Removal Action Workplan

Heritage Park

Parlier, California

RRM Design Group

232 Avenida Fabricante, Suite 112 | San Clemente, California 92672

August 21, 2018 | Project No. 402137004

Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

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Geotechnical & Environmental Sciences Consultants

August 21, 2018
Project No. 402137004

Mr. William F. Strand
RRM Design Group
232 Avenida Fabricante, Suite 112
San Clemente, California 92672

Subject: Removal Action Workplan
Heritage Park
Parlier, California

Dear Mr. Strand:

In accordance with your request and authorization, we have prepared this Removal Action Workplan (RAW) for the proposed improvements located at Heritage Park, Parlier, California. This RAW presents our recommendations, procedures, and an implementation plan regarding the proposed soil removal project.

Sincerely,
NINYO & MOORE

Forrest McFarland PG 7984
Senior Geologist

Randy Wheeler CEM
Senior Geologist

Peter C. Connolly, PE, GE
Principal Engineer

FSM/RLW/vmn

Distribution: (1) Addressee (via e-mail)

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LIST OF ACRONYMS AND ABBREVIATIONS

APN	Assessor's Parcel Number
ARARs	Applicable or Relevant and Appropriate Requirements
AST	Above-Ground Storage Tank
ASTM	American Society for Testing and Materials
bgs	Below Ground Surface
BMP	Best Management Practices
CA	California
Cal/EPA	California Environmental Protection Agency
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CHHSL	California Human Health Screening Level
CEG	Certified Engineering Geologist
COC	Contaminants of Concern
conc	Concentration
COPCs	Chemicals of Potential Concern
R^2	Correlation Coefficient
cy	Cubic Yard
DTSC	Department of Toxic Substances Control
ESA	Environmental Site Assessment
ESL	Environmental Screening Level
ft.	Feet
GCC	General Construction Contractor

LIST OF ACRONYMS AND ABBREVIATIONS

HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
ID	Identification
mg/kg	Milligrams per Kilogram
mg/l	Milligrams per Liter
mg/l^3	Milligrams per Cubic Liter
mg/m^3	Milligrams per Cubic Meter
Ninyo & Moore	Ninyo & Moore Geotechnical & Environmental Sciences Consultants
NOE	Notice of Exemption
NOI	Notice of Intent
NPL	National Priorities List
O&M	Operations and Maintenance
OSHA	Federal Occupational Safety and Health Administration
pcf	Pounds per Cubic Foot
PID	Photoionization Detector
PE	Professional Engineer
PG	Professional Geologist
QA	Quality Assurance
QC	Quality Control
QSD	Qualified SWPPP Developer
RCRA	Resource Conservation and Recovery Act
RAO	Removal Action Objective

LIST OF ACRONYMS AND ABBREVIATIONS

RAW	Removal Action Workplan
RRM	RRM Design Group
RSLs	Regulatory Screening Levels
RWQCB	Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SMARTS	Storm Water Multiple Application and Report Tracking System
sf	Square Feet
SWPPP	Storm Water Pollution Prevention Plan
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TPH/d/mo	Total Petroleum Hydrocarbons as Diesel and Motor Oil
TTLC	Total Threshold Limit Concentration
TCLP	Toxicity Characteristic Leaching Procedure
UCL	Upper Confidence Limit
USA	Underground Service Alert
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
WET	Waste Extraction Test
XRF	X-ray Fluorescence Analyzer

1 INTRODUCTION

1.1 Proposed Site Redevelopment

Ninyo & Moore Geotechnical and Environmental Sciences Consultants (Ninyo & Moore) has prepared this Removal Action Workplan (RAW) for RRM Design Group (RRM) on behalf of the City of Parlier, California for the proposed new re-development and construction of Heritage Park (the site, Figure 1). Proposed improvements for the new park consist of a natural turf soccer field, event pavilion, restrooms, splash park, pump house, standard pedestrian lighting, fencing, and low retaining walls or seat walls. Ninyo & Moore will act as the Environmental Consultant on the removal action project for RRM (Site Manager). The General Construction Contractor (GCC) will be selected subsequent to approval of the RAW and the bidding process.

The proposed site project is on the property located in the western portion of the city block bounded by S Newmark Avenue, 1st Street, J Street, and Fresno Street in Parlier, California (Figure 2). Proposed re-development details are presented on the Conceptual Site Use Plan as shown on Figure 3.

1.2 Cleanup Oversight Responsibility

The Department of Toxics Substances Control (DTSC) is the lead regulatory agency for this project based on the nature of contaminants (heavy metals), the intended future site use as a public park, and their involvement with a similar soil management project for the property located approximately ¼-mile northwest of the site (Avila Avenue Apartments) at E. Parlier Avenue and Avila Avenue.

2 BACKGROUND

2.1 Location and Description

2.1.1 Name and Address

The site is located on one parcel totaling approximately 3.25 acres of vacant land designated by Fresno County Assessor's Parcel Number (APN) 355-041-28ST (Appendix A, Parcel Map). The site is bounded by S Newmark Avenue to the west, Fresno Street to the south, 1st Street to the north, and vacant land to the east (Figure 2).

2.1.2 Owner's Contact Person, Mail Address and Telephone Number

Name: Sam Escobar, City of Parlier

Address: 1100 East Parlier Avenue
Parlier, California 93648
559-646-3545

2.1.3 Environmental Consultant's Contact Information

Ninyo & Moore will be acting as the Environmental Consultant on this project and will work with the site owner's selection of a GCC. The Project Manager will be Mr. Randy Wheeler, and the Profession Geologist for the project will be Mr. Forrest McFarland, both from Ninyo & Moore's West Sacramento Office located at 1401 Halyard Drive, West Sacramento, California 95691, and telephone contact at (916) 317-3284.

2.1.4 United States Environmental Protection Agency (USEPA) Identification Number and EnviroStor Database Number

The site is not listed as a USEPA identified site. A temporary USEPA Identification (ID) number will need to be obtained for offsite shipping of soils. Ninyo & Moore will arrange for the USEPA ID number. The site EnviroStor ID number is 60002099.

2.1.5 APN and Map

The site is designated by Fresno County APN 355-041-28ST.

2.1.6 Ownership

The current owner of the site is the City of Parlier.

2.1.7 Township Range, Section, and Meridian

The site is located at Township and Range # T15S R22E and Section S24 based on the Mount Diablo Meridian.

2.2 Operational History and Status

Fruit packaging and warehouse companies operated on the site from at least 1904 to the early 1930s based on review of Sanborn Fire Insurance Maps. Several of the warehouses were visible on aerial photographs up through the mid-1950s and were located generally along the southern half of the site. The majority of the buildings were demolished by 1957 and the remaining buildings were demolished by 1965. The site has been vacant since at least 1965 based on review of historical aerial photographs.

The former Topeka and Santa Fe railroad crossed the northern portion of the site in an east-west direction. Additionally, a rail spur was located on the south side of the main line; the rail spur apparently serviced the various packing warehouses. The railroad tracks were removed in approximately 1994. The former railroad tracks are considered an area of

concern due to potential historical applications of chemicals (pesticides/herbicides), which may have been used to control pests and weed growth along the railroad tracks. Additionally, chemicals of potential concern (COPCs) associated with railroad tracks also include lead (rail car braking systems), arsenic (rail ties preserved in arsenic solution, arsenic-containing pesticides/herbicides, and slag ballast used on the rail bed), creosote and pentachlorophenol used to preserve rail ties, and fuel and oil leaks from rail cars.

2.3 Topography

Based on a review of the United States Geological Survey (USGS) 7.5-Minute Topographic Quadrangle Map Series of the Selma Quadrangle, 1981, the site is situated at an elevation of approximately 343 feet (ft.) above mean sea level. The site topography is relatively flat and gently slopes towards the south.

