INTEROFFICE CORRESPONDENCE
Los **A**ngeles **U**nified **S**chool **D**istrict
Office of Environmental Health and Safety

DATE: August 31, 2023

TO: Leah Guthrie
Facilities Development Manager
FSD – Asset Management

FROM: Filmon Tesfaslasie,
Site Assessment Project Manager (CP)
Office of Environmental Health and Safety

**SUBJECT: 49TH STREET ELEMENTARY SCHOOL
REMOVAL ACTION PLAN (RAW) – MAJOR MODERNIZATION**

The Los Angeles Unified School District (LAUSD) has completed a Removal Action Workplan (RAW) for the Major Modernization Project at 49th Street Elementary School (the "Site") located at 750 E 49th St, Los Angeles, CA. The Draft RAW (attached) presents the removal action plan of approximately 1,568 cubic yards of impacted soil identified in the Preliminary Environmental Assessment (PEA). The plan details the soil excavation, segregation, stockpiling, characterization, transportation, and disposal procedures. It also describes the verification sampling procedure, air monitoring requirements, and health and safety plan.

The RAW will be implemented as part of the Major Modernization Project. In the meantime, direct exposure and immediate health risk to students is not anticipated as the impacted soils are currently covered with asphalt.

As a general note, dust mitigation measures shall be implemented during any project-related excavation and/or earth-disturbing activities at the Site. Additionally, if any stained or odorous soil is observed during construction, stop work shall be initiated and OEHS shall be notified. In the event that the project requires the disposal of excess soil, soil sampling per the LAUSD Specification Section 01-4524 will be required prior to characterization and acceptance for off-site disposal.

Should you have any questions or concerns regarding this memorandum, please contact OEHS Site Assessment Project Manager Filmon Tesfaslasie at (213) 241-4578 or at cp-f.tesfaslasie@lausd.net.

Attachment: Removal Action Workplan (RAW), 49th Street Elementary School – Major Modernization Project, 750 E 49th Street, Los Angeles, California 90011, dated August 25, 2023.

CC: Project File

Removal Action Work Plan

49th Street Elementary School – Major Modernization Project

750 East 49th Street

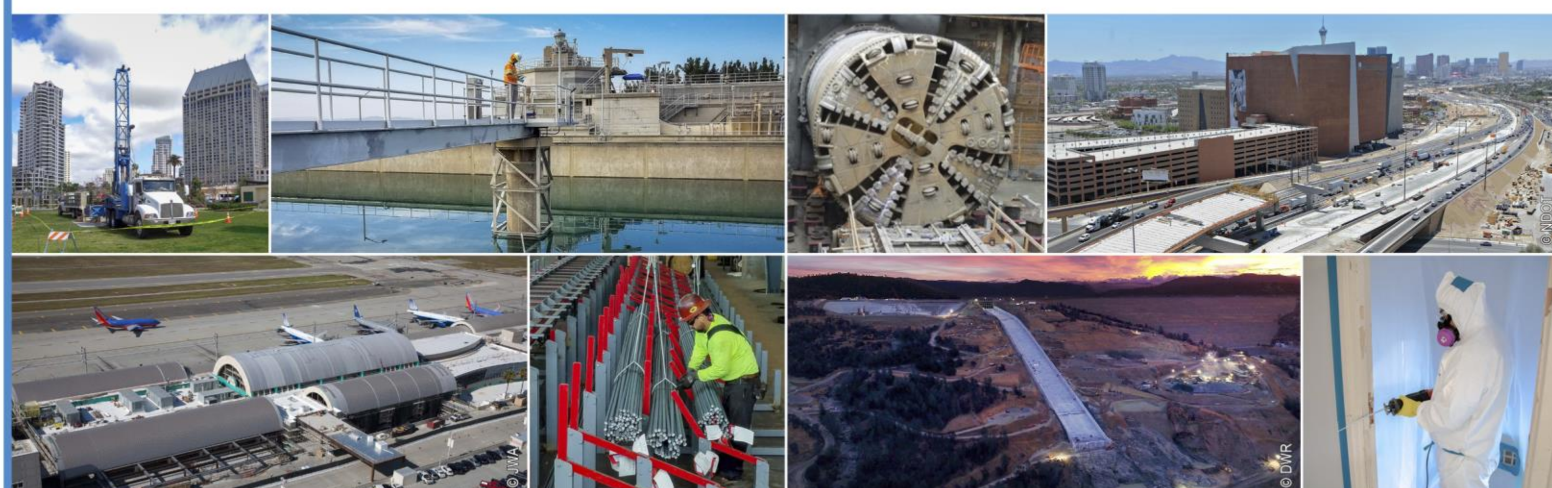
Los Angeles, California 90011

Office of Environmental Health and Safety

Los Angeles Unified School District

333 South Beaudry Avenue, 21st Floor | Los Angeles, California 90017

August 25, 2023 | Project No. 211936018



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35+ YEARS

Removal Action Work Plan

49th Street Elementary School – Major Modernization Project
750 East 49th Street

Los Angeles, California 90011

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August 25, 2023 | Project No. 211936018

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1 INTRODUCTION AND SUMMARY

This document presents a Removal Action Workplan (RAW) for the removal of arsenic, lead, and total petroleum hydrocarbon (TPH) impacted soil located within the 49th Street Elementary School Major Modernization Project (MMP) area at 750 East 49th Street, in Los Angeles, California (site; Figure 1). This RAW has been prepared by Ninyo & Moore Geotechnical and Environmental Sciences Consultants (Ninyo & Moore) on behalf of the Los Angeles Unified School District (LAUSD), under the oversight of the LAUSD's Office of Environmental Health and Safety.

Based on the results of Preliminary Environmental Assessment (PEA) investigation, elevated concentrations of arsenic, lead, and TPH were reported above the applicable regulatory screening levels in certain areas within the site (Ninyo & Moore, 2023). The screening level for arsenic of 12 milligrams per kilogram (mg/kg)is based on the Department of Toxic Substances Control's (DTSC's) statistical evaluation of arsenic concentrations at 19 school sites within southern California (DTSC, 2007). The screening level for lead is based on DTSC Human and Ecological Risk Office Human Health Risk Assessment (HERO HHRA) for Residential Soil, which is 80 mg/kg. The screening level for TPH diesel range organics (DROs) and motor oil range organics (MROs) is based on the San Francisco Regional Water Quality Control Board's (SFRWQCB) Tier 1 Environmental Screening Levels (ESLs) of 260 and 1,600 mg/kg, respectively.

Based on the recommendations of the PEA, a "Response Action" is required to address the potential threat or hazard posed by the presence of elevated levels of arsenic, lead, and TPH at concentrations above the site-specific cleanup goal (CG) of 12 mg/kg, 80 mg/kg, and 260 mg/kg, respectively, at the site. The RAW includes a description of the on-site impact, a plan for conducting the removal action (RA), and the goals to be achieved by the RA, as required by the California Health and Safety Code (H&SC) Section 25323.1. The RAW is also consistent with the criteria specified in the H&SC Section 25356.1(h).

1.1 Purpose of the RAW

Based on the PEA performed by Ninyo & Moore (Ninyo & Moore, 2023), shallow soil at the site has been impacted by arsenic, lead, and TPH in select areas. The purposes of this RAW are to:

- Summarize previous investigation,
- Estimate the surface area and volumes of soil impacted with chemicals of concern, and;
- Propose measures to remove the arsenic, lead, and TPH concentrations in the affected areas of the site to levels below regulatory screening levels for the protection of human health and the environment.

1.2 Removal Action Objectives

Site-specific RA objectives (RAOs) have been established to protect human health and the environment, and serve as a means of screening potential remedial alternatives for further evaluation. Ninyo & Moore has identified the following RAOs:

- Minimize potential exposure through ingestion, inhalation, or direct contact with the shallow soils containing elevated concentrations of arsenic, lead, and TPH that may pose risk to human health;
- Protect human health and the environment by minimizing generation and release of fugitive dust potentially containing elevated concentrations of arsenic, lead, and TPH into the ambient air in excess of South Coast Air Quality Management District (SCAQMD) requirements; and
- Minimize potential migration of elevated concentrations of arsenic, lead, and TPH from soils into air, surface water, or groundwater.

The remedial goals developed and adopted for arsenic, lead, and TPH impacted soil at the site will be responsive to these RAOs. The primary remedial goal for the site is performance-based and focuses on restoring the near-surface soils to conditions protective of human health with regards to the elevated arsenic, lead, and TPH detected in shallow soil.

Ninyo & Moore has preliminarily determined that the proposed action (excavation and off-site disposal) is the preferred RA remedy based on an assessment of the three broad technology evaluation criteria: effectiveness, implementability, and cost (see Section 5). The objective of this proposed action is for impacted soil with arsenic, lead, and TPH concentrations exceeding the CG to be excavated, removed from the site, and placed at a licensed disposal facility. The proposed action at the site focuses on reducing the threat to human health, and the environment, and to provide a solution that reduces the toxicity, mobility, and volume of impacted soil.

2 SITE DESCRIPTION

The following discusses site information in more detail.

2.1 Site Name

The site is identified by LAUSD as 49th Street Elementary School.

2.2 Site Address

The current site address is:

750 East 49th Street
Los Angeles, California

2.3 Designated Contact Person

The designated LAUSD contact person for this project is Mr. Filmon Tesfaslasie, Site Assessment Project Manager.

2.4 Contact Person, Mailing Address, and Telephone Number

Contact information for this project is provided below:

Anthony Espinoza
Environmental Health Manager
Los Angeles Unified School District
Office of Environmental Health and Safety
333 South Beaudry Street, 21st Floor
Los Angeles, California 90017

Mr. Espinoza can be reached at (213) 241-5487. His facsimile number is (213) 241-6816.

2.5 EPA Identification Number

The Environmental Protection Agency (EPA) Identification Number for the site is CAD982025165.This EPA ID number must be used for waste profiling and disposal purposes during the implementation of the RAW.

2.6 Assessor's Parcel Number(s) and Maps

According to the Los Angeles County Assessor's office, the site consists of parcels that are assigned Assessor's Parcel Numbers 5108-011-909 and 5108-011-910.

2.7 Ownership

The LAUSD is the current owner of the site.

2.8 Site Location

The site is located within the boundaries of 49th Street Elementary School at 750 E. 49th Street, in Los Angeles, California (Figure 1), located at the southwest corner of the intersection of East 49th Street and McKinley Avenue in Los Angeles, California. According to the United States Geological Survey (USGS) Inglewood Quadrangle Map, dated 2015, the site is at an elevation of approximately 180 feet above mean sea level. The site slopes gently to the southwest (USGS, 2015).

3 BACKGROUND INFORMATION

The following discusses background information in more detail.

3.1 Site Information

The site is a 5.73 acre-property currently used as an elementary school. The western portion of the site was developed and occupied by single-family residences starting in 1900. Around 1922, the eastern portion of the site was developed and occupied by the 49th Street Elementary School. The existing main building (Building ID # 14040) was the only building at the site during this time. Between 1962 and 1970, most of the single-family residences were demolished and the site was developed to the existing site configuration. The current site includes one administration/classroom building (Building ID # 14036), four classroom buildings (classroom building [Building ID # 13718], the west building [Building ID # 13933], main building [Building ID # 14040], south building [Building ID #13583]), an auditorium building (Building ID # 14196), and a cafeteria building (Building ID # 13566). The remainder of the site (the western portion) is paved with asphalt and is utilized as a playground and parking area.

3.2 Surrounding Land Use

The site vicinity consists primarily of residential properties with some dispersed commercial properties. The site is bordered by East 49th Street to the north, McKinley Avenue to the east, East 50th Street to the south, and 49th Street Park and residential properties in the west (Figure 1).

3.3 Geologic and Soil Conditions

Based on a review of the California Department of Conservation 2010 Geologic Map online, the site is mapped with generalized soil types primarily comprised of Holocene alluvial gravel, sand, and clay, derived mostly from Santa Monica mountains (Dibblee & Minch, 2007).

Soils encountered during the PEA Equivalent consisted of fill material and native alluvium to the maximum depth explored of 15 feet below ground surface (bgs). The fill material was primarily a brown, loose silty sand and fine-grained sand, which was encountered from surface or directly below pavement until total depth of native alluvium was encountered. Fill was encountered up to the maximum depth explored of 15 feet bgs in borings located near the former suspected UST pit in the eastern portion of the site. The alluvium encountered during the PEA consisted primarily of light brown poorly graded sand and well-graded sand. Native alluvium was encountered at 3.5 to 4 feet bgs in the western portion of the site, and generally increased in depth encountered eastward as the age of site development increased.

3.4 Site Hydrogeology

According to information reviewed on State Water Resources Control Board's (SWRCB's) GeoTracker website related to the closed leaking underground storage tank case associated with the Winall Oil Company Station No. 9 (4442 Avalon Boulevard), located approximately 0.3 miles to the north-northwest of the site, groundwater was measured in May 2013 at depths ranging from approximately 189.45 to 190.61 feet bgs. The approximate groundwater flow direction was reported to be toward the east. Groundwater levels can fluctuate due to seasonal variations, groundwater withdrawal or injection, and other factors.

There are no natural surface water bodies, such as streams, rivers, ponds, and lakes, at the site.

3.5 Previous Site Investigations

The following sections describe previous site investigations.

Phase I Environmental Site Assessment Report

Ninyo & Moore reviewed the Phase I ESA Report prepared by Tetra Tech, dated March 22, 2022 (Tetra Tech, 2022). Based on the findings of the Phase I ESA, several Recognized Environmental Conditions (RECs) were identified for the site. These are:

- The potential presence of lead-contaminated soils associated with the potential use of lead-based paint in the buildings,
- The potential presence of organochlorine pesticide (OCP)-contaminated soils associated with the potential application of OCPs,
- The potential presence of polychlorinated biphenyl (PCB)-contaminated soils due to the potential use of PCB-containing caulking and paints in the buildings,
- The Potential presence of arsenic-contaminated soils due to LAUSD's former standard practice of applying herbicides containing arsenic prior to paving,
- The historical presence of a concrete incinerator,
- The presence of an oil tank between the main building and the west building,
- The presence of a second oil tank south of the southwest corner of the existing west building (unknown if the oil tanks are aboveground storage tanks [ASTs] or underground storage tanks [USTs]),
- The presence of two boiler rooms.

Recommendations from the Phase I ESA included the following:

- Conduct a PEA Equivalent (PEA-E) to evaluate the site's subsurface soil to determine the presence, if any, of chemicals of potential concern (COPCs) including petroleum hydrocarbons, volatile organic compounds (VOCs), metals, organochlorine pesticides (OCPs), and polychlorinated biphenyl (PCBs).
- Prior to any demolition, remodeling, and/or renovations, sample untested suspected asbestos containing materials (ACMs), lead-based paint (LBP), lead-containing materials (LCMs), and potential PCB-containing building material, and abatement of any known ACMs, LBP, LCMs, and PCB-containing building material.

- Prior to redevelopment, applicable agencies should be contacted for storm water run-off requirements and other development- and construction-related environmental requirements.

RECs and other potential environmental concerns identified in Tetra Tech's Phase I ESA were used to create the sampling rationale for the PEA and select the locations of soil/soil vapor borings. Additional site-specific documents were provided by LAUSD, reviewed by Ninyo & Moore, and incorporated into the PEA rationale and selection of boring locations.

Preliminary Environmental Assessment Report

Ninyo & Moore conducted a PEA at 49th Street Elementary School starting February 2023. The final PEA Report was submitted July of 2023 (Ninyo & Moore, 2023). The primary objectives of the PEA were to evaluate if soils were impacted by historical or current uses of hazardous wastes or substances at the site, if those uses resulted in releases of COPCs, delineate any COPC-impacted soils, and evaluate risk to human health and/or the environment. The PEA Sampling Locations are displayed in Figure 2.

The following summarizes the major findings of the 2023 PEA investigation (Ninyo & Moore, 2023):

- A full-scan geophysical survey conducted between the Main Building and West Building revealed the presence of an anomaly in the deep soil that coincides with the likely location of a heating oil tank. The deep borings advanced to 15 feet bgs in the vicinity of the likely location of the tank did not encounter the tank or any contamination that could have resulted from a release. The anomaly identified is most likely the material used to backfill the former location of the tank.

- TPH DROs were detected ranging from 12 to 490 mg/kg. One sample collected in the parking lot area in the northwest portion of the site reported a concentration of 490 mg/kg, which exceeds SFRWQCB Tier 1 ESL of 260 mg/kg. The MRO concentration in this sample was also detected at 1,900 mg/kg in the surface sample. Elevated TPH concentrations at B45 are likely the result of oil and fuel leaks associated with the use of the parking lot.

- Elevated concentrations of arsenic exceeding the DTSC's established upper limit threshold of 12 mg/kg for Southern California soils (DTSC, 2007) were detected in the northern portion of the site and also south of the Cafeteria Building. Select samples around the West Building in the northeast portion of the site contained arsenic concentrations above the soluble threshold limit concentration (STLC) of 5 milligrams per liter (mg/l) and/or toxicity characteristic leaching procedure (TCLP) of 5 mg/l, which should be characterized and disposed as Resource Conservation and Recovery Act (RCRA)-hazardous material.

- Lead was detected in six soil samples above the DTSC screening level (SL) of 80 mg/kg, up to a maximum concentration of 360 mg/kg. The results of a 95% UCL calculation indicate that lead is not an environmental concern at the site, with the exception of a "hot spot" identified at the central portion of the site at 2.5 feet bgs, which should be characterized and disposed as hazardous material.

- PCE was detected in soil vapor samples in concentrations ranging between 16 and 91 micrograms per cubic meter ($\mu g/m^3$). Reported PCE concentrations exceeded the modified DTSC SL of 15.3 $\mu g/m^3$ (applying an attenuation factor of 0.03). Based on this, a Vapor Intrusion Risk Evaluation (VIRE) was conducted by Ninyo & Moore. The VIRE determined that the probability of developing cancer as a result of exposures to indoor air at the site is less than 3E-07 for students and 2E-06 for school staff. These estimated cancer risks are below the known cancer risk for the United States population and are deemed acceptable by the DTSC.

The PEA recommended the following:

- Removal Action Workplan (RAW) be prepared detailing the proper management, characterization, and disposal requirements for subsurface structures and impacted soil, including the abandoned fuel line leading from East 49th Street to the former suspected heating oil tank, TPH DRO-impacted soil in the northern parking area, lead-impacted soil in the vicinity of boring B34, and arsenic-impacted soil in the northern portion of the site and south of the Cafeteria Building. SCAQMD Rule 1466 is not applicable to the remaining areas of the MMP limits that are outside the areas subject to the RAW.

4 NATURE, SOURCE, AND EXTENT OF CONTAMINATION

Summary of the nature, source, and extent of arsenic, lead, and TPH in soil is presented below.

4.1 Type, Source, and Location of Contaminants

The elevated arsenic concentrations in soil are located in the northern portion of the site, including around the northern and eastern edges of the West Building and north of the Administration/Library Classroom Building. Elevated arsenic concentrations were also detected south of the Cafeteria Building. The source of the arsenic-impacted soil may be the attributed to the historical use of arsenic-containing herbicides in open areas and the historical use of arsenic-based termiticides around building foundations.

The elevated lead concentrations in soil is located at a “hot spot” at the central portion of the site. The source of the lead-impacted soil may be attributed to use of artificial fill or from lead-based paint applied to the building materials of historical residential structures on the site.

Elevated concentrations of TPH were reported in one sample at a depth of 0.5 feet bgs, located in the asphalt paved parking lot in the northwest portion of the site. This may be attributed to oil leaks from vehicles.

Specific locations where arsenic, lead, and TPH-impacted soil were identified and delineated at the site is summarized in Ninyo & Moore’s PEA report (Ninyo & Moore, 2023). Tables and Figures from the PEA are presented in Appendix A.

4.2 Extent and Volume of Contamination

The lateral and vertical extents of the “hotspots” were established during the PEA based on results of subsequent step outs (in three to four primary directions) or step down sample results above 12 mg/kg, 80 mg/kg, and 260 for arsenic, lead, and TPH DRO respectively (Figure 2). Ninyo &

Moore estimated the volume of soil with elevated arsenic, lead, and TPH concentrations above respective RSLs, which are shown on Figure 3. The volume of soil with elevated concentrations of arsenic, lead, and TPH are presented in Table 2 and discussed in Section 7.3.2. The total volume of impacted soil is approximately 1,568 cubic yards. This volume assumes an expansion factor of 1.4x, since soil will expand from its original volume due to high compaction. The impacted soil weighs approximately 2,195 tons, using a conversion factor of 1.4 tons per cubic yard of soil.

4.3 Potential Health Effects of Arsenic

Potential exposure to arsenic in soil can affect receptors when airborne dust is inhaled, ingested, or by passing through the skin. Long term exposure to arsenic can damage many body organs, including the skin, gastrointestinal tract, lungs, heart, blood vessels, immune system, urinary system, reproductive organs and the nervous system. Symptoms may include headache, drowsiness, confusion, convulsions, sore throat, irritated lungs, ulceration of nasal septum, dermatitis, respiratory distress, vomiting, diarrhea, possible liver damage, muscular tremors, and reproduction damage. Exposure to arsenic can also cause hyperpigmentation of the skin (darkening) and the appearance of scaly skin on the palms and soles.

4.4 Potential Health Effects of Lead

Lead may be encountered as a contaminant of soil in locations near tanks and other process equipment as a result of painting operations. Lead may also be encountered as a result of spills or leakage of lead additives to motor fuels. Lead-based paint is a major source of lead at the site. Lead is a toxic heavy metal and a suspected carcinogen that may be encountered in inorganic or organic forms.

Heavy metals such as lead can affect the nervous system, gastrointestinal system, cardiovascular system, blood production, kidneys, and reproductive system. Symptoms of heavy metal toxicity include mental confusion, pain in muscles and joints, headaches, short-term memory loss, gastrointestinal upsets, food intolerances/allergies, vision problems, chronic fatigue, and others.

4.5 Potential Health Effects of TPH

TPH is a term used to describe a large family of several hundred chemical compounds that originally come from crude oil. TPH is a mixture of chemicals, but they are all made mainly from hydrocarbons. Some chemicals that may be found in TPH are hexane, jet fuels, mineral oils, benzene, toluene, xylenes, naphthalene, and fluorene, as well as other petroleum products and gasoline components. Some of the TPH compounds can affect your central nervous system. One compound can cause headaches and dizziness at high levels in the air. Another compound can cause a nerve disorder called "peripheral neuropathy," consisting of numbness in the feet and legs. Other TPH compounds can cause effects on the blood, immune system, lungs, skin, and eyes.

Animal studies have shown effects on the lungs, central nervous system, liver, and kidney from exposure to TPH compounds. Some TPH compounds have also been shown to affect reproduction and the developing fetus in animals. The International Agency for Research on Cancer (IARC) has determined that one TPH compound (benzene) is carcinogenic to humans. IARC has determined that other TPH compounds (benzo[a]pyrene and gasoline) are probably and possibly carcinogenic to humans. Most of the other TPH compounds are considered not to be classifiable by IARC.

4.6 Exposure Pathways and Media of Concern

As discussed in the preceding sections, the site is developed as an elementary school and consists of vegetated planters, hardscape (concrete and asphalt pavements, sidewalk), and buildings. The receptor population includes school children, faculty, and staff.

In its current condition, soil impacted with arsenic, lead, and TPH lies underneath pavement, which therefore does not have a current exposure route to onsite receptors. However, during the implementation of the MMP, pavement will be demolished and underlying soils exposed for grading, thus necessitating the need for the proper handling of these soils to prevent potential exposures to onsite receptors, construction workers, and the general public.

A Conceptual Site Model describes potential chemical sources, release mechanisms, transport media, routes of environmental transport, exposure media, and potential human receptors. Exposure to chemicals can occur only if a complete pathway exists by which human receptors may be exposed to chemicals in soil, water, or air. For the arsenic, lead, and TPH concentrations found in shallow soil, the potentially complete exposure pathways could include dermal contact, dust inhalation, and incidental ingestion. The Conceptual Site Model is shown in Figure 4.

5 ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

The following discusses cost analysis information in more detail.

5.1 Removal Action Scope

The purpose of this section of the RAW is to identify and screen possible RA alternatives that achieve the RAO discussed in Section 1.2. The screening of remedial action alternatives was conducted in general accordance with the EPA Guidance on Conducting Non-Time-Critical Removal Actions under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (EPA, 1993). The proposed RA will be conducted in accordance with protocols of the CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Under 40 Code of Federal Regulations (CFR) 300.415 of the NCP, an EE/CA is required to address the implementability, effectiveness, and cost of a non-time-critical RA. This section was prepared, as part of the RAW developed for the site, to aid in the evaluation of remediation alternatives for the mitigation of arsenic, lead, and TPH impacted soil at the site, as such, were screened and evaluated on the basis of their effectiveness, implementability, and cost, as defined below.

- **Effectiveness** – This criterion focuses on the degree to which a remedial action reduces toxicity, mobility, and volume through treatment; minimizes residual risk and affords long-term protection; minimizes short-term impacts and how quickly it achieves protection.
- **Implementability** – Remedial actions are evaluated with respect to technical feasibility and applicability to site conditions. Some examples of this criterion include the ability to obtain necessary permits, regulatory approval of remedial actions, and availability of necessary equipment and skilled workers to implement the RA.
- **Cost** – This criterion relates to relative cost screening based on approximate capital and operation and maintenance (O&M) costs.

Following the initial screening, each remedial action alternative presented in this RAW is independently analyzed without consideration to the other alternatives. The analysis addresses the criteria listed below.

- **Short-term effectiveness** – This criterion evaluates the effects of the implementation of the remedial alternative during the construction and implementation phase through completion of remediation. It accounts for the protection of workers and the community during remedial activities and considers the environmental impacts resulting from implementing the action.
- **Long-term effectiveness and permanence** – This criterion addresses issues related to the management of residual risk remaining on site following implementation of a given remedial action. The primary focus is placed on the long-term controls that may be required to manage the risk posed by treating remaining residuals or by leaving untreated wastes on site.
- **Reduction of toxicity, mobility, or volume** – This criterion evaluates whether the remedial technology employed results in significant reduction in toxicity, mobility, or volume of the hazardous substances.
- **Implementability** – This criterion evaluates the technical and administrative feasibility of the alternatives, as well as the availability of the necessary equipment, material, and services to complete the RA. This includes the ability to construct and operate the alternative, ability to obtain services and equipment, ability to monitor the performance and effectiveness of technology, and the ability to obtain necessary approvals from oversight agencies.
- **Overall protection of human health and the environment** – This criterion evaluates whether the remedial alternative provides acceptable protection of human health and the environment.
- **Cost effectiveness** – This criterion includes both capital and O&M costs and is based on a variety of information. The actual costs will depend on true labor and material costs, competitive market conditions, the final project scope, and the implementation schedule.

5.2 Evaluation of Removal Action Alternatives

Three RA alternatives were evaluated for the arsenic-impacted soil at the site. These alternatives were evaluated using the criteria listed above. The three alternatives are:

- Alternative 1 – No Action
- Alternative 2 – Containment Through Surface Cap, and
- Alternative 3 – Excavation/Off-site Recycling or Disposal

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

5.2.1 Alternative 1 – No Action

The no action alternative (Alternative 1) has been included to provide a baseline for comparison among other RAs. This alternative includes no institutional controls, no treatment of soil, and no monitoring.

Alternative 1 would not require the implementation of any removal measures at the site.

Since elevated arsenic, lead, and TPH concentrations are present in shallow soils under pavement, this alternative would not reduce the health risk to onsite receptors due to the exposure to soil unearthed from the MMP. In addition, as future construction work is proposed, workers and the public may be exposed to impacted soil during the MMP, making this alternative unacceptable. There is no cost associated with this alternative.

5.2.2 Alternative 2 – Containment through Surface Cap

Containment treatment as implemented at the site would consist of capping the surface of the impacted areas with an engineered soil cover and/or membrane. The cap would be used to minimize surface exposure. The following paragraphs present an evaluation of this alternative with respect to the feasibility criteria.

Short-term effectiveness – The containment alternative would involve some disturbance of the COPC-impacted soil during placement of the surface cap. Therefore, potential short-term risks to on-site workers, public health, and the environment could result from dust or particulates that may be generated during these activities. These risks could be mitigated using personal protective equipment for on-site workers and implementing engineering controls, such as dust suppression and additional traffic and equipment operating safety procedures, for protection of the surrounding community. The short-term risks associated with this alternative would be low.

Long-term effectiveness and permanence – The installation of a surface cap would require long-term inspection and maintenance. Periodic inspections for settlement, ponding of liquids, erosion, and naturally occurring invasion by deep-rooted vegetation or burrowing animals would be required. In addition, precautions would have to be taken to ensure that the integrity of the cap is not compromised by land-use activities. Based on these factors, the effort required to ensure long-term effectiveness is considered high.

Reduction of toxicity, mobility, or volume – Containment through surface capping would not lessen toxicity or volume of arsenic, lead, and TPH, but would limit mobility, specifically, accessibility to the contaminant. Proper maintenance of the cap would reduce accessibility to impacted soils.

Implementability – Containment is a relatively simple technology that is easily implemented and offers quick installation times. Because of the permanence of leaving the arsenic, lead, and TPH on the site, obtaining and renewing permits and regulatory approval may be difficult. Local land use restrictions would also be required to eliminate future disturbances of these areas during any school property redevelopment.

Overall protection of human health and the environment – The overall protection of human health is good, provided the long-term O&M is continued.

Cost effectiveness – Containment technologies are typically a low to moderate cost treatment group. A rough industry cost for containment can be approximately between $175,000 to $225,000 per acre for a soil and asphalt or concrete cap. The existing surface area that would need to be capped for the school site encompasses approximately 14,000 square feet, which will total $75,000. Additional costs of approximately $100,000 are estimated for preparation of engineering plans, preparation of the O&M Plan, and establishment and recording of land use restrictions. Additionally, the annual cap inspection for the next 20 years is estimated as $15,000 per year, or $300,000. A summary of the estimated costs to implement this alternative is presented in Table 3.

Because the arsenic, lead, and TPH-impacted soil would remain in place, it is likely that it would be necessary to restrict land use at the site through a land-use covenant (LUC).

5.2.3 Alternative 3 – Excavation/Off-site Recycling or Disposal

This alternative includes excavation and off-site recycling, reuse, or direct landfilling of soils containing concentrations of chemicals of concern above their respective CGs. The following areas were identified in the PEA as containing impacted soils that require removal:

- Area A: An estimated 487 cubic yards (682 tons) of arsenic-impacted soil would be excavated to depths ranging from surface to approximately 2 feet bgs.
- Area B: An estimated volume of 182 cubic yards (254 tons) of arsenic-impacted soil and soil surrounding the heating oil pipeline would be excavated to depths ranging from surface to approximately 5 feet bgs.
- Area C: An estimated volume of 78 cubic yards (109 tons) of arsenic-impacted soil would be excavated to depths ranging from surface to approximately 2 feet bgs.
- Area D: An estimated volume of 796 cubic yards (1,115 tons) of arsenic-impacted soil would be excavated to depths ranging from surface to approximately 2 feet bgs.
- Area E: An estimated 19 cubic yards (27 tons) of lead-impacted soil would be excavated to depths ranging from surface to approximately 5 feet bgs.
- Area F: An estimated 5 cubic yards (7 tons) of lead- and TPH-impacted soil would be excavated to depths ranging from surface to approximately 1 foot bgs.

Combining these areas, approximately 1,568 cubic yards (2,195 tons) of impacted soil will be excavated and removed from the site under this remedial method. Excavated soils would be stockpiled, loaded onto trucks, and transported to the appropriate approved receiving facility. If existing analytical data needs to be supplemented for waste characterization, soils would be sampled and analyzed to determine its classification as either non-hazardous or hazardous waste pursuant to EPA SW-846. Excavation and offsite disposal is an effective means of removing impacted soil and would allow the site's RAO to be met.

Long-term effectiveness and permanence – This alternative provides long-term effectiveness by permanently removing the impacted soils from the site.

Short-term effectiveness – This alternative would potentially cause temporary short-term impacts (including dust, noise, and traffic) to the local area. However, these impacts would be mitigated through control measures to an acceptable level. Even though there will be temporary neighborhood disruption during field activities from excavation noise and truck traffic, all field activities would be performed in accordance with applicable regulations, setting noise and traffic issues to acceptable levels. Public issues concerning this alternative would be addressed satisfactorily by the LAUSD and community acceptance is anticipated. thereby providing short-term effectiveness to this alternative upon completion

Reduction of toxicity, mobility, or volume – Because this alternative would remove impacted soils from the site, the accompanying mobility and volume would be reduced to zero by removing the impacted soils and eliminating the exposure pathway to onsite receptors.

Implementability – This alternative is technically and administratively feasible, and would be relatively easy to permit. All of the activities involved are well proven and straightforward including: soil sampling and analysis, excavation, potential temporary stockpiling, loading and transport, soil recycling, soil disposal, and preliminary rough grading. All activities would be conducted in accordance with local permits by properly licensed contractors and transporters, which would also achieve State and Federal acceptance.

Overall protection of human health and the environment – This alternative would remove impacted soils with the planned control measures of this RAW and protect human health and the environment. Soil removal activities would be conducted in accordance with applicable local permit requirements (if any) and the requirements of this RAW after its approval by LAUSD, thus complying with applicable or relevant and appropriate requirements (ARARs) (Section 7.0).

Cost effectiveness – One potential negative aspects of this alternative are its implementation cost, due primarily to high transportation and disposal costs. Please see Section 6.3 and Table 3 for a breakdown of the cost.

In summary, Alternative 3, Excavation/Off-site Recycling or 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 simple and readily available. Based on the past success related to the excavation and offsite disposal of shallow soil contamination at other LAUSD school sites, it is anticipated that this approach would be acceptable to the community.

5.3 Costs of Removal Action Alternatives

The estimated cost for implementing each of the three RA alternatives is presented in Table 3.

There is no cost associated with Alternative 1 – No Action.

The estimated cost for Alternative 2 is $75,000 to cap the surface of the approximately 14,000 square feet area impacted by arsenic, lead, and TPH. This cost would be increased with additional site area that may need to be surface capped. Annual post-surface capping inspection and repair costs of $15,000 per year for 20 years, or $300,000. Additional costs will be required for project coordination and management (approximately $20,000), as well as for negotiations with the DTSC, preparation of engineering plans, preparation of the O&M Plan, and establishment and recording of land use restriction (approximately $150,000). Adding a 15% contingency, the total estimated cost for Alternative 2 - Containment through Surface Cap, is approximately $655,500.

The major cost components for implementing Alternative 3 -Excavation/Off-site Recycling or Disposal are soil excavation, soil loading, transportation, disposal, dust suppression, and backfilling with imported soil. No permits from the local agencies are expected to be needed to complete the excavation, transportation, and disposal of affected soil. The estimated project costs for Alternative 3 include the cost incurred by the environmental consultant to coordinate the work, oversee the excavation, conduct dust monitoring, complete the confirmation soil sampling, analyze samples at a laboratory, and prepare a Removal Action Completion Report (RACR). The estimated cost for the excavation, off-site disposal or recycling of the arsenic, lead, and TPH-impacted soils (2,195 tons) in Alternative 3 is approximately $243,000 or $110.70 per ton, which includes landfill disposal fees. A cost of $10,000 would also apply for backfilling and compaction activities. If alternative appropriate facilities are used with the approval of the LAUSD and DTSC, costs per ton may vary. This estimate assumes the excavated soil (arsenic, lead, and TPH-impacted) will be characterized as 95.6 percent non-hazardous impacted soil, 4.4 percent hazardous impacted soil. Additional costs of approximately $180,000 will be required for project coordination, excavation oversight, field supplies, air monitoring, confirmation sampling, waste profiling, laboratory services, reporting, and planning documents. Indirect costs include a $50/ton hazardous waste handling and disposal fee and ($5,898) and approximately $15,000 for licenses, permits, and supplies. Adding a 15% contingency, the total estimated cost for Alternative 3 with2,195 tons of arsenic, lead, and TPH-impacted soil for disposal is approximately $527,733 (Table 3).

5.4 Comparative Analysis of Removal Action Alternatives

A comparative analysis was conducted to identify the advantages and disadvantages of each RA alternative. The comparative analysis was conducted to address the criteria listed in the beginning of Section 6.0. Site-specific conditions used in the comparative analysis considered the time constraints imposed on each of the remedial alternatives due to the projected LAUSD construction schedule. The comparison of the three alternatives is the table below:

Remedial Alternatives Comparison

Assessment Criterion	Alternative 1	Alternative 2	Alternative 3
Long-term effectiveness	3	2	1
Short-term effectiveness	3	1	2
Reduction of toxicity, mobility, volume	3	2	1
Implementability	1	3	2
Protection of human health and environment	3	2	1
Cost Effectiveness	1	3	2
Total Rank:	**3**	**2**	**1**

Notes:
Each Alternative is assigned a ranking 1-3
Alternative 1 – No Action
Alternative 2 – Containment
Alternative 3 – Excavation & Offsite Disposal

5.5 Description of Selected Remedy

Alternative 3 – Excavation and Offsite Disposal is selected as the preferred alternative because it is easily implemented, cost-effective, and provides long-term assurance that future occupants of the site will not face significant health risks due to elevated levels of arsenic, lead, and TPH in soil. Additionally, this method will allow LAUSD to proceed with the MMP and other future developments as planned without disruption and without land use restrictions.

Soil excavation involves the use of conventional excavation equipment, such as backhoes, loaders, and dozers to remove the estimated 1,568 cubic yards (2,195 tons) of impacted soil from the site. Excavated soil is either directly loaded into staged trucks, or temporarily stockpiled on plastic sheeting next to the excavation areas until it is loaded out for offsite disposal.

The soils removed from the excavations are transported offsite to an appropriate, licensed facility for disposal. After completion of the soil RAs at each location, confirmation soil sampling are conducted along the excavation sidewalls and bottoms to verify that the CGs have been met. Imported soil that have been tested and certified to be clean, or soil from onsite borrow areas not impacted by the chemicals of concern, are used to backfill the excavations.

The cost to implement Alternative 3 (Excavation and Offsite Disposal) is estimated to be $437,000 as shown in Table 3. This cost estimate is based on the excavation, load-out, transport, and disposal of an estimated 1,568 cubic yards (2,195 tons) of impacted soil, after which the excavations will be backfilled and compacted with a similar volume of clean imported fill. Costs are also included for environmental management and oversight of the remedial activities.

6 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

Remedial actions selected under Federal, State, and local ARARs as required under Section 121(d) of the CERCLA must comply with ARARs under federal environmental law or, where more stringent than the federal requirements, state or local environmental or facility sitting law. Where a State is the delegated authority to enforce a federal statute, such as the Resource Conservation and Recovery Act (RCRA), the delegated portions of the statute are considered to be a federal ARAR unless the State law is broader or more stringent than the federal requirement.

ARARs are categorized as chemical-specific, location-specific, or action-specific. Chemical-specific ARARs are health- or risk-based cleanup standards or methodologies that, when applied to site-specific conditions, result in the development of cleanup standards for contaminants in environmental media. Location-specific ARARs are restrictions placed on the concentration of hazardous substances or the conduct of activities because of the special location of the site, which have important geographical, biological, or cultural features. Examples of special locations include wetlands, flood plains, sensitive ecosystems, and seismically active areas. Action-specific ARARs are technology-based or activity-based requirements or limitations on actions taken to handle hazardous wastes. They are triggered by the particular remedial activities to accomplish a remedy.

6.1 Chemical-Specific ARARs

Chemical-specific ARARs are health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, establish the allowable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment. A summary of chemical-specific ARARs are provided below:

- The site CG of 12 mg/kg for arsenic in soils (DTSC Acceptable Southern California background).
- The site CG of 80 mg/kg for lead in soils (DTSC SL for residential soil).
- The site CG of 260 and 1,600 mg/kg for TPH DRO and MRO in soils (SFRWQCB Tier 1 ESLs).

The preferred remedial action will involve the generation of hazardous waste (e.g., excavation of impacted soil) during remediation activities. The federally authorized RCRA program implemented in the State of California requires that excavated wastes be characterized to determine if they are hazardous under RCRA's definition.

6.2 Location-Specific ARARs

Location-specific ARARs include restricted areas such as the vicinity of wetland, endangered species, or areas of historical or cultural significance. No location-specific ARARs were identified under regulatory agencies definition.

6.3 Action-Specific ARARs

Action-specific ARARs address requirements or limitations for treatment, transportation, and disposal of hazardous waste for remedial activities. These action-specific ARARs are triggered by the particular remedial activities conducted at the site. Remedial activities associated with the excavation have the potential to generate air contaminants, particulate matter, and hazardous waste. A summary of action-specific ARARs is provided below:

- **Health and Safety** - All contractors will be responsible for operating in accordance with the most current requirements of Title 8, California Code of Regulations, section 5192 (8 CCR 5192) and Title 29, Code of Federal Regulations, section 1910.120 (29 CFR 1910.120), Standards for Hazardous Waste Operations and Emergency Response (HAZWOPER). On-site personnel are responsible for operating in accordance with all applicable regulations of the Occupational Safety and Health Administration (OSHA) outlined in 8 CCR General Industry and Construction Safety Orders and 29 CFR 1910 and 29 CFR 1926, Construction Industry Standards, as well as other applicable federal, state, and local laws and regulations. All personnel shall operate in compliance with all California OSHA requirements. To comply with 29 CFR 1910.120, a Site Specific Health and Safety Plan (HSP) should be prepared by the general contractor. The HSP will identify and describe potentially hazardous substances that may be encountered during remedial activities. The HSP will also prescribe the appropriate personal protective equipment for site conditions and activities, and lists procedures to undertake in the event of an emergency. All personnel will review the HSP prior to field work. Site safety briefings will be conducted daily prior to starting field work to identify potential physical and chemical hazards and to go over procedures to be taken in the event of an emergency. Personnel on site will be required to sign the HSP after each daily briefing.

- **Hazardous Waste** - Hazardous waste excavation activities are regulated by RCRA, CFR, Occupational Safety and Health Administration (OSHA), and California Code of Regulations, which evaluate if the waste generated during excavation activities is hazardous waste; management of hazardous wastes; transport of hazardous waste on highways and freeways; and health and safety issues for workers on- and off-site and the public. Hazardous waste is expected to be generated. Soils to be excavated have been characterized as either RCRA-hazardous, California hazardous, or non-hazardous depending on location.

- **Air Monitoring** - The South Coast Air Quality Management District (SCAQMD) governs air emissions within the Los Angeles Basin. The site is located within the jurisdiction of SCAQMD. The SCAQMD has three rules that address excavation (Rules 1150, 1166, and 1466), 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 applies "Volatile Organic Compound Emissions from Decontamination of Soil" to the excavation of soils containing VOCs and does not apply to this RAW. Rule 1466 "Control of Particulate Emissions from Soils with Toxic Air Contaminants" applies to the excavation of soils containing arsenic and lead and does apply to this RAW. Several elements of Rule 1466, such as school-related protocols for soil excavation schedules and soil excavation handling, have been incorporated into this RAW. Excavation, loading, and transport of impacted soils will be in compliance with Rule 1466 measures to conduct activities when school is not in session and to handle lead-impacted soils by removing lead or arsenic-impacted soils from the site within five days of excavation. Several elements of Rule 403, such as protocols for mitigation of potential fugitive dust emissions, have been incorporated into this RAW, and are included in Appendix B.

- **Storm Water** - SWRCB regulates storm water runoff for projects disturbing more than one acre of soil. However, since less than one acre of soil will be disturbed, a storm water pollution prevention plan is not required for the RAW implementation.

7 REMOVAL ACTION IMPLEMENTATION

This section describes the field procedures and the methods expected to be used to implement the RA:

7.1 Site Preparation and Security Measures

The following control measures will be implemented during field activities during RA implementation.

7.1.1 Delineation of Excavation Areas

The excavation areas are shown in Figures 3 and 5 through 7. The excavation boundaries will be marked with flags or spray paint prior to initiating excavation. The site will be enclosed by a fence to protect workers and the public. At least 5 days prior to the start of excavation, a Start Work Notice will be submitted to the adjacent residences and businesses.

7.1.2 Utility Clearance

Prior to commencing excavation activities, Underground Service Alert (USA) will be contacted at least 48 hours in advance to identify the location of utilities that enter the property. Proposed excavation areas will be clearly marked with white paint or surveyors flagging as required by USA. USA will contact member utility owners of record within the site vicinity and notify them of the intent to excavate. Utility owners of record will be expected to clearly mark the position of their utilities on the ground surface throughout the designated area. The contractor will be responsible for protecting existing utilities.

7.1.3 Security Measures

Appropriate barriers and/or privacy fencing should be installed prior to beginning the excavation process to ensure that work areas are secure and safe and that trespassers or unauthorized personnel are not allowed on site. Security measures may include, but are not limited to the following.

- Posting notices directing visitors to the Site Manager.
- Maintaining a visitor’s log. Visitors must have prior approval from the Site Manager to enter the site. In addition, visitors will not be permitted to enter the site without first receiving site-specific health and safety training from the Site Safety Manager.
- Installing barrier fencing to restrict access to sensitive areas such as exclusion zones.
- Providing adequate site security to ensure that unauthorized personnel do not have access to work areas and/or excavated materials.
- Before leaving the site, all personnel must sign out in the visitors’ log.
- Maintaining a safe and secure work area, including areas where equipment is stored or placed, at the close of each workday.
- A visual plastic barrier should be installed along the fence.
- Persons requesting site access will be required to demonstrate a valid purpose for access and provide appropriate documentation to demonstrate they have received proper training. After work hours, access to the site will be controlled by the perimeter fence and a locked gate.

7.1.4 Contaminant Control

It is anticipated that excavated material generated from the shallow excavations will either be immediately loaded onto trucks and hauled off site or temporarily stockpiled. In the event of stockpiling, heavy tarpaulins or plastic sheeting will be used to separate stockpiles or impacted soil from the ground during excavation activities. As a precautionary measure to avoid fugitive dust from stockpiled soil, a reasonable effort will be made to ensure that stockpiles do not exceed the height of the fence line or greater than 10 feet. Stockpiles will be covered or kept moist during non-work hours or overnight to minimize the potential for fugitive dust. Contaminant control measures are not required because the COPCs in the soil are not expected to migrate. However, the COPCs in dust during excavation activities is a potential contamination migration route. This potential concern will be controlled by dust mitigation measures described in the Air Monitoring Plan (Appendix B). Additionally, an air monitoring station will be placed on site, and careful visual monitoring will be conducted to ensure dust suppression techniques are effective in minimizing dust from traveling off site during excavation and loading. Due to the small area of disturbance for on-site soil removal (less than one acre), a storm water pollution prevention plan will not be prepared. However, Best Management Practices will be implemented to minimize transportation of soil off site due to storm water runoff.

7.1.5 Permits and Plans

No permits for grading from City of Los Angeles, Division of Public Works are required for this LAUSD soil RA. No specific air or other permitting requirements have been identified for the proposed RA activities at this time.

7.1.6 Demolition of Pavements

The excavation areas are mostly paved. Prior to excavating the arsenic, lead, and TPH-impacted soil, the concrete or the asphalt pavement in the excavation areas will be carefully removed and separately stockpiled for disposal, so as not to disturb the surrounding soil. The demolition of overlying pavement is planned to expose the impacted soil for excavation.

7.2 Field Documentation

The following paragraphs discuss the field documentation procedures for this work.

7.2.1 Field Logbooks

Field activity logs will document where, when, how, and from whom project information was obtained. Log entries will be complete and accurate enough to permit reconstruction of field activities. Each page will be consecutively numbered, dated, and noted with the time of entry. Entries will be legible, written in ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or other terminology which might prove inappropriate. If an error is made, a line will be made through the error and the correct information will be entered. Corrections will be dated and initialed. No entries will be obliterated or rendered unreadable.

7.2.2 Chain-of-Custody Records

Chain-of-custody (COC) records are used to document sample collection and shipment to laboratory(ies) for analyses. Sample shipments for analyses will be accompanied by a COC record. Form(s) will be completed and transported with the samples for each laboratory and each shipment. If multiple coolers are transported to a single laboratory on a single day, COC form(s) will be completed and transported with the samples for each cooler. The COC record will identify the contents of each shipment and maintain the custodial integrity of the samples. Generally, a sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. Until receipt by the laboratory, the custody of the samples will be the responsibility of the sample collector.

7.2.3 Photographs

Photographs will be taken at selected excavation locations and at other areas of interest on the site. They will serve to complement information entered in the field activity logbooks. When a photograph is taken, the following information will be written in the activity logbooks, or will be recorded in a separate field photography log.

- Time, date, location, direction, and if appropriate, weather conditions.
- Description of the subject photographed.
- Name of person taking the photograph.

7.3 Excavation

The following paragraphs describe the procedures during soil excavation at the site.

7.3.1 Proposed Excavation Plan

The summary table below presents the 6 excavation areas (Areas A-F), including their corresponding COPC, surface area, depth, estimated volume, and estimated weight of each excavation. Area B has been split into two subareas, one for the removal of RCRA-hazardous arsenic-impacted soil and one for the removal of the abandoned product line. The total volume of impacted soil to be excavated and removed from the site is approximately 1,568 cubic yards. This estimated volume assumes an expansion factor of 1.4x, since soil will expand from its original volume due to high compaction. The impacted soil weighs approximately 2,195 tons, using a conversion factor of 1.4 tons per cubic yard of soil.

RAW Soil Excavation Area Summary						
Excavation Area	COPC	Soil Classification	Excavation Surface Area (ft^2)	Depth of Excavation (ft bgs)	Volume of Excavation (yd^3)	Excavation Weight (Tons)
Area A	Arsenic	Non-hazardous	4,700	2.0	487	682
Area B	Arsenic	RCRA-hazardous	250	5.0	64.8	90.7
Area B*	TPH	Non-hazardous	450	5.0	116.7	163
Area C	Arsenic	Non-hazardous	750	2.0	77.8	108.9
Area D	Arsenic	Non-hazardous	7,680	2.0	796	1115
Area E	Lead	California-hazardous	75	5.0	19.4	27.2
Area F	TPH	Non-hazardous	100	1.0	5.2	7.3
				Total Volume/Weight of RCRA-Hazardous Soil	65	91
				Total Volume/Weight of California Hazardous	19.4	27.2
				Total Volume/Weight of Non-Hazardous Soil	1,483.5	2077
				Total	1,568	2,195

Notes:
* The eastern portion of Area B is designated for the excavation and removal of the former product line
bgs – below ground surface
COPC – contaminant of potential concern
ft – feet
ft^2 – square feet
ft^3 – cubic feet
RCRA – Resource Conservation and Recovery Act
TPH – total petroleum hydrocarbons
yd^3 – cubic yard

Excavation and removal of impacted soil will be performed in stages due to site area constraints. Soil will be removed to the lateral and vertical extents shown on Figure 3, and Figures 5 through 7 using a backhoe, rubber-tired front-end loader, excavator, and/or shovels. Excavations Areas A through F will be excavated to depths ranging between 1 and 5 feet bgs, depending on the vertical extents of known contamination (Table 2). Additional excavation may be necessary based on the results of confirmation sampling as discussed in Section 8. If excavation depth exceeds approximately 4 feet bgs, a 1:1 or flatter slope will be maintained during the excavation. No shoring is anticipated.

As the proposed vertical limits of excavation are reached, confirmation soil samples will be collected and submitted to the laboratory for analysis of arsenic, lead, or TPH to guide the removals. The confirmation sampling procedure is described in Section 8. At the end of each work day, excavated areas will be secured with fencing, delineators, and caution tape to minimize the occurrence of accidents or unauthorized entry.

7.3.2 Temporary Stockpile Operations

Site stockpile management activities will consist of oversight and direction of stockpile segregation into three main categories:

- Non-Hazardous Waste – Disposed of at a Class III Landfill.

  - Total Arsenic > 12 mg/kg and <500 mg/l, STLC<5 mg/l, and TCLP<5 mg/l, or
  - Total Lead > 80 mg/kg and <1,000 mg/kg, STLC<5 mg/l, and TCLP<5 mg/l

- Non-RCRA Hazardous Waste (California Hazardous Waste) – Disposed of at a Class I Landfill.
  - Total Arsenic > 500 mg/kg or STLC>5 mg/l and TCLP<5 mg/l, or
  - Total Lead > 1,000 mg/kg or STLC>5 mg/l and TCLP<5 mg/l

- RCRA-Hazardous Waste – Disposed of at a Class I Landfill that can specifically handle RCRA-hazardous waste
  - Arsenic TCLP >5 mg/l
  - Lead TCLP >5 mg/l

Based on the results of environmental investigations at the site, RCRA Hazardous Waste is expected to be encountered in Excavation Area B, and California Hazardous Waste is expected to be encountered in Excavation Area E (see Table 2). Most soil generated during the implementation of the RAW will be Non-Hazardous Waste that will be disposed of at a Class III Landfill. Soils will be segregated so that there will be no mixing of soils between excavation areas.

Soil will be initially profiled and segregated into stockpiles based on XRF readings of total arsenic and lead. Once stockpiles have been generated and segregated, waste characterizations samples will be collected and sent to a fixed-base laboratory for analysis of VOCs, TPH, and Title 22 Metals by EPA Methods 8260B, 8015B, and 6010B. Waste characterization samples of stockpiles will be collected at a frequency of approximately one sample per excavation area. Arsenic and/or lead STLC and TCLP will also be analyzed in stockpile soil samples based on XRF readings and known hot spots (i.e. if arsenic concentrations are greater than 20 times the STLC/TCLP limit of 5 mg/l). Soil stockpiles will be placed on plastic sheeting, covered, and clearly labeled on site with colored flags designating Non-Hazardous Waste for disposal, or California Hazardous Waste for disposal. Daily inspection of the stockpiles will be performed. Stockpiles cannot be greater than 400 cubic yards or higher than the perimeter fencing in accordance with SCAQMD Rule 1466.

The soil staging process will be conducted in a manner to minimize the generation of dust. At the staging areas, excavated soil will be placed on an impermeable barrier base (e.g., plastic sheeting) and at the end of each day, covered with tarps or other proper materials (e.g., plastic sheeting) to prevent any storm water run-on and/or dust generation. If significant rainfall is anticipated, the staging areas will be bermed to contain any runoff. When possible, excavated soil may be placed in covered roll-off bins or drums, or may be loaded onto transportation trucks. In no case will the waste storage be longer than five days after its generation, in accordance with SCAQMD Rule 1466. Direct loading will take place concurrently with excavation operations, with access of loaders to the stockpile from outside of the excavation areas, while excavation operations deposit impacted soil from the excavation areas to the staging areas.

7.3.3 Decontamination Area

Vehicles, excavation, and hand-held equipment will be decontaminated prior to leaving the site. A decontamination area will be prepared on site prior to impacted-soil excavation. This area will be designed to contain liquids and residue generated during the decontamination process. The decontamination area will be in an area easily accessible to incoming and outgoing vehicles and equipment, and will include methods for removing soil from vehicle tires. In addition, personnel overseeing decontamination procedures will be responsible for ensuring soil is not tracked off site. Materials removed from impacted equipment and rinsate collected during decontamination of impacted equipment will be containerized and stored on site pending profiling and disposal. After decontamination, the equipment will be visually inspected for signs of residue. Decontamination rinsate will be appropriately disposed of upon receipt of laboratory profiling data.

7.3.4 Confined Space Entry Requirements

Confined space entry permitting is not required for the removal activities at the site.

7.4 Air / Meteorological Monitoring & Dust Control

An Air Monitoring Plan that identifies methods to properly monitor and mitigate the amount of fugitive dust in the ambient air resulting from project-related soil removal activities is presented in Appendix B. The Air Monitoring Plan sets forth the required measures that the construction contractor will implement during remediation and how those measures will be implemented during remediation in accordance with SCAQMD Rules 403 and 1466. These protocols will be implemented in order to protect the community and ensure that site workers react quickly to make appropriate changes to emission control measures, as needed.

7.5 Transportation Plan for Off-Site Disposal

A transportation plan indicating how the excavated soil will be hauled off from the site, describing truck routes for off-site disposal, and listing the frequency of truck trips and any holding areas at the site should be prepared by the remedial contractor or consultant. The plan should be prepared in general accordance with the DTSC's Transportation Plan, Preparation Guidance for Site

Remediation (DTSC, 1994) and should identify entrance and exit gates, truck routes, truck and heavy equipment decontamination area, truck inspection/check point, and personnel and small equipment decontamination areas. Areas of the site outside of the decontamination areas may be used for truck staging and loading. All truckloads will be documented by the appropriate hazardous or non-hazardous bill of lading waste manifest.

Prior to the start of field work, the relevant agencies will be contacted regarding potential road construction. If there is impact from road construction along the planned truck route, then the transportation plan should have an alternative route. Dust mitigation measures will be implemented at the on-site truck routes in accordance with the Air Monitoring Plan in Appendix B.

7.6 Site Restoration

Upon completion of the removal of impacted soils and confirmation sampling, the excavation areas will be redeveloped as part of the MMP, which may include further excavation, backfilling, grading, and/or repaving. Since the area of disturbance is less than one acre, a Storm Water Pollution Prevention Plan is not necessary for the RAW implementation. If weather conditions prevent immediate restoration of the excavation areas, erosion controls will be established as necessary.

8 CONFIRMATION SAMPLING AND IMPORT SOIL EVALUATION

8.1 Confirmation Sampling and Analyses

Following the RA, soil samples will be collected and analyzed from the bottom and sidewalls of the excavation to evaluate if the excavation extended a sufficient distance laterally and vertically to remove the soil that exceeds the CG for the chemicals of concern. Confirmation soil sample locations will be determined in the field, as the excavation progresses and based on observations made in the field.

As discussed in Section 5.2, the extents of the proposed soil excavations are shown in Figure 3. Excavation depths will vary from approximately 0.5 to 5 feet bgs depending on the depth to which arsenic, lead, or TPH were detected above CGs.

Confirmation soil samples will be collected on a systematic basis from the nodes of a generally square grid with a spacing of approximately 20 feet. In areas where the excavation sidewalls are approximately 4 feet bgs or deeper, two sidewall samples will be collected at the indicated 20-foot grid node. A minimum of one sidewall sample collected from each excavation sidewall. Bottom floor samples will be collected at the rate of one sample for each 400 square feet of excavation area at the midpoint of each interval, and at a minimum of one sample per excavation bottom. For the planned excavation, approximately 111 confirmation samples will be collected from the bottom and sidewalls at the locations and depths shown on Figures 5 through 7, and in Table 4.

Samples will be collected using a clean trowel or plastic disposal trowels and transferred directly into glass jars. Upon retrieval, the samples will be capped, labeled, placed in individual zip-lock bags and placed in an ice-cooled chest pending delivery to a State-certified laboratory for chemical analyses under proper chain-of-custody documentation. These samples will be analyzed for arsenic, lead, or TPH in general accordance with EPA Methods 6010B (arsenic and lead), and 8015B (TPH). If the results of these samples exceed respective CGs, then additional excavation will be performed within the excavation area until the impacted soil is removed from the site. Confirmation soil sampling, analysis, and evaluation will be repeated, as previously described, within any resulting excavation. The excavation will be considered complete if the concentrations detected in the confirmation samples are less than CGs.

8.2 Borrow Source Evaluation

Clean fill material will be imported to the site to backfill excavations and grade the site. The amount of clean fill material to be imported to the site will depend on the final extent of excavation and the quantity of stockpiled soil which is determined to be suitable for re-use as backfill material on site. Any soil imported to the Site will be tested and certified in accordance with LAUSD Section 01 4524 specifications – “Environmental Import/Export Materials Testing” (August 2018). The contractor will be responsible for providing documentation of the source of clean fill material and will be responsible for performing or providing documentation of the required geotechnical and environmental analysis of the clean import fill material.

9 PUBLIC PARTICIPATION

To fulfill the requirements of public participation for the RAW process, a project spokesperson will be designated. The spokesperson will coordinate news releases, notify affected citizens, establish an administrative record (as defined in the NCP 300.820) and notify the public of the Administrative Record. A mailing list will be generated (for properties within a ¼-mile radius of the site) and a key contacts list (local elected representatives, school officials, and local organizations) will be created. A community survey, mailing list, and key contact list will be submitted to the LAUSD for review and approval.

A public notice will be published in local newspapers (including one in Spanish, if available) informing the community of this proposed RAW and for public inspection at established Information Repositories, which are listed below.

- LAUSD Office of Environmental Health and Safety located at 333 S. Beaudry Avenue, 21st Floor, Los Angeles, CA 90017.
- 49th Street Elementary School located at 750 East 49th Street, Los Angeles, CA 90017.
- Junipero Serra Branch Library, 4607 South Main Street, Los Angeles, CA 90037

Copies of this RAW will be placed in the Information Repositories for access by community members.

The date and location, if required, of the public meeting will be indicated in the public notice. A 30-day public comment period will be held to accept public comments on the proposed RA. Following the public meeting, and at the close of the public comment period, LAUSD will evaluate the comments and make appropriate revisions and finalize the RAW.

Prior to RAW implementation, a notice of field work will be prepared and posted at perimeter site locations, and distributed by the LAUSD five days prior to the start of RAW field activities. The work notice will be distributed to 49th Street Elementary School students, staff and faculty, and nearby residents and businesses (i.e., within line-of-sight). The notice will also be laminated and posted along the fence line of the project. In addition, field notices will be mailed to the elected officials in order to keep them informed about their neighborhood school. The public notice will provide a general description of the fieldwork, along with the telephone number of the LAUSD Project Manager for further information.

10 PROJECT SCHEDULE AND REPORTING

An anticipated tentative schedule for RAW implementation is shown below. Proposed work will be completed during weekends or holidays, when school is not in session.

Task	Calendar Days to Complete	Tentative Start Date
Field Preparation	5 days	June 2024
RAW implementation and Confirmation Sampling.	20 days	July 2024
Preparation of Draft RACR	20 days	August 2024

Following completion of the RA, a RACR will be prepared and submitted to the LAUSD for review and approval. The RACR will include a summary of the RA field activities and the following items:

- Site plan, soil excavation extents and confirmation sample location map;
- Tabulated analytical results;
- Air monitoring results;

- Certified analytical laboratory reports;
- Copies of the waste manifests.

11 REFERENCES

California Department of Toxic Substances Control, 1994, Transportation Plan Preparation Guidance for Site Remediation, Interim Final.

Chernoff, G., Bosan, W., and Oudiz, D., 2007, Determination of a Southern California Regional Background Arsenic Concentration in Soil. Department of Toxic Substance Control, March.

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Department of Toxic Substances Control, 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, revised June 9.

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Dibblee, T.W., and Minch, J.A, Dibblee Geological Foundation, 2007, Geologic Map of the Venice and Inglewood Quadrangles, Los Angeles County, California.

DTSC, see Department of Toxic Substances Control.

EPA, see United States Environmental Protection Agency.

GeoTracker, see California State Water Resources Control Board.

GPI, 2022, Preliminary Geotechnical Investigation, Proposed Major Modernization Project, 49th Street Elementary School, 750 E. 49th Street, Los Angeles, California

Ninyo & Moore, 2023, Preliminary Environmental Assessment Equivalent Report, 49th Street Elementary School – Comprehensive Modernization Project, 750 East 49th Street, Los Angeles, California, dated July 19.

State Water Resources Control Board, GeoTracker website, 2015, http://geotracker.swrcb.ca.gov.

Tetra Tech, 2022, Phase I Environmental Site Assessment, 49th Street Elementary School, 750 East 49th Street, Los Angeles, California, dated March.

United States Geological Survey, 2015, Inglewood Quadrangle, California, 7.5 Minute Series (Topographic) Map.

United States Environmental Protection Agency, 1993, Guidance on Conducting Non-Time-Critical Removal actions under CERCLA (Publication 9360.0-32), dated August.

USGS, see United States Geological Survey.

Table 1 – Summary of Soil Analytical Results for Lead, Arsenic, and TPH

Sample ID	Date Sampled	EPA Method 6010B						TPH EPA Method 8015B (mg/kg)	
		Arsenic (TTLC) (mg/kg)	Arsenic (STLC) (mg/l)	Arsenic (TCLP) (mg/l)	Lead (TTLC) (mg/kg)	Lead (STLC) (mg/l)	Lead (TCLP) (mg/l)	DROs	MROs
B1-0.5	2/18/2023	ND<2.0	NA	NA	5.6	NA	NA	NA	NA
B2-0.5	2/18/2023	ND<2.0	NA	NA	17	NA	NA	NA	NA
B2-N-0.5	4/3/2023	3.9	NA	NA	NA	NA	NA	NA	NA
B3-0.5	2/18/2023	**52**	2.5	NA	26	NA	NA	NA	NA
B3-2.5	2/18/2023	ND<2.0	NA	NA	NA	NA	NA	NA	NA
B4-0.5	2/18/2023	**700**	**53**	**22**	NA	NA	NA	NA	NA
B4-2.5	2/18/2023	**130**	**7.0**	2.0	NA	NA	NA	NA	NA
B4-5	4/3/2023	3.9	NA	NA	NA	NA	NA	NA	NA
B4-E-0.5	4/3/2023	**26**	NA	NA	NA	NA	NA	NA	NA
B4-E-2.5	4/3/2023	3.1	NA	NA	NA	NA	NA	NA	NA
B4-E2-0.5	4/3/2023	**46**	NA	NA	NA	NA	NA	NA	NA
B4-W-0.5	4/3/2023	**720**	NA	NA	NA	NA	NA	NA	NA
B4-W-2.5	4/3/2023	**130**	NA	NA	NA	NA	NA	NA	NA
B4-W2-0.5	4/3/2023	**180**	**11**	4.5	NA	NA	NA	NA	NA
B4-W3-0.5	5/6/2023	**53**	3.2	NA	NA	NA	NA	NA	NA
B4-N-0.5	4/3/2023	**35**	NA	NA	NA	NA	NA	NA	NA
B5-0.5	2/18/2023	ND<2.0	NA	NA	6	NA	NA	NA	NA
B6-0.5	2/18/2023	ND<2.0	NA	NA	4.4	NA	NA	NA	NA
B7-0.5	2/18/2023	ND<2.0	NA	NA	28	NA	NA	NA	NA
B8-0.5	2/18/2023	ND<2.0	NA	NA	4.8	NA	NA	NA	NA
B9-0.5	2/18/2023	ND<2.0	NA	NA	9.1	NA	NA	NA	NA
B10-0.5	2/18/2023	2.6	NA	NA	**91**	3.6	NA	NA	NA
B10-2.5	2/18/2023	NA	NA	NA	4.3	NA	NA	NA	NA
B11-0.5	2/18/2023	6.8	NA	NA	55	1.8	NA	NA	NA
B11-2.5	2/18/2023	NA	NA	NA	5.2	NA	NA	NA	NA
B12-0.5	2/18/2023	ND<2.0	NA	NA	18	ND<0.1	NA	NA	NA
B13-0.5	2/18/2023	3.2	NA	NA	53	1.6	NA	NA	NA
B13-2.5	2/18/2023	NA	NA	NA	3.1	NA	NA	NA	NA
B14-0.5	2/18/2023	**28**	NA	NA	32	ND<0.1	NA	NA	NA
B14-2.5	2/18/2023	2.4	NA	NA	NA	NA	NA	NA	NA
B14-E-0.5	4/3/2023	4.6	NA	NA	NA	NA	NA	NA	NA
B14-S-0.5	4/3/2023	7.0	NA	NA	NA	NA	NA	NA	NA
B15-0.5	2/18/2023	5.9	NA	NA	24	ND<0.1	NA	NA	NA
B16-0.5	2/18/2023	7.9	NA	NA	**92**	1.7	NA	NA	NA
B16-2.5	2/18/2023	NA	NA	NA	6.1	NA	NA	NA	NA
B17-0.5	2/18/2023	6.8	NA	NA	31	NA	NA	NA	NA
B18-0.5	2/18/2023	ND<2.0	NA	NA	36	ND<0.1	NA	NA	NA
B19-0.5	2/20/2023	2.4	NA	NA	63	1.4	NA	NA	NA
B20-0.5	2/20/2023	3.2	NA	NA	18	NA	NA	ND<10	ND<50
B20-W-0.5	4/3/2023	ND<2.0	NA	NA	NA	NA	NA	NA	NA
B20-E-0.5	4/3/2023	3.6	NA	NA	NA	NA	NA	NA	NA

Table 1 – Summary of Soil Analytical Results for Lead, Arsenic, and TPH

Sample ID	Date Sampled	EPA Method 6010B						TPH EPA Method 8015B (mg/kg)	
		Arsenic (TTLC) (mg/kg)	Arsenic (STLC) (mg/l)	Arsenic (TCLP) (mg/l)	Lead (TTLC) (mg/kg)	Lead (STLC) (mg/l)	Lead (TCLP) (mg/l)	DROs	MROs
B21-0.5	2/20/2023	**38**	NA	NA	42	NA	NA	NA	NA
B21-2.5	2/20/2023	2.0	NA	NA	NA	NA	NA	NA	NA
B21-W-0.5	4/3/2023	7.6	NA	NA	NA	NA	NA	NA	NA
B22-0.5	2/18/2023	**64**	2.8	NA	40	NA	NA	NA	NA
B22-2.5	2/18/2023	2.0	NA	NA	NA	NA	NA	NA	NA
B23-0.5	2/20/2023	ND<2.0	NA	NA	38	NA	NA	NA	NA
B24-0.5	2/20/2023	ND<2.0	NA	NA	66	2.8	NA	NA	NA
B25-0.5	2/20/2023	3.6	NA	NA	21	NA	NA	NA	NA
B26-0.5	2/20/2023	2.8	NA	NA	34	NA	NA	NA	NA
B27-0.5	2/20/2023	2.5	NA	NA	4.6	NA	NA	NA	NA
B28-0.5	2/20/2023	2.5	NA	NA	5.5	NA	NA	NA	NA
B29-0.5	2/20/2023	2	NA	NA	34	NA	NA	NA	NA
B30-0.5	2/20/2023	ND<2.0	NA	NA	11	NA	NA	NA	NA
B32-2.5	2/20/2023	ND<2.0	NA	NA	6	NA	NA	ND<10	120
B32-5	2/20/2023	ND<2.0	NA	NA	4.6	NA	NA	ND<10	ND<50
B33-2.5	2/20/2023	3.9	NA	NA	6.7	NA	NA	ND<10	ND<50
B33-5	2/20/2023	ND<2.0	NA	NA	5.3	NA	NA	ND<10	ND<50
B34-2.5[1]	2/20/2023	ND<2.0	NA	NA	24	NA	NA	NA	ND<50
B34-2.5	4/5/2023	2.4	NA	NA	**230**	**11**	0.19	ND<10	ND<50
B34-5	4/5/2023	NA	NA	NA	3.2	NA	NA	NA	NA
B34-10	4/5/2023	ND<2.0	NA	NA	3.3	NA	NA	ND<10	ND<50
B34-NW-2.5	2/20/2023	ND<2.0	NA	NA	24	NA	NA	NA	NA
B34-NE-0.5	5/6/2023	NA	NA	NA	30	NA	NA	NA	NA
B34-NE-2.5	5/6/2023	NA	NA	NA	**360**	NA	NA	NA	NA
B34-NE2-2.5	5/6/2023	NA	NA	NA	**94**	2.7	NA	NA	NA
B34-SW-0.5	5/6/2023	NA	NA	NA	17	NA	NA	NA	NA
B34-SW-2.5	5/6/2023	NA	NA	NA	5.8	NA	NA	NA	NA
B35-2.5	4/5/2023	ND<2.0	NA	NA	3.4	NA	NA	ND<10	ND<50
B35-10	4/5/2023	ND<2.0	NA	NA	2.4	NA	NA	ND<10	ND<50
B36-0.5	4/5/2023	2.1	NA	NA	15	NA	NA	18	78
B36-2.5	4/5/2023	2.2	NA	NA	5.6	NA	NA	ND<10	ND<50
B37-0.5	4/5/2023	2.3	NA	NA	13	NA	NA	ND<10	ND<50
B37-2.5	4/5/2023	ND<2.0	NA	NA	4.1	NA	NA	ND<10	ND<50
B37-5	4/5/2023	ND<2.0	NA	NA	3.9	NA	NA	ND<10	ND<50
B37-10	4/5/2023	3.9	NA	NA	6.3	NA	NA	ND<10	ND<50
B37-15	4/5/2023	ND<2.0	NA	NA	2.6	NA	NA	ND<10	ND<50
B38-0.5	4/5/2023	ND<2.0	NA	NA	8.4	NA	NA	ND<10	ND<50
B38-2.5	4/5/2023	ND<2.0	NA	NA	6.9	NA	NA	ND<10	ND<50
B38-5	4/5/2023	2.5	NA	NA	6.8	NA	NA	ND<10	ND<50
B38-10	4/5/2023	2.2	NA	NA	2.6	NA	NA	ND<10	ND<50

Table 1 – Summary of Soil Analytical Results for Lead, Arsenic, and TPH									
Sample ID	Date Sampled	EPA Method 6010B						TPH EPA Method 8015B (mg/kg)	
		Arsenic (TTLC) (mg/kg)	Arsenic (STLC) (mg/l)	Arsenic (TCLP) (mg/l)	Lead (TTLC) (mg/kg)	Lead (STLC) (mg/l)	Lead (TCLP) (mg/l)	DROs	MROs
B38-15	4/5/2023	ND<2.0	NA	NA	5.7	NA	NA	ND<10	ND<50
B39-0.5	4/5/2023	ND<2.0	NA	NA	16	NA	NA	ND<10	ND<50
B39-2.5	4/5/2023	ND<2.0	NA	NA	6.9	NA	NA	ND<10	ND<50
B39-5	4/5/2023	ND<2.0	NA	NA	13	NA	NA	12	ND<50
B39-10	4/5/2023	ND<2.0	NA	NA	2.1	NA	NA	ND<10	ND<50
B39-15	4/5/2023	ND<2.0	NA	NA	1.4	NA	NA	ND<10	ND<50
B40A-0.5	5/6/2023	2.3	NA	NA	NA	NA	NA	NA	NA
B40-2.5	2/18/2023	ND<2.0	NA	NA	NA	NA	NA	ND<10	140
B41A-0.5	5/6/2023	**89**	**6.6**	NA	NA	NA	NA	NA	NA
B41-2.5	2/18/2023	2.2	NA	NA	NA	NA	NA	14	75
B42-2.5	2/18/2023	NA	NA	NA	NA	NA	NA	ND<10	67
B42A-0.5	4/3/2023	**63**	2.4	NA	NA	NA	NA	NA	NA
B42A-2.5	4/3/2023	2.3	NA	NA	NA	NA	NA	NA	NA
B43-0.5	4/5/2023	ND<2.0	NA	NA	7.1	NA	NA	ND<10	ND<50
B43-2.5	4/5/2023	ND<2.0	NA	NA	4.7	NA	NA	ND<10	ND<50
B43-5	4/5/2023	2.5	NA	NA	4.2	NA	NA	ND<10	ND<50
B43-10	4/5/2023	ND<2.0	NA	NA	3.0	NA	NA	ND<10	ND<50
B43-15	4/5/2023	2.0	NA	NA	4.2	NA	NA	ND<10	ND<50
B44-0.5	4/3/2023	3.1	NA	NA	29	NA	NA	ND<10	ND<50
B44-2.5	4/3/2023	ND<2.0	NA	NA	4.4	NA	NA	ND<10	ND<50
B45-0.5	4/3/2023	3.3	NA	NA	200	4.7	0.11	**490**	**1900**
B45-2.5	4/3/2023	NA	NA	NA	2.5	NA	NA	ND<10	ND<50
B45-15	4/3/2023	ND<2.0	NA	NA	2	NA	NA	ND<10	ND<50
B46-0.5	4/5/2023	ND<2.0	NA	NA	16	NA	NA	ND<10	ND<50
B46-2.5	4/5/2023	ND<2.0	NA	NA	8.6	NA	NA	ND<10	ND<50
B46-5	4/5/2023	ND<2.0	NA	NA	3.9	NA	NA	ND<10	ND<50
B46-10	4/5/2023	ND<2.0	NA	NA	3.1	NA	NA	ND<10	ND<50
S1	4/3/2023	3.7	NA	NA	NA	NA	NA	NA	NA
S2	4/3/2023	**31**	NA	NA	NA	NA	NA	NA	NA
S3	4/3/2023	**14**	NA	NA	NA	NA	NA	NA	NA
S4	4/3/2023	**24**	NA	NA	NA	NA	NA	NA	NA
S5	4/3/2023	6.9	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Levels (mg/kg)									
EPA RSLs (Residential Soil)		0.68	NL	NL	400	NL	NL	96*	230,000*
DTSC HERO HHRA (Residential S		0.11	NL	NL	**80***	NL	NL	NL	NL
DTSC Acceptable Clean Up Levels		**12**	--	--	--	--	--	--	--
San Francisco Bay RWQCB (Tier 1		0.067	NL	NL	32	NL	NL	**260**	**1,600***

Table 1 – Summary of Soil Analytical Results for Lead, Arsenic, and TPH

Sample ID	Date Sampled	EPA Method 6010B						TPH EPA Method 8015B (mg/kg)	
		Arsenic (TTLC) (mg/kg)	Arsenic (STLC) (mg/l)	Arsenic (TCLP) (mg/l)	Lead (TTLC) (mg/kg)	Lead (STLC) (mg/l)	Lead (TCLP) (mg/l)	DROs	MROs
Hazardous Waste Criteria									
TTLC (mg/kg)		**500**	--	--	**1,000**	--	--	--	--
10 X STLC (mg/kg)		50	--	--	50	--	--	--	--
20 X TCLP (mg/kg)		100	--	--	100	--	--	--	--
STLC (mg/l)		5	**5**	--	5	**5**	--	--	--
TCLP (mg/l)		5	--	**5**	5	--	**5**	--	--

Notes:

-- - not applicable

* - non-cancer endpoint

[1] - Two co-located samples were collected with corresponding ID of B34-2.5 due to refusal encountered in the original boring B34 on February 20, 2023. The report text refers to the second B34 sample collected on April 5, 2023

bold indicates exceedance of regulatory screening level(s) **and applicable screening levels (CGs)**

CGs - cleanup goals

DROs - diesel range organics

DTSC Acceptable Clean Up Levels- DTSC's Determination of a Southern California Regional Background Arsenic concentrations in soil (March 2008)

DTSC HERO HHRA - Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment, Note 3, Recommended Screening Levels for Soil (June 2020)

EPA - United States Environmental Protection Agency

ID - Identification

mg/kg - milligrams per kilogram

mg/l - milligrams per liter

MROs - motor oil range organics

NA - not analyzed

ND< - not detected above the laboratory reporting limit

NL - not listed

RSLs - United States Environmental Protection Agency Regional Screening Levels (May 2023)

STLC - soluble threshold limit concentration

TCLP - toxicity characteristic leaching procedure

TPH - total petroleum hydrocarbons

TTLC - total threshold limit concentration

µg/kg - micrograms per kilogram

Table 2 – Soil Excavation Areas and Estimated Volume/Weight												
Excavation Area	PEA Borings with As > 12 mg/kg	PEA Borings with Pb > 80 mg/kg	PEA Borings with TPH> 260 mg/kg	PEA Maximum COC Concentration (mg/kg) / (Sample ID)	Soil Classification	Length (ft)	Width (ft)	Excavation Surface Area (ft^2)[a]	Depth of Excavation (ft bgs)	Volume of Excavation* (ft^3)[1]	Volume of Excavation (yd^3)	Excavation Weight (Tons)[2]
Area A	B3, B22, B42A	--	--	64 (B22-0.5)	Non-hazardous	148	30	4,700	2.0	13,160	487	682
Area B	B4, B4-W, B4-W3, B4-N, B4-E, B4-E2,	--	--	700 (B4-0.5)	RCRA-hazardous	25	10	250	5.0	1,750	64.8	90.7
Area B*				N/A	Non-hazardous	90	5	450	5.0	3,150	116.7	163
Area C	B21	--	--	38 (B21-0.5)	Non-hazardous	38	25	750	2.0	2,100	77.8	108.9
Area D	B14	--	--	28 (B14-0.5)	Non-hazardous	192	40	7,680	2.0	21,504	796	1,115
Area E	--	B34, B34-NE, B34-	--	360 (B34-NE-2.5)	California-hazardous	15	10	75	5.0	525	19.4	27.2
Area F	--	B45	B45	Pb: 200 (B45-0.5) TPH: 490 (B45-0.5)	Non-hazardous	10	10	100	1.0	140	5.2	7.3
Total Volume/Weight of As-Impacted Soil										38,514	1,426	1,997
Total Volume/Weight of Pb-Impacted Soil										525	19.4	27.2
Total Volume/Weight of TPH-Impacted or Product Line Soil										3,290	121.9	171
Total										42,329	1,568	2,195

Notes:

* - The eastern portion of Area B is designated for the excavation and removal of the former product line

[a] - Some removal areas are not rectangular, so various formulas are used to calculate surface area. Lengths and widths for some removal areas are estimated measurements between edges of overall removal shape.

[1] - sloughing factor of 1.4x used to estimate total volume of soil.

[2] - conversion factor of 1.4x from cubic yards to tons used

As of 12 mg/kg- DTSC's Determination of a Southern California Regional Background Arsenic concentrations in soil (March 2008)

Pb of 80 mg/kg - DTSC HERO HHRA Screening Level for Residential Soil (DTSC, 2020)

TPH DRO of 260 mg/kg - SFRWQCB Tier 1 ESL for Diesel (SFRWQCB, 2019)

-- - not applicable

As - arsenic

bgs - below ground surface

COC - Constituent of Concern

DRO - diesel range organics

DTSC - Department of Toxic Substances Control

DTSC HERO HHRA - Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment

ft - feet

ft^2 - square feet

ft^3 - cubic feet

mg/kg - milligrams per kilogram

N/A - not applicable

Pb - lead

PEA - Preliminary Environmental Assessment

RAW - removal action work plan

RCRA - Resource Conservation and Recovery Act

SFRWQCB - San Francisco Regional Water Quality Control Board

TPH - total petroleum hydrocarbons

yd^3- cubic yard

Table 3 – Remedial Alternative Cost Comparison

Task	Remedial Alternatives*		
	Alternative 1	Alternative 2	Alternative 3
Depth of Excavation	0	0	Up to 5 feet bgs
Volume of Soil to be Transported (cubic yards)	0	0	1,568
Direct Costs			
Excavation, Transportation, Disposal, and Dust Suppression	$0	$0	$243,000
Soil Capping	$0	$75,000	$15,000
Oversight, Planning, and Maintenance Costs			
Project Coordination	$0	$20,000	$30,000
Field Sampling Layout and Excavation Boundary Markout	$0	$0	$5,000
Excavation Oversight and Air Monitoring	$0	$0	$50,000
Confirmation Soil Sampling and Waste Characterization Analysis	$0	$0	$20,000
Annual Cap Inspection (20 years)	$0	$300,000	$0
Removal Action Completion Report	$0	$0	$25,000
Public Participation Activities	$0	$0	$20,000
Engineering and O&M Plans, Land Use Restrictions, Stormwater Pollution Prevention Plan	$0	$150,000	$30,000
Indirect Costs			
Hazardous Waste Generator and Handling Fee	$0	$0	$5,898
Licenses, Permits, and Supplies	$0	$25,000	$15,000
Total Cost Before Contingency	$0	$570,000	$458,898
Contingency (15%)	$0	$85,500	$68,835
Total	**$0**	**$655,500**	**$527,733**

Notes:

* Alternative 1 - No Action.

* Alternative 2 - Containment Through Surface Cap.

* Alternative 3 - Excavation and Off-site Recycling or Disposal.

bgs - below ground surface

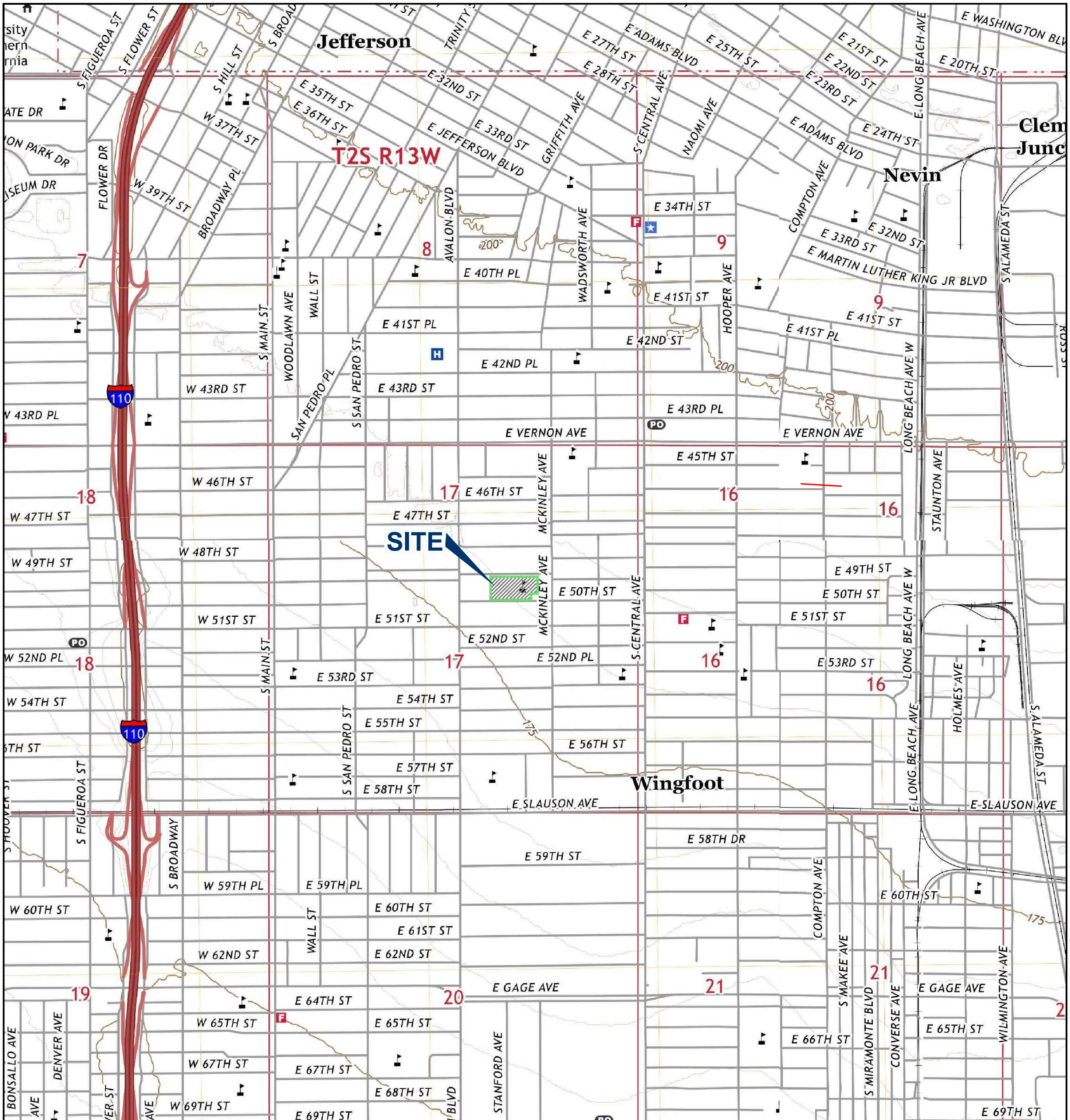
O&M - Operation and Maintenance

Table 4 – Proposed RAW Soil Confirmation Sampling Program

Excavation Area	No. of Confirmation Samples (Estimated)	Depth of Bottom Samples (ft. bgs)	Depth of Sidewall Samples (ft. bgs)	Laboratory Analytical Method(s)
Area A	36	2.5	1	Arsenic by EPA Method 6010B
Area B	8	5	2, 4	Arsenic by EPA Method 6010B
Area B	7	5	--*	TPH by EPA Method 8015B
Area C	8	2.5	1	Arsenic by EPA Method 6010B
Area D	40	2.5	1	Arsenic by EPA Method 6010B
Area E	7	5	2, 4	Lead by EPA Method 6010B
Area F	5	1	0.5	TPH by EPA Method 8015B
Total No. of confirmation samples = 111				

Notes:
ft bgs - feet below ground surface
Depth of excavation sidewalls are approximate
EPA - United States Environmental Protection Agency
No. - number
RAW - removal action workplan
* - sidewall samples will not be collected for removal of the former oil pipeline in Area B, but may be gathered from excavation bottom as needed.

FIGURES



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2021.

N

FEET

0 2,000 4,000

211936018.dwg 08/25/2023 GK

FIGURE 1

SITE LOCATION

LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

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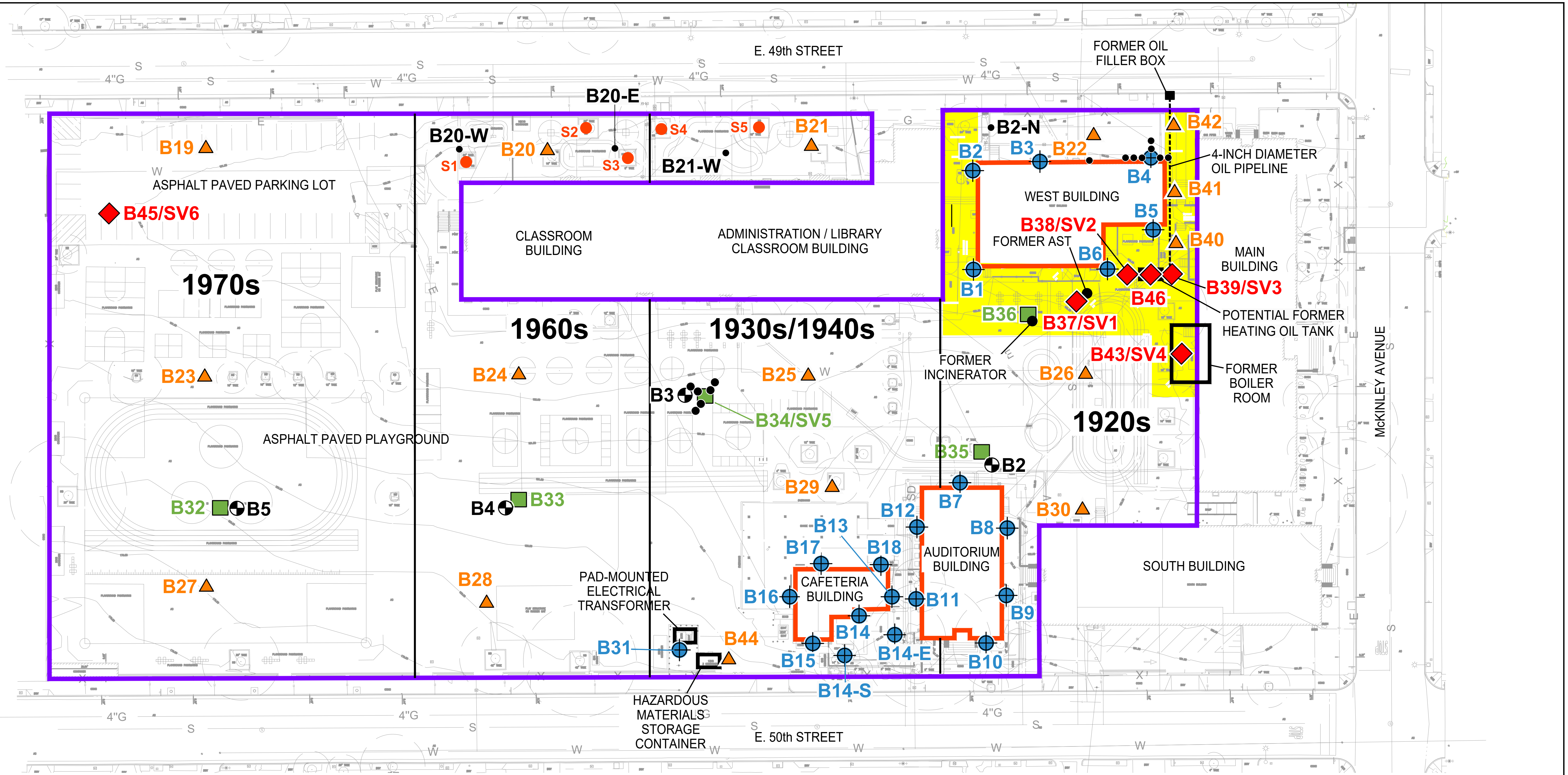

LEGEND

(purple line)	PEA / COMP MOD BOUNDARY	B31	SOIL BORING TO 2.5 FEET BGS	B46/SV7	SOIL AND/OR SOIL VAPOR BORING TO 15 FEET BGS
(orange line)	BUILDINGS TO BE DEMOLISHED	B42	SOIL BORING TO 5 FEET BGS	B5	GPI 2021 GEOTECHNICAL EXPLORATORY BORING
(yellow)	LIMITS OF A FULL SCAN GEOPHYSICAL SURVEY	B36	SOIL BORING TO 10 FEET BGS	FT BGS	FEET BELOW GROUND SURFACE
		B21	STEP-OUT BORING		
		S5	PLANTER BOX SURFACE SAMPLE		

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

REFERENCES:
STANTEC TITLE VICINITY MAP, TOPOGRAPHIC SURVEY, SUBSURFACE UTILITY AND VAULT INVESTIGATION, SHEETS V1-V-10 (6/17/22).
LAUSD VAULT DIAGRAM AND PLOT PLANS (9/1/1934, 10/1/1934, 1/1/1948).
TETRA TECH PHASE I ENVIRONMENTAL SITE ASSESSMENT (3/22/22).

N

FEET
0 60 120

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FIGURE 2

Ninyo & Moore
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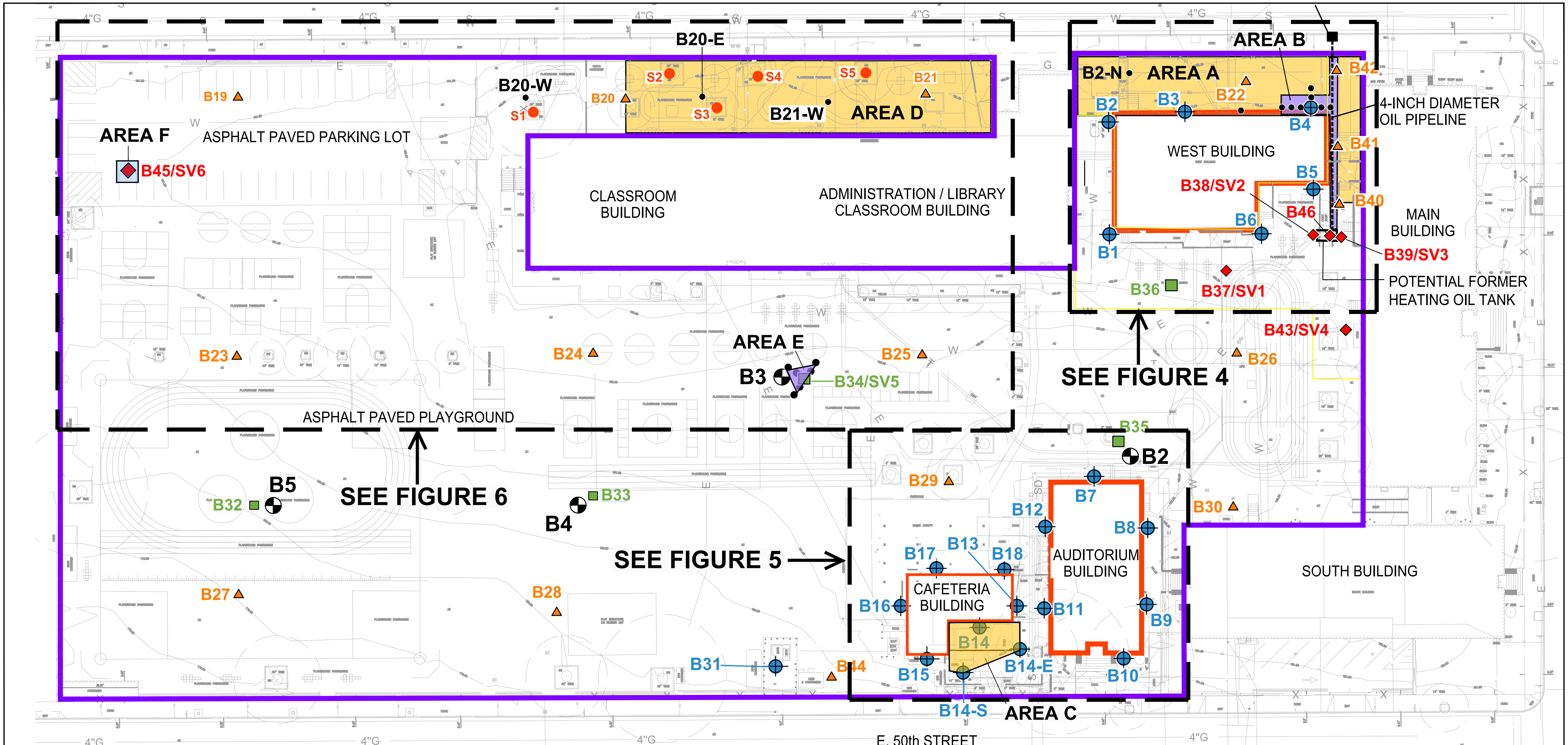
PEA SAMPLING LOCATIONS
LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

211936018 I 8/23



LEGEND

	PEA / COMP MOD BOUNDARY
	BUILDINGS TO BE DEMOLISHED
B31	SOIL BORING TO 2.5 FEET BGS
B42	SOIL BORING TO 5 FEET BGS
B36	SOIL BORING TO 10 FEET BGS
B21	STEP-OUT BORING
S5	PLANTER BOX SURFACE SAMPLE
B46/SV7	SOIL AND/OR SOIL VAPOR BORING TO 15 FEET BGS
B5	GPI 2021 GEOTECHNICAL EXPLORATORY BORING
FT BGS	FEET BELOW GROUND SURFACE

PROPOSED EXCAVATION LIMITS AND DEPTHS

- 1.0 FT BGS
- 2.5 FT BGS
- 5.0 FT BGS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

REFERENCES:
STANTEC TITLE VICINITY MAP, TOPOGRAPHIC SURVEY, SUBSURFACE UTILITY AND VAULT INVESTIGATION, SHEETS V1-V-10 (6/17/22).
LAUSD VAULT DIAGRAM AND PLOT PLANS (9/1/1934, 10/1/1934, 1/1/1948).
TETRA TECH PHASE I ENVIRONMENTAL SITE ASSESSMENT (3/22/22).

N

FEET
0 50 100

211936018.dwg 08/25/2023 GK, JDP

FIGURE 3

Ninyo & Moore
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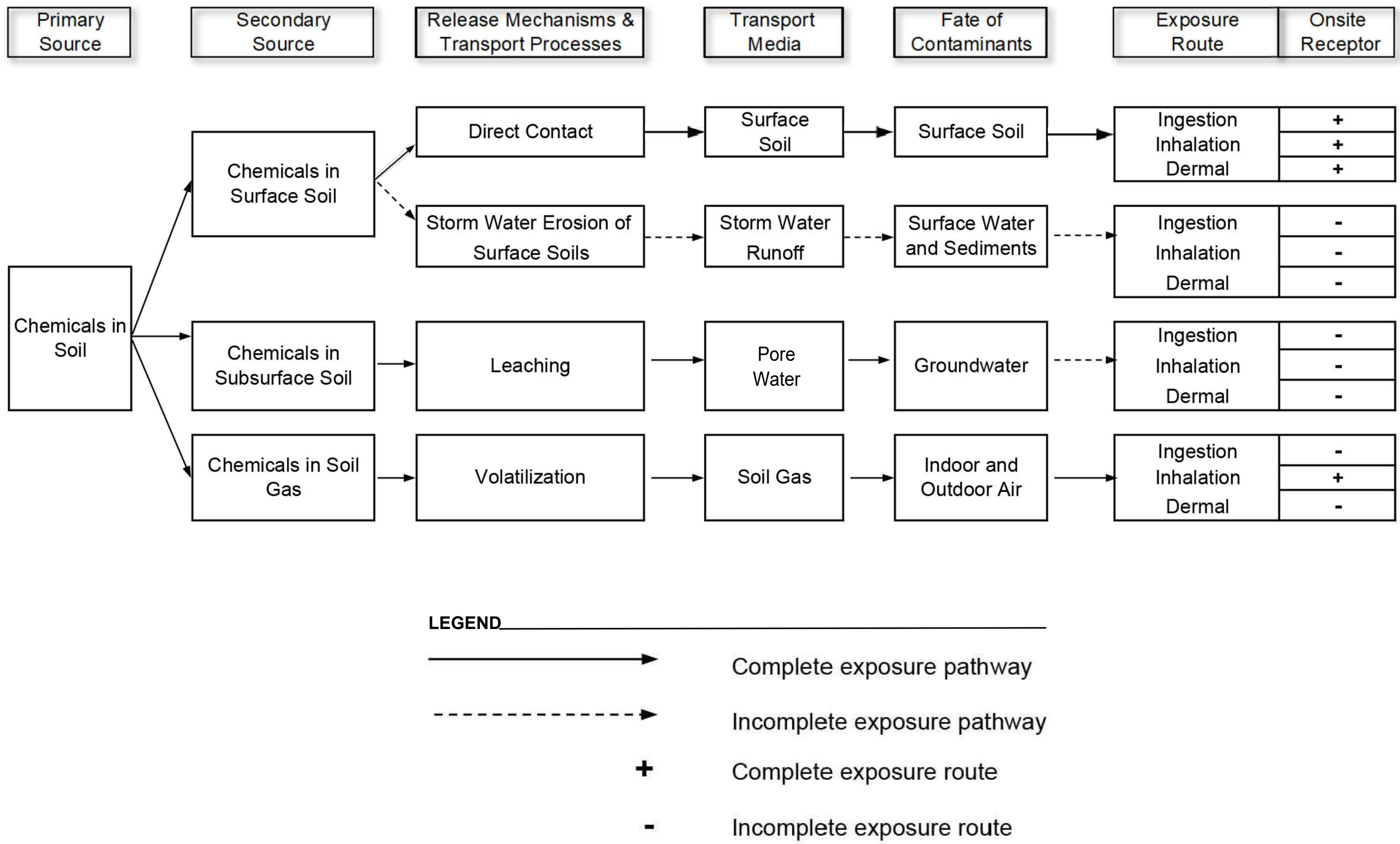
PROPOSED RAW EXCAVATION AREAS
LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

211936018 | 8/23



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

211936010.dwg 07/18/2023 (July 2023) JDP

FIGURE 4

Ninyo & Moore
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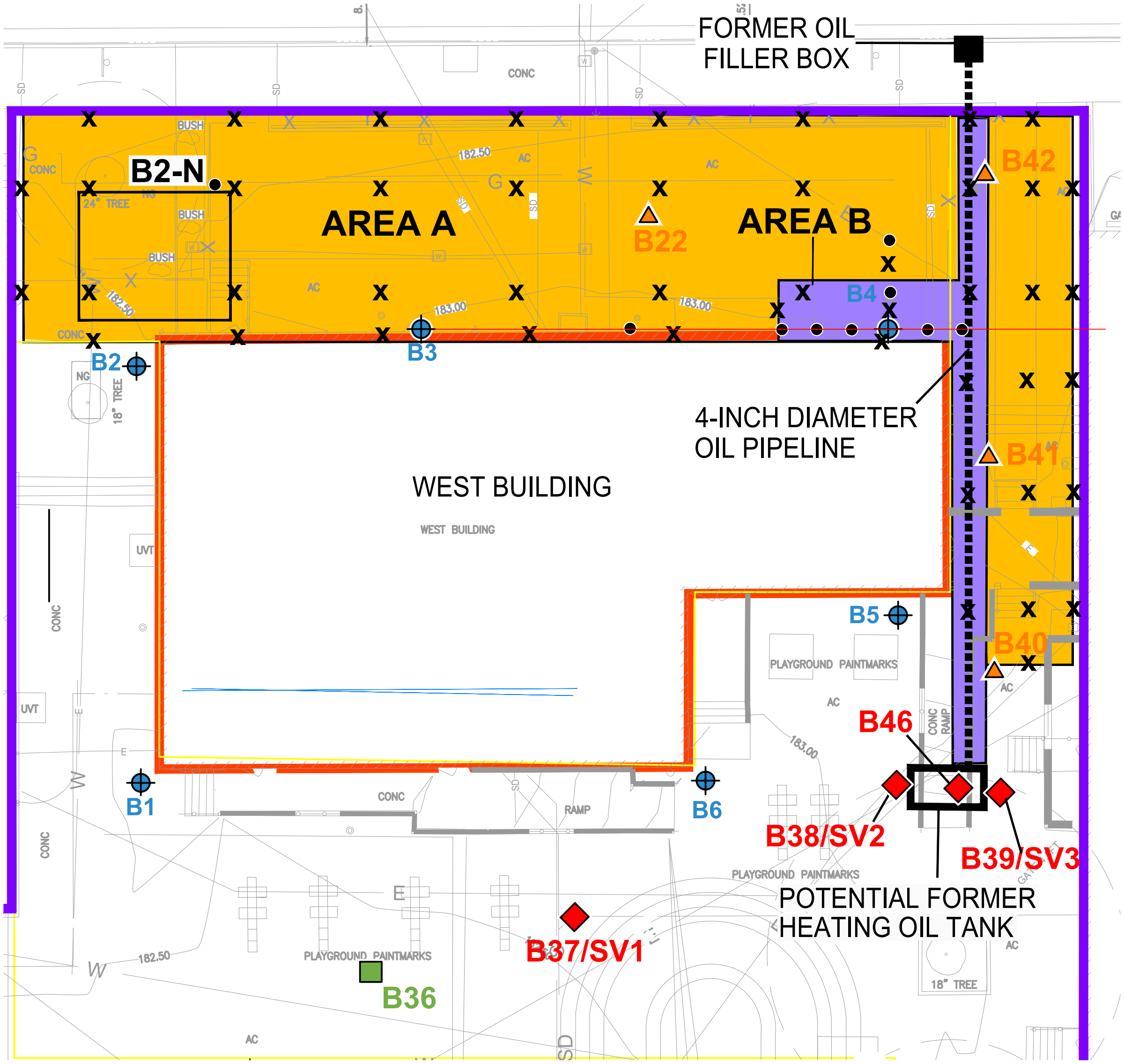
CONCEPTUAL SITE MODEL

LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

211936018 I 8/23



REFERENCES:
STANTEC TITLE VICINITY MAP, TOPOGRAPHIC SURVEY, SUBSURFACE UTILITY AND VAULT INVESTIGATION, SHEETS V1-V-10 (6/17/22).
LAUSD VAULT DIAGRAM AND PLOT PLANS (9/1/1934, 10/1/1934, 1/1/1948).
TETRA TECH PHASE I ENVIRONMENTAL SITE ASSESSMENT (3/22/22).

LEGEND

PEA / COMP MOD BOUNDARY
BUILDINGS TO BE DEMOLISHED
B6 SOIL BORING TO 2.5 FEET BGS
B42 SOIL BORING TO 5 FEET BGS
B36 SOIL BORING TO 10 FEET BGS
B39/SV3 SOIL AND/OR SOIL VAPOR BORING TO 15 FEET BGS
B5 GPI 2021 GEOTECHNICAL EXPLORATORY BORING
FT BGS FEET BELOW GROUND SURFACE
X PROPOSED CONFIRMATION SOIL SAMPLE LOCATION

PROPOSED EXCAVATION LIMITS AND DEPTHS
2.5 FT BGS
5.0 FT BGS

N
FEET
0 25 50

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

211936018.dwg 08/25/2023 GK, JDP

FIGURE 5

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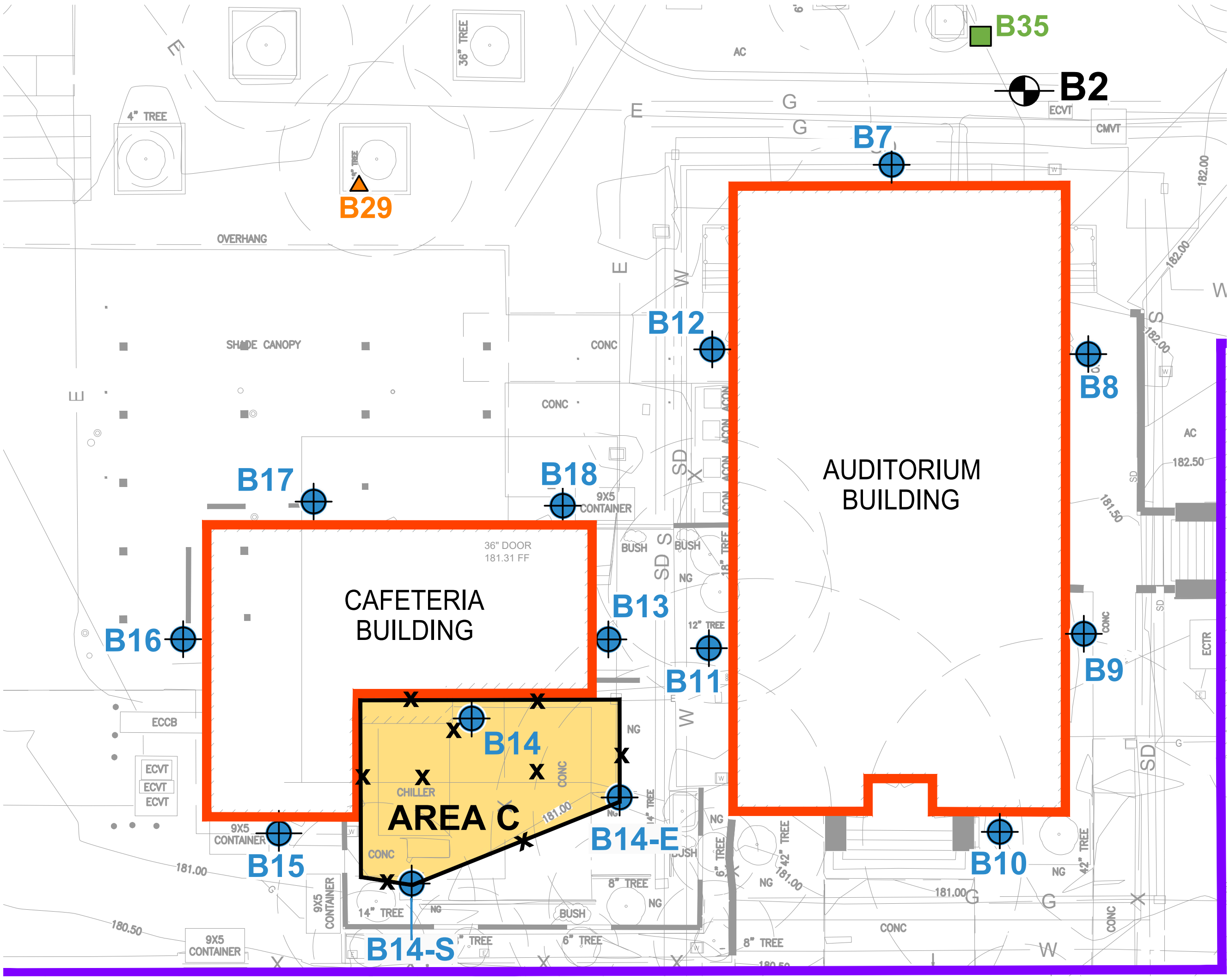
PROPOSED EXCAVATION AREAS A AND B DETAILS
LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA
211936018 I 8/23



REFERENCES:
STANTEC TITLE VICINITY MAP, TOPOGRAPHIC SURVEY, SUBSURFACE UTILITY AND VAULT INVESTIGATION, SHEETS V1-V-10 (6/17/22).
LAUSD VAULT DIAGRAM AND PLOT PLANS (9/1/1934, 10/1/1934, 1/1/1948).
TETRA TECH PHASE I ENVIRONMENTAL SITE ASSESSMENT (3/22/22).

LEGEND

PEA / COMP MOD BOUNDARY
BUILDINGS TO BE DEMOLISHED
B18 SOIL BORING TO 2.5 FEET BGS
B29 SOIL BORING TO 5 FEET BGS
B35 SOIL BORING TO 10 FEET BGS
B39/SV3 SOIL AND/OR SOIL VAPOR BORING TO 15 FEET BGS
B2 GPI 2021 GEOTECHNICAL EXPLORATORY BORING
FT BGS FEET BELOW GROUND SURFACE
x PROPOSED CONFIRMATION SOIL SAMPLE LOCATION

PROPOSED EXCAVATION LIMITS AND DEPTHS
2.5 FT BGS

N
FEET
0 25 50

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

211936018.dwg 08/25/2023 GK, JDP

FIGURE 6

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

PROPOSED EXCAVATION AREA C DETAIL
LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

211936018 I 8/23

LEGEND

(purple line)	PEA / COMP MOD BOUNDARY
B25 △	SOIL BORING TO 5 FEET BGS
B34/SV5 ■	SOIL BORING TO 10 FEET BGS
B21-W ●	STEP-OUT BORING
S5 ●	PLANTER BOX SURFACE SAMPLE
B45/SV6 ◆	SOIL AND/OR SOIL VAPOR BORING TO 15 FEET BGS
B3 ⊕	GPI 2021 GEOTECHNICAL EXPLORATORY BORING
FT BGS	FEET BELOW GROUND SURFACE
X	PROPOSED CONFIRMATION SOIL SAMPLE LOCATION

PROPOSED EXCAVATION LIMITS AND DEPTHS

- 1.0 FT BGS
- 2.5 FT BGS
- 5.0 FT BGS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

REFERENCES:
STANTEC TITLE VICINITY MAP, TOPOGRAPHIC SURVEY, SUBSURFACE UTILITY AND VAULT INVESTIGATION, SHEETS V1-V-10 (6/17/22).
LAUSD VAULT DIAGRAM AND PLOT PLANS (9/1/1934, 10/1/1934, 1/1/1948).
TETRA TECH PHASE I ENVIRONMENTAL SITE ASSESSMENT (3/22/22).

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FEET
0 30 60

211936018.dwg 08/25/2023 GK, JDP

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

FIGURE 7

PROPOSED EXCAVATION AREAS D, E AND F DETAILS

LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

211936018 I 8/23

APPENDIX A

2023 PEA Sampling Results (Tables and Figures)

Table 2 – Soil Sample Analytical Results – Metals

Sample ID	Date Sampled	EPA Method 6010B/7471A (mg/kg)																					
		Antimony	Arsenic (TTLC)	Arsenic (STLC) (mg/l)	Arsenic (TCLP) (mg/l)	Barium	Beryllium	Cadmium	Chromium	Chromium, Hexavalent (µg/kg)	Cobalt	Copper	Lead (TTLC)	Lead (STLC) (mg/l)	Lead (TCLP) (mg/l)	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B1-0.5	2/18/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B2-0.5	2/18/2023	ND<2.0	ND<2.0	NA	NA	84	ND<0.5	ND<0.5	12	ND<0.4	6.9	9.7	17	NA	NA	0.22	ND<1.0	7.1	ND<4.8	ND<0.5	ND<2.0	28	48
B2-N-0.5	4/3/2023	NA	3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B3-0.5	2/18/2023	ND<2.0	52	2.5	NA	92	ND<0.5	1.6	13	ND<0.4	7.8	12	26	NA	NA	ND<0.10	ND<1.0	7.7	ND<4.8	ND<0.5	ND<2.0	31	66
B3-2.5	2/18/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-0.5	2/18/2023	ND<2.0	700	53	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-2.5	2/18/2023	NA	130	7.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-5	4/3/2023	NA	3.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-E-0.5	4/3/2023	NA	26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-E-2.5	4/3/2023	NA	3.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-E2-0.5	4/3/2023	NA	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-W-0.5	4/3/2023	NA	720	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-W-2.5	4/3/2023	NA	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-W2-0.5	4/3/2023	NA	180	11	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-W3-0.5	5/6/2023	NA	53	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B4-N-0.5	4/3/2023	NA	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B5-0.5	2/18/2023	ND<2.0	ND<2.0	NA	NA	100	ND<0.5	ND<0.5	16	ND<0.4	10	14	6	NA	NA	ND<0.10	ND<1.0	9.6	ND<4.8	ND<0.5	ND<2.0	39	NA
B6-0.5	2/18/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B7-0.5	2/18/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B8-0.5	2/18/2023	ND<2.0	ND<2.0	NA	NA	77	ND<0.5	ND<0.5	11	ND<0.4	7.2	9.4	4.8	NA	NA	ND<0.10	ND<1.0	6.6	ND<4.8	ND<0.5	ND<2.0	27	39
B9-0.5	2/18/2023	ND<2.0	ND<2.0	NA	NA	74	ND<0.5	ND<0.5	9	ND<0.4	6.3	9	9.1	NA	NA	ND<0.10	ND<1.0	5.9	ND<4.8	ND<0.5	ND<2.0	23	39
B10-0.5	2/18/2023	NA	2.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	91	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
B10-2.5	2/18/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B11-0.5	2/18/2023	ND<2.0	6.8	NA	NA	ND<1.0	ND<0.5	ND<0.5	ND<0.5	NA	ND<0.5	NA	55	1.8	NA	ND<0.10	NA	NA	NA	NA	NA	NA	NA
B11-2.5	2/18/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B12-0.5	2/18/2023	ND<2.0	ND<2.0	NA	NA	70	ND<0.5	ND<0.5	10	ND<0.4	6.7	9.2	18	ND<0.1	NA	ND<0.10	ND<1.0	6.4	ND<4.8	ND<0.5	ND<2.0	26	42
B13-0.5	2/18/2023	ND<2.0	3.2	NA	NA	ND<1.0	ND<0.5	ND<0.5	ND<0.5	NA	ND<0.5	NA	53	1.6	NA	ND<0.10	NA	NA	NA	NA	NA	NA	NA
B13-2.5	2/18/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B14-0.5	2/18/2023	ND<2.0	28	NA	NA	110	ND<0.5	1.2	19	ND<0.4	9.1	18	32	ND<0.1	NA	ND<0.10	ND<1.0	12	ND<4.8	ND<0.5	ND<2.0	36	110
B14-2.5	2/18/2023	NA	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B14-E-0.5	4/3/2023	NA	4.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B14-S-0.5	4/3/2023	NA	7.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B15-0.5	2/18/2023	ND<2.0	5.9	NA	NA	100	ND<0.5	ND<0.5	19	ND<0.4	9.6	16	24	ND<0.1	NA	ND<0.10	ND<1.0	13	ND<4.8	ND<0.5	ND<2.0	39	79
B16-0.5	2/18/2023	NA	7.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	92	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
B16-2.5	2/18/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B17-0.5	2/18/2023	NA	6.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B18-0.5	2/18/2023	ND<2.0	ND<2.0	NA	NA	110	ND<0.5	ND<0.5	18	ND<0.4	8.3	13	36	ND<0.1	NA	ND<0.10	ND<1.0	9.2	ND<4.8	ND<0.5	ND<2.0	34	90
B19-0.5	2/20/2023	NA	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	63	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
B20-0.5	2/20/2023	ND<2.0	3.2	NA	NA	62	ND<0.5	ND<0.5	13	ND<0.4	7	12	18	NA	NA	ND<0.10	ND<1	11	ND<4.8	ND<0.5	ND<2.0	25	75
B20-W-0.5	4/3/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B20-E-0.5	4/3/2023	NA	3.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B21-0.5	2/20/2023	NA	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B21-2.5	2/20/2023	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B21-W-0.5	4/3/2023	NA	7.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B22-0.5	2/18/2023	ND<2.0	64	2.8	NA	NA	NA	NA	NA	NA	NA	NA	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B22-2.5	2/18/2023	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B23-0.5	2/20/2023	ND<2.0	ND<2.0	NA	NA	55	ND<0.5	ND<0.5	7.1	ND<0.4	5	11	38	NA	NA	0.24	ND<1.0	5.9	ND<4.8	ND<0.5	ND<2.0	20	54

Table 2 – Soil Sample Analytical Results – Metals

Sample ID	Date Sampled	EPA Method 6010B/7471A (mg/kg)																					
		Antimony	Arsenic (TTLC)	Arsenic (STLC) (mg/l)	Arsenic (TCLP) (mg/l)	Barium	Beryllium	Cadmium	Chromium	Chromium, Hexavalent (µg/kg)	Cobalt	Copper	Lead (TTLC)	Lead (STLC) (mg/l)	Lead (TCLP) (mg/l)	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B24-0.5	2/20/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	66	2.8	NA	ND<0.10	NA	NA	NA	NA	NA	NA	NA
B25-0.5	2/20/2023	ND<2.0	3.6	NA	NA	86	ND<0.5	ND<0.5	15	ND<0.4	8.1	14	21	NA	NA	0.11	ND<1.0	9.8	ND<4.8	ND<0.5	ND<2.0	32	56
B26-0.5	2/20/2023	ND<2.0	2.8	NA	NA	83	ND<0.5	ND<0.5	15	0.23 J	18	18	34	NA	NA	ND<1.0	ND<1.0	10	ND<4.8	ND<0.5	ND<2.0	30	98
B27-0.5	2/20/2023	NA	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B28-0.5	2/20/2023	NA	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B29-0.5	2/20/2023	NA	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	34	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B30-0.5	2/20/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B32-2.5	2/20/2023	ND<2.0	ND<2.0	NA	NA	130	ND<0.5	ND<0.5	19	NA	12	19	6	NA	NA	0.11	ND<1.0	12	ND<4.8	ND<0.5	ND<2.0	44	60
B32-5	2/20/2023	ND<2.0	ND<2.0	NA	NA	130	ND<0.5	ND<0.5	19	NA	13	17	4.6	NA	NA	0.15	ND<1.0	12	ND<4.8	ND<0.5	ND<2.0	49	64
B33-2.5	2/20/2023	ND<2.0	3.9	NA	NA	160	0.58	ND<0.5	24	NA	16	23	6.7	NA	NA	0.11	ND<1.0	17	ND<4.8	ND<0.5	ND<2.0	55	77
B33-5	2/20/2023	ND<2.0	ND<2.0	NA	NA	150	0.57	ND<0.5	22	NA	15	22	5.3	NA	NA	ND<1.0	ND<1.0	15	ND<4.8	ND<0.5	ND<2.0	52	71
B34-2.5[1]	2/20/2023	ND<2.5	ND<2.0	NA	NA	140	ND<0.50	ND<0.50	19	NA	12	18	24	NA	NA	0.12	ND<1.0	12	ND<4.8	ND<0.50	ND<0.20	41	120
B34-2.5	4/5/2023	ND<2.0	2.4	NA	NA	190	ND<0.5	ND<0.5	12	NA	7.3	17	230	11	0.19	0.11	ND<1.0	8.0	ND<4.8	ND<0.5	ND<2.0	27	210
B34-5	4/5/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B34-10	4/5/2023	ND<2.0	ND<2.0	NA	NA	71	ND<0.5	ND<0.5	10	NA	7.7	11	3.3	NA	NA	ND<0.10	ND<1.0	6.9	ND<4.8	ND<0.5	ND<2.0	28	35
B34-NW-2.5	2/20/2023	ND<2.0	ND<2.0	NA	NA	140	ND<0.5	ND<0.5	19	NA	12	18	24	NA	NA	NA	ND<1.0	12	ND<4.8	ND<0.5	ND<2.0	41	120
B34-NE-0.5	5/6/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B34-NE-2.5	5/6/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B34-NE2-2.5	5/6/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	94	2.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
B34-SW-0.5	5/6/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B34-SW-2.5	5/6/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B35-2.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	85	ND<0.5	ND<0.5	13	NA	8.3	12	3.4	NA	NA	0.11	ND<1.0	8.5	ND<4.8	ND<0.5	ND<2.0	32	45
B35-10	4/5/2023	ND<2.0	ND<2.0	NA	NA	71	ND<0.5	ND<0.5	10	NA	7.0	11	2.4	NA	NA	0.18	ND<1.0	6.4	ND<4.8	ND<0.5	ND<2.0	26	35
B36-0.5	4/5/2023	ND<2.0	2.1	NA	NA	88	ND<0.5	ND<0.5	13	NA	7.6	19	15	NA	NA	0.18	ND<1.0	7.9	ND<4.8	ND<0.5	ND<2.0	31	46
B36-2.5	4/5/2023	ND<2.0	2.2	NA	NA	110	ND<0.5	ND<0.5	15	NA	10	15	5.6	NA	NA	0.20	ND<1.0	11	ND<4.8	ND<0.5	ND<2.0	39	51
B37-0.5	4/5/2023	ND<2.0	2.3	NA	NA	100	ND<0.5	ND<0.5	14	NA	9.4	13	13	NA	NA	0.14	ND<1.0	9.2	ND<4.8	ND<0.5	ND<2.0	36	62
B37-2.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	120	ND<0.5	ND<0.5	18	NA	12	16	4.1	NA	NA	0.13	ND<1.0	12	ND<4.8	ND<0.5	ND<2.0	46	56
B37-5	4/5/2023	ND<2.0	ND<2.0	NA	NA	94	ND<0.5	ND<0.5	14	NA	9.8	13	3.9	NA	NA	0.11	ND<1.0	9.6	ND<4.8	ND<0.5	ND<2.0	37	46
B37-10	4/5/2023	ND<2.0	3.9	NA	NA	150	0.76	ND<0.5	21	NA	14	24	6.3	NA	NA	0.14	ND<1.0	15	ND<4.8	ND<0.5	ND<2.0	53	67
B37-15	4/5/2023	ND<2.0	ND<2.0	NA	NA	80	ND<0.5	ND<0.5	13	NA	8.5	11	2.6	NA	NA	ND<0.10	ND<1.0	8.4	ND<4.8	ND<0.5	ND<2.0	34	41
B38-0.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	110	ND<0.5	ND<0.5	15	NA	10	15	8.4	NA	NA	0.15	ND<1.0	10	ND<4.8	ND<0.5	ND<2.0	39	53
B38-2.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	100	ND<0.5	ND<0.5	15	NA	10	14	6.9	NA	NA	0.18	ND<1.0	9.7	ND<4.8	ND<0.5	ND<2.0	40	51
B38-5	4/5/2023	ND<2.0	2.5	NA	NA	150	0.71	ND<0.5	23	NA	14	25	6.8	NA	NA	0.49	ND<1.0	16	ND<4.8	ND<0.5	ND<2.0	54	67
B38-10	4/5/2023	ND<2.0	2.2	NA	NA	85	ND<0.5	ND<0.5	12	NA	8.1	11	2.6	NA	NA	0.13	ND<1.0	7.5	ND<4.8	ND<0.5	ND<2.0	30	40
B38-15	4/5/2023	ND<2.0	ND<2.0	NA	NA	82	ND<0.5	ND<0.5	14	NA	7.6	13	5.7	NA	NA	0.19	ND<1.0	11	ND<4.8	ND<0.5	ND<2.0	33	42
B39-0.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	100	ND<0.5	ND<0.5	15	NA	9.6	15	16	NA	NA	0.11	ND<1.0	9.9	ND<4.8	ND<0.5	ND<2.0	39	58
B39-2.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	93	ND<0.5	ND<0.5	14	NA	7.8	11	6.9	NA	NA	0.19	ND<1.0	7.9	ND<4.8	ND<0.5	ND<2.0	32	46
B39-5	4/5/2023	ND<2.0	ND<2.0	NA	NA	150	ND<0.5	ND<0.5	16	NA	9.6	14	13	NA	NA	0.17	ND<1.0	10	ND<4.8	ND<0.5	ND<2.0	38	62
B39-10	4/5/2023	ND<2.0	ND<2.0	NA	NA	82	ND<0.5	ND<0.5	9.7	NA	7.3	9.3	2.1	NA	NA	0.18	ND<1.0	6.4	ND<4.8	ND<0.5	ND<2.0	26	40
B39-15	4/5/2023	ND<2.0	ND<2.0	NA	NA	49	ND<0.5	ND<0.5	5.6	NA	4.9	ND<5	1.4	NA	NA	ND<0.10	ND<1.0	4.1	ND<4.8	ND<0.5	ND<2.0	18	260
B40A-0.5	5/6/2023	NA	2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B40-2.5	2/18/2023	NA	ND<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B41A-0.5	5/6/2023	NA	89	6.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B41-2.5	2/18/2023	NA	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B42A-0.5	4/3/2023	NA	63	2.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B42A-2.5	4/3/2023	NA	2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3 – Soil Sample Analytical Results – TPHs, VOCs, PAHs, Asbestos

Sample ID	Date Sample Collected	TPHs EPA Method 8015B (mg/kg)			VOC's EPA 8260B (µg/kg)	PAHs EPA 8270C (µg/kg)	Asbestos PLM (percentage)
		DROs	MROs	GROs			
B2-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B3-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B5-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B8-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B9-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B12-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B14-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B15-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B18-0.5	2/18/2023	NA	NA	NA	NA	ND	ND
B20-0.5	2/20/2023	ND<10	ND<50	ND<0.2	NA	ND	ND<0.1%
B20-2.5	2/20/2023	NA	NA	NA	NA	NA	ND<0.1%
B23-0.5	2/20/2023	NA	NA	NA	NA	ND	ND
B25-0.5	2/20/2023	NA	NA	NA	NA	ND	ND
B26-0.5	2/20/2023	NA	NA	NA	NA	ND	ND
B32-2.5	2/20/2023	ND<10	120	ND<0.2	ND	NA	NA
B32-5	2/20/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B33-2.5	2/20/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B33-5	2/20/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B34-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B34-10	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B34-W-2.5	2/20/2023	NA	NA	NA	ND	NA	NA
B35-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B35-10	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B36-0.5	4/5/2023	18	78	ND<0.2	ND	ND	NA
B36-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	ND	NA
B37-0.5	4/5/2023	ND<10	ND<50	ND<0.2	NA	NA	NA
B37-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B37-5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B37-10	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B37-15	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B38-0.5	4/5/2023	ND<10	ND<50	ND<0.2	NA	NA	NA
B38-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B38-5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B38-10	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B38-15	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B39-0.5	4/5/2023	ND<10	ND<50	ND<0.2	NA	NA	NA
B39-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B39-5	4/5/2023	12	ND<50	ND<0.2	ND	NA	NA
B39-10	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B39-15	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B40-2.5	2/18/2023	ND<10	140	ND<0.2	ND	NA	NA
B41-2.5	2/18/2023	14	75	ND<0.2	ND	NA	NA
B42-2.5	2/18/2023	ND<10	67	ND<0.2	ND	NA	NA
B43-0.5	4/5/2023	ND<10	ND<50	ND<0.2	NA	NA	NA
B43-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B43-5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B43-10	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA

Table 3 – Soil Sample Analytical Results – TPHs, VOCs, PAHs, Asbestos

Sample ID	Date Sample Collected	TPHs EPA Method 8015B (mg/kg)			VOC's EPA 8260B (µg/kg)	PAHs EPA 8270C (µg/kg)	Asbestos PLM (percentage)
		DROs	MROs	GROs			
B43-15	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B44-0.5	4/3/2023	ND<10	ND<50	0.71	ND	NA	NA
B44-2.5	4/3/2023	ND<10	ND<50	0.58	ND	NA	NA
B45-0.5	4/3/2023	**490**	**1,900**	0.67	ND	NA	NA
B45-2.5	4/3/2023	ND<10	ND<50	NA	NA	NA	NA
B45-15	4/3/2023	ND<10	ND<50	0.67	ND	NA	NA
B46-0.5	4/5/2023	ND<10	ND<50	ND<0.2	NA	NA	NA
B46-2.5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B46-5	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
B46-10	4/5/2023	ND<10	ND<50	ND<0.2	ND	NA	NA
Regulatory Screening Levels (mg/kg)					(µg/kg)		(%)
EPA RSLs (Residential Soil)		97*	2,400*	82*	Various	Various	NL
San Francisco Bay RWQCB (Tier 1 ESLs)		260*	1,600*	100*	Various	Various	NL

Notes:
* - non-cancer endpoint
bold indicates exceedance of regulatory screening level(s)
DROs - diesel range organics
EPA - United States Environmental Protection Agency
ESLs - San Francisco Bay RWQCB Environmental Tier 1 Screening Levels for Direct Exposure Human Health Risk Levels, Residential: Shallow Soil Exposure (January 2019)
GROs - gasoline range organics
ID - Identification
mg/kg - milligrams per kilogram
MROs - motor oil range organics
NA - not analyzed
ND< - not detected above the laboratory reporting limit
NL - not listed
PAHs - polycyclic aromatic hydrocarbon
PLM - polarized light microscopy
RSLs - United States Environmental Protection Agency Regional Screening Levels (May 2023)
RWQCB - Regional Water Quality Control Board
TPH - total petroleum hydrocarbons
VOCs - volatile organic compounds
µg/kg - micrograms per kilogram

Table 2 – Soil Sample Analytical Results – Metals

Sample ID	Date Sampled	EPA Method 6010B/7471A (mg/kg)																					
		Antimony	Arsenic (TTLC)	Arsenic (STLC) (mg/l)	Arsenic (TCLP) (mg/l)	Barium	Beryllium	Cadmium	Chromium	Chromium, Hexavalent (µg/kg)	Cobalt	Copper	Lead (TTLC)	Lead (STLC) (mg/l)	Lead (TCLP) (mg/l)	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B44-0.5	4/3/2023	ND<2.0	3.1	NA	NA	130	ND<0.5	ND<0.5	20	NA	12	17	29	NA	NA	ND<0.10	ND<1.0	13	ND<4.8	ND<0.5	ND<2.0	42	100
B44-2.5	4/3/2023	ND<2.0	ND<2.0	NA	NA	130	ND<0.5	ND<0.5	18	NA	12	17	4.4	NA	NA	ND<0.10	ND<1.0	12	ND<4.8	ND<0.5	ND<2.0	42	62
B45-0.5	4/3/2023	ND<2.0	3.3	NA	NA	120	ND<0.5	0.56	13	NA	8.5	36	200	4.7	0.11	0.26	ND<1.0	14	ND<4.8	ND<0.5	ND<2.0	32	250
B45-2.5	4/3/2023	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B45-15	4/3/2023	ND<2.0	ND<2.0	NA	NA	72	ND<0.5	ND<0.5	9	NA	7.6	7.9	2	NA	NA	ND<0.10	ND<1.0	6.3	ND<4.8	ND<0.5	ND<2.0	25	36
B43-0.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	430	ND<0.5	ND<0.5	12	NA	7.7	11	7.1	NA	NA	0.15	ND<1.0	7.6	ND<4.8	ND<0.5	ND<2.0	32	50
B43-2.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	110	ND<0.5	ND<0.5	13	NA	9.0	13	4.7	NA	NA	0.10	ND<1.0	8.7	ND<4.8	ND<0.5	ND<2.0	35	49
B43-5	4/5/2023	ND<2.0	2.5	NA	NA	130	0.59	ND<0.5	20	NA	13	20	4.2	NA	NA	0.19	ND<1.0	13	ND<4.8	ND<0.5	ND<2.0	52	62
B43-10	4/5/2023	ND<2.0	ND<2.0	NA	NA	95	ND<0.5	ND<0.5	12	NA	8.9	13	3.0	NA	NA	0.16	ND<1.0	8.1	ND<4.8	ND<0.5	ND<2.0	31	44
B43-15	4/5/2023	ND<2.0	2.0	NA	NA	110	0.54	ND<0.5	17	NA	12	19	4.2	NA	NA	0.11	ND<1.0	12	ND<4.8	ND<0.5	ND<2.0	45	56
B46-0.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	100	ND<0.5	ND<0.5	15	NA	8.9	14	16	NA	NA	0.45	ND<1.0	9.3	ND<4.8	ND<0.5	ND<2.0	36	71
B46-2.5	4/5/2023	ND<2.0	ND<2.0	NA	NA	95	ND<0.5	ND<0.5	15	NA	9.5	13	8.6	NA	NA	0.14	ND<1.0	9.4	ND<4.8	ND<0.5	ND<2.0	38	52
B46-5	4/5/2023	ND<2.0	ND<2.0	NA	NA	88	ND<0.5	ND<0.5	14	NA	8.8	13	3.9	NA	NA	0.12	ND<1.0	8.6	ND<4.8	ND<0.5	ND<2.0	34	44
B46-10	4/5/2023	ND<2.0	ND<2.0	NA	NA	84	ND<0.5	ND<0.5	12	NA	8.6	12	3.1	NA	NA	ND<0.10	ND<1.0	8.3	ND<4.8	ND<0.5	ND<2.0	32	43
S1	4/3/2023	NA	3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S2	4/3/2023	NA	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S3	4/3/2023	NA	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S4	4/3/2023	NA	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
S5	4/3/2023	NA	6.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Regulatory Screening Levels (mg/kg)																							
EPA RSLs (Residential Soil)		31*	0.68	NL	NL	15,000*	160*	7.1*	NL	6.3	23*	3,100*	400	NL	NL	11	390*	1,500*	390*	390*	0.78	390*	23,000*
DTSC HERO HHRA (Residential Soil)		NL	0.11	NL	NL	NL	16*	910	NL	NL	NL	NL	80*	NL	NL	1.0	NL	820*	NL	NL	NL	NL	NL
DTSC Acceptable Clean Up Levels		NL	12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Hazardous Waste Criteria																							
TTLC (mg/kg)		500	500	--	--	10,000	75	100	2,500	500	8,000	2,500	1,000	--	--	20	3,500	2,000	100	500	700	2,400	5,000
10 X STLC (mg/kg)		150	50	--	--	1,000	7.5	10	50	50	800	250	50	--	--	2	3,500	200	10	50	70	240	2,500
20 X TCLP (mg/kg)		--	100	--	--	2000	--	20	100	--	--	--	100	--	--	4	--	--	20	100	--	--	--
STLC (mg/l)		15	5	5	--	100	0.75	1	5	5	80	25	5	5	--	0.2	350	20	1	5	7	24	250
TCLP (mg/l)		NL	5	--	5	100	NL	1	5	NL	NL	NL	5	--	5	0.2	NL	NL	1	5	NL	NL	NL

Notes:
-- - not applicable
* - non-cancer endpoint
[1] - Two co-located samples were collected with corresponding ID of B34-2.5 due to refusal encouuntered in the original boring B34 on February 20, 2023. The report text refers to the second B34 sample collected on April 5, 2023.
bold indicates exceedance of regulatory screening level(s)
DTSC HERO HHRA - Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment, Note 3, Recommended Screening Levels for Soil (June 2020)
EPA - United States Environmental Protection Agency
ID - Identification
J - Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value
mg/kg - milligrams per kilogram
mg/l - milligrams per liter
NA - not analyzed
ND< - not detected above the laboratory reporting limit
NL - not listed
RSLs - United States Environmental Protection Agency Regional Screening Levels (May 2023)
STLC - soluble threshold limit concentration
TCLP - toxicity characteristic leaching procedure
TTLC - total threshold limit concentration
µg/kg - micrograms per kilogram

Table 4 – Soil Analytical Results – OCPs & PCBs

Sample ID	Date Sample Collected	OCPs by EPA Method 8081A (µg/kg)	PCBs by EPA Method 8082 (µg/kg)			
			PCB-1016	PCB-1254	PCB-1260	Other PCBs
B1-0.5	2/18/2023	NA	ND<25	ND<25	ND<25	ND
B7-0.5	2/18/2023	NA	ND<25	ND<25	ND<25	ND
B10-0.5	2/18/2023	NA	ND<25	ND<25	ND<25	ND
B16-0.5	2/18/2023	NA	ND<25	ND<25	ND<25	ND
B19-0.5	2/20/2023	NA	420	250	97	ND
B21-0.5	2/20/2023	NA	ND<100	ND<100	ND<100	ND
B22-0.5	2/18/2023	NA	ND<75	ND<75	ND<75	ND
B23-0.5	2/20/2023	NA	ND<200	ND<200	ND<200	ND
B24-0.5	2/20/2023	NA	ND<200	ND<200	ND<200	ND
B27-0.5	2/20/2023	NA	ND<25	ND<25	ND<25	ND
B28-0.5	2/20/2023	NA	ND<25	ND<25	ND<25	ND
B29-0.5	2/20/2023	NA	ND<200	ND<200	ND<200	ND
B31-0.5	2/20/2023	NA	ND<200	ND<200	ND<200	ND
B32-2.5	2/20/2023	ND	NA	NA	NA	NA
B32-5	2/20/2023	ND	NA	NA	NA	NA
B33-2.5	2/20/2023	ND	NA	NA	NA	NA
B33-5	2/20/2023	ND	NA	NA	NA	NA
B34-2.5	4/5/2023	ND	NA	NA	NA	NA
B34-10	4/5/2023	ND	NA	NA	NA	NA
B34-W-2.5	2/20/2023	ND	NA	NA	NA	NA
B35-2.5	4/5/2023	ND	NA	NA	NA	NA
B35-10	4/5/2023	ND	NA	NA	NA	NA
B37-0.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B37-2.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B37-5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B37-10	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B37-15	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B38-0.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B38-2.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B38-5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B38-10	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B38-15	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B39-0.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B39-2.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B39-5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B39-10	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B39-15	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B43-0.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B43-2.5	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B43-5	4/5/2023	NA	ND<25	ND<25	ND<25	ND

Table 4 – Soil Analytical Results – OCPs & PCBs

Sample ID	Date Sample Collected	OCPs by EPA Method 8081A (µg/kg)	PCBs by EPA Method 8082 (µg/kg)			
			PCB-1016	PCB-1254	PCB-1260	Other PCBs
B43-10	4/5/2023	NA	ND<25	ND<25	ND<25	ND
B43-15	4/5/2023	NA	ND<25	ND<25	ND<25	ND
Composite 1	2/18/2023	ND	NA	NA	NA	NA
Composite 2	2/18/2023	ND	NA	NA	NA	NA
Composite 3	2/18/2023	ND	NA	NA	NA	NA
Composite 4	2/18/2023	ND	NA	NA	NA	NA
Composite 5	2/18/2023	ND	NA	NA	NA	NA
Composite 6	2/18/2023	ND	NA	NA	NA	NA
Composite 7	2/18/2023	ND	NA	NA	NA	NA
Composite 8	2/18/2023	ND	NA	NA	NA	NA
Composite 9	2/18/2023	ND	NA	NA	NA	NA
Composite 10	2/18/2023	ND	NA	NA	NA	NA
Composite 11	2/18/2023	ND	NA	NA	NA	NA
Composite 12	2/18/2023	ND	NA	NA	NA	NA
Regulatory Screening Levels (µg/kg)						
EPA RSLs (Residential Soil)		Various	4,100*	240	240	Various
DTSC HERO HHRA (Residential Soil)		Various	4,000*	NL	NL	Various

Notes:
* non-cancer endpoint
bold indicates result in exceedance of screening level
DTSC HERO HHRA - Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment, Note 3, Recommended Screening Levels, June 2020
EPA - United States Environmental Protection Agency
ID - identification
NA - not analyzed
ND< - not detected above the laboratory reporting limit
NL - not listed
OCPs - organochlorine pesticides
PCBs - polychlorinated biphenyls
RSLs - United States Environmental Protection Agency Regional Screening Levels (May 2023)
µg/kg - micrograms per kilogram

Table 5 – Soil Sample Analytical Results – Dioxins and Furans

Sample ID	Date Sampled	EPA Method SW846 8290A (pg/g)					
		1,2,3,7,8,9-HxCDF	1,2,3,4,6,7,8-HpCDD	1,2,3,4,6,7,8-HpCDF	OCDD	OCDF	Other Dioxins & Furans
B36-0.5	4/5/2023	0.13 J,B,q	0.46 J,B	0.29 J,B,q	2.3 J,B	0.47 J,B,q	ND
Regulatory Screening Levels (pg/g)							
EPA RSLs (Residential Soil)		48	480	480	16000	16,000	Various
DTSC HERO HHRA (Residential Soil)		NL	NL	NL	NL	NL	Various

Notes:

B - compound was found in the blank and sample

bold indicates exceedance of regulatory screening level(s)

DTSC HERO HHRA - Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment, Note 3, Recommended Screening Levels for Soil (June 2020)

EPA - United States Environmental Protection Agency

ID - Identification

J - Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value

pg/g - picograms per gram

ND - not detected above the laboratory reporting limit

NL - not listed

q - the reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

RSLs - United States Environmental Protection Agency Regional Screening Levels (May 2023)

Table 6 – Soil Vapor Sampling Analytical Results – VOCs

Sample ID	Date Sampled	EPA Method 8260B (µg/m³)							
		1,2,4-Trimethylbenzene	Ethylbenzene	Freon 12	Tetrachloroethene	Toluene	m,p-Xylenes	o-Xylene	Other VOCs
SV-1-5'	4/6/2023	9	13	32	27	46	52	15	ND
SV-1-15'	4/6/2023	22	31	44	20	92	140	41	ND
SV-1-15' REP	4/6/2023	20	32	42	26	82	135	39	ND
SV-2-5'	4/6/2023	ND<8	ND<8	ND<16	28	39	25	8	ND
SV-2-15'	4/6/2023	11	ND<8	18	26	22	26	ND<8	ND
SV-3-5'	4/6/2023	ND<8	10	ND<16	16	59	37	12	ND
SV-3-15'	4/6/2023	ND<8	ND<8	ND<16	26	29	20	ND<8	ND
SV-4-5'	4/6/2023	ND<8	ND<8	ND<16	30	22	ND<16	ND<8	ND
SV-4-15'	4/6/2023	10	14	ND<16	23	57	50	16	ND
SV-5-5'	4/6/2023	14	15	69	38	44	73	22	ND
SV-5-15'	4/6/2023	16	19	82	91	60	71	21	ND
SV-6-5'	4/6/2023	10	12	ND<16	87	51	49	15	ND
SV-6-15'	4/6/2023	10	ND<8	ND<16	64	33	34	11	ND
Regulatory Screening Levels (µg/m³)									
Modified EPA RSLs (Residential Air) [1]		2,100*	36.7	3,333*	367	173,333*	3,333*	3,333*	Various
Modified DTSC HERO HHRA (Residential Air) [1]		NL	NL	NL	15.3	10,333*	NL	NL	Various

Notes:

* - non-cancer endpoint

bold indicates exceedance of modified EPA RSLs and DTSC HERO HHRA for residential air

DTSC HERO HHRA - Department of Toxic Substances Control Human and Ecological Risk Office Human Health Risk Assessment, Note 3, Recommended Screening Levels for Soil (June 2020-Revised May 2022)

EPA - United States Environmental Protection Agency

ID - Identification

ND< - not detected above the laboratory reporting limit

NL - not listed

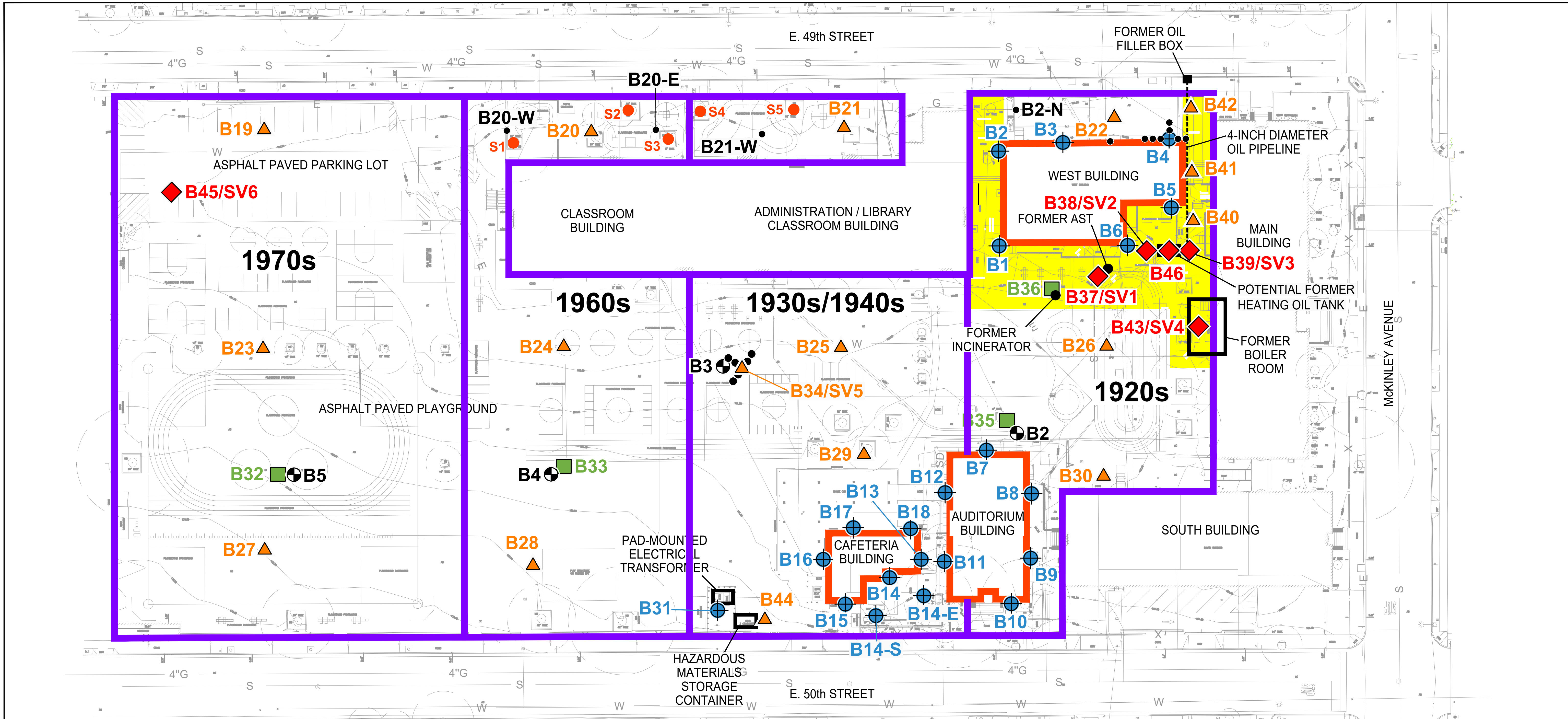
[1]Modified EPA RSLs and DTSC HERO HHRA using attenuation factor of 0.03

REP - replicate

RSLs - United States Environmental Protection Agency Regional Screening Levels (May 2023)

µg/m³ - micrograms per cubic meter

VOCs - Volatile Organic Compounds



LEGEND

- PEA / COMP MOD BOUNDARY
- BUILDINGS TO BE DEMOLISHED
- LIMITS OF A FULL SCAN GEOPHYSICAL SURVEY
- B31 SOIL BORING TO 2.5 FEET BGS
- B42 SOIL BORING TO 5 FEET BGS
- B36 SOIL BORING TO 10 FEET BGS
- B21 STEP-OUT BORING
- S5 PLANTER BOX SURFACE SAMPLE
- B46/SV7 SOIL AND/OR SOIL VAPOR BORING TO 15'
- B5 GPI 2021 GEOTECHNICAL EXPLORATORY BORING
- BGS = BELOW GROUND SURFACE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

REFERENCES:
STANTEC TITLE VICINITY MAP, TOPOGRAPHIC SURVEY, SUBSURFACE UTILITY AND VAULT INVESTIGATION, SHEETS V1-V-10 (6/17/22).
LAUSD VAULT DIAGRAM AND PLOT PLANS (9/1/1934, 10/1/1934, 1/1/1948).
TETRA TECH PHASE I ENVIRONMENTAL SITE ASSESSMENT (3/22/22).

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FEET
0 60 120

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FIGURE 2

PEA SAMPLING LOCATIONS

LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

211936010 I 7/23

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Geotechnical & Environmental Sciences Consultants

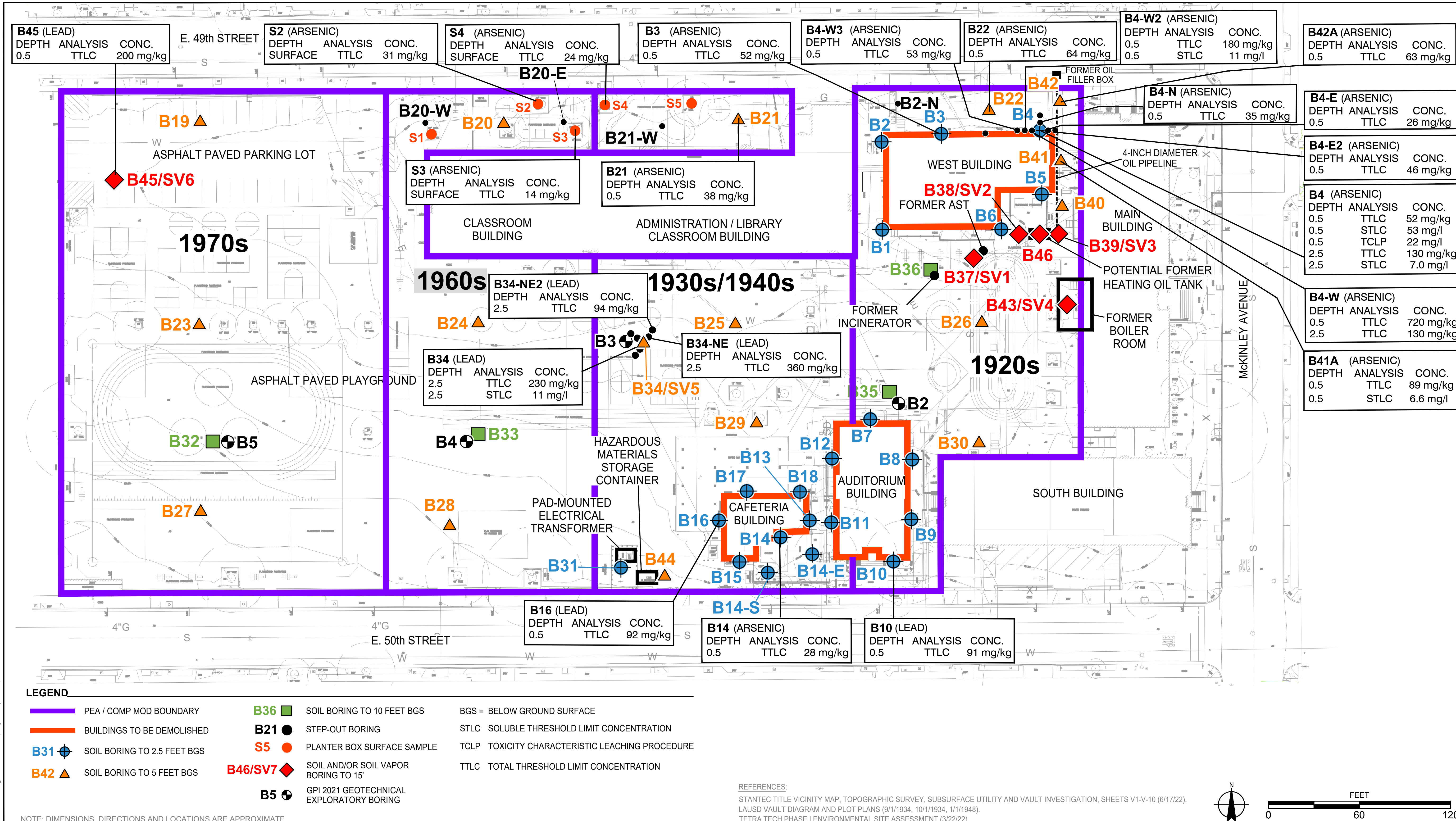

FIGURE 4

ELEVATED ARSENIC AND LEAD CONCENTRATIONS

LOS ANGELES UNIFIED SCHOOL DISTRICT
49TH STREET ELEMENTARY SCHOOL
750 EAST 49TH STREET
LOS ANGELES, CALIFORNIA

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APPENDIX B

Air Monitoring Plan

APPENDIX B

Air Monitoring Plan

Introduction

This Air Monitoring Plan for the 49th Street Elementary School RAW reports methods to mitigate the amount of fugitive dust in the ambient air resulting from project-related construction activities. This Plan complies with the regulations for controlling fugitive dust emissions as specified in:

- South Coast Air Quality Management District (SCAQMD) Rule 403 for Fugitive Dust
- SCAQMD Rule 1466 for Control of Particulate Emissions from Soils with Toxic Air Contaminants

The Plan sets forth the required measures that the construction contractor will implement during remediation and how those measures will be implemented during remediation in accordance with SCAQMD Rules 403 and 1466. Implementation of available fugitive dust control measures will help reduce the total airborne suspended particulate matter generated by construction activities, thus reducing fugitive dust emissions. The scope of this Plan will be revised to reflect changes in fugitive dust control strategy as site conditions or activities may change in the future.

Potential Dust Sources

Based on our understanding and review of the project description, the following potential fugitive dust sources may exist for this project:

- Site grading and other miscellaneous construction activities during demolition and reconstruction phases;
- Vehicles and equipment driving on paved roads during construction and operations;
- Vehicles and equipment driving on unpaved areas during construction and operations;
- Aggregate and soil loading and unloading operations;
- Wind erosion of areas disturbed during construction activities; and/or
- Significant wind action on unprotected spoil piles or topsoil storage areas.

Impacted soils will be removed using heavy earth-moving equipment and may involve the use of a backhoe, rubber-tired, front-end loader, and/or excavator.

Applicable Dust Control Requirements

The SCAQMD is responsible for planning, implementing, and enforcing federal and state ambient air standards within its district boundary. SCAQMD Rule 403 was adopted on May 7, 1976 with several amendments from 1992 to 2005. Fugitive dust contains varying sizes of respirable particulate matter including those with an aerodynamic diameter of 10 micrometers or less (PM_{10}). The purpose of Rule 403 is to prevent, reduce, and mitigate ambient concentrations of anthropogenic fugitive dust emissions to an amount sufficient to attain and maintain the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS).

SCAQMD Rule 1466 was adopted on July 7, 2017 and amended on December 1, 2017. The purpose of Rule 1466 is to minimize the amount of off-site fugitive dust emissions containing toxic air contaminants by reducing particulate emissions in the ambient air as a result of earth-moving activities, including: excavating, grading, handling, treating, stockpiling, transferring, and removing soil that contains applicable toxic air contaminants from sites that meet applicability requirements.

Meteorological Monitoring

On-site ambient weather conditions (wind speed and direction, and relative humidity) will be monitored by an on-site meteorological station. On-site meteorological monitoring will be performed simultaneously with the excavation activities to provide information on potential precautions to be taken if weather conditions exceed limits outlined in this plan. Meteorological monitoring will be conducted over the duration of the field operations for:

- Air temperature;
- Wind direction;
- Wind speed;
- Wind chill;
- Heat index;
- Barometric pressure;
- Relative humidity; and
- Rainfall (if any).

Wind direction will be monitored with a windsock or equivalent device, such as a portable Wind Dancer™ windsock system for relatively low wind speeds. Rainfall at the site will be measured with a rain gauge. The remaining meteorological parameters listed above will be measured with a Kestrel® 4000 Pocket Weather™ Tracker™, or equivalent.

If the wind speed is greater than 15 miles per hour (mph) averaged over a 15 minute period or instantaneous wind speeds exceed 25 mph, excavation and earth moving activities will cease.

Air Monitoring

Air monitoring will be performed during all site activities in which impacted or potentially impacted materials are being disturbed or handled. The RA contractor will staff the site with an air monitoring/health and safety professional whose responsibilities will include:

- Monitoring dust levels in the exclusion zone and other locations. The site air monitoring professional will have the authority to stop-work in the event that on site activities generate dust levels that exceed the site action levels. The air-monitoring professional will monitor on-site meteorological instrumentation and/or coordinate with off-site meteorological professionals to evaluate conditions that may trigger cessation of work, e.g. wind speeds high enough to result in visible dust emissions from the point-of-origin or crossing the property line, despite the application of dust mitigation measures.
- Check that real-time aerosol monitors are properly calibrated and in good working condition. Real-time, data-logging aerosol monitors (personal data RAM or equivalent) will be used to measure dust levels. Real-time information will be posted daily, and discussed with site workers.
- Coordinate 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.

Air Monitoring Strategy and Methodologies

The RA contractor will monitor dust levels and airborne levels of the COPCs in the following locations:

- One location upwind of excavation operations (based on wind direction meter measurements).
- Three locations downwind of excavation operations.
- One location within the exclusion zone (with a technician).

Actual locations will be determined in the field. Air monitoring will be performed during an 8-hour period each day that RAW activities are conducted. The air-monitoring professional will check the equipment every 15 minutes during operation. Since several excavations are planned for the RA, locations of upwind and downwind monitors will vary.

Because the site COPCs requiring soil excavation are primarily particulate-type contaminants, the RA contractor will focus on monitoring of airborne total dust levels generated by removal activities. The RA contractor will base dust control measures on the Action Levels specified in the chart below. The RA contractor will have the authority to stop work in the event that onsite activities generate dust levels which exceed the Action Levels specified in the chart.

Chemical Name	CAL/OSHA PEL [a]	ACGIH TLV [b]	Site Action Levels [c]	Community Action Level (Fence Line) [d]
Total Dust	10 mg/m^3	10 mg/m^3	1.0 mg/m^3	50 $\mu g/m^3$
Arsenic	0.005 mg/m^3	0.01 mg/m^3	0.001 mg/m^3	N/A
Lead	0.05 mg/m^3	0.05 mg/m^3	0.005 mg/m^3	1.5 $\mu g/m^3$
TPH	1 ppm	0.5 ppm	Background to 5 ppm above background	See Site Action Level

Notes:
mg/m^3 – milligrams per cubic meter
$\mu g/m^3$ – micrograms per cubic meter
ACGIH – American Conference of Governmental Industrial Hygienists
AOC – Area of Concern
CAL/OSHA – California
N/A – not applicable
ppm – parts per million
TLV – threshold limit value
[a] Permissible Exposure Limits (Cal/OSHA Article 107, Table AC1)
[b] 1990-1991 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Government Industrial Hygienists.
[c] Site Action Level for total dust is calculated as 20 percent of the threshold limit value of Permissible Exposure Limit (PEL) as measured by National Institute for Occupational Safety and Health (NIOSH) methods. If this action level is met or exceeded, then additional dust mitigation measures will be implemented. If the site dust levels cannot be reduced reliably within 15 minutes, work will cease and a certified Industrial Hygienist will be consulted.
[d] Community Action Level (fence line) of 50 $\mu g/m^3$ total dust/particulate is based on the SCAQMD regulation of 50 $\mu g/m^3$ of total dust. For lead, the National Ambient Air Quality Standard for lead is 1.5 µg/m3 and selected as the fence-line community action level.

Fugitive Dust Monitoring Plan

A monitoring program will be implemented to evaluate if dust control procedures are effectively mitigating fugitive dust conditions. The monitoring program will include real-time recordings of PM_{10}. Particulate dust monitoring will be performed in accordance with SCAQMD Rules 403, and 1466 and Cal-EPA/DTSC CAMP Guidance, where appropriate. This monitoring will be conducted during construction activities and will be designed to be protective of both worker health and the surrounding community.

A total dust fence line action level of 50 micrograms per cubic meter ($\mu g/m^3$) above up-wind background, for particulate matter with an aerodynamic diameter smaller than or equal to 10 microns will be established. Measurements will be conducted by PM_{10} monitoring in accordance with State and Federal requirements and as described below.

A conservative action level will be used to evaluate if off-site migration of fugitive dust is in compliance with SCAQMD and Cal-EPA/DTSC requirements. A total dust action level of 0.5 milligrams per cubic meter (as measured with direct-reading instrumentation) will be utilized for engineering (dust) control actions at work operations. This level, easily detected with field instruments, will help to keep perimeter dust levels within the expected low range. Field instruments used for air monitoring will be operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J.

The dust-monitoring program will aid in minimizing off-site migration of contaminated soil (as airborne dust) and protect both on-site workers and off-site public from exposure to high levels of dust. The dust-monitoring program will include meteorological monitoring and real-time monitoring of dust using portable aerosol monitors.

Baseline meteorological monitoring will begin at least two days prior to field activities to evaluate prevailing wind patterns, and will continue during construction activities. The baseline monitoring will be conducted for eight to 10 hours to represent a construction work shift. One wind speed and direction monitor will be set up at the site to collect continuous wind data during the monitoring events. The wind speed and direction data are needed to support each upwind and downwind monitoring event and to locate sampler downwind locations. A wind system consists of a Climatronics monitoring system with Model F4450 wind sensors (or similar system), with threshold speeds of 0.5 miles per hour. The wind instrument must meet regulatory specifications. The wind data will be collected through a data acquisition system equipped with a back-up recording device.

Due to the variability of early morning winds, portable aerosol monitors, similar to the MIE Dataram 2000 Aerosol Monitor or the P-5 Digital Dust Indicator manufactured by MDA Scientific, may be used to monitor airborne dust concentrations until conditions are suitable for monitoring. Monitoring using the portable monitors should continue during the work day, including after startup of the PM_{10} samplers, to provide real-time coverage and provide information for the effectiveness of engineering controls. These monitors will be placed on adjacent corners of the construction site boundaries, as close to the property lines as feasible, and in such a way that other sources of fugitive dust between the sampler and the property line are minimized. Additional monitors may be utilized upwind and downwind of the work area based on field conditions. Since several excavations are planned for the removal action (RA), locations of upwind and downwind monitors will vary.

Occasional perimeter monitoring with direct reading instruments will be performed when appropriate. If particulate levels downwind of the work area are detected in excess of 50 $\mu g/m^3$, the upwind background level will be measured immediately using the same portable monitor. If the working site particulate measurement is above 50 $\mu g/m^3$ above the upwind background level, additional dust suppression techniques should be implemented to reduce the generation of fugitive dust.

Fugitive Dust Control Plan

The purpose of this plan is to establish procedures for air monitoring to mitigate fugitive dust during the remedial activities at the site. Implementation of available fugitive dust control measures will help reduce the total airborne suspended particulate matter generated by field activities thus reducing fugitive dust emissions during remediation. Tentative locations of dust monitoring equipment will be based on prevailing wind directions. These locations will be relocated as needed based on changes in wind direction, based on monitoring by an on-site weather station, and on excavation locations.

The emission of fugitive dust will not be allowed from any active operation, open storage pile, or disturbed surface area such that:

- The dust remains visible in the atmosphere beyond the property line of the emission source; or,
- The dust emission exceeds 20 percent opacity (estimated visually), if the dust emission is the result of movement of a motorized source.

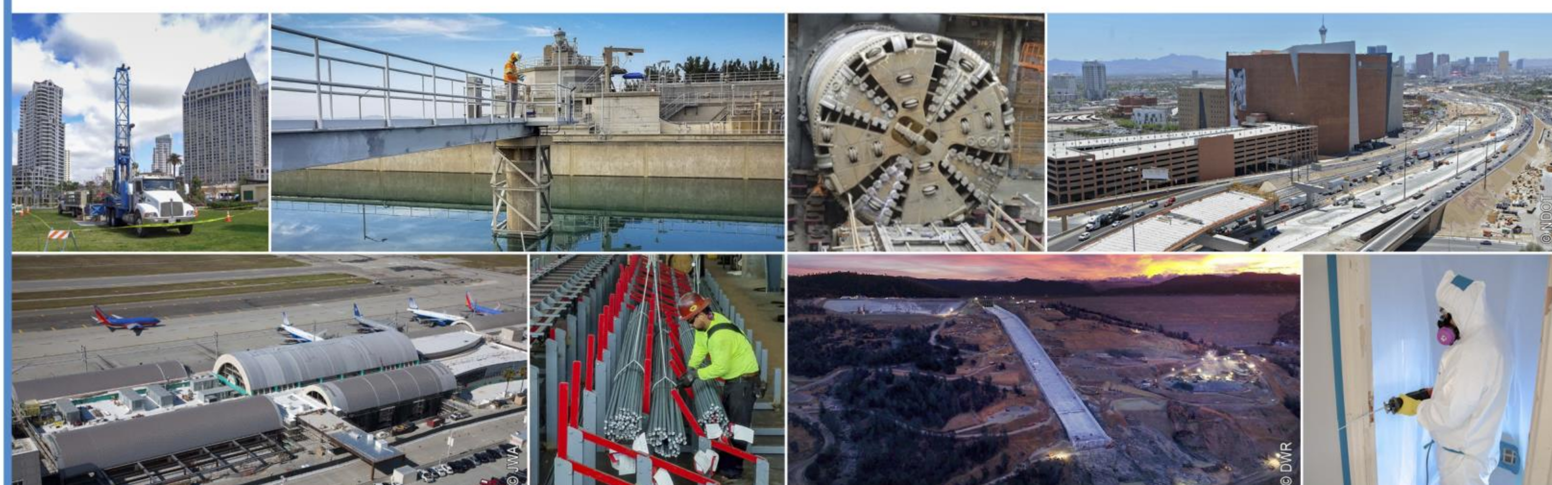
Perimeter air monitoring will be conducted with a MIE DataRAM 2000 aerosol monitor, or equivalent. The DataRAM aerosol monitor measures concentrations of airborne dust, smoke, mists, haze and fumes and will be used for continuous unattended environmental monitoring of the site perimeter monitoring. The DataRAM will be used in place of alternative dust samplers that require off site laboratory sample analysis by OSHA Method 0500 to evaluate if the designated perimeter dust threshold has been exceeded. The DataRAM will provide continuous real-time data measurement of the total dust fence line action level of 50 $\mu g/m^3$ above up-wind background dust concentration.

DataRAM meters will be set up at approximately 5 feet above grade at the following site locations and operated for the duration of daily field activities.

- One location upwind of excavation operations (based on wind direction meter measurements).
- Two locations downwind of excavation operations.

The DataRAM meters will be set with a flow rate of 2 liters per minute and will collect minimum, maximum, and average total aerosol concentration (ug/m^3) every 10 minutes of operating time.

Each daytime hour of field time, the meters will be visually checked and the meter results will be reviewed and manually recorded.



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