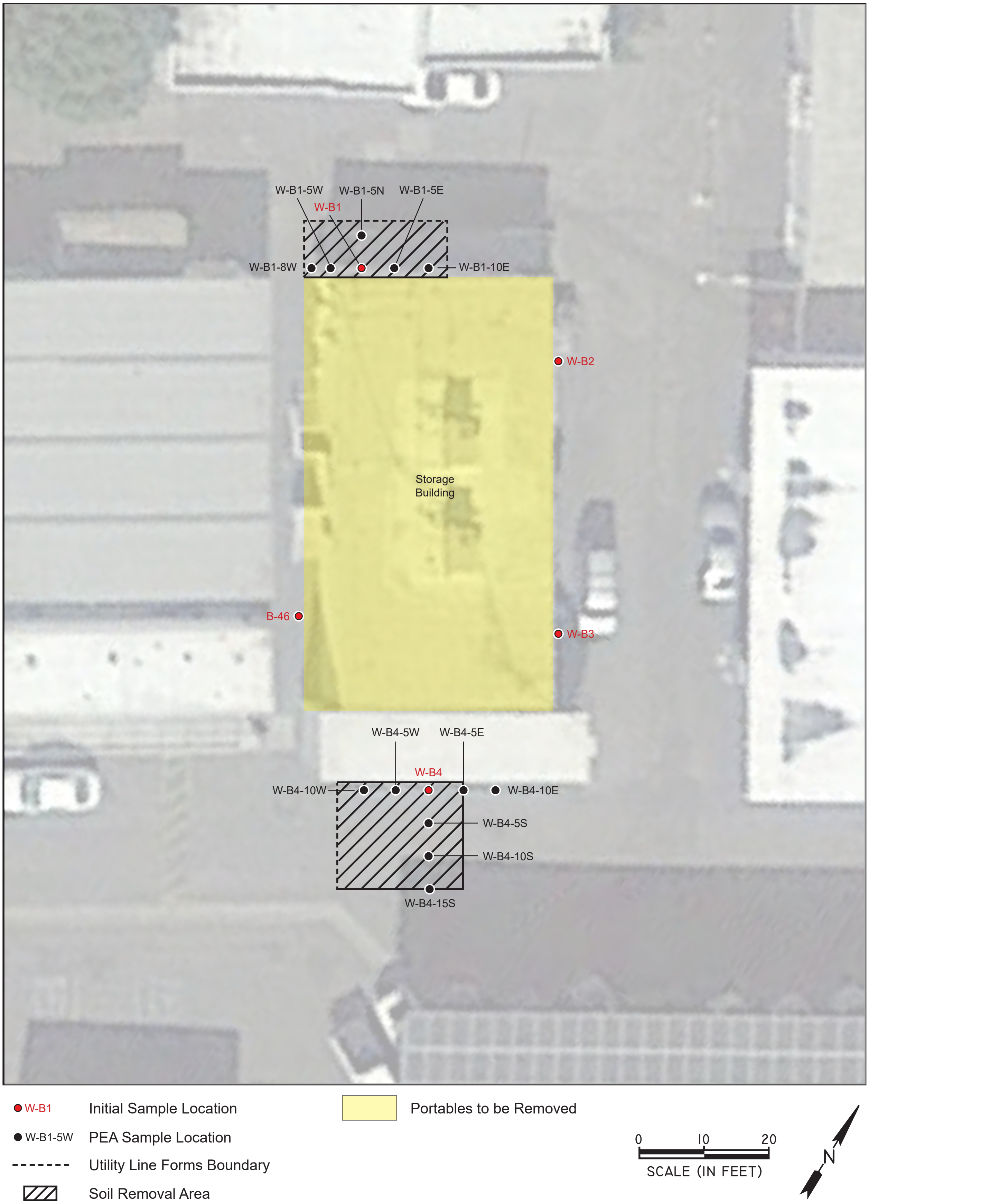


Figure 7 - Step-Out Sample Locations and Removal Areas - Shop 1-4 and Portables 37-38

Figure 8 - Step-Out Sample Locations and Removal Areas - West Gym

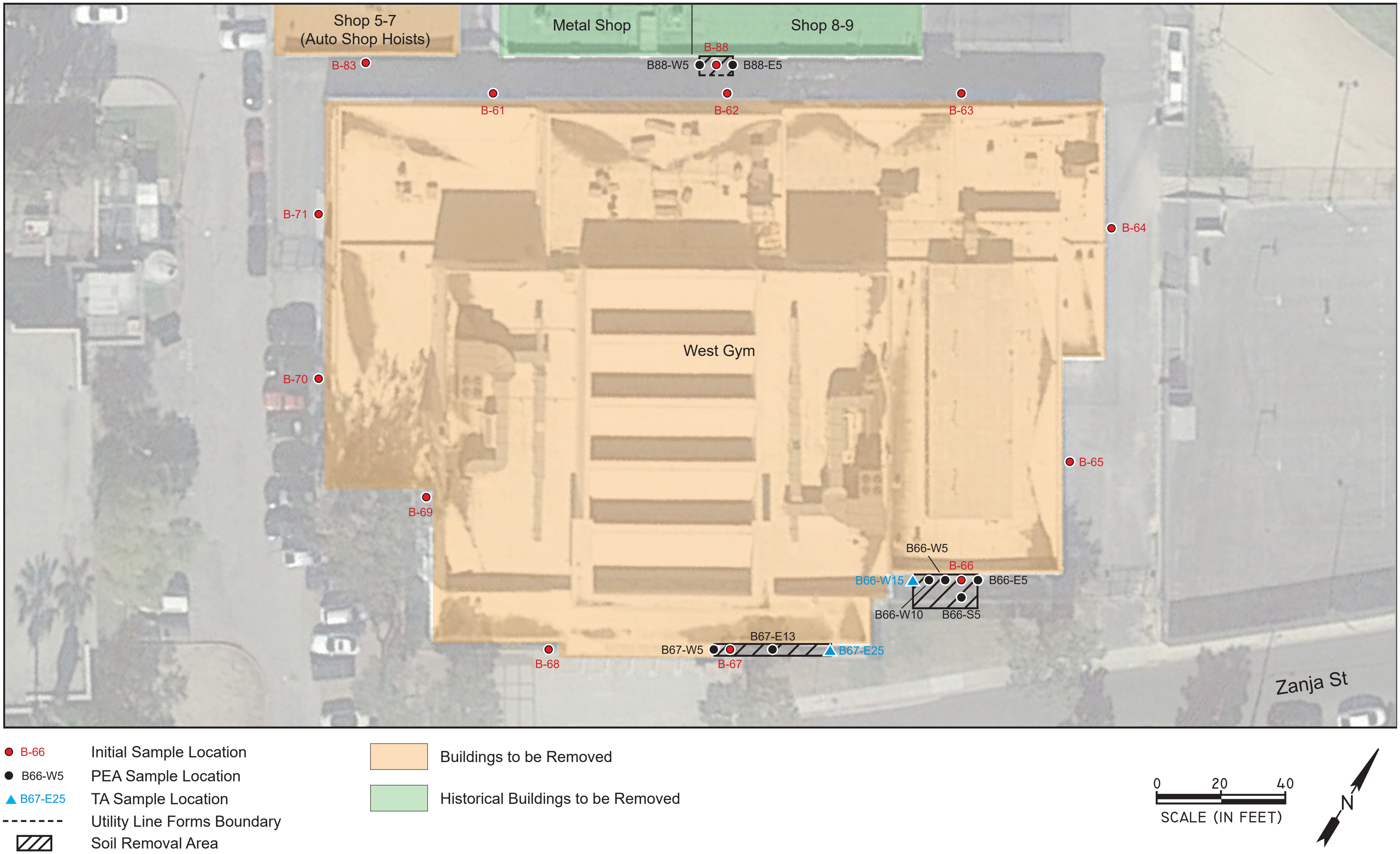


Figure 9 - Step-Out Sample Locations and Removal Areas - West Track

Figure 10 - Step-Out Sample Locations and Removal Areas - Portables 13-14 and Home Bleachers

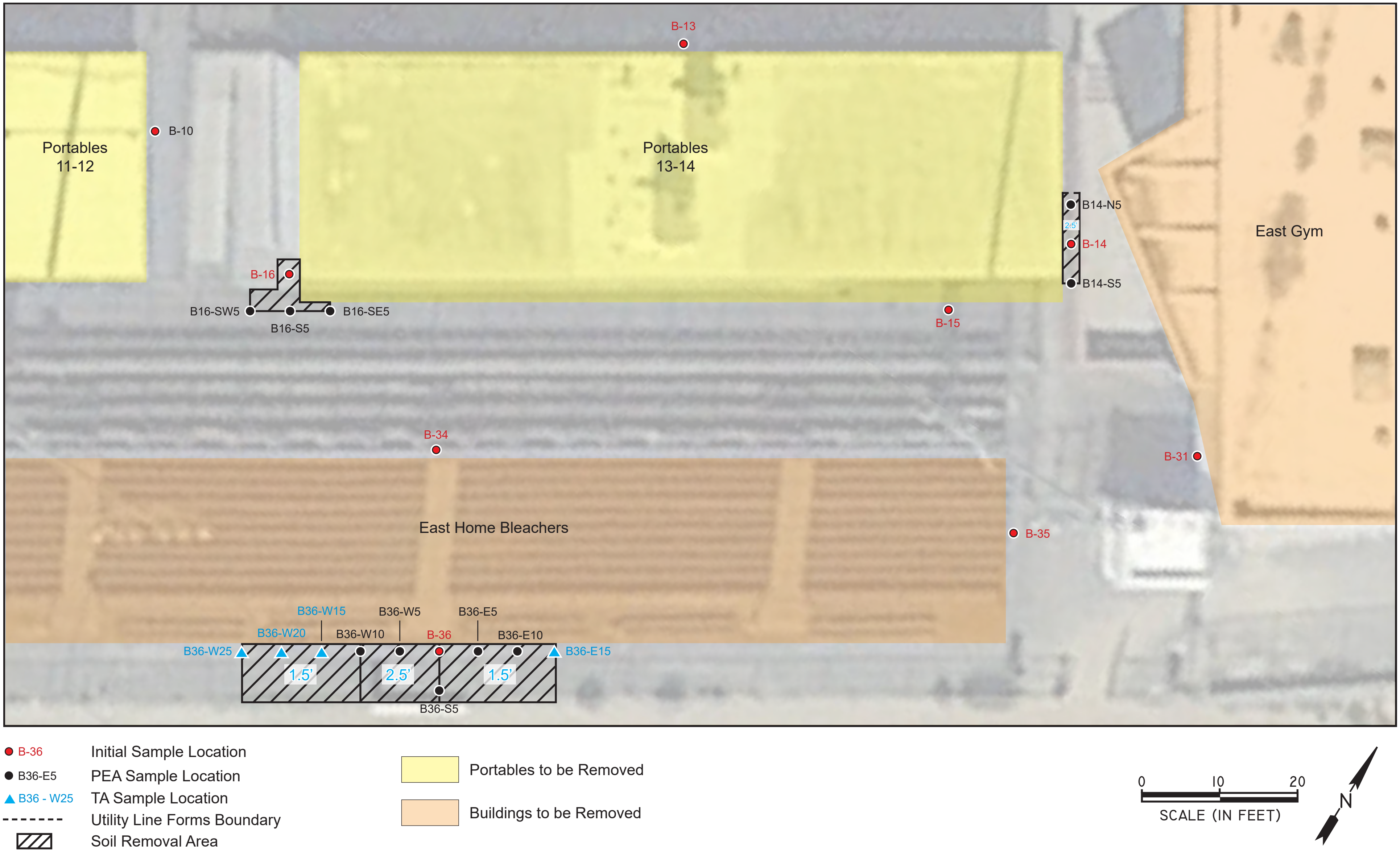


Figure 11 - Step-Out Sample Locations and Removal Areas - Portables 7-8

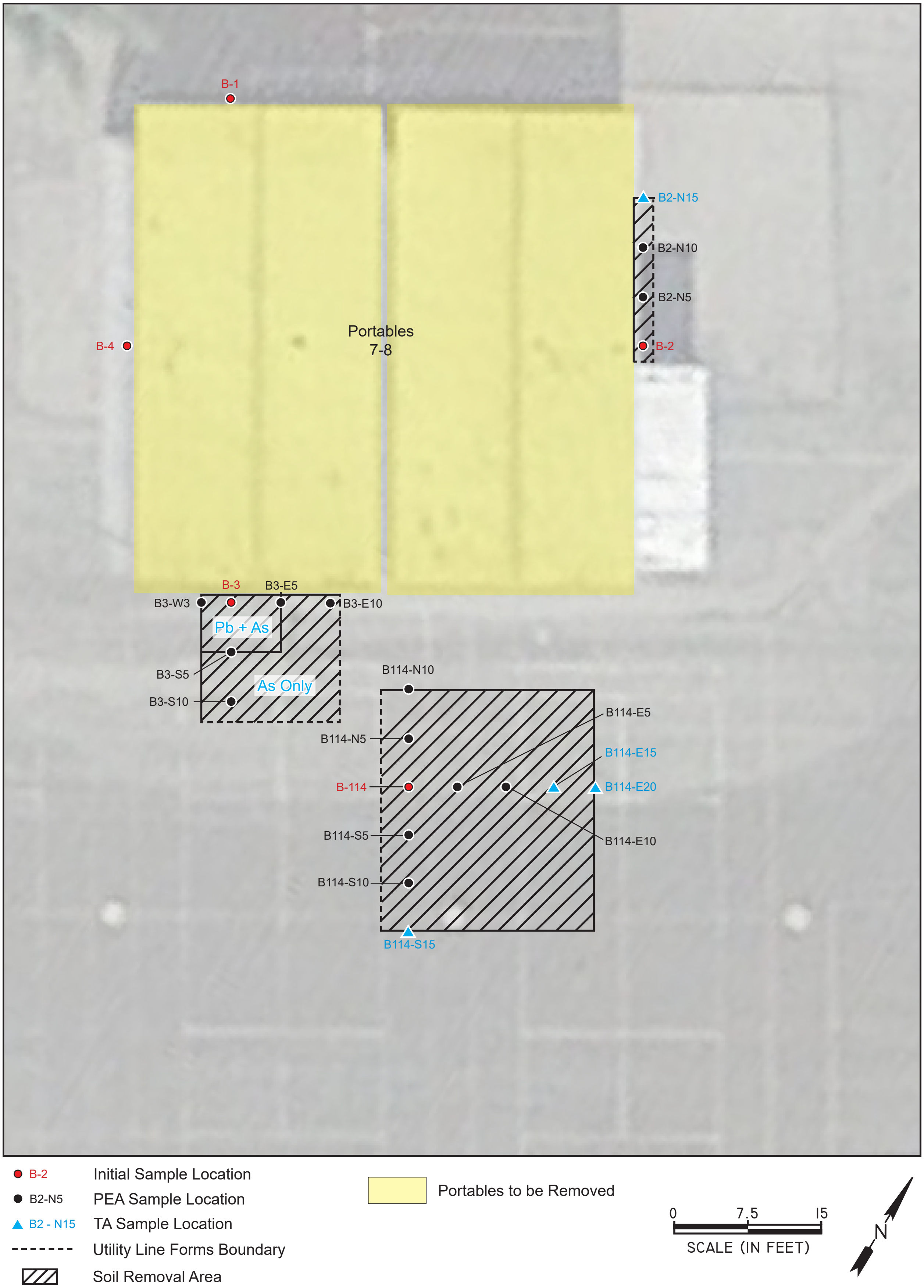


Figure 12 - Step-Out Sample Locations and Removal Areas - East Track and Baseball Field

B-94 Initial Sample Location
B94 - S5 PEA Sample Location
B94 - N12 TA Sample Location
Utility Line Forms Boundary
Soil Removal Area

0 10 20
SCALE (IN FEET)
N

Figure 13 - Step-Out Sample Locations and Removal Areas - Softball Field

Appendix B. Health and Safety Plan

February 10, 2017| LAUSD Venice High School

Health and Safety Plan Removal Action Workplan

Prepared for:

Los Angeles Unified School District
Contact: Patrick Schanen
Environmental Health Manager
333 South Beaudry Avenue, 21-224-05
Los Angeles, California 90017
213.241.3356

Project Number:
LASD1-30.0

Prepared by:

PlaceWorks
Contact: Eric Longenecker, PE
700 South Flower Street, Suite 600
Los Angeles, California 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

Table of Contents

Table of Contents

List of Figures

List of Tables

List of Appendices

List of Acronyms

°C	degrees Celsius
°F	degrees Fahrenheit
ACP	access control point
ACGIH	American Conference of Governmental Industrial Hygienists
APR	air-purifying respirator
CAL/OSHA	California Division of Occupational Safety and Health
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CHSO	Corporate Health and Safety Officer
COPC	chemical of potential concern
CP	command post
CRZ	contaminant reduction zone
dBA	decibels – A scale
DTSC	California Department of Toxic Substances Control
ERP	Emergency Response/Contingency Plan
ESA	Environmental Site Assessment
EZ	exclusion zone
HASP	Health and Safety Plan
HEPA	high efficiency particulate air
HSM	Health and Safety Manual
IDLH	immediately dangerous to life or health
IIPP	Illness and Injury Prevention Program
LAUSD	Los Angeles Unified School Disitrct
LOP	level of protection
m	meter
MCL	maximum contaminant level
NAAQS	National Ambient Air Quality Standard
NIOSH	National Institute of Occupational Safety and Health
O&M	Operation and Maintenance
OBZ	operator's breathing zone
OCP	organochlorine pesticide
OEHHA	California Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
PEA	Preliminary Endangerment/Environmental Assessment
PEL	permissible exposure limit

List of Acronyms

PID	photoionization detector
PM	Project Manager
ppbv	parts per billion by volume
PPE	personal protective equipment
ppmv	parts per million by volume
PVC	polyvinyl chloride
REC	recognized environmental condition
REL	reference exposure level
SCAQMD	South Coast Air Quality Management District
SCBA	self-contained breathing apparatus
SHSO	Site Health and Safety Officer
Site	That portion of Venice High School that is undergoing a Comprehensive Modernization
SS	Site Supervisor
SSI	Supplemental Site Investigation
SSL	Site screening level
STEL	Short term exposure limit
SZ	support zone
TLV	threshold limit value
TWA	time-weighted average
UEL	upper explosive limit
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

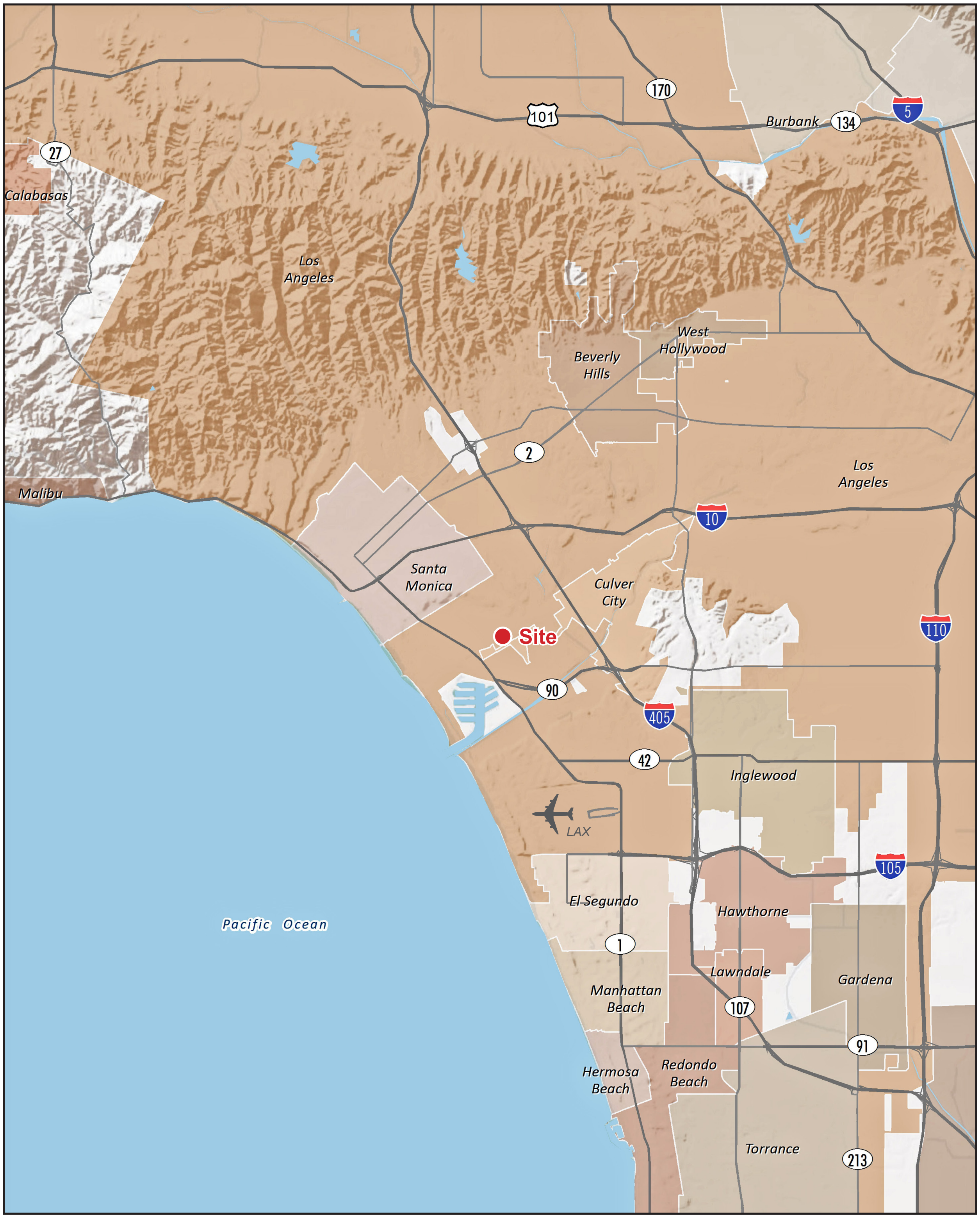
1. Introduction

The health and safety of site workers and the public is a primary concern and goal during investigation and remedial activities where hazardous conditions may be present. Thus, a comprehensive, carefully managed, and thoroughly documented Health and Safety Plan (HASP) is crucial for successful project completion. The following plan describes specific responsibilities, training requirements, protective equipment, and site operating procedures to be utilized and implemented to protect on-site personnel from the potential hazards associated with the environmental investigation of the Los Angeles Unified School District's (LAUSD's) Venice High School ("Site"), which is located at 13000 Venice Boulevard, Los Angeles, California 90066 (Figure 1).

The procedures in this HASP have been developed based upon current knowledge regarding the specific chemical and physical hazards that are known or anticipated for the operations to be conducted at the site. The HASP has been written to comply with PlaceWorks' health and safety policies, as well as requirements of the California Department of Toxic Substance Control (DTSC) and United States Environmental Protection Agency (USEPA). Activities covered by the HASP must be conducted in complete compliance with this HASP and with all applicable Federal, State, and local health and safety regulations, including the California Occupational Safety and Health Administration (Cal/OSHA), Title 8 California Code of Regulations (CCR) §5192, and the Federal OSHA "Hazardous Waste Operations and Emergency Response" regulations in Title 29 of the Code of Federal Regulations (CFR) §1910.120 and "Construction Industry Standards" in 29 CFR §1926. On-site personnel who cannot, or will not, comply with these requirements will be excluded from project activities.

The Project Health and Safety Officer (PHSO) is responsible for maintaining compliance on-site with the HASP. The complete HASP will be reviewed and discussed with all site personnel before commencing on-site activities and health and safety tailgate meetings will be held prior to initiating work each day. This is necessary to ensure that personnel have sufficient awareness of the potential for hazardous conditions. In addition, the HASP provides field personnel advance preparation and knowledge of the proper procedures that should be followed if hazardous conditions are encountered. A copy of the HASP will be available on-site during all field activities. Field personnel will have access to the plan for reviewing pertinent safety guidelines as they apply to all aspects of site work. The HASP will be amended as required by field conditions, and all field personnel will be informed of any required amendments.

Figure 1 - Site Location



Note: Unincorporated county areas are shown in white.

Venice High School
13000 Venice Boulevard
Los Angeles, California 90066

Base Map Source: ESRI, USGS, NOAA, 2016

2. Site Background

The LAUSD is in the process of a Comprehensive Modernization Project at Venice High School that will require building demolition, grading, and new construction across the campus (Figure 2). In accordance with LAUSD policies and procedures, such activities require that environmental conditions be evaluated and, if necessary, any areas of contamination cleaned up before construction proceeds. To accomplish this goal, an investigation equivalent to the DTSC's Preliminary Environmental Assessment (PEA) process was conducted at the Site, and a Removal Action Workplan (RAW) implemented to clean up contaminated areas.

The Venice High School campus occupies one parcel of land comprising approximately 29 acres. Buildings on the property include administration and classroom buildings, an auditorium, shop buildings, a boiler room, two gymnasiums, a cafeteria, a swimming pool (operated in cooperation with the City of Los Angeles), a student store, and maintenance buildings. A continuation high school (Phoenix High School) operates out of a building located on the east corner of the campus, adjacent to the baseball field. The remainder of the property is developed with a tennis court, parking lots, sports fields, a running track, and a garden area at the west corner of the campus.

Figure 2 - Aerial Photograph

School Boundary

Venice High School
13000 Venice Boulevard
Los Angeles, California 90066

0 175 350
SCALE (IN FEET)
N

Base Map Source: Google Earth Pro, 2016

3. Project Safety Personnel

This HASP was prepared by PlaceWorks ("Contractor") on behalf of its client, LAUSD. The Contractor is responsible for ensuring that their personnel, subcontractor personnel, and site visitors comply with the provisions of the HASP. The Contractor Health and Safety Officer, Project Manager, Project Health and Safety Officer, and Site Health and Safety Officer are responsible for ensuring that all field personnel receive a copy of this HASP and/or are briefed on its contents prior to conducting field work at the site.

3.1 CORPORATE HEALTH AND SAFETY OFFICER (CHSO)

Designated Individual: Kara Kosel

The CHSO is responsible for the following:

- Establishing Contractor health and safety procedures
- Ensuring that the Contractor is in compliance with Federal, State, and local guidelines regarding health and safety issues
- Confirming that employees have appropriate health and safety training and have taken a current respirator fit test, as appropriate
- Verifying that employees are current in the Contractor's Medical Surveillance Program (see example in Appendix C)
- Maintaining records regarding employee safety training, respirator fit testing, and medical screening
- Reporting accidents to the necessary authorities.

Regarding individual projects, the CHSO has the same authority as the Site Health and Safety Officer.

3.2 PROJECT MANAGER (PM)

Designated Individual: To Be Determined

The PM is responsible for the overall performance and compliance with applicable regulations and procedural guidelines specified in this HASP. The PM also is responsible for implementing the provisions of this plan. Implementation includes review of field personnel compliance with the Contractor's medical examination requirements, training of field personnel involved with the project, provision of appropriate safety equipment, and submittal of the required health and safety documents to the Site Health and Safety Officer. If the PM becomes aware of a deficiency in the implementation of the HASP, he/she will take appropriate action by consulting with the Project Health and Safety Officer and provide all affected personnel with appropriate written documentation. The authority of the PM is the same as the Site Health and Safety Officer.

3.3 SITE SUPERVISOR (SS)

Designated Individual: Carl Lotzgesell

The SS is responsible for coordinating and supervising technical field activities at the site. This individual will always be on-site during the field operations and will document work progress and be responsible for execution of the HASP. This individual is responsible for documenting field activities and sample collection, controlling access to the site, prohibiting individuals from continuing on-site work due to safety infractions, and implementing upgraded personal protective equipment using his/her judgment and/or in consultation with the SHSO. The SS also maintains a copy of the HASP at the site and any records required by the HASP.

3.4 SITE HEALTH AND SAFETY OFFICER (SHSO)

Designated Individual: Carl Lotzgesell

The SHSO is responsible for daily assessments of health and safety practices at the site. The SHSO will observe operating personnel and authorized visitors for indications of contaminant exposure, heat stress, or other hazards. The SHSO will also evaluate whether site conditions present hazards not previously predicted or expected, and will inspect personal protective equipment and verify its use. The SHSO is responsible for assisting the PM with on-site implementation of this HASP, including maintaining safety equipment supplies, performing air monitoring of the workers' breathing zones (if deemed necessary), and setting up work zone markers and signs.

The SHSO may also oversee real-time ambient air monitoring, meteorological monitoring, personnel monitoring and environmental sampling, maintenance of safety equipment and supplies, and decontamination operations and emergency response operations. Depending on the complexity of the project and the associated staffing requirements, the roles of SHSO and SS may be filled by the same person.

4. Scope of Work

A Removal Action Workplan was prepared that evaluated three alternatives to address the contaminated soil at the site. The evaluation determined that the preferred alternative is to excavate the contaminated soil and transport it off-site for proper disposal in a landfill. Soil excavation will involve the use of conventional excavation equipment, such as scrapers, dozers, and loaders, to remove the impacted soil. Excavated soil will be either directly loaded into staged trucks or temporarily stockpiled on plastic liners until it can be loaded out for off-site disposal. Soil that is transported off-site will be sent to an appropriate licensed facility for disposal, based on previous waste profile characterization results. Soil that had been tested and certified to be clean will be used to replace any soil that is taken off-site for disposal.

Removal activities will be performed by a California-licensed remedial engineering contractor under the supervision of a California registered professional engineer and/or registered professional geologist. Successful completion of the removal action will be demonstrated by the collection and analysis of confirmation soil samples after all the impacted soil has been removed from the targeted areas and depths.

During performance of the various field activities, workers could potentially be exposed to soil impacted with hazardous constituents described in Section 5.1, either by oral, dermal, or inhalation exposure routes. Additionally, the operation of construction equipment (e.g., trucks, scrapers, etc.) and possible encounters with subsurface utilities present potential safety hazards to on-site workers and visitors.

5. Job Hazard Analysis

The proposed field work may result in the exposure of site workers to physical or chemical hazards if appropriate health and safety precautions are not undertaken. The possible hazards are identified and evaluated in the following sections.

5.1 CHEMICAL HEALTH HAZARDS

Chemicals of concern (COCs) have been identified at the site that may form toxicological exposure hazards and enter the body via inhalation, ingestion, or skin absorption exposure routes. Permissible exposure limits (PELs) are defined for most COCs by the California Department of Occupational Safety and Health (CAL/OSHA) in the California Code of Regulations (CCR), Title 26, Section 5155, and other sections. PELs comprise airborne concentrations of substances to which workers can be repeatedly exposed, 8 hours per day for a 40-year working lifetime, without adverse effect. Variations in individual susceptibility may result in a small number of workers experiencing discomfort to some or all the chemicals at concentrations equal to or below the PEL. A smaller percentage of individuals may be affected more seriously from exposures at or below the PEL due to aggravation of a pre-existing condition, and may develop an occupational illness. PELs are based on research conducted by the National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH) and draw from the best available information regarding industrial experience, animal studies, and other sources.

The time-weighted average (TWA) PEL represents a time-weighted exposure for an 8-hour workday, 40-hours per week. Most PELs are expressed as time-weighted averages. CAL/OSHA also has promulgated short-term exposure limits (STELs; usually 15 or 30 minutes) for certain substances. A few substances also have a ceiling concentration (the highest allowable concentration in the workplace) that cannot be exceeded, even instantaneously. Substances that can enter the body in a gaseous form through the skin are denoted by CAL/OSHA with an "S."

The COCs identified for the site are lead and arsenic. Toxicity information for the COCs is provided below.

Table 1. Regulatory Exposure Limits and Chemical Toxicity

Compound	*Exposure Limits*	
	*Cal-OSHA 8-hr TWA/STEL**	*NIOSH IDLH*
Lead	0.05 mg/m^3	100 mg/m^3
Arsenic	0.01 mg/m^3	5 mg/m^3

* ACGIH Threshold Limit Values (TLVs) are used when more conservative than PELs.
TWA = Time-weighted average (concentration should not be exceeded during an 8-hour workday during a 40-hour work-week)
STEL = Short-term exposure limit (15-minute TWA exposure that should not be exceeded at any time during a workday)
IDLH = Immediately dangerous to life or health concentration
NE = None established

Lead – Lead is a heavy, ductile, soft gray solid. It is non-combustible with a melting point of 621°F and vapor pressure of 0.0 mm of mercury (Hg). Lead is incompatible with strong oxidizers, hydrogen peroxide, and acids. Acute lead poisoning usually manifests as gastroenteritis. Lead accumulates in the body; chronic lead poisoning is manifested by anemia, constipation, and abdominal pain. Accumulation in the peripheral nerves leads to wrist and ankle drop. Lead enters the body primarily by inhalation. In the respiratory tract, most lead compounds are absorbed rapidly and stored in nerve tissue so that poisoning can develop from long-term exposure to low doses. Poisoning can also develop slowly from ingestion via lead-contaminated food, drink or tobacco products. Prevention of lead poisoning is almost entirely a matter of good personal hygiene and housekeeping. Lead is known to the State of California to cause cancer and reproductive toxicity under the criteria of Proposition 65.

Arsenic -- Arsenic compounds can be corrosive to the skin. Brief contact has no effect, but prolonged contact results in localized skin problems. Some compounds are capable of producing skin sensitization and contact dermatitis. Acute arsenical poisoning due to inhalation is very rare, but poisoning from chronic exposure does occur; initial symptoms include weakness, loss of appetite, nausea, vomiting, and diarrhea. The National Toxicology Program considers arsenic to be a substance that is known to be carcinogenic. Arsenic (inorganic) is known to the State of California to cause cancer under the criteria of Proposition 65.

Dust -- Dust particles not otherwise classified are from solid substances without specific occupational exposure standards. These include all inert or nuisance dusts, whether mineral or inorganic. Exposure routes are primarily inhalation. Common symptoms of exposure are irritation of the eyes, skin, throat and upper respiratory tract.

5.1.1 Required Safety Measures For Chemical Hazards

Protective clothing and adherence to safety procedures will minimize the opportunity for exposures during soil excavation, handling, and disposal activities. To protect workers generally from eye contact, skin contact, and skin absorption, Personal Protective Equipment (PPE) will be available and will be used as outlined in Section 9.0. Inhalation of contaminated dusts and vapors is not expected to result in exposures greater than the respective TWAs, STELs, or IDLHs, because the stated activities will be conducted outside. Standard dust mitigation measures will further minimize risk through the inhalation pathway.

Should exposure to any of the above compounds occur, the emergency response procedures listed in Table 2 should be performed:

Table 2. Emergency Response Procedures

Exposure Pathway	*Response*
Eye Contact	Irrigate immediately
Skin Contact	Wash promptly with soap
Inhalation	Move to fresh air
Ingestion	Seek medical attention immediately

If breathing has stopped, mouth-to-mouth resuscitation should be provided and medical attention sought.

5.2 BIOLOGICAL HEALTH HAZARDS

Potential biological hazards include plants, ticks, snakes, and various stinging insects. Many common biological hazards can be addressed through awareness/avoidance or the use of over-the-counter medications. These medications will be kept on hand in an onsite first aid kit. The use of appropriate field clothing can help protect workers from biological hazards. Personnel who know they are sensitized to a particular biological hazard should inform the SHSO before field work commences.

5.3 PHYSICAL HAZARDS

Physical hazards that may be present during onsite field activities are listed below:

- Slip, Trip, or Fall - These types of hazards result from unleveled surfaces, slippery surfaces, and hard-to-see objects located across walking paths (e.g., rope, cords, etc.), and are responsible for over 60% of work-related injuries.

- Housekeeping and Sanitation - In order to permit safe and efficient work conditions, all work areas will be kept clean and free from debris. All hand tools will be kept in storage until they are needed for use. Trash containers will be leak proof, clean, and maintained in a sanitary condition. If vermin are encountered, an approved extermination method will be initiated. Potable water will be used for first aid, drinking, and personal hygiene purposes. All floors will be kept free from standing water. Disposable drinking cups will be provided, along with water coolers. Community drinking cups will not be permitted.

- Falling Objects - Hard hats, safety glasses, and steel-toed footwear will be required for personnel in all work areas.

- Traffic Safety - During normal work hours, there may be truck and heavy equipment traffic operating at the site or entering/exiting the site. Pedestrian traffic could be at risk in these circumstances.

5.3.1 Required Safety Measures for Physical Hazards

The types of safety measures to be taken to reduce physical hazards that may be present at the site are listed in Table 3:

Table 3. Safety Measures to Prevent Injuries

Potential Hazard	Required Safety Measure
Head Injury	Hard hats will be worn.
Eye Injury	Safety glasses will be worn around moving machinery or impact-related operations.
Foot Injury	Safety shoes with steel reinforced toes will be worn.
Other Injury	Guards are required on all moving parts, belts, and pulleys.
Fire	Fire or tobacco smoking will be strictly prohibited within the work area. Fire extinguishers will be readily available.

Table 3. Safety Measures to Prevent Injuries

Potential Hazard	Required Safety Measure
Inhalation	Dust mitigation measures may need to be implemented, based on field observations and meteorological conditions. Appropriate protective equipment will be used, as directed by the SS/SHSO.
Noise	Hearing protection will be used whenever loud machinery is in use
Dermal exposure	Contact of sufficient duration to cause significant absorption of potential toxic components is highly unlikely. Repeated daily or prolonged contact with soil or water, however, may over a long period of time lead to irritation and dermatitis. For this reason, direct skin contact with soil or water will be avoided by wearing protective gloves. However, if skin contact does occur, the exposed areas may be washed with soap and water and rinsed thoroughly.
Equipment Failure	If monitoring instruments or any safety equipment fails, work will be suspended until repairs or replacements can be found. In case of working equipment failure, the SS/SHSO will ensure that no hazardous conditions prevail before authorizing further work.
Slip, Trip, and Fall	Appropriate warning signs will be posted, wherever this danger exists.
Underground Utility	Location of all underground utility lines will be determined before commencing work. In case of breach of a line, electricity and gas supply will be shut off.
Traffic Hazards	When working in an area subject to vehicle traffic, the work area should be clearly delineated to control vehicular access. When working in public right-of-ways, lanes closures must be conducted in compliance with the guidelines set forth in the State of California Manual of Traffic Controls (Watch handbook) and any additional local ordinances or guidelines. Personnel exposed to vehicular traffic will use high-visibility clothing in accordance with the requirements of 8 CCR 1598(c).

5.3.2 Heavy Equipment and Traffic

The use of heavy equipment on site presents a potential physical hazard to personnel. Site investigation and remediation activities may include the use of front-end loaders, backhoes, graders, excavators, dump trucks, and drilling rigs. Unauthorized persons will be excluded from areas where heavy equipment is operating by means of perimeter fencing, caution tape, or other means of demarcation.

While approaching heavy equipment during operation, personnel will observe the following protocols:

- Make eye contact with the operator.
- Signal the operator to cease heavy equipment activity.
- Approach the equipment and inform the operator of intentions.

Only qualified personnel will operate heavy equipment. Those crew members directly involved with spotting for the operator will be the only personnel allowed within the operating radius of the heavy equipment. All other personnel will remain a safe distance away from these operations.

Only equipment that is in sound working order will be used. To maintain this policy, all equipment brought onto the project site will be inspected for structural integrity, smooth operational performance, and proper functioning of all critical safety devices in accordance with the manufacturer's specifications. A qualified equipment operator will perform this inspection. Equipment not conforming to the operational and safety requirements during this inspection will not be put into service until all necessary repairs are made to the satisfaction of the inspection group. Only qualified operators with the equipment will be permitted to operate equipment.

5.3.3 Heat Stress

The Contractor's Safe Work Practices, Prevention of Heat Stress and Stroke, is provided in Appendix A. Heat stress and associated complications can be the most prevalent health concerns on sites, especially when PPE is used. Heat stress problems for workers can occur more often than chemical-related hazards and, therefore, must be regarded with caution.

If precautions are not taken, workers wearing PPE may be at increased risk of heat stress. All workers will be encouraged to drink increased amounts of fluids (which will be readily available at the site at all times, at an appropriate location). All personnel will monitor each other to determine if any signs of heat stress become apparent. A work/rest regimen will be instituted to reduce heat-related exhaustion.

The SS/SHSO will be trained to recognize the symptoms of heat rash, heat cramps, heat exhaustion, and heat stroke. Using the following procedures will help reduce the potential for workers to experience symptoms of heat stress:

- Provide plenty of liquids to replace loss of body fluids, including commercial electrolyte-replacement drinks.

- The SHSO will establish a work/rest schedule. The SHSO will consider environmental conditions, whether workers are acclimatized, level of chemical protective clothing being used, and the activity level. The most recent version of the American Conference of Governmental Industrial Hygienists "Threshold Limit Values for Chemical Substances Physical Agents" shall be relied upon for establishing the schedule. The work/rest regimen shown on the following page will be followed for field workers performing light/moderate work at PPE level C or level B outdoors.

Table 4. Work/Rest Regimen for Various Ambient Temperatures

Work/Rest Regimen	Temperature	
	°F	°C
Continuous work	<79	<27
75% work/25% rest each hour	79	27
50% work/50% rest each hour	84	30
25% work/75% rest each hour	>88	>32

- In order to evaluate the adequacy of this work/rest schedule, heart rate (pulse) determination will be made involving each worker leaving the work area and again approximately one minute after exit. If the exit pulse exceeds 0.7 times the difference between 220 and the age of the individual, or if the one minute pulse exceeds 110 beats per minute, then the work schedule will be reduced by 10 minutes and, therefore, the rest period will increase by the same 10 minutes each hour.

Heat stress monitoring will be performed at the discretion of the SHSO, based on site conditions. One or more of the following are potential indicators of heat stress and an individual should stop work if any of the following occur: sustained (several minutes) heart rate is in excess of 180 beats per minute (bpm) minus the individual's age in years (180 - age) for individuals with assessed normal cardiac performance; body core temperature is greater than 38.5^{0}C (101.3^{0}F) for medically selected and acclimatized personnel, or greater than 38^{0}C (100.4^{0}F) for others; or the recovery heart rate one minute after peak work effort is greater than 120 bpm.

5.3.4 Noise

Noise levels in excess of 85 dBA (decibels on the A-weighted scale) for extended periods of time can result in temporary or even permanent hearing loss. The PEL for noise is 90 dBA, while the 8-hour, TWA sound level of 85 dBA is the OSHA Action Level. Historical noise monitoring data collected during work using heavy equipment have shown noise levels can exceed these regulatory limits. As a result, hearing protection devices will be used, as appropriate, for field activities conducted at the site.

At the discretion of the SHSO, noise monitoring may need to be performed for job tasks that utilize heavy machinery or potentially loud equipment. If noise in the work area exceeds 85 dBA (peak measurement), as measured using a sound level meter, ear plugs will be required for all personnel in the work zone and personnel noise dosimetry will be conducted. If noise exceeds 80 dBA over a 2 hour time-weighted average using a noise dosimeter, earplugs will be required for the remainder of the job tasks. If noise levels exceed 90 dBA over a 2 hour time-weighted average, ear muffs will also be required for all personnel in the work zone. The need for engineering controls for noise reduction will also be assessed.

5.3.5 Electrical Hazards

Overhead power lines, downed electrical wires, and buried cables all pose a danger of shock or electrocution if workers contact, sever them or come in close proximity during site operations. In order to prevent accidents caused by electric shock, site personnel will inspect all electrical connections (if required) on a daily basis. They will shut down and lock out any equipment that is found to have frayed wiring or loose connections until a qualified electrician can be contacted and repairs effected. Electrical equipment will be de-energized and tested by an electrician before any electrical work is done. All equipment will be properly grounded prior to and during all work. Underground Service Alert (USA) will be notified at least two (2) working days prior to site activities in any area.

Ground fault circuit interrupters (GFCIs) will be installed whenever possible in each circuit between the power source and tool, unless the presence of a potentially explosive atmosphere precludes this procedure. In the event that generators are used to supply power, these generators will be equipped with GFCIs.

In addition, all drilling activities will be conducted in accordance with Cal OSHA provisions for preventing accidents due to proximity to overhead high-voltage power lines. Electrical Safety Order 2946 (California Code of Regulations Title 8) outlines the requirements for prevention of accidents due to proximity to overhead lines. Personnel must be guarded against the danger of accidental contact with overhead lines. With certain exceptions, work done over live (power on) overhead lines is against the law.

5.3.6 Excavations

Deep excavations are not part of the project work scope. As such, the following protocols and procedures are presented as an adjunct to this HASP. Subsurface installations will be identified and marked prior to any excavation. Owners and operators of high priority subsurface installations (e.g. high pressure pipelines, natural gas/petroleum pipelines, electrical lines greater than 60,000 volts, etc.) that are located within 10 feet of excavations must be met with prior to beginning excavations.

The need for excavations equal to or greater than or equal to 5 feet bgs is not anticipated for the current soil removal action. In the event such excavations are required, they will not be entered unless the sidewalls were rendered safe by sloping them to a minimum horizontal to vertical ratio approved by the geotechnical engineer of record, or by implementation of protection systems (e.g., temporary shoring, etc.) designed by a licensed engineer. Personnel must obtain prior approval before entering excavations greater than or equal to 5 feet bgs. Daily inspections of excavation, the adjacent areas, and protection systems will be made by a competent person to determine if a situation exists that could result in possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection will be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections will also be made after every rainstorm to ensure that no water accumulation has occurred. Employees shall not work in excavations where water has accumulated, unless adequate precautions are taken to protect employees against the hazards posed by water accumulation.

The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline. Additional information for working within and around excavations is contained within the Contractor's "Safe Work Practices for Excavation Activities" provided in Appendix B.

6. General Health and Safety Requirements

Throughout the project, records documenting the site safety program will be maintained. These records will include information about personnel medical clearances and training, safety briefings, and incidents, if any. The records will take the form of a dedicated health and safety logbook and various health and safety forms.

Records will be kept consistent with all applicable CAL/OSHA regulations. Where applicable, the types of records are maintained by PlaceWorks:

- Hazard communication training
- Hazardous waste site training
- Respiratory protection training
- Respirator assignment
- Medical surveillance
- Safety inspection reports
- Personal monitoring records
- Accident logs
- CAL/OSHA logs (200 form or equivalent).

The PM or SS will maintain the following records at the site, some of which will be written entries into a bound project notebook:

- Persons on-site, their affiliation, and purpose
- Sampling activities
- Chain-of-custody forms
- Work progress
- Tailgate safety meeting forms
- Worker illness and (or) injury reports

- HASP (including revisions)
- Daily work activities and conditions
- Accident log.

Subcontractors shall maintain similar employee records.

6.1 MEDICAL CLEARANCE AND MONITORING

All personnel must obtain health and safety clearances before beginning work at the site. PlaceWorks employees must be active participants in the Medical Surveillance and Training Program, a copy of which is provided in Appendix C. Project personnel who may need to wear respirators shall provide evidence that they have been cleared by a physician to wear respirators.

6.2 SAFETY MEETINGS

Before site work commences, a safety orientation meeting will be held. This meeting will address site hazards and provisions for minimizing these hazards. The meeting will also be used to plan various stages of the work and to distribute HASP-related information to other site workers. After the meeting, a Compliance Agreement will be signed by the SHSO and supervisors representing the other project contractors or subcontractors at the site. A copy of the Compliance Agreement form is provided in Appendix D.

Tailgate safety meetings will be conducted daily, prior to the commencement of work activities. These meetings will be documented using a standard Safety Meeting Form, a copy of which is provided Appendix D. Topics to be addressed during daily safety meetings will include: previous work activities, safety concerns that arose during these activities, anticipated changes in the work scope, new employee introductions (if necessary), modifications to the HASP, evacuation routes, and changes in PPE levels.

6.3 TRAINING

Field work will not commence occur until all personnel have been trained to the level required by their job function and responsibility. The types of training that may be required include: orientation for new employees, basic training for first-time hazardous waste site workers, hazardous waste site supervisor training, advanced training, site-specific training, first aid, and refresher training.

Project personnel are required to have completed 40 hours of OSHA HAZWOPER training. In addition, the SS and SHSO must have completed Competent Person Training pursuant to Subpart P, 29 CFR 126.650, Trenching and Excavation.

6.4 DISTRIBUTION OF THE HASP

A copy of this HASP will be made available on request to each employee of PlaceWorks and to their on-site subcontractors. These personnel must acknowledge their review of the HASP and agree to comply with its provisions by signing the Acknowledgement Statement provided in Appendix D.

6.5 INCIDENT REPORTING

Injuries, exposure, illnesses, safety infractions, and other incidences must be reported to the SHSO within 24 hours of occurrence.

An incident is any event listed below:

- Illness resulting from chemical exposure or unknown causes
- Physical injury, including those that do not require medical attention
- Fire, explosions, and flashes resulting from activities performed by Contractor personnel and their subcontractors
- Site damage
- Vehicular accidents occurring on-site or while traveling to and from the site
- Infractions of safety rules and requirements
- Unexpected chemical exposure (indicated by irritation of eyes, nose, throat, or skin).

Onsite accidents involving personnel other than PlaceWorks employees or their subcontractors shall also be reported. All serious onsite injuries will be reported as soon as possible to the CHSO.

6.6 SAFETY COMPLETION REPORT

Once the field work is complete, a Safety Completion Report will be submitted to the CHSO within five working days. The report should include a critical evaluation of the HASP, a list of personnel that worked at the site, exposure monitoring data, a summary of incidences and action(s) taken, and recommendations for improving health and safety at similar sites. A copy of the Safety Completion Report form is provided in Appendix D.

6.7 POSTING REQUIREMENTS

The following information will be posted or readily available on site:

- Emergency phone numbers

- Directions to the nearest hospital
- A copy of this HASP.

6.8 AUDITING

The success of a health and safety program will be evaluated through statistical reporting (such as the OSHA 300 logs and insurance experience) and/or formal audits. Audits will be conducted by the CHSO. Audits may be announced or unannounced, and a formal health and safety audit report will be provided to the PM. After the audit is finished, the auditor shall discuss any health and safety concerns with the PM and SHSO. Inspections will be made to identify and evaluate hazards when:

- The program is first established
- New substances, processes, procedures, or equipment are introduced to the workplace that represent a new occupational safety and health hazard
- Whenever the Contractor is made aware of a new or previously unrecognized hazard.

6.9 INJURY AND ILLNESS PREVENTION PROGRAM (IIPP)

This entire document, including the appendices, serves as an IIPP. The persons with authority and responsibility for implementing the program are identified in Section 3.

The system for ensuring that employees comply with safe and healthy work practices includes:

- Generation of a HASP
- Auditing by the CHSO
- Daily field health and safety oversight by the SHSO
- Daily tailgate safety review meetings
- Review of employee and subcontractor training.

Employees and subcontractors who are not prepared to abide by the provisions of this HASP will not be allowed on-site. Field personnel who are working for the Contractor must sign the HASP Compliance Agreement provided in Appendix D. Individuals observed violating requirements of this document will be given a formal "Notice of Violation." Should violations continue, or fail to be corrected, the individual(s) will be removed from the site.

The tailgate safety meetings, training sessions, and postings at the site are the three major sources of communication between employees. Internal communication system includes:

- A reporting matrix between the SHSO and CHSO
- The communications associated with the auditing program.

The auditing program also complies with Title 8, CCR Section 3203(a)(4), which states that an employer must:

"Include procedures for identifying and evaluating work place hazards including scheduled periodic inspections to identify unsafe conditions and work practices."

Incident/accident reporting system is the procedure for investigating injury or occupational illness, in addition to a medical surveillance program. This document addresses the applicable sections of the Title 8 CCR, Sections 1509 (Construction) and 3203 (General) regarding the IIPP.

6.10 FIT FOR DUTY

It is the responsibility of the Contractor, subcontractors, clients, or visitors to ensure that they are fit to perform their required duties at the site. The SHSO has the responsibility to ensure that each individual signing the tailgate meeting is fit for duty. Activities that may affect the fitness of individuals at the site include those listed on the following page.

- Consumption of alcohol
- Use of illegal or controlled substances
- Certain prescription or over-the-counter medicines
- Altered mental state
- Personal injury
- Fatigue.

Any individual found unfit for duty will be precluded from entering the site until they are fit to do so. In such an instance, the SHSO will complete an incident report and notify the PM. Subcontractors who have personnel unfit for duty will be notified and provided with the opportunity to replace the impaired individuals at the site.

7. Exposure Monitoring Plan

7.1 DUST MONITORING

The Site's COCs – arsenic and lead – are not volatile, but can adhere to soil particles and become airborne contaminants associated with dust generated during soil handling. During periods of active remediation, air monitoring for dust will be performed at the perimeter of the active work area (i.e. exclusion zone") to ensure that unsafe concentrations of dust are not migrating outside the active work area. Air monitoring will also be conducted within the active work zone to ensure the health and safety of remediation workers. An upwind/downwind sampling approach will be used, with monitoring positions established based on an ongoing assessment of wind speed and direction, as follows:

- One upwind location
- One location proximate to the exclusion zone (within the breathing zone of the equipment operator)
- Three downwind locations.

Dust monitoring will be conducted using continuous, real-time particulate dust monitors equipped with data loggers. The dust monitors will be positioned at selected Site locations that may vary depending on the location(s) of daily activities and shifting wind directions. The real-time and time weighted average (TWA) readings will be checked and recorded by on-site personnel approximately every 30 minutes, and the logged data will be downloaded at the end of the day. In addition, a portable hand-held dust monitor will be used to spot-check particulate levels at various Site locations if visible dust is observed.

The National Ambient Air Quality Standard (NAAQS) for dust is 50 micrograms per cubic meter ($\mu g/m^3$), based on dust particles measuring 10 micrometers or less (PM_{10}). The NAAQS dust standard (50 $\mu g/m^3$), steady for 5 minutes, has been selected as the action level for dust monitoring activities at the perimeter of the active work area (difference between upwind and downwind readings). This is also the action level as specified in SCAQMD Rule 403. LAUSD will fully comply with applicable Rule 403 requirements including concurrent upwind and downwind measurements.

The action level for dust for equipment operators and workers will be set at 1 milligram per cubic meter (mg/m^3) steady for 5 minutes. This action level will trigger increased dust suppression activities to mitigate dust levels below 1 mg/m^3. Respiratory protection will be worn by the equipment operators if dust levels exceed 1 mg/m^3 for greater than 5 minutes. Additional dust suppression activities will be applied to reduce dust levels below 1 mg/m^3. If dust emissions cannot be controlled reliably within 15 minutes, all work will cease and a certified Industrial Hygienist will be consulted.

8. Site Control

The goal of site control is to protect workers and the public from physical hazards at the site and to prevent vandalism. To achieve these goals, and to control the movement of personnel and equipment, a site control program will be established. The basic components of the program will include site work zones, use of the buddy system, site security, safe work practices, sanitation, site communication, and visitor clearances. These components are described in the following sections.

8.1 SITE WORK ZONES

Access to hazardous and potentially hazardous areas must be controlled to reduce the probability of physical injury to field personnel, visitors, and the public. A hazardous or potentially hazardous area includes any area where field personnel are required to wear PPE or deep excavation operations are being performed. The establishment of work zones will help ensure that: personnel are properly protected against hazards present where they are working, work activities and contamination are confined to appropriate areas, and personnel are located and evacuated in an emergency. Depending on the project and the layout of the site, as many as three work zones may need to be established to support the field program: the exclusion zone (EZ), the contaminant reduction zone (CRZ), and the support zone (SZ). The area work zones will be identified with barrier tape, temporary fencing, delineators, or other demarcation methods. At many sites, the existing infrastructure, such as building facades, walls or fences, hedgerows, etc. can be used to delimit work zones.

The locations of the work zones will be established in the field. When possible, the SZ will be upwind from the active work areas. All persons entering the subject site will identify themselves to the PM, SS, or SHSO.

8.1.1 Exclusion Zone (EZ)

The EZ is defined as the area where field activities could present a potential hazard to personnel. The EZ initially will be established for each task based on the nature and location of the hazards within the area. The zone boundaries may be altered by the SHSO based on new data or observations. The outer boundary of the EZ will be delineated with barrier tape, temporary fencing, delineators, or other demarcation methods.. Access control point(s) (ACPs) will be established at the periphery of the EZ to control the flow of personnel and equipment into and out of the EZ. Access will be restricted to personnel with appropriate training and documentation, and wearing appropriate PPE, as defined in this HASP. Eating, drinking, and smoking are prohibited in the EZ.

8.1.2 Contaminant Reduction Zone

The CRZ is the area where personnel conduct personal and equipment decontamination. Its location will be established based on site access, and other considerations. The CRZ represents a transition area between contaminated areas and clean areas, and provides an area to prevent or reduce the transfer of contaminants that may be present on personnel or equipment returning from the EZ. Emergency and first aid equipment, equipment resupply (e.g., gloves, etc.), and temporary rest facilities (e.g., chairs, shade, liquids, etc.) will be available in or close to the CRZ. At many sites, the levels of COPCs are sufficiently low that hazards associated with contaminant transfer from the EZ are extremely low. In such instances, a "step-off" CRZ may be appropriate, where personnel can directly transition from the EZ to the SZ with minimal decontamination.

Where a larger CRZ is appropriate, access into and out of the CRZ from the EZ is controlled through ACPs. The boundary between the CRZ and the SZ, the Contamination Control Line, separates the low contamination area from the clean SZ. Entry into the CRZ from the SZ will be controlled through ACPs. Activities to be conducted in the CRZ will require PPE as defined in the decontamination procedures. Exit from the CRZ requires the removal of any suspected or known contaminated PPE and compliance with decontamination procedures. A primary and secondary CRZ will be established. Exit through the secondary CRZ will occur only during emergencies.

8.1.3 Support Zone

The SZ is an area where the chance of encountering hazardous conditions is minimal. It contains administrative and other support functions, including the Command Post (CP). CP personnel are responsible for supervision of all field operations and field teams. CP personnel are also responsible for maintaining internal and external communication and alerting the proper authorities in the event of an emergency. Telephone communication will be maintained by the use of cellular phones at the site. Emergency telephone numbers and hospital route maps will be kept here. Health and safety records and up-to-date copies of the HASP will be kept in the SZ. Break/ conference, lunch, storage/supply, security, sanitation, and emergency medical facilities will be established in this area. PPE is not required in this area and eating, drinking, and smoking are permitted.

8.2 BUDDY SYSTEM

The "Buddy System" will be used to:

- Control work inside the EZ
- Warn co-workers of an impending hazard
- Periodically check the integrity of partner's PPE
- Provide aid in the case of accidents or injuries, and make appropriate notifications.

Prior to field work, "buddies" will establish a time to communicate if either one is out of sight from the other person for an extended period. A way to communicate should also be agreed on prior to entry into the work area.

8.3 SITE SECURITY

Site security is necessary to:

- Prevent the exposure of unauthorized, unprotected people to site hazards;
- Prevent theft; and
- Avoid interference with safe working procedures.

Personnel and vehicle entry will be restricted in established work zones. The responsibilities of personnel include:

- Limiting access to authorized personnel only. Requiring identification of all personnel requesting access to the work zones (i.e., SZ, CRZ, or EZ)
- Ensuring that all visitors to the site who will not be involved in specific work operations have a valid purpose for entering the site and approval for access from the SHSO. The SHSO will ensure that visitors entering work zones have the appropriate training, and have read and signed the HASP
- Requiring all personnel accessing the work zones to sign in and out
- Excluding unauthorized personnel from the site. Advising unauthorized personnel attempting to gain access to the site that they are trespassing and will be prosecuted for unauthorized entrance to the site. Security personnel will make all reasonable efforts to record a description of the trespasser and their vehicle
- In the event of a fire, explosion, release of airborne contaminants, flood, or other emergency that requires the evacuation of personnel, security personnel will limit site access to only those personnel authorized by the site emergency response coordinator. The SHSO will initiate a head count to ensure all personnel are accounted for.
- Documenting any security problems in the bound project notebook.

8.4 SAFE WORK PRACTICES

To maintain strong safety awareness and enforce safe procedures, the following personnel requirements and prohibitions will be established for the site:

- The subject work area will be restricted to authorized visitors and personnel. These individuals will be required to attend a tailgate safety meeting upon entering the subject area during which they will be informed of the various work zones and facilities, the health and safety hazards associated with their assigned work activities, control measures, the care and use of personal protective equipment, emergency action plans, and other pertinent information. Tailgate safety meetings will be conducted on a daily basis at the beginning of each shift.
- All persons entering the site will be required to identify themselves to the SS. Persons who have not attended a tailgate safety meeting on that day will be required to do so with the SHSO or other authorized

8. Site Control

representative. Persons unfamiliar with the site will be informed of site hazards and instructed to avoid contact with contaminated surfaces, soils, sample materials, or related equipment, and will be instructed to remain upwind from all active work areas. Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the EZ and CRZ. Drinking water or equivalent fluids may occur in the CRZ at the discretion of the SHSO. Before wearing Level C PPE, personnel may drink fluids in the CRZ. They will also complete the decontamination procedures necessary to exit the EZ, remove their respiratory protection, remove all protective gloves, and wipe their hands and face with pre-moistened towelettes

- Skin contact with contaminated or potentially contaminated surfaces, samples, or equipment should be avoided
- Site personnel will use the "Buddy System" when performing duties in the EZ work zone. Communications between members will be maintained at all times. Visual contact will be maintained between buddy pairs at all times
- As appropriate, equipment will be bonded and grounded, and will be spark resistant
- A fire extinguisher will be available for use in the work area during all working hours
- A portable emergency eyewash station will be located strategically in the work area. The eye wash station will be capable of flushing the eyes with copious amounts of water
- Upon leaving the CRZ, all persons will adhere to the decontamination procedures outlined in this HASP
- Legible precautionary labels will be affixed to containers of raw materials, intermediate products, mixtures, waste debris, and contaminated PPE, if any
- Contaminated PPE will not be removed from the site until it has been cleaned or properly packaged or labeled
- Hands will be thoroughly washed upon leaving contaminated or suspected contaminated areas before eating, drinking, or other such activity
- All hazardous wastes, soil samples, and other contaminated materials, if any, which are removed from the subject site will be accompanied by appropriate shipping papers
- A first-aid kit suitable for use at hazardous waste sites will be located in the SZ
- No facial hair that interferes with a satisfactory fit of the mask-to-face seal is allowed on personnel required to wear respiratory protection
- Alcoholic beverage consumption is prohibited during the work day

- Safety devices on equipment must be left intact and used as intended

- Equipment and tools will be maintained in good working order, and used only for their intended purpose.

8.5 STANDARD OPERATING PROCEDURES

Employees and subcontractors are expected to follow the standard operating procedures listed below while involved in work at the site:

- Buddy System: A minimum of two workers will be on the site at all times during all operations. The buddy pair(s) will maintain visual or voice contact at all times. [N.B. Subcontractor personnel can be teamed with Contract personnel, if necessary.]

- Personal Protective Equipment: All persons entering the EZ will do so while wearing the PPE equipment documented in this HASP. Such individuals will be trained in the proper use, care and maintenance of this equipment, will have submitted to a physical examination by a licensed medical physician, and will have been deemed physically fit to wear such equipment. The user will inspect such equipment before donning

- Unanticipated Hazardous Materials: In the event unanticipated hazardous material(s) are observed or symptoms of distress are experienced by workers, the SHSO will conduct an investigation. He/she may collect samples in order to ascertain the identity of the material(s)

- Symptoms of Distress: The SSO and each subcontractor field supervisor will periodically observe personnel for symptoms of distress. Indications of such adverse effects include:

  - Changes in complexion, skin discoloration
  - Coordination difficulties
  - Changes in demeanor, disposition
  - Excessive salivation, papillary response
  - Changes in speech patterns
  - Nervousness or excitability

  Field personnel are required to contact their SS if they are experiencing:

  - Headache or dizziness
  - Blurred vision
  - Irritation to the eyes, mucous membranes, respiratory tract or skin
  - Heat stress

- Daily Shutdown: All mechanical equipment will be parked and/or stored in a safe location designated by the PM, SS, or SHSO

- Stop Work Orders: In the event work is performed contrary to the provisions of the specifications and/or approved work plans, or contrary to the conditions of any applicable permit or certificate, or if upon inspection, it is determined that continuation of authorized work is likely to endanger any person or public and/or private property, then the work will be stopped by notice in writing served by the PM or any other authorized representative. An example of a Stop Work Order is included in Appendix D.

8.6 ILLUMINATION

Nighttime work activities are not anticipated; however, if nighttime work becomes necessary, adequate illumination will be provided to ensure safe working conditions. Artificial lighting for work areas will meet the minimum illumination requirements specified in OSHA Title 8, CCR Section 5192(m). Portable stationary lights will be will be powered by mobile generator units. They will be angled on-site and hooded to prevent light from spilling over from the project footprint.

8.7 SANITATION

An adequate supply of potable water will be provided. Potable drinking water containers will be capable of being tightly closed. The "common" drinking cup is prohibited. Adequate washing facilities for employees engaged in operations at the site will be provided. The facilities will be in proximity to the work site and will be equipped to handle both sexes.

8.8 SITE COMMUNICATION

Successful communication between field personnel is essential. An internal communication system among on-site personnel and an external communication system between on-site and off-site personnel will be established.

8.8.1 Internal Communication System

The internal communication system will be used to relay health and safety information, communicate changes in work, maintain site control, and alert personnel in case of emergencies. Verbal communications will be the primary method of routine communication.

8.8.2 External Communication System

The external communication system between on-site and off-site personnel is necessary to report to management, maintain contact with essential off-site personnel, and coordinate emergency response. Cellular telephones maintained in the SZ will be the primary means of external communication, and will be used to notify off-site emergency response agencies, if necessary.

8.9 VISITOR CLEARANCES

Entry to hazardous areas will be limited to individuals who must work in those areas. Unofficial visitors must not be permitted to enter hazardous areas while work in those areas is in progress. Official visitors should be discouraged from entering work areas, but may be allowed to enter only if they agree to abide by the provisions of this document, follow orders issued by the SSO, and sign a compliance agreement that they were informed of the potential dangers that could be encountered in the areas.

9. Personal Protective Equipment (PPE)

The purpose of PPE is to isolate or protect personnel from the chemical and physical hazards that may be encountered at the work site. A site-specific PPE program has been developed. The various components of this program are levels of protection, respirator care, PPE inspection, and levels of protection per task. PPE and safety precautions will be appropriate to protect against the known and potential health hazards in the subject area. The protective equipment required has been selected based on the contaminant type, anticipated concentrations in the air, and known routes of entry into the body.

9.1 LEVELS OF PROTECTION (LOP)

The LOP required will be continually evaluated as field work progresses. It should be noted that there may be increases or decreases in the LOP. Unless otherwise specified by the Contractor, it is anticipated the Level D PPE will be used, with modified Level D and Level C PPE available on standby.

9.1.1 Level D

Level D consists of the following:

- Work clothes (long sleeve cotton shirt and cotton pants)
- Construction quality boots with steel toe and shank
- Chemical resistant inner gloves
- Hard hats
- Safety glasses and hearing protection.

At a minimum, the following PPE will be discarded and replaced daily:

- Chemical resistant inner gloves

New outer gloves should be used for each sample.

9.1.2 Modified Level D

Modified Level D personnel protective equipment for all personnel entering the work area may be used, subject to the SHSOs decision to change the level of protection used. Modified Level D consists of the items listed on the following page.

- Disposable chemical protective clothing (i.e., Tyvek®)
- Protective disposable inner gloves
- Chemical-resistant outer gloves
- Boots with steel toe and shank
- Splash-resistant goggles will be worn if splashing may occur
- Hard hats
- Safety reflective vests.

9.1.3 Level C

Level C consists of Modified Level D gear plus:

- Full-face or half-face respirators air-purifying respirators (APRs) equipped with NIOSH/OSHA approved cartridges sealed in a plastic bag and ready for immediate donning. The cartridges to be used will be combination HEPA-organic vapor cartridges.

9.2 RESPIRATOR CARE

Each individual is responsible for inspecting and maintaining his or her own respirator. Before being taken into the field, all respirators will be inspected, cartridges (if used) installed, a positive and negative pressure check conducted, and the entire respirator assembly will be sealed in a plastic bag. After the respirator is used, the following cleaning procedures will be used:

- Cartridges for air-purifying respirators will be removed and disposed of as contaminated PPE
- The respirator face piece interior and exterior will be wiped down with pre-moistened towelettes, such as baby wipes, and subsequently sealed in a plastic bag for transport to the respirator cleaning station at the personal decontamination facility
- After a respirator has been cleaned and rinsed, it will be patted dry with a clean towel and stored.

9.3 PPE INSPECTION

PPE inspection will be done before use, during use, and after use. The following will be inspected during the course of the work activities at the site.

9.3.1 Clothing

Before use:

- Determine that the LOP is correct for the specific task at hand by consulting with the SSO
- Visually inspect for:
  - Imperfect seams
  - Tears
  - Malfunctioning closures

During use look for:

- Evidence of chemical attack, such as discoloration, swelling, stiffening, and softening. However, chemical penetration can occur without any visible effects
- Closure failure
- Tears
- Punctures
- Seam discoloration.

9.3.2 Gloves

Before use, pressurize glove to check for pinholes. Blow into glove and make sure no air escapes.

9.3.3 Respirator

Before use:

- Make sure that respirators have been adequately cleaned
- Check material condition for signs of deterioration and distortion
- Examine cartridges or canisters for expiration dates and ensure that they are the proper type for intended use. Also, make sure that the canisters or cartridges have not been previously used.

After use, make sure that respirators have been adequately cleaned.

9.4 LEVEL OF PPE PROTECTION

The work being performed will be conducted in Level D. Levels of protection will be upgraded in accordance with directives of the SHSO. PPE ensembles have been selected to ensure a level of protection greater than the minimum required to protect employees from anticipated hazards. The SHSO will further assess the workplace hazards and ensure that the proper PPE ensemble is provided and worn during work activities.

9.5 EQUIPMENT REQUIRED TO BE AVAILABLE ON SITE

Items required on-site include:

- First-aid kit with eye wash
- Fire extinguisher
- Construction tape and barriers to delineate work zone
- Spill containment equipment (e.g., absorbent material)
- Decontamination equipment
- NO SMOKING signs
- A vehicle must be kept on-site when personnel are working for the transport of slightly injured personnel to the hospital (severely injured personnel MUST be transported by paramedics).

10. Decontamination Methods

Decontamination procedures will be implemented to protect personnel from hazardous substances that may contaminate and/or eventually permeate protective clothing, respiratory protective equipment, tools, vehicles, and other equipment used on-site; to protect all site personnel by minimizing the transfer of harmful materials into clean areas; to prevent mixing of incompatible chemicals; and to protect the community by preventing uncontrolled transportation of contaminants from the site. Personnel exiting the EZ will pass through the CRZ, where protective gear will be cleaned and/or discarded. The particular location of the CRZ will be determined during the initiation of site activities.

10.1 PERSONNEL DECONTAMINATION

Personnel decontamination facilities will be supplied with a potable water supply. All personnel leaving the EZ must exit through the CRZ and perform appropriate decontamination procedures to prevent the transfer of contaminated materials into clean areas. The types of contaminants that they may have contacted and their function in the CRZ should determine the extent of their decontamination.

The decontamination process consists of a series of procedures performed in a specific sequence, depending on the level of PPE worn and site contaminants present. Before the start of work activities, the number and layout of decontamination stations will be determined. To prevent cross-contamination, each procedure will be performed at a separate station, and stations will be arranged in order of decreasing contamination.

In the event that Level C equipment is used, the following procedures will be instituted for decontamination of all articles leaving the EZ and CRZ to prevent or reduce the physical transfer of contaminants by people and/or equipment from the subject area.

PERSONNEL EXITING THE EZ:

- If the worker is heavily contaminated, water will be used to remove contamination prior to entering the CRZ. Water will be contained in a bucket or tub
- Deposit used equipment in the EZ or on tables in the CRZ for subsequent decontamination
- Scrub outer boot covers or polyvinyl chloride (PVC) overboots and outer gloves with decontamination solution or detergent and water
- If gross contamination is evident, remove contamination, to the extent practicable, from disposable suit and/or tank using disposable wipes or towels, with assistance from CRZ technician
- Remove tape around boots and gloves. Remove outer boot covers or PVC overboots and outer gloves. Discard tape, boot covers, and outer gloves in appropriate container

- Remove inner gloves and discard in appropriate container
- Thoroughly wash hands and face
- All PPE, including respirator, protective clothing and boots, will be removed and placed in appropriately marked containers, for disposal or for decontamination (boots and respirator minus cartridges) as the individual steps from the CRZ to the SZ
- Used boots, respirators, and other reusable personal protective equipment will be dismantled (if possible), decontaminated with mild detergent and warm tap water, and rinsed with clean tap water in the CRZ
- The spent solutions, brushes, and the like will, until shown otherwise, be considered contaminated and so treated
- Workers/visitors will be required to wash thoroughly with soap and water prior to leaving the site and will be instructed to remove work clothes and shower as soon as possible thereafter.

10.2 EQUIPMENT DECONTAMINATION

Support vehicles and equipment are to be left out of the exclusion area, to the extent practical, so that decontamination will not be necessary. If necessary, vehicles and equipment will be decontaminated before exiting the EZ. People from the subject area will institute the following procedures for decontaminating all vehicles and equipment leaving the EZ and CRZ to prevent or reduce the physical transfer of contaminants, as necessary:

- An equipment decontamination pad or area will be designated for cleaning large equipment utilized during work activities
- All sampling devices will be decontaminated by scrubbing or wiping a decontamination solution and water on the device
- Tools that are difficult to decontaminate will be kept in the EZ and handled only by workers using the appropriate PPE
- Respirators will be decontaminated and sanitized before being reused
- Following decontamination of equipment using steam cleaning, if appropriate, a final steam/water rinse will be applied
- The spent solutions, brushes, and the like will, until shown otherwise, be considered contaminated and so treated
- Wash materials will be disposed of properly

All porous equipment that is believed to be contaminated will be disposed of as hazardous waste.

10.3 EMERGENCY DECONTAMINATION

During emergency situations, decontamination will be performed to the maximum extent possible without compromising medical attention to the victim. If decontamination may aggravate or cause more serious health effects, or if injuries are life threatening, prompt lifesaving, first aid and medical treatment should be administered without decontamination or concurrently with it. Outer garments can be removed (depending on the weather) if it does not delay or interfere with medical treatment, or aggravate the problem. Respirators and backpack assemblies must always be removed. If outer garments cannot be safely removed, the victim should be wrapped in plastic, rubber, or blankets to minimize contamination of emergency transport vehicles and medical personnel. Whenever possible, site personnel should accompany the contaminated victim to the medical facility to advise of matters involving decontamination.

10.4 DECONTAMINATION OF PERSONNEL, PPE, AND EQUIPMENT

The following is a list of supplies needed to conduct proper decontamination of personnel, PPE, and equipment:

- Drop cloths of plastic or other suitable materials on which heavily contaminated equipment and other protective clothing may be deposited
- Collection containers, such as drums or suitably lined trash cans for storing disposable clothing and heavily contaminated personal protective clothing or equipment that must be discarded
- Lined box with absorbents for wiping or rinsing off gross contamination and liquid contaminants
- Galvanized tubs, stock tanks, or children's wading pools to hold wash and rinse solution. The tubs should be large enough for a worker to place a booted foot inside
- Appropriate wash solutions to wash off and reduce hazards associated with the contaminants
- Long-handled, soft-bristled brushes to scrub contaminants off PPE and for general exterior cleaning of heavy equipment
- Paper or cloth towels for drying protective clothing and equipment
- Metal or plastic drums for contaminated wash and rinse solutions
- Plastic sheeting, sealed pads with drains, or other appropriate methods for containing and collecting contaminated wash and rinse solutions
- Soap or wash solutions, wash cloths, and towels for personnel.

11. Emergency Response Procedures

This Emergency Response/Contingency Plan (ERP) has been developed to include instruction and procedures for personnel evacuation and procedures for medical emergencies that may occur during the project. All personnel emergency conditions require actions conducted in a manner that minimizes health and safety risks. All on-site personnel must be familiar with the ERP. Additions to the ERP will be incorporated into this HASP by addendum. All aspects of the plan will be addressed as part of the site-specific health and safety training required for all personnel.

11.1 RESPONSIBILITIES

11.1.1 Corporate Health and Safety Officer

The CHSO, or designee, will oversee the development and approval of the ERP and perform audits to ensure that the ERP is in effect and that all pre-emergency requirements are met. The CHSO will act as a liaison to applicable regulatory agencies and notify OSHA of reportable accidents or fatalities.

11.1.2 Site Supervisor

The SS will be responsible for ensuring that all site work is performed in a safe manner. In an emergency situation, the SS may serve as a focal point for the dissemination of information or as a Community Relations Manager. On this site, the SS will act as the Emergency Coordinator.

11.1.3 Project Manager

The PM is ultimately responsible for field implementation of the ERP. This includes communication specific health and safety requirements to the SS and consulting with the CHSO regarding planned activities, unforeseen conditions and for resolving any questions with identified safety procedures.

11.1.4 Site Health and Safety Officer

The SHSO is responsible for assisting the CHSO in development of the ERP and ensuring its provisions are abided by on-site. The SHSO is responsible for ensuring that all personnel are evacuated safely and that equipment is shut down or secured in the event of a stop work order or evacuation. The SHSO will complete an Accident/Incident form, which includes the following:

- A description of the emergency
- Date, time, and name of all persons/agencies notified and their response
- A description of corrective actions implemented or other resolution of the incident.

11.1.5 Emergency Coordinator

The Emergency Coordinator is responsible for implementing the ERP whenever conditions warrant. The Emergency Coordinator is responsible for ensuring the emergency treatment, transport, and evacuation of site personnel and notification of the appropriate individuals when the ERP has been implemented. The Emergency Coordinator also is responsible for prior notification of emergency services (fire, police, hospital, ambulance, etc.) about the nature and duration of work expected on the site, types of COPCs, possible health and safety effects and the anticipated emergency conditions.

11.1.6 On-Site Personnel

All on-site personnel are responsible for knowing the ERP and its procedures. Personnel will be expected to notify the Emergency Coordinator of occurring or impending emergencies and to cooperate fully once the plan has been implemented. All information is to be communicated to the Emergency Coordinator. All media and public inquiries are to be directed to the Emergency Coordinator.

11.2 POTENTIAL EMERGENCIES

The activities, layout, and hazards of the site have been evaluated to determine anticipated potential emergencies. Five categories of emergencies have been identified. The list will be revised in the event on-site conditions or operations warrant. The ERP will be updated in case of a revision or addition to the list. Anticipated emergencies include:

- Injury or illness
- Fire
- Explosion
- Spill/environmental release
- Natural disaster/hazard.

At this site, emergencies that may arise include accidents requiring first aid, fires, and potential exposures to impacted soil.

11.3 PUBLIC RESPONSE AGENCIES

Contact between site personnel and local emergency services will assist in developing a good working relationship and provide an opportunity for the development of effective, overlapping emergency plans. The Emergency Coordinator will contact the local hospital before beginning work at the site. The nature and duration of work, types of COPCs, and potential emergency conditions will be discussed.

11.4 EMERGENCY CONDITIONS

Whenever there is an emergency at the site, the following steps will be taken:

- An immediate report of the emergency will be made to the PM and SS
- The emergency will be assessed by the SS and identify:
  - The name, location, and telephone numbers of the appropriate agencies
  - The nature of the emergency
  - Hazardous conditions (e.g., fire, explosion, etc.)
  - The amount of material involved or released
  - The extent to which evacuation should occur
- The SS will notify all personnel on-site and activate the appropriate response
- All work will be stopped and evacuation initiated if appropriate
- The SS will notify the following as necessary:

Table 5. Emergency Contact Information

Agency	Type of Incident	Phone Number
Ambulance	Any situation requiring immediate medical attention	911
Ridgecrest Regional Hospital	Any situation requiring immediate medical attention	(760) 446-3551
Fire Department	Any uncontrollable fires	911
Police Department	Any crimes	911
USEPA	Damage to the environment	(800) 342-4636
PlaceWorks	Any accident or incident	(213) 623-1443

If the emergency draws the attention of the public, all inquiries are to be directed to the SS.

11.5 EMERGENCY EQUIPMENT

At the minimum, the following emergency equipment will be maintained on-site during field activities:

- Fire extinguisher
- Cell phone
- First-aid kit

- Eye wash solution.

11.6 ON-SITE PERSONNEL INJURY/ILLNESS

First aid will be administered on-site as necessary. Personnel requiring medical attrition will be transported or emergency medical services will be contacted to respond. The medical data sheet will accompany the injured person. The route to the hospital is shown on Figure 1. This map will be posted at the first-aid station and is to be taken with the driver of the injured individual. The hospital will be notified of the impending arrival and provided with pertinent information while the injured individual is being transported.

Basic first aid procedures must be followed in the event a person working on-site is injured. Depending on the severity of the injury, emergency medical response may be sought. If the person can be moved, they will be taken to the edge of the work area where emergency first aid can be administered. If necessary, transportation to the local emergency medical facility will be provided.

If the injury to on-site personnel involves chemical exposure, the following first-aid steps must be taken immediately:

- <u>Eye Exposure</u> -- If foreign material (liquid or solid) gets into the eyes, wash eyes immediately for at least 15 minutes using water and lifting the lower and upper lids occasionally. Obtain medical attention immediately.

- <u>Skin Exposure</u> -- Wash skin immediately with water. Obtain medical attention immediately.

- <u>Inhalation</u> -- If a person has inhaled a large amount of organic vapor, dust, etc., move them to fresh air at once. Obtain medical attention immediately. If breathing has stopped, appropriately trained personnel and/or medical personnel should perform CPR. Keep the person warm and comfortable.

- <u>Ingestion</u> -- If liquid or solid is swallowed, obtain medical attention immediately. The Poison Control Center also must be consulted.

The SHSO must inform the PM of any injury/accident, and a written report of the accident, its causes and consequences must be submitted to the client within 48 hours of the incident.

11.6.1 Temperature Related Problems

First aid for all forms of heat stress includes cooling the body. This may involve removing PPE and moving the person to a cooler environment to rest.

11.6.2 Emergency Decontamination

In case of a medical emergency, gross decontamination procedures will be implemented and the person transported to the nearest medical facility. If a life threatening injury occurs and the injured person cannot be decontaminated without causing additional injuries, every effort will be made to minimize the exposure of others to the contaminant. The medical facility will be notified of the nature of the exposure and the efforts that were undertaken to treat the individual on-site. Decontamination measures for emergencies will be based on the toxicity of the contaminant and the immediacy of the emergency.

11.6.3 Fire

The Contractor will not respond to any fire that is larger than can be handled by on-site portable fire extinguishers. Any fire too large to be extinguished by portable extinguishers will be reported immediately to the local fire department by dialing 911.

There are three basic ways to extinguish a fire:

- Remove its air
- Remove its fuel
- Cool the fire.

To put out a fire:

- Put it out with a fire extinguisher, water, or other available liquid (e.g., coffee)
- Move all flammable materials away from the fire
- Smother the fire with a coat or other heavy (preferably wet) object.

To use a fire extinguisher:

1) Pick the extinguisher up by the handle
2) Pull the ring at the top to release the safety pin
3) Keep the extinguisher upright, aim at the base of the fire, and squeeze the handle.

Portable fire extinguishers typically available at project sites are multi-purpose dry chemical (ABC). These types of extinguishers are effective on ordinary combustibles, flammable liquids, and electrical equipment. The effective range is approximately 5 to 15 feet. The contents will be discharged in 8 to 25 seconds.

No individual should attempt to put out a fire unless he/she feels confident to do so. If the individual is unsure, help should be summoned immediately. The first five minutes are the most critical in putting out a fire. It is crucial that the fire department be notified as soon as possible when a fire is discovered. Do not hesitate to report small fires. The fire can spread and become a threat to everyone's safety.

Most fire related deaths occur for poisonous gases, smoke, and panic. Few deaths are the result of being burned. Panic is the most common cause of death in a fire situation. In the event of a fire, know what to do and DO NOT PANIC. If a fire occurs while working within a building, evacuate by the building by taking the steps identified on the following page.

1) Listen to the instructions of the SS
2) Walk to the nearest exit unless instructed otherwise
3) To prevent a bottleneck, move to the assembly area
4) Await further instructions.

11.6.4 Explosion

An explosion can be the most difficult emergency to deal with. Reasons include trauma, death, fire, unstable structures, secondary explosions, toxic clouds, and destruction of emergency equipment. The following measures and backup systems may be required:

- Initiate evacuation procedures
- Notify appropriate response agencies (fire, police, etc.)
- Assess situation -- are secondary emergencies occurring or about to occur?
- Turn off or remove sources of explosives
- Attend to the injured
- Check for exposed live utilities
- Initiate spill response measures (if necessary).

11.7 SPILLS/ENVIRONMENTAL RELEASE

The first responder on the scene is responsible for spill containment until additional help arrives. Upon arriving at the scene, the individual will determine:

- The location of the spill
- If liquid, direction of flow
- If possible the identity of the leaking material
- Potential hazards to responders.

If the leaking material is not completely characterized, the maximum PPE should be worn and only experienced individuals should enter the area.

Spilled liquids may be contained by the construction of dikes, diversion of spills to specific areas, inlet blockage, of solidification. Special attention should be given to quickly preventing spills from leaving the confines of the site and entering the public right-of-way or sewer/storm drain system.

Equipment or supplies for controlling spills may include the following:

- Sandbags
- Sorbent socks, pillows, etc.
- Dry granular sorbent
- Salvage pumps
- Drums
- Plastic sheets, tarps, salvage covers, etc.
- Sorbent booms
- Barrier booms.

In addition to containing the spilled materials, the source of the spill also must be controlled. For leaking containers (e.g., drums, small tanks, etc.), the material should be transferred to vessels capable of storing the liquids. Used materials such as sorbent pads/booms/sheets or granular sorbents are to be collected in the appropriate storage containers until they can be disposed of properly.

Once containment of the spill has occurred, and/or sufficient help has arrived, the PM must be notified. The PM then will notify the appropriate parties (e.g., DTSC, USEPA, local fire department, etc.) to report the release.

11.8 NATURAL HAZARDS

In the event of a natural disaster, work will be halted and the site secured as possible. Restoration after the event will include a recheck of all operating systems, containment and cleanup of spills and resumption of operations.

11.9 BOMB THREATS/CIVIL COMMOTION

Bomb threats, vandalism, arson, riots, and assaults are almost impossible to anticipate. However, using common sense and implementing security measures can prevent or reduce their impact and proper response can help control further loss.

11.10 EMERGENCY EVACUATIONS

In the event of a catastrophic incident, work activities will be immediately stopped and all project personnel will be evacuated from the work location or the Site. Personnel will be evacuated in a direction opposite from the critically affected area and will assemble at a pre-designated refuge location outside of the work area or the Site. If conditions allow, the SHSO will remain on-site to direct the evacuation and to check that all employees have been evacuated. Once all individuals have gathered at the evacuation assembly area, the SHSO will take a head count and direct the administration of first aid to any injured individuals.

The SHSO will designate a universal signal for emergency evacuation (e.g., use of a horn) and designate the evacuation assembly location. The SHSO will communicate these designations to all field personnel during the initial site-specific training. The SHSO will determine any changes in these designations mandated by changing Site conditions, and will communicate these changes to workers during the daily tailgate safety meetings.

11.11 HAZARDOUS MATERIALS INFORMATION

EPA-INFO	(800) 342-4636
TOXLINE	(301) 496-1131
CHEMTREC (24-hour, emergency)	(800) 424-9300
ORNL, Toxicology Information Response Center	(615) 576-1743
Poison Control Center	(800) 682-9211

11.12 WORK SITE ADDRESS

LAUSD Venice High School
13000 Venice Boulevard
Los Angeles, California 90066

11.13 CONTACTS

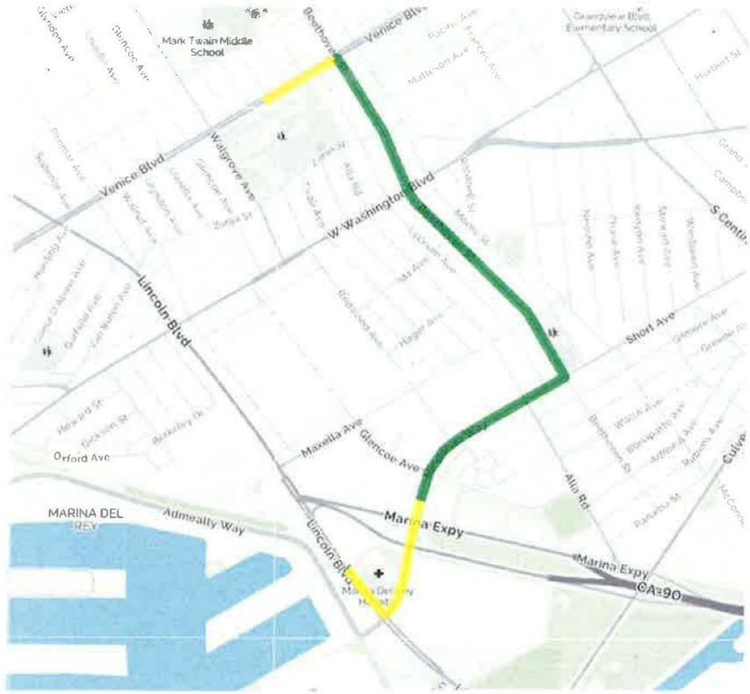
Eric Longenecker, PE
PlaceWorks
700 S. Flower Street, Suite 600
Los Angeles, California 90017
Telephone: (213) 623-1443 ext. 2101

11.14 HOSPITAL ADDRESS AND ROUTE

Marina del Rey Hospital (see Figure 3)
4650 Lincoln Boulevard
Marina del Rey, California 90292
(310) 448-5200

11. Emergency Response Procedures

Figure 3.
Emergency Hospital Route



YOUR TRIP TO:

4650 Lincoln Blvd, Marina Del Rey, CA 90292-6306

5 MIN | 2.0 MI

Trip time based on traffic conditions as of 10:26 AM on September 20, 2016. Current Traffic: Heavy

1. Start out going **northeast** on Venice Blvd/CA-187 toward Lyceum Ave.

   Then 0.20 miles — 0.20 total miles

2. Take the 2nd **right** onto Beethoven St.

   Beethoven St is just past Lyceum Ave.

   If you reach Moore St you've gone a little too far.

   Then 0.94 miles — 1.14 total miles

3. Turn **right** onto Short Ave.

   Short Ave is 0.1 miles past Maxella Ave.

   If you reach Gilmore Ave you've gone a little too far.

   Then 0.11 miles — 1.25 total miles

4. Short Ave becomes Mindanao Way.

   Then 0.65 miles — 1.90 total miles

5. Turn **right** onto Lincoln Blvd/CA-1.

   Lincoln Blvd is 0.1 miles past La Villa Marina.

   If you reach Admiralty Way you've gone a little too far.

   Then 0.14 miles — 2.05 total miles

6. 4650 LINCOLN BLVD.

   If you reach Bali Way you've gone a little too far.

12. References

PlaceWorks. 2017. *Removal Action Workplan, Venice High School.* Prepared for Los Angeles Unified School District. February 1 [draft].

PlaceWorks. 2016. *Preliminary Environmental Assessment Equivalent Report*, Comprehensive Modernization Project, Venice High School. December 7, 2016.

PlaceWorks. 2017. *Technical Addendum, Completion of Site Assessment*, Comprehensive Modernization Project, Venice High School. January 17.

AECOM. 2014. *Phase I Environmental Site Assessment, Venice High School, 13000 Venice Boulevard, Los Angeles, California 90066*. April 4, 2014.

Appendix A. Safe Work Practices – Heat Stress and Stroke Prevention

Heat stress may manifest as a variety of health effects ranging in seriousness from temporary fatigue to death. Factors influencing heat stress include individual susceptibility, environmental conditions, personnel protective equipment, and the level of physical exertion. The Site Safety Officer will take precautionary measures against heat stress, and monitor workers for symptoms of heat stress or heat stroke, as necessary, depending on the ambient temperature and worker susceptibility.

Heat Stress Symptoms

Symptoms of heat stress include the following:

- Heat rash
- Heat cramps caused by heavy sweating
- Pale, cool, moist skin
- Dizziness
- Nausea
- Fainting.

Heat Stroke

In extreme cases, heat stroke causes the body temperature to rise to critical levels. Immediate action must be taken to cool the body to prevent serious injury or death. Symptoms of heat stroke include the following:

- Red, hot, dry skin
- Lack of perspiration
- Nausea
- Dizziness and confusion
- Strong rapid pulse
- Coma.

Reproductive Effects

- If during the first trimester of pregnancy, a female worker's core temperature exceeds 102.2 ^{o}F for extended periods, there is an increased risk of malformation to the unborn fetus.

- Temporary infertility in both men and women may be associated with core temperatures exceeding 100.4 °F (ACGIH, 1996).

Worker Susceptibility

Factors that may affect a person's susceptibility to heat stress include:

- Dehydration
- Acclimatization
- Physical condition
- Infection
- Sunburn
- Medications
- Chronic disease
- Age.

Safe Work Practices

The following practices are recommended for moderate exertion work (e.g., sitting or standing with intermittent walking, etc.) in Level D ensemble at adjusted temperatures of not more than 80°F:[1]

- Inform workers of heat stress symptoms.
- Encourage workers to drink 16 ounces of cool water or sport drink before commencing work.
- Encourage workers to drink water or sport drink at each work break.
- Visually monitor workers for symptoms of heat stress.

The recommended frequency for rest breaks and monitoring is presented in Table 1. When the ambient air temperature, adjusted for the added effects of direct sunlight (see Table 1), reaches 80°F, or workers begin to exhibit signs of heat stress, the Site Safety Officer shall monitor pulse rates at the beginning of each break. For workers wearing semi-permeable or impermeable encapsulating suits, monitoring shall be performed when the

[1] [Note: Heat stress may be of especial concern when working inside of a tank or other confined space where humidity may be high and temperatures may exceed ambient air temperatures. The Planning Center employees are prohibited from entering a confined space or tank except under the conditions specified in The Planning Center's Work Practices for confined space.]

adjusted temperature reaches 70°F. If rates exceed 55 pulses per 30-second period, the duration of the next work cycle shall be shortened by 33 percent.

The following actions shall be taken in response to heat stress symptoms:

- Workers who exhibit symptoms of heat stress shall not be permitted return to work until symptoms have abated.
- If a worker exhibits symptoms of heat stroke, immediate action shall be taken to cool the body, and emergency medical care summoned
- Notify the Corporate Health and Safety Officer when persons exhibit signs of heat stress.

Table A-1 Recommended Work Break Frequency and Monitoring to Prevent Heat Stress(2), (3)

Adjusted Temperature Range	Level D	Impermeable Clothing
72.5 °F-77.5 °F	Every 150 minutes	Every 2 hours
77.5 °F-82.5 °F	Every 2 hours	Every 1.5 hours
82.5 °F-87.5 °F	Every 1.5 hours	Every 1 hour
87.5 °F-90 °F	Every 1 hour	Every 30 minutes
90 °F and Above	Every 45 minutes	Every 15 minutes

References:

American Conference of Governmental Industrial Hygienists. Threshold Limit Values for Chemical Substances and Physical Agents, Biological Exposure Indices. Cincinnati. 1996.

National Institute for Occupational Safety & Health. Occupational Safety & Health Guidance Manual for Hazardous Waste Site Activities. Cincinnati. October 1985.

(2) The adjusted temperature takes into account the effects of direct sunlight. The adjusted temperature may be calculated by measuring the temperature with a standard glass-mercury thermometer that is shielded from sunlight or other radiant heat sources and applying the following formula:

Adjusted Temperature °F = °F + (13 x % sunshine)

[Note: On a typical cloudless Southern California day, the % sunshine = 100%.]

(3) This table presents the recommended frequency of rest and monitoring for physically fit and acclimatized workers, working at a low to medium low exertion level (e.g., 250 kilocalories/hr.)

Appendix B. Safe Work Practices for Excavation Activities

Appendix

PlaceWorks employees and its subcontractors shall comply with all applicable regulations regarding excavation including but not limited to the California Occupational Safety and Health (Cal-OSHA) requirements that are contained in Title 8, California Code of Regulations (CCR), Sections 5140 and 5141. The following general safe work practices shall apply:

- PlaceWorks employees are prohibited from entering excavations in excess of 4 feet in depth unless special approval is obtained from the Corporate Health and Safety Officer.
- At least 48 hours before commencing any excavation, contact Underground Service Alert (800) 422-4133. Retain a copy of the service ticket with the project files.
- In addition to contacting Underground Service Alert, a geophysical survey shall be performed to identify service lines, gas lines, and other obstructions.
- Where the potential for an oxygen deficient, flammable or toxic atmosphere exists, air monitoring shall be performed to ensure safe conditions before employees enter excavations in excess of 4 feet in depth.
- When hazardous atmospheres exist and the excavation is more than 4 feet deep, the excavation shall be considered a confined space, and confined space permit procedures shall apply.
- For trenches or excavations more than 4 feet deep, a ladder, stairway, or other safe means of egress shall be provided so as to require no more than 25 feet of lateral distance to reach a means of egress. Structural ramps must be designed by a competent person. When ramps are constructed of two or more structural members, they must be connected to prevent displacement.
- Excavations that are 5 feet or more in depth shall be protected from cave-in using sloping or support systems (aluminum hydraulic shoring is the preferred system).
- In general sloping shall be no steeper than 34 degrees (1.5 to 1). For excavations less than 20 feet deep, the following maximum allowable slopes may be used as provided for in Title 8, Section 5141, Appendixes A and B:
  - Excavations in stable rock 90 degrees
  - Excavation in Type A Soils 53 degrees (0.75 to 1)
  - Excavation in Type B Soils 45 degrees (1 to 1)
  - Excavation in Type C Soils 34 degrees (1.5 to 1).
- Whenever slopes exceed 34 degrees, the soils type and slope stability must be reviewed by a registered geologist or a professional geotechnical engineer before employees enter an excavation.

- Aluminum hydraulic shoring shall be installed in accordance with the manufacturer's tabulated data or the installation must be approved by a civil engineer, registered in the state where the work is being performed, and who is a subcontractor to PlaceWorks.

- Shoring systems for which there are no manufacturer's specifications must be approved by a civil engineer, who is registered in the state where the work is being performed.

- Sloping and benching will not sufficiently protect workers in excavations deeper than 20 feet bgs. Such excavations will require the implementation of protection systems (shoring, etc.) designed by a licensed engineer.

- The excavation edge shall be clearly marked with barricades and/or hazard tape.

- Employees shall be protected from excavated or other material by keeping such material at least 2 feet from the excavation edge, or through the use of physical barriers.

- Persons shall not work underneath loads handled by lifting or digging equipment.

- Persons shall not work in excavations in which water has accumulated unless adequate precautions have been taken. Precautions may include shoring or other means which have been approved by a registered geologist or professional engineer.

- A competent person shall inspect the integrity of the excavation at the beginning of each work shift.

- All excavations, open pits, wells, or shafts shall be barricaded, covered, or secured when job site personnel are not present so as to prevent persons or animals from accidentally falling into the excavation.

Appendix C. Medical Surveillance and Training Program

Appendix

In accordance with Section 6.0 of PlaceWorks Employee Handbook and Section 4.2 of its Injury and Illness Prevention Program, mandatory medical surveillance has been instituted for selected technical/professional staff who routinely work at job sites at which they may come into contact with hazardous substances. The program was developed to comply with the requirements of 29 CFR 1910.120 Federal OSHA regulations. The purpose of the program is to provide comprehensive medical examination and assessment of employees whose job functions may involve working with hazardous substances. Through medical surveillance, each individual is assessed from the standpoint of their ability to work in environments where chemical exposure, physical stresses such as heat and noise, and the use of respiratory protection may be involved.

Baseline (i.e., pre-field work), annual, exit (i.e., upon termination of employment), and if necessary, special/ "emergency" medical examinations (if necessary) are required and are provided by PlaceWorks at no cost to the employee. The content of the examinations is determined by qualified occupational health specialists and physicians of the Centinela Hospital Airport Medical Clinic, located at 9601 South Sepulveda Boulevard, Los Angeles, California 90045. It includes the following categories: work history, medical history, CBC (i.e., WBC, RBC, hemoglobin, hematocrit, MCV, MCH, RDW, platelets, MPV, and WBC Diff), chemistry panel (including lead, HDL cholesterol, LDCL, and LDL/HDL ratio), urinalysis, spirometry, audiometry, chest X-ray, and direct examination (including blood pressure, pulse, and rectal). For employees over the age of 40, a resting electrocardiogram (EKG) is taken; for employees 50 years of age or older, a treadmill EKG is performed.

A "Respirator Wearer's Certificate Form" accompanies the copy of the examination reports and laboratory analytical results, which are forwarded in confidence to PlaceWorks' health and safety officer pursuant to a "General Authorization for Release of Information Form." The Form must be signed in advance by the employee and the attending physician. As a matter of policy, has directed the occupational health specialists and physicians of the Centinela Hospital Airport Medical Clinic to update the scope of the policy, as appropriate, to reflect the specific hazardous substances to which PlaceWorks' employees have the greatest potential for adverse exposure.

TRAINING

All field personnel employed by PlaceWorks and subcontractor field personnel have received 40-hour OSHA training per 29 CFR 1910.120 regulations. PlaceWorks' project supervisors have received 8-hour management and supervisor training per Title 8 CCR section 5192(e)(4) regulations. Follow-up annual 8-hour refresher training also is required. This training covers topical areas related to health hazard recognition, safety training, respiratory protection training, equipment training, safe work practices, personal hygiene, etc. In addition to the OSHA hazardous waste site worker training, all field personnel employed by PlaceWorks have current certifications in adult first-aid and cardio-pulmonary resuscitation (CPR). All workers will have undergone respirator fit tests in the event that respirators may be required during field investigations. Additionally, drilling subcontractor employees also maintain certification in adult first-aid and CPR; they also undergo specialized training that covers operation of the drill rigs and safety procedures as part of their employment.

Appendix D. Health and Safety Forms

SAFETY MEETING FORM

Facility: LAUSD Venice High School	Job Number: LASD1-30.0
Date:	Time:
Site Location: 13000 Venice Boulevard, Los Angeles, CA 90066	
Type of Work: Soil Removal Action and Confirmation Soil Sampling	
Chemicals: Lead and Arsenic	

SAFETY TOPICS PRESENTED	
Protective Clothing/Equipment: Level D	
Chemical Hazards: Possible inhalation, ingestion, and dermal exposures to the chemicals of concern (COCs) listed above.	
Physical Hazards: Tripping and falling, injuries from working close to heavy mechanical equipment (drill rig, truck, forklift, etc.), and on-site and off-site vehicle traffic hazards.	
Environmental Hazards: Heat-related disorders – drink plenty of liquids and rest as needed in shaded areas; stinging insects.	
Health Effects: Weakness, abdominal pain, headache, dizziness, light headedness, nose/throat/eye irritation.	
Emergency Procedures: Call 911 or take injured individual to nearest emergency room	
Nearest Hospital/Marina del Rey Hospital, 4650 Lincoln Boulevard, Marina del Rey, California 90292	
Phone: (310) 448-5200	Paramedics Phone: 911
Special Equipment: N/A	
Other:	

ATTENDEES	
Name Printed/Signature	**Name Printed/Signature**
Meeting Conducted by:	
Supervisor:	

Appendix

Acknowledgement Statement

I understand and agree to abide by the provisions of this health and safety plan, including the appendixes.

Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date
Name	Title	Date

Appendix

HEALTH AND SAFETY COMPLIANCE AGREEMENT

Project Number:______________________ Site Location:______________________

Site Name:______________________ Date of Plan:______________________

Project Manager:	Name	Signature	Date
Project Health & Safety Officer:	Name	Signature	Date
Site Health & Safety Officer:	Name	Signature	Date

I the undersigned have reviewed a copy of the health and safety plan prepared for the project identified above. I have read the plan, understand it, and agree to comply with all of the health and safety requirements contained in this plan. I understand that I may be prohibited from working on the project for violating any of the requirements.

SIGNED	NAME	COMPANY	DATE

Appendix

SAFETY COMPLETION REPORT

(This report must be submitted to the Health and Safety Officer within five days after the completion of the project.)

Report Completed:____
Name Signature Date

Project Name:______________________________ Project Number:______________________

1. Evaluation of Health and Safety Plan (Add additional pages if required.)

a. Was the HSP Adequate? ☐ No ☐ Yes

b. Did the HSP adequately anticipate chemical and physical hazards actually present at the Site? ☐ No ☐ Yes

c. What situations were discovered that were not anticipated in the HSP?

____

____

d. How were these situations handled?____

____

____

e. Was the recommended personal protective equipment (PPE), such as gloves, respirators, eye, face and whole body skin protection appropriate to protect employees from chemical hazards? ☐ No ☐ Yes

f. If not, what should be improved in future HASPs of this type?________________________________

____

____

2. Exposure Data

a. Were any employees exposed to chemical or physical hazards as a result of failure of PPE or other problems?

☐ No ☐ Yes

If yes, give names of employees:____

____

b. Was monitoring performed? ☐ No ☐ Yes

c. What type of monitoring was performed? ☐ Area Monitoring ☐ Personal (On Employee) Monitoring

d. What type of monitoring equipment was used?

☐ Personal Air Sampling Pumps
☐ Vapor Badges
☐ Charcoal Sorbent Tube (Analyzed by Lab)
☐ Direct Reading instruments including:

- ☐ PID
- ☐ FID
- ☐ Hnu
- ☐ Photovac
- ☐ MiniRae
- ☐ OVM
- ☐ Combustible Gas
- ☐ Oxygen Deficiency
- ☐ Other
- ☐ Hydrogen Sulfide
- ☐ Carbon Monoxide

☐ Colorimetric Indicators (Draeger) Tubes
☐ Film Badges or TLD badges (radiation)

e. Summary of Sampling Results (Attach additional pages if required.)

STOP WORK ORDER

(This order must be submitted to the Project Health and Safety Officer within 24 hours after notice is issued.)

Order Issued by: ____
Name Signature Date

Project Name:______________________Project Number:________________

1. Describe work in detail.______________________________________

2. What corrective actions were taken?______________________________

I have reviewed this Stop Work Order. I understand the importance of following proper Safety Procedures on the Job. I certify that the above corrective action(s) has been implemented.

Implemented by:____
Name Signature Date

Appendix C. Quality Assurance Project Plan

February 10, 2017 | Venice High School

Quality Assurance Project Plan

Prepared for:

Los Angeles Unified School District
Contact: Patrick Schanen
Environmental Health Manager
333 South Beaudry Avenue, 21-224-05
Los Angeles, California 90017
213.241.3356

Project Number:
LASD1-30.0

Prepared by:

PlaceWorks
Contact: Eric Longenecker, PE
700 South Flower Street, Suite 600
Los Angeles, California 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

Table of Contents

Table of Contents

List of Figures

List of Appendices

1. Introduction

This Quality Assurance Project Plan (QAPP) has been prepared by PlaceWorks to address quality assurance (QA) and quality control (QC) policies associated with the collection of environmental data at the Los Angeles Unified School District's (District's) Venice High School ("Site"). United States Environmental Protection Agency (USEPA) policy requires preparation of a QAPP for all environmental data collection projects mandated or supported by the USEPA through regulations or other formalized means (USEPA, 2002a). The purpose of this QAPP is to identify the methods to be employed to establish technical accuracy, precision, and validity of the data that are generated for this project.

The environmental sampling and analytical program that will be governed by the QAPP is described in detail in the *Removal Action Workplan* (PlaceWorks, 2017), The QAPP contains general and specific details regarding field sampling, laboratory, and analytical procedures that will apply to the planned field activities. It provides field and laboratory personnel with instructions regarding activities to be performed before, during, and after the field investigation. These instructions will ensure that the data collected for use in project decisions will be of the type and quality needed and expected for their intended purpose.

Guidelines followed in the preparation of this QAPP are described in *EPA Requirements for Quality Assurance Plans* (USEPA, 2001) and *EPA Guidance for Quality Assurance Project Plans* (USEPA, 2002a). Other documents that have been referenced in this plan include *EPA Guidance for the Data Quality Objectives Process* (USEPA, 2000) and *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (USEPA, 1997a). It is intended that the data collected through implementation of this QAPP will satisfy federal, state, and local data quality requirements.

1.1 SITE ADDRESS AND LOCATION

The LAUSD's Venice High School is located at 13000 W. Venice Boulevard, Los Angeles, California 90066 (Figure 1). The high school occupies one parcel of land approximately 28.9 acres in size and is bounded by residences.

1.2 SITE HISTORY AND CURRENT USE

Venice High School was originally known as Venice Union Polytechnic High School. The first school buildings were constructed sometime around 1913. The original buildings suffered extensive damage from the 1933 Long Beach earthquake and new buildings were constructed in 1935 and 1936, many of which are still in use. The garden at the northwest corner of the campus has been active since before 1970. The Site is currently developed with buildings associated with Venice High School (Figure 2). Features include permanent and portable classroom buildings, administration buildings, auditorium, gymnasiums (two), shop buildings, boiler house, cafeteria, student store, and maintenance/storage buildings. A building at the southwest corner of the campus houses an indoor swimming pool that is operated in cooperation with the City of Los Angeles Recreation and Parks Department. Phoenix Continuation High School operates out of a building located at the southeast corner of the campus. The remainder of the property is developed with sports fields, a running track, tennis courts, parking lots, and a garden area at the northwest corner of the campus.

1.3 PROJECT BACKGROUND

The District commissioned a *Phase I Environmental Site Assessment* (ESA) for the Site in 2014 in support of the Venice High School modernization project (AECOM, 2014). The Phase I ESA identified campus-wide recognized environmental conditions (RECs) that required further investigation. A *Seismic Modernization Project* (SMP) was conducted to assess seismic upgrades (Ninyo & Moore, 2016), and field work was performed in accordance with a *Preliminary Environmental Assessment (PEA) Equivalent Workplan* (Ninyo & Moore, 2015). In 2016 the LAUSD also commissioned a *PEA Equivalent* for the overall modernization project (Placeworks, 2016) which was followed by a *Technical Addendum (TA)* (Placeworks, 2017a). Following completion of all testing, a *Removal Action Workplan* (RAW) was developed to address soil with elevated concentration of arsenic and lead at the Site (PlaceWorks, 2017b).

2. Project Description

The PEA and TA determined that elevated concentrations of arsenic and lead were present in shallow soil at the Site. A remedial response was devised that involved the removal of the impacted soil such that the Site could be redeveloped for modernization construction. Site-specific cleanup goals (SSCGs) have been established for arsenic and lead based on a health risk analysis that assumed a school-based exposure scenario. Soil with chemical of concern (COC, i.e. arsenic and lead) concentrations greater than the SSCGs will be excavated and removed and confirmation samples will be collected to ensure that elevated concentrations are no longer present. Details regarding the scope of the confirmation soil sampling and analytical program are provided in the following section.

2.1 SAMPLING AND ANALYTICAL SCOPE

The lateral and vertical limits of the impacted soil have been defined by PEA and TA sample locations where arsenic and lead concentrations are below SSCGs. It is anticipated that the results of the waste profile confirmation soil samples collected as part of the CMP will be outdated and unacceptable to the disposal facilities when the RAW is executed. This means that once the removal areas have been delineated, but before excavation activities begin, the Environmental Consultant shall collect and analyze soil samples to confirm the waste classification. These soil samples will be collected as near as possible and at the same depth as the original samples Each sample shall be analyzed to determine its TTLC (for comparison to the original sample), STLC, and if necessary (i.e. result greater than 5 mg/L), its TCLP concentration. This shall be repeated for the highest to the lowest sample concentration until the STLC concentration is below 5 mg/L. The results of these samples will be used to confirm the soil is either non-hazardous, California non-RCRA hazardous, or RCRA hazardous, and the soil will be handled accordingly. The Total Threshold Limit Concentration (TTLC) and STLC for lead that define a waste as non-RCRA hazardous are 1,000 mg/kg and 5 mg/L, respectively. The TTLC and STLC concentrations for arsenic that define a waste as non-RCRA hazardous are 500 mg/kg and 5 mg/L, respectively.

Once waste profile samples have been analyzed and the soil has been removed to the planned excavation limits, soil samples will be collected from the exposed excavation sidewalls and bottoms to confirm that the SSCGs have been met and the removal action objectives have been achieved. The RAW provides tables and figures that show the numbers, locations, and chemical analyses to be performed for the confirmation soil samples. The samples will be delivered to an off-site, State-certified laboratory under chain-of-custody control as soon as possible following collection. Once at the laboratory, the soil samples will be homogenized and analyzed for COCs by USEPA Method 6010B for lead and USEPA Method 6020 for arsenic.

If the analytical results for the initial samples indicate that SSCGs have not been met, additional soil may be removed and follow-up soil samples collected. The follow-up samples will be analyzed for the COC(s) that exceeded the SSCG(s) in the original samples. The collection, analysis, and validation of the confirmation soil samples will be conducted in accordance with this QAPP and PlaceWorks' *Standard Operating Procedures (SOPs) for Soil Sampling and Logging* (Appendix A) and *Sample Handling and Preservation* (Appendix B).

2.2 DATA USE

The data collected during implementation of the RAW will be used to confirm that soil with COC concentrations greater than SSCGs has been excavated and removed such that the Site is safer for school use. Analytical results will be compared against the SSCGs, particularly 12 mg/kg for arsenic and 80 mg/kg for lead.

Upon completion of the soil removal action, a *Removal Action Completion Report* (RACR) will be prepared that includes the analytical results for the confirmation soil samples, along with appropriate conclusions and recommendations. The RACR will also contain a data validation memorandum that discusses the quality of the analytical data collected during the soil removal action.

3. Project Organization

This section provides a description of the organizational structure and responsibilities of the various individuals and entities associated with this project. This description is intended to define the lines of communication and identify key personnel and their responsibilities regarding various activities for the project.

3.1 REGULATORY AGENCY

LAUSD has elected to pursue this project without oversight of a governmental agency such as the DTSC. However, DTSC guidance and procedures are being followed as often as is practical.

3.2 LOS ANGELES UNIFIED SCHOOL DISTRICT

The District has chosen to self-certify on environmental matters relating to the Venice High School project. The District will assign a Project Manager with overall responsibility for ensuring the proper and successful implementation of the RAW. The District Project Manager is responsible for directional and funding decisions for work conducted on behalf of the District. The District Project Manager will also review all work plans, reports, and other work products generated for this project.

3.3 CONSULTANT

The District will retain the services of a qualified, professional environmental Consultant to implement the RAW. Together, the Consultant's management team (e.g., Project Manager, Project Geologist/Engineer, and Field Manager) will be responsible for the technical planning and implementation of the RAW. The Consultant Project Manager will serve as the primary contact for the District and will be responsible for strategy development, budget control, and document review. The Field Manager and Site Safety Officer will be responsible for the day-to-day coordination of field activities under the Consultant Project Manager. Other responsibilities will include coordination of subcontractors and field crews to ensure that field activities conform to the RAW and the Health and Safety Plan. The Quality Assurance Manager is responsible for ensuring that all required QA/QC field and laboratory protocols are met.

3.4 LABORATORIES

An off-site laboratory certified by the State's Environmental Laboratory Accreditation Program will provide laboratory analysis for the confirmation soil samples collected during the project. The Laboratory Manager will report to the Contractor Project Manager and Field Manager on all aspects of the sample analysis and will be advised of any matters related to data quality during the course of the project. The laboratory will conform to the QA/QC procedures outlined in its respective laboratory Quality Assurance Manual and/or Standard Operating Procedures, as well as the procedures described in this QAPP.

4. Data Quality Objectives

Data Quality Objectives (DQOs) have been identified for each data collection activity. All work will be conducted and documented so that the data collected are of sufficient quality for their intended use (USEPA, 2002a). DQOs specify the data type, quality, quantity, and uses needed to make decisions, and provide the basis for designing data collection activities. The DQOs have been used to help design the RAW data collection activities. The DQOs for the project are described in the following sections.

4.1 DATA QUALITY OBJECTIVE PROCESS

The project DQOs developed specifically for the planned sampling and analysis program have been determined based on USEPA's seven-step DQO process (USEPA, 2000). The Consultant Project Manager will evaluate the project DQOs to determine if the quantitative and qualitative needs of the sampling and analysis program have been met. The project definition associated with each step of the DQO process can be summarized as follows:

- <u>State the Problem:</u> The purpose of the sampling program is to confirm that all identified COC impacted soil has been removed and properly managed. This objective will be accomplished by the collection and analysis of soil samples from designated locations within the areas where soil is removed.

- <u>Identify the Decision:</u> The data obtained from the sampling and analysis activities will be used to determine the need for further excavation in order to ensure that any residual concentrations of COCs in soil are below SSCGs.

- <u>Identify Inputs to the Decision:</u> Inputs to the decision will include results of analytical testing of samples from selected locations on the site. The specified analytes are identified in Section 2.1.

- <u>Define the Study Boundaries:</u> The boundaries of the field sampling and analysis program consist of the entirety of Venice High School as shown on Figure 2.

- <u>Develop a Decision Rule:</u> Decisions will be based upon laboratory results for the target constituents for each respective matrix tested. If the data indicate that SSCGs for one or more chemical constituents have been exceeded, additional soil from the excavation sidewalls or bottoms will be removed and the newly exposed surfaces will be re-sampled until the SSCGs are demonstrated to have been met.

- <u>Specify Limits on Decision Errors:</u> The results of the analytical testing will be subjected to data validation, as specified in Section 7.3. Data are determined to be valid if the specified limits on precision, accuracy, representativeness, comparability, and completeness are achieved. The results of any detected target constituents will be considered in evaluating the need for additional sampling and assessing the necessity for reducing any risks posed by the potential contamination.

- Optimize the Design for Obtaining Data: The detailed sampling and analytical procedures presented in the RAW have been designed to provide the type and quantity of data needed to satisfy each of the aforementioned objectives. The RAW provides the specifications for the data collection activities, including the numbers of samples, respective locations and sampling techniques. The quality of the data will be assessed through the procedures further described in this QAPP.

4.2 ANALYTICAL DATA QUALITY LEVELS

In the Data Quality Objectives Process for Superfund (USEPA, 1993), the USEPA distinguishes between screening level data and definitive level data. These data categories are associated with the type of site, the level of precision and accuracy required, and the intended use of the data. That is, the type of data to be generated depends on the qualitative and quantitative DQOs developed for the project. The two levels of analytical data are described below.

4.2.1 Screening Data

Screening data are generated by rapid, less precise methods of analysis with less rigorous sample preparation. Screening data provide analyte identification and quantification, although the quantification may be approximate. Field analysis and on-line process data are considered screening data. They are obtained using field equipment, such as pH meters, conductivity/resistivity meters, pressure and flow measurement devices, flame ionization detectors (FIDs), photo-ionization detectors (PIDs), and X-ray fluorescence (XRF) instruments. Screening data are used during site assessment, groundwater monitoring, and other field projects to provide real time data concerning site conditions. Screening data may be confirmed using analytical methods and QA/QC procedures associated with definitive data (see Section 4.2.2). Screening data without associated confirmation data are not considered to be data of known quality.

4.2.2 Definitive Data

Definitive data are generated using analytical methods, such as approved USEPA reference methods. Definitive data are analyte-specific, with confirmation of analyte identity and concentration. Analytical methods produce tangible raw data (e.g., chromatograms, spectra, and digital values) in the form of paper printouts or computer-generated electronic files. For data to be definitive, either analytical or total measurement error must be determined.

Valid data are defined as results generated when the instrument and quality controls are within the designated limits. Data validation procedures are designed to identify valid data and to assign qualifiers that indicate limited usability of the data or other data. The usability of data collected during a site investigation depends on data quality. A number of factors relate to the quality of data. Sample collection methods are as important as the method used for sample analysis. Following SOPs for both sample collection and analysis reduces sampling and analytical error. Completion of chain-of-custody records and adherence to required sample preservation techniques, holding times, and proper shipment methods ensure sample integrity. Obtaining valid and comparable data also requires adequate QA/QC procedures and documentation, as well as established detection and control limits.

4.3 DATA CHARACTERISTICS

The basis for assessing the elements of data quality is discussed in the following sections. In the absence of laboratory-specific precision and accuracy limits, the QC limits listed in this section must be met.

4.3.1 Accuracy

Accuracy is the level of agreement of a measurement or average of measurements with an accepted reference or "true" value, and represents a measure of bias in the analytical system. Accuracy includes components of random error (variability due to imprecision) and systematic error. Accuracy of the data will be assessed and controlled with the analysis of matrix spike (MS), laboratory control sample (LCS), and surrogate spikes. The recoveries will be calculated and compared to pre-established acceptance limits for each laboratory.

For surrogate compounds and LCSs, a database of percent recovery is collected. The calculation formula for percent recovery is:

$$\textit{Percent Recovery} = [(\textit{Concentration Found})/(\textit{Concentration Spiked})] \times 100$$

A similar calculation used to determine the recovery of a spike concentration added to a sample is the percent spike recovery:

$$\textit{Percent Spike Recovery} = \{[(\textit{Value of Sample Plus Spike} - \textit{Value of Unspiked Sample})]/(\textit{Value of Spike Added})]\} \times 100$$

The arithmetic mean and standard deviation of the percent spike recoveries for LCSs are calculated on a minimum of 20 points. From this information, warning limits and control limits for accuracy are determined. Warning limits are defined as the mean ± two standard deviations. Control limits are the mean ± three standard deviations. The percent recovery of each subsequent QC sample is compared with the calculated control limits. Surrogate recovery calculations are based on a minimum of 30 points.

Recoveries outside the established limits indicate some assignable cause, other than normal measurement error, and the possible need for corrective action. This may include reanalysis of the QC sample, recalibration of the instrument, reanalysis of the samples in the batch, or qualifying the data set as suspect, if the anomaly cannot be resolved. For matrix spikes, the assignable cause for recoveries outside acceptable limits may be, and often is, due to matrix interferences. Acceptable analytical system performance will be demonstrated by analysis of an LCS. If a matrix effect is confirmed by acceptable performance on the LCS, the MS data will be flagged.

Blanks make up another group of QC checks that address measurement bias. Instead of assessing and controlling overall accuracy, field and laboratory blanks will be used to control bias due to sample contamination and to assess the extent to which this source of bias impacts the results. Because sample contamination generally occurs at relatively low levels, the effects of contamination are most pronounced in terms of relative error for low-concentration samples.

Method blanks will be used to check for contamination introduced during sample preparation and analysis. Blanks are typically considered acceptable when the results are less than the reporting limit (RL) for the constituent. Field blanks will be used primarily to assess the overall magnitude and extent of contamination.

Contamination introduced during sample collection may be estimated from the difference between field and laboratory blank results. Some types of field blanks, such as equipment blanks, will be used primarily in a qualitative role.

4.3.2 Precision

Precision measures the reproducibility of repetitive measurements. It is strictly defined as the degree of mutual agreement among independent measurements as the result of repeated application of the sample process under similar conditions. Analytical precision is a measurement of the variability associated with duplicate or replicate analyses of the same sample in the laboratory, and is determined by analysis of laboratory QC samples, such as laboratory control sample duplicates (LCSD), duplicate control samples (DCS), matrix spike duplicates (MSD), or sample duplicates. If the recoveries of analytes in the specified control samples are comparable within established control limits, then precision is within limits.

Total precision is a measurement of the variability associated with the entire sampling and analytical process. It is determined by analysis of duplicate or replicate field samples, and measures variability introduced by both the laboratory and field operations. Field duplicate samples are analyzed to assess field and analytical precision. Duplicate results are assessed using the relative percent difference (RPD) between duplicate measurements. The RPD will be calculated as follows:

$$RPD = [(X_1 - X_2)/(X_1 + X_2)] \times 200$$

where X_1 and X_2 are measurements of the same parameter of duplicate/replicate sample analyses.

If the RPD for laboratory quality control samples exceeds the laboratory established limits, the data will be qualified as described in the applicable validation procedure. If the RPD between primary and duplicate field samples exceeds 100 percent for soil matrix samples for concentrations greater than 5 times the reporting limit, the data will be qualified as described in the applicable validation procedure. In instances where one or both values are non-detects, an evaluation will be made during data validation of the replication.

4.3.3 Representativeness

Representativeness expresses the degree to which data accuracy and precisely represents a characteristic of a given set of samples or data sets. The use of appropriate methods and sound judgment in the field will ensure that samples are representative. To maximize representativeness of results, sampling procedures should follow established protocols and sample locations should be chosen based on sound judgment and knowledge of the particular site. Some samples may require analysis of multiple phases to obtain representative results.

4.3.4 Completeness

Completeness is the amount of valid data obtained compared to the amount that was expected under ideal conditions. The number of valid results divided by the number of possible results, expressed as a percentage, determines the completeness of the data set. Factors that can adversely affect completeness objectives include receipt of samples in broken containers, receipt of samples with chain-of-custody or sample integrity compromised, samples received with insufficient volume to perform initial or repeat analysis, improperly preserved samples, and samples held longer than allowable holding times.

The objective for completeness is to recover at least 90% of the planned data to support field efforts. The formula for calculation of completeness is as follows:

Percent Completeness = (Number of Valid Results)/(Number of Expected Results) x 100

4.3.5 Comparability

Comparability is an expression of confidence with which one data set can be compared to another. Comparability is provided through the use of established and approved sample collection techniques and analytical methods, consistency on the basis of analysis (e.g., wet weight and volume), consistency in reporting units, and analysis of standard reference materials. The objective of comparability is to ensure that data developed during the investigation are comparable to site knowledge and adequately address applicable criteria or standards established by the USEPA and California Department of Public Health (DPH). This QAPP addresses comparability by specifying laboratory methods that are consistent with the current standards of practice as approved by the USEPA and DPH.

5. Sampling Quality Control Elements

This section presents QA/QC requirements relevant to the collection, handling, and laboratory transfer of environmental samples. The defensibility of data is dependent on the use of well defined, accepted sampling procedures. Collection of environmental samples of high integrity is important to the quality of chemical data to be generated. To this end, strict field procedures have been developed and will be employed during the investigation. All drilling, environmental sampling, and related field activities will conform to federal, state, and local agency requirements and applicable guidelines, including PlaceWorks' standard field protocol (see Appendixes A and B). The field procedures are designed to ensure that:

- All sample and field measurements are consistent with project objectives
- Samples are identified, preserved, and transported in a manner that ensures the integrity and validity of the samples
- Proper decontamination procedures are employed to prevent cross-contamination of collected samples
- Appropriate field QC samples (e.g., trip blanks, equipment blanks, etc.) are collected to monitor for contamination of samples in the field or in the laboratory
- Field measurements are collected in a manner that allows comparison and provides an adequate database for preparation of the final report.

5.1 SAMPLING METHODOLOGY

Field activities for this project include soil matrix sampling. It is not anticipated that soil gas, groundwater, or surface water samples will be collected. Confirmation soil samples will be collected directly into laboratory-supplied, pre-cleaned 4-ounce glass jars or new metal sleeves, using a decontaminated hand trowel or disposable utensil to facilitate collection, if required. The samples will be labeled as to identification and date/time of collection, and stored on ice in a chilled cooler at 4 degrees Celsius (^{o}C). The samples will be delivered to an off-site, State-certified laboratory under chain-of-custody control as soon as possible following collection. Once at the laboratory, the soil samples will be homogenized and analyzed for COCs by USEPA Method 6010B for lead and USEPA Method 6020 for arsenic.

QA/QC elements specific to the collection of soil samples are as follows:

- Duplicate soil samples will be collected and analyzed at a frequency of approximately 10 percent of the primary samples. The duplicate soil samples will be analyzed for the same parameters as the primary samples.

- Equipment blank samples will be collected if re-useable, decontaminated equipment is required for sample collection. In such an event, equipment blanks will be collected daily for each type of sampling equipment and analyzed for the same parameters as the soil samples being analyzed on that day.
- All samples will be properly preserved and analyzed within holding times prescribed for individual test methods.
- Laboratory detection limits for individual chemical constituents will be set at appropriate levels to allow for comparison of the data with site-specific cleanup goals and otherwise meet RAW program objectives.
- All soil samples will be transferred to the laboratory under chain-of-custody control.

5.2 FIELD SUPPLIES

All field supplies will be inspected prior to their use in the field. The descriptions for sample collection and analysis contained in the methods will be used as a guideline for establishing the acceptance criteria for supplies. A current inventory and appropriate storage system for these materials will ensure their integrity prior to use. Efficiency and purity of supplies will be monitored through the use of standards and blank samples.

5.3 EQUIPMENT DECONTAMINATION

Non-dedicated and reuseable equipment will be decontaminated before and after each sample is collected using the triple rinse method. The triple rinse decontamination method involves washing the equipment with a non-phosphate detergent (e.g., Alconox®) and potable water, followed by a rinse in potable water, and a final rinse in distilled or deionized water. Ample time will be provided for the equipment to air dry prior to reuse. Sampling equipment that cannot be readily decontaminated will be discarded. Discarded materials, including decontamination solutions, will be accumulated and stored in appropriate receptacles for proper disposal (e.g., UN-approved 55-gallon drums).

5.4 FIELD EQUIPMENT CALIBRATION AND MAINTENANCE

All instruments and other sampling, measuring, and test equipment used for data collection activities affecting quality must be controlled and, at specified intervals, calibrated to maintain accuracy within specified limits. This calibration must be documented and traceable to the instrument. Field equipment will be calibrated prior to use in the field as appropriate. The calibration procedures will follow standard manufacturers' instructions to ensure that the equipment is functioning within tolerances established by the manufacturer and required for the project. A record of field analytical instrument calibration checks will be maintained by field personnel on daily calibration logs.

Standards used to calibrate field equipment will be certified by National Institute of Standards and Technology (NIST), USEPA, or other equivalent source. The standards will be current. The expiration date will be established by the manufacturer or based on chemical stability, the possibility of contamination, and environmental and storage conditions. Standards will be labeled with expiration dates, and will reference primary standard sources if applicable. Expired standards will be discarded.

All instruments will be stored, transported, and handled with care to preserve equipment accuracy. Damaged instruments will be taken out of service immediately and not used again until a qualified technician repairs and recalibrates the instrument. Scheduled equipment maintenance will be performed by trained personnel. Subcontractors are responsible for maintenance of all equipment needed to carry out subcontracted duties.

5.5 SAMPLE LABELING AND IDENTIFICATION

Once environmental samples have been collected, a label will be affixed to the sample container that provides the following information:

- Consultant name, address, and contact information
- Sample number
- Sample collector's name
- Date sampled
- Time sampled
- Sample location
- Project number.

The sample number, along with the date and time the sample was obtained, will also be recorded on the chain-of-custody form (see Section 5.7). Unique identifiers will be used so that sample location, depth, and purpose (e.g., matrix type, duplicate, etc.) can be readily determined by comparison of chain-of-custody records and laboratory reports.

5.6 SAMPLE CONTAINERS, PRESERVATION, AND PACKAGING

Sample containers provided by the laboratory will be purchased commercially from I-Chem, Eagle Pitcher, or other equivalent source. Soil sample sleeves will be purchased new and will not be reused. All environmental samples and field QC samples submitted to an off-site laboratory will be packaged carefully to avoid breakage or contamination, and will be shipped to the laboratory at proper temperatures. A list of the required sample containers, preservatives, and recommended maximum holding times for soil matrix samples for various test methods is provided in Appendix C.

The following packaging requirements will be followed, as applicable, for the collection and transfer of soil samples:

- All sample containers will be wiped with paper towels before placement in the shipping container.
- All samples will be placed in zip-lock type baggies prior to placing in cooler.
- Sample bottle lids will not be mixed. All sample lids will stay with the original containers.
- If the sample volume is low because of limited sample availability, the level will be marked on the outside of the container with a grease pencil. This procedure will help the laboratory assess if any leakage occurred during shipment.
- All glass sample bottles will be wrapped in bubble pack or other protective packing material and placed in plastic bags to minimize the potential for contamination and breakage during shipment. Plastic bottles and soil samples contained in liners will be placed in plastic bags. 40-ml glass volatile organic analysis (VOA) bottles will be placed in the laboratory-supplied foam pack.
- All samples will be cooled unless “no cooling” has been specified. The sample containers will be placed in insulated coolers and surrounded by ice.

Upon receipt of the soil samples, the laboratory will immediately notify the Consultant Project Manager or the Field Manager if conditions or problems are identified that require immediate resolution. Such conditions may include container breakage, missing or improper chain-of-custody, exceedance in holding times, missing or illegible sample labeling, or temperature excursions.

5.7 CUSTODY CONTROL

For each sample that is submitted to the laboratory for analysis, an entry will be made on a chain-of-custody form supplied by the laboratory. The information to be recorded includes the sampling date and time, sample identification number, matrix type, requested analyses and methods, preservatives, and the sampler’s name. Sampling team members will maintain custody of the samples until they are relinquished to laboratory personnel or a professional courier service. The chain-of-custody form will accompany the samples from the time of collection until received by the laboratory. Each party in possession of the samples (except the professional courier service) will sign the chain-of-custody form signifying receipt.

The chain-of-custody form will be placed in a plastic bag and shipped with samples inside the cooler. After the soil samples, ice, and chain-of-custody forms are packed in the coolers, the cooler will be appropriately sealed before it is relinquished to the courier. Upon receipt, the laboratory will inspect the condition of the sample containers and report the information on a chain-of-custody or similar form. Copies of the original completed chain-of-custody forms will be provided by the laboratory along with the report of results.

5.8 FIELD QC SAMPLES

Various field QC samples will be collected as part of the overall QA/QC program. Field QC samples will be collected, stored, transported and analyzed in a manner consistent with the Site samples. QC samples that will be collected as a component of the sampling program are described in the following sections.

5.8.1 Field Equipment Blanks

A field equipment blank is a sample that is prepared in the field by pouring de-ionized or distilled water over, through, or into cleaned sampling equipment. The water is then collected in a jar and submitted to the laboratory for analysis as an aqueous sample. Field equipment blanks are typically blind (given a fictitious name so that the laboratory will not recognize it as a blank). The field equipment blank gives an indication of contamination from field procedures (e.g., improperly cleaned sampling equipment, cross-contamination, etc.). In order to confirm the effectiveness of the decontamination process, a minimum of one equipment blank will be prepared and analyzed for each day that wet decontamination procedures are used in the field. Equipment blanks will be analyzed for the same parameters as the samples that were collected that day.

5.8.2 Trip Blanks

Trip blanks are collected when field programs involve sampling for volatile organic compounds (VOCs). VOCs are not identified as constituents of potential concern at the Site and it is not anticipated that VOC analyses will be required. Therefore, trip blanks will not be collected.

5.8.3 Field Duplicate Samples

Field duplicate samples are defined as a single sample divided into two equal parts for the purpose of analysis. They are collected and analyzed to evaluate sampling and analytical precision. Field duplicates are collected and analyzed in the same manner as the primary samples. Agreement between duplicate sample results will indicate good sampling and analytical precision. Specific locations will be designated for the collection of field duplicates prior to the start of field activities. Each duplicate sample will be analyzed for all laboratory analyses requested for the primary sample.

Duplicate soil matrix samples will be collected in a second sample container from a location immediately adjacent to the primary sample. The duplicate sample will be assigned a fictitious identity so that it is analyzed as a blind sample by the laboratory. Duplicate samples will be collected and analyzed at the rate of 10% of the primary samples. The precision goal for field duplicate analyses will be ±100% RPD for concentrations reported five times above the reporting limit.

5.8.4 XRF Confirmation Samples

If soil samples are screened in the field using an X-ray Fluorescence (XRF) unit, all final samples used for decision-making will be submitted to a fixed laboratory for confirmation analysis of lead and arsenic by USEPA Method 6010B or Method 6020. The confirmation soil samples will be submitted to the laboratory in the same

Chemplex® sample cup used for the XRF analysis. Samples should be homogenized and sieved in the field with a minimum 25 mesh sieve prior to field analysis for lead.

6. Laboratory Quality Control Elements

The purpose of the laboratory portion of the QC program is to produce data of known quality that satisfy the project objectives and that meet or exceed the requirements of the standard methods of analysis. This program provides a mechanism for ongoing control and evaluation of data quality measurements through the use of QC materials. Key aspects of the laboratory QC program are the preparation and analysis of method blanks, matrix spike samples, laboratory control samples, surrogates, calibration standards, and other checks of instrument accuracy and precision to ensure the integrity of the analytical results.

6.1 ANALYTICAL METHODS

The analytical methods expected to be used for this project are USEPA approved. If required, physical soil tests, such as moisture content, grain size analysis, permeability, etc., would involve the use of test methods approved by other organizations, such as the American Petroleum Institute (API) and American Society for Testing Materials (ASTM). Specific analytical method procedures are detailed in the Quality Assurance Manuals and Standard Operating Procedures maintained by the selected laboratories. These documents may be reviewed by the Consultant's quality assurance staff during laboratory audits to ensure that project specifications are met (see Section 8).

The types of environmental samples and analytical methods that will be used for this project are summarized in Section 2.1. Soil samples will be analyzed by an off-site stationary laboratory that has received certification pursuant to the DPH Environmental Laboratory Accreditation Program (ELAP). Field screening may also be conducted for lead using a portable Niton XL 700 XRF instrument, or equivalent (see Section 5.8.4).

6.2 INTERNAL STANDARDS

Internal standards are measured amounts of method-specified compounds added after preparation, or extraction, of a sample. Internal standards are added to samples, controls, and blanks in accordance with method requirements to identify column injection losses, purging losses, or viscosity effects. Acceptance limits for internal standard recoveries are set forth in the applicable method. If the internal standard recovery falls outside of acceptance criteria, the instrument will be checked for malfunction and reanalysis of the sample will be performed after any problems are resolved. This information will be made available upon request.

6.3 REAGENTS

Laboratory reagent water is checked daily. The resistivity of the water is measured and recorded in a daily logbook. Blanks are routinely analyzed for purity and accompany each batch tested. High-purity reagents are purchased as dictated by each test method and are documented by batch, lot number, and supplier, as well as time period of laboratory use (date opened, date depleted, etc.).

6.4 RETENTION TIME WINDOWS

Retention time windows will be established as described in SW-846 Method 8000A for applicable analyses of organic compounds. Retention time windows are used for qualitative identification of analytes and are calculated based on multiple, replicated analyses of a respective standard. Retention times will be checked on a daily basis. Acceptance criteria for retention time windows are established in the referenced method. If the retention time falls outside the respective window, actions will be taken to correct the problem. The instrument must be re-calibrated after any retention time window failure and the affected samples must be reanalyzed. This information will be made available upon request.

6.5 INSTRUMENT CALIBRATION

Analytical laboratories, including mobile laboratories, are responsible for all analytical equipment calibration and maintenance as described in their laboratory QA program. Analytical instruments will be calibrated in accordance with the procedures specified in the applicable method. All analytes that are reported will be present in the initial and continuing calibrations, and these calibrations must meet the acceptance criteria specified in the reference method. Records of standard preparation and instrument calibration will be maintained. Records will unambiguously trace the preparation of standards and their use in calibration and quantitation of sample results. Calibration records will be traceable to standard materials, as described in Section 6.1.

At the onset of analysis, instrument calibration will be checked using all of the analytes of interest. At the minimum, calibration criteria will satisfy method requirements. The highest concentration calibration standard is considered to be the upper linear range of the instrument. The lowest concentration standard is at the laboratory RL. Analyte concentrations can be determined with either calibration curves or response factors, as defined in the method. Guidance provided in SW-846 should be considered to determine appropriate evaluation procedures. All project samples must fall within the calibration range established for the instrument. Otherwise, the samples must be diluted to an appropriate level and reanalyzed. As mentioned in Section 6.7, dilution has a corresponding effect on the laboratory's method detection and reporting limits. This information will be made available upon request.

6.6 HOLDING TIME COMPLIANCE

Sample preparation and analysis will be completed within the required method holding times (Appendix C). Holding time begins at the time of sample collection. If holding times are exceeded, and the analyses are performed, the associated results will be described as "qualified" in the applicable validation procedure. The following definitions of extraction and analysis compliance are used to assess holding times:

- <u>Preservation or Analysis Completion</u> -- Completion of the sample preservation in accordance with USEPA Method 5035 for soil samples analyzed for VOCs and TPH-g.

- <u>Preparation or Extraction Completion</u> -- Completion of the sample preparation process, as described in the applicable method, prior to any necessary extract cleanup.

- Analysis Completion -- Completion of all analytical runs, including dilutions, second-column confirmations, and any required reanalysis.

6.7 METHOD DETECTION LIMITS AND REPORTING LIMITS

The method detection limit (MDL) is the minimum concentration of an analyte, or compound, that can be measured and reported with 99% confidence that the concentration is greater than zero. MDLs are established for each method, matrix and analyte, and for each instrument used to analyze project samples. MDLs are derived using the procedures described in 40 CFR 136 Appendix B. The USEPA requires that MDLs be established on an annual basis. The reporting limit (RL) refers to the lowest concentration of an analyte that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The RL is validated by analysis of a laboratory standard and is generally two to five times greater than the MDL. Laboratories typically flag detected concentrations that are between the MDL and RL with the letter "J" to indicate that the results should be interpreted with caution because they can have high variability.

The RLs and Screening Levels that will be used by the stationary laboratory for soil samples are presented in Appendix D. The RL concentrations are adequate for project data evaluation requirements, including the evaluation of potential human health risk. It should be noted that matrix interferences and high concentrations of chemical constituents in a sample can result in the need to dilute the sample, thereby increasing the laboratory's MDLs and RLs proportionately. For results with a high reported detection limit, the laboratory should provide a written explanation. Re-sampling and analysis may be required at the appropriate detection limit for a specific compound.

6.8 LABORATORY QC SAMPLES

Test method protocol and standard laboratory practice calls for the routine analysis of various laboratory QC samples to ensure the accuracy and precision of the sample results. QC samples that will be prepared and analyzed as a component of the laboratory program are described in the following sections.

6.8.1 Laboratory Reagent Blanks

A laboratory reagent blank is de-ionized, distilled water that is extracted by the laboratory and analyzed as a sample. Analysis of the reagent blank indicates potential sources of contamination from laboratory procedures (e.g., contaminated reagents, improperly cleaned laboratory equipment, or persistent contamination due to presence of certain compounds in the ambient laboratory air).

6.8.2 Method Blanks

A method blank is a QC sample that consists of reagents specific to the method and is carried through every aspect of the procedure, including preparation, analysis, and clean-up. The method blank is used to identify interference or background contamination that may lead to the reporting of elevated analyte concentrations or false positive data. Potential sources of contamination include solvent, reagents, glassware, other sample processing hardware, or the laboratory environment.

The method blank is prepared from similar matrices (i.e., aqueous, soil, and vapor) and analyzed for each batch of 20 samples or less. The analyte concentrations of the method blank must be less than the RL established for the method. For common laboratory contaminants, the acceptance criterion is less than or equal to ten times the RL. For uncommon laboratory contaminants, the acceptance criterion is less than or equal to five times the RL. If the analyte concentration exceeds these limits, the source of contamination will be investigated and, if possible, eliminated. All affected samples for the analyte in question will be reanalyzed. If the problem persists, the affected data will be qualified in the laboratory data report.

6.8.3 Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS) samples are prepared and analyzed by the analytical laboratory to evaluate the efficiency of the sample extraction and analysis procedures, and are necessary because matrix interference (that is, interference from chemical constituents in the sample matrix) may have a widely varying impact on the accuracy and precision of the extraction analysis. The MS is prepared by the addition of known quantities of target compounds to a sample. The sample is then extracted and analyzed. The results of the analysis are compared with the known additions and a MS recovery is calculated, which provides an evaluation of the accuracy of the extraction and analysis procedures. MS recoveries are reviewed to check that they are within acceptable ranges. However, the acceptable ranges vary widely with both sample matrix and analytical method and the laboratory established acceptance limits.

Typically, MSs are performed in duplicate in order to evaluate the precision of the procedures as well as the accuracy. Precision objectives (represented by agreement between MS and matrix spike duplicate (MSD) recoveries) and accuracy objectives (represented by MS recovery results) are based on statistically generated limits established annually by the analytical laboratory. It is important to note that these objectives are to be viewed as goals, not as criteria. If matrix bias is suspected, the associated data will be qualified and the direction of the bias indicated in the data validation report.

6.8.4 Laboratory Control Samples

A laboratory control sample (LCS) is a volume of reagent water for aqueous samples, blank soil for solid samples, or a contaminant-free suitable vapor matrix representing vapor samples, which is spiked with known quantities of target analytes and surrogates near the midpoint calibration range. The LCS measures method performance under matrix-free conditions. LCS results, together with matrix spike results, help determine the presence or absence of matrix effect. An LCS is analyzed for each batch of up to 20 client samples of similar matrix. If the percent recovery is outside of the laboratory acceptance criteria, the LCS must be reinjected/reanalyzed, and/or all affected samples and a new LCS must be prepared and analyzed.

6.8.5 Surrogate Compounds

For GC and GC/MS analyses, the analytical process includes the addition, subsequent detection, and recovery calculations of surrogate spiking compounds. Surrogates are organic compounds that are similar to the analytes of interest, but are not normally found in environmental samples. They should not interfere with target analytes. Surrogate compounds are added to every sample, blank, duplicate, LCS, MS, and MSD before purging or extraction. The surrogate spike recovery data provide information regarding the efficiency of the sample preparation and the analytical process.

6.8.6 Performance Evaluation Samples

Double blind performance evaluation (PE) samples may be submitted to the analytical laboratory during any site investigation. These samples may be of water or soil matrix, and are used to assess the accuracy of analytical procedures employed for a given sample set. If used, double blind PE samples will be prepared by Environmental Resources Standards, or similar supplier, in similar sample containers as the project field samples, and shipped from the field to the laboratory for analysis.

Double blind PE samples will be prepared using NIST and/or A2LA certified standards. The project-specific PE samples will contain known concentrations of the analytes of interest. Laboratory results will be evaluated against the original Certificates of Analyses for precision and accuracy. PE samples may be submitted for analysis as part of the laboratory pre-qualification process, or as part of a given sampling event. Results will be reported to the laboratory and presented with associated field sample results.

7. Data Reporting

7.1 FIELD DATA

Data measured by field instruments will be recorded in field notebooks, laptops, and/or on required field forms. Units of measure for field analyses will be identified on the field forms. Information will be recorded legibly in indelible ink, with all entries signed and dated. If an entry must be changed, the change will not obscure the original entry and will be initialed and dated. The field data will be reviewed by the Consultant Project Manager and Field Manager to evaluate completeness of the field records and appropriateness of the field methods employed. All field records will be retained in the project files.

7.2 LABORATORY DATA

Data storage and documentation will be maintained using logbooks and bench sheets. Raw data will be stored on electronic media with hard copies kept on file at the laboratory. Reports will be reviewed by the Analytical Supervisor and the Laboratory Manager. Data reduction calculations will be included in the data files. Some laboratory tests, such as titrations or sensory evaluations, are not linked to a particular instrumentation. For these, the quantitative result or observation is recorded directly in an analysis logbook or on a preprinted form.

The laboratory system includes several levels of review. Each level requires specific action to prevent the release of erroneous data and to correct problems discovered during the review process. The analyst who generates the analytical data has the primary responsibility for generating correct and complete analytical data. Each analyst performs a review of his/her work and documents the review via a checklist. The checklist addresses the following items:

- Sample preparation and analysis information are correct and complete
- The appropriate method SOPs were followed
- Analytical results are correct and complete
- QC samples are within established control limits
- Special sample preparation and analytical requirements were met
- Documentation is complete.

The analyst then passes the data package to an independent reviewer who performs a review to check that:

- Calibration data are scientifically sound, appropriate to the method, and documented
- QC samples are within method-specified guidelines
- Qualitative identification of sample components is correct
- Quantitation of results is correct
- Manual integrations are appropriate (if performed)
- Documentation is complete and correct (e.g., anomalies in the preparation and analysis have been documented, non-conformance memoranda forms, if required, are complete, holding times are documented, etc.)
- The component data package is ready for incorporation into the final report
- The data package is complete and ready for archival.

The data review is documented using a checklist. The data that meet the requirements are then released and forwarded to a report coordinator, who assembles the data package, reviews it for completeness, and prepares the final laboratory report. Before the report is released, the Laboratory Manager performs a final review of the report to check that data are in compliance with the aforementioned criteria.

Analytical data reports provided to the Consultant will contain the necessary sample results and quality control data to evaluate the DQOs defined for the project. Documentation requirements for laboratory data are defined in USEPA Region 9 Draft Laboratory Documentation Requirements for Data Validation (USEPA, 1997b). Further guidance is provided in the DTSC Data Validation Memorandum (DTSC, 2006). The laboratory reports from the fixed laboratory will be consistent with USEPA Level II documentation and will include the following data and summary forms:

- Narrative, cross-reference, chain-of-custody, and method references
- Analytical results
- Surrogate recoveries (as applicable)
- Blank results
- Laboratory control sample recoveries
- Duplicate sample results or duplicate spike recoveries
- Sample spike recoveries

- Associated raw data (upon request)
- Magnetic tape or equivalent (upon request).

7.3 PROCEDURES FOR DATA VALIDATION

Data validation criteria are derived from the USEPA *Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Data Review* (USEPA, 1999 and 2002b). The National Functional Guidelines provide specific data validation criteria that can be applied to data generated for this investigation. The laboratory data will be reviewed for compliance with the applicable method and the quality of the data reported.

The application of data validation criteria is a function of project-specific DQOs. The Project Manager will determine if the DQOs for the analytical data have been met. Data validation will include checking that required QC samples have been performed at the required frequency and ensuring the QC acceptance criteria have been met. The areas of data validation are summarized below:

- Data completeness
- Holding times
- Calibrations
- Blanks
- Laboratory control samples
- Matrix spike/matrix spike duplicates
- Surrogates (as applicable)
- Field quality control samples
- Compound identification and quantification.

Results of the data validation review will be documented and submitted in the final report prepared for the project. This documentation should be referenced as a Data Validation Memorandum (DVM).

7.4 DATA QUALIFIERS

The data validation procedures were designed to review each data set and identify biases inherent to the data and determine its usefulness. Data validation flags are applied to those sample results that fall outside of specified tolerance limits, and, therefore, do not meet the program's DQOs. Data validation flags to be used for this project are defined in the National Functional Guidelines. Data validation flags will indicate if results are considered anomalous, estimated, or rejected. Only rejected data are considered unusable for decision-making purposes; however, other qualified data may require further verification.

For some methods, the validator may determine that blank contamination reported as detected between the MDL and RL may also be used for blank-quantification of data. Sample results less than five times the maximum level found in the associated blanks or less than ten times the level of contamination for common laboratory contaminants (e.g., methylene chloride, acetone, and common phthalate esters) are qualified according to the blank qualification rules. Results for common laboratory contaminants may be qualified at concentrations less than ten times the RL even when not found in associated blanks if the analyte has been documented as an historical contaminant at that laboratory. Blank-qualified results are considered to be non-detect (ND) at the reported level, or at the RL for organic compounds reported at less than the RL, according to the blank qualification rules specified in the National Functional Guidelines. If, in the professional judgment of the validator, results in a sample to be blank-qualified are due to real concentrations of an analyte in the sample, the result may be estimated without being considered to be ND. In instances where more than one blank is associated with a given sample, qualification should be based upon comparison with the associated blank having the highest concentration of a contaminant. Results for environmental samples must not be corrected by subtracting concentrations of analytes detected in associated blanks.

For field duplicates, the RPD value is not defined for duplicate pairs for which one or both results are below RLs. For values less than five times the RL, RPDs will not be used for evaluation. If field duplicate pairs frequently exhibit large differences, sampling and/or analytical procedures will be re-evaluated.

8. Performance and System Audits

Audit programs are established and directed by the Consultant and laboratory staff to ensure that field and laboratory activities are performed in compliance with project controlling documents. This section describes responsibilities, requirements and methods for scheduling, conducting and documenting audits of field and laboratory activities.

8.1 FIELD AUDITS

Field audits focus on appropriateness of personnel assignments and expertise, availability of field equipment, adherence to project controlling documents for sample collection and identification, sample handling and transport, use of QC samples, chain-of-custody procedures, equipment decontamination and documentation. Field audits are not required, but may be performed in the event significant discrepancies are identified that warrant evaluation of field practices.

8.2 LABORATORY AUDITS

Laboratory audits include reviews of sample handling procedures, internal sample tracking, SOPs, analytical data documentation, QA/QC protocols, and data reporting. Any selected mobile or stationary laboratory will be licensed by the State of California as a certified testing laboratory, and will participate in a DPH-approved Performance Evaluation Program for hazardous waste and wastewater analyses. If no previous audit has been conducted by the Consultant, a scheduled audit will be conducted by the quality assurance staff during the course of this project to ensure the integrity of sample handling and processing by the laboratory.

8.3 DATA AUDITS

Data audits will be performed on analytical results received from the laboratories. These audits will be accomplished through the process of data validation as described in Section 7.3, or may involve a more detailed review of laboratory analytical records. Data audits require the laboratory to submit complete raw data files to the Consultant for validation and verification. The Consultant will perform a review of the data consistent with the level of effort described in the National Functional Guidelines. This level of validation consists of a detailed review of sample data, including verification of data calculations for calibration and quality control samples to assess if these data are consistent with method requirements. Upon request, the laboratory will make available all supporting documentation in a timely fashion.

8.4 SCHEDULING

Audits will be scheduled such that field and laboratory activities are adequately monitored, or in the event discrepancies are identified. The overall frequency of audits conducted for these activities will be based on the importance and duration of work, as well as significant changes in project scope or personnel.

8.5 REPORTS TO MANAGEMENT AND RESPONSIBILITIES

Upon completion of any audit, the auditor will submit a report or memorandum to the Consultant Project Manager and Field Manager that describes any problems or deficiencies identified during the audit. It is the responsibility of the Consultant Project Manager to determine if the deviations will result in any adverse effect on the project conclusions. If it is determined that corrective action is necessary, procedures outlined in Section 8.6 will be followed.

8.6 CORRECTIVE ACTION

Corrective actions will be initiated whenever data quality indicators suggest that DQOs have not been met. Corrective actions will begin with identifying the source of the problem. Potential problem sources include failure to adhere to method procedures, improper data reduction, equipment malfunctions, or systemic contamination. The first level of responsibility for identifying the problems and initiating corrective action lies with the analyst/field personnel. The second level of responsibility lies with any person reviewing the data. Corrective actions may include more intensive staff training, equipment repair followed by a more intensive preventive maintenance program, or removal of the source of systemic contamination. Once resolved, the corrective action procedure will be fully documented and, if DQOs were not met, the samples in question will be recollected and/or reanalyzed utilizing a properly functioning system.

9. References

1. DTSC. 2006. Data Validation Memorandum, re: Summary of the Level II Data Validation for Advanced Technology Laboratory Report ATV5976, Dated April 25, 2006. From Stephanie Lewis. May 2.
2. PlaceWorks. 2017a. Removal Action Workplan, Comprehensive Modernization Project, Venice High School. Project No. LASD1-30.0. February 1 [draft].
3. PlaceWorks. 2017b. Technical Addendum, Completion of Site Assessment, Comprehensive Modernization Project, Venice High School. Project No. LASD1-27.0. January 17.
4. PlaceWorks. 2016. Preliminary Environmental Assessment Equivalent Report, Comprehensive Modernization Project, Venice High School. Project No. LASD1-27.0. December 7.
5. Los Angeles Unified School District (LAUSD). 2016. *Scope of Services, Preliminary Environmental Assessment Equivalent*, Venice High School Comprehensive Modernization. Office of Environmental Health and Safety. August 29.
6. Ninyo & Moore. 2016. *Preliminary Environmental Assessment Equivalent Report, Seismic Modernization Project*, Venice High School, 13000 West Venice Boulevard, Los Angeles, California 90066. Prepared for LAUSD Office of Environmental Health and Safety. Project No. 208571011. July 5.
7. Ninyo & Moore. 2015. *Preliminary Environmental Assessment Equivalent Work Plan*, Venice High School, 13000 West Venice Boulevard, Los Angeles, California 90066. October 5.
8. AECOM. 2014. Phase I Environmental Site Assessment Report, Venice High School, 13000 Venice Boulevard, Los Angeles, CA 90066. Prepared for Los Angeles Unified School District, Office of Environmental Health and Safety. April 4 [draft].
9. USEPA. 1988. User's Guide to Contract Laboratory Program. EPA/540-8-89/012). Washington D.C. December.
10. USEPA. 1993. Data Quality Objectives Process for Superfund. EPA/540/R-93/071. Washington, D.C. September.
11. USEPA. 1996. Guidance for Data Quality Assessment: Practical Methods for Data Analysis. Washington, D.C.
12. USEPA. 1997a. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. SW-846 Third Edition, Final Update III. Washington, D.C.
13. USEPA. 1997b. USEPA Region IX Guidance Document, Laboratory Documentation Requirements for Data Validation (Draft). DCN 9QA-07-97. Washington, D.C.
14. USEPA. 1999. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. EPA 540/R-99/008. Washington, D.C. October.

9. References

15. USEPA. 2000. EPA Guidance for the Data Quality Objectives Process. EPA 600/R-96/055 (EPA QA/G-4). Washington, D.C. August.

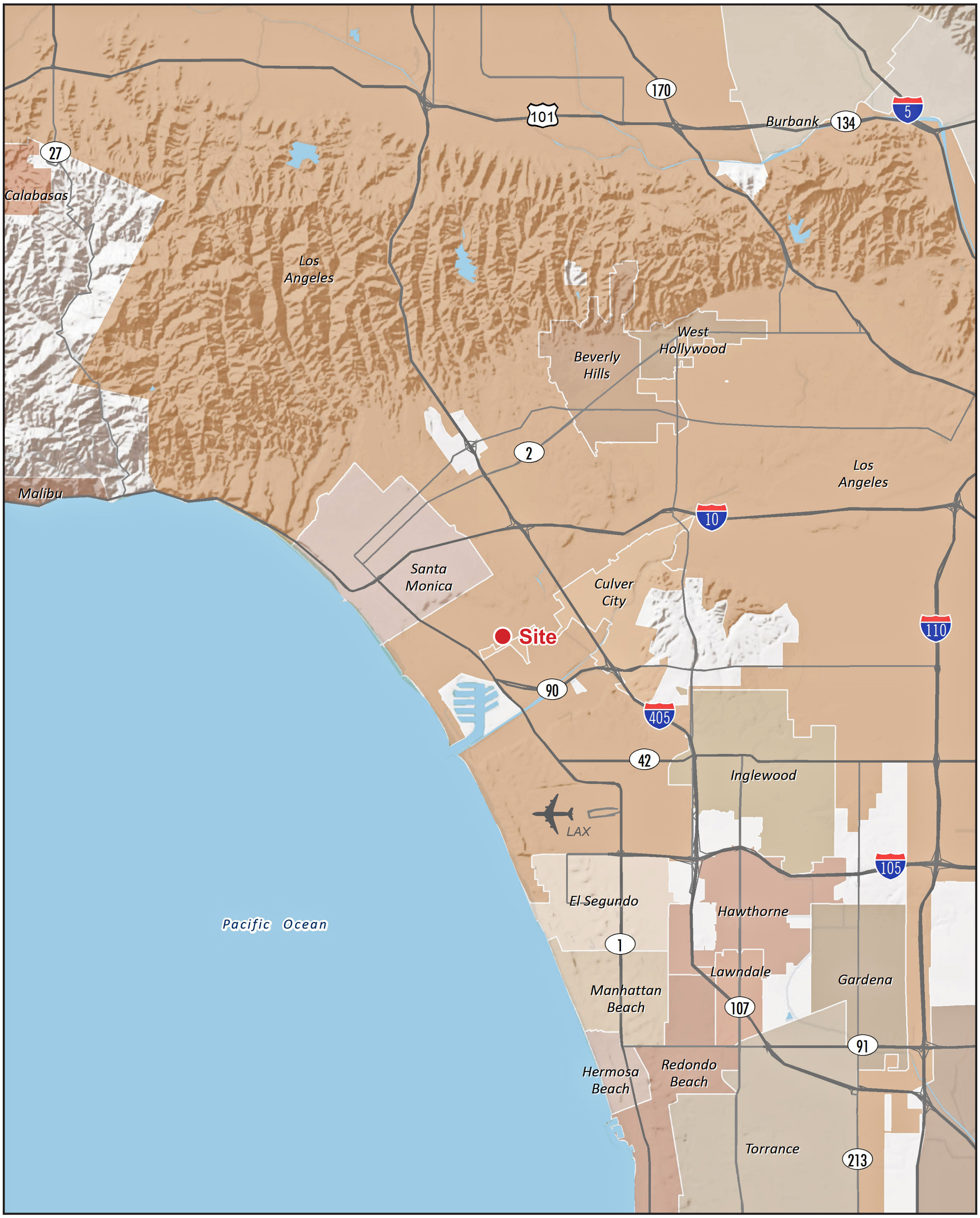
16. USEPA. 2001. EPA Requirements for Quality Assurance Project Plans. EPA 240/B-01/003 (EPA QA/R-5). Washington, D.C. March.

17. USEPA. 2002a. EPA Guidance for Quality Assurance Project Plans. EPA 240/R-02/009 (EPA QA/G-5). Washington, D.C. December.

18. USEPA. 2002b. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. EPA 540/R-01/008. Washington, D.C. July.

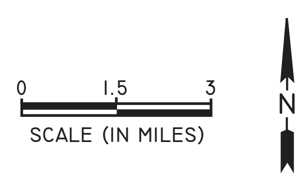
Figures

Figure 1 - Site Location



Note: Unincorporated county areas are shown in white.

Venice High School
13000 Venice Boulevard
Los Angeles, California 90066



Base Map Source: ESRI, USGS, NOAA, 2016

Figure 2 - Aerial Photograph

School Boundary

Venice High School
13000 Venice Boulevard
Los Angeles, California 90066

0 175 350
SCALE (IN FEET)

N

Base Map Source: Google Earth Pro, 2016

Appendix A. Standard Operating Procedures for Soil Sampling and Logging

January 2017 | Quality Assurance Project Plan

Standard Operating Procedures

Soil Sampling and Logging

Prepared by:

PlaceWorks
700 South Flower Street, Suite 600
Los Angeles, California 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

Table of Contents

List of Attachments

1. Introduction

The collection and logging (i.e., description) of soil samples is a vital component of many environmental site assessments and remedial investigations. The ability to define the geologic and hydrogeological setting at a site depends heavily on data derived from soil samples. Furthermore, chemical analysis of soil samples often is critical in defining the nature and extent of contamination. In most instances, soil samples objectives will include collection of samples that are 1) representative of existing subsurface conditions and 2) valid for chemical analysis. To the maximum extent possible, soil samples should not be cross-contaminated, physically disturbed, or chemically altered during the sampling process.

1.1 OBJECTIVES

This standard operating procedure (SOP) describes soil sampling methods widely used in remedial investigations and other environmental projects. The SOP also presents a consistent method for describing and identifying soil samples in the field. The objectives of this SOP are outlined below:

- Facilitate selection of a soil sampling method that is appropriate for site-specific conditions and project objectives
- Ensure consistent and accurate soil description and classification
- Attain project chemical data quality objectives (DQOs).

The SOP is intended for use by PlaceWorks geologists, engineers, and project managers during project planning and implementation. It focuses on methods and equipment that are readily available and are typically applied. It is not intended to provide an all-inclusive discussion of soil sampling methods. Sample types, samplers, and logging standards and procedures are discussed in the following sections.

1.2 UPDATES

This SOP is updated as the need arises. This current January 2017 version has been updated from the May 2014 version as follows:

- Date updated from May 2014 to January 2017 on the cover sheet
- Street address of the Los Angeles office was changed from Airport Blvd to Flower Street on the cover sheet
- Section 1 Introduction was split by adding the 1.1 Objectives line
- This Section 1.2 Updates was added

- Miscellaneous changes to correct inconsistencies in use of headers

2. Definitions

Bulk Samples
Soil samples typically collected from soil stockpiles or drummed soil wastes using a trowel or shovel. The exact source of the bulk soil samples (i.e., boring location and depth) is not known with certainty.

Composite Samples
Blended or mixed soil samples used to represent “average” properties or chemical concentrations for a selected part of the site or over a defined depth range in a boring.

Field Blanks
Field blanks are analogous to trip blanks (see definition below), except that the field blanks are opened at the site during the sampling activities.

Field Duplicate Samples
Soil samples that are collected from the same location as the primary soil sample. The primary sample and its duplicate are analyzed as separate samples using the same analytical method(s) to assess project precision.

Split (Laboratory) Samples
Soil samples similar to field duplicate samples, but analyzed by a different laboratory than the primary samples.

Representative Samples
Soil samples that reflect in-situ, subsurface conditions; commonly collected with a split-barrel sampler or a push-type sampling tube.

Rinsate (Equipment) Blanks
Aqueous samples that are collected by pouring deionized water over freshly decontaminated soil sampling equipment, such as a split-barrel sampler. Rinsate blanks are used to evaluate the effectiveness of decontamination procedures.

Solid-Barrel Samplers
Cylindrical metal samplers (also referred to as split-spoon samplers) that are split longitudinally into two halves and often are equipped with sample sleeves. Samples typically are collected by driving the sampler with a 140-pound drop hammer, as specified in ASTM Standard D 1586-84.

Thin-Walled (Shelby) Tube Samplers
Consist of 30-inch to 36-inch long steel or stainless steel tubes that are pushed into the formation to collect an undisturbed soil sample.

Trip Blanks

Soil samples that typically are composed of an uncontaminated reference soil standard. Trip blanks accompany the sample containers during transport, collection and storage and are used to assess widespread environmental contaminants.

3. Soil Sampling

3.1 CATEGORIES OF SAMPLES

Four general categories of soil samples are collected during site investigations; bulk samples, representative samples, undisturbed samples, and composite samples. These categories are described in the following sections.

3.1.1 Bulk Samples

Bulk soil samples generally consist of a shovelful or trowel of material collected from stockpiled soil or drummed soil cuttings. There may be uncertainty over the exact depth and/or location that the bulk soil samples represent. This type of sampling is used less frequently during environmental investigations and is the least accurate of the four basic samples types. Bulk soil sampling typically is used for waste characterization/profiling purposes.

3.1.2 Representative Samples

Representative soil samples are in-situ, subsurface soil samples that are collected with a drive sampler or push-type sampling tube. Although representative samples may be physically disturbed to a degree, they generally reflect all of the sediment and chemical constituents that are present at a given depth interval. Representative soil samples are the most common type of soil sample in environmental investigations.

3.1.3 Undisturbed Samples

Undisturbed soil samples are samples collected under strictly controlled conditions so as to minimize structural disturbance. Undisturbed samples typically are collected where in-situ, subsurface structural or geometric relationships need to be preserved. Undisturbed samples generally are required for geotechnical or structural geologic investigations and are used less frequently for environmental assessments.

3.1.4 Composite Samples

Composite soil samples represent a blend or mix of sample material that may reflect two or more sample locations or stratigraphic intervals. Composite samples can be used to represent "average" properties for a selected part of the site or for the entire vertical extent of a particular boring. Homogenized soil samples are a form of composite samples that are derived from a specified depth interval. For example, if a homogenized sample reportedly represented the 10-foot to 11.5-foot depth interval, the material from the interval would have been blended mechanically (i.e., homogenized) before being placed in an appropriate sample container. Due to concerns over volatile loss, samples intended for volatile organic compound (VOC) or semi-volatile organic compound (SVOC) analysis are not to be composited or homogenized.

3.2 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) SAMPLES

Samples also are collected and analyzed with the specific goals of assessing data quality and evaluating the effectiveness of field protocols, such as sampling procedures and decontamination protocols. These samples generally are referred to as QA/QC samples; they may consist of any one of the four general categories of samples discussed in Section 3.1. QA and QC can be viewed respectively as 1) "a set of operating principles that, if strictly followed during sample collection and analysis, will produce data of known and defensible quality" and 2) "procedures or activities undertaken to ensure that the data meet appropriate standards" (Wilson, 1995). Adherence to approved sampling methods, as discussed in this SOP, and identification of QA/QC sampling needs during the planning stages of a project, are vital in the aforementioned process. Following is a brief discussion of several different types of QA/QC samples that are employed during soil sampling programs:

- <u>Field duplicate samples</u> – Soil samples that are collected from the same sample location as the primary soil sample. Field duplicate soil samples often consist of adjacent sample sleeves within a split-barrel sampler; such samples may be referred to as "co-located" samples. The field sample and its duplicate are analyzed as separate samples using the same analytical method(s); the results of these analyses are used to assess project precision. Duplicate samples generally are assigned fictitious sample numbers on the chain- of-custody record to shield their identity. Most agency guidelines prescribe a duplicate sample frequency of at least one in ten samples (i.e., 10%).

- <u>Rinsate (equipment) blanks</u> – Aqueous samples that are collected by pouring deionized water over freshly decontaminated soil sampling equipment, such as a split-barrel sampler. The laboratory analysis of rinsate blanks helps assess the effectiveness of equipment

- <u>Split (laboratory) samples</u> – A sample similar to a field duplicate sample but analyzed by a different laboratory than the primary field sample. Split samples may be collected and relinquished to regulatory personnel, private- or Federal-sector client representatives, or third-parties (e.g., attorneys, other consultants, etc.) and are used to evaluate laboratory precision. The need for, and frequency of, split samples should be evaluated on a project-by-project basis.

- <u>Trip blanks</u> – A soil sample that typically consists of a glass sample container that has been filled with a reference soil standard at the laboratory prior to sampling activities. The trip blank accompanies the sample containers during transport, collection, and storage and is analyzed to assess widespread environmental contaminants that may not be associated with chemicals of potential concern at a site. Soil trip blanks are not employed frequently during soil investigations. Aqueous trip blanks are a common component of groundwater sampling programs, however, and are discussed separately in PlaceWorks's SOP for groundwater sampling.

- <u>Field blanks</u> – A soil sample analogous to a trip blank, except that the field blank is opened at the site during the sampling activities. The need for, and frequency of, soil field blanks and trip blanks should be evaluated on a project-by-project basis.

During the planning phase of a project, attention must be paid to QA/QC sampling requirements of the involved regulatory agencies. For example, a soil sampling project located in the Los Angeles, California metropolitan area might need to address the sampling requirements or guidelines of one or more of the following agencies: 1) Los Angeles Regional Water Quality Control Board, 2) Cal-EPA Department of Toxic Substance Control, 3) Los Angeles City Fire Department, 4) Los Angeles Department of Public Works, or 5) one of several local implementing agencies (LIAs) for the State Leaking Underground Storage Tank (LUST) program.

3.3 SAMPLING METHODS

3.3.1 Solid-Barrel Samplers

Solid-barrel samplers typically are 1 to 6 inches in diameter and 6 to 60 inches long. They usually are constructed of steel or stainless steel and may be used with thin-walled liners that are placed within the sampler barrel. Liners typically are constructed of brass, aluminum, stainless steel, or synthetic materials such as acetate, polyvinyl chloride (PVC), polyethylene terephthalate (PET), or Teflon®. Selection of an appropriate liner material must take into account the chemicals of concern and the proposed laboratory analyses (i.e., plastic liners may not be appropriate where samples will be analyzed for VOCs or SVOCs)

3.3.2 Split-Barrel Samplers

Split-barrel samplers (also known as split-spoon samplers) are the most widely used sampler in environmental investigations. Split-barrel samplers can be used with a wide variety of drilling methods and usually are constructed of steel or stainless steel. They are cylindrical in shape and are split longitudinally, forming two halves. Split-barrel samplers may be lined or unlined; as noted above, sample liners may be constructed of brass, aluminum, stainless steel, or various synthetic materials. Split-barrel samplers generally are available in 2-inch, 2.5-inch, 3-inch, 3.5-inch, and 4-inch outside diameters (OD); sampler lengths typically range from 12 to 60 inches. The 18-inch long split-barrel sampler is most commonly used. Three, 6-inch long liners generally are used with this sampler.

Driving (hammering) is the most common method of collecting split-barrel soil samples. In most instances, a 140-pound hammer is used in accordance with American Society for Testing and Materials (ASTM) Standard D 1586-84. The hammer may either be above ground or located downhole. Samples are collected by driving the sampler into undisturbed soil beneath the samplers. The density and consistency of the subsurface soils can be estimated using the hammer weight, drop, and blow count.

If the sample cannot be advanced 6 inches following a reasonable number of blows (usually about 50), sampler “refusal” is judged to have occurred and further sampling at the depth interval is terminated. If “auger refusal” has not occurred, the borehole is advanced and another sample is collected.

After the sample has been collected, and the split-barrel sampler has been retrieved, the sample barrel is opened and the sample material is visually inspected and logged (see Section 4.0 for logging procedures). If the sample volume is inadequate, additional sample material can be collected from the underlying depth interval.

If the soil sample is retained for VOC analysis, the selected sample liner is checked to ensure that a full sample was recovered. The sample is then subsampled and processed in the field in accordance with USEPA Method 5035. The sample is then covered with Teflon® liners and plastic end caps. In selecting sample material for testing, care should be taken to ensure that the retained material is most likely to be present near the top of the sampler (or in the uppermost sample liner).

3.3.3 Direct Push Sampling

Direct-push platforms have gained widespread acceptance in the environmental industry over the past 20 years because of their versatility, relatively low cost, and mobility. Using the weight of the truck in combination with a hydraulic ram or hammer, a tool string is pushed into the ground. Because of their methods of operation, direct-push systems provide some unique advantages when collecting soil samples. In particular, direct-push systems are quicker and more mobile than traditional drill rigs. Sampling and data collection are faster, reducing the time needed to complete an investigation and increasing the number of sample points that can be collected of unconsolidated materials from a range of depths, without generating large volumes of cuttings. Direct-push soil samplers also allow investigators to collect soil samples from a specific depth, with minimal disturbance to soil stratigraphy, rather than the less precise method of collecting cuttings.

Typical uses of direct-push soil sampling systems include site assessment activities at sites in which soils are reasonably suspected to be contaminated, sites in which contamination is confined to a discrete depth range, or sites in which the available sampling area is limited. For instance, sites with heavily contaminated soil that may warrant disposal as hazardous waste may benefit from the low volume of soil removed from the ground by direct-push soil samplers and the lack of cuttings typically generated by other drilling sand sampling methods. Samplers are available in a variety of diameters and lengths, allowing for collection of varying sample volumes. Most soil sampling tools use a similar design, with technical refinements to increase sampling rates and decrease cross-contamination.

3.3.4 Thin-Walled (Shelby) Tube Samplers

The thin-walled tube (i.e., Shelby tube) sampler is a 30-inch or 36-inch, thin-walled steel, aluminum, brass or stainless steel tube equipped with a connector head. It is used in soft or clayey formations where it provides better sample recovery than a split-barrel sampler, or where relatively undisturbed samples are desired. The most commonly used sampler has a 3-inch OD and is 30 inches long.

Thin-walled tube samplers typically are advanced by pressing the sampler or pushing without rotation. If the tube cannot be advanced by pressing, it may become necessary to drive the sample with drill rods and hammers. The tubes generally are allowed to stay in the hole 10 to 155 minutes to allow the buildup of skin friction prior to removal. Prior to retrieval, the tube is rotated to separate it from the underlying soil. After retrieval, the sample is inspected for adequate sample recovery. If the sample recovery is inadequate, the sampling procedure may need to be repeated.

Following retrieval, the soil sample is described and recorded in the logbook and any disturbed soil material is removed from the end of the tube. The thin-walled tube is capped with non-reactive materials, such as Teflon®, for transport.

3.3.5 Continuous Split-Barrel Samplers

Continuous soil sampling can be performed with a specialized, 60-inch, continuous split-barrel sampler that is advanced during rotation and advancement of a hollow-stem auger drill bit. To begin continuous sampling, the sampler is lowered into place at the base of the drill string using a wireline or drill rods. The sampler barrel is locked into place such that it protrudes from the drill bit. As the bit is advanced, the sampler is pressed into the formation. After the borehole has been advanced the entire length of the sampler, the full sampler is retrieved and an empty sampler is lowered downhole to repeat the sampling process.

3.3.6 Excavation Sampling

Collection of soil samples from an excavation may be necessary in the following situations: 1) an underground storage tank has been removed; 2) soil remediation by excavation and disposal is the chosen cleanup method; 3) entry into an excavation is not permitted due to health and safety concerns; or 4) typical drilling methods are incompatible with the known subsurface geology (e.g., underlying cobbles or boulders). Although collection of soil samples from the bucket of a backhoe, excavator, or grade-all is not the preferred method, it sometimes may be the only option.

Collecting soil samples from the bucket of a backhoe almost always will result in a disturbed sample. Extra care to minimize further disruption of the sample may include:

- Collecting a large enough volume of the desired soil in the bucket of the backhoe
- Carefully lifting the bucket to the surface, being sure not to shake the bucket
- Scraping away any loose material from the desired sample location in the backhoe bucket
- Collecting a sample by driving a solid-barrel sampler, as described in Section 3.3.1, into the less disturbed soil located near the base of the bucket
- Rapidly sealing and labeling the sample.

4. Soil Logging

The description of textural, compositional, and other physical properties of soil samples, and resultant sample classification, is an important skill in the field of environmental geology. The following logging procedures are intended to promote accurate and consistent soil sample description and classification. These procedures primarily are applicable to soil samples; bedrock logging is not included in this SOP due to the wider variation in bedrock characteristics, the many well-established (but often conflicting) classification schemes for different rock types, and the comparative infrequency with which bedrock logging is performed in environmental investigations.

4.1 SOIL DESCRIPTION AND IDENTIFICATION (ASTM STANDARD D 2488-00)

ASTM Standard D 2488-00 – Standard Practice for Description and Identification of Soils [Visual-Manual Procedure] (ASTM, 2000) provides a standardized means of describing and classifying soil samples in the field. Based on observed sample characteristics, the standard also provides a flow chart for identifying the soil (i.e., the sample is assigned a Unified Soil Classification System [USCS] soil group names and symbol). With the exceptions noted below, and with the exception of project-specific requirements, ASTM Standard D 2488-00 should be followed during environmental field investigations. A copy of ASTM Standard D 2488-00 is provided in Attachment A.

Application of the standard begins with the collection of a representative soil sample of sufficient volume and weight in the field. For example, the standard specifies that a soil sample with a maximum particle size equivalent to a No. 4 sieve should weight more than 100 grams. The following descriptive information should be recorded, where applicable:

- Particle shape and angularity
- Color (a Munsell® color chart [GSA, 1991] should be used instead of the generalized approach in the ASTM standard)
- Odor
- Moisture
- HCl reaction
- Consistency
- Cementation

- Structure
- Range of particle sizes
- Maximum particle size
- Hardness
- Additional descriptive information, as warranted.

Following the initial description, the soil should be categorized as "fine grained," if it contains 50% or more fines, or "coarse grained," if it contains less than 50% fines (fines are defined as silt- and clay-sized particles). For samples falling into the fine grained soil category (as described above), a series of easily-performed manual tests for dry strength, dilatancy, toughness, and plasticity are applied. The test results, along with the aforementioned descriptive information, are used to assign an appropriate USCS soil name. Coarse grained soil samples are named based on the descriptive information and the identification flow chart presented in the standard. The various USCS soil group names and symbols are summarized below:

Fine grained soils:

- CL – Lean clay
- ML – Silt
- CH – Fat clay
- MH – Elastic silt
- OL/OH – Organic soil

Coarse grained soils:

- GW – Well-graded gravel
- GP – Poorly graded gravel
- GM – Silty gravel
- GC – Clayey gravel
- SW – Well-graded sand
- SP – Poorly graded sand

- SM – Silty sand
- SC – Clayey sand.

4.2 PLACEWORKS BORING LOG

Federal (USEPA, 1991) and state (DTSC, 1995) guidelines for environmental investigations require the preparation of graphic boring logs that document field observation noted during drilling and sampling. To facilitate the recording of accurate and complete field observations, and to ensure a consistent work product, PlaceWorks has developed a standard boring log format. The log is divided into two principal parts: 1) header at the top of the log and 2) the main body of the log. The header is used to record information such as project name and number, site address, date, drilling and sampling methods, surveyed location/elevation, etc. The main body of the log is used to record information such as sample descriptions, blow counts, sample recovery, depth, headspace screening, observed and inferred contacts between soil units, samples retained for laboratory analyses, etc.

Project-specific requirements and/or local agency requirements could require minor modification of the "standard" log format. Significant departures from the standard boring log format, however, should be made only after consultation with PlaceWorks's Director of Geologic Services and the involved project manager.

5. References

1. Aller, L., T.W. Bennett, G. Hackett, R.J. Petty, J.H. Lehr, H. Sedoris, and D.M. Neilsen. 1989 Handbook of Suggested Practiced for the Design and Installation of Groundwater Monitoring Wells, National Water Well Association, Dublin, Ohio, 397 pp.
2. ASTM. 1992. Standard Method for Penetration Test and Split-Barrel Sampling of Soils, D 1586-84. Reapproved October 1992.
3. ASTM. 2000. Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), B 2488-93. Revised 2000.
4. Department of Toxic Substance Control (DTSC). 1995. Drilling, Coring, Sampling, and Logging at Hazardous Substances Release Sites. State of California Environmental Protection Agency. July 1995.
5. Driscoll, F.G. 1987. Groundwater and Wells, Johnson Division, St. Paul Minnesota, 1089 pp.
6. Geological Society of America (GSA). 1991. Rock-Color Chart. 7th Printing, Boulder, Colorado.
7. Nielson, D. (ed.). 1991. Groundwater Monitoring, Lewis Publishers, Chelsea, Michigan, 717 pp.
8. US Environmental Protection Agency (USEPA). 1987. A compendium of Superfund Field Operation Methods USEPA Report EPA/540/p-87/001.
9. USEPA 1991. Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells, USEPA Report No. EPA/600-4-89/034, March 1991.
10. Wilson, Neal. 1995. Soil Water and Groundwater Sampling. Lewis Publishers, Boca Raton, Florida, 188 pp.

Attachment A. ASTM Standard D 2488-00

Designation: D 2488 – 00

Standard Practice for
Description and Identification of Soils (Visual-Manual Procedure)[1]

This standard is issued under the fixed designation D 2488; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 This practice covers procedures for the description of soils for engineering purposes.

1.2 This practice also describes a procedure for identifying soils, at the option of the user, based on the classification system described in Test Method D 2487. The identification is based on visual examination and manual tests. It must be clearly stated in reporting an identification that it is based on visual-manual procedures.

1.2.1 When precise classification of soils for engineering purposes is required, the procedures prescribed in Test Method D 2487 shall be used.

1.2.2 In this practice, the identification portion assigning a group symbol and name is limited to soil particles smaller than 3 in. (75 mm).

1.2.3 The identification portion of this practice is limited to naturally occurring soils (disturbed and undisturbed).

NOTE 1—This practice may be used as a descriptive system applied to such materials as shale, claystone, shells, crushed rock, etc. (see Appendix X2).

1.3 The descriptive information in this practice may be used with other soil classification systems or for materials other than naturally occurring soils.

1.4 The values stated in inch-pound units are to be regarded as the standard.

1.5 *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For specific precautionary statements see Section 8.

1.6 This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.

2. Referenced Documents

2.1 ASTM Standards:

D 653 Terminology Relating to Soil, Rock, and Contained Fluids[2]

D 1452 Practice for Soil Investigation and Sampling by Auger Borings[2]

D 1586 Test Method for Penetration Test and Split-Barrel Sampling of Soils[2]

D 1587 Practice for Thin-Walled Tube Sampling of Soils[2]

D 2113 Practice for Diamond Core Drilling for Site Investigation[2]

D 2487 Classification of Soils for Engineering Purposes (Unified Soil Classification System)[2]

D 3740 Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and rock as Used in Engineering Design and Construction[3]

D 4083 Practice for Description of Frozen Soils (Visual-Manual Procedure)[2]

3. Terminology

3.1 *Definitions*—Except as listed below, all definitions are in accordance with Terminology D 653.

NOTE 2—For particles retained on a 3-in. (75-mm) US standard sieve, the following definitions are suggested:
Cobbles—particles of rock that will pass a 12-in. (300-mm) square opening and be retained on a 3-in. (75-mm) sieve, and *Boulders*—particles of rock that will not pass a 12-in. (300-mm) square opening.

3.1.1 *clay*—soil passing a No. 200 (75-µm) sieve that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when air-dry. For classification, a clay is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index equal to or greater than 4, and the plot of plasticity index versus liquid

[1] This practice is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.07 on Identification and Classification of Soils.

Current edition approved Feb. 10, 2000. Published May 2000. Originally published as D 2488 – 66 T. Last previous edition D 2488 – 93$^{\epsilon 1}$.

[2] *Annual Book of ASTM Standards*, Vol 04.08.

[3] *Annual Book of ASTM Standards*, Vol 04.09.

***A Summary of Changes section appears at the end of this standard.**

limit falls on or above the "A" line (see Fig. 3 of Test Method D 2487).

3.1.2 *gravel*—particles of rock that will pass a 3-in. (75-mm) sieve and be retained on a No. 4 (4.75-mm) sieve with the following subdivisions:

coarse—passes a 3-in. (75-mm) sieve and is retained on a ¾-in. (19-mm) sieve.

fine—passes a ¾-in. (19-mm) sieve and is retained on a No. 4 (4.75-mm) sieve.

3.1.3 *organic clay*—a clay with sufficient organic content to influence the soil properties. For classification, an organic clay is a soil that would be classified as a clay, except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.4 *organic silt*—a silt with sufficient organic content to influence the soil properties. For classification, an organic silt is a soil that would be classified as a silt except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.5 *peat*—a soil composed primarily of vegetable tissue in various stages of decomposition usually with an organic odor, a dark brown to black color, a spongy consistency, and a texture ranging from fibrous to amorphous.

3.1.6 *sand*—particles of rock that will pass a No. 4 (4.75-mm) sieve and be retained on a No. 200 (75-µm) sieve with the following subdivisions:

coarse—passes a No. 4 (4.75-mm) sieve and is retained on a No. 10 (2.00-mm) sieve.

medium—passes a No. 10 (2.00-mm) sieve and is retained on a No. 40 (425-µm) sieve.

fine—passes a No. 40 (425-µm) sieve and is retained on a No. 200 (75-µm) sieve.

3.1.7 *silt*—soil passing a No. 200 (75-µm) sieve that is nonplastic or very slightly plastic and that exhibits little or no strength when air dry. For classification, a silt is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index less than 4, or the plot of plasticity index versus liquid limit falls below the "A" line (see Fig. 3 of Test Method D 2487).

4. Summary of Practice

4.1 Using visual examination and simple manual tests, this practice gives standardized criteria and procedures for describing and identifying soils.

4.2 The soil can be given an identification by assigning a group symbol(s) and name. The flow charts, Fig. 1a and Fig. 1b for fine-grained soils, and Fig. 2, for coarse-grained soils, can be used to assign the appropriate group symbol(s) and name. If the soil has properties which do not distinctly place it into a specific group, borderline symbols may be used, see Appendix X3.

NOTE 3—It is suggested that a distinction be made between *dual symbols* and *borderline symbols.*

Dual Symbol—A dual symbol is two symbols separated by a hyphen, for example, GP-GM, SW-SC, CL-ML used to indicate that the soil has been identified as having the properties of a classification in accordance with Test Method D 2487 where two symbols are required. Two symbols are required when the soil has between 5 and 12 % fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.

Borderline Symbol—A borderline symbol is two symbols separated by a slash, for example, CL/CH, GM/SM, CL/ML. A borderline symbol should be used to indicate that the soil has been identified as having properties that do not distinctly place the soil into a specific group (see Appendix X3).

5. Significance and Use

5.1 The descriptive information required in this practice can be used to describe a soil to aid in the evaluation of its significant properties for engineering use.

5.2 The descriptive information required in this practice should be used to supplement the classification of a soil as determined by Test Method D 2487.

5.3 This practice may be used in identifying soils using the classification group symbols and names as prescribed in Test Method D 2487. Since the names and symbols used in this practice to identify the soils are the same as those used in Test Method D 2487, it shall be clearly stated in reports and all other appropriate documents, that the classification symbol and name are based on visual-manual procedures.

5.4 This practice is to be used not only for identification of soils in the field, but also in the office, laboratory, or wherever soil samples are inspected and described.

5.5 This practice has particular value in grouping similar soil samples so that only a minimum number of laboratory tests need be run for positive soil classification.

NOTE 4—The ability to describe and identify soils correctly is learned more readily under the guidance of experienced personnel, but it may also be acquired systematically by comparing numerical laboratory test results for typical soils of each type with their visual and manual characteristics.

5.6 When describing and identifying soil samples from a given boring, test pit, or group of borings or pits, it is not necessary to follow all of the procedures in this practice for every sample. Soils which appear to be similar can be grouped together; one sample completely described and identified with the others referred to as similar based on performing only a few of the descriptive and identification procedures described in this practice.

5.7 This practice may be used in combination with Practice D 4083 when working with frozen soils.

NOTE 5—Notwithstanding the statements on precision and bias contained in this standard: The precision of this test method is dependent on the competence of the personnel performing it and the suitability of the equipment and facilities used. Agencies that meet the criteria of Practice D 3740 are generally considered capable of competent and objective testing. Users of this test method are cautioned that compliance with Practice D 3740 does not in itself assure reliable testing. Reliable testing depends on several factors; Practice D 3740 provides a means for evaluating some of those factors.

6. Apparatus

6.1 *Required Apparatus*:

6.1.1 *Pocket Knife or Small Spatula*.

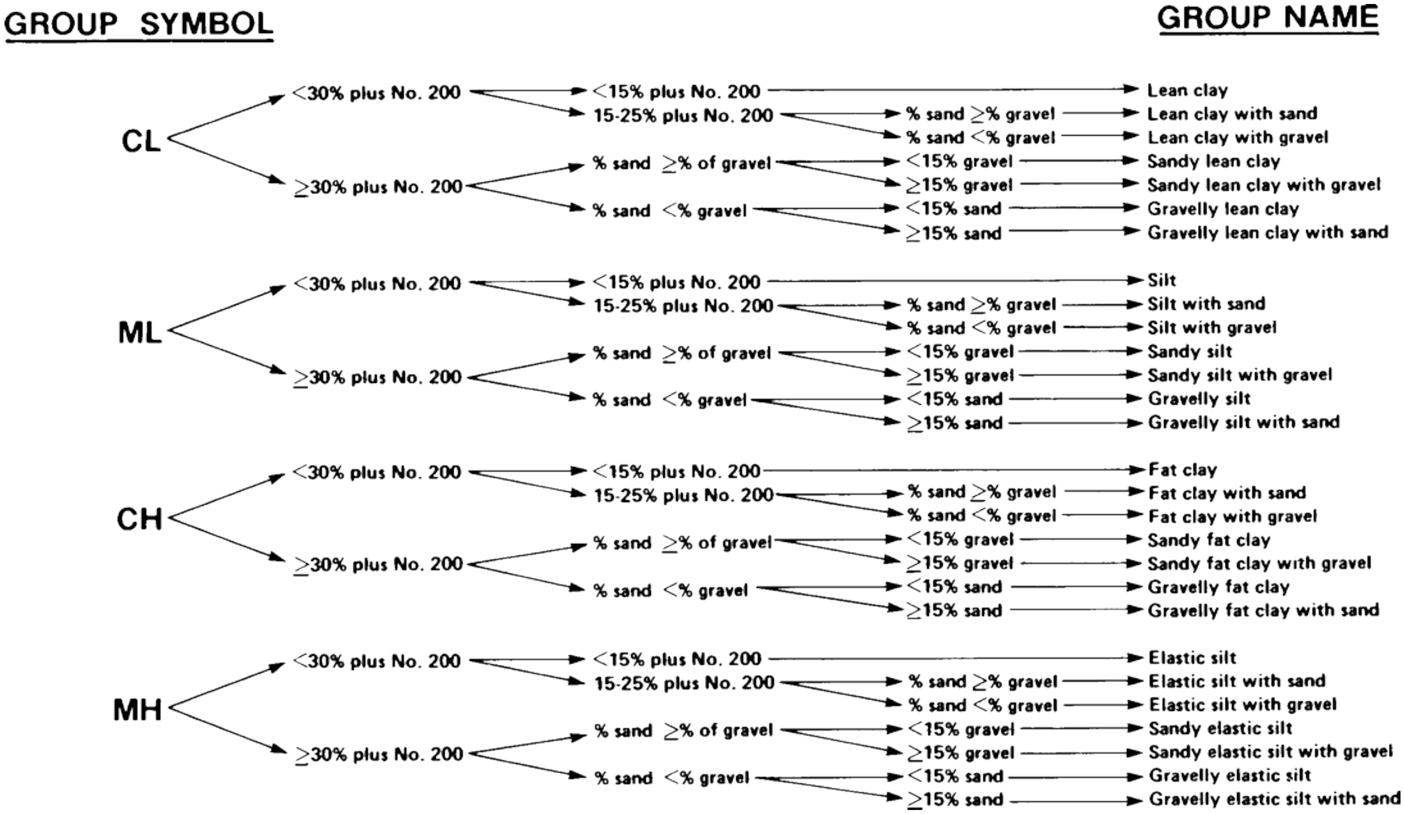
6.2 *Useful Auxiliary Apparatus*:

6.2.1 *Small Test Tube and Stopper* (or jar with a lid).

6.2.2 *Small Hand Lens*.

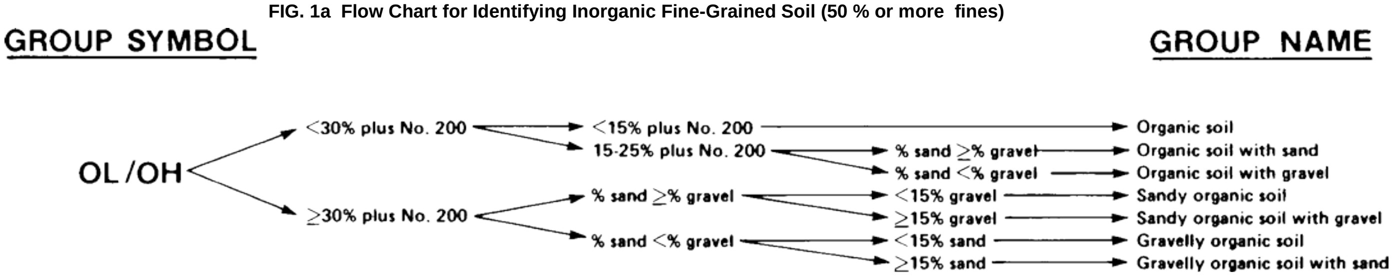
7. Reagents

7.1 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean water from a city water



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1a Flow Chart for Identifying Inorganic Fine-Grained Soil (50 % or more fines)



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1 b Flow Chart for Identifying Organic Fine-Grained Soil (50 % or more fines)

supply or natural source, including non-potable water.

7.2 *Hydrochloric Acid*—A small bottle of dilute hydrochloric acid, HCl, one part HCl (10 *N*) to three parts water (This reagent is optional for use with this practice). See Section 8.

8. Safety Precautions

8.1 When preparing the dilute HCl solution of one part concentrated hydrochloric acid (10 *N*) to three parts of distilled water, slowly add acid into water following necessary safety precautions. Handle with caution and store safely. If solution comes into contact with the skin, rinse thoroughly with water.

8.2 **Caution—**Do not add water to acid.

9. Sampling

9.1 The sample shall be considered to be representative of the stratum from which it was obtained by an appropriate, accepted, or standard procedure.

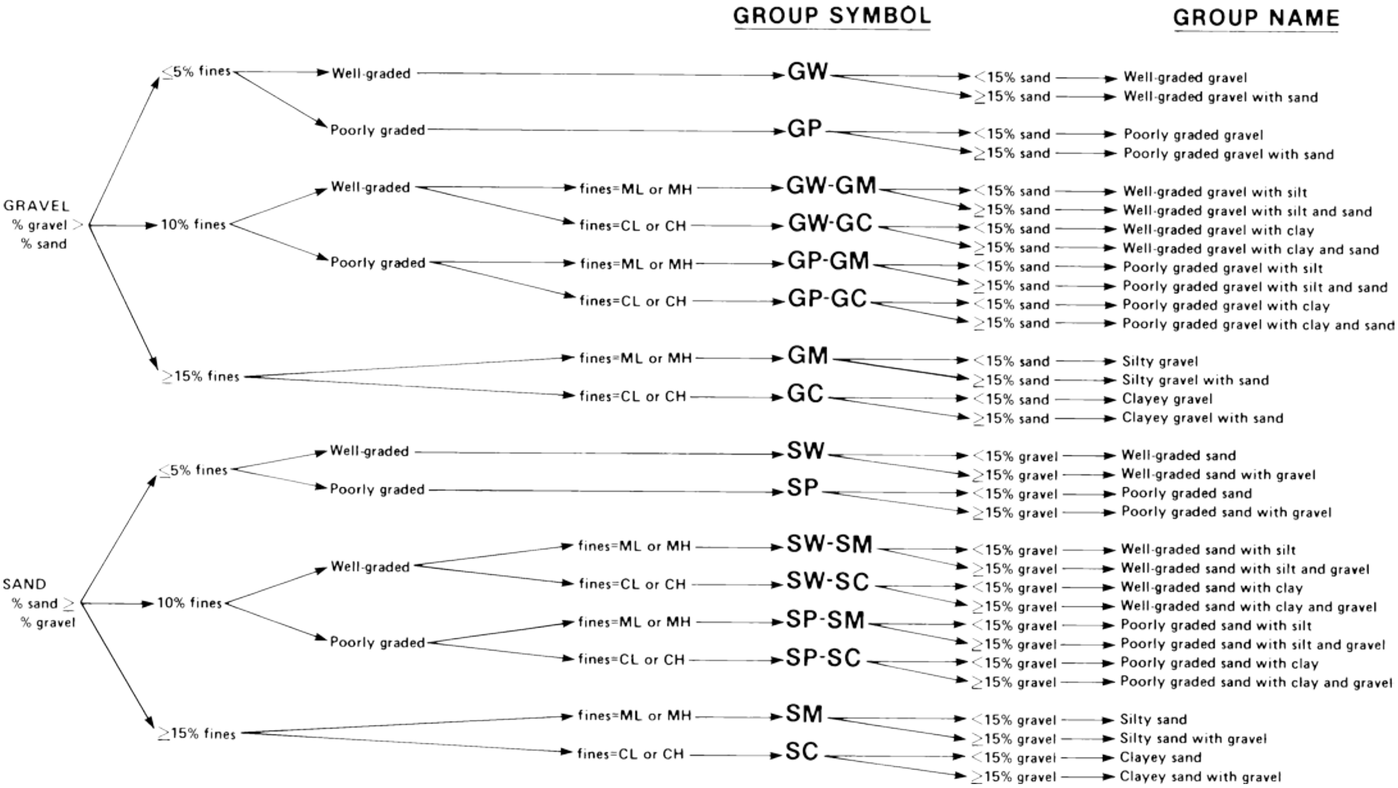
NOTE 6—Preferably, the sampling procedure should be identified as having been conducted in accordance with Practices D 1452, D 1587, or D 2113, or Test Method D 1586.

9.2 The sample shall be carefully identified as to origin.

NOTE 7—Remarks as to the origin may take the form of a boring number and sample number in conjunction with a job number, a geologic stratum, a pedologic horizon or a location description with respect to a permanent monument, a grid system or a station number and offset with respect to a stated centerline and a depth or elevation.

9.3 For accurate description and identification, the minimum amount of the specimen to be examined shall be in accordance with the following schedule:

Maximum Particle Size, Sieve Opening	Minimum Specimen Size, Dry Weight
4.75 mm (No. 4)	100 g (0.25 lb)
9.5 mm (⅜ in.)	200 g (0.5 lb)
19.0 mm (¾ in.)	1.0 kg (2.2 lb)
38.1 mm (1½ in.)	8.0 kg (18 lb)
75.0 mm (3 in.)	60.0 kg (132 lb)



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 2 Flow Chart for Identifying Coarse-Grained Soils (less than 50 % fines)

NOTE 8—If random isolated particles are encountered that are significantly larger than the particles in the soil matrix, the soil matrix can be accurately described and identified in accordance with the preceeding schedule.

9.4 If the field sample or specimen being examined is smaller than the minimum recommended amount, the report shall include an appropriate remark.

10. Descriptive Information for Soils

10.1 *Angularity*—Describe the angularity of the sand (coarse sizes only), gravel, cobbles, and boulders, as angular, subangular, subrounded, or rounded in accordance with the criteria in Table 1 and Fig. 3. A range of angularity may be stated, such as: subrounded to rounded.

10.2 *Shape*—Describe the shape of the gravel, cobbles, and boulders as flat, elongated, or flat and elongated if they meet the criteria in Table 2 and Fig. 4. Otherwise, do not mention the shape. Indicate the fraction of the particles that have the shape, such as: one-third of the gravel particles are flat.

TABLE 1 Criteria for Describing Angularity of Coarse-Grained Particles (see Fig. 3)

Description	Criteria
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges

10.3 *Color*—Describe the color. Color is an important property in identifying organic soils, and within a given locality it may also be useful in identifying materials of similar geologic origin. If the sample contains layers or patches of varying colors, this shall be noted and all representative colors shall be described. The color shall be described for moist samples. If the color represents a dry condition, this shall be stated in the report.

10.4 *Odor*—Describe the odor if organic or unusual. Soils containing a significant amount of organic material usually have a distinctive odor of decaying vegetation. This is especially apparent in fresh samples, but if the samples are dried, the odor may often be revived by heating a moistened sample. If the odor is unusual (petroleum product, chemical, and the like), it shall be described.

10.5 *Moisture Condition*—Describe the moisture condition as dry, moist, or wet, in accordance with the criteria in Table 3.

10.6 *HCl Reaction*—Describe the reaction with HCl as none, weak, or strong, in accordance with the critera in Table 4. Since calcium carbonate is a common cementing agent, a report of its presence on the basis of the reaction with dilute hydrochloric acid is important.

10.7 *Consistency*—For intact fine-grained soil, describe the consistency as very soft, soft, firm, hard, or very hard, in accordance with the criteria in Table 5. This observation is inappropriate for soils with significant amounts of gravel.

10.8 *Cementation*—Describe the cementation of intact coarse-grained soils as weak, moderate, or strong, in accordance with the criteria in Table 6.

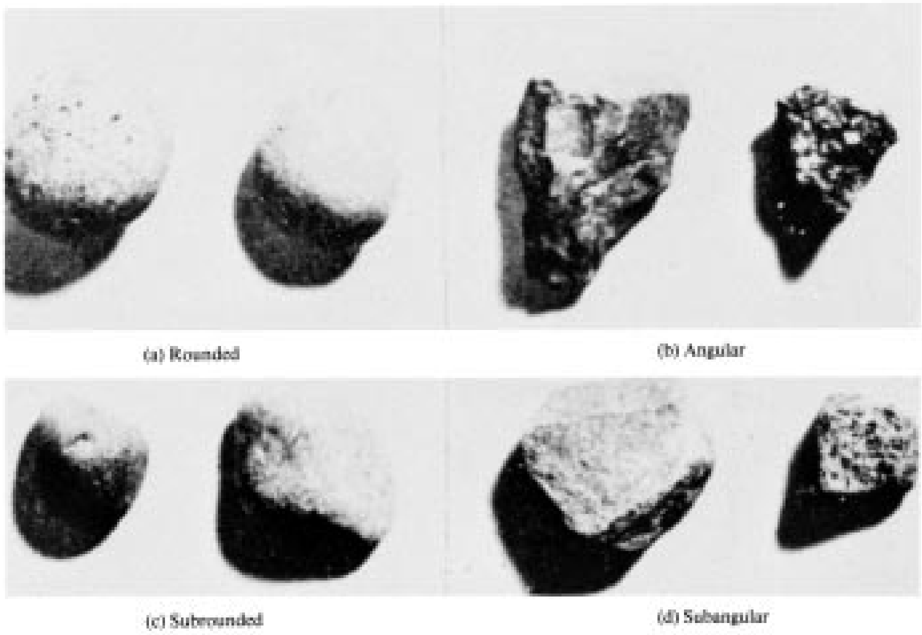


FIG. 3 Typical Angularity of Bulky Grains

TABLE 2 Criteria for Describing Particle Shape (see Fig. 4)

The particle shape shall be described as follows where length, width, and thickness refer to the greatest, intermediate, and least dimensions of a particle, respectively.

Flat	Particles with width/thickness > 3
Elongated	Particles with length/width > 3
Flat and elongated	Particles meet criteria for both flat and elongated

10.9 *Structure*—Describe the structure of intact soils in accordance with the criteria in Table 7.

10.10 *Range of Particle Sizes*—For gravel and sand components, describe the range of particle sizes within each component as defined in 3.1.2 and 3.1.6. For example, about 20 % fine to coarse gravel, about 40 % fine to coarse sand.

10.11 *Maximum Particle Size*—Describe the maximum particle size found in the sample in accordance with the following information:

10.11.1 *Sand Size*—If the maximum particle size is a sand size, describe as fine, medium, or coarse as defined in 3.1.6. For example: maximum particle size, medium sand.

10.11.2 *Gravel Size*—If the maximum particle size is a gravel size, describe the maximum particle size as the smallest sieve opening that the particle will pass. For example, maximum particle size, 1½ in. (will pass a 1½-in. square opening but not a ¾-in. square opening).

10.11.3 *Cobble or Boulder Size*—If the maximum particle size is a cobble or boulder size, describe the maximum dimension of the largest particle. For example: maximum dimension, 18 in. (450 mm).

10.12 *Hardness*—Describe the hardness of coarse sand and larger particles as hard, or state what happens when the particles are hit by a hammer, for example, gravel-size particles fracture with considerable hammer blow, some gravel-size particles crumble with hammer blow. "Hard" means particles do not crack, fracture, or crumble under a hammer blow.

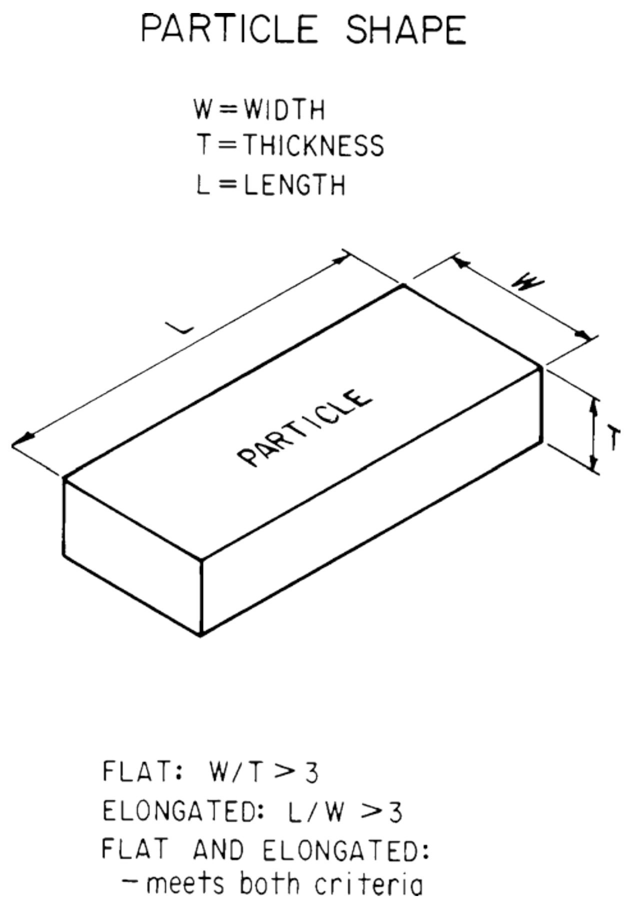


FIG. 4 Criteria for Particle Shape

10.13 Additional comments shall be noted, such as the presence of roots or root holes, difficulty in drilling or augering

TABLE 3 Criteria for Describing Moisture Condition

Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

TABLE 4 Criteria for Describing the Reaction With HCl

Description	Criteria
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

TABLE 5 Criteria for Describing Dilatancy

Description	Criteria
Very soft	Thumb will penetrate soil more than 1 in. (25 mm)
Soft	Thumb will penetrate soil about 1 in. (25 mm)
Firm	Thumb will indent soil about ¼in. (6 mm)
Hard	Thumb will not indent soil but readily indented with thumbnail
Very hard	Thumbnail will not indent soil

TABLE 6 Criteria for Describing Toughness

Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

TABLE 7 Criteria for Describing Dilatancy

Description	Criteria
Stratified	Alternating layers of varying material or color with layers at least 6 mm thick; note thickness
Laminated	Alternating layers of varying material or color with the layers less than 6 mm thick; note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness
Homogeneous	Same color and appearance throughout

hole, caving of trench or hole, or the presence of mica.

10.14 A local or commercial name or a geologic interpretation of the soil, or both, may be added if identified as such.

10.15 A classification or identification of the soil in accordance with other classification systems may be added if identified as such.

11. Identification of Peat

11.1 A sample composed primarily of vegetable tissue in various stages of decomposition that has a fibrous to amorphous texture, usually a dark brown to black color, and an organic odor, shall be designated as a highly organic soil and shall be identified as peat, PT, and not subjected to the identification procedures described hereafter.

12. Preparation for Identification

12.1 The soil identification portion of this practice is based on the portion of the soil sample that will pass a 3-in. (75-mm) sieve. The larger than 3-in. (75-mm) particles must be removed, manually, for a loose sample, or mentally, for an intact sample before classifying the soil.

12.2 Estimate and note the percentage of cobbles and the percentage of boulders. Performed visually, these estimates will be on the basis of volume percentage.

NOTE 9—Since the percentages of the particle-size distribution in Test Method D 2487 are by dry weight, and the estimates of percentages for gravel, sand, and fines in this practice are by dry weight, it is recommended that the report state that the percentages of cobbles and boulders are by volume.

12.3 Of the fraction of the soil smaller than 3 in. (75 mm), estimate and note the percentage, by dry weight, of the gravel, sand, and fines (see Appendix X4 for suggested procedures).

NOTE 10—Since the particle-size components appear visually on the basis of volume, considerable experience is required to estimate the percentages on the basis of dry weight. Frequent comparisons with laboratory particle-size analyses should be made.

12.3.1 The percentages shall be estimated to the closest 5 %. The percentages of gravel, sand, and fines must add up to 100 %.

12.3.2 If one of the components is present but not in sufficient quantity to be considered 5 % of the smaller than 3-in. (75-mm) portion, indicate its presence by the term *trace*, for example, trace of fines. A trace is not to be considered in the total of 100 % for the components.

13. Preliminary Identification

13.1 The soil is *fine grained* if it contains 50 % or more fines. Follow the procedures for identifying fine-grained soils of Section 14.

13.2 The soil is *coarse grained* if it contains less than 50 % fines. Follow the procedures for identifying coarse-grained soils of Section 15.

14. Procedure for Identifying Fine-Grained Soils

14.1 Select a representative sample of the material for examination. Remove particles larger than the No. 40 sieve (medium sand and larger) until a specimen equivalent to about a handful of material is available. Use this specimen for performing the dry strength, dilatancy, and toughness tests.

14.2 *Dry Strength*:

14.2.1 From the specimen, select enough material to mold into a ball about 1 in. (25 mm) in diameter. Mold the material until it has the consistency of putty, adding water if necessary.

14.2.2 From the molded material, make at least three test specimens. A test specimen shall be a ball of material about ½ in. (12 mm) in diameter. Allow the test specimens to dry in air, or sun, or by artificial means, as long as the temperature does not exceed 60°C.

14.2.3 If the test specimen contains natural dry lumps, those that are about ½ in. (12 mm) in diameter may be used in place of the molded balls.

NOTE 11—The process of molding and drying usually produces higher strengths than are found in natural dry lumps of soil.

14.2.4 Test the strength of the dry balls or lumps by crushing between the fingers. Note the strength as none, low, medium, high, or very high in accorance with the criteria in Table 8. If natural dry lumps are used, do not use the results of any of the lumps that are found to contain particles of coarse sand.

14.2.5 The presence of high-strength water-soluble cementing materials, such as calcium carbonate, may cause exceptionally high dry strengths. The presence of calcium carbonate can usually be detected from the intensity of the reaction with dilute hydrochloric acid (see 10.6).

14.3 *Dilatancy*:

14.3.1 From the specimen, select enough material to mold into a ball about ½ in. (12 mm) in diameter. Mold the material, adding water if necessary, until it has a soft, but not sticky, consistency.

14.3.2 Smooth the soil ball in the palm of one hand with the blade of a knife or small spatula. Shake horizontally, striking the side of the hand vigorously against the other hand several times. Note the reaction of water appearing on the surface of the soil. Squeeze the sample by closing the hand or pinching the soil between the fingers, and note the reaction as none, slow, or rapid in accordance with the criteria in Table 9. The reaction is the speed with which water appears while shaking, and disappears while squeezing.

14.4 *Toughness*:

14.4.1 Following the completion of the dilatancy test, the test specimen is shaped into an elongated pat and rolled by hand on a smooth surface or between the palms into a thread about ⅛ in. (3 mm) in diameter. (If the sample is too wet to roll easily, it should be spread into a thin layer and allowed to lose some water by evaporation.) Fold the sample threads and reroll repeatedly until the thread crumbles at a diameter of about ⅛ in. The thread will crumble at a diameter of ⅛ in. when the soil is near the plastic limit. Note the pressure required to roll the thread near the plastic limit. Also, note the strength of the thread. After the thread crumbles, the pieces should be lumped together and kneaded until the lump crumbles. Note the toughness of the material during kneading.

14.4.2 Describe the toughness of the thread and lump as low, medium, or high in accordance with the criteria in Table 10.

14.5 *Plasticity*—On the basis of observations made during the toughness test, describe the plasticity of the material in accordance with the criteria given in Table 11.

14.6 Decide whether the soil is an *inorganic* or an *organic* fine-grained soil (see 14.8). If inorganic, follow the steps given in 14.7.

TABLE 8 Criteria for Describing Toughness

Description	Criteria
None	The dry specimen crumbles into powder with mere pressure of handling
Low	The dry specimen crumbles into powder with some finger pressure
Medium	The dry specimen breaks into pieces or crumbles with considerable finger pressure
High	The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface
Very high	The dry specimen cannot be broken between the thumb and a hard surface

TABLE 9 Criteria for Describing Dilatancy

Description	Criteria
None	No visible change in the specimen
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing

TABLE 10 Criteria for Describing Toughness

Description	Criteria
Low	Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft
Medium	Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness
High	Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness

TABLE 11 Criteria for Describing Plasticity

Description	Criteria
Nonplastic	A ⅛-in. (3-mm) thread cannot be rolled at any water content
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit

14.7 *Identification of Inorganic Fine-Grained Soils*:

14.7.1 Identify the soil as a *lean clay*, CL, if the soil has medium to high dry strength, no or slow dilatancy, and medium toughness and plasticity (see Table 12).

14.7.2 Identify the soil as a *fat clay*, CH, if the soil has high to very high dry strength, no dilatancy, and high toughness and plasticity (see Table 12).

14.7.3 Identify the soil as a *silt*, ML, if the soil has no to low dry strength, slow to rapid dilatancy, and low toughness and plasticity, or is nonplastic (see Table 12).

14.7.4 Identify the soil as an *elastic silt*, MH, if the soil has low to medium dry strength, no to slow dilatancy, and low to medium toughness and plasticity (see Table 12).

NOTE 12—These properties are similar to those for a lean clay. However, the silt will dry quickly on the hand and have a smooth, silky feel when dry. Some soils that would classify as MH in accordance with the criteria in Test Method D 2487 are visually difficult to distinguish from lean clays, CL. It may be necessary to perform laboratory testing for proper identification.

TABLE 12 Identification of Inorganic Fine-Grained Soils from Manual Tests

Soil Symbol	Dry Strength	Dilatancy	Toughness
ML	None to low	Slow to rapid	Low or thread cannot be formed
CL	Medium to high	None to slow	Medium
MH	Low to medium	None to slow	Low to medium
CH	High to very high	None	High

14.8 *Identification of Organic Fine-Grained Soils*:

14.8.1 Identify the soil as an *organic soil*, OL/OH, if the soil contains enough organic particles to influence the soil properties. Organic soils usually have a dark brown to black color and may have an organic odor. Often, organic soils will change color, for example, black to brown, when exposed to the air. Some organic soils will lighten in color significantly when air dried. Organic soils normally will not have a high toughness or plasticity. The thread for the toughness test will be spongy.

NOTE 13—In some cases, through practice and experience, it may be possible to further identify the organic soils as organic silts or organic clays, OL or OH. Correlations between the dilatancy, dry strength, toughness tests, and laboratory tests can be made to identify organic soils in certain deposits of similar materials of known geologic origin.

14.9 If the soil is estimated to have 15 to 25 % sand or gravel, or both, the words "with sand" or "with gravel" (whichever is more predominant) shall be added to the group name. For example: "lean clay with sand, CL" or "silt with gravel, ML" (see Fig. 1a and Fig. 1b). If the percentage of sand is equal to the percentage of gravel, use "with sand."

14.10 If the soil is estimated to have 30 % or more sand or gravel, or both, the words "sandy" or "gravelly" shall be added to the group name. Add the word "sandy" if there appears to be more sand than gravel. Add the word "gravelly" if there appears to be more gravel than sand. For example: "sandy lean clay, CL", "gravelly fat clay, CH", or "sandy silt, ML" (see Fig. 1a and Fig. 1b). If the percentage of sand is equal to the percent of gravel, use "sandy."

15. Procedure for Identifying Coarse-Grained Soils

(Contains less than 50 % fines)

15.1 The soil is a *gravel* if the percentage of gravel is estimated to be more than the percentage of sand.

15.2 The soil is a *sand* if the percentage of gravel is estimated to be equal to or less than the percentage of sand.

15.3 The soil is a *clean gravel* or *clean sand* if the percentage of fines is estimated to be 5 % or less.

15.3.1 Identify the soil as a *well-graded gravel*, GW, or as a *well-graded sand*, SW, if it has a wide range of particle sizes and substantial amounts of the intermediate particle sizes.

15.3.2 Identify the soil as a *poorly graded gravel*, GP, or as a *poorly graded sand*, SP, if it consists predominantly of one size (uniformly graded), or it has a wide range of sizes with some intermediate sizes obviously missing (gap or skip graded).

15.4 The soil is either a *gravel with fines* or a *sand with fines* if the percentage of fines is estimated to be 15 % or more.

15.4.1 Identify the soil as a *clayey gravel*, GC, or a *clayey sand*, SC, if the fines are clayey as determined by the procedures in Section 14.

15.4.2 Identify the soil as a *silty gravel*, GM, or a *silty sand*, SM, if the fines are silty as determined by the procedures in Section 14.

15.5 If the soil is estimated to contain 10 % fines, give the soil a dual identification using two group symbols.

15.5.1 The first group symbol shall correspond to a clean gravel or sand (GW, GP, SW, SP) and the second symbol shall correspond to a gravel or sand with fines (GC, GM, SC, SM).

15.5.2 The group name shall correspond to the first group symbol plus the words "with clay" or "with silt" to indicate the plasticity characteristics of the fines. For example: "well-graded gravel with clay, GW-GC" or "poorly graded sand with silt, SP-SM" (see Fig. 2).

15.6 If the specimen is predominantly sand or gravel but contains an estimated 15 % or more of the other coarse-grained constituent, the words "with gravel" or "with sand" shall be added to the group name. For example: "poorly graded gravel with sand, GP" or "clayey sand with gravel, SC" (see Fig. 2).

15.7 If the field sample contains any cobbles or boulders, or both, the words "with cobbles" or "with cobbles and boulders" shall be added to the group name. For example: "silty gravel with cobbles, GM."

16. Report

16.1 The report shall include the information as to origin, and the items indicated in Table 13.

NOTE 14—*Example: Clayey Gravel with Sand and Cobbles, GC*—About 50 % fine to coarse, subrounded to subangular gravel; about 30 % fine to coarse, subrounded sand; about 20 % fines with medium plasticity, high dry strength, no dilatancy, medium toughness; weak reaction with HCl; original field sample had about 5 % (by volume) subrounded cobbles, maximum dimension, 150 mm.

In-Place Conditions—Firm, homogeneous, dry, brown

Geologic Interpretation—Alluvial fan

NOTE 15—Other examples of soil descriptions and identification are given in Appendix X1 and Appendix X2.

NOTE 16—If desired, the percentages of gravel, sand, and fines may be stated in terms indicating a range of percentages, as follows:

Trace—Particles are present but estimated to be less than 5 %
Few—5 to 10 % *Little*—
15 to 25 % *Some*—30 to
45 % *Mostly*—50 to 100
%

TABLE 13 Checklist for Description of Soils

1. Group name
2. Group symbol
3. Percent of cobbles or boulders, or both (by volume)
4. Percent of gravel, sand, or fines, or all three (by dry weight)
5. Particle-size range: Gravel—fine, coarse; Sand—fine, medium, coarse
6. Particle angularity: angular, subangular, subrounded, rounded
7. Particle shape: (if appropriate) flat, elongated, flat and elongated
8. Maximum particle size or dimension
9. Hardness of coarse sand and larger particles
10. Plasticity of fines: nonplastic, low, medium, high
11. Dry strength: none, low, medium, high, very high
12. Dilatancy: none, slow, rapid
13. Toughness: low, medium, high
14. Color (in moist condition)
15. Odor (mention only if organic or unusual)
16. Moisture: dry, moist, wet
17. Reaction with HCl: none, weak, strong
For intact samples:
18. Consistency (fine-grained soils only): very soft, soft, firm, hard, very hard
19. Structure: stratified, laminated, fissured, slickensided, lensed, homogeneous
20. Cementation: weak, moderate, strong
21. Local name
22. Geologic interpretation
23. Additional comments: presence of roots or root holes, presence of mica, gypsum, etc., surface coatings on coarse-grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating, etc.

16.2 If, in the soil description, the soil is identified using a classification group symbol and name as described in Test Method D 2487, it must be distinctly and clearly stated in log forms, summary tables, reports, and the like, that the symbol and name are based on visual-manual procedures.

17. Precision and Bias

17.1 This practice provides qualitative information only, therefore, a precision and bias statement is not applicable.

18. Keywords

18.1 classification; clay; gravel; organic soils; sand; silt; soil classification; soil description; visual classification

5.1.1.1....1 APPENDIXES

(Nonmandatory Information)

X1. EXAMPLES OF VISUAL SOIL DESCRIPTIONS

X1.1 The following examples show how the information required in 16.1 can be reported. The information that is included in descriptions should be based on individual circumstances and need.

X1.1.1 *Well-Graded Gravel with Sand (GW)*—About 75 % fine to coarse, hard, subangular gravel; about 25 % fine to coarse, hard, subangular sand; trace of fines; maximum size, 75 mm, brown, dry; no reaction with HCl.

X1.1.2 *Silty Sand with Gravel (SM)*—About 60 % predominantly fine sand; about 25 % silty fines with low plasticity, low dry strength, rapid dilatancy, and low toughness; about 15 % fine, hard, subrounded gravel, a few gravel-size particles fractured with hammer blow; maximum size, 25 mm; no reaction with HCl (Note—Field sample size smaller than recommended).

In-Place Conditions—Firm, stratified and contains lenses of silt 1 to 2 in. (25 to 50 mm) thick, moist, brown to gray; in-place density 106 lb/ft^3; in-place moisture 9 %.

X1.1.3 *Organic Soil (OL/OH)*—About 100 % fines with low plasticity, slow dilatancy, low dry strength, and low toughness; wet, dark brown, organic odor; weak reaction with HCl.

X1.1.4 *Silty Sand with Organic Fines (SM)*—About 75 % fine to coarse, hard, subangular reddish sand; about 25 % organic and silty dark brown nonplastic fines with no dry strength and slow dilatancy; wet; maximum size, coarse sand; weak reaction with HCl.

X1.1.5 *Poorly Graded Gravel with Silt, Sand, Cobbles and Boulders (GP-GM)*—About 75 % fine to coarse, hard, subrounded to subangular gravel; about 15 % fine, hard, subrounded to subangular sand; about 10 % silty nonplastic fines; moist, brown; no reaction with HCl; original field sample had about 5 % (by volume) hard, subrounded cobbles and a trace of hard, subrounded boulders, with a maximum dimension of 18 in. (450 mm).

X2. USING THE IDENTIFICATION PROCEDURE AS A DESCRIPTIVE SYSTEM FOR SHALE, CLAYSTONE, SHELLS, SLAG, CRUSHED ROCK, AND THE LIKE

X2.1 The identification procedure may be used as a descriptive system applied to materials that exist in-situ as shale, claystone, sandstone, siltstone, mudstone, etc., but convert to soils after field or laboratory processing (crushing, slaking, and the like).

X2.2 Materials such as shells, crushed rock, slag, and the like, should be identified as such. However, the procedures used in this practice for describing the particle size and plasticity characteristics may be used in the description of the material. If desired, an identification using a group name and symbol according to this practice may be assigned to aid in describing the material.

X2.3 The group symbol(s) and group names should be placed in quotation marks or noted with some type of distinguishing symbol. See examples.

X2.4 Examples of how group names and symbols can be incororated into a descriptive system for materials that are not naturally occurring soils are as follows:

X2.4.1 *Shale Chunks*—Retrieved as 2 to 4-in. (50 to 100-mm) pieces of shale from power auger hole, dry, brown, no reaction with HCl. After slaking in water for 24 h, material identified as "Sandy Lean Clay (CL)"; about 60 % fines with medium plasticity, high dry strength, no dilatancy, and medium toughness; about 35 % fine to medium, hard sand; about 5 % gravel-size pieces of shale.

X2.4.2 *Crushed Sandstone*—Product of commercial crushing operation; "Poorly Graded Sand with Silt (SP-SM)"; about 90 % fine to medium sand; about 10 % nonplastic fines; dry, reddish-brown, strong reaction with HCl.

X2.4.3 *Broken Shells*—About 60 % gravel-size broken shells; about 30 % sand and sand-size shell pieces; about 10 % fines; "Poorly Graded Gravel with Sand (GP)."

X2.4.4 *Crushed Rock*—Processed from gravel and cobbles in Pit No. 7; "Poorly Graded Gravel (GP)"; about 90 % fine, hard, angular gravel-size particles; about 10 % coarse, hard, angular sand-size particles; dry, tan; no reaction with HCl.

X3. SUGGESTED PROCEDURE FOR USING A BORDERLINE SYMBOL FOR SOILS WITH TWO POSSIBLE IDENTIFICATIONS.

X3.1 Since this practice is based on estimates of particle size distribution and plasticity characteristics, it may be difficult to clearly identify the soil as belonging to one category. To indicate that the soil may fall into one of two possible basic groups, a borderline symbol may be used with the two symbols separated by a slash. For example: SC/CL or CL/CH.

X3.1.1 A borderline symbol may be used when the percentage of fines is estimated to be between 45 and 55 %. One symbol should be for a coarse-grained soil with fines and the other for a fine-grained soil. For example: GM/ML or CL/SC.

X3.1.2 A borderline symbol may be used when the percentage of sand and the percentage of gravel are estimated to be about the same. For example: GP/SP, SC/GC, GM/SM. It is practically impossible to have a soil that would have a borderline symbol of GW/SW.

X3.1.3 A borderline symbol may be used when the soil could be either well graded or poorly graded. For example: GW/GP, SW/SP.

X3.1.4 A borderline symbol may be used when the soil could either be a silt or a clay. For example: CL/ML, CH/MH, SC/SM.

X3.1.5 A borderline symbol may be used when a fine-grained soil has properties that indicate that it is at the boundary between a soil of low compressibility and a soil of high compressibility. For example: CL/CH, MH/ML.

X3.2 The order of the borderline symbols should reflect similarity to surrounding or adjacent soils. For example: soils in a borrow area have been identified as CH. One sample is considered to have a borderline symbol of CL and CH. To show similarity, the borderline symbol should be CH/CL.

X3.3 The group name for a soil with a borderline symbol should be the group name for the first symbol, except for:

CL/CH lean to fat clay
ML/CL clayey silt
CL/ML silty clay

X3.4 The use of a borderline symbol should not be used indiscriminately. Every effort shall be made to first place the soil into a single group.

X4. SUGGESTED PROCEDURES FOR ESTIMATING THE PERCENTAGES OF GRAVEL, SAND, AND FINES IN A SOIL SAMPLE

X4.1 *Jar Method*—The relative percentage of coarse- and fine-grained material may be estimated by thoroughly shaking a mixture of soil and water in a test tube or jar, and then allowing the mixture to settle. The coarse particles will fall to the bottom and successively finer particles will be deposited with increasing time; the sand sizes will fall out of suspension in 20 to 30 s. The relative proportions can be estimated from the relative volume of each size separate. This method should be correlated to particle-size laboratory determinations.

X4.2 *Visual Method*—Mentally visualize the gravel size particles placed in a sack (or other container) or sacks. Then, do the same with the sand size particles and the fines. Then, mentally compare the number of sacks to estimate the percentage of plus No. 4 sieve size and minus No. 4 sieve size present. The percentages of sand and fines in the minus sieve size No. 4 material can then be estimated from the wash test (X4.3).

X4.3 *Wash Test (for relative percentages of sand and fines)*—Select and moisten enough minus No. 4 sieve size material to form a 1-in (25-mm) cube of soil. Cut the cube in half, set one-half to the side, and place the other half in a small dish. Wash and decant the fines out of the material in the dish until the wash water is clear and then compare the two samples and estimate the percentage of sand and fines. Remember that the percentage is based on weight, not volume. However, the volume comparison will provide a reasonable indication of grain size percentages.

X4.3.1 While washing, it may be necessary to break down lumps of fines with the finger to get the correct percentages.

X5. ABBREVIATED SOIL CLASSIFICATION SYMBOLS

X5.1 In some cases, because of lack of space, an abbreviated system may be useful to indicate the soil classification symbol and name. Examples of such cases would be graphical logs, databases, tables, etc.

X5.2 This abbreviated system is not a substitute for the full name and descriptive information but can be used in supplementary presentations when the complete description is referenced.

X5.3 The abbreviated system should consist of the soil classification symbol based on this standard with appropriate lower case letter prefixes and suffixes as:

Prefix: Suffix:

s 5 sandy	s 5 with sand
g 5 gravelly	g 5 with gravel
	c 5 with cobbles
	b 5 with boulders

X5.4 The soil classification symbol is to be enclosed in parenthesis. Some examples would be:

Group Symbol and Full Name	Abbreviated
CL, Sandy lean clay	s(CL)
SP-SM, Poorly graded sand with silt and gravel	(SP-SM)g
GP, poorly graded gravel with sand, cobbles, and boulders	(GP)scb
ML, gravelly silt with sand and cobbles	g(ML)sc

5.1.1.1....2 SUMMARY OF CHANGES

In accordance with Committee D18 policy, this section identifies the location of changes to this standard since the last edition (1993^{e1}) that may impact the use of this standard.

(1) Added Practice D 3740 to Section 2.

(2) Added Note 5 under 5.7 and renumbered subsequent notes.

Appendix B. Standard Operating Procedures for Sample Handling and Preservation

January 2017 | Quality Assurance Project Plan

Standard Operating Procedures

Sample Handling and Preservation

Prepared by:

PlaceWorks
700 South Flower Street, Suite 600
Los Angeles, California 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

Table of Contents

1. Introduction

This standard operating procedure (SOP) provides guidance for the handling and preservation of environmental samples, including requirements for sample identification, chain-of-custody (COC) control, preservation and storage, and sample transfer to the laboratory. The overall objective of the SOP is to define sample management activities and protocols from the time of sample collection to the time the samples are received by the laboratory. Specific methods and procedures for the collection of groundwater and soil samples are discussed in their respective sampling SOPs. Proper sample handling and preservation techniques play a vital role in the generation of valid, defensible analytical data and in the attainment of project data quality objectives (DQOs). The outcome of environmental litigation as well as important regulatory and public health decisions often hinge on such data.

1.1 OBJECTIVES

This standard operating procedure (SOP) describes sample handling and preservation methods widely used in remedial investigations and other environmental projects. The SOP also presents a consistent method for identifying, managing and transporting samples. The objectives of this SOP are outlined below:

- Facilitate selection of sample containers that are appropriate for site-specific conditions and project objectives
- Ensure consistent and accurate sample labeling
- Adhere to COC, storage and delivery specifications
- Attain project chemical data quality objectives (DQOs).

The SOP is intended for use by PlaceWorks geologists, engineers, and project managers during project planning and implementation. It focuses on methods and equipment that are readily available and are typically applied. It is not intended to provide an all-inclusive discussion of sample handling and preservation. Sample management standards and procedures are discussed in the following sections.

1.2 UPDATES

This SOP is updated as the need arises. This current January 2017 version has been updated from the May 2014 version as follows:

- Date updated from May 2014 to January 2017 on the cover sheet
- Street address of the Los Angeles office was changed from Airport Blvd to Flower Street on the cover sheet

- Section 1 Introduction was split by adding the 1.1 Objectives line
- This Section 1.2 Updates was added
- Miscellaneous changes to correct inconsistencies in use of headers

2. Definitions

Chain-of-Custody

Procedures and records that document the physical possession of a sample from the time it is collected to the time it is received by a laboratory. A chain-of-custody record documents the date and time of collection, the intended analyses, and the identification of all persons who relinquish or receive the sample.

Custody Seal

A brittle, non-removable tape that is placed across the lid of sample containers or coolers; an intact seal provides assurance that the samples have not been tampered with.

Holding Time

The time allowed between sample collection and sample analysis, if designated preservation and storage techniques are employed.

Matrix

The environmental medium that is being sampled (e.g., groundwater, surface water, soil, sediment, waste, etc.).

Quality Assurance and Quality Control Samples

Samples analyzed for the purpose of assessing the quality of the sampling effort and analytical data. Quality assurance (QA) and quality control (QC) samples include, but are not limited to, field duplicate samples, equipment blanks, field blanks, trip blanks, and split samples.

Sample

Physical evidence collected for environmental measuring and monitoring. For this SOP, the procedures and protocols primarily apply to solid (i.e., soil and bedrock) and aqueous (i.e., groundwater) samples.

3. Procedures

3.1 APPLICABILITY

Four general categories of soil samples are collected during site investigations; bulk samples, representative samples, undisturbed samples, and composite samples. These categories are described in the following sections.

3.2 SAMPLE MANAGEMENT

3.2.1 Sample Containers

The selection of a sample container of appropriate volume and construction depends on the sample matrix and the analyses to be performed. Unless otherwise specified in the project workplan, the sample containers should conform to the specifications prescribed in the Test Methods for Evaluation Solid Waste (USEPA, SW-846). Where samples are designated for volatile or semi-volatile organic compound analysis, the sample containers should be filled completely to ensure that no headspace is present. This applies to soil samples as well as water samples.

Once a sample container has been opened, it should be used as soon as possible. If the container was received unsealed from the laboratory or container vendor, or if the container was not used shortly after opening, it should be discarded or recycled. When storing sample containers prior to sampling, care should be taken to keep the container away from chemicals or products, such as fuels, degreasing agents, paint, etc. that could compromise the analytical results. Sample containers that hold preservatives added by the laboratory should not be used if stored for an extended period or exposed to extreme heat. Sampling personnel should exercise care when handling containers with acid preservatives, so as to avoid contact. Special attention should be paid to loosely capped containers that could result in spillage of acid preservatives.

For the purpose of this SOP, a metal or plastic soil sample sleeve (typically employed with solid- or split- barrel samples) shall be regarded as a “sample container.” Sample sleeves often contain oily residues from their manufacture; accordingly, sleeves should be washed thoroughly and rinsed prior to use. Immediately following sample collection, the ends of the sample sleeves should be covered with Teflon® liners and plastic end caps to prevent volatile loss. Adhesive materials should not be used to seal the container, because they can contain organic compounds, such as toluene, that conceivably could lead to erroneous detections (i.e., false “hits”).

3.2.2 Sample Labeling

A durable, adhesive sample label should be affixed to all sample containers. In many instances, sample labels are supplied by the laboratory subcontractor. The following information should be recorded on the label with water-resistance ink:

- Client name, project title, and/or project location (sufficiently specific for data management)
- Unique sample identification number (typically including the boring or well identification and depth, where applicable)
- Date and time of sample collection
- Sample matrix
- Initials of sampler
- Preservative(s) used, if any
- Analyses to be performed.

If a split sample is collected by a third party (such as a regulator, another consultant, etc.) PlaceWorks personnel should ensure that identical labels are attached to each sample container. After labeling the container, each sample should be refrigerated or placed in a cooler containing conventional cubed or block ice (typically contained in double, resalable plastic bags) or "blue ice" to maintain a target sample temperature of 4 degrees Celsius (^{0}C). Ice replenishment may be necessary if samples are held overnight prior to submittal, or is sampling is conducted in high-temperature field conditions. Aqueous samples also should be packed in resalable plastic bags to safeguard against container breakage.

Depending on project-specific or regulatory requirements, custody seals can be used on individual sample containers and/or shipping containers to preserve the chain-of-custody. A custody seal typically consists of security tape that is labeled with the sampling date and initials of the sampler. At the minimum, custody seals should be placed on the front of the cooler and on one of the rear cooler hinges.

3.2.3 Chain-of-Custody

Chain-of-custody (COC) procedures require a written record of the possession of each sample from the time it is collected to the time it is received by the laboratory. A sample is "in custody" if it is:

- In a person's possession
- In view after being in physical possession
- In a secured condition after having been in physical custody
- In a designated secure area that is restricted to authorized personnel.

The COC record is completed in the field to document the samples that were collected and the analyses that were requested. Information provided on the COC record typically includes the following:

- Client name
- Project name
- Project location
- Sampling location
- Signature of sampler(s)
- Sample identification number
- Date and time of collection
- Sample type (i.e., grab or composite)
- Sample matrix
- Signature of individuals involved in custody transfer (including date and time of transfer)
- Number of type of containers collected for each analysis
- Types of analyses requested
- Remarks regarding individual samples, as appropriate.

The COC record is generally placed in a plastic bag and transported inside the cooler with the samples. When the samples are transferred, the record is signed by both the receiving and relinquishing individuals. Where a commercial, overnight carrier service is used to ship the samples (e.g., Federal Express), signed airbills will serve as evidence of custody transfer between the field sampler and the commercial carrier, as well as between the carrier and the laboratory. Copies of the COC record and/or airbill are retained by the sampler.

3.2.4 Sample Preservation and Storage

Sample preservation requirements depend on the analytical methods and the sample matrix. Unless otherwise specified, sample preservation procedures should follow the specifications prescribed in the *Test Methods for Evaluating Solid Waste* (USEPA, SW-846).

3.2.5 Sample Delivery

Procedures for packing and transporting samples to the laboratory depend on the nature of the samples, including estimated contaminant concentrations, and the intended analyses. Samples are classified as either environmental, high concentration, geotechnical, or other samples. Environmental samples are defined as soil or water samples that are not saturated or mixed with pure product (e.g., refined fuels, free-phase solvents, etc.).

Samples that are saturated with product are defined as high concentration samples; they may require special handling and transportation procedures, as discussed in Section 3.2.5.3. Similarly, the transport of other non-environmental, hazardous samples may require careful evaluation of, and adherence to, U.S. Department of Transportation (DOT) regulations.

Sample transportation usually involves hand-delivery of the samples to the laboratory by PlaceWorks personnel or by courier. Sampling at remote or out-of-state job sites can require transportation by a commercial overnight carrier service. Sample handling and shipping requirements for both delivery methods are discussed in the following sections.

3.2.5.1 ENVIRONMENTAL SAMPLES

Recommended handling and transportation procedures for environmental samples are outlined below:

- Each sample should be placed in a separate resealable plastic or "bubble-wrap" bag. As much air as possible should be squeezed from the bag before sealing. If necessary, bags may be sealed with evidence tape for additional security. "Bubble-wrap" bags are effective in protecting large glass sample containers against breakage during transportation.

- An ice chest (sturdy construction) typically is used as a shipping container. In preparation for shipping or hand-delivery of the samples, the cooler drain plug is taped shut from the outside. If the samples are to be shipped via commercial carrier, packing materials, such as vermiculite or "bubble-wrap," should be used to prevent breakage of the sample containers. Cardboard or foam separators also may be placed between the bottles at the discretion of the sampling personnel.

- As previously described, the COC record should be placed inside a resealable, waterproof plastic bag. If the cooler is shipped via a commercial, overnight carrier, the bagged COC record should be taped to the inside of the cooler lid, and the cooler lid should be taped shut with strapping tape (filament type). Tape is not necessary if the cooler is delivered by hand or by courier to the laboratory.

3.2.5.2 GEOTECHNICAL SAMPLES

Geotechnical soil samples (or soil samples intended for physical testing) typically are collected with a Shelby tube or with a split-barrel sampler equipped with sample liners. Although formal holding times often do not apply to geotechnical analyses and tests, the samples should be submitted for analysis as soon as possible and, in some cases, preserved by chilling. Undisturbed samples should be sealed in resealable plastic bags to maintain sample moisture. COC records are necessary to generate defensible data; they should reflect information concerning suspected contaminants and the approximate range of concentrations, if known.

3.2.5.3 OTHER SAMPLES

Samples other than environmental samples must be shipped per the requirements of 49 CFR 173.24 as well as applicable state and local regulations. Prior to collection and shipment of these samples, relevant shipping requirements should be researched and a written description of shipping procedures should be prepared. The shipping procedures should be reviewed and approved by PlaceWorks Director of Health and Safety prior to sampling. Examples of "other" samples include potential asbestos-containing materials (ACM), transformer fluids, and explosive gases.

3.2.5.4 PROHIBITED SAMPLES

PlaceWorks prohibits the collection of the following types of samples without advance permissions from an officer of the company:

- Radioactive substances
- Biological hazards
- Chemical warfare agents
- Drugs (controlled substances)
- Explosive ordinance
- Explosives (per DOT regulations)
- Shock-sensitive materials.

3.2.6 Holding Times

The allowable holding time for sample extraction and analysis depends on the sample matrix and the analytical method. Unless otherwise specified, sample holding times should conform with the specifications in *Test Methods for Evaluating Solid Waste* (USEPA, SW-846). In coordinating sample shipment or delivery to the laboratory, the sampler must consider the vagaries of sample shipment (i.e., unanticipated delays on the part of commercial carriers or local courier services) and/or sample receipt and temporary storage at the laboratory. Wherever possible, the sampler should err on the side of caution and submit the samples to the laboratory as soon as practicable.

Appendix C. Sample Containers, Preservation and Holding Times

SAMPLE CONTAINERS, PRESERVATIION AND HOLDING TIMES

Venice High School Modernization Project
Quality Assuarnce Project Plan (QAPP)

Analyte	Method	Container	Preservative	Holding Time
Soil Samples				
Volatile Organic Compounds (VOCs)	USEPA 5035/8260B	5035 sample kit	4^oC	14 days
Total Petroleum Hydrocarbons (TPH) (carbon range C6-C36)	USEPA 8015M	Sample sleeve (acetate or metal) or glass jar	4^oC	14 days for extraction; 40 days for analysis
Title 22 Metals	USEPA 6010B/6020/7471A	Sample sleeve (acetate or metal) or glass jar	4^oC	180 days
Organochlorine Pesticides (OCPs)	USEPA 8081A	Sample sleeve (acetate or metal) or glass jar	4^oC	14 days for extraction; 40 days for analysis
Polychorinated Biphenyls (PCBs)	USEPA 8082	Sample sleeve (acetate or metal) or glass jar	4^oC	14 days for extraction; 40 days for analysis
Polycyclic Aromatic Hydrocarbons (PAHs)	USEPA 8310	Sample sleeve (acetate or metal) or glass jar	4^oC	14 days for extraction; 40 days for analysis
Dioxins and Furans	USEPA 8290M	Sample sleeve (acetate or metal) or glass jar	4^oC	30 days
Metals by XRF	USEPA 6200	Chemplex sampling cup	None	180 days
Soil Gas Samples				
VOCs (Mobile Lab)	USEPA 8260B	Glass syringe or glass bulb	None	30 minutes
VOCs (Stationary Lab)	USEPA TO-15	Summa canister	None	30 days

Appendix D. Method Reporting Limits and Soil Screening Levels

METHOD REPORTING LIMITS AND SCREENING LEVELS

Venice High School Modernization Project
Quality Assurance Project Plan (QAPP)

METALS			
Test Method	**Compound**	**Reporting Limit (mg/kg)**	**Screening Level (mg/kg)**
USEPA 6010B	Lead	1.0	80[(1)]
USEPA 6020	Arsenic	0.25	12[(2)]

Notes:

(1) DTSC HERO Residential land use scenario exposure point concentration

(2) Upper bound concentration of naturally-occurring plus anthropogenic arsenic

Appendix D. Transportation Plan

Appendix D. Transportation Plan

February 10, 2017 | Venice High School

Transportation Plan

Comprehensive Modernization Project
for Los Angeles Unified School District

Prepared for:

Los Angeles Unified School District
Contact: Patrick Schanen
Environmental Health Manager
333 South Beaudry Avenue, 21-224-05
Los Angeles, California 90017
213.241.3356

Project Number:
LASD1-30.0

Prepared by:

PlaceWorks
Contact: Eric Longenecker, PE
700 South Flower Street, Suite 600
Los Angeles, California 90017
213.623.1443
info@placeworks.com
www.placeworks.com

PLACEWORKS

Table of Contents

Table of Contents

List of Tables

Table

List of Figures

Figure

1. Introduction

This Transportation Plan has been prepared to minimize potential health, safety, and environmental risks resulting from the movement of material and/or equipment during implementation of a Removal Action Workplan (RAW) at the Los Angeles Unified School District's Venice High School (Site). The Transportation Plan follows the guidelines set forth in the Department of Toxic Substances Control's (DTSC's) *Transportation Plan -- Preparation Guidance for Site Remediation* (DTSC, 2001). All removal, transportation, disposal and Site restoration activities will be performed in accordance with the RAW, this plan, and applicable Federal, State, and local laws, regulations, and ordinances.

A summary of the project is presented in the table below:

Project Summary

Element	Description
Project Site ("Site")	Venice High School
Site Address	13000 W. Venice Boulevard, Los Angeles, California 90066
Project Proponent	Los Angeles Unified School District ("District or LAUSD")
Remediation Contractor	To be determined[1]
Chemicals of Concern (COCs)	Arsenic and lead
Estimated Volume of Soil Removal	185 in-place cubic yards (296 tons) plus a contingency of 19 cubic yards (10 percent) for an estimated total of 204 cubic yards (327 tons). This includes 10 in-place cubic yards (16 tons, after 10% contingency) of non-RCRA hazardous soil with the remainder non-hazardous. Total "loose" yardage estimated to be 286 cubic yards (204 times 140%)
Distance to Nearest Sensitive Environment	The project is to be completed on the active Venice High School. Mark Twain Middle School and Beethoven Elementary School are located .5 miles NW of the Site.

1) It is the responsibility of the Project Proponent to ensure compliance with the applicable transportation requirements during the proposed removal action. This Transportation Plan should be updated to be site-specific by the Removal Action Contractor. Additional company-specific or site-specific transportation requirements should be added as an addendum to this Transportation Plan.

2. Site Background

2.1 SITE DESCRIPTION

The LAUSD is in the process of a Comprehensive Modernization Project (CMP) at Venice High School that will require building demolition, grading, and new construction across the campus (Figure 2). The Venice High School campus occupies one parcel of land comprising approximately 29 acres. Buildings on the property include administration and classroom buildings, an auditorium, shop buildings, a boiler room, two gymnasiums, a cafeteria, a swimming pool (operated in cooperation with the City of Los Angeles), a student store, and maintenance buildings. A continuation high school (Phoenix High School) operates out of a building located on the east corner of the campus, adjacent to the baseball field. The remainder of the property is developed with a tennis court, parking lots, sports fields, a running track, and a garden area at the west corner of the campus.

2.2 REMOVAL ACTION WORKPLAN (RAW)

After completion of a *Phase I Environmental Site Assessment* (ESA; AECOM, 2014), *Preliminary Environmental Assessment Equivalent, Seismic Modernization Project* (PEA-SMP; Ninyo & Moore, 2016) *Preliminary Environmental Assessment Equivalent, Comprehensive Modernization Project* (PEA-CMP; PlaceWorks, 2016), and *Technical Addendum* (TA; PlaceWorks, 2017a), it was determined that shallow soil at the Site was impacted with arsenic and lead at concentrations that posed a potential health risk and hazard to occupants of the school. Accordingly, a *Removal Action Workplan* (RAW; PlaceWorks, 2017b) was developed to remediate the soil and mitigate the health risk. The RAW evaluated three remedial alternatives, and recommended Alternative 2 (Soil Excavation and Off-Site Disposal) for implementation.

2.3 RAW ALTERNATIVE 2

RAW Alternative 2 involves the excavation of all areas of impacted soil, followed by the off-site transport and disposal of the soil at appropriate landfills. Impacted soil would be excavated to depths of 1.5 feet or 2.5 feet below ground surface (bgs) using conventional excavation equipment, such as scrapers, dozers, and loaders, resulting in the removal of an estimated 204 in-place cubic yards (327 tons) of soil. The soil would be either directly loaded into staged trucks or temporarily stockpiled on plastic liners or pavement until it could be loaded out for off-site disposal. It would be sent to an appropriate licensed facility for management as either non-hazardous or non-RCRA hazardous waste, based on previous waste profile characterization results. Once the impacted soil had been removed, confirmation soil samples would be collected from the bottoms and sidewalls of the excavations to verify that site-specific cleanup goals (SSCGs) had been met. The excavations would then either be backfilled with clean fill that had been tested and certified to be clean or filled is as part of the overall grading effort.

3. Waste Characteristics

3.1 WASTE PROFILE

The Site-specific chemicals of concern (COCs) are arsenic and lead. Excavated soils will be profiled for acceptance by the selected disposal facility. Approval from the disposal facility will be obtained before any transportation and disposal activities commence. Documentation pertaining to waste disposal profiles, waste disposal acceptance, and transportation manifests will be provided to the LAUSD in the *Removal Action Completion Report* (RACR) prepared upon completion of the project. Based on the available analytical data, soils excavated from the Site will be managed (handled, transported, and disposed of) as either non-hazardous or California non-RCRA hazardous waste, as discussed in the following sections.

3.1.1 Hazardous Waste Management

Federal and State regulations that govern waste classification are found in Title 40, CFR, Part 261 and Title 22, CCR, Chapter 11, "Identification and Listing of Hazardous Waste," respectively. These regulations were used to characterize the impacted soils at the Site as either non-hazardous or California non-RCRA hazardous for purposes of disposal. Based on the analytical results, none of the soil would be characterized as RCRA hazardous waste under Federal Regulations. California non-RCRA hazardous waste is classified as such based on the Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit Concentration (STLC) values for certain chemicals that are listed under 22 CCR §66261.24(a)(2).

Concentrations of lead exceeded the State STLC of 5 mg/L at one of the sample locations, B94, but where less the federal Toxicity Characteristic Leaching Procedure (TCLP) of 5 mg/L. Accordingly, the soil removed from around this sample point will be managed as California non-RCRA hazardous waste.

All of the California non-RCRA hazardous soil from around the location identified above (i.e. B94) shall be segregated from the other soil. This soil, estimated to total 9.4 in-place cubic yards (approximately 16 tons), will be transported off-site for disposal at a properly licensed facility. The USEPA ID number for the Site is CAD982025058. All DTSC regulations governing hazardous waste management, generation, temporary on-site storage, transportation, and disposal of the soil must be complied with.

3.1.2 Non-Hazardous Waste Management

The results of the PEA-SMP indicated that all of the arsenic-impacted soil was non-hazardous even when the concentration exceeded the SSCG. Most of the lead-impacted soil is also non-hazardous. Other than the soil identified in Section 3.1.1, all other impacted soil transported off-site shall be managed as non-hazardous waste. Depending on the types and concentrations of COCs and permit limitations of the receiving facility, non-hazardous waste can be either disposed of at a Class 3 landfill, used as daily cover at a Class 3 landfill, or recycled at a soil treatment facility. Any or all of these options may be employed by the Remediation Contractor.

3.2 CONTAMINATED SOIL CONTROL

After the delineated areas of impacted soil have been excavated to the planned depths, confirmation soil samples will be collected from the bottom and sidewalls of the excavations. Confirmation sampling frequency and clean-up goals are discussed in the RAW (PlaceWorks, 2017b).

3.3 WASTE QUANTITY

Table 1 provides a detailed summary of the anticipated volumes and waste classifications for the soil that will be excavated during the remedial action. The various locations where non-hazardous and non-RCRA hazardous soil will be excavated are shown on Figure 3. Non-hazardous and hazardous waste volumes and corresponding truckloads are summarized below:

- <u>Non-Hazardous Waste</u> – The estimated quantity of non-hazardous waste that will be transported off-site for disposal is 194 in-place cubic yards (310 tons). This equates to approximately 270 "loose" (194 times 140%) cubic yards. Based on an average truckload capacity of 12 "loose" cubic yards, a total of 22 truckloads are expected to be required to export the soil.

- <u>Non-RCRA Hazardous Waste</u> - The estimated quantity of California non-RCRA hazardous waste that will be transported off-site for disposal is 10 in-place cubic yards (16 tons). It is estimated this equates to 14 "loose" cubic yards. Based on an average truckload capacity of 12 cubic yards, a total of 2 truckloads are expected to be required to export the soil.

- <u>Estimated maximum truckloads per day for soil disposal:</u> 30

3.4 IMPORT FILL MATERIAL

It is anticipated that the foundations of the proposed new buildings will generate excess soil that will require off-site export. Therefore, implementation of the RAW is not expected to require significant, if any, quantities of imported fill to backfill soil removal excavations. Thus, it is not anticipated that any soil will be imported for backfill. Should soil import be required that fill will be tested and certified in accordance with LAUSD's *Specification Section 01 4524 Environmental Import/Export Materials Testing* (LAUSD, 2011).

4. Soil Loading Operations

Soil will be removed with excavators, backhoes, or other types of earth moving equipment, as necessary. As soil is excavated, it will be loaded directly into transportation trucks for off-site disposal whenever possible. If temporary stockpiling is necessary, the excavated soil will be placed on plastic liners and covered with plastic sheeting to minimize the possibility of windborne or waterborne dispersion of contaminated soil.

4.1 DUST CONTROL

During remediation activities, the Site perimeter will be secured with fencing fitted with windscreen to minimize the off-site migration of windborne dust. The generation of dust will be controlled with the use of water as a dust suppressant. The water will be available from an on-site water service, via a water truck, or through a metered discharge from a fire hydrant located on or proximate to the Site. Dust suppression will be performed by applying a light water spray to soil stockpiles, exposed excavation surfaces, excavator buckets, and internal roadways, as necessary, to maintain dust concentrations below action levels.

While on-site, all vehicles will maintain slow speeds (i.e., less than 5 miles per hour) for safety purposes and to control dust generation. Efforts will be made to minimize the soil drop height from excavator or loader buckets into the transport trucks. Soil stockpiles will remain covered until load-out, with only the working face uncovered during stockpiling activities. If wind speeds exceed an amount at which engineering controls are determined to be ineffective (e.g., sustained 25 mph windspeed for 15 minutes), excavation and loading will cease.

4.2 SOIL SEGREGATION OPERATIONS

Based on the Site's previous analytical results excavated soils shall be segregated based on waste classification as non-hazardous or California non-RCRA hazardous waste. Soil segregation will occur at the time of excavation and will follow the waste management descriptions provided in Table 1 and shown on Figure 3.

4.3 SOIL BACKFILL OPERATIONS

Upon completion of the soil removal action, it is anticipated that portions of the excavated areas will be backfilled and compacted to return them to a grade consistent with school construction plans. Backfilling of remedial excavations will be completed to the standards requested by the Geotechnical Engineer of record, as recommended in the project geotechnical investigation reports. Typically, backfilling proceeds in approximately 8-inch to 12-inch lifts with moisture conditioning and compaction between each successive lift. In-situ density tests will be conducted under the direction of the Geotechnical Engineer of record to achieve the project standards (typically, a minimum relative compaction of 90%).

4.4 TRUCK LOADING OPERATIONS

In most cases it is anticipated that trucks will be loaded directly at or near the area of excavation and driven to the designated disposal facility. While the soil is being loaded into the trucks, dust suppression will be performed by lightly spraying or misting the work area with water. Water mist may also be applied to soil after it has been placed in the trucks. After the soil is loaded into the transport truck, the truck bed will be covered and otherwise contained to prevent soil from blowing or spilling out of the truck during transport to the disposal facility.

The selected transport company will be required to be fully licensed and insured to transport hazardous waste (see Section 11.0). Prior to loading soil classified as hazardous waste into the truck, the transport company will be required to provide proof of valid certification for the transport of hazardous soil/materials and documentation that the trucks will not release soil during transport.

All vehicles will be decontaminated, as necessary, prior to leaving the work area. For track-out prevention and control, all trucks will be broom cleaned after loading. The dump truck or roll-off bin portion of the truck will be covered with a tarp to prevent soil and/or dust from spilling out of the truck during transport to the disposal facility.

Prior to leaving the Site, each truck will be inspected by the Remediation Contractor to ensure that the payloads are adequately covered, the trucks are cleaned of spilled or adhered soil, and the shipment is properly manifested. Proper hazardous waste placarding may be required for transportation of hazardous wastes.

4.5 WORKING HOURS AND DURATION

During school operation, trucking times must be pre-approved by LAUSD.

In most cases, excavation and truck loading/unloading will be conducted between the hours of 7:00 am to 6:00 pm Monday through Friday. As needed, and with prior LAUSD approval excavation, truck loading, and unloading and offsite transport to the licensed disposal facility may be conducted on Saturdays from 8:00 AM to 5:00 PM. It is anticipated that removal of the impacted soil from the Site can be completed in less than twelve working days. All restoration activities (loading, backfilling, compaction, landscaping, and irrigation repair), if any, will be conducted immediately after SSCG's have been met, as demonstrated through confirmation sampling, and LAUSD concurrence has been obtained.

5. Transportation Control

5.1 DUST CONTROL DURING TRANSPORTATION

Soil for offsite disposal will be transported in covered trailers/trucks, drums, or roll-off bins to an approved land disposal facility. All waste hauler vehicles will be decontaminated prior to leaving the work area. Clean fill materials will be transported in covered trailers/trucks to the Site. If deemed necessary, a wet street sweeper will be operating on the local streets adjacent to the Site to mitigate any potential residual dust or track out of soil.

5.2 TRAFFIC CONTROL

Truck Staging Area - Prior to loading or unloading at the Site, all trucks will be staged on-site to the extent possible to avoid impacts on the local streets. Careful coordination of trucks will be exercised to help avoid off-site staging and long wait times for trucks. A flag person provided by the Remediation Contractor will direct truck traffic into and out of the staging area. Trucks will not be allowed to sit idling for more than 5 minutes to avoid unnecessary exhaust fumes.

Site Access Control - Field personnel will be present, as needed, to assist the truck drivers in safely entering and departing the Site. Waste hauling vehicles will use the internal roadways to access load-out areas and will only drive across soil remediation areas to the extent necessary to reach the active work zone.

On-site Traffic Flow –Traffic will be coordinated in such a manner that the truck traffic and waiting time on surrounding streets will be minimal, and dust generation during on-site truck movement will be reduced.

Speed Limit - While on-site, all vehicles will be required to maintain slow speeds (e.g., less than 5 miles per hour) for safely purposes and for dust control. While on local streets or freeways, all transporters will follow the posted speed limit and adhere to defensive driving techniques appropriate for actual traffic and road conditions.

Rush Hour - Transportation trucks will be timed to avoid rush hour traffic to the extent practicable.

5.3 TRANSPORTATION ROUTES

The primary route for off-site shipment of impacted soils to three candidate waste disposal facilities are shown on Figures 4 to 8. The transportation routes were selected to minimize the trucks' travel time on surface streets, to avoid residential neighborhoods, and to provide the shortest travel distance. Additionally, given the characteristics of the material being transported, there are no apparent restrictions that would preclude the trucks from following these routes to the disposal facilities.

Before leaving the Site, truck drivers will be instructed to notify the Remediation Contractor's Site Manager, who will provide the driver with his/her cellular telephone number. It will be the responsibility of the truck driver to contact the Site Manager if problems arise after leaving the Site. It will be the responsibility of the Site Manager to notify the District of any unforeseen incidents.

In addition, the Los Angeles County Service Authority for Freeway Emergencies (SAFE) was created pursuant to California Streets and Highways Code §2550 et. seq. SAFE is responsible for the operations and maintenance of the Los Angeles County Call Box System. There are more than 4,400 call boxes located throughout Los Angeles County and situated at roadside locations along the truck routes described above. The call boxes are intended to be used to report roadside emergencies to the California Highway Patrol (CHP) dispatch center. As such, the truck driver will be instructed to report any roadside emergency to the CHP using the Call Box System and also to notify the Site Manager.

5.3.1 Transportation Regulations

Trucks will be loaded in a manner such that their total gross weight does not exceed limits imposed by the California Department of Transportation, up to a maximum of 40 tons. Mobilization and demobilization of large earthmoving equipment may exceed this weight and could require additional permits (green and/or purple) from the State (and local transportation agencies). Heavier loads have higher permit fees and restrictions on time of travel.

5.3.2 Local Traffic Control

Transportation of impacted soil or fill material will be on arterial streets and/or freeways approved for truck traffic to minimize any potential impact on the local neighborhood. Moving along the proposed transportation routes, all street intersections (except those marked or the transportation route map) are controlled by traffic lights or stop signs. To assist in Site ingress and egress, and for any local intersections without traffic control signs, a flag person provided by the Remediation Contractor may be located to assist or direct traffic flows. Therefore, the number of daily truckloads during implementation of the RAW is not expected to cause the disruption in local traffic.

5.3.3 Street Maintenance

The surfaces of surrounding streets will be routinely inspected and, if necessary, maintained or repaired by the Remediation Contractor during implementation of the RAW. The Remediation Contractor is responsible for cleaning streets from spilled or tracked out soils and the final cleanup after completion of field activities, such as washing paved areas. The number of daily and total truckloads during implementation of the RAW is not expected to cause damage to surface streets.

6. Off-site Land Disposal Facilities

Impacted soil targeted for off-site disposal will be properly managed, manifested, and transported by a registered waste hauler to an approved waste management facility located in California or an out-of-state facility permitted to accept the waste. Based on the results of waste profile and classification, a small volume of non-RCRA hazardous soil is expected to be transported under hazardous waste manifest to a fully permitted and licensed Class 1 disposal facility. The vast majority of the soil is expected to be transported under non-hazardous manifests or proper shipping documents to a fully permitted and licensed Class 3 disposal facility in California. Candidate facilities that may be used for off-site waste management are identified in the following sections. Transportation routes to three candidate waste management facilities are provided as Figures 4 to 8.

6.1 HAZARDOUS WASTE FACILITIES (CLASS 1)

All non-RCRA hazardous wastes will be disposed of at a California Class I land disposal facility or an out-of-state landfill permitted to accept such wastes. The waste management facilities listed below may be selected for this project:

- Waste Management, Inc. (see Figure 4)
  Kettleman Hills Facility
  35251 Old Skyline Road
  Kettleman, California 93239
  Phone: (559) 386-9711

- Clean Harbors Buttonwillow, LLC (see Figure 5)
  2500 West Lokern Road
  Buttonwillow, California 93206
  Phone: (661) 762-6200

- Yuma County Landfill (see Figure 6)
  19536 South Avenue 1E
  Yuma, Arizona 85365
  Phone: (928) 341-9300

- Others (with prior approval from LAUSD)

6.2 NON-HAZARDOUS WASTE FACILITIES (CLASS 3)

Non-hazardous soils may be transported to the following Class 3 facilities for disposal or use as daily landfill cover:

6. Off-site Land Disposal Facilities

- Chiquita Canyon Landfill (see Figure 7)
  29201 Henry Mayo Dr.
  Castaic, California 91384
  Phone: (661) 257-3655

- Antelope Valley/Palmdale Landfill (see Figure 8)
  1200 W. City Ranch Road
  Palmdale, California 91551
  Phone: (661) 223-3418

- Others (with prior approval from the District)

7. Shipping Documentation

The Uniform Hazardous Waste Manifest (hazardous waste manifest) form will be used to track the movement of soil sent off-site as hazardous waste from the point of generation to the point of ultimate disposition. The hazardous waste manifests will include information such as:

- Name and address of the generator, transporter, and the destination facility
- United States DOT description of the waste being transported and any associated hazards
- Waste quantity
- Name and phone number of a contact in case of an emergency
- USEPA Hazardous Waste Generator ID Number
- Other information required either by the USEPA or DTSC.

Non-hazardous waste manifests or proper shipping documents (e.g., bills of lading) will be used to track the movement of soil sent off-site as non-hazardous waste from the point of generation to the point of treatment or disposal.

Before transporting the excavated soil off-site, an authorized representative of the District will sign each waste manifest. The Remediation Contractor's Site Manager will maintain one copy of the waste manifest on-site. Copies of the waste manifests, signed by the receiving facilities, will be included in the RACR prepared upon completion of the removal action. While at the disposal facility, the truck will be weighed before offloading the payload. Weight tickets or bills of lading will be provided to the Remediation Contractor after the material has been shipped off-site. Copies of weight tickets will also be provided in the RACR.

8. Recordkeeping

The Remediation Contractor and/or Environmental Consultant will be responsible for maintaining a field logbook during the period of remedial activities. The field logbook will serve to document observations, on-site personnel, equipment arrival and departure times, and other vital project information. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. Logbooks will be bound with consecutively numbered pages. Each page will be dated and the time of entry noted. All entries will be legible, written in black ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or other terminology that might prove inappropriate. If an error is made, corrections will be made by crossing a line through the error and entering the correct information. Corrections will be dated and initialed.

9. Health and Safety

A site-specific Health and Safety Plan (HASP) has been prepared and included in the RAW (PlaceWorks, 2017c). Prior to the commencement of each day's activities, a tailgate health and safety meeting will be held. All personnel working at the Site will be required to be familiar with the HASP and attend the daily tailgate meetings and periodic health and safety briefings. All personnel working at the Site will be required to sign field forms to demonstrate that they are familiar with the HASP and participated in the daily tailgate meeting.

10. Requirements of Fill Material

If required, import fill materials will be procured in accordance with the latest version of LAUSD's Specification 01 4524 (LAUSD, 2011). All sources of soil will be approved by the LAUSD prior to importing fill materials to the Site.

11. Requirements of Transporters

Qualified transporters will be hired by the Remediation Contractor for hauling excavated soil away or hauling fill materials to the Site. Minimum qualifications are described below.

11.1 LICENSES AND INSURANCE

The selected haulers will be fully licensed and insured to transport the excavated soils or fill materials. Hazardous wastes must be shipped by a registered hazardous waste hauler. Prior to hiring, the Remediation Contractor will verify the status of registration and the insurance policies of the selected transporters.

11.2 CONTINGENCY PLAN

Each transporter is required to have a Contingency Plan prepared to deal with emergency situations (e.g., vehicle breakdown, accident, waste spill, waste leak, fire, explosion, etc.) during transportation of excavated soils from the Site to the destination disposal facility, or during transportation of fill materials from a source to the Site. The Contingency Plan will be prepared in accordance with DTSC's *Transportation Plan -- Preparation Guidance for Site Remediation* (DTSC, 2001).

12. References

AECOM. 2014. Phase I Environmental Site Assessment Report, Venice High School, Prepared for Los Angeles Unified School District. April 4.

DTSC. 2001. Transportation Plan – Preparation Guidance for Site Remediation. Interim Final. December 5.

Los Angeles Unified School District. 2011. Specification Section 01 4524 Environmental Import/Export Material Testing. October 1

Ninyo & Moore. 2016. Preliminary Environmental Assessment Equivalent Report, Seismic Modernization Project, Venice High School, 13000 West Venice Boulevard, Los Angeles, California 90066. Prepared for LAUSD Office of Environmental Health and Safety. Project No. 208571011. July 5.

PlaceWorks. 2016. Preliminary Environmental Assessment Equivalent Report, Comprehensive Modernization Project, Venice High School. Prepared for Los Angeles Unified School District. Project No. LASD1-27.0. December 7.

PlaceWorks. 2017a. Technical Addendum, Comprehensive Modernization Project, Venice High School. Prepared for Los Angeles Unified School District. Project No. LASD1-27.0. January 17.

PlaceWorks. 2017b. Removal Action Workplan, Venice High School. Prepared for Los Angeles Unified School District. Project No. LASD1-30.0. February 1.

PlaceWorks. 2017c. Health and Safety Plan, Venice High School. Prepared for Los Angeles Unified School District. Project No. LASD1-30.0. February 1.

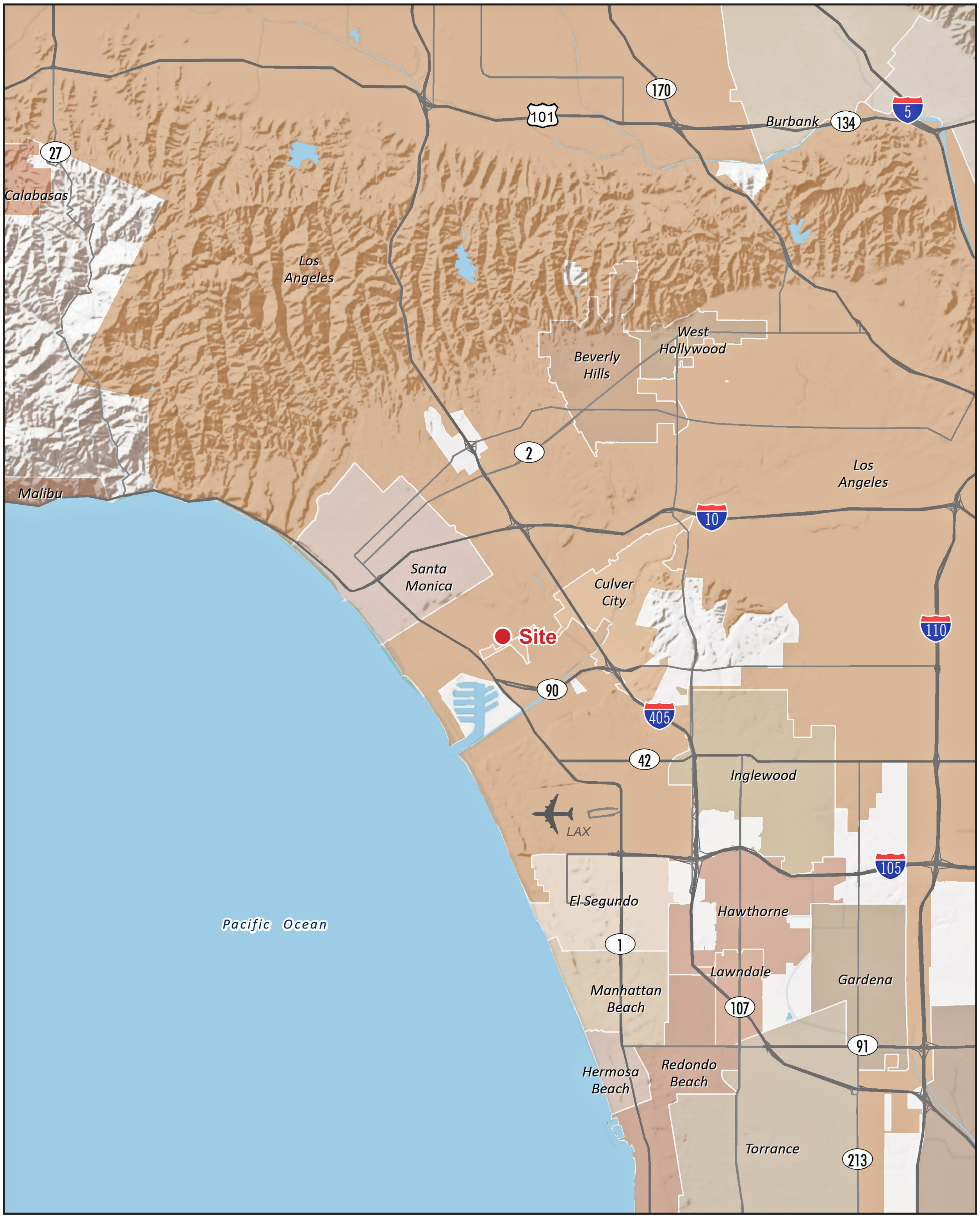
Tables

Table 1
ESTIMATED SOIL REMOVAL VOLUMES
LAUSD Venice HS CMP

Count				Removal Area	COC	Areal Dimensions		Area	Depth	Volume	Waste Type
Tot	As	Pb	A&P			(ft)	(ft)	(sq ft)	(ft)	(cu yd)	
1	1			B-2	Arsenic	18.0	3.5	63.0	1.5	3.5	Non-hazardous
1				B-3	Arsenic Only	14.0	14.0	196.0	1.5	10.9	Non-hazardous
						-8.0	7.0	-56.0	1.5	-3.1	Non-hazardous
			1		Lead + Arsenic	8.0	7.0	56.0	1.5	3.1	Non-hazardous
1		1		B-14	Lead	11.0	5.0	55.0	2.5	5.1	Non-hazardous
1	1			B-16	Arsenic	3.5	3.5	12.3	1.5	0.7	Non-hazardous
						6.5	3.0	19.5	1.5	1.1	Non-hazardous
						3.5	1.5	5.3	1.5	0.3	Non-hazardous
1	1			B-36	Arsenic	15.0	8.0	120.0	1.5	6.7	Non-hazardous
						15.0	8.0	120.0	1.5	6.7	Non-hazardous
						10.0	8.0	80.0	2.5	7.4	Non-hazardous
1	1			B-48	Arsenic	20.0	7.5	150.0	1.5	8.3	Non-hazardous
1	1			B-66	Arsenic	20.0	10.0	200.0	1.5	11.1	Non-hazardous
1		1		B-67	Lead	28.0	3.0	84.0	1.5	4.7	Non-hazardous
1	1			B-72	Arsenic	7.5	3.0	22.5	2.5	2.1	Non-hazardous
1	1			B-79	Arsenic	14.0	6.0	84.0	1.5	4.7	Non-hazardous
1	1			B-88	Arsenic	10.0	4.5	45.0	1.5	2.5	Non-hazardous
1	1			B-90	Arsenic	20.0	20.0	400.0	1.5	22.2	Non-hazardous
1		1		B-94	Lead	17.0	10.0	170.0	1.5	9.4	Non-RCRA Hazardous
1	1			B-105	Arsenic	8.0	10.0	80.0	1.5	4.4	Non-hazardous
1	1			B-114	Arsenic	25.0	22.5	562.5	1.5	31.3	Non-hazardous
1		1		B-120	Lead	20.0	8.0	160.0	1.5	8.9	Non-hazardous
1		1		B-123	Lead	10.0	8.5	85.0	1.5	4.7	Non-hazardous
1	1			WB-1	Arsenic	21.5	9.0	193.5	1.5	10.8	Non-hazardous
1	1			WB-4	Arsenic	19.0	17.0	323.0	1.5	17.9	Non-hazardous
19	13	5	1	Totals		Total In-place Initial Soil Removal Volume				185.3	
						Total In-place Initial Non-hazardous				175.9	
						Total In-place Initial Non-RCRA Hazardous				9.4	
					Estimated In-place Post-confirmation Soil Removal Volume					203.8	
					Estimated In-place Post-Conformation Non-hazardous					193.4	
					Estimated In-Place Post-Confirmation Non-RCRA Hazardous					10.4	

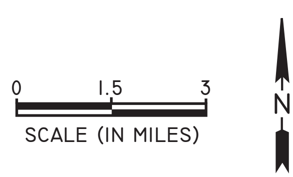
Figures

Figure 1 - Site Location



Note: Unincorporated county areas are shown in white.

Venice High School
13000 Venice Boulevard
Los Angeles, California 90066



Base Map Source: ESRI, USGS, NOAA, 2016

Figure 2 - Aerial Photograph

School Boundary

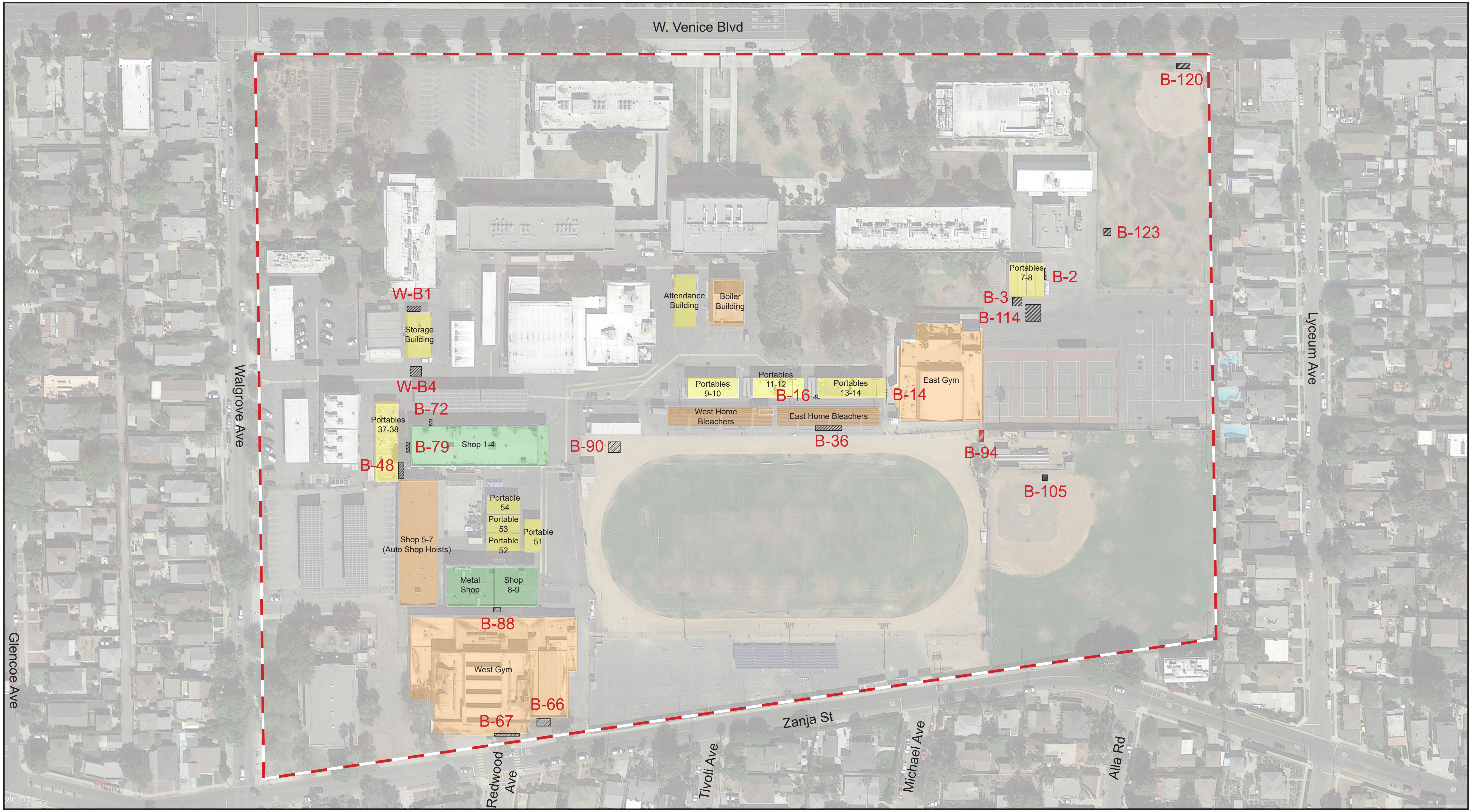
Venice High School
13000 Venice Boulevard
Los Angeles, California 90066

0 175 350
SCALE (IN FEET)

N

Base Map Source: Google Earth Pro, 2016

Figure 3 - Soil Removal Locations



Project Boundary
Non-RCRA Hazardous Soil Removal Area
Non-Hazardous Soil Removal Area

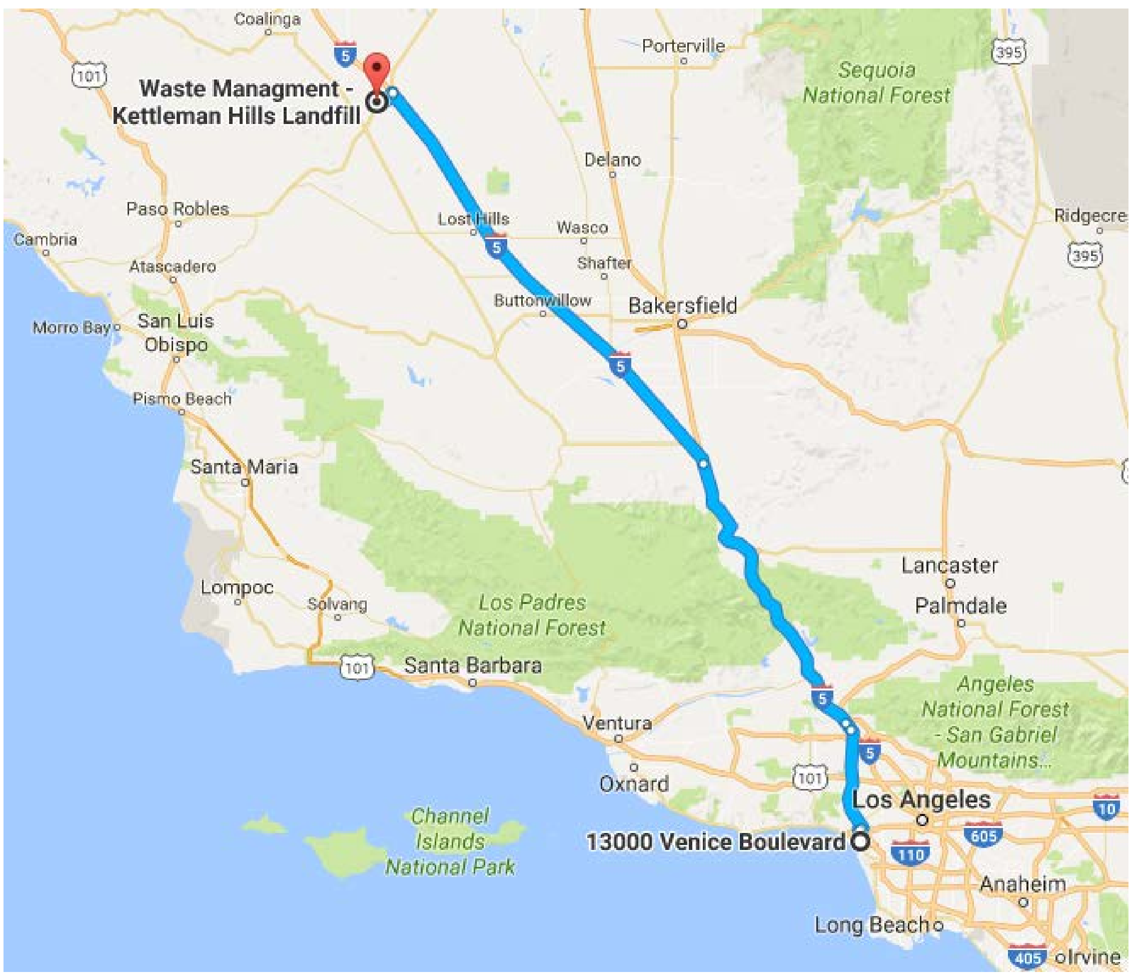
0 70 140
SCALE (IN FEET)
N

Base Map Source: Google Earth Pro, 2017

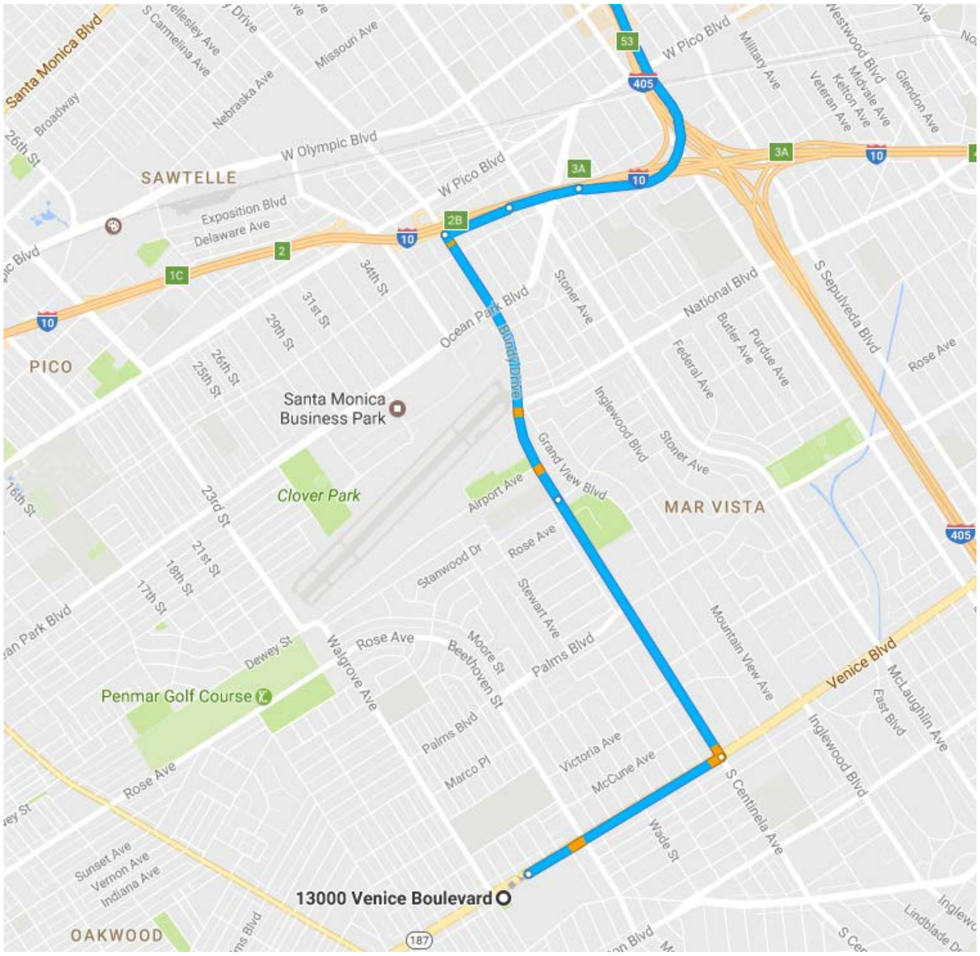
Figure 4
Directions
Waste Management, Inc., Kettleman Hills Facility
35251 Old Skyline Road
Kettleman, California 93239
Phone: (559) 386-9711

Head northeast on Venice Blvd. toward Lyceum Ave. (0.7 mi)
Turn left onto S Centinela Ave (1.0 mi)
Continue onto Bundy Dr. (0.9 mi)
Turn right to merge onto I-10E/Santa Monica Fwy (0.4 mi)
Take exit 3A to merge onto I-405 N toward Sacramento (19.9 miles)
Continue on I-5 N (150 miles)
Take exit 309 for State Hwy 41 S (0.4 miles)
Turn left at CA-41 (2.9 miles)
Turn right at Old State Hwy (0.7 miles)
Continue on Skyline Rd (0.2 miles)
END at 35251 Old Skyline Road, Kettleman, CA 93239

Total Distance = 177 miles



Start:


13000 Venice Boulevard
SAWTELLE
PICO
MAR VISTA
OAKWOOD
Santa Monica Business Park
Clover Park
Penmar Golf Course
W Olympic Blvd
W Pico Blvd
Ocean Park Blvd
Bundy Drive
National Blvd
Venice Blvd
S Sepulveda Blvd
Palms Blvd
Rose Ave

End:

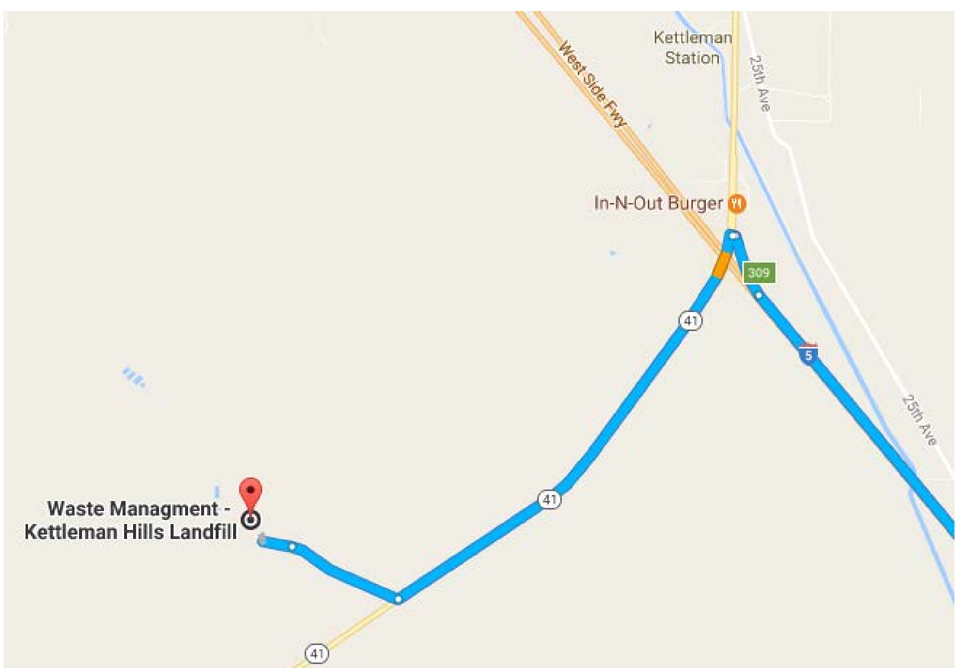
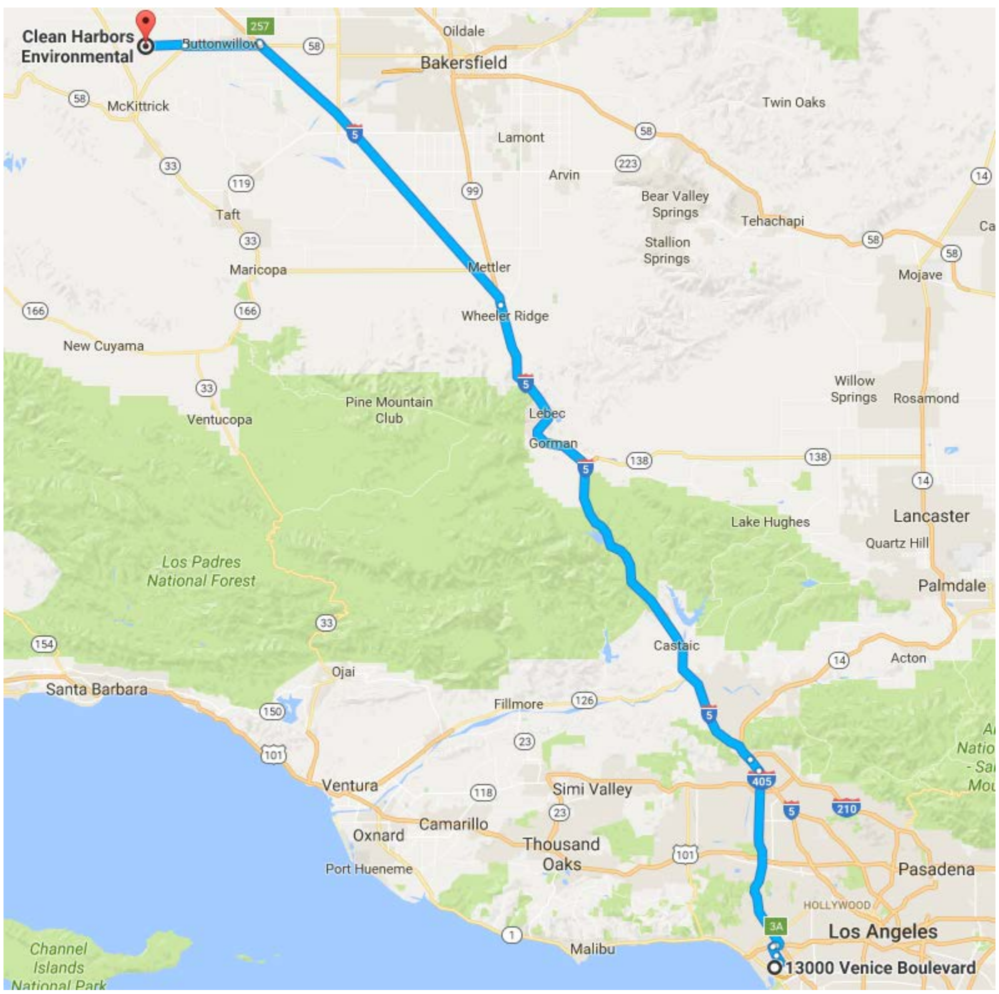

Kettleman Station
West Side Fwy
25th Ave
In-N-Out Burger
309
41
5
Waste Managment - Kettleman Hills Landfill

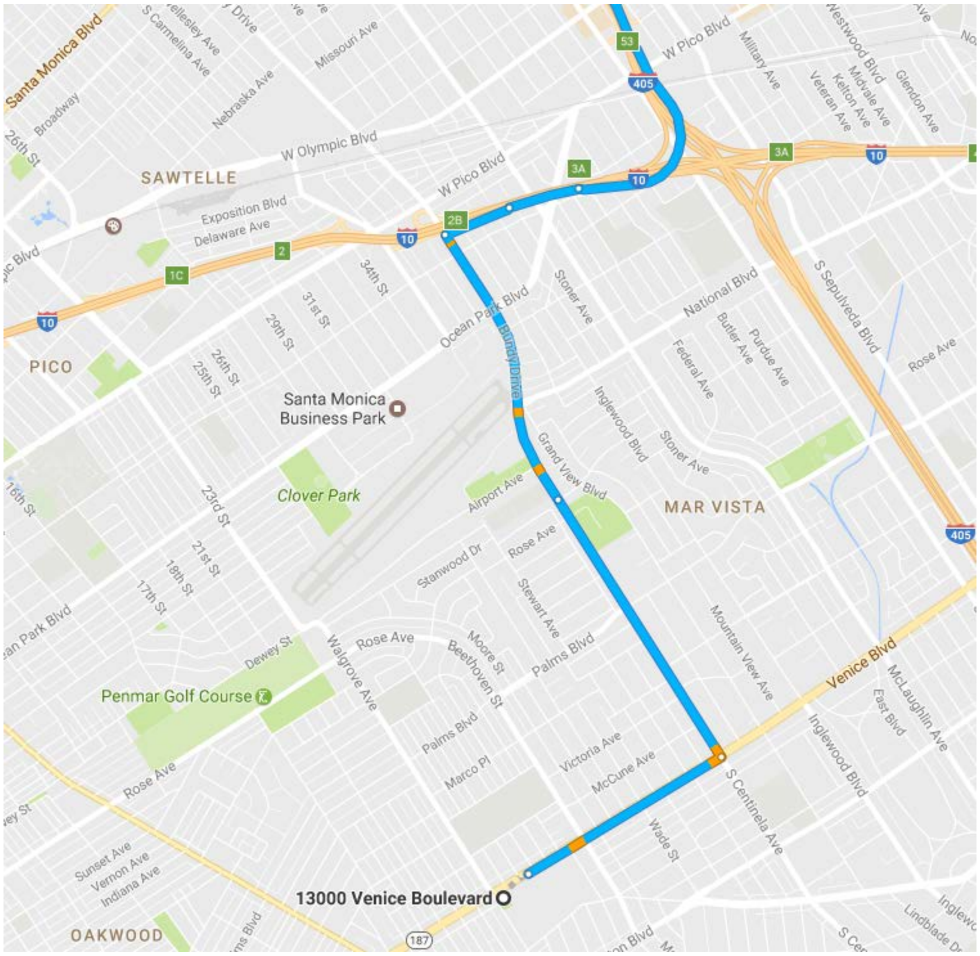
Figure 5
Directions
Clean Harbors Buttonwillow, LLC
2500 West Lokern Road
Buttonwillow, California 93206
Phone: (661) 762-6200

Head northeast on Venice Blvd. toward Lyceum Ave. (0.7 mi)
Turn left onto S Centinela Ave (1.0 mi)
Continue onto Bundy Dr. (0.9 mi)
Turn right to merge onto I-10E/Santa Monica Fwy (0.4 mi)
Take exit 3A to merge onto I-405 N toward Sacramento (19.9 miles)
Continue on I-5 N (98.6 miles)
Take exit 257 toward Mckittrick/Buttonwillow/State Hwy 58 (0.2 miles)
Turn right onto Tracy Ave (signs for Buttonwillow/State Hwy 58/McKittrick) (0.3 miles)
Turn right at CA-58 (8.0 miles)
Turn right at Lokern Rd (4.1 miles)
END at 2500 West Lokern Road, Buttonwillow CA 93206

Total Distance = 115 miles

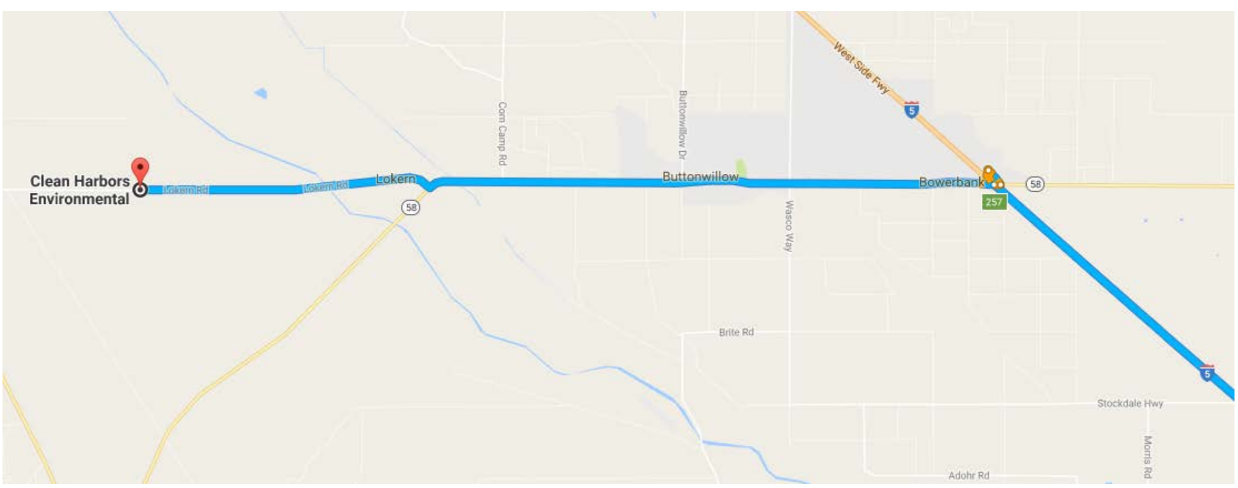


Start:



13000 Venice Boulevard
Santa Monica Business Park
Clover Park
Penmar Golf Course
SAWTELLE
PICO
MAR VISTA
OAKWOOD
Venice Blvd
Bundy Drive
Grand View Blvd
W Pico Blvd
W Olympic Blvd
National Blvd
S Sepulveda Blvd
Ocean Park Blvd

End:

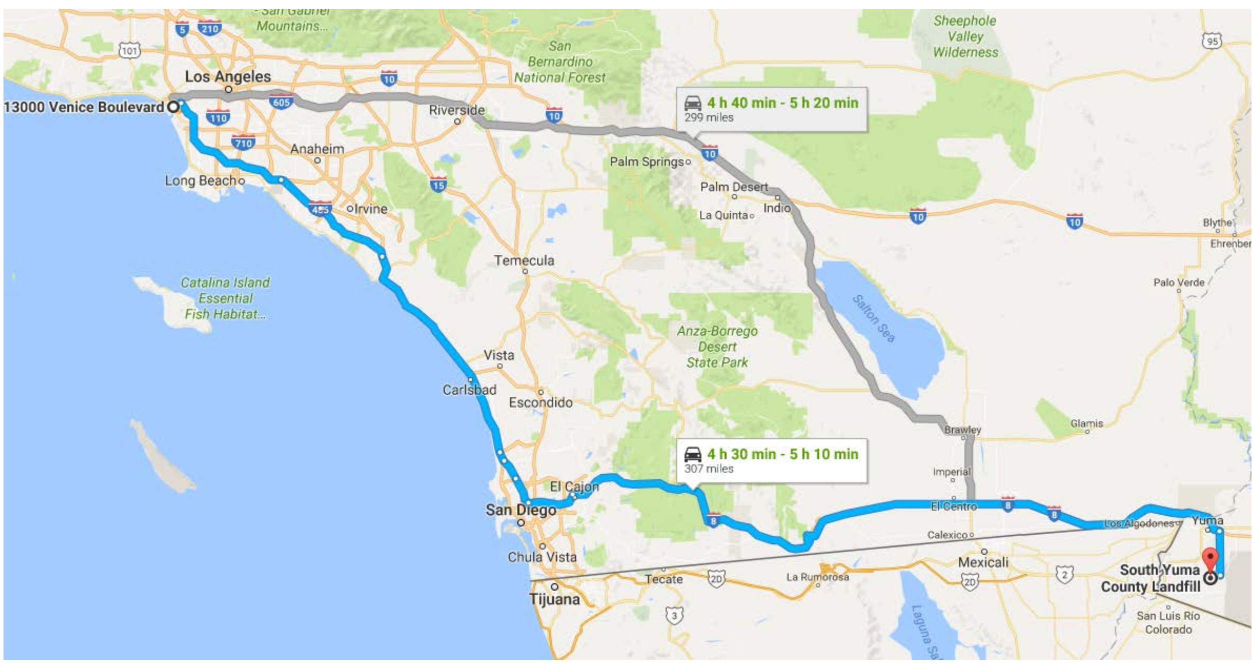


Clean Harbors Environmental
Lokern
Buttonwillow
Bowerbank
West Side Fwy
Brite Rd
Stockdale Hwy
Adohr Rd

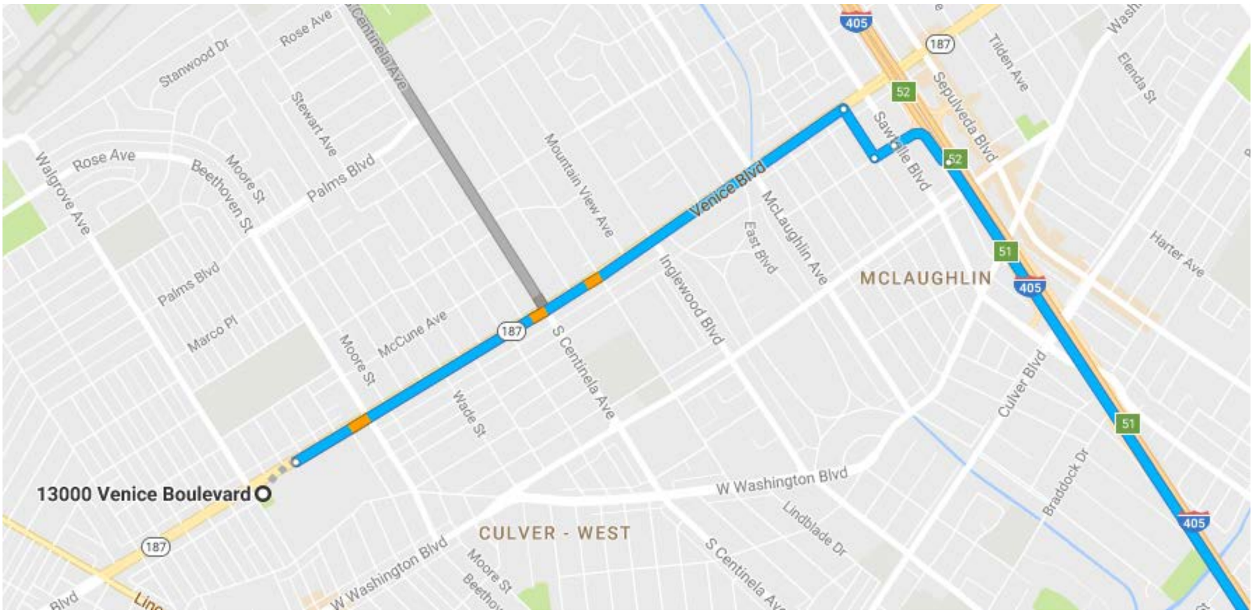
Figure 6
Directions
Yuma County Landfill
19536 South Avenue 1E
Yuma, Arizona 85365
Phone: (928) 341-9300

Head northeast on Venice Blvd. toward Lyceum Ave. (0.7 mi)
Turn right onto Albright Ave. (0.1 mi)
Turn left onto Matteson Ave (305 ft)
Take the ramp to merge onto I-405 S (41.3 mi)
Take exit 10 for CA-73 S toward San Diego (17.9 mi)
Merge onto I-5 S (53.9 mi)
Keep left to continue on I-805 S (10.7 mi)
Take exit 17B to merge onto 1-8 E toward El Centro (169.4 mi)
Take exit 3 for Avenue 3 E toward AZ-280 S (0.3 mi)
Turn right onto S Avenue 3 E (9.4 mi)
Turn right onto E County 19th St. (2 mi)
Turn left at S Avenue 1 E (.5 mi)
END at 19536 S Avenue 1 E, Yuma, AZ 85365

Total Distance = 307 miles

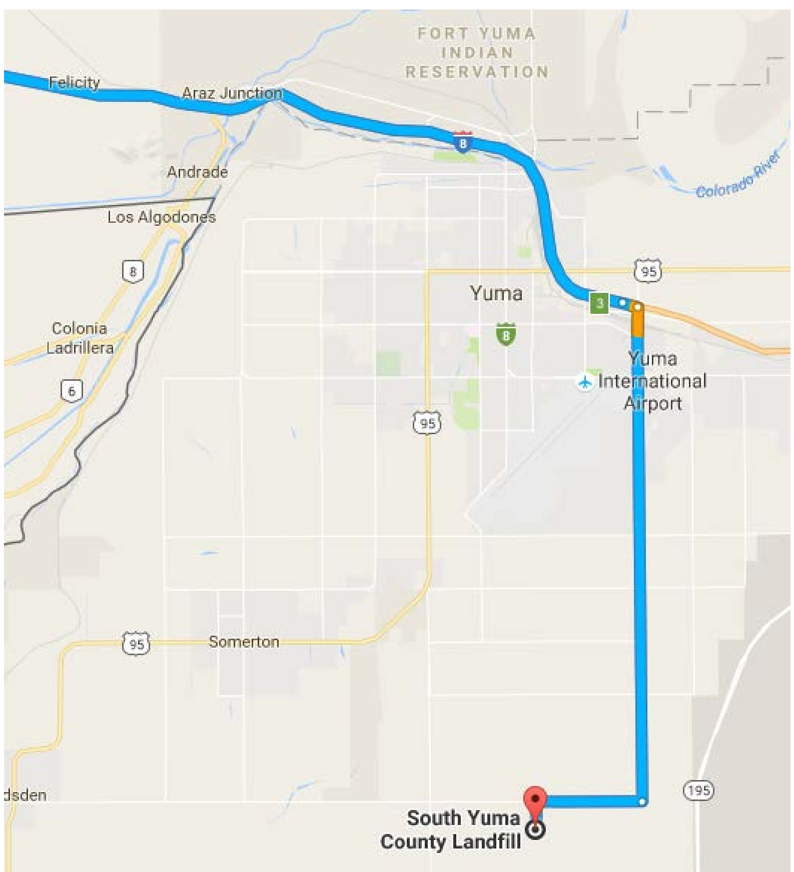


Start:



13000 Venice Boulevard
Venice Blvd
MCLAUGHLIN
CULVER - WEST
W Washington Blvd
Palms Blvd
Rose Ave
Centinela Ave
S Centinela Ave
Sepulveda Blvd
Culver Blvd

End:

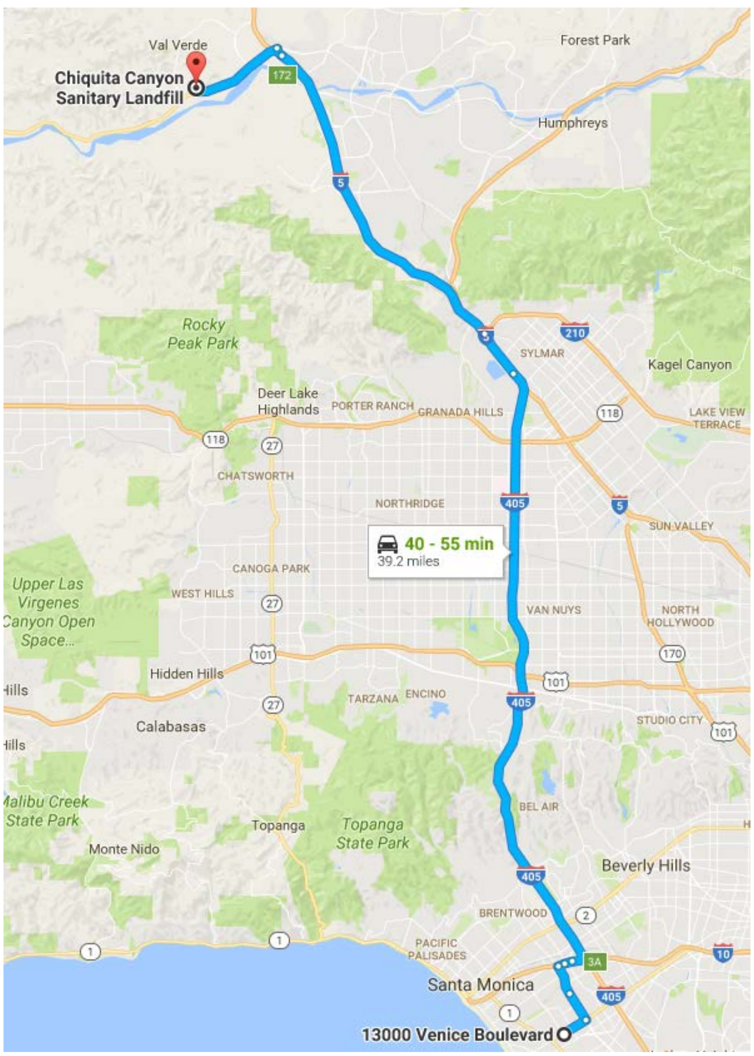


FORT YUMA INDIAN RESERVATION
Felicity
Araz Junction
Andrade
Los Algodones
Colorado River
Yuma
Yuma International Airport
Colonia Ladrillera
Somerton
South Yuma County Landfill

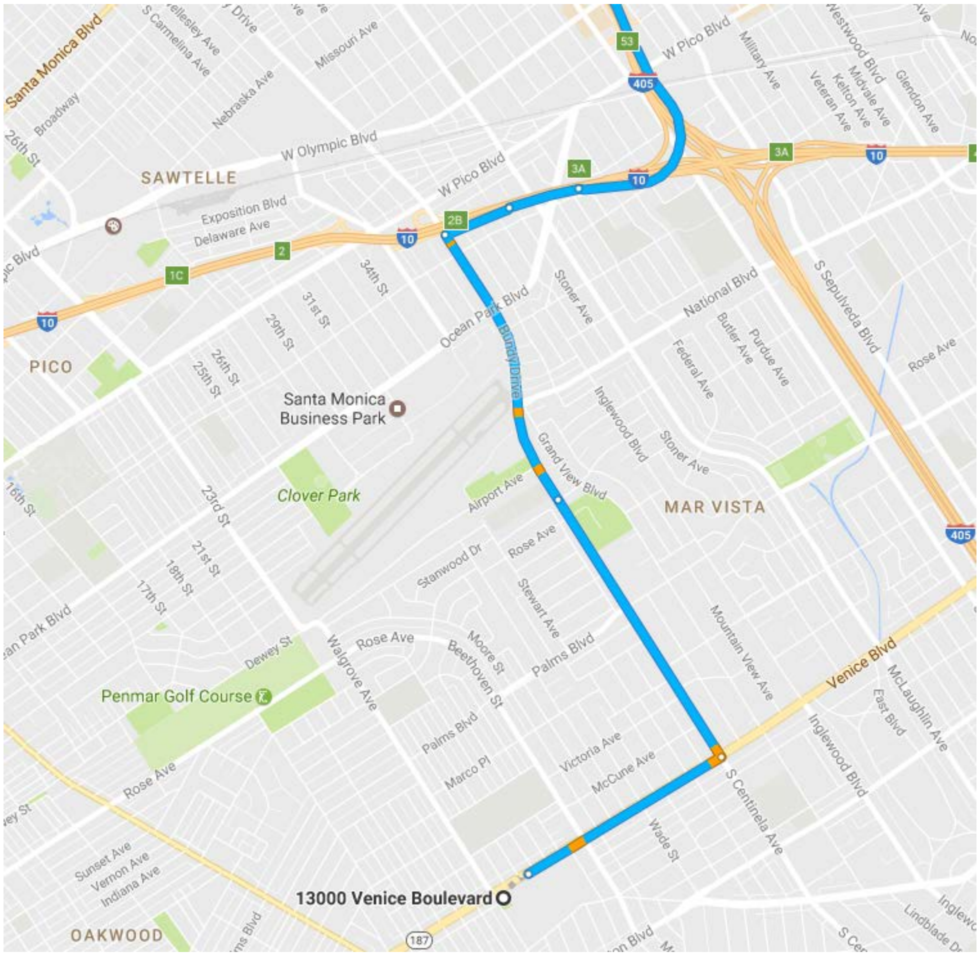
Figure 7
Directions
Chiquita Canyon Landfill
29201 Henry Mayo Dr.
Castaic, California 91384
Phone: (661) 257-3655

Head northeast on Venice Blvd. toward Lyceum Ave. (0.7 mi)
Turn left onto S Centinela Ave (1.0 mi)
Continue onto Bundy Dr. (0.9 mi)
Turn right to merge onto I-10E/Santa Monica Fwy (0.4 mi)
Take exit 3A to merge onto I-405 N toward Sacramento (19.9 miles)
Continue onto I-5 N (Golden State Frwy) (12.8 miles)
Take Exit 172 (CA-126 W, Newhall Ranch Rd, Ventura) on right (0.3 miles)
Turn left onto CA-126 W (2.9 miles)
END at 29201 Henry Mayo Dr, Castaic, CA 91384-2705

Total distance = 39.2 miles



Start:


SAWTELLE
PICO
MAR VISTA
OAKWOOD
Santa Monica Business Park
Clover Park
Penmar Golf Course
13000 Venice Boulevard
Santa Monica Blvd
W Olympic Blvd
W Pico Blvd
Exposition Blvd
Delaware Ave
Ocean Park Blvd
Bundy Drive
Grand View Blvd
National Blvd
Venice Blvd
S Sepulveda Blvd
Rose Ave
Airport Ave
Palms Blvd
Walgrove Ave
S Centinela Ave
Inglewood Blvd
Stoner Ave
Mountain View Ave
Victoria Ave
McCune Ave
Dewey St
23rd St
21st St
18th St
17th St
Stewart Ave
Moore St
Beethoven St
Marco Pl
Stanwood Dr
Wade St
McLaughlin Ave
East Blvd
Federal Ave
Butler Ave
Purdue Ave
Military Ave
Westwood Blvd
Veteran Ave
Kelton Ave
Midvale Ave
Glendon Ave
Missouri Ave
Nebraska Ave
Broadway
26th St
25th St
29th St
31st St
34th St
16th St
Sunset Ave
Vernon Ave
Indiana Ave
53
405
3A
10
2B
2
1C
187

End:

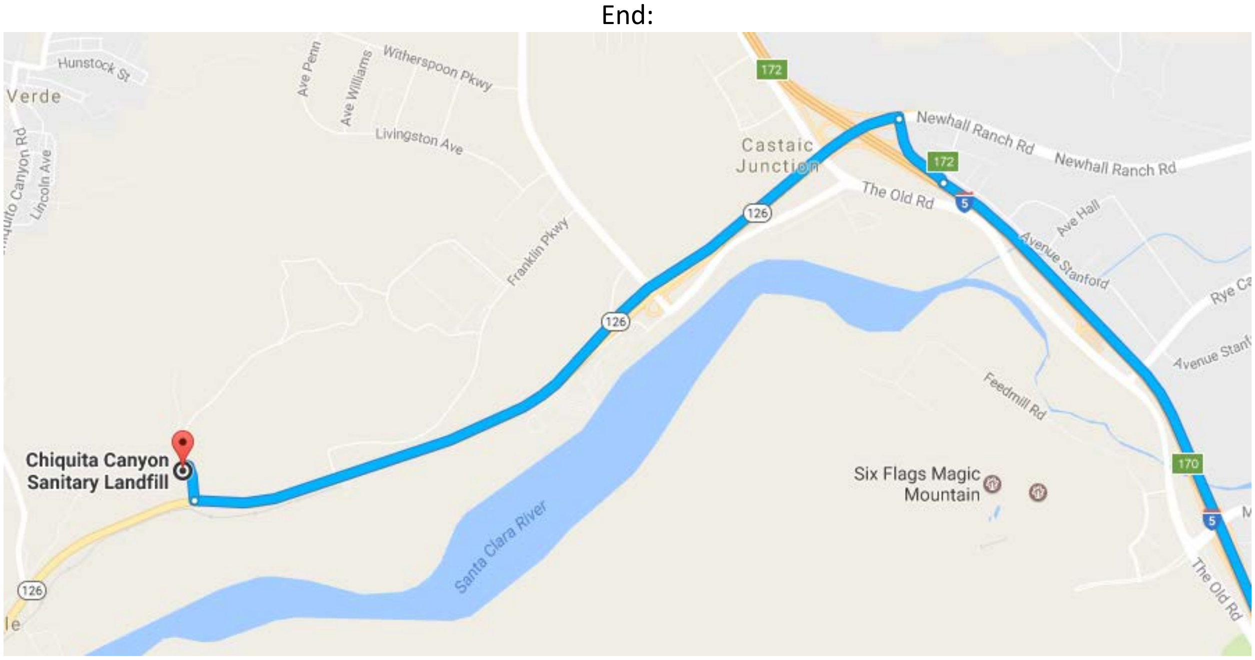
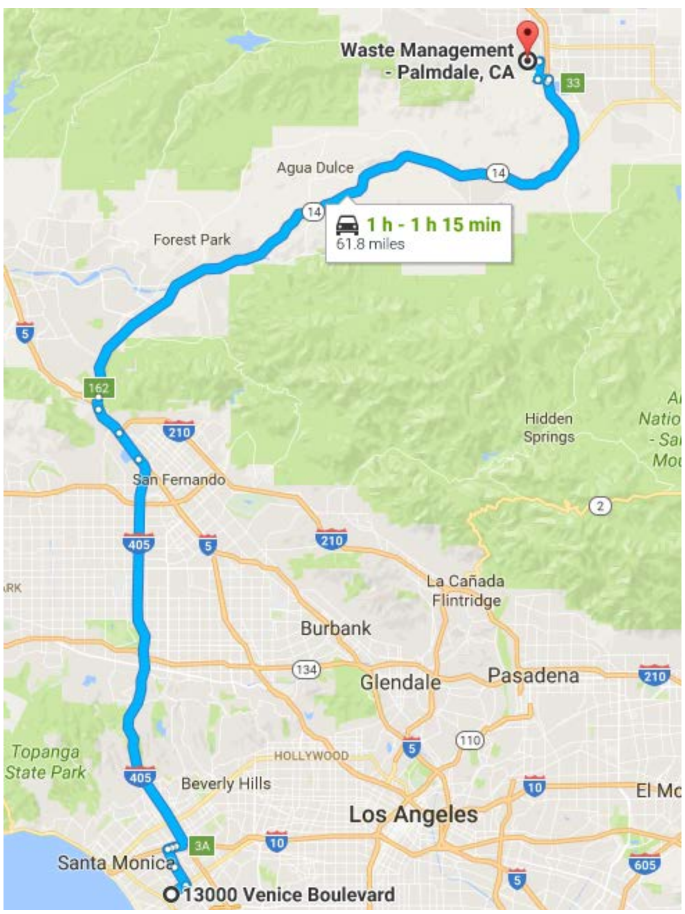

Chiquita Canyon Sanitary Landfill
Castaic Junction
Six Flags Magic Mountain
Santa Clara River
Newhall Ranch Rd
The Old Rd
Avenue Stanford
Ave Hall
Feedmill Rd
Franklin Pkwy
Livingston Ave
Witherspoon Pkwy
Ave Williams
Ave Penn
Hunstock St
Verde
Lincoln Ave
Rye Ca
172
170
126
5

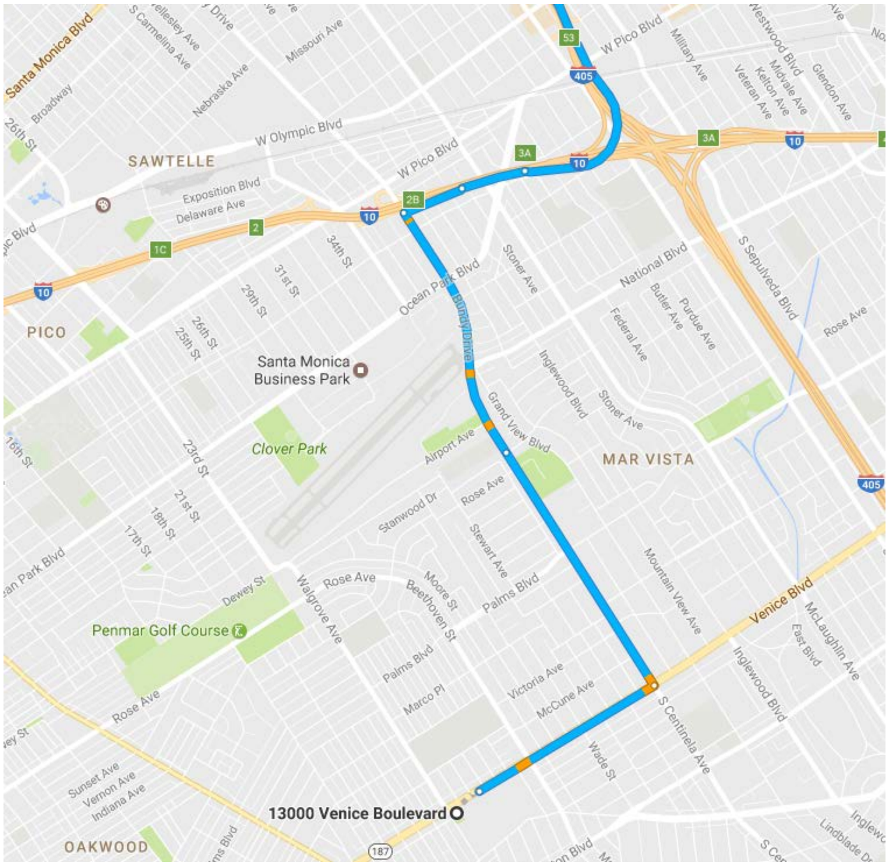
Figure 8
Directions
Antelope Valley/Palmdale Landfill (see Figure 10)
1200 W. City Ranch Road
Palmdale, California 91551
Phone: (661) 223-3418

Head northeast on Venice Blvd. toward Lyceum Ave. (0.7 mi)
Turn left onto S Centinela Ave (1.0 mi)
Continue onto Bundy Dr. (0.9 mi)
Turn right to merge onto I-10E/Santa Monica Fwy (0.4 mi)
Take exit 3A to merge onto I-405 N toward Sacramento (19.9 miles)
Continue on I-5 N (3 miles)
Take exit 162 for State Route 14 N/Antelope Valley Freeway toward Palmdale/Lancaster (0.6 mi)
Continue onto CA-14 N (37.2 mi)
Take exit 33 for Avenue S (0.2 mi)
Turn left onto W Ave S (0.6 mi)
Turn right onto Tierra Subida Ave (0.8 mi)
Turn left onto City Ranch Rd (0.8 mi)
END at 1200 City Ranch Rd., Palmdale, CA 93551

Total Distance = 61.8 miles

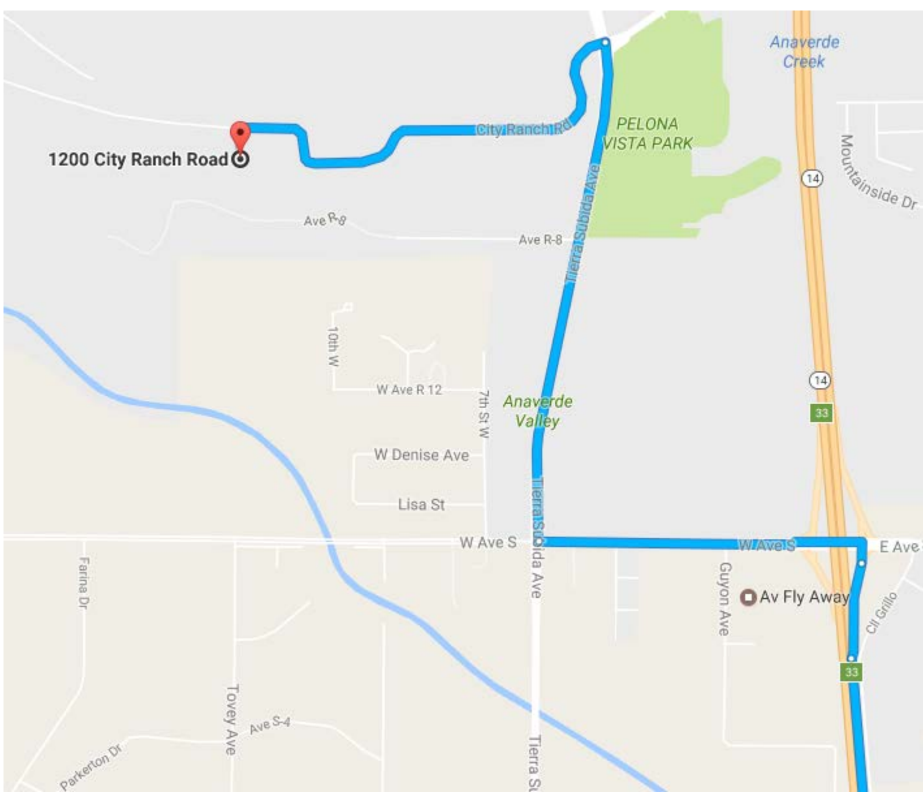


Start:



13000 Venice Boulevard
SAWTELLE
PICO
MAR VISTA
OAKWOOD
Santa Monica Business Park
Clover Park
Penmar Golf Course
Venice Blvd
W Pico Blvd
W Olympic Blvd
Ocean Park Blvd
Grand View Blvd
National Blvd
S Sepulveda Blvd

End:



1200 City Ranch Road
City Ranch Rd
PELONA VISTA PARK
Anaverde Creek
Anaverde Valley
Tierra Subida Ave
Ave R-8
W Ave R 12
W Denise Ave
Lisa St
W Ave S
E Ave
Av Fly Away
Mountainside Dr
Guyon Ave
Tovey Ave
Farina Dr
Parkerton Dr
Ave S-4

Appendix E Public Notices and Comments

Appendix E Public Notices and Comments

Los Angeles Unified School District

Office of Environmental Health and Safety

MICHELLE KING
Superintendent of Schools

THELMA MELÉNDEZ, PH.D.
Chief Executive Officer, Office of Educational Services

ROBERT LAUGHTON
Director, Environmental Health and Safety

CARLOS A. TORRES
Deputy Director, Environmental Health and Safety

September 22, 2016

TO: Neighbors and Community Members of the Venice High School

FROM: Los Angeles Unified School District
Office of Environmental Health and Safety

REGARDING: Preliminary Environmental Assessment
Venice High School, Los Angeles, California

The Los Angeles Unified School District (LAUSD) - Office of Environmental Health and Safety (OEHS) would like to provide you with advance notice of a Preliminary Environmental Assessment (PEA) that will be conducted within the boundaries of Venice High School, located at 13000 Venice Blvd, Los Angeles, California, 90066. The PEA will cover most of the campus scheduled to undergo a comprehensive modernization.

A licensed contractor, working on behalf of LAUSD, will perform the environmental investigation under the independent oversight of the LAUSD-OEHS, which is independent from the LAUSD Facilities Services Division (The Facilities Services Division is the responsible Branch for the development and construction of the project). The environmental investigation will consist of the sampling of soil and soil gas in the locations on campus where existing buildings will be demolished, new buildings will be constructed, where 3 hydraulic hoists are located in shop buildings, and where a clarifier/oil water separator is located. Soil will be analyzed for potential residual arsenic, hydrocarbons, lead-based paint, polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), and volatile organic compounds (VOCs) in soil. Soil gas will be analyzed for VOCs, methane, and hydrogen sulfide. If necessary, a soil cleanup will be performed prior to construction activities to protect students, faculty, and staff.

Fieldwork is scheduled to begin over the weekend of October 1-2, 2016, and is expected to be completed in 5 days. All fieldwork is scheduled to be conducted when students are away from school, on the weekends, between 7:00 am and 5:00 pm.

The results of the investigation will be submitted to LAUSD-OEHS in a report for review. The report will include an assessment of whether any of the above listed compounds are present in soil at concentrations that would require further assessment or a response action before the Site is cleared for construction activities. When the OEHS's review is complete, OEHS will issue a determination with regard to the assessment.

If you have any questions concerning the upcoming environmental investigation or other related activities for the proposed comprehensive modernization of Venice High School, please contact Dane Robinson, LAUSD Office of Environmental Health and Safety Site Assessment Project Manager, at (213) 241-4122 (email at dane.robinson@lausd.net).

Si desea información en español comuníquese con Fortunato Tapia de FSD Relaciones Comunitarias al (213) 241-1338 (línea directa) o (213) 241-1340 (línea principal) o por correo electrónico a fortunato.tapia@lausd.net.

Distrito Escolar Unificado de Los Ángeles

Oficina de Salud y Seguridad Medioambiental

MICHELLE KING
Superintendente Escolar

THELMA MELÉNDEZ, PH.D.
Jefe Ejecutivo, Oficina de Servicios Educacionales

ROBERT LAUGHTON
Director, Salud y Seguridad Medioambiental

CARLOS A. TORRES
Director Adjunto, Salud y Seguridad Medioambiental

22 de septiembre de 2016

PARA: Vecinos y Miembros de la Comunidad de Venice High School

DE: Distito Escolar Unificado de Los Ángeles
Oficina de Salud y Seguridad Medioambiental

ASUNTO: Evaluación Ambiental Inicial
Venice High School, Los Angeles, California

La Oficina de Salud y Seguridad Medioambiental (OEHS, por sus siglas en inglés) del Distrito Escolar Unificado de Los Ángeles (LAUSD, por sus siglas en inglés) le notifica con anticipación de una Evaluación Ambiental Inicial (PEA, por sus siglas en inglés) que se llevará a cabo para el proyecto de construcción en *Venice High School,* ubicada en el 13000 Venice Blvd, Los Angeles, California, 90066 (“Sitio”). El PEA se llevará a cabo en la mayor parte del campo programado para realizar una modernización integral.

Un contratista licenciado, trabajando para LAUSD, llevará a cabo la investigación bajo la supervisión independiente del LAUSD-OEHS, que es independiente de la división de servicios de instalaciones de LAUSD (La división de servicios de instalaciones es la rama responsable para el desarrollo y la construcción del proyecto). La investigación ambiental consistirá en la toma de muestras y vapores de tierra en los lugares en el campus donde edificios existentes serán demolidos, nuevos edificios serán construídos, tanques de almacenamiento subterráneo se encuentran, y un incinerador se encuentra. El suelo será analizado para el potencial de arsénico residual, hidrocarburos, pintura a base de plomo, bifenilos policlorados (PCBs), plaguicidas organoclorados (OCPs), y compuestos orgánicos volátiles (VOCs) en el suelo. Si es necesario, se realizará una limpieza del suelo antes de las actividades de construcción para proteger a los estudiantes, facultad y personal.

El trabajo de campo está programado a comenzar el fin de semana del 1 al 2 de octubre de 2016 y se anticipa que durará 5 dias. Este trabajo se llevará a cabo cuando los estudiantes no estén en la escuela, entre 7 a.m. y 5 p.m.

Resultados de la investigación serán presentados a LAUSD-OEHS en un reporte para su revisión. El reporte indicará si alguno de los compuestos analizados está presente en el suelo en concentraciones que requieran estudios más intensivos o alguna acción en respuesta antes de que la propiedad sea aprobada para actividades de construcción. Cuando OEHS termine la evaluación, OEHS hará una determinación con respecto al estudio preliminar.

Si tiene alguna pregunta sobre esta investigación u otras actividades relacionadas con la modernización de Venice High School, puede comunicarse con Fortunato Tapia en FSD Community Relations al (213) 241-1338 (línea directa), o (213) 241-1340 (línea principal), o por correo electrónico a fortunato.tapia@lausd.net, o puede comunicarse con Dane Robinson, gerente de proyecto en LAUSD-OEHS, al (213) 241-4122 o por correo electrónico a dane.robinson@lausd.net.

Los Angeles Unified School District

Office of Environmental Health and Safety

MICHELLE KING
Superintendent of Schools

THELMA MELÉNDEZ, PH.D.
Chief Executive Officer, Office of Educational Services

ROBERT LAUGHTON
Director, Environmental Health and Safety

CARLOS A. TORRES
Deputy Director, Environmental Health and Safety

February 2, 2017

TO: Neighbors and Community Members of
Venice High School

FROM: Los Angeles Unified School District
Office of Environmental Health and Safety

REGARDING: Preliminary Environmental Assessment
Venice High School, Los Angeles, California

The Los Angeles Unified School District (LAUSD) - Office of Environmental Health and Safety (OEHS) has completed an environmental assessment of Venice High School, located at 13000 Venice Blvd, Los Angeles, California, 90066, within that portion of the campus scheduled to undergo a comprehensive modernization.

The assessment consisted of the sampling of soil and soil gas in the locations on campus where existing buildings will be demolished, new buildings will be constructed, and 3 hydraulic hoists and a clarifier/oil water separator are located. Soil was analyzed for potential arsenic, hydrocarbons, lead, polychlorinated biphenyls (PCBs), organochlorine pesticides (OCPs), and volatile organic compounds (VOCs) impacts. Soil gas was analyzed for VOCs, methane, and hydrogen sulfide.

The assessment ruled out hydrocarbons, PCBs, OCPs, VOCs, methane, and hydrogen sulfide as chemicals of concern. The assessment identified 13 locations of soil with elevated concentrations of arsenic, 5 locations with elevated concentrations of lead, and 1 location with elevated concentrations of both arsenic and lead. The total in-place volume of this soil is approximately 185 cubic yards, with about 95% of this soil being non-hazardous and all the soil being non-hazardous as defined by the federal Resource Conservation and Recovery Act. The outcome of the assessment is the recommendation to prepare a Removal Action Workplan to outline the methods and requirements to properly address the contaminated soil. Additional details about the assessment can be found in the following documents:

- *Preliminary Environmental Assessment Equivalent Report, Comprehensive Modernization Project, Venice High School*, by PlaceWorks, December 7, 2016, and
- *Technical Addendum, Completion of Site Assessment, Comprehensive Modernization Project, Venice High School*, by PlaceWorks, January 17, 2017.

The above documents are available for viewing at the LAUSD-OEHS website: http://achieve.lausd.net/siteassessment

If you have any questions concerning the assessment or other related activities for the proposed comprehensive modernization of Venice High School, please contact Dane Robinson, LAUSD-OEHS Site Assessment Project Manager, at (213) 241-4122 or by email at dane.robinson@lausd.net.

Si desea información en español comuníquese con Fortunato Tapia de FSD Relaciones Comunitarias al (213) 241-1338 (línea directa) o (213) 241-1340 (línea principal) o por correo electrónico a fortunato.tapia@lausd.net.

Distrito Escolar Unificado de Los Ángeles

Oficina de Salud y Seguridad Medioambiental

MICHELLE KING
Superintendente Escolar

THELMA MELÉNDEZ, PH.D.
Jefe Ejecutivo, Oficina de Servicios Educacionales

ROBERT LAUGHTON
Director, Salud y Seguridad Medioambiental

CARLOS A. TORRES
Director Adjunto, Salud y Seguridad Medioambiental

2 de febrero de 2017

PARA: Vecinos y Miembros de la Comunidad de Venice High School

DE: Distrito Escolar Unificado de Los Ángeles
Oficina de Salud y Seguridad Medioambiental

ASUNTO: Evaluación Ambiental Inicial
Venice High School, Los Ángeles, California

La Oficina de Salud y Seguridad Medioambiental (OEHS, por sus siglas en inglés) del Distrito Escolar Unificado de Los Ángeles (LAUSD, por sus siglas en inglés) ha completado una evaluación ambiental de la Escuela Preparatoria Venice, ubicada en el 13000 Venice Blvd., Los Ángeles, California, 90066 dentro de la porción del campus programada para una modernización integral.

La evaluación consistió en el muestreo de suelo y gas del suelo en los lugares en el campus donde se demolerán los edificios existentes, se construirán nuevos edificios, y tres sistemas hidráulicos y un clarificador/aceite-agua separador están presentes. El suelo se analizó para determinar los impactos posibles del arsénico, los hidrocarburos, el plomo, los bifenilos policlorados (PCBs), los plaguicidas organoclorados (OCPs) y los compuestos orgánicos volátiles (VOCs). El gas de suelo se analizó para VOCs, metano y sulfuro de hidrógeno.

La evaluación excluyó los hidrocarburos, los PCBs, los OCPs, los VOCs, el metano y el sulfuro de hidrógeno como sustancias químicas de interés. La evaluación identificó 13 ubicaciones de suelo con concentraciones elevadas de arsénico, 5 ubicaciones con concentraciones elevadas de plomo y 1 local con concentraciones elevadas de arsénico y plomo. El volumen total de este suelo es de aproximadamente 185 yardas cúbicas, y alrededor del 95% de este suelo no es peligroso y todo el suelo no es peligroso como se define en la federal Ley de Conservación y Recuperación de Recursos. El resultado de la evaluación es la recomendación de preparar un Plan de Trabajo de Acción de Remoción para esbozar los métodos y requisitos para abordar adecuadamente el suelo contaminado. Los detalles adicionales sobre la evaluación se pueden encontrar en los siguientes documentos:

- *Preliminary Environmental Assessment Equivalent Report, Comprehensive Modernization Project, Venice High School*, por PlaceWorks, el 7 de diciembre de 2016, y
- *Technical Addendum, Completion of Site Assessment, Comprehensive Modernization Project, Venice High School*, por PlaceWorks, el 17 de enero de 2017.

Los documentos anteriores están disponibles para su visualización en el sitio web de OEHS-LAUSD al http://achieve.lausd.net/siteassessment

Si tiene alguna pregunta relacionada con la evaluación u otras actividades relacionadas con la propuesta de modernización integral de la Escuela Preparatoria Venice, comuníquese con Dane Robinson, Gerente del Proyecto de Evaluación del Sitio de OEHS-LAUSD al (213) 241-4122 o por correo electrónico a dane.robinson@lausd.net.

Si desea información en español comuníquese con Fortunato Tapia de FSD Community Relations al (213) 241-1338 (línea directa) o (213) 241-1340 (línea principal) o por correo electrónico a fortunato.tapia@lausd.net.

OEHS

Los Angeles Unified School District

NOTICE OF INTENT
to Adopt a Negative Declaration

DATE: March 14, 2017
TO: Agencies, Organizations, Property Owners, and Interested Parties
PROJECT TITLE: Venice High School Comprehensive Modernization Project
SUBJECT: Notice of Intent to Adopt a Negative Declaration

NOTICE IS HEREBY GIVEN that the Los Angeles Unified School District (LAUSD or District), as Lead Agency under the California Environmental Quality Act (CEQA) has prepared an Initial Study (IS) for the Venice High School Comprehensive Modernization Project (proposed project), pursuant to the CEQA (Public Resources Code [PRC], Division 13, Section 21000 et seq. [CEQA Statute] and the California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, Section 15000 et seq. [CEQA Guidelines]). Based on the IS, LAUSD determined that the proposed project would have no significant adverse impacts on the environment and a Negative Declaration (ND) is appropriate. The District is providing public notice in compliance with Title 14, Chapter 3, Sections 15072 and 15073 of the California Code of Regulations, as amended.

PROJECT LOCATION and DESCRIPTION: The site is located at 13000 Venice Boulevard in the City of Los Angeles, in Los Angeles County, California. The proposed project consists of site-wide upgrades and modernizations to the existing Venice High School campus. Specifically, the proposed project would include demolition of some structures that are beyond repair; construction of new buildings; improvements to the existing campus facilities; upgrades to infrastructure and utilities; and various site-wide upgrades per the Americans with Disabilities Act (ADA; 42 U.S. Code Chapter 126). The site is not on any lists enumerated under Section 65962.5 of the Government Code (i.e., Cortese List).

DOCUMENT AVAILABILITY: Copies of the ND and supporting Initial Study are available during operating hours at:

- **LAUSD Office of Environmental Health & Safety**, 333 South Beaudry Ave., 21st Floor, Los Angeles, CA 90017, (213) 241-3417 (by appointment)
- **Venice High School Library**, 13000 Venice Boulevard, Los Angeles, CA 90066, (310) 577-4200
- **Mar Vista Branch Library**, 12006 Venice Boulevard, Venice, CA 90066, (310) 821-1769

The CEQA document is also availab[illegible] the LAUSD website at http://achieve.lausd.net/ceqa.

PUBLIC REVIEW PERIOD: The public review period for the ND begins on March 14, 2017 and ends on April 12, 2017. Written comments may be sent by e-mail to CEQA-comments@lausd.net *(please include the "Venice HS Comp Mod Project" in the subject heading)* or mailed to:

LAUSD Office of Environmental Health and Safety
Attn: Ms. Eimon Smith, CEQA Project Manager
333 S. Beaudry Avenue, 21st Floor, Los Angeles, CA 90017

All comments must be received by 5:00 pm on April 12, 2017.

PUBLIC MEETING: LAUSD will hold a public meeting on March 28, 2017 at 6:00 pm at Venice High School, 13000 Venice Boulevard, Los Angeles, CA 90066. All agencies, organizations, and interested parties are encouraged to attend.

LAUSD BOARD HEARING: Additional information concerning the proposed project will be posted on the District's OEHS website: http://achieve.lausd.net/ceqa. The LAUSD Board of Education will consider this item during a regularly scheduled meeting. Check the LAUSD website to find the meeting date and time at http://laschoolboard.org. The Board meeting will be held in the Board Room at the District Headquarters located at 333 South Beaudry Avenue in Los Angeles, CA.

Los Angeles Unified School District

AVISO DE INTENCIÓN
de Adoptar un Declaración Negativa

2017 064184

FILED
Mar 14 2017

Dean C. Logan, Registrar – Recorder/County Clerk

Electronically signed by EVELYN VALADEZ

FECHA: 14 de marzo de 2017
A: Agencias, organizaciones, propietarios y partes interesadas
NOMBRE DEL PROYECTO: Venice High School Comprehensive Modernization Project
TEMA: Aviso de Intención de Adoptar un Declaración Negativa

POR LA PRESENTE SE DA AVISO que el Distrito Escolar Unificado de Los Angeles (LAUSD o distrito), como organismo principal del Proyecto bajo la Ley del Estado de California Para la Protección de la Calidad Ambiental (CEQA), ha preparado un estudio inicial (IS, por sus siglas en inglés) del Proyecto de Modernización Comprensiva de la escuela preparatoria Venice High School (proyecto propuesto), de conformidad con CEQA (Código de Recursos Públicos [PRC, por sus siglas en inglés], División 13, Artículos 21000 y siguientes [estatuto de CEQA] y el Código Reglamentario de California [CCR, por sus siglas en inglés] Título 14, División 6, Capítulo 3, Artículo 15000 y siguientes [directrices CEQA]). Con base en el estudio inicial (IS), LAUSD determinó que el proyecto propuesto no tendría impactos adversos significativos sobre el medio ambiente, por lo que una declaración negativa (ND, por sus siglas en inglés) es apropiada. El Distrito está proveyendo notificación pública en cumplimiento del Título 14, Capítulo 3, Artículos 15072 y 15073 del Código Reglamentario de California, según enmendada.

DESCRIPCIÓN Y UBICACIÓN DEL PROYECTO: El sitio se ubica en 13000 Venice Boulevard, en la ciudad de Los Angeles, en el condado de Los Angeles, California. El proyecto consiste en mejoramientos y modernizaciones por todas partes del plantel escolar de la escuela preparatoria actual Venice High School. Específicamente, el proyecto propuesto incluiría: la demolición de algunas estructuras que están más allá de la reparación; la construcción de edificios nuevos; mejoramientos al plantel escolar existente; actualización de infraestructura y servicios públicos; y varios mejoramientos por todo el campus mandados por la Ley para Estadounidenses Discapacitados o con Discapacidades (ADA, por sus siglas en inglés; Código de E.U., Título 42, Capítulo 126). El sitio no se encuentra en ninguno de las listas enumeradas bajo la Sección 65962.5 del Código Gubernamental de California (es decir, la "Lista Cortese").

DISPONIBILIDAD DEL DOCUMENTO: Copias del IS/ND pueden encontrarse durante las horas de operaciones en las siguientes ubicaciones:

- **LAUSD Oficina de Salud y Seguridad Ambiental**, 333 South Beaudry Avenue, Piso 21, Los Angeles, CA 90017, (213) 241-3417 (con cita)
- **Biblioteca de Venice High School**, 13000 Venice Boulevard, Los Angeles, CA 90066, (310) 577-4200
- **Sucursal Mar Vista de la, Biblioteca Pública de Los Angeles** 12006 Venice Boulevard, Venice, CA 90066, (310) 821-1769

El documento CEQA también está disponible en el sitio web de LAUSD a http://achieve.lausd.net/ceqa.

PERÍODO DE REVISTA PÚBLICA: El período de revisión pública del IS/ND comienza el 14 de marzo de 2017 y termina el 12 de abril de 2017. Comentarios por escrito se pueden enviar por e-mail a CEQA-comments@lausd.net (*favor de incluir "Venice HS Comp Mod Project*" en la cabecera) y por correo a:

LAUSD Oficina de Salud y Seguridad Ambiental ATN.: Sra.
Eimon Smith, Gerente de Proyecto CEQA 333 S. Beaudry
Avenue, 21st Floor, Los Angeles, CA 90017

Todos los comentarios se deben recibir antes de las 5:00 pm del 12 de abril de 2017.

REUNION PUBLICA: LAUSD llevará a cabo una reunión pública el 28 de marzo de 2017 en Venice High School, 13000 Venice Boulevard, Los Angeles, CA 90066. Animamos a todas agencias, organizaciones, y partes interesadas a asistir.

SESION ORDINARIA DE LA JUNTA DE EDUCACION: Se publicará información adicional sobre el proyecto propuesto en la página de OEHS: http://achieve.lausd.net/ceqa. La Junta de Educación considerará este asunto durante una reunión regularmente programada. Consulta el sitio web de LAUSD (http://laschoolboard.org) para la fecha y la hora. La sesión ordinaria de la Junta de Educación tendrá lugar en la Sala de la Junta en la sede de LAUSD, que se ubica en 333 South Beaudry Avenue, en Los Angeles, CA.

From: Penny Cotten [mailto:pcotten100@gmail.com]
Sent: Saturday, March 25, 2017 1:53 PM
To: Robinson, Dane
Subject: Venice High School Environmental Removal Action

Greetings!

I live at 2427 Walgrove Avenue.

I have the following issues. I would like a response in writing, as well as any email reply. Thank you.

Concerns:

1.
I am very concerned about how trucks leaving the site, which will pass our home, will have the contents sealed. Will the contents be watered after filling as well as securely covered before leaving the site, to minimize dust? What methods for keeping the dust out of the air will be employed?

2.
We should have baseline and then periodic testing of the soil of our yards and the exterior surfaces of our homes, to insure that our properties are not being contaminated by the project at the time the work is being done.

3.
The heavy truck traffic on a street not designed for it will require Walgrove to be repaved after the project. We currently have speed bumps, but more effective speed bumps should be installed to make the street safer and calmer for students and residents.

I would like a complete written reply on these issues. Please send the reply to:

Penelope Cotten

2427 Walgrove Avenue
Los Angeles, CA 90066

Sincerely,

Penelope Cotten

From: Penny Cotten [mailto:pcotten100@gmail.com]
Sent: Wednesday, March 29, 2017 2:51 PM
To: Robinson, Dane
Subject: Thank you

I was at the meeting at Venice High School last night, but unfortunately I didn't get a chance to introduce myself.

I really appreciated your detailed responses to the questions I sent you, and I think you are doing great work for the school.

Since Walgrove is already too congested, any truck traffic that can be routed onto Venice Boulevard or other surrounding streets during the construction would be helpful for our residents.

Good luck with the project.

Sincerely,

Penelope Cotten

From: Smith, Eimon [mailto:eimon.smith@lausd.net]
Sent: Tuesday, March 28, 2017 1:40 PM
To: Robinson, Dane <dane.robinson@lausd.net>; Eric Longenecker <elongenecker@placeworks.com>
Subject: RE: Venice High School Environmental Removal Action

My only comment is: I believe Walgrove Avenue may be used to access the campus. It is currently used by trucks to make deliveries, trash collection, etc. and provides more direct access to the lunch shelter. I might update Question #3 to read…

As discussed in Section 5.3.3. Street Maintenance of Appendix D, Transportation Plan, the surfaces of surrounding streets will be routinely inspected and, if necessary, maintained or repaired by the Remediation Contractor during implementation of the RAW. The Remediation Contractor is responsible for cleaning streets from spilled or tracked out soils and the final cleanup after completion of field activities, such as washing paved areas. The number of daily and total truckloads during implementation of the RAW is not expected to cause damage to surface streets. Speed bumps are beyond the scope of the RAW. However, routine off-site street maintenance and repairs will be completed by the City of Los Angeles Department of Transportation, as such repairs are necessary and appropriate.

~Eimon

From: Smith, Eimon [mailto:eimon.smith@lausd.net]
Sent: Tuesday, March 28, 2017 2:15 PM
To: Eric Longenecker <elongenecker@placeworks.com>; Tapia, Fortunato <fortunato.tapia@lausd.net>
Subject: RE: Venice High School

Eric – in addition to the notices that were placed in the newspapers, copies of the meeting notices (and the CEQA notices) were distributed as follows:

- Posted on the OEH website (http://achieve.lausd.net/oehs)
- Hand delivered or mailed to:
  - School staff? YES (meeting notice)
  - Elected officials? YES (CEQA notices and meeting notices were mailed or delivered to elected officials)
  - Those that previously showed an interest (email and/or mail) – YES (CEQA notices and meeting notice)
  - Residents within 500' by mail? YES (CEQA notices to residences/ owners within 0.25 mile)
  - Hand delivery to line of site? YES & posted at the site (CEQA and meeting notices)
  - Parents of students (mail or pass out in class)? YES (meeting notices were provided to the school and Mark Twain Middle School)
- Fortunato also informed us that 3 neighborhood councils advertised the meeting on their websites:

  http://marvista.org/readpost.php?news_id=460

  http://www.venicenc.org/readpost.php?news_id=248

  http://www.delreync.org/

NOTICE OF PUBLIC COMMENT PERIOD AND MEETING
REMOVAL ACTION WORKPLAN
VENICE HIGH SCHOOL
COMPREHENSIVE MODERNIZATION PROJECT
13000 Venice Boulevard, Los Angeles

PUBLIC COMMENT PERIOD: March 14 to April 13, 2017

WHAT'S BEING PROPOSED?

The Los Angeles Unified School District (LAUSD) invites public comment on the Removal Action Workplan (hereinafter "RAW") for the comprehensive modernization project at Venice High School in Los Angeles, California. The RAW presents the findings of the environmental investigations performed for this project and proposes the removal and off-site disposal of at least approximately 185 cubic yards of soil with elevated concentrations of arsenic and/or lead.

WHY THIS NOTICE AND WHERE/WHEN IS THE PUBLIC MEETING?

The purpose of this notice and public meeting is to provide the community with an opportunity to learn more about the project and to provide comments on the RAW. The public meeting will be held on:

Tuesday, March 28, 2017
From 6:00 to 7:30 p.m.
Venice High School
Lunch Pavilion
13000 Venice Boulevard, Los Angeles, CA 90066

HOW DO I PARTICIPATE?

The community has an opportunity to provide comments to LAUSD during the public comment period. All written comments must be postmarked or e-mailed by April 13, 2017. Comments concerning the RAW may be submitted in writing to the following address or emailed to dane.robinson@lausd.net:

LAUSD Office of Environmental Health and Safety
333 South Beaudry Avenue, 21st Floor, LA, CA 90017
(213) 241-4122 Telephone Number; (213) 241-6816 Facsimile
Attention: Dane Robinson, Site Assessment Project Manager

WHERE DO I GET MORE INFORMATION?

A copy of the RAW is available by appointment during regular office hours at the LAUSD Office of Environmental Health and Safety address listed above and at the following locations:

- **Venice High School Library:** 13000 Venice Blvd, Los Angeles, CA
- **Mar Vista Branch Library:** 12006 Venice Boulevard, Los Angeles, CA
- **LAUSD Website:** http://achieve.lausd.net/siteassessment

For information in Spanish please call Fortunato Tapia, LAUSD/FSD Community Relations
Main Line (213) 241-1340, Direct Line (213) 241-1338, or by email to fortunato.tapia@lausd.net.

AVISO DE PERIODO DE COMENTARIO PÚBLICO Y REUNIÓN COMUNITARIA
PLAN DE TRABAJO DE ACCIÓN DE REMOCIÓN
VENICE HIGH SCHOOL
PROYECTO DE MODERNIZACIÓN INTEGRAL
13000 Venice Boulevard, Los Ángeles

PERIODO DE COMENTARIOS PÚBLICOS: 14 de marzo al 13 de abril, 2017

¿QUE SE PROPONE?

El Distrito Unificado de Los Ángeles (por sus siglas en inglés, "LAUSD") invita al público que revise y envíe comentarios sobre el proyecto del Plan de Trabajo de Acción de Remoción (por sus siglas en inglés, "RAW") para la modernización integral de Venice High School en Los Ángeles, California. El proyecto "RAW" presenta los resultados de las investigaciones ambientales realizadas y propone la remoción y eliminación fuera del sitio de aproximadamente 185 yardas cúbicas (YC) de suelo con concentraciones elevadas de arsénico y/o plomo.

¿CUÁL ES EL PROPÓSITO DE ESTE AVISO Y CUANDO ES LA REUNIÓN?

El propósito de este aviso y de la reunión es de darle a la comunidad una oportunidad para obtener más información sobre el proyecto y para que envíen sus comentarios sobre el informe RAW. La junta comunitaria se llevará a cabo en:

martes, 28 de marzo, 2017
De 6:00 a 7:30 p.m.
Venice High School
Pabellón del almuerzo
13000 Venice Boulevard, Los Ángeles, CA 90066

¿CÓMO PUEDO PARTICIPAR?

Usted tiene la oportunidad de enviar sus comentarios al LAUSD durante el período de comentarios públicos. Los comentarios escritos deben enviarse por correo o por correo electrónico antes del 13 de abril de 2017. Los comentarios sobre el informe RAW pueden ser presentados por escrito a la siguiente dirección o por correo electrónico a dane.robinson@lausd.net:

Oficina de Seguridad y Salud Ambiental del LAUSD
333 South Beaudry Avenue, Piso 21, Los Ángeles, CA 90017
Tel (213) 241-4122; Fax (213) 241-6816
Atención: Dane Robinson, Gerente de Proyectos de Evaluación

¿DÓNDE PUEDO OBTENER MÁS INFORMACIÓN?

Una copia del informe RAW está disponible en la Oficina del LAUSD (dirección mencionada anteriormente). Por favor llame y haga una cita para su visita. Copias del informe también están disponibles en los siguientes lugares:

- **Venice High School:** 13000 Venice Boulevard, Los Ángeles, CA
- **Biblioteca Mar Vista:** 12006 Venice Boulevard, Los Ángeles, CA
- **Página Web del LAUSD:** http://achieve.lausd.net/siteassessment

Para información en español por favor llame a Fortunato Tapia, LAUSD/FSD Relaciones Comunitarias, línea principal (213) 241-1340, línea directa (213) 241-1338, o por correo electrónico a fortunato.tapia@lausd.net.

LOS ANGELES UNIFIED SCHOOL DISTRICT
Facilities Services Division

For very important information about
TWO GREAT FACILITIES PROJECTS at Venice High School
please join us at a

PARENT & COMMUNITY
MEETING

TUESDAY
MARCH 28, 2017
6 p.m.

Venice High School Student Cafeteria
13000 Venice Boulevard, Los Angeles, CA 90066

Comprehensive Modernization

Very substantial project including new classroom buildings, new gymnasium and infrastructure improvements.

RAW – The OEHS will review The Draft Removal Action Work Plans (RAW), which provide details as to how the school site will be cleaned up to ensure the health and safety of the children and the community.

CEQA- Inform and obtain input from the community on the Initial Study/Negative Declaration prepared for the proposed project as part of the California Environmental Quality Act (CEQA).

New Lunch Shelter Project

Provides a new lunch shelter, student store and outdoor court yard to replace existing lunch shelter and student store.

RAW – The OEHS will review the Draft Removal Action Work Plans (RAW), which provide details as to how the school site will be cleaned up to ensure the health and safety of the children and the community.

CEQA Inform community of the CEQA NOE filed for this project.

SAFETY- We will discuss best practices and measures to ensure safety of students and staff during construction activities.

We will also have approximate construction schedules, hear your comments, and answer your questions

---

FOR MORE INFORMATION ABOUT THIS MEETING PLEASE CALL FORTUNATO TAPIA, FSD COMMUNITY RELATIONS
MAIN NUMBER (213) 241-1340 DIRECT NUMBER (213) 241-1338 EMAIL FORTUNATO.TAPIA@LAUSD.NET

L O S A N G E L E S U N I F I E D S C H O O L D I S T R I C T
Facilities Services Division

Para importante información sobre
DOS GRANDES PROYECTOS DE CONSTRUCCIÓN en Venice HS
por favor acompáñenos en una

REUNIÓN de PADRES y COMUNIDAD

MARTES
28 DE MARZO, 2017
6 p.m.

Cafetería Estudiantil de Venice High School
13000 Venice Boulevard, Los Angeles, CA 90066

Modernización Integral
Proyecto sustancial, que incluye nuevos edificios de aulas, nuevo gimnasio y mejoras de infraestructura.

ACCIÓN DE REMOCIÓN – El Departamento de OEHS repasará el Plan de Trabajo de Acción de Remoción (RAW, por sus siglas en inglés), que detalla cómo la escuela se limpiará para garantizar la seguridad y la salud de estudiantes y comunidad.

CEQA – Para informar y obtener participación comunitaria sobre el estudio inicial/ Declaración Negativa preparado para el proyecto propuesto bajo la Ley de Calidad Ambiental de California (CEQA, por sus siglas en inglés).

Nuevo Pabellón para Almorzar
Nuevo pabellón para almorzar, tienda estudiantil y patio al aire libre para reemplazar el pabellón y tienda estudiantil actuales.

ACCIÓN DE REMOCIÓN – El Departamento de OEHS repasará el Plan de Trabajo de Acción de Remoción (RAW, por sus siglas en inglés), que detalla cómo la escuela se limpiará para garantizar la seguridad y la salud de estudiantes y comunidad.

CEQA - Informar a la comunidad del Aviso de Exención bajo CEQA presentado para este proyecto.

SEGURIDAD – Presentaremos medidas a tomar para garantizar la seguridad de estudiantes durante la construcción.

También tendremos horarios de construcción previstos, escucháremos sus comentarios y sus preguntas

PARA MÁS INFORMACIÓN ACERCA DE ESTA REUNIÓN PRO FAVOR COMUNÍQUESE CON FORTUNATO TAPIA, FSD COMMUNITY RELATIONS
LÍNEA PRINCIPAL (213) 241-1340 LÍNEA DIRECTA (213) 241-1338 EMAIL FORTUNATO.TAPIA@LAUSD.NET

In addition to notices that were placed in the newspapers La Opinion and Daily Breeze, copies of the meeting and CEQA notices were distributed as follows:

- Posted on the OEH website (http://achieve.lausd.net/oehs)
- Hand delivered or mailed to:
    - School staff (meeting notice)
    - Elected officials (CEQA notices and meeting notices)
    - Those that previously showed an interest (CEQA notices and meeting notice)
    - Residents within 500' by mail (CEQA notices to residences/ owners within 0.25 mile)
    - Hand delivery to line of site & posted at the site (CEQA and meeting notices)
    - Parents of students (mail or pass out in class) (meeting notices were provided to the school and Mark Twain Middle School)
- Three neighborhood councils advertised the meeting on their websites:
  http://marvista.org/readpost.php?news_id=460
  http://www.venicenc.org/readpost.php?news_id=248
  http://www.delreync.org/

Daily Breeze
21250 Hawthorne Blvd, Ste 170
Torrance, CA 90503-4077
310-543-6635
Fax: 310-316-6827

(Space below for use of County Clerk Only)

5221784

PLACEWORKS
700 S. FLOWER STREET, SUITE 600
LOS ANGELES, CA 90017

FILE NO. DB 3-46

PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA
County of Los Angeles

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of THE DAILY BREEZE, a newspaper of general circulation, printed and published in the City of Torrance*, County of Los Angeles, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of County of Los Angeles, State of California, under the date of June 10, 1974, Case Number SWC7146. The notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

03/14/2017

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Dated at Torrance, California
On this 16th day of March, 2017.

Pauline Aguirre

Signature

*The Daily Breeze circulation includes the following cities: Carson, Compton, Culver City, El Segundo, Gardena, Harbor City, Hawthorne, Hermosa Beach, Inglewood, Lawndale, Lomita, Long Beach, Manhattan Beach, Palos Verdes Peninsula, Palos Verdes, Rancho Palos Verdes, Rancho Palos Verdes Estates, Redondo Beach, San

Legal No. **0010915683**

DB 3-46

NOTICE OF PUBLIC COMMENT PERIOD AND MEETING
REMOVAL ACTION WORKPLAN
VENICE HIGH SCHOOL
COMPREHENSIVE MODERNIZATION PROJECT
13000 Venice Boulevard, Los Angeles

PUBLIC COMMENT PERIOD: March 14 to April 13, 2017

WHAT'S BEING PROPOSED?

The Los Angeles Unified School District (LAUSD) invites public comment on the Removal Action Workplan (hereinafter "RAW") for the comprehensive modernization project at Venice High School in Los Angeles, California. The RAW presents the findings of the environmental investigations performed for this project and proposes the removal and off-site disposal of at least approximately 185 cubic yards of soil with elevated concentrations of arsenic and/or lead.

WHY THIS NOTICE AND WHERE/WHEN IS THE PUBLIC MEETING?

The purpose of this notice and public meeting is to provide the community with an opportunity to learn more about the project and to provide comments on the RAW. The public meeting will be held on:

Tuesday, March 28, 2017
From 6:00 to 7:30 p.m.
Venice High School
Lunch Pavilion
13000 Venice Boulevard, Los Angeles, CA 90066

HOW DO I PARTICIPATE?

The community has an opportunity to provide comments to LAUSD during the public comment period. All written comments must be postmarked or e-mailed by April 13, 2017. Comments concerning the RAW may be submitted in writing to the following address or emailed to dane.robinson@lausd.net:

LAUSD Office of Environmental Health and Safety
333 South Beaudry Avenue, 21st Floor, LA, CA 90017
(213) 241-4122 Telephone Number; (213) 241-6816 Facsimile
Attention: Dane Robinson, Site Assessment Project Manager

WHERE DO I GET MORE INFORMATION?

A copy of the RAW is available by appointment during regular office hours at the LAUSD Office of Environmental Health and Safety address listed above and at the following locations:

- **Venice High School Library:** 13000 Venice Blvd, Los Angeles, CA
- **Mar Vista Branch Library** : 12006 Venice Boulevard, Los Angeles, CA
- **LAUSD Website:** http://achieve.lausd.net/siteassessment

For information in Spanish please call Fortunato Tapia, LAUSD/FSD Community Relations Main Line (213) 241-1340, Direct Line (213) 241-1338, or by email to fortunato.tapia@lausd.net.

Published: March 14, 2017

Clasificados!

AVISO DE PERIODO DE COMENTARIO PÚBLICO Y REUNIÓN COMUNITARIA
PLAN DE TRABAJO DE ACCIÓN DE REMOCIÓN VENICE HIGH SCHOOL

PROYECTO DE MODERNIZACIÓN INTEGRAL
13000 Venice Boulevard, Los Ángeles

PERIODO DE COMENTARIOS PÚBLICOS: 14 de marzo al 13 de abril, 2017

¿QUE SE PROPONE?
El Distrito Unificado de Los Ángeles (por sus siglas en inglés, "LAUSD") invita al público que revise y envíe comentarios sobre el proyecto del Plan de Trabajo de Acción de Remoción (por sus siglas en inglés, "RAW") para la modernización integral de Venice High School en Los Ángeles, California. El proyecto "RAW" presenta los resultados de las investigaciones ambientales realizadas y propone la remoción y eliminación fuera del sitio de aproximadamente 185 yardas cúbicas (YC) de suelo con concentraciones elevadas de arsénico y/o plomo.

¿CUÁL ES EL PROPÓSITO DE ESTE AVISO Y CUANDO ES LA REUNIÓN?
El propósito de este aviso y de la reunión es de darle a la comunidad una oportunidad para obtener más información sobre el proyecto y para que envíen sus comentarios sobre el informe RAW. La junta comunitaria se llevará a cabo en:

martes, 28 de marzo, 2017
De 6:00 a 7:30 p.m.
Venice High School
Pabellón del almuerzo
13000 Venice Boulevard, Los Ángeles, CA 90066

¿CÓMO PUEDO PARTICIPAR?
Usted tiene la oportunidad de enviar sus comentarios al LAUSD durante el período de comentarios públicos. Los comentarios escritos deben enviarse por correo o por correo electrónico antes del 13 de abril de 2017. Los comentarios sobre el informe RAW pueden ser presentados por escrito a la siguiente dirección o por correo electrónico a dane.robinson@lausd.net:
Oficina de Seguridad y Salud Ambiental del LAUSD
333 South Beaudry Avenue, Piso 21, Los Ángeles, CA 90017
Tel (213) 241-4122; Fax (213) 241-6816
Atención: Dane Robinson, Gerente de Proyectos de Evaluación

¿DÓNDE PUEDO OBTENER MÁS INFORMACIÓN?
Una copia del informe RAW está disponible en la Oficina del LAUSD (dirección mencionada anteriormente). Por favor llame y haga una cita para su visita. Copias del informe también están disponibles en los siguientes lugares:

- **Venice High School:** 13000 Venice Boulevard, Los Ángeles, CA
- **Biblioteca Mar Vista:** 12006 Venice Boulevard, Los Ángeles, CA
- **Página Web del LAUSD:** http://achieve.lausd.net/siteassessment

Para información en español por favor llame a Fortunato Tapia, LAUSD/FSD Relaciones Comunitarias, línea principal (213) 241-1340, línea directa (213) 241-1338, o por correo electrónico a fortunato.tapia@lausd.net.

Bienes Raíces

Casas de Renta

LYNWOOD
CASA EN RENTA
3 Rec/1 Ba. 'Parking' p/3 carros, conexión p/lavadora, algunos biles incluidos. $1,875/m. 3156 Carlin Ave.
(626)662-3737

Casas de Venta

¡COMPRE O REFINANCIE HOY Y VIVA SU SUEÑO!
•FHA 3.5% Primeros compradores.
•FHA Cero Costo Refinanciamiento
¡Calificación Gratis!
INTELTY, INC.
C (714)658-4511
O (714)238-9110
www.intelty.com
BRE #01853584

LOS ANGELES
¡CASA $225,000!
626-236-2195

Aptos. de Renta

HUNTINGTON PARK
1 Rec/1 Ba. Completamente remodelado. Nueva cocina, baño, pintura, piso, alfombra. Electrodomésticos de aluminio. Lavandería. Buena ubicación. No fumar, no mascotas. Max. 3 personas. $1,050/m. ó $1,150 c/garaje. $900/depósito. ¡Debe verlo! 323/784-5061-323/423/6110
Deje mensaje.

SOUTH GATE
Apartamento de 1 recámara en renta. $1,200 al mes. No mascotas, sección 8 OK. 10348 California Ave. (323)574-3276

Venda su mercancía en los Clasificados! La Opinión

Renta de Locales Comerciales

SE RENTA SALON DE INGLESIA
Disponible Lunes a Domingo. Para 100 personas, con estacionamiento, En South Central (136th St.) Llame para una cita
323-214-9209

OFERTA
Mercancía

Oraciones

Gracias San Judas Tadeo por el milagro que me hizo. Bendito seas San Judas Tadeo por todo el mundo y toda la eternidad.
Maria Orellana

Servicios Para Auto

AGUILA
COMPRO TODO TIPO DE CARRO
Camine o no camine, Pago $500 a $1,500, P-Up, Vans. 24 hrs.
Llame Hoy!
323-228-3733

TRANSMISIONES
Usadas y Reconstruidas en inventario, Grúa Gratis! Se acepta Visa/MC. Info. Javier
310-604-4743
310-367-3797

Servicios Para Auto

"ARTURO" COMPRO AUTOS
para chatarra (junk). Pago los mejores precios. Servicio de grúa. Toda área.
Arturo Rizk
(323)221-0631

HUGO TOWING
Se compran todo tipo de carros para Junk
1-888-297-0262
562-325-7455
323-422-5450

Clasificados! La oportunidad de su vida podría estar en La Opinión

La Opin…
Clasificados tien…
de avisos para …
en la edici…
impresa o electr…
clasificados.laopi…
Para anunciarse llame…
800-626-…

Servic…

VENICE HIGH SCHOOL
COMPREHENSIVE MODERNIZATION & LUNCH SHELTER PROJECTS
COMMUNITY MEETING
TUESDAY, MARCH 28, 2017 AT 6 P.M.

A G E N D A

I. **Welcome, Meeting Objectives and Community Engagement**
Bienvenida, Objectivos y Participacion Comunitaria
– **Fortunato Tapia,** FSD Community Relations

II. **Projects at Venice High School Update**
Breve Repaso de Proyectos en la Preparatoria Venice
– **Scott Singletary,** Facilities Development Manager

III. **Comprehensive Modernization Project**
Proyecto de Modernización Integral
Removal Action Workplan (RAW)/*Plan de Trabajo para la Remoción de Contaminantes (RAW)*
– **Dane Robinson,** OEHS Site Assessment Project Manager

California Environmental Quality Act (CEQA)/*Ley de Calidad Medioambiental de California (CEQA)*
– **Gwenn Godek,** OEHS CEQA Advisor
– **Eimon Smith,** OEHS CEQA Project Manager

IV. **New Lunch Shelter Project**
Removal Action Workplan (RAW)/ *Plan de Trabajo para la Remoción de Contaminantes (RAW)*
– **Dane Robinson,** OEHS Site Assessment Project Manager

California Environmental Quality Act (CEQA)/ *Ley de Calidad Medioambiental de California (CEQA)*
– **Eimon Smith,** OEHS CEQA Project Manager

Pre-Construction & Safety (Construction of the New Lunch Shelter)
Pre-Construcción y Seguridad (Construcción del Comedor Cubierto)
– **Howard Kutler,** Owner's Authorized Representative (OAR), FSD Project Execution

V. **Community Input, Questions & Comments**
Perspectivas de la Comunidad, Preguntas y Comentarios
– **Fortunato Tapia,** FSD Community Relations

Venice High School

Escuela Preparatoria Venice

Community Meeting – *Reunión comunitaria*

March 28, 2017 – 28 de marzo, 2017

Venice High School Projects

Proyectos en la Preparatoria Venice

Comprehensive Modernization Project
- Project Budget: $111.5 Million
- Anticipated Completion: Q2 - 2022

New Lunch Shelter and Student Store
- Project Budget: $7.3 Million
- Anticipated Completion: Q3 - 2018

Facilities Upgrades to Support Small Learning Communities
- Project Budget: $2.7 Million
- Anticipated Completion: Q2 - 2019

New Heating Ventilation and Air Conditioning
- Project Budget: $15 Million
- Complete

Proyecto de Modernización Integral
- *Presupuesto del proyecto: $111.5 millones*
- *Fin de obra previsto para: 2º Trimestre - 2022*

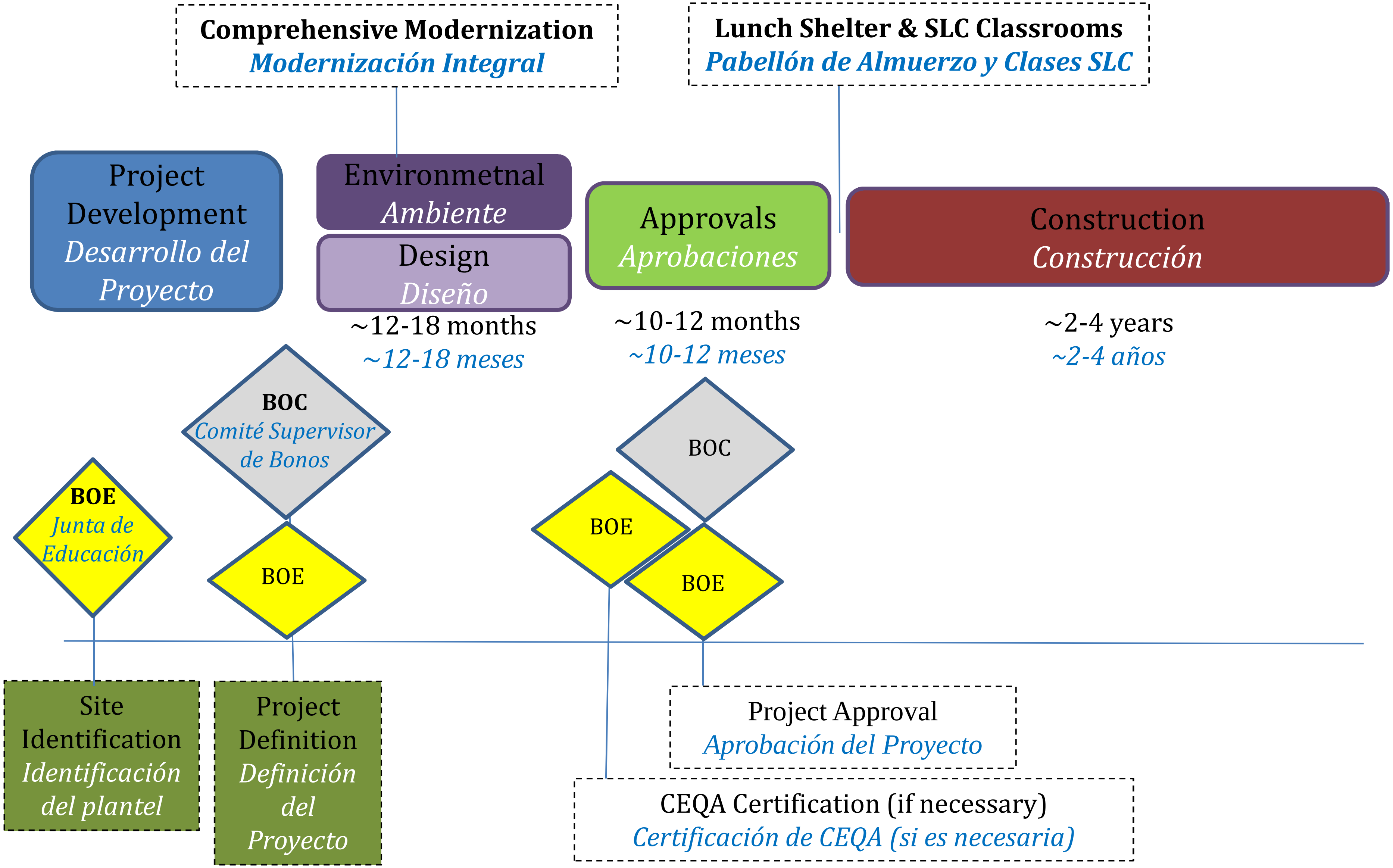
Nuevo pabellón para almorzar y tienda estudiantil
- *Presupuesto del proyecto: $7.3 millones*
- *Fin de obra previsto para: 3º trimestre - 2018*

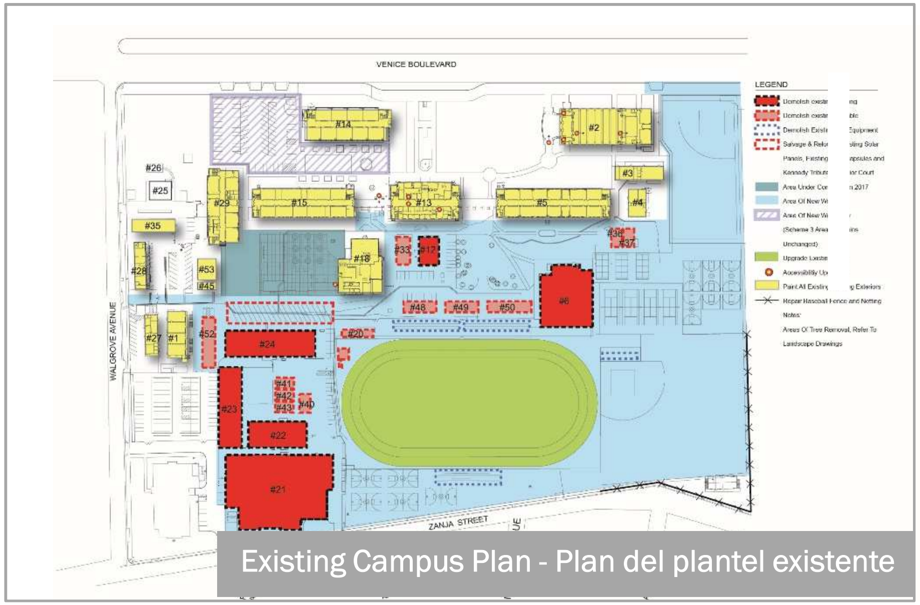
Actualización de las instalaciones para apoyar a las Pequeñas Comunidades de Aprendizaje
- *Presupuesto del proyecto: $2.7 millones*
- *Fin de obra previsto para: 2º trimestre - 2019*

Nueva calefacción, ventilación y aire acondicionado
- *Presupuesto del proyecto: $15 millones*
- *Completado*

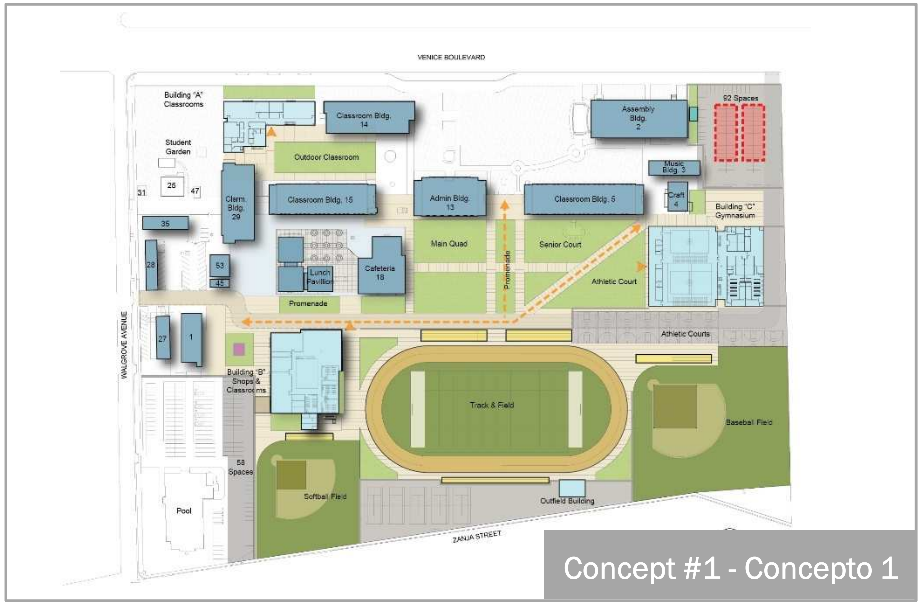
Anticipated Project Timeline

Cronología Prevista para el Proyecto

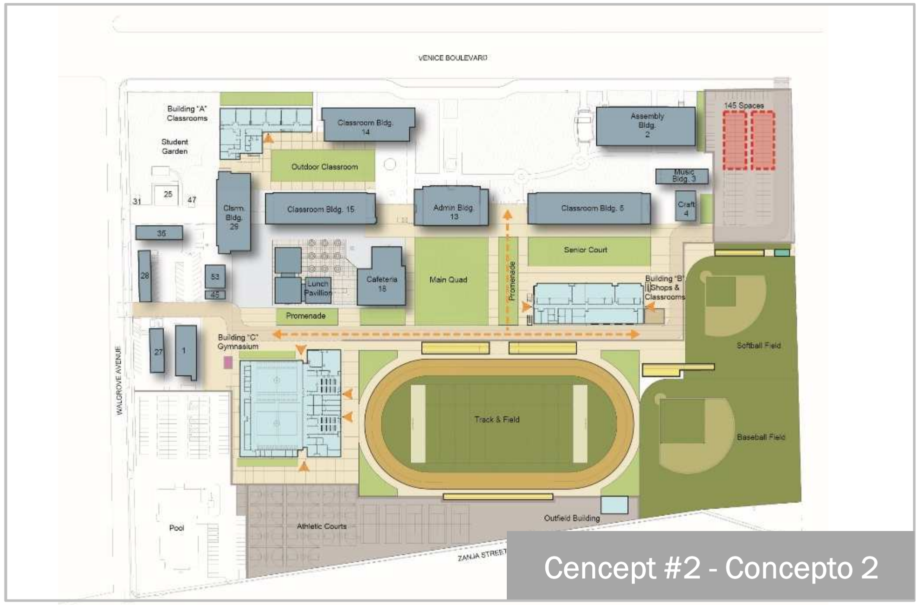




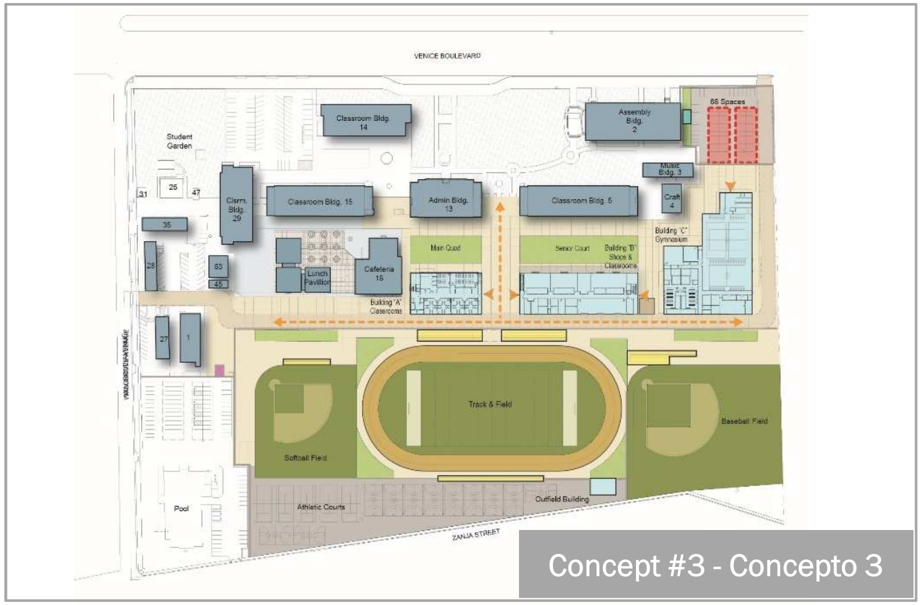
Existing Campus Plan - Plan del plantel existente



Concept #1 - Concepto 1

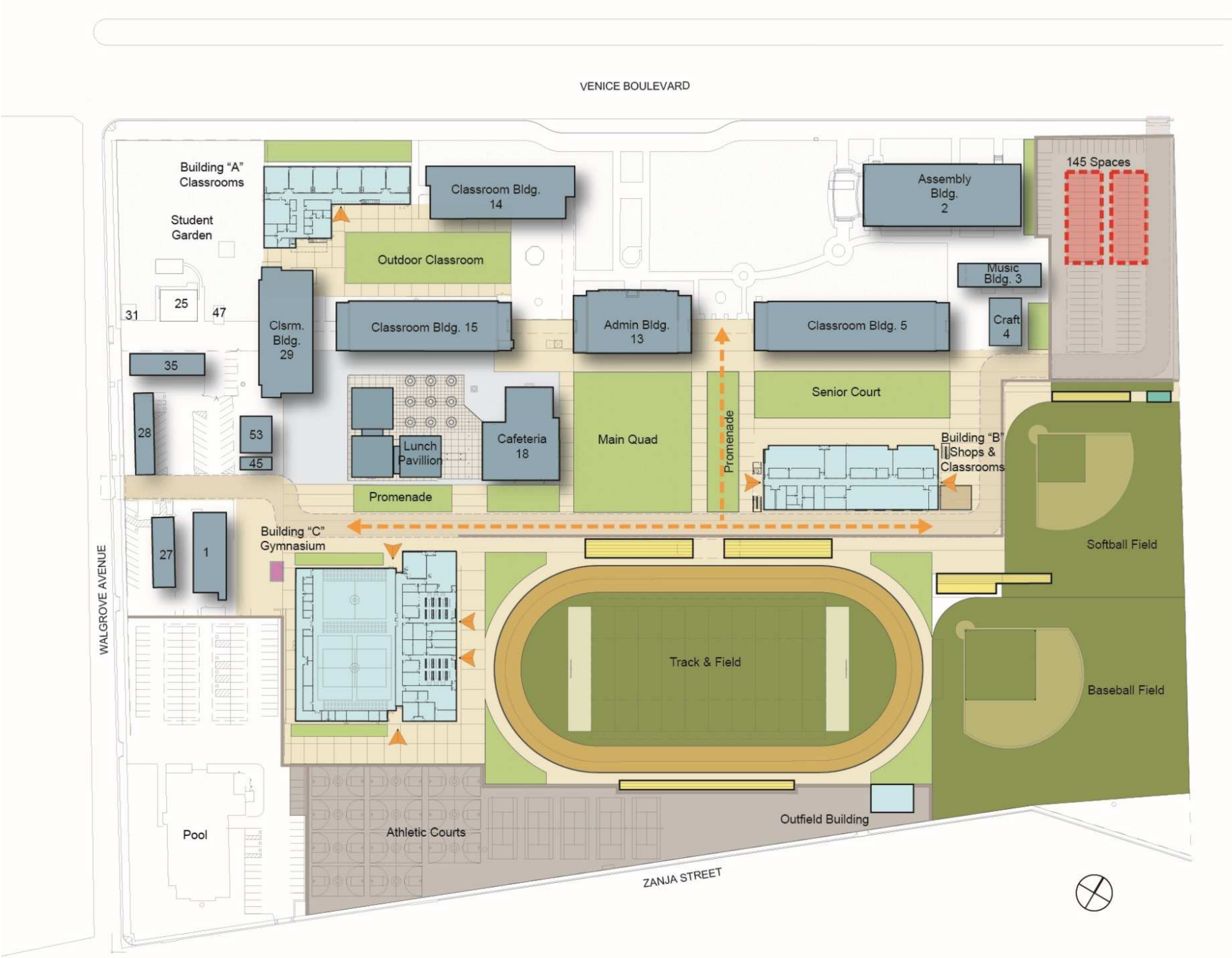


Cencept #2 - Concepto 2



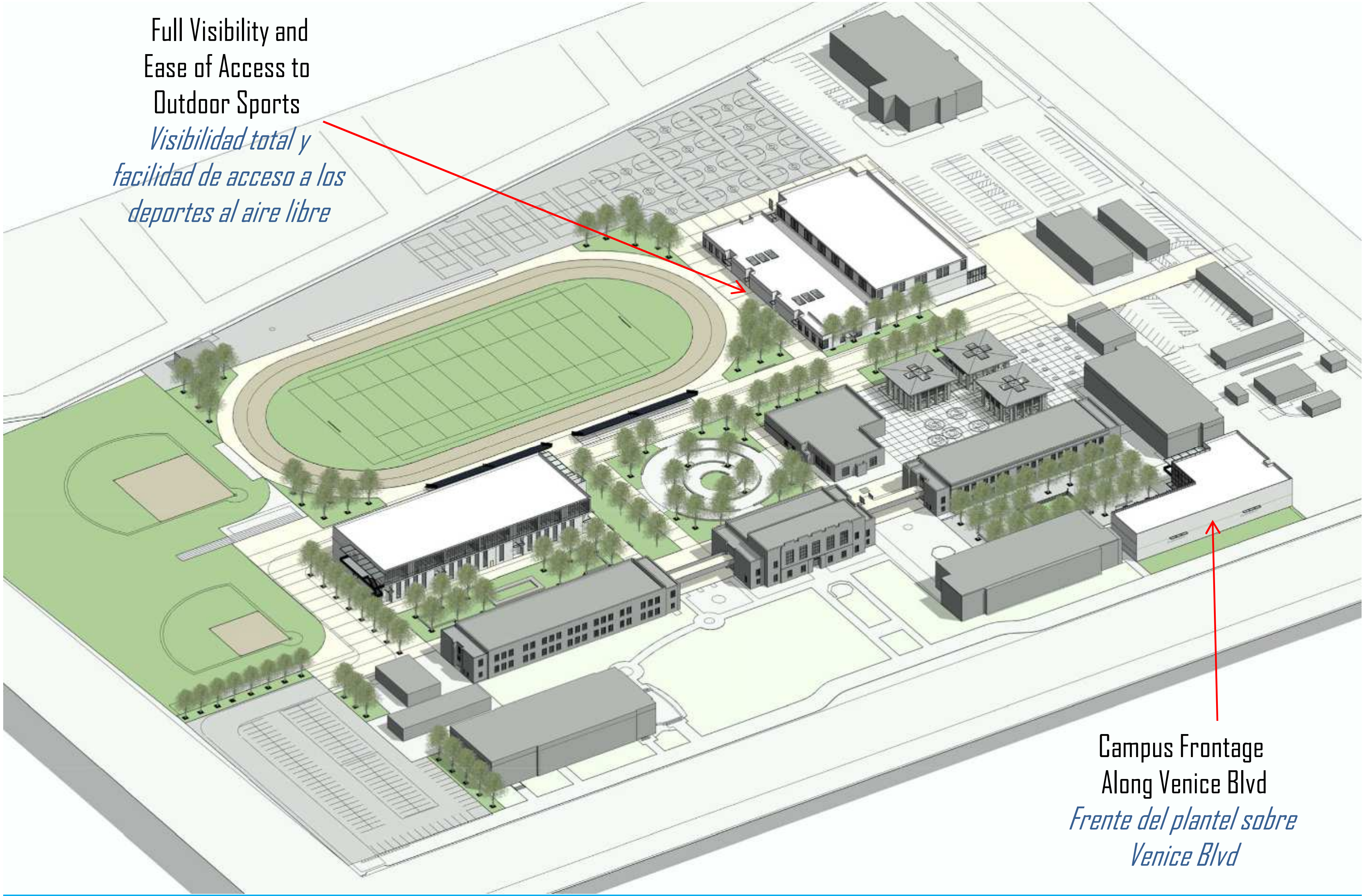
Concept #3 - Concepto 3

Concept Comparison - Discussion
Comparación de los Conceptos – Discusión



Concept #2 – Site Plan

Concepto #2 – Plano del plantel



Concept #2 – Aerial View From Street

Concepto 2 – Vista aérea desde la calle

Comprehensive Modernization Project

Proyecto de Modernización Integral

REMOVAL ACTION WORKPLAN (RAW)

PLAN DE TRABAJO PARA LA REMOCIÓN DE CONTAMINANTES (RAW)

Hearing Objectives

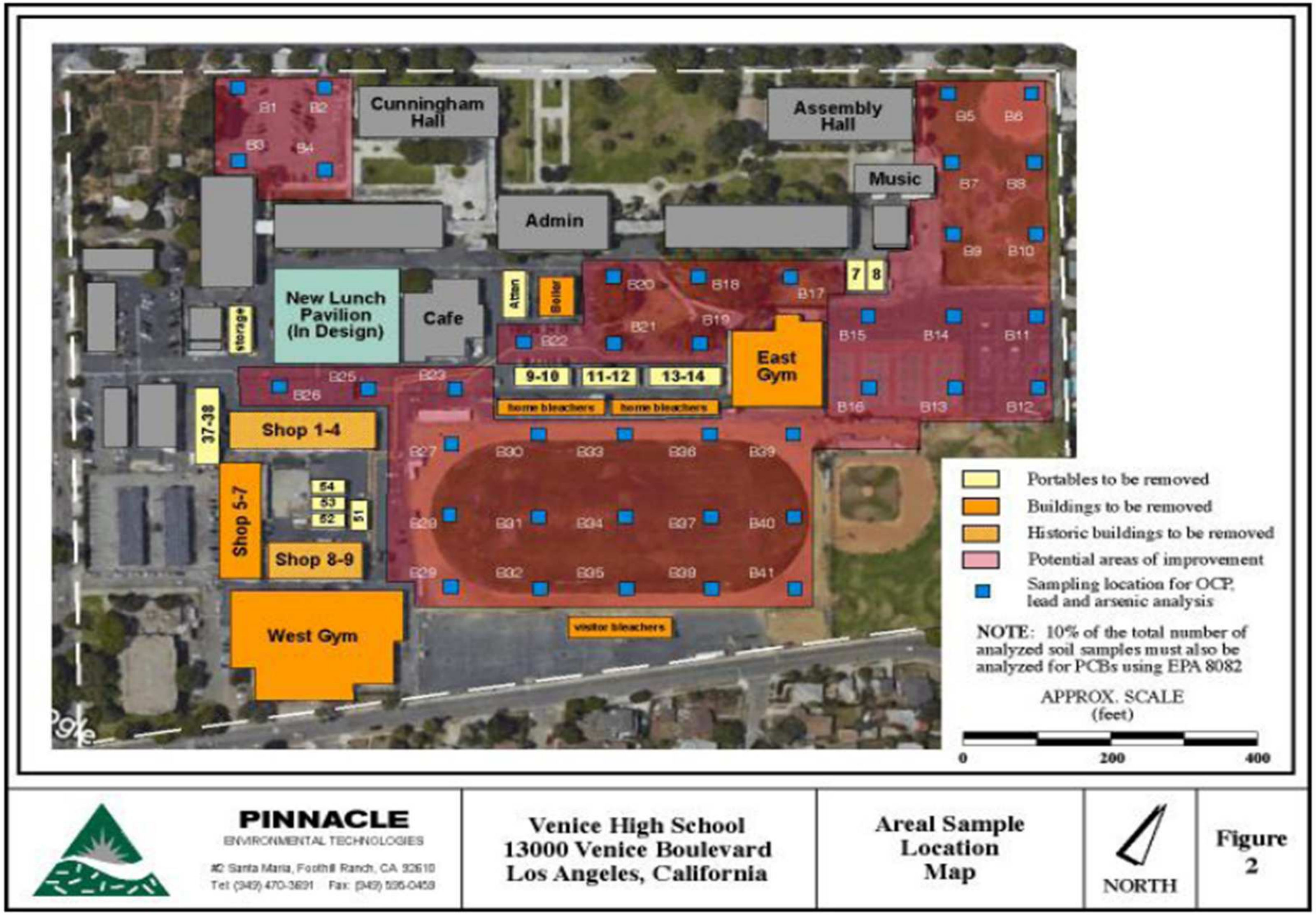
Objetivos de la audiencia pública

- Inform the community of the cleanup process
- Document questions and public concerns regarding the Removal Action Workplan (RAW)

- *Informar a la comunidad sobre el proceso de limpieza ambiental*
- *Documentar las preguntas y perspectivas públicas sobre el Plan para la Remoción de Contaminantes (RAW)*

Venice High School Comprehensive Modernization Project Area

Área del Proyecto de Modernización Integral de la Escuela Preparatoria Venice



School Investigation Process

Proceso de investigación en las escuelas

Initiated and Conducted by LAUSD for the Comp Mod:

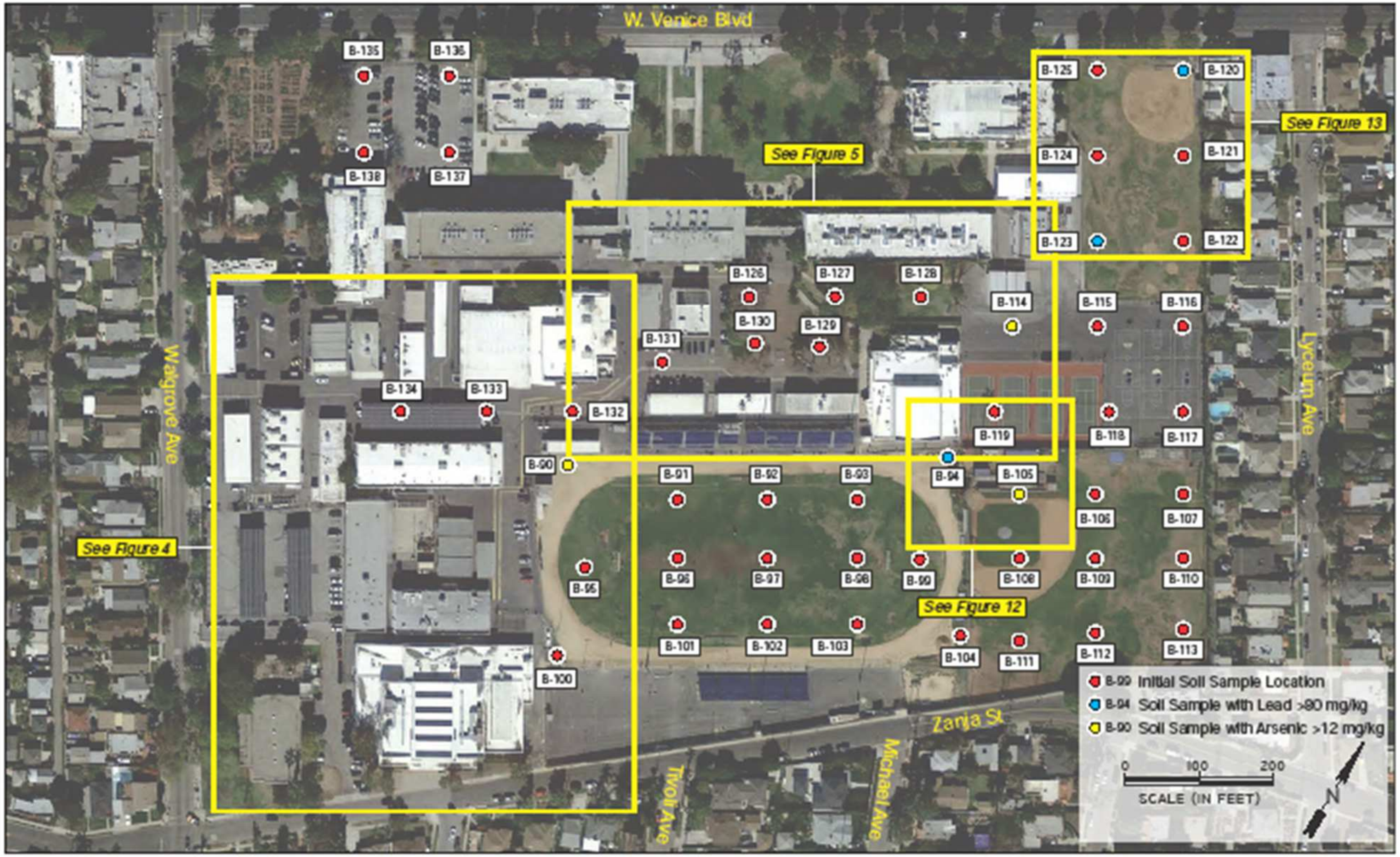
- Preliminary Environmental Assessment (PEA)
- PEA Findings Determined a RAW was needed to remove approximately 185 cubic yards of shallow soil impacted with arsenic and lead from 19 locations of the Comp Mod Project Areas

Iniciado y conducido por LAUSD para la Modernización Integral:

- *Estudio Medioambiental Preliminar (PEA)*
- *Las conclusiones del PEA determinaron que se necesitaba un Plan de Trabajo de RAW para remover aproximadamente 185 yardas cúbicas de suelo poco profundo contaminado con arsénico y plomo de 19 ubicaciones de las áreas del Proyecto de Modernización Integral*

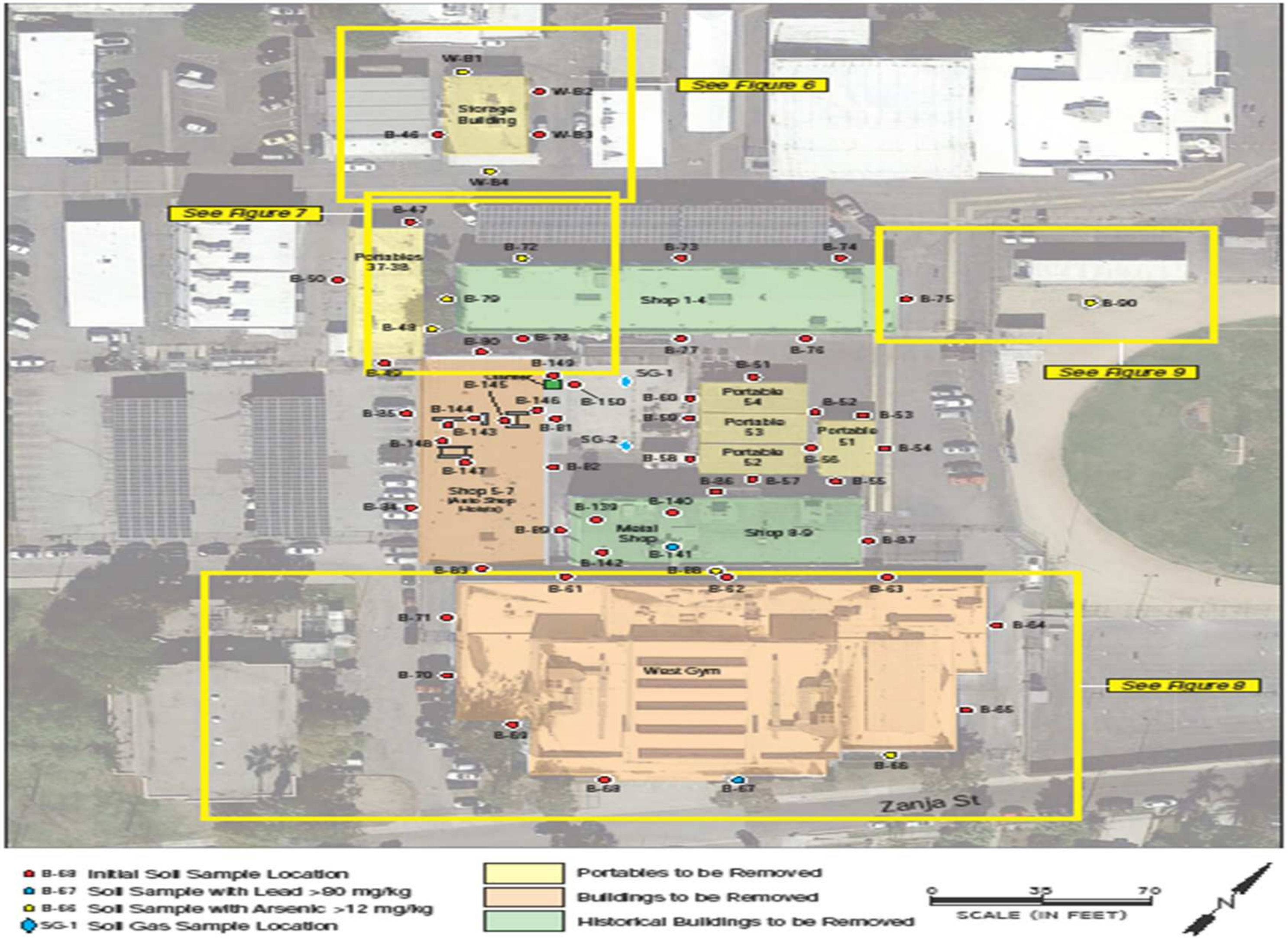
PEA Comp Mod Sampling Locations

Áreas del muestreo de PEA para la Modernización Integral



PEA Comp Mod Sampling Locations

Áreas del muestreo de PEA para la Modernización Integral (continuación)

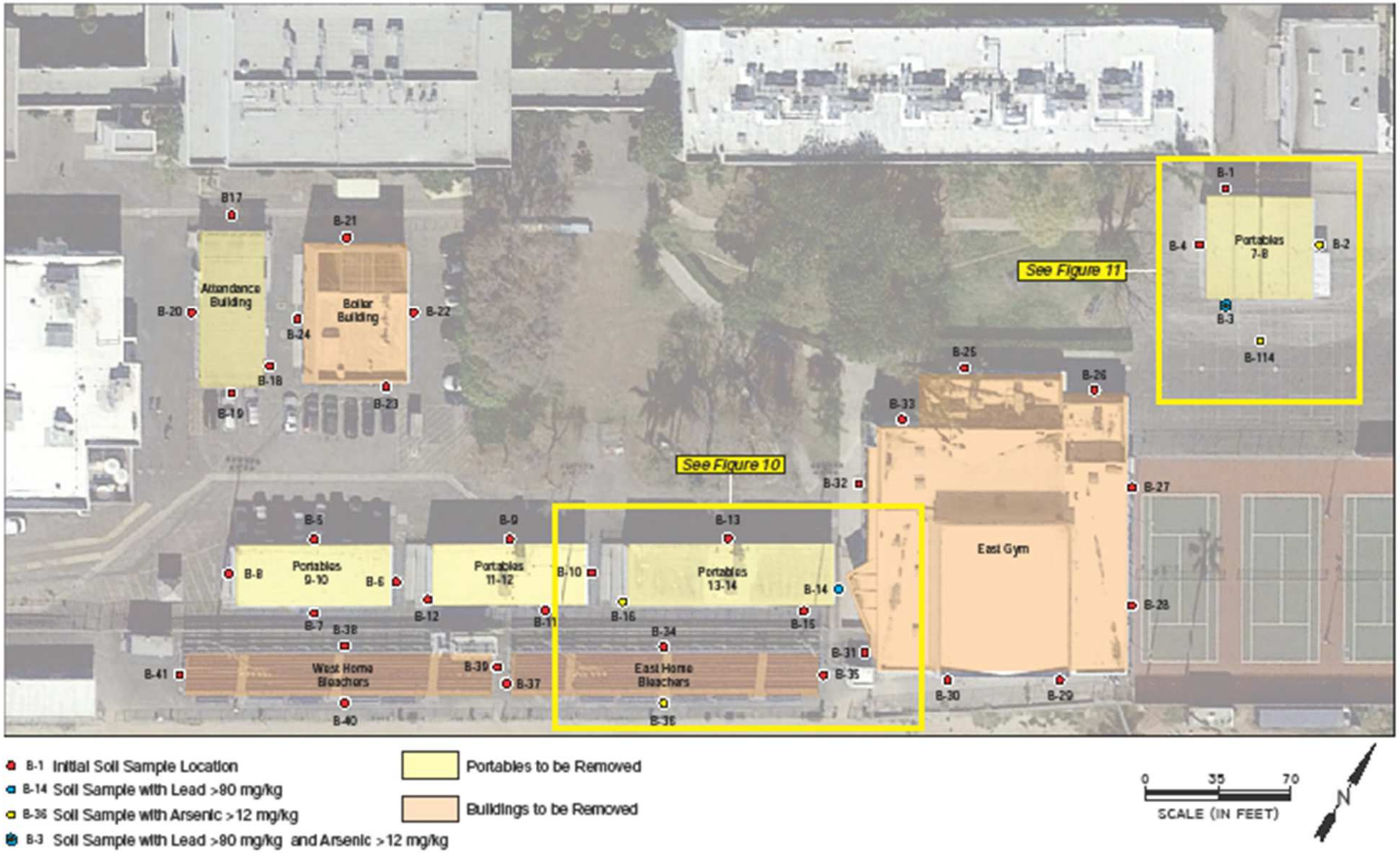


LASD1-27.0

PlaceWorks • January 2017

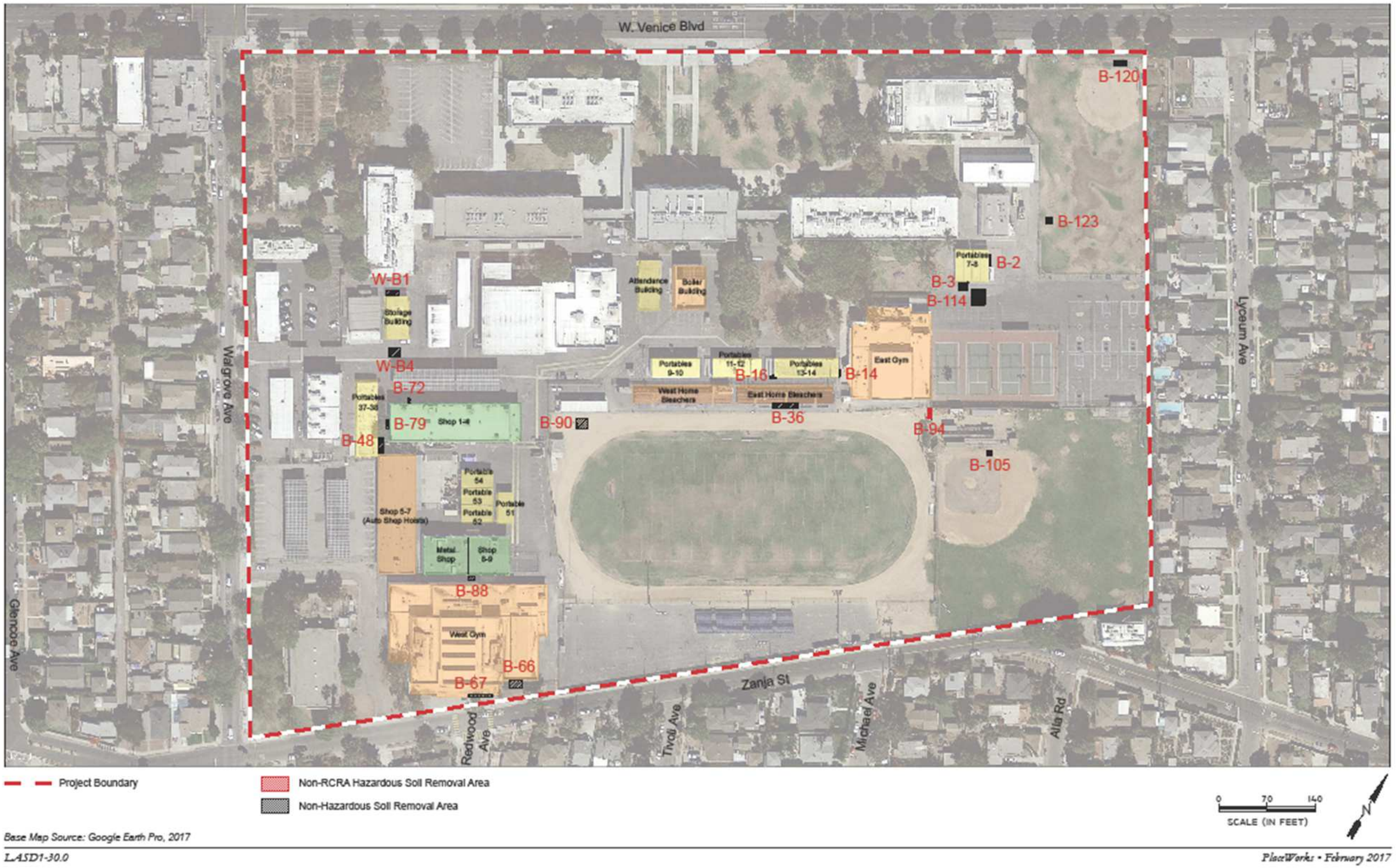
PEA Comp Mod Sampling Locations

Áreas del muestreo de PEA para la Modernización Integral (continuación)



Comp Mod RAW Excavation Areas

Áreas de excavación para el estudio RAW de la modernización integral



Comprehensive Modernization Project

Proyecto de Modernización Integral

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

LEY PARA LA CALIDAD DEL MEDIO AMBIENTE DE CALIFORNIA (CEQA)

California Environmental Quality Act (CEQA)

Ley para la Calidad del Medioambiente de California

Enacted in 1970 to:

- Protect the environment
  - Avoid, minimize, or mitigate environmental impacts
- Provide public disclosure
  - Objective documents
  - Inform the public & decision makers
  - Disclose why projects were approved

Promulgada en 1970 para:

- *Proteger el medio ambiente*
  - *Evitar, minimizar o mitigar los impactos ambientales*
- *Proporcionar divulgación pública*
  - *Documentos objetivos*
  - *Informar al público y a quienes toman decisiones*
  - *Divulgar por qué los proyectos fueron aprobados*

CEQA Process

Proceso de CEQA

Technical Studies
Estudios Técnicos

- Air Quality / *Calidad del aire*
- Circulation / *Circulación*
- Cultural Resources / *Recursos culturales*
- Geotechnical / *Geotécnicos*
- Noise / *Ruido*
- Hazards / *Peligros*

Initial Study
Estudio inicial

- 19 Environmental Topics
  19 temas del medioambiente

Negative Declaration
Declaración negativa

- Negative Declaration - No Significant Impacts Identified
  Declaración negativa - No se detectaron impactos significativos

Initial Study Topics

Temas de los estudios iniciales

- Aesthetic
  Estética
- *Utilities & Service Systems*
  Servicios públicos y Sistemas de servicios
- Biological Resources
  Recursos biológicos
- Cultural Resources
  Recursos culturales
- Agriculture & Forestry Resources
  Recursos de Agricultura y Forestales
- Recreation
  Recreación
- Hydrology & Water Quality
  Hidrología y Calidad del agua
- Land Use & Planning
  Uso y planificación del suelo
- Mineral Resources
  Recursos minerales
- Hazards & Hazardous Materials
  Peligros y Materiales Peligrosos
- Noise
  Ruido
- Population & Housing
  Población y Vivienda
- Public Services
  Servicios públicos
- Pedestrian Safety
  Seguridad de peatones
- Greenhouse Gas Emissions
  Emisiones de Gases de efecto invernadero
- Air Quality
  Calidad del aire
- Tribal Cultural Resources
  Recursos culturales tribales
- Geology & Soils
  Geología y suelo
- Transportation & Traffic
  Transporte y tráfico
- Mandatory Findings of Significance
  Conclusiones obligatorias significativas

Initial Study Findings

Conclusiones Iniciales del Estudio

- All of the potential environmental impacts caused by the project would:
  - Result in ***No Impacts***

Or

  - Be reduced to ***Less Than Significant Levels*** through the incorporation of LAUSD Standard Conditions of Approval

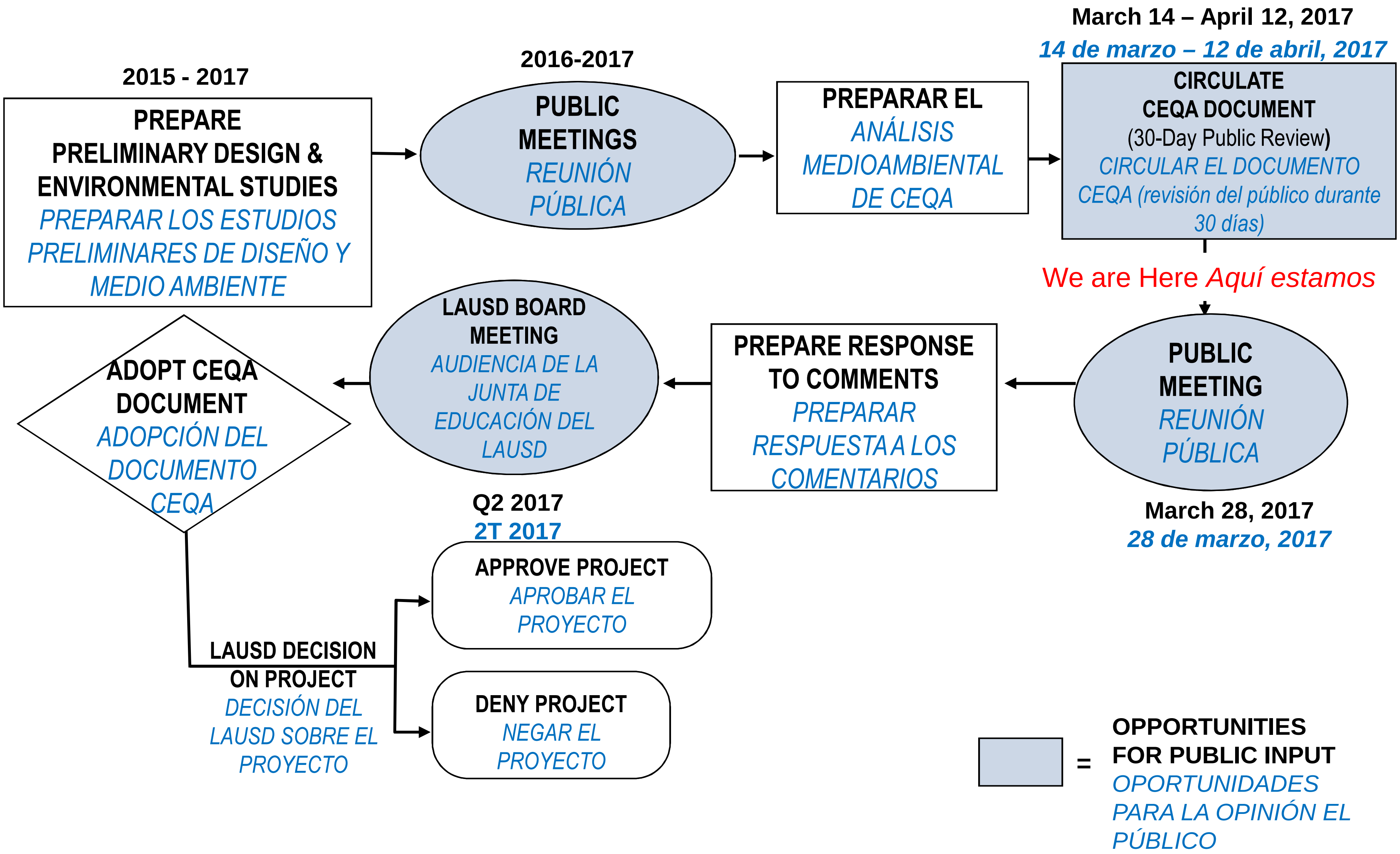
- *Todos los posibles impactos ambientales causados por el proyecto podrían:*

- resultar en que ***No causaron un impacto***

O

- se reducirán a ***Niveles menos que significativos*** *a través de la incorporación de las Condiciones Estándar de Aprobación del LAUSD*

Next Steps - *Próximos pasos*



Public Review

Revisión del público

- CEQA Notice Distribution
  - Published in *Daily Breeze* (English) & *La Opinion* (Spanish)
  - Mailed to addresses within a 0.25 mile radius
  - Emailed to other agencies, interested parties, and elected officials
  - Posted on project site, local libraries and at Los Angeles County Clerk

- *Distribución de Avisos del CEQA*

  - Publicado en Daily Breeze (Inglés) & La Opinión (Español)
  - Enviados a direcciones en un radio de 0.25 millas
  - Enviados por correo electrónico a otros organismos, partes interesadas, y a funcionarios electos
  - Publicado en el sitio del proyecto, las bibliotecas locales y la secretaría del Condado de Los Ángeles

Public Review

Revisión del público

E-mail to: CEQA-comments@lausd.net

Include "Venice HS Comp Mod" in the subject line

or

Mail to: LAUSD Office of Environmental Health and Safety

Attn: Ms. Eimon Smith, CEQA Project Manager

333 S. Beaudry Avenue, 21st Floor, Los Angeles, CA 90017

or

Leave Comment Card

Envíe un mensaje electrónico a: CEQA-comments@lausd.net

Incluya "Modernización Integral de Venice HS" en la línea del asunto

o

Envíe por un mensaje por correo a:

Oficina de Salud y Seguridad Ambiental del LAUSD

Atención de: Sra. Eimon Smith, Gerente de Proyecto de CEQA

333 S. Beaudry Avenue, 21st Floor, Los Angeles, CA 90017

o

Deje una tarjeta de comentarios

New Lunch Shelter Project

Nuevo proyecto del pabellón para almorzar

REMOVAL ACTION WORKPLAN (RAW)

PLAN DE TRABAJO PARA LA REMOCIÓN DE CONTAMINANTES (RAW)

Hearing Objectives

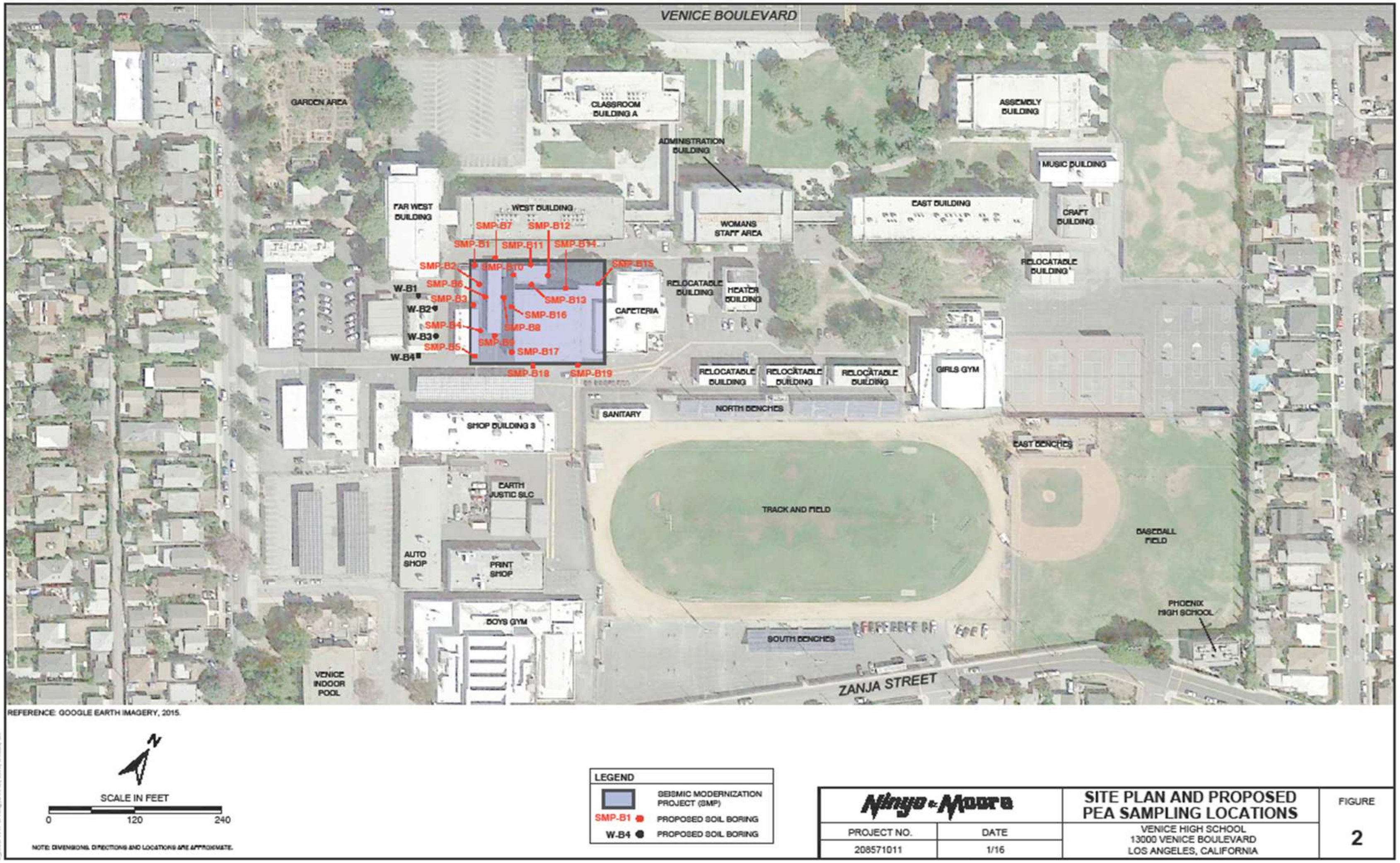
Objetivos de la Audiencia Pública

- Inform the community of the cleanup process
- Document questions and public concerns regarding the Removal Action Workplan (RAW)

- *Informar a la comunidad sobre el proceso de limpieza ambiental*
- *Documentar las preguntas y perspectivas públicas sobre el Plan de Trabajo para la Remoción de Contaminantes (RAW)*

Venice High School Lunch Shelter Project Area

Área del Proyecto del Pabellón de Almuerzos de la Escuela Preparatoria Venice



School Investigation Process

Proceso de investigación en las escuelas

Initiated and Conducted by LAUSD for the Lunch Shelter:

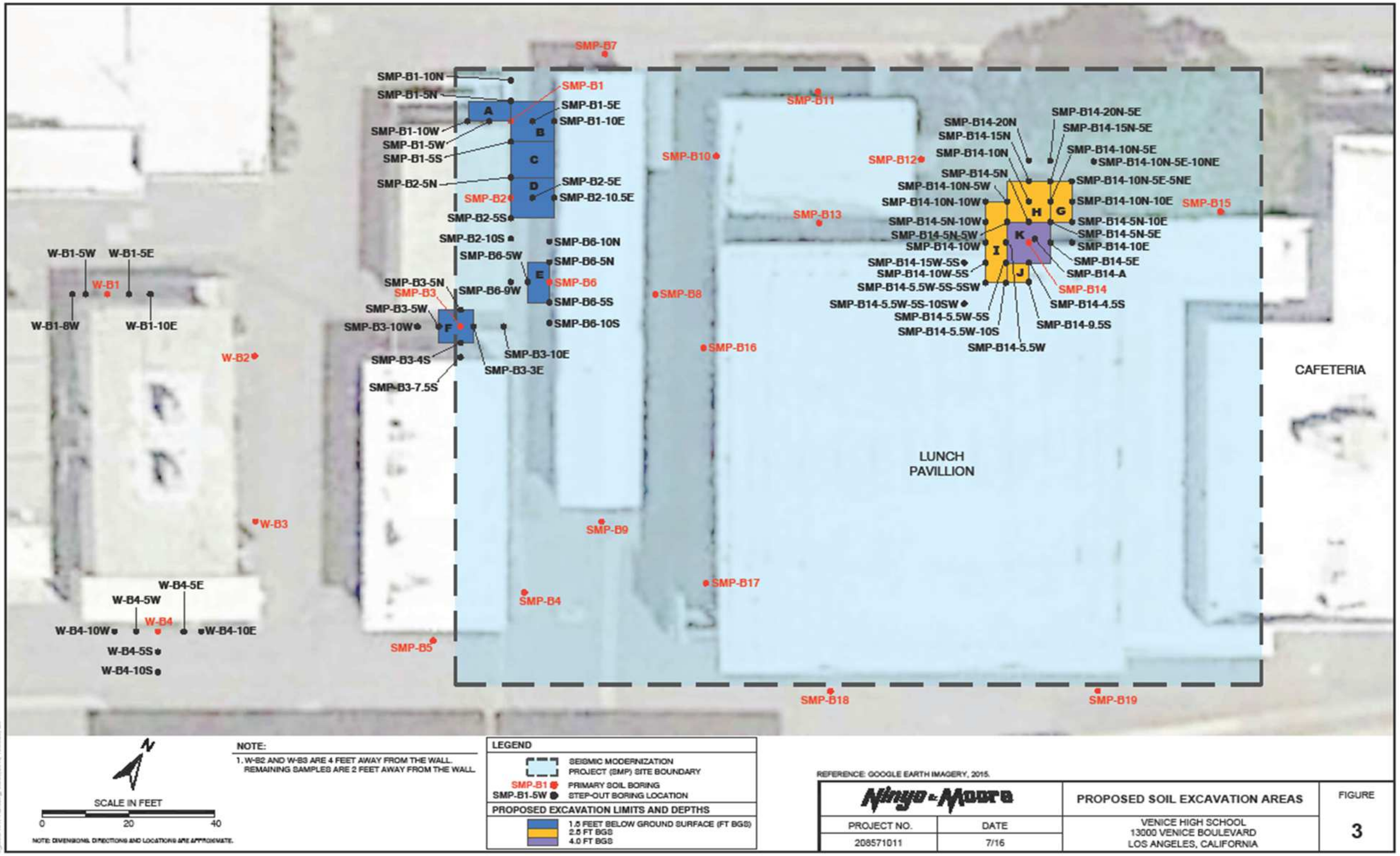
- Preliminary Environmental Assessment (PEA)
- PEA Findings Determined a RAW was needed to remove approximately 71 cubic yards of shallow soil impacted with arsenic from portions of the Lunch Shelter Area

Iniciado y conducido por LAUSD en relación con el comedor:

- *Estudio Preliminar del Medioambiente (PEA)*
- *Las conclusiones de PEA determinaron que es necesario un plan de acción RAW para remover aproximadamente 71 yardas cúbicas de suelo poco profundo contaminado con arsénico en partes del área del comedor*

PEA Lunch Shelter Sampling Locations And Proposed RAW Excavation Areas

Ubicación del muestreo de PEA en el pabellón y áreas de excavación propuestas en el Plan RAW



New Lunch Shelter Project

Nuevo proyecto para el pabellón para almorzar

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

LEY DE CALIFORNIA PARA LA PROTECCIÓN DEL MEDIO AMBIENTE (CEQA)

Categorical Exemption

Exención por categorías

- Project types that have been defined to not have a significant effect on the environment
- As listed in State CEQA Guidelines
- Notice of Exemption
  - No public review required
  - Filed with the County Clerk
  - Posted for 35-days

- *Tipos de proyectos que han sido definidos como que tienen un efecto significativo en el medio ambiente*
- *De conformidad con lo indicado en las Directrices CEQA del Estado*
- *Aviso de exención*
  - No se requiere revisión pública
  - Archivado en la secretaría del Condado
  - Publicado durante 35 días

Categorical Exemption Class 30

Clase 30 de la exención por categorías

- CEQA Guidelines Section 15330
  - Minor Actions to Prevent, Minimize, Stabilize, Mitigate or Eliminate the Release or Threat of Release of Hazardous Waste or Hazardous Substances

- *Artículo 15330 de las Directrices CEQA*
  - Medidas menores para prevenir, minimizar, estabilizar, mitigar o eliminar la liberación o la amenaza de liberación de residuos peligrosos o sustancias peligrosas

New Lunch Shelter Project

Nuevo proyecto para el pabellón para almorzar

PRE-CONSTRUCTION & SAFETY

PRE-CONSTRUCCIÓN Y SEGURIDAD

Project Scope & Background

Alcance y antecedentes del proyecto

- Construct New Lunch Shelter / Student Store

  Construir un nuevo pabellón para almorzar / la tienda estudiantil

- Path of travel and code related upgrades

  Mejoras a las rutas de acceso y otras mejoras relacionadas con los códigos en vigor

- Provide temporary student store during construction

  Proporcionar una tienda estudiantil provisional durante la construcción

- Provide temporary location of existing lunch shelter picnic tables for eating during construction

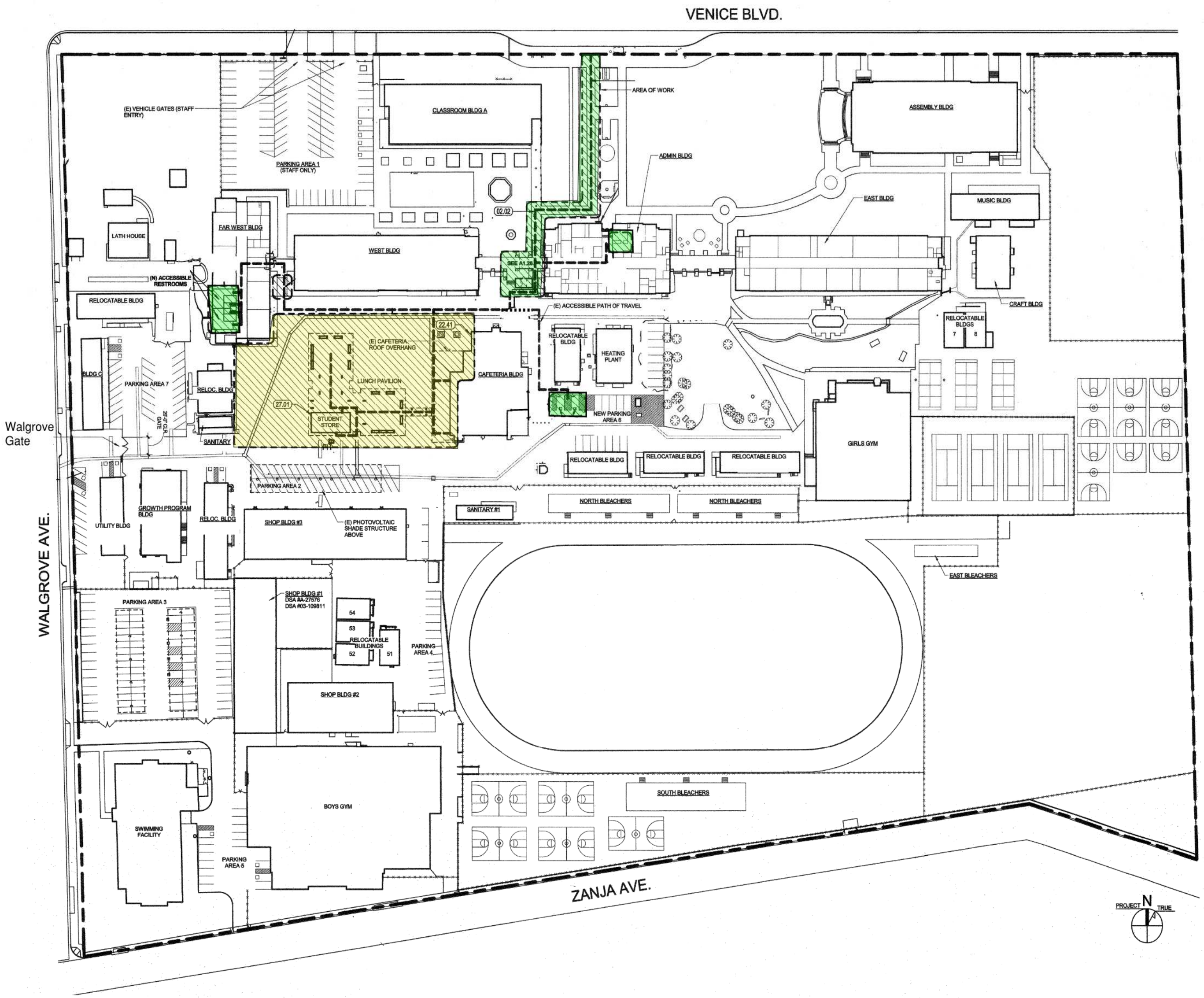
  Proporcionar una ubicación temporal de las mesas de picnic del comedor existente durante la construcción

- Project Budget $8.5 Million

  Presupuesto del proyecto $8.5 millones

Venice HS – Site Plan

Plano del plantel – Preparatoria Venice

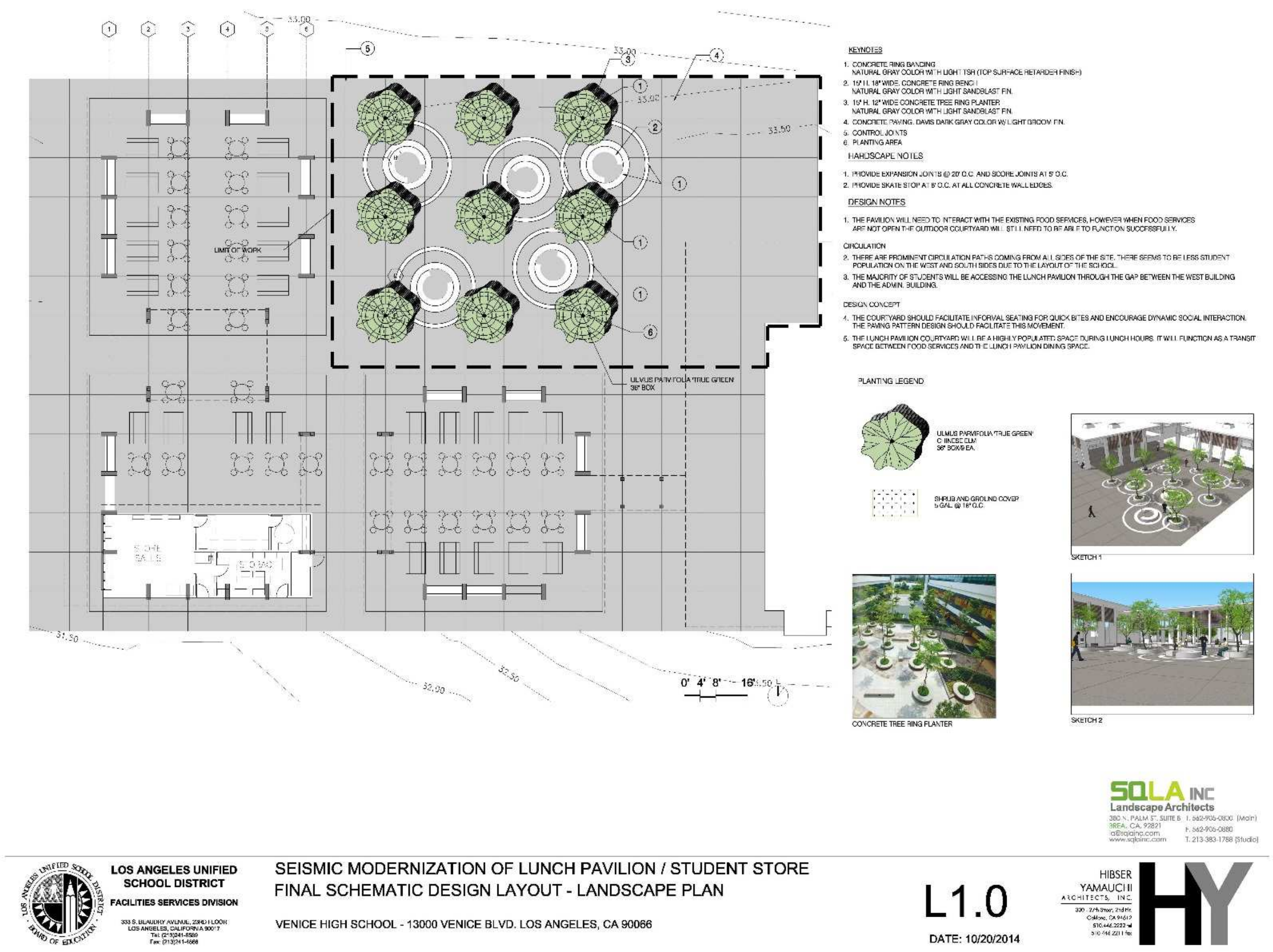


New ADA Work Area
Nueva área de trabajo ADA

New Lunch Shelter/Student Store Work Area
Nuevo edificio del comedor / la tienda estudiantil
Área de trabajo

New Lunch Shelter / Student Store Building

Nuevo pabellón para almorzar / la tienda estudiantil



New Lunch Shelter / Student Store Building

Nuevo pabellón para almorzar / la tienda estudiantil

New Lunch Shelter / Student Store Building

Nuevo pabellón para almorzar / la tienda estudiantil

Structures Testing for Asbestos & Lead Paint

Análisis de las estructuras para detección de asbestos y pintura con plomo

Investigated for Asbestos and Lead Paint

Se hizo una investigación para detectar asbestos y pintura con plomo

– Both asbestos and lead paint were found in the existing lunch shelter/student store building to be demolished

- Se detectó la presencia de asbestos y de pintura con plomo en el edificio existente del comedor / la tienda estudiantil, que será demolido

– A report and plan to remove ***all*** the asbestos and lead paint has been developed

*- Se preparó un informe y un plan para eliminar **todo** el contenido de asbestos y de pintura con plomo*

– A specialized contractor licensed to remove these materials will be hired

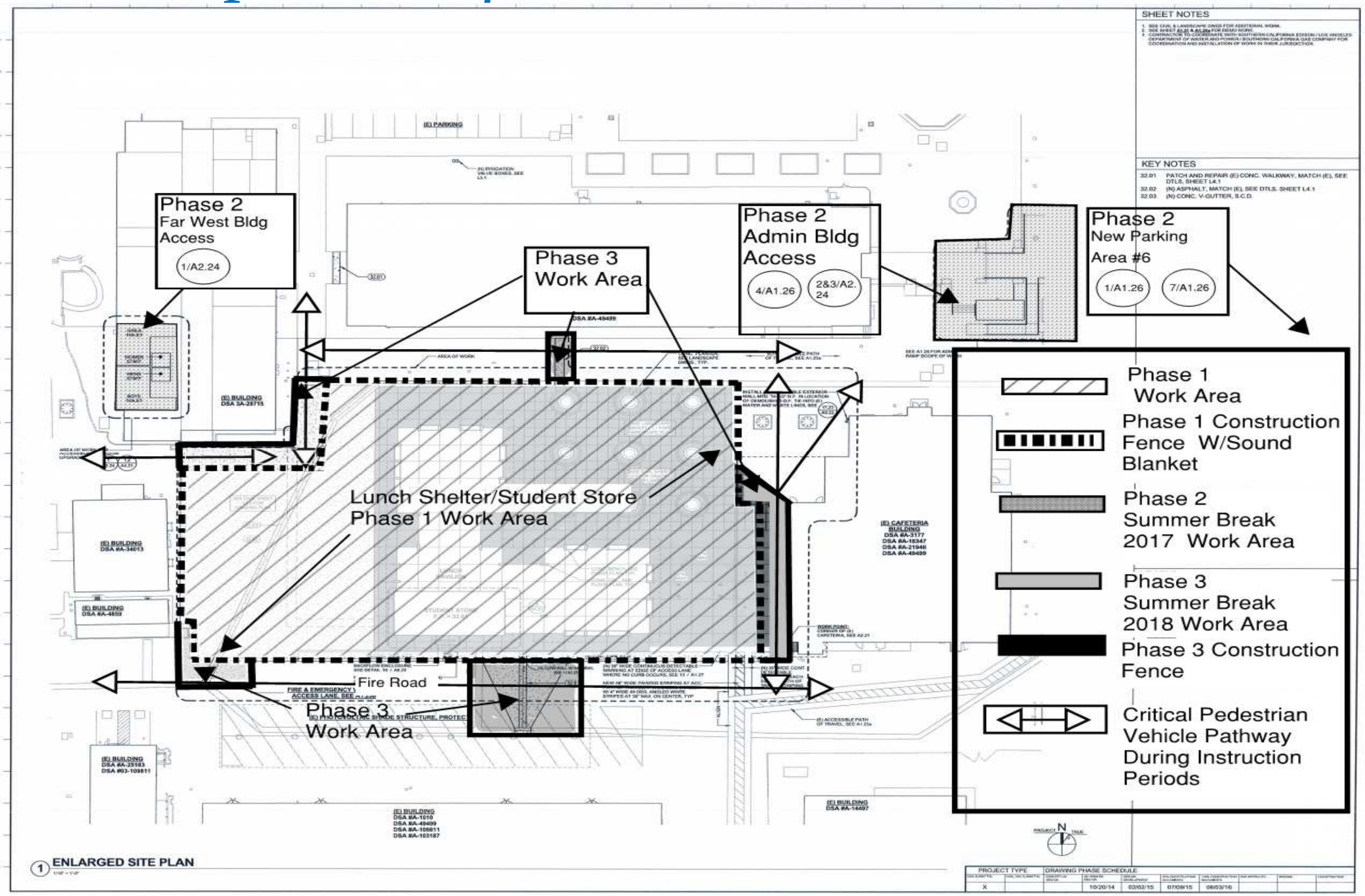
- Se contratarán los servicios de un contratista especializado en remover estos materiales

– A third party testing agency will verify that all the asbestos and lead paint has been removed and safely disposed

- Una agencia independiente de análisis verificará que se hayan eliminado todos el contenido de asbestos y pintura con plomo y que han sido retirado del plantel de manera segura

Construction Phasing Plan

Plan para las fases de la construcción



Best Management Practices to Reduce Impact during Construction

Implementar las mejores prácticas administrativas de la obra para reducir el impacto durante la construcción

- All contractor's employees will be DOJ cleared to work at site & wear ID badge
  Se hará una investigación de antecedentes de todos los empleado del contratista para que trabajen en el plantel escolar y utilizarán un gafete de identificación

- All deliveries of materials will occur between bell periods and per City of LA Ordnances for permitted hours of construction
  Todas las entregas de los materiales tendrán lugar en los periodos entre las campanas y, de conformidad con las ordenanzas de la Ciudad de LA con respecto a los horarios permitidos para construcción

- All heavy machinery will have appropriate mufflers
  Todas las máquinas pesadas tendrán los silenciadores apropiados

- Sound blankets will be installed on construction fences
  Se instalarán en las cercas que rodean la construcción cubiertas para aminorar el ruido

- OAR will be in constant communication with principal to address students, staff and parents concerns regarding construction
  El gerente del proyecto estará en comunicación continua con el Director para responder ante cualquier asunto relacionado con la construcción y los estudiantes, padres y el personal

Construction Schedule

Cronología de la construcción

Construction Schedule:

Fechas Claves de la Construcción:

Winter 2017 **Invierno 2017**	Demolish 2 Portable Classrooms and Storage Building – Work Completed *Demolición de 2 clases y un edificio de almacenamiento portátiles – Trabajo terminado*
Spring 2017 **Primavera 2017**	Demolition of Existing Lunch Shelter and Student Store *Demolición del comedor y la tienda estudiantil existentes*
Summer 2017 **Verano 2017**	Commence Construction of Building Modernization Work *Inicio del trabajo de modernización de los edificios*
Fall 2018 **Otoño 2018**	Construction Completion *Finalización de la construcción*

Questions & Comments

Preguntas y Comentarios

For More Information Please Call:

Para más información, favor de llamar:

Fortunato Tapia, FSD Community Relations

• *Main Line (213) 241-1340* • *Direct Line (213) 241-1338*

fortunato.tapia@lausd.net

Letter A

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

Fix the pool it is ~~a~~ a big part of this school A-1

11 million fix it in ~~Scott~~

Get Better Bids. A-2

Scott

Letter B

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

I am a parent at Venice High.

I don't think a pool B-1
is as necessary as academic classrooms.

I support the scope of work as is.

- Sarah Auerswald

Scott

Letter C

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

AVNER UZAN A4AVNER@GMAL.COM
WHAT SORT OF PLUMBING
UPGRADES ARE BEING CONSIDERED
INCLUDING ~~LOW~~ FLUSH & AUTO ON/OFF
SINCS & TOILET AS WELL AS WATER
COLLECTION REUSE & GRAYWATER
LANDSCAPING. GIVEN CALIF HISTORY
WITH DRAUGHTS, I WOULD THINK
INCLUDING MODERNIZED WATERUSE
FACILITIES WOULD PROVIDE BOTH A GOOD
EXAMLE AS WELL AS AN ECONOMICAL
BENEFITS.

C-1

C-2

A4AVNER@GMAIL.COM 310-557-2789

Scott

Letter D

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

Pleasesend me a copy of
the whole presentation.

D-1

killianismybaby@hotmail.com

~~Where will the handicapped parking~~

Fortunato

Letter E

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • COMENTARIOS

Arsenic mitigation: THANK YOU for being conservative E-1

Dane- No response required

Zanja Fence: This question was not addressed. It's a mess along Zanja - please plan for this and green space there. E-2

Scott

P.O.O.L

- Incorporate its renovation in these plans NOW. Sooner than later. IT. MATTERS. TO: US. E-3

Scott

Letter F

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • COMENTARIOS

It was mentioned that the new Lunch Shelter Project removal/excavation of Lead will take place in one day, How long will it take for the Arsenic & Lead excavation for the modernization project for the 19 identified locations? F-1

Also, what specific safety measures will be used to mitigate the circulation of lead & arsenic during school hours? F-2

Dane

Letter G

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

Are there going to be any changes made to the track? It has gotten very old and everytime it rains it seems to get worse & worse leading to many injuries. I am a member of Track & Cross Country and other schools do not want to race on our track. *I recommend looking into the benefits of a rubber track. If a rubber track is & an option please choose carefully & do not choose the cheapest option. Some rubber tracks melt. G-1 G-2

Also please do not take a-way any fields/courts. All sports are cherished and deserved to be played. G-3

Scott

Letter H

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

ALL PERIMETER FENCES ARE A MESS. THE N.W. FENCE IS DECREPIT. H-1

ARE THE SOLAR PV IMPACTED? I HOPE NOT. H-2

IT APPEARS PUBLIC & STUDENT PARKING IS BEING REDUCED. BAD IDEA FOR RESIDENTS H-3

JOSEPH & PENELOPE COTTEN
2427 WALGROVE AVE
L.A. CA 90066

Scott

Letter I

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

Please include POOL
in campus renovation I-1

Thanks

Scott-No respond required

Letter J

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

While improving the pool is
a great idea, I believe having
state-of-the-art, or at least modern,
classrooms is a much better idea
and should drive this project's goal J-1

Are tennis courts remaining on the
plans? J-2

Are existing classroom being modernized? J-3

Scott

Letter K

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

Coli Mansouk - 310-821-1966
My concern is the fireworks on homecoming. Tens of thousands of $ spent on fireworks, fire dept. need not be present, do you have insurance in case my house burns down? K-1 K-2

I hear alot of concern about the pool not being revamped, get rid of the fireworks and add $ for pool repair. Hey its a solution to an existing problem. K-3

C. C. Mansouk
designbycoco@gmail.com

Scott

Letter L

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

Judy Kaspar

310-306-7812

Parking lot next to Lyceum Ave L-1

J. Kaspar at

JKASPAR@HOTMAIL.com

No New Parking Structure! L-2

What type of fencing will you be putting up? L-3

Scott

Letter M

Venice HS CompMod & Lunch Shelter Projects
Tuesday, March 28, 2017
COMMENTS • *COMENTARIOS*

Firealarm

When the new buidings are construktett, the new and old Fire arlarm system should be reevaluated. In the past 5 yr. or so it goes off way to much. I understand that also testing of it is nessesary but the extend of this from the current contractor is unnessary high. Please compare with other schools m-1 m-2 m-3

Also, the loud speaker of the system do not need to be painted to the residets, but towards the school, to alert Staff and Students. m-4

Scott

VENICE HIGH SCHOOL
ENVIRONMENTAL REMOVAL ACTION WORKPLAN
COMMUNITY SURVEY QUESTIONNAIRE

Please return to Fortunato Tapia, LAUSD Community Relations, or Dane Robinson, Site Assessment Project Manager LAUSD, 333 South Beaudry Ave., 21st Floor, Los Angeles, CA 90017 or fortunato.tapia@lausd.net or dane.robinson@lausd.net: by ***March 31, 2017***

1. Prior to receiving this survey, were you aware of the environmental investigation being conducted at this site? ✓ Yes ____ No

2. Do you have any concerns about the contamination at this site? ✓ Yes ____ No

   If so, would you like more information? ✓ Yes ____ No

3. Information should be provided by:
   ____ Mailing a Fact Sheet
   ____ Community Meeting/Open House
   ✓ Both - Fact Sheet & Meeting

4. Does your community have regularly scheduled meetings? (i.e. neighborhood watch, community council, etc.) ____ Yes ____ No

   If so, when are they scheduled?____
   Who can we contact to find out about these meetings (name and phone number)?

   ____

5. Who else might be interested in the proposed work at this site? (Name & address)

   ____

6. Any other concerns or comments about the environmental investigation at this site?

   Please see attachment for details:
   1. preparation of trucks leaving site.
   2. Testing of our properties on an ongoing basis.
   ~~3. Repaving of street upon completion of work.~~

7. We occasionally contact community members by telephone to clarify information and conduct personal interviews. If you are interested in being contacted, please provide your name and telephone number: Penelope Cotten 310-827-4378

If you did not receive this survey in the mail and would like to be placed on the mailing list for this site, please complete the information below.

✓ Add my name to the mailing list
___ Delete my name from the mailing list
___ Correct my address

Name: Penelope Cotten Affiliation (if any): Volunteer

Mailing Address: 2427 Walgrove Avenue

City: Los Angeles State: CA Zip Code: 90066

March 25, 2017

Attachment: Issues of concern

1.
I am very concerned about how trucks leaving the site, which will pass our home, will have the contents sealed. Will the contents be watered as well as securely covered before leaving the site, to minimize dust? What methods for keeping the dust out of the air will be employed?

2.
We should have baseline and then periodic testing of the soil of our yards and the exterior surfaces of our homes, to insure that our properties are not contaminated by the project.

3.
The heavy truck traffic on a street not designed for it will require Walgrove to be repaved after the project. We currently have speed bumps, but more effective speed bumps should be installed to make the street more safe for students and residents.

I would like a complete written reply on these issues. Please send the reply to:

Penelope Cotten
2427 Walgrove Avenue
Los Angeles, CA 90066

Sincerely,

Penelope Cotten

RESPONSE TO COMMENTS
REMOVAL ACTION WORKPLAN
VENICE HIGH SCHOOL – COMPREHENSIVE MODERNIZATION
March 28, 2017

BACKGROUND:

On March 14, 2017, the Los Angeles Unified School District (LAUSD) invited public comment on the Removal Action Workplan (hereinafter "RAW") for the comprehensive modernization project at Venice High School in Los Angeles, California. The RAW presents the findings of the environmental investigations performed for this project and proposes the removal and off-site disposal of at least approximately 185 cubic yards of soil with elevated concentrations of arsenic and/or lead.

A public notice was prepared and published in the Daily Breeze and La Opinión newspapers. Copies of the RAW were placed in the school's library, the nearest public library (Mar Vista Branch) and placed on LAUSD's Office of Environmental Health and Safety's (OEHS) website (http://achieve.lausd.net/siteassessment). In addition, a public meeting was held on March 28,2017 at the school's lunch pavilion.

The end of the public comment period was April 13, 2017.

PUPROSE:

The purpose of this document is to capture and respond to the public's comments received during the public comment period.

RECEIVED COMMENTS:

A) Comment received via email from a resident on Walgrove Avenue (borders school to the southwest).

1. I am very concerned about how trucks leaving the site, which will pass our home, will have the contents sealed. Will the contents be watered after filling as well as securely covered before leaving the site, to minimize dust? What methods for keeping the dust out of the air will be employed?

Response: The following sections of the RAW address these concerns

6.4 South Coast Air Quality Management District (SCAQMD) Rule 403 for fugitive dust will be followed. This includes air monitoring for dust during excavation and truck loading, and not excavating when sustained wind speed exceeds 25 miles per hour (MPH)

7.4 Dust Control includes the following measures 1) placement of fencing with screens around site perimeter, 2) dust suppression through the application of water, 3) speed limit for vehicles engaged in RAW activities of 5 MPH, 4) covering stockpiles with plastic sheeting, and 5) minimize drop load from equipment to stockpile or equipment to transport truck

7.5 Air Monitoring, 7.5.3 Dust Monitoring describes how air monitoring will take place at one upwind, one area within the work area, and three downwind locations during excavation and load out activities.

Appendix D, Transportation Plan, 5.1 Dust Control During Transportation states that the soil for off-site disposal will be transported in covered trailers/trucks, drums or roll-off bins with a lid.

Amendments to RAW: Not applicable

2. We should have baseline and then periodic testing of the soil of our yards and the exterior surfaces of our homes, to insure that our properties are not being contaminated by the project at the time the work is being done.

   Response: The school is not a consistent large scale generator of hazardous waste. If no dust suppression/mitigation measures were followed the amount of soil to be excavated is not enough to create measurable contamination on any downstream off-site properties for this one-time cleanup. The dust suppression/mitigation measures described in response to concern 1 above are conservative precautions.

   Amendments to RAW: Not applicable

3. The heavy truck traffic on a street not designed for it will require Walgrove to be repaved after the project. We currently have speed bumps, but more effective speed bumps should be installed to make the street safer and calmer for students and residents.

   Response: As discussed in Section 5.3.3. Street Maintenance of Appendix D, Transportation Plan, the surfaces of surrounding streets will be routinely inspected and, if necessary, maintained or repaired by the Remediation Contractor during implementation of the RAW. The Remediation Contractor is responsible for cleaning streets from spilled or tracked out soils and the final cleanup after completion of field activities, such as washing paved areas. The number of daily and total truckloads during implementation of the RAW is not expected to cause damage to surface streets. Speed bumps are beyond the scope of the RAW. However, routine off-site street maintenance and repairs will be completed by the City of Los Angeles Department of Transportation, as such repairs are necessary and appropriate.

   Amendments to RAW: Not applicable

B) Comments received during March 28, 2017 Public Meeting (see attached)

1. It was mentioned that the new Lunch Shelter Project removal/ excavations of lead will take place in one day. How long will it take for the arsenic and lead excavation for the modernization project for the 19 identified locations? Also, what specific safety measures will be used to mitigate the circulation of lead and arsenic during school hours?

   Response: The following sections of the RAW address these concerns

   7.2.3 Security Measures describes the measures taken to prevent unauthorized personnel from entering the work area and to ensure that the work area is secure and safe. Fences will be fitted with wind screen to reduce the potential for dust generation across the excavation areas.

7.4 Dust Control includes the following measures 1) placement of fencing with screens around site perimeter, 2) dust suppression through the application of water, 3) speed limit for vehicles engaged in RAW activities of 5 MPH, 4) covering stockpiles with plastic sheeting, and 5) minimize drop load from equipment to stockpile or equipment to transport truck

8.2 Project Schedule states that it is anticipated that fieldwork for the soil removal action can be completed within approximately five weeks of the initiation of remedial activities.

Amendments to RAW: Not applicable

2. We have Arsenic Levels that are below "California background levels," so why are we spending money moving dirt?

   Response: LAUSD is following CA State standards of 12 ppm for Arsenic cleanup levels as a conservative approach, as per DTSC requirements
   Amendments to RAW: Not applicable