2.4 Geology and Hydrogeology

2.4.1 Geology and Soil Types

The site is located in the southwest-central portion of the San Joaquin Valley within the Great Valley geomorphic province of California. The Great Valley, also known as Central Valley, is comprised of the northern Sacramento Valley, and the southern San Joaquin Valley, separated by the volcanic Sutter Buttes. These valleys stretch approximately 650 miles from Shasta Lake at the northern end of the valley complex to the Tehachapi Mountains at the southern end. The Great Valley is underlain by up to 65,000 ft. of marine and non-marine sediments deposited in an elongated, asymmetrical forearc basin that formed between the Sierran arc to the west and a Mesozoic subduction zone to the east. A large portion of the Great Valley floor is covered by recent and Pleistocene alluvial sediments that eroded from the Sierra Nevada and to a lesser extent from the Coast Ranges. These deposits are underlain by Jurassic to early Cenozoic marine and non-marine sediments and sedimentary rocks of the Great Valley sequence consisting mostly of sandstone, shale and conglomerate (California Geological Survey [CGS], 2002).

The surface of the site exhibits gravel, remnant railroad ballast (majority removed in 1994 when the rail tracks and ties were removed) and bare dirt. The subsurface soils encountered in each of the borings consists of light-brown to brown silty-sand to depths of approximately 20 ft. below ground surface (bgs) (as reported during geotechnical drilling conducted by Ninyo & Moore in June 2013). The upper two to three feet of soil encountered in the borings are fill material, with the underlying material considered to be native soils.

2.4.2 Hydrogeologic Setting

Site-specific groundwater depth information is not available. Groundwater flow direction in the site vicinity was estimated based on review of a November 9, 2012 soil and groundwater assessment report for the Haga's Auto Repair facility located at 450 Fresno Street. According to the report, the groundwater flow direction in the area was reported to be towards the south-southwest and the depth to groundwater in the area has ranged between approximately 55 ft. and 65 ft. bgs.

Based on a review of previously collected information and reports, soils with concentrations above background to be left in place at depth below 5.5 ft. bgs do not represent a probability of leaching of metals contaminants into groundwater at the site. Evidence for this conclusion can be seen in the soil colors documented on soil boring logs indicating reddish- and brown-colored sands typical of oxidizing conditions conducive to metals retention, as well as pH measurements indicating neutral conditions in soils from 0-5 ft. bgs, and soil corrosivity measurements indicating a pH of 7.3 with low sulfate content and low to moderate chloride content (Geotechnical Evaluation, Ninyo & Moore 2013). The proposed clean-up is protective of Human health and the environment.

2.5 Surrounding Land Use and Sensitive Ecosystems

The table below lists the properties adjoining the site and associated land use. As shown in the table below, the site is located within an area of mixed commercial use and vacant land.

Location	Adjoining Properties and Associated Land Use
North	1st Street, beyond that is the Parlier Senior Center and a park.
South	Fresno Street, beyond that are commercial buildings including a market, a recycling center, and vacant lots.
East	Vacant land.
West	S Newmark Avenue, beyond that is open space.

2.6 Cultural Resources and Native Tribes

Research did not turn up any records of tribal affiliations with respect to the site, and the site is not listed on the National Priority List (NPL). There are no known cultural resources with respect to the Heritage Park site.

DTSC Office of Environmental Justice and Tribal Affairs (EJTA) staff contacted the Native American Heritage Commission (NAHC) requesting a review of their Sacred Lands File (SLF) and a listing of Native American Contacts for the geographic area of the Site. NAHC found no listings in the SLF and provided a list of eleven Native American Contacts representing ten different Tribal groups historically and culturally affiliated with the geographic area of the Site. EJTA staff proceeded to send outreach letters to all eleven contacts providing detailed information on the proposed remedial activities for this Site. Additionally, EJTA staff made follow up phone calls to assure receipt of the outreach letters. One written response was received declining to participate at this time, but requesting notification "in the unlikely event that cultural resources are identified."

Although it is not anticipated that the removal action activities will uncover any tribal cultural resources, protective measures have been put in place to accommodate this possibility. The contractors performing the remedial activities will be alerted to the need to be observant and aware that they may encounter potential Native American cultural, resources. Should any potential tribal cultural resources be encountered, specific contact information for the Tribe that has made the request to be contacted will be provided to the contractor.

In the event of the accidental discovery of potential cultural or archaeological resources, immediately suspend excavation activities in the immediate area and surrounding 50 feet and contact Mr. Robert Pennell, Tribal Cultural Resources Director, Table Mountain Rancheria at (559) 325-0351. Mr. Pennell's email is rpennell@tmr.org. DTSC staff and property owner are also to be immediately notified and informed. After discussion with Mr. Pennell and in collaboration with DTSC (including the Office of EJTA) and the property owner, implement any measures deemed necessary to record and/or protect the cultural or archaeological resource(s). If unable to contact Mr. Pennell, the Table Mountain Rancheria Tribal Government office phone number is (559) 822 2587.

Please notify the DTSC staff immediately in the event of any accidental discoveries of either potential cultural or archaeological resources or human remains. Contacts are as follows:

- Sandy Karinen (916) 323-9617
- Stephanie Lewis (818) 717-6616
- Britany Orona (916) 324-1327

2.7 Meteorology

Parlier, California climate is warm during summer when temperatures tend to be in the 90's and cold during winter when temperatures tend to be in the 40's.The warmest month of the year is July with an average maximum temperature of 98.60 degrees Fahrenheit, while the coldest month of the year is December with an average minimum temperature of 35.50 degrees Fahrenheit.

Temperature variations between night and day tend to be relatively big during summer with a difference that can reach 36 degrees Fahrenheit, and moderate during winter with an average difference of 21 degrees Fahrenheit.

The annual average precipitation at Parlier is 12.27 Inches. Rainfall is fairly evenly distributed throughout the year. The wettest month of the year is January with an average rainfall of 2.69 Inches (http://www.idcide.com/weather/ca/parlier.htm).

2.8 Previous Investigations

2.8.1 Phase I ESA

Ninyo & Moore previously completed a Phase I Environmental Site Assessment (ESA) at the site and summarized the results in its May 10, 2013 Phase I ESA report titled, *Phase I Environmental Site Assessment, Heritage Park, Parlier, California.* Pertinent findings of the Phase I ESA include the items below.

- Based on the information contained in the above document, little information is currently available regarding the historic uses on the site.
- Fruit packaging and warehouse companies operated on the site from at least 1904 to the early 1930s based on review of Sanborn Fire Insurance Maps. Several of the warehouses were visible on aerial photographs up through the mid-1950s and were located generally along the southern site boundary. The majority of the buildings were demolished by 1957 and the remaining buildings were demolished by 1965. The site has been vacant since at least 1965 based on review of historical aerial photographs.
- The former Topeka and Santa Fe railroad crossed the northern portion of the site in an east-west direction. Additionally, a rail spur was located on the south side of the main line; the rail spur apparently serviced the various packing warehouses. The railroad tracks, rail ties and ballast material were removed in approximately 1994. The former railroad tracks are considered an area of concern due to potential historical applications of chemicals, which may have been used to control pests and weed growth along the railroad tracks. Additionally, COPCs associated with railroad tracks include lead (rail car braking systems), arsenic (rail ties preserved in arsenic solution, arsenic-contained herbicides, and slag ballast used on the rail bed), creosote and pentachlorophenol used to preserve rail ties, and fuel and oil leaks from rail cars.

- No evidence of existing above-ground storage tanks (ASTs) or underground storage tanks (USTs) was observed at the site during the Phase I reconnaissance. In addition, the regulatory records review did not indicate current registration of ASTs or USTs at the site. No evidence of vent pipes, fill pipes, or access ways indicating USTs was discovered at the time of the site reconnaissance.

2.8.2 Phase II ESA

Based on the findings of the Phase I ESA, Ninyo & Moore conducted Phase II subsurface investigation activities in May 2013, November 2013, and additional soil sampling activities in May 2015 to address COPCs related to historical site activities, including the former presence of the rail line and spur on the site. The results of the three previous investigations are included in Ninyo & Moore's *Additional Soil Investigation Results* report dated August 27, 2015 and summarized below.

May 2013 Subsurface Investigation

Ninyo & Moore advanced six hand-auger borings along the former track alignments on May 8, 2013; four borings (SB-1 through SB 4) were advanced along the northern main line track alignment, and two borings (SB-5 and SB-6) were advanced along the southern rail spur alignment (former rail spurs shown on Figure 2). Three soil samples were collected at each boring location from the ground surface, 1-foot, and 2.5 ft. bgs. The surface and 2.5-foot samples from each of the six borings were selected for laboratory analyses. Analytical results of samples from the six borings indicated the presence of elevated arsenic concentrations in both the surface and 2.5-foot samples. Additional samples were collected from three soil borings (B-1 through B-3) on June 3, 2013, during a geotechnical investigation conducted by Ninyo & Moore (Ninyo & Moore, July 2013) to assess whether the presence of elevated arsenic concentrations extended beyond the former rail spur areas. Three soil samples were collected at each boring location from the ground surface, 2.5 ft. and 5.5 or 6 ft. bgs. Former rail line and spur areas referenced in the bullet items below refer to Borings SB-1 through SB-6 and non-rail areas refer to Borings B-1, B-2 and B-3. Analytical results are presented in the attached Table 1. The results are summarized below.

- Arsenic concentrations range from 120 to 1,000 milligrams per kilogram (mg/kg) in the surface samples collected from within the former rail line and spur areas, and range from 5 to 18 mg/kg in the surface samples collected from non-rail areas.
- Arsenic concentrations range from 2.9 to 60 mg/kg in the 2.5-foot bgs samples within the former rail and spur areas, and range from 3.5 to 16 mg/kg in the non-rail areas.

- Arsenic concentrations range from 4 to 16 mg/kg in the 5.5 to 6-foot bgs samples in the non-rail areas (no 5.5 to 6-foot bgs samples were collected from within the former rail and spur areas).

- The highest arsenic concentration was detected in the surface sample from SB-6 (1,000 mg/kg), which exceeds the California (CA) Total Threshold Limit Concentration (TTLC) of 500 mg/kg.

- Soil samples with the lowest, intermediate, and highest total arsenic concentrations collected from the former rail areas (Samples SB-5-0, SB-2-0, and SB-6-0, respectively) exceed 10x the CA Soluble Threshold Limit Concentration (STLC) value for arsenic; therefore, these samples were further tested for soluble arsenic by the CA Waste Extraction Test (WET) method. Soluble arsenic was found to be 8.7 milligrams per liter (mg/l), 44.2 mg/l and 119 mg/l for SB-5-0, SB-2-0 and SB-6-0, respectively, all of which exceed the STLC of 5 mg/l for arsenic.

- Soil samples with the highest soluble arsenic concentrations (SB-2-0 and SB-6-0) were further tested for soluble arsenic by the USEPA Toxicity Characteristic Leaching Procedure (TCLP) method. Soluble arsenic by TCLP was found to be 1.52 mg/l and 27.8 mg/l, respectively. The latter concentration exceeds the TCLP value of 5 mg/l for arsenic.

- Lead was detected in all of the samples analyzed for lead, and was above the residential California Human Health Screening Level (CHHSL)[1] and residential Environmental Screening Level (ESL)[2] of 80 mg/kg in two samples (B-3-0 and B-3-2.5). None of the detected concentrations of lead exceed its CA TTLC of 1,000 mg/kg. Three samples exceed 10x its STLC of 50 mg/l (Samples SB-2-0, B-3-0, and B-3-2.5), but were not further analyzed for soluble lead using WET.

- Lead concentrations range from 12 to 57 mg/kg in the surface samples collected from within the former rail line/spur areas (Borings SB-1 through SB-6).

- Lead concentrations range from 1.9 to 3.4 mg/kg in the 2.5-foot samples from the former rail and spur areas.

- Lead concentrations were reported at 15, 6.8, and 100 mg/kg in the surface samples from Borings B-1 through B-3, respectively, and the lead concentration was 90 mg/kg in the 2.5-foot sample from Boring B-3.

November 2013 Subsurface Investigation

Based on the findings of the May 2013 investigation, Ninyo & Moore conducted an additional subsurface investigation on November 6, 2013. Borings SB-7 through SB-18 were advanced as indicated below:

[1]Established by the DTSC, dated January 2009.
[2] Established by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), dated December 2013.

- Advanced five borings to 10 ft. bgs in non-rail areas (SB-7 through SB-11). Collected soil samples at the surface, 2.5, 3.5, 5 and 10 ft. bgs. Analyzed the surface samples for arsenic and lead, and analyzed the 10-foot samples for arsenic only. The 2.5, 3.5, and 5-foot samples were placed on hold with the laboratory pending results of the analyses of the surface and 10-foot samples.

- Advanced two borings to 10 ft. bgs in the area between the former rail and spur (SB-12 and SB-13). Collected soil samples at the surface, 2.5, 3.5, 5 and 10 ft. bgs. Analyzed the surface samples for arsenic and lead, and analyzed the 10-foot samples for arsenic only. The 2.5-, 3.5- and 5-foot bgs samples were placed on hold with the laboratory pending results of the analyses of the surface and 10-foot samples.

- Advanced five borings to 10 ft. bgs along the former rail line and spur adjacent to the locations where previous borings were drilled on the alignments (SB-14 through SB-18). Collected soil samples at 3.5, 5, 7.5, and 10 ft. bgs. Analyzed the 3.5-foot bgs samples for arsenic. The 5-, 7.5- and 10-foot samples were placed on hold with the laboratory pending results of the analyses of the 3.5-foot samples.

- The analytical findings of the above samples indicated that the vertical extent of arsenic needed further evaluation. To address this data gap, additional samples selected from the samples that were placed on hold with the laboratory were analyzed for arsenic including the following: 5-foot bgs samples in SB-12 through SB-18; 7.5-foot bgs samples in SB-14, SB-17 and SB-18; and the 10-foot bgs samples in SB-15, SB-16 and SB-18. In addition, the two samples with the highest detected arsenic concentrations (surface samples from SB-8 and SB-13) were further analyzed to evaluate the soluble portion of arsenic in those samples (WET and TCLP).

Results of the November 13 investigation inclusive of the May 2013 results indicated:

- Detected arsenic concentrations in surface samples range from 3.6 to 1,000 mg/kg, with the highest concentrations occurring within the former rail line and spur.

- Detected arsenic concentrations in the 2.5-foot bgs samples range from 2.9 to 60 mg/kg, with the highest concentrations occurring within the former rail line and spur.

- Arsenic concentrations range from 14 to 55 mg/kg in the 3.5-foot bgs samples collected within the former rail line and spur. Samples from the 3.5-foot depth in other areas were not analyzed.

- Detected concentrations of arsenic range from 4 to 33 mg/kg in samples from the 5.0- to 6.0-foot bgs, with the highest concentrations occurring within the former rail line and rail. Arsenic was not detected above the laboratory reporting limit in the 5-foot bgs sample from Boring SB-13.

- Arsenic concentrations range from 11 to 25 mg/kg in the 7.5-foot bgs samples collected within the former rail line and spur. Samples from a depth of 7.5 ft. bgs in other areas were not analyzed.

- Detected concentrations of arsenic range from 1.4 to 12 mg/kg in the 10-foot bgs samples. Arsenic was not detected above the laboratory reporting in the 10-foot bgs samples from Borings SB-15 and SB-16.

- Analytical results are presented in the attached Table 1.

The DTSC requested additional soil investigation activities to both address data gaps due in sampling density, and also further assess specific locations where potential hazardous waste soil may be encountered during the site's proposed redevelopment activities.

2.8.3 Targeted Site Investigation

In May 2015, Ninyo & Moore advanced 54 hand auger borings to depths between 3.5 and 7.5 ft. bgs, with a total of 210 discrete soil samples collected from 39 established grid cells across the site. Additional borings were planned for those cells in which no previous boring was advanced (21 locations) and for those cells in which no soil samples were collected at either the 1.0- or 3.5-foot depth (six locations) during the previous investigations. This design resulted in advancing 27 additional borings at the approximate center of each cell (DG-1 through DG-27; Figures 4A and 4B). In addition, no samples were collected from the 1.0- or 3.5-foot depth in previous Borings SB-6 and SB-8; therefore one boring was advanced immediately adjacent to each of these previous borings (SB-6A and SB-8A, respectively) to obtain and analyze samples from these depths. Eight step-out borings were advanced in the vicinity of previous borings SB-6 (SO6-1 through SO6-8), and SB-8 (SO8-1 through SO8-8) for further evaluation of arsenic. In addition, eight step-out borings (SO3-1 through SO3-8), were advanced in the vicinity of previous Boring B-3 for assessment of lead, with five soil samples (i.e., surface, and 1.0, 3.5, 5.5 and 7.5 ft. bgs) collected from each location for analysis of lead. One of the step-out borings advanced to the east of Boring B-3 was included as an additional boring, as no boring was previously advanced in this grid sector. In addition, one boring (B-3A) was advanced at the original sample point (B-3) with three samples (i.e., 3.5, 5.5, and 7.5 ft. bgs) collected for analysis of lead. Figures 4A and 4B show the locations of both the additional and step-out borings, and also provide the locations of the previous borings.

Each of the soil samples was subjected to field analysis using a X-ray fluorescence (XRF) analyzer for arsenic and/or lead. A correlation between XRF analysis and laboratory analysis was made by subjecting approximately 10 percent of the samples (18 samples out of 166 XRF-analyzed arsenic samples, and 14 samples out of 114 XRF-analyzed lead samples) to both XRF and laboratory analysis. Selection of the correlation samples included a range of arsenic and lead concentrations detected by the XRF (i.e., samples were selected from areas that were considered "background" [corresponded to low XRF readings] and ranged up to the highest concentrations found in the samples). The correlation soil samples were submitted to TestAmerica laboratory

in Pleasanton, California, a state-certified laboratory, for analysis of arsenic and lead using USEPA Method 6010A. Analytical results of the XRF analyses for arsenic ranged from 1 to 628 mg/kg for detected concentrations. Analytical results of the XRF analyses for lead ranged from 5 to 1,656 mg/kg for detected concentrations. A graph of the correlation between XRF results and laboratory results was prepared for both arsenic and lead. The graphs are shown on Figure 5 of the Additional Soil Investigation Results Report (Ninyo & Moore, 2015). The graph of each shows an approximately straight line relationship between XRF and laboratory results, with a reasonable fit of the data observed given correlation coefficients (R^2) of 0.81 and 0.93 for arsenic and lead, respectively. Based on the correlation data, the XRF concentrations of arsenic and lead were corrected using the following formulas, with the corrected concentrations provided in the attached Table 2:

$$Arsenic_{(conc)} \text{ (corrected)} = 1.0035 * XRF_{(conc)} - 2.9228$$

$$Lead_{(conc)} \text{ (corrected)} = 0.2055 * XRF_{(conc)} + 20.85$$

To identify a correlation of total concentrations of arsenic to respective acceptable soluble concentrations that determine whether the material is considered a CA hazardous waste for disposal purposes (5.0 mg/l [i.e. the STLC for arsenic), a linear regression analysis was performed between the total arsenic concentrations and the soluble concentrations derived by using the WET method. The regression analysis resulted in a reasonable fit of the data with a R2 of 0.82. Based on this analysis, a total arsenic concentration of 165 mg/kg correlates to a WET arsenic concentration of 5.0 mg per cubic liter (mg/l^3)3.

The detailed findings of the additional investigation are summarized below. Analytical results and corrected values of the Targeted Site Investigation and supplemental sampling (exclusive of previous investigation results) are presented in the attached Table 2. The total concentrations are presented as corrected concentrations.

Arsenic

- Detected arsenic concentrations in surface samples range from 2.1 to 627 mg/kg, with the lowest concentrations generally occurring in Borings DG-18 through DG-27

[3] Samples with arsenic exceeding its TTLC concentration of 500 mg/kg are considered California hazardous waste, with no further soluble analysis required.

located along the southern site boundary, and the highest concentrations occurring within the former rail line and spur. The highest concentration was reported from Boring SO6-1.

- Detected arsenic concentrations in the 1.0-foot samples range from 1.8 mg/kg to 250 mg/kg, with the highest concentrations occurring within the former rail line and spur at Boring DG-16 (250 mg/kg), and step-out Boring SO6-1 (171 mg/kg).

- Detected arsenic concentrations in the 3.5-foot samples range from 1.1 mg/kg to 53.3 mg/kg, with the highest concentrations reported in step-out Boring SO6-3 near previous Boring SB-6.

- Detected arsenic concentrations in the 5.5-foot samples range from 3.1 mg/kg to 35.2 mg/kg, with the highest concentrations reported in step-out Boring SO6-6 near previous Boring SB-6.

- Detected arsenic concentrations in the 7.5-foot samples range from 0.1 mg/kg to 16.1 mg/kg, with the highest concentrations reported in step-out Boring SO6-6 near previous Boring SB-6.

- Arsenic concentrations exceed the criteria for CA hazardous waste for total and soluble arsenic (i.e., TTLC and STLC, respectively). Arsenic was reported at total concentrations above the TTLC (500 mg/kg) in two surface samples: DG-14-0 at 800 mg/kg (laboratory), and 524 mg/kg (corrected concentration); and SO6-1-0 at 450 mg/kg (laboratory) and 627.3 mg/kg (corrected concentration). Arsenic was reported at soluble concentrations above STLC in Samples SO6-1-0 (7.6 mg/l) and SO8-5-0 (20 mg/l), and from DG-15-0 (5.9 mg/l), located east of Boring SB-6/SO6. Sample SO6-1-0 (36 mg/l) also exceeded the solubility criteria for arsenic (using the TCLP method) for Resource Conservation and Recovery Act (RCRA) hazardous waste. A total arsenic concentration of 165 mg/kg correlates to a WET arsenic concentration of 5.0 mg/l.

Lead

- Detected lead concentrations in surface samples range from 22.2 to 47.8 mg/kg.

- Detected lead concentrations in the 1.0-foot samples range from 21.9 to 66.9 mg/kg.

- Lead concentrations in the 3.5-foot samples range from 21.9 to 361.2 mg/kg, with the highest concentration reported in Boring B-3A (near previous Boring B-3) in the southwestern portion of the site.

- Lead concentrations in the 5.5-foot samples range from 22.1 mg/kg to 23.9 mg/kg.

- Lead concentrations in the 7.5-foot samples range from 22.3 mg/kg to 22.5 mg/kg.

- Lead concentrations exceed the criteria for CA hazardous waste for soluble lead (STLC) in sample DG-1-1.0 (5.9 mg/l). The sample did not exceed the TCLP value for RCRA hazardous waste.

On July 5, 2018, Ninyo & Moore conducted a supplemental site investigation to re-sample 21 soil samples from 16 locations (DG-1, DG-3, DG-8 through DG-10, DG-11, DG-14, DG-15, and DG-17 through DG-24) sampled by Ninyo & Moore in 2015 for

arsenic, and also for lead from the vicinity of DG-1-1.0. The previous sample locations were identified by GPS coordinates.

Soil samples were collected using a hand-auger to depths of 3.5-ft or less. Soils from the target depths were collected in re-sealable plastic bags. A hand-held XRF gun was used to analyze the samples using a shot times ranging from 120-seconds to 180-seconds in order to reach a reporting level of 3.5 mg/kg, or better.

In keeping with the QA/QC guidelines of the 2015 site assessment, in addition to the XRF scans, soil samples were collected from representative locations and analyzed by an outside analytical laboratory. A total of 6 soil samples representing 20% of the total were collected in glass jars and submitted to Pace National Laboratory of Lebanon, Tennessee, a California-Certified laboratory, for the analysis of arsenic by US EPA Method 6010B. Soil samples from the following borings were submitted for laboratory analysis: DG-1-1.0, DG-8-3.5, DG-10-3.5, DG-18-1.0, DG-19-1.0, and DG-20-3.5. Sample DG-1-1.0 was also analyzed for lead by US EPA Method 6010B. The results of the laboratory analysis were used to verify that there was a good correlation between XRF data and laboratory data. The XRF and laboratory results were appended to Table 2.

2.8.4 Limited Geophysical Survey

No geophysical surveys have been conducted at the site.

2.8.5 Other Removal Actions

No other removal actions have been documented for the Heritage Park, Parlier site.

3 NATURE, SOURCE, AND EXTENT OF CONTAMINANTS

3.1 Types, Source and Location of Contaminants

As stated in Section 2.8, previous investigations identified the metals arsenic and lead to be the contaminants of concern (COCs). Elevated concentrations of these metals are believed to be related to the former Topeka and Santa Fe Railroad tracks located from east to west across the northern portion of the site as well as the rail spur that formerly serviced the various fruit packing warehouses at the site. Arsenic was likely contained in herbicides and rodenticides adjacent to the tracks and lead is believed to be associated with rail car braking systems.

Concentrations of arsenic were detected in soil samples obtained during the 2013 subsurface investigation and are presented in the attached Table 1. In the 2015 subsurface investigation soils were collected for laboratory analysis as well as analyzed by an XRF analyzer for arsenic and/or lead. A 150-second shot-time was utilized to screen the soil samples. In analyzing the XRF samples, the lowest "level of detections, or LODs" achieved by the XRF instrument ranged from less than 3.0 mg/kg to less than 18.1 mg/kg.

A total of 196 samples were analyzed by either laboratory or XRF. Some samples were analyzed by both lab and XRF. Results were plotted and based on lab results, the XRF concentrations were given correlation coefficients to correct the XRF concentrations to account for the differences in the methodologies (see Section 2.8.3).

A total of 247 soil samples from various depths were analyzed for arsenic in the 2013 and 2015 subsurface investigations. Concentrations of arsenic were reported in 119 of the 247 soil samples. Arsenic concentrations ranged from 1.1 mg/kg to 1,000 mg/kg.

A total of 137 soil samples from various depths were analyzed for lead in the 2013 and 2015 subsurface investigations. Concentrations of lead were reported in 4 of the 137 soil samples analyzed for lead. Lead concentrations ranged from 1.9 mg/kg to 361.2 mg/kg.

Fourth Spread Analysis resulted in a 95 percent upper confidence limit of the 99th quartile arsenic concentration of 95 mg/kg. As this result represents an elevated arsenic concentration, it cannot be referenced as representing natural background conditions. Therefore, a graphical approach using normality plots was used to determine the background level of arsenic at the site. Corrected values for arsenic concentrations, based on XRF results, were used for the analysis. When graphed against percentiles (Ninyo & Moore, 2015), the results gave rise to a curve that showed two points of inflection, one around 3.5 mg/kg and the other around 20 mg/kg. The result of the graphical analysis indicates that 3.5 mg/kg is the natural background arsenic concentration for the site, with soils identified to be significantly impacted by the site's historical activities represented by arsenic concentrations exceeding 20 mg/kg. See Appendix B for the Graphical Analysis Figure and the details of the computation can be found in the *Additional Soil Investigation Results* report (Ninyo & Moore, 2015). The DTSC agreed with these calculations in their acceptance letter for the report, dated September 11, 2015 and presented site clean-up criteria for the site based on these concentrations.

The following provides a general summary of the arsenic and lead soil impacts and exceedances of clean-up goals identified within the project site:

- Clean-up goals for arsenic were identified for concentrations of arsenic above 18 mg/kg as areas where soils need to be excavated and disposed of off-site.

- Clean-up goals for lead were identified for concentrations of lead between 80 mg/kg and 320 mg/kg as areas where soils need to be excavated or covered by a minimum of 1-foot of clean soil.

- The southern portion of the site is relatively un-impacted and for most of this section no excavation is warranted.

- The central portion of the site from east to west where the former Topeka and Santa Fe Railroad tracks were removed represents arsenic concentration exceedances of over 18 mg/kg at depths ranging from 1-foot to 7.5 ft. bgs. Overall excavation in this area to 2.5 ft. is recommended with seven areas of targeted excavation to 5 ft. bgs (see Figures 5A and 5B).

- Overall, the site is impacted by lead that exceeds RSLs in one location; a limited area centered at the Sample B-3 location to a depth of 5.0 ft. bgs.

- Soils containing arsenic and lead concentrations, which exceed their respective TTLC concentrations or with STLC or TCLP results greater than 5 mg/l, should be disposed of as hazardous material.

- Soils with arsenic concentrations over 165 mg/kg should be tested for STLC/TCLP analysis to determine hazardous waste classification.

A total of 29 XRF samples were analyzed as part of the July 5, 2018 supplemental sampling. XRF shot times of between 120 and 180 seconds were utilized in an attempt to achieve a reporting limit of 3.5 mg/kg or lower. In analyzing the 29 samples, the lowest LOD achieved by the XRF instrument (XRF serial number 85085) ranged from less than 3.6 mg/kg to less than 4.3 mg/kg. In each of these cases, the LODs achieved by the XRF instrument were significantly lower than the LODs achieved during the 2015 XRF sampling. The 2018 supplemental analysis indicated two additional locations (DG-10 and DG-14) should be targeted for excavation. As arsenic concentrations at 3.5 ft in these locations exceed the 18 mg/kg clean up criteria, a 10-foot by 10-foot area should be excavated to 5 ft. bgs in each of these locations (See Figures 5A and 5B).

Both arsenic and lead are to be retained as COCs.

3.2 Extent and Volume of Contamination

The estimated extent of arsenic- and lead-impacted soils and the planned excavation depths are shown on Figures 5A and 5B.

Conservative estimates of the lateral extent, volume, and tonnage, (using an estimated density of 1.35 tons per cubic yard) of impacted soil to maximum depths of 5.0 ft. bgs are summarized below:

- The Northern portion of the cleanup area measuring approximately 23,236 square feet (sf) with arsenic concentrations less than 18 mg/kg, to be left in place.

- In the Central portion of the site, 14 locations of arsenic impacted soils at 0.0-1.0 ft. bgs at concentrations exceeding 165 mg/kg (SB-2, SB-4, SB-6, DG-3, DG-4, DG-11, DG-13, DG-14, DG-1-6, SO6-1, SO-6-3, SO-6-8, SO-8-5, and SO-8-6, (with DG-16 and SO-6-1 both excavated to 2-ft. bgs) for a total volume of 15 cy or 20.3 tons. Soils to be segregated as possible hazardous waste, pending confirmation sampling.

- The remainder of the Central portion of the cleanup area measuring approximately 49,628 sf to be excavated to an anticipated depth of 2.5 to 3.5 ft. bgs yielding 4,580 cy or approximately 6,184 tons of arsenic impacted soils between 18 mg/kg and 165 mg/kg. The July 2018 supplemental investigation indicated additional excavations should be targeted at DG-10-3.5 and DG-14-3.5 totaling approximately 20 cy, or approximately 27 tons.

- The Southern portion of the site measuring approximately 39,104 sf with arsenic concentrations below 18 mg/kg to be left in place, with exceptions of a 5-foot radius cylinder of soil to a depth of 5-ft to be removed at B-3 location for elevated lead concentrations between 80-100 mg/kg and (totaling 15 cy) to be segregated as possible hazardous waste, pending confirmation testing.

- Seven areas of targeted over-excavation within the 2.5-foot excavation area (with arsenic concentrations between 18 mg/kg and 165 mg/kg) to an additional 2.5-foot depth (which constitutes a depth of 5 ft. below original ground surface) of 285, 100, 100, 100, 130, 130, and 320 cy for a total volume of 1,165 cy or 1,574 tons.

- The total estimated volume and tonnage of soil requiring removal action is approximately 5,809 cy, or 7,842 tons.

- The stockpiled soil will be soil with arsenic concentrations greater than 18 mg/kg arsenic and / or 80 mg/kg lead or in the hazardous waste stockpile of soils greater than 165 mg/kg arsenic and/or greater than 320 mg/kg lead. None of the excavated soils qualify for re-use at the site. All soils must be transported off-site.

The total estimated volume and tonnage of soil requiring excavation and transport off-site is approximately 5,809 cy, or 7,842 tons. Of this material, approximately 40-50 cy is considered potentially RCRA hazardous waste, with approximately 35 cy in exceedance of arsenic cleanup goals, and 15 cy in exceedance of lead cleanup goals. The remaining cy is considered non-hazardous waste for disposal purposes.

3.3 Health Effects of Contamination

Routes of exposure to COCs include ingestion, dermal contact, and inhalation.

Some 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. There are Federal Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits for a wide number of metals, but the most common metal of concern is lead and is typically used as the field indicator for metals exposures. The OSHA Permissible Exposure Limit for lead is currently set at 0.05 mg per cubic meter (mg/m^3) with an action level of 0.03 mg/m^3.

Arsenic may play a role in the development of diabetes, cancer, vascular disease and lung disease. The Food and Drug Administration says that long-term exposure to high levels of arsenic is associated with higher rates of skin cancer, bladder cancer and lung cancer, as well as heart disease.

3.4 Potentially Affected Receptors

Receptors that could be potentially exposed to arsenic and lead in soil at the project site include:

- Adjacent residents of Parlier;
- Children playing in the park;
- Pedestrians; and
- Maintenance and construction workers.

Upon completion of the site remediation, the exposure pathway to COCs in soil at Heritage Park will essentially be at or below naturally-occurring levels.

3.5 Additional Site Investigation

No additional site investigation is necessary prior the implementation of this RAW.

4 REMOVAL ACTION GOALS AND OBJECTIVES

4.1 Removal Action Objectives

Removal action objectives (RAO) have been developed to mitigate the impacts on human health and the environment due to the proposed removal action. These removal actions are monitored by a different set of regulatory guidelines than site “remedial actions.” Therefore, proposed site excavations will be called “removal actions” throughout this RAW in reference to measures that will be instituted in order to mitigate any exposure of receptors to COCs at the Heritage Park project site. The selected GCC will implement the removal action with the guidance of the Environmental Consultant.

4.2 Applicable or Relevant and Appropriate Requirements

The site cleanup will be in compliance with State of CA DTSC requirements. Other applicable requirements with respect to cleanup standards of control, and other environmental protection requirements including California General Construction Permit requirements, criteria or limitations promulgated under Federal or State law will also apply to the site cleanup. Of the State or Federal requirements, the more rigorous will be adhered to. Typically, the more rigorous requirements are CA requirements.

4.2.1 Public Participation

Public participation efforts will include public notifications and 30-day public review of and comment on the RAW. The DTSC will approve any proposed public fact sheet mailing list that will include any nearby residents and businesses potentially interested organizations and individuals, and public officials.

The RAW can be made available to the public at the DTSC and City offices (public repositories):

- DTSC – 1515 Tollhouse Road in Clovis, California
- City of Parlier, City Hall, 1100 E. Parlier Avenue, Parlier California, 93648

The results of the Public Partition Outreach efforts will be presented in Appendix E, DTSC Responsiveness Summary.

4.2.2 California Environmental Quality Act

The DTSC is the California Environmental Quality Act (CEQA) lead agency for the RAW. DTSC has made a preliminary determination that the RAW is categorically exempt from CEQA under CEQA Guidelines Section 15330, Minor Actions to Prevent, Minimize, Stabilize, Mitigate, or Eliminate the Release or Threat of Release of Hazardous Waste or Hazardous Substances, and has prepared a Notice of Exemption (NOE) to that effect. Following DTSC approval of the RAW, the NOE will be filed with the Governor's Office of Planning and Research in accordance with CEQA Guidelines Section 15062(c)(1). The NOE and additional DTSC CEQA documentation will be made available for public review. Following DTSC approval of the RAW, the City of Parlier as a CEQA responsible agency will file an NOE with the Fresno County Clerk in accordance with CEQA Guidelines Section 15062(c)(2).

4.2.3 State Historic Preservation Office, Cultural Resources, and Native Tribes

Past land use on this Site, currently vacant, was as a fruit packing warehouse facility and a railroad right-of-way. DTSC Office of Environmental Justice and Tribal Affairs (EJTA) staff contacted the Native American Heritage Commission (NAHC) requesting a review of their Sacred Lands File (SLF) and a listing of Native American Contacts for the geographic area of the Site. NAHC found no listings in the SLF and provided a list of eleven Native American Contacts representing ten different Tribal groups historically and culturally affiliated with the geographic area of the Site. EJTA staff proceeded to send outreach letters to all eleven contacts providing detailed information on the proposed remedial activities for this Site. Additionally, EJTA staff made follow up phone calls to assure receipt of the outreach letters. One written response was received declining to participate at this time, but requesting notification "in the unlikely event that cultural resources are identified."

Although it is not anticipated that the removal action activities will uncover tribal cultural resources or archeological or paleontological artifacts of historical significance, protective measures have been put in place to accommodate the possibility. The contractors performing the remedial activities will be alerted to the need to be observant and aware that they may encounter potential Native American cultural, archaeological or paleontological resources of historic significance and/or human remains.

All contractors performing remedial activities need to be observant and aware that they may encounter potential Native American cultural or archaeological resources and/or human remains.

In the event of the accidental discovery of any human remains during ground disturbing activities, excavation, or disturbance of the site or any nearby area shall stop immediately and the County Coroner notified to determine its origin. The coroner will determine disposition within 48 hours. If the remains are Native American, the coroner will be responsible for contacting the NAHC within 24 hours. The NAHC will identify and notify the person(s) who might be the most likely descendant (MLD) who will make recommendations for the appropriate and dignified treatment of the remains (Public Resources Code, section 5097.98). These descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being

granted access to the Site (CEQA Guidelines, CCR section 15064.5(e); HSC section 7050.5).

4.2.4 Hazardous Waste Management

The excavated soil will be stockpiled onsite at the locations shown on Figure 6. These soils will be temporarily stockpiled on plastic sheeting. A four-part composite sample will be obtained from each approximate 500 cy of the soil stockpile and analyzed for Title 22 Metals and total petroleum hydrocarbons (TPH).

Where arsenic and lead are reported below established clean up goals as detailed in Section 4.3 (18 mg/kg for arsenic, and 80 mg/kg for lead), soils may be reused onsite as remedial backfill as these soils would not require mitigation. Where soils contain arsenic and lead at levels above screening levels (see Section 4.3), and the total or WET soluble sample concentrations do not exceed CA hazardous waste thresholds, the soils will be transported under non-hazardous manifest to use as daily cover to the Waste Management Kettleman Hills landfill or an alternate facility as selected by the City of Parlier. Where the total and/or WET or TCLP soluble stockpile sample concentrations exceed CA or Federal RCRA hazardous waste thresholds, these soils will be transported offsite to an out-of-state receiving facility under Uniform Hazardous Waste Manifest or transported to the Waste Management Kettleman Hills landfill facility located at 35251 Old Skyline Road in Kettleman Hills, California or an alternate facility as selected by the City of Parlier. Additional details regarding the transporter haul routes to designated facilities are presented in Section 8.0.

The City will be required to obtain a temporary USEPA ID number for the removal action. Generators who stockpile, transport or offer to transport, or offer to transport, treat, store, or dispose of hazardous waste must have an ID number, which is used to identify the hazardous waste handler and to track waste from its point of origin to its final disposal location. Instructions on how to obtain a temporary ID number may be obtained at the DTSC website at www.dtsc.ca.gov/IDManifest/index.cfm#identification.

Compliance with DTSC requirements of hazardous waste generation, temporary onsite storage, transportation and disposal is required. Within 90 days of its generation, hazardous waste soil must be transported by a registered hazardous waste hauler under the Uniform Hazardous Waste Manifest to the designated disposal facility.

4.2.5 San Joaquin Valley Air Pollution Control District

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has promulgated Rule 8011 for the control of fugitive dust emission during construction (see website at

https:www.valleyair.or/rules/currntrules/r8011.pdf). The rule defines fugitive dust as follows: "*any solid particulate matter entrained in the ambient air which is caused by anthropogenic or natural activities which is emitted into the air without first passing through a stack or duct designed to control flow, including, but not limited to emissions caused by movement of a soil, vehicles, equipment, and windblown dust. This excludes particulate matter emitted directly in the exhaust of motor vehicles, from other furl combustion devices, portable brazing, soldering, or welding equipment and from pile drivers."*

The intent of this rule is to control dust by water application, dust suppressants, pavement, vegetation, etc. so that no visible dust is created. Violation of the rule may result in issuance of a notice of violation and the assessment of penalties. On non-residential development construction sites ranging from 1.0 to less than 5.0 acres in the area (this project area is approximately 3.25 acres), an owner/operator shall provide written notification to the SJVAPCD at least 48 hours prior to his/her intent to commence any earth moving activities.

To comply with this rule, portions of the project area that will be disturbed by grading and construction equipment will be thoroughly wetted in advance of disturbing activities. Then during grading and construction, additional water should be applied to control dust.

4.2.6 Stormwater Pollution Prevention Plan

The area of proposed excavation is greater than one acre and therefore, a Stormwater Pollution Prevention Plan (SWPPP) will need to be produced for the site. A State of California Qualified SWPPP Developer (QSD) will be retained to produce and submit a site-specific SWPPP for the site for submittal and review on the California Storm Water Multiple Application and Report Tracking System (SMARTS). A legally responsible person for the site will first need to identify the site and submit a Notice of Intent (NOI) to commence with the removal action. Then during grading, erosion and sediment control best management practices (BMPs) such as silt fencing and straw roll staking and deployment, and dust suppression will be implemented and inspected at designated intervals at the site during the excavation and backfill activities.

4.2.7 Health and Safety Plan

A site-specific Health and Safety Plan (HASP) will be prepared for the RAW implementation activities under the supervision of a Certified Industrial Hygienist in accordance with the current health and safety standards as specified by the Federal OSHA. The provisions of the HASP are mandatory for all personnel at the project site (Ninyo & Moore and subcontractors). All onsite personnel must read and shall sign the HASP prior to the

commencement of the removal action activities. A copy of the HASP will be included in the Final RAW as Appendix C.

4.2.8 Others

Upon approval by the DTSC, the removal action will be conducted by RRM. Applicable Permits will be secured from the City of Parlier, and the Fresno County Environmental Health Water surveillance Program as appropriate. Prior to commencement of the removal action, the site will be marked and Underground Service Alert (USA) will be notified, to locate any underground utilities in the vicinity of the excavation area.

4.3 Cleanup Goals

The proposed cleanup goals for the identified COCs are based on DTSCs evaluation of background arsenic concentrations as presented in a July 23, 2018 memorandum from the Human and Ecological Risk Office (HERO). According to HERO, “cleanup goals for arsenic should be developed based on the site-specific background of arsenic in soils. The general approach of how to determine site-specific background is detailed in DTSC’s 2009 Arsenic Strategies guidance (https://www.dtsc.ca.gov/AssessingRisk/upload/-Arsenic-Cleanup-Goals-Jan09.pdf). The approach includes a graphical analysis of the data such as that presented in Appendix B of the document [RAW]. A significant change in the slope of the data, or an inflection point, can indicate the presence of two separate populations of data: naturally occurring and site related. Appendix B indicates two different inflection points, one at 3.5 mg/kg and one at 20 mg/kg. The document states that this represents the range of background arsenic on site. HERO generally concurs with this conclusion; soils with arsenic greater than approximately 20 mg/kg appear to be due to site-related activities. In addition to this graphical analysis, a statistical analysis should further be used to determine a site-specific background threshold value (BTV). An outlier analysis can be performed using the fourth spread analysis discussed in the Arsenic Strategies guidance. Please note this method should be used iteratively; once an outlier has been identified and removed, the statistics should be recalculated and the dataset retested for outliers. This method should be repeated until no outliers are identified. ProUCL can then be used to determine an upper limit for the background arsenic such as the 95% Upper Tolerance Limit (UTL). HERO used the laboratory data for arsenic presented in Table 2 and the above described method to determine that all samples greater than 22 mg/kg arsenic represented outliers. This corresponds nicely to the inflection point of 20 mg/kg shown in the graphical analysis in Appendix B. HERO further used ProUCL 5.1 to determine a potential site-specific background value for arsenic, using the 95% UTL, of 18 mg/kg. Based on this evaluation, soils with arsenic below 18 mg/kg are considered background and would not require

any further action…If the recommended 18 mg/kg value is accepted as a cleanup goal, please note that this is a not-to-exceed value."

If residential screening levels could be achieved for the completed excavation, then DTSC restricted institutional controls including deed restriction, soil management plan and/or site excavation notification requirements would not need to be instituted. However, the Heritage Park project will leave contaminated soils in place under various thicknesses of clean cover and hardscape at the conclusion of construction, and so institutional controls will need to be enacted for the site.

The proposed cleanup goals for the site based on the site-specific analysis, are summarized below:

COC	Maximum Concentration	Proposed Cleanup Goal	Source
Arsenic	1,000 mg/kg	<18 mg/kg	DTSC HERO, 2018 Memorandum, dated July 23.
Lead	360 mg/kg	<80/<320 mg/kg	DTSC HERO, 2018 Memorandum, dated July 23.

Specifically, soils are to be handled as follows:

- Clean-up goals for arsenic were identified for concentrations of arsenic above 18 mg/kg as areas where soils need to be excavated and disposed of off-site.
- Soils with lead concentrations below 80 mg/kg do not require mitigation or special handling.
- Soils with lead concentrations between 80 mg/kg and 320 mg/kg need to be managed below at least 1 foot of clean soil and should not be exposed in areas accessible to sensitive receptors (such as playgrounds, patio areas, flower beds, etc.).
- Soils with lead concentrations greater than 80 mg/kg total lead should be tested using the WET method and handled appropriately based on the results of the WET.
- Soils containing arsenic or lead concentrations that exceed their respective TTLC (500 and 1,000 mg/kg), or their STLC or TCLP (5 mg/l) should be disposed as hazardous material.

The cleanup goals will be considered achieved when the analytical results of the confirmation soil samples collected from the excavation areas indicate that any residual concentrations are at

or below the respective screening levels. If one or more samples contain COCs above the cleanup goals, the 95% UCL will be calculated and compared to the cleanup goals. If the calculated 95% UCL concentration is below the cleanup goals, then the removal action will be considered complete. If the calculated 95% UCL is greater than the cleanup goals, then additional remedial excavation and confirmation sampling will be performed until the cleanup goal criteria is achieved.

5 EVALUATION OF CLEANUP ALTERNATIVES

The purpose of the site investigation activities through 2015 was to gather the additional data requested by the DTSC in order to complete the environmental investigation of the site that is required for the DTSC to approve the site's redevelopment into a park. As the lead agency, the DTSC has the final authority of the selected remedial alternative and of overall public participation activities.

5.1 Identification and Analysis of Removal Action Alternatives

Based on the RAOs presented in this RAW, the following three alternatives are identified and screened for the proposed removal action at the site. Other remedial alternatives were considered for application but have been screened out immediately without further evaluation. The elimination of screened-out alternatives was made based on past experience with other similar sites and on scientific consideration and engineering judgement that indicated that they would be ineffective in achieving remedial goals or not conducive to planned future site uses, or could not be implemented in a cost-effective manner.

1) No Action: This alternative does not include any cleanup activities.

2) Capping: This alternative involves placement of surface pavement to prohibit exposure to potentially contaminated soil below it.

3) Excavation/Disposal: This alternative involves the excavation and offsite disposal of soil impacted by COCs at concentrations that could be harmful to human health during site redevelopment and/or proposed recreational use.

5.2 Evaluation Criteria

A screening process was used to comparatively evaluate the usefulness of the options to treat or remediate the COCs that drive risk at the site based on the following cleanup alternative evaluation criteria and DTSC project guidance.

Effectiveness

- Performance and reliability to eliminate or reduce risk associated with the identified COCs (arsenic and lead) in terms of toxicity, mobility, or volume at the site.
- Overall protection of human health and the environment.
- Compliance with applicable or relevant and appropriate requirements (ARARs) presented in Section 6.0.
- Long- and short-term effectiveness.
- Reduction of toxicity, mobility, or volume through treatment.
- Ability to meet RAOs.

Implementability

- Is conducting the alternative feasible with respect to administrative and technical conditions e.g. space limitations, equipment availability, resource availability, utility requirements, monitoring concerns, and operations and maintenance (O&M)?
- Ability of the alternative to meet applicable Federal, State, and local regulations and permitting requirements.
- Ability of the alternative to meet the project schedule and facility operations requirements.

Cost

- Assess the relative cost of each alternative based on estimated capital cost for construction or initial implementation and ongoing O&M costs.

Climate Change Risk Factors

- Assess resilience of each alternative based on the anticipated changes in climate conditions including higher average temperatures, more rain versus snow, and higher snowline in the Sierra Nevada Mountains, all resulting in increased flood potential.

5.3 Comparative Analysis Removal Action Alternatives

A comparative analysis has been conducted to identify advantages and disadvantages of each removal alternative. The comparative analysis of the removal alternatives was conducted to address the criteria presented in section 5.2.

5.3.1 Effectiveness

1) No Action: This alternative is not effective in controlling or preventing the exposure of receptors to arsenic and lead contamination during redevelopment or in subsequent use of the site.

2) Capping: This alternative could be appropriate in some cases, such as buildings or parking lots. However, plans for future site redevelopment include re-planting with flora, irrigation systems, an athletic field, gaming areas, and pathways with benches and other improvements. Capping the cleanup area would not be a viable way to control or

prevent potential exposure to contamination of receptors while at the same time maintaining consistency with the proposed natural design and uses of the project area.

3) Excavation / Disposal: Excavation and offsite disposal of contaminated soil is an effective way to prevent exposure to arsenic and lead COCs in soil and to control risk during site redevelopment and subsequent use.

5.3.2 Implementability

1) No Action: Implementability analysis is not applicable because no action would be taken. This alternative is not effective in controlling or preventing the exposure of receptors to arsenic and lead contamination during redevelopment or in subsequent use of the site.

2) Capping: This alternative is easily implemented, however maintenance of the cap over time would be required. Also, as indicated above, capping is not consistent with proposed site uses and is not a viable cleanup alternative.

3) Excavation / Disposal: Excavation and offsite disposal of contaminated soil is moderately difficult to implement. Excavation activities would require disturbance of the site for several weeks during which time soil would be excavated, field screened, segregated and stockpiled. Excavation confirmation and stockpile characterization sampling will be required. Truck loading and unloading of contaminated soil and clean backfill would be conducted. Dust suppression activities (watering) would be required during soil removal and backfill placement. However, this alternative is a basic and well-established technology for remediating impacted soil.

5.3.3 Cost

1) No Action: No costs are associated with this alternative.

2) Capping: It is estimated that an approximately 3-inch thick asphalt cap over aggregate base material and a compacted subgrade would range from $2.5-$3.0 per sf (assuming prevailing wages). On that basis, the cost to cap the cleanup area would range from $344,000 to $413,000. However as indicated above, capping is inconsistent with goals for the proposed redevelopment of the site as a City park and athletic field, and is not a viable cleanup alternative for the City of Parlier.

3) Excavation / Disposal: It is estimated that the excavation and offsite disposal of soil would cost approximately $760,000 (see table in Section 5.5). It should be understood that because the specific scope of work for this alternative has not yet been directed by the DTSC, this cost estimate should be used for planning purposes only and should not be considered definitive. Estimates for the general categories of work are included in Section 5.4.

5.3.4 Climate Change Risk Factors

1) No Action: This alternative is not effective in controlling or preventing the exposure of receptors to arsenic and lead contamination during redevelopment or in subsequent use of the site. Increased flood events have the capacity to mobilize contaminated soils.

2) Capping: This alternative would not be a viable way to control or prevent the potential for contamination exposure given increased flood events and possible failure of the cap.

3) Excavation / Disposal: Excavation and offsite disposal of contaminated soil is an effective way to prevent exposure to arsenic and lead COCs in soil and to control risk during site redevelopment and subsequent use. Potential exposure pathways would be eliminated and future flood events would not expose or erode contaminated media.

5.4 Description of Recommended Remedy

The recommended removal action (No. 3) combines excavation with offsite disposal of the impacted soil containing COCs above cleanup goals. The activities that would be conducted to implement this removal action are summarized below:

- The GCC will excavate approximately 5,809 cy, or 7,842 tons of impacted soil containing COCs above cleanup goals from the site.
- Soils remaining to be off-hauled total 5,809 cy.
- The GCC will implement appropriate BMPs to control the generation of airborne dust during the soil removal action and park construction activities (See Section 6.3).
- Stockpile excavated soils onsite for characterization sampling and analytical testing.
- The Environmental Consultant will conduct confirmation sampling (laboratory samples) and screening (utilizing XRF) within excavations to a depth of 2.5-5.0 ft. on bottoms and perimeters to confirm that remaining soil is below cleanup goals or excavated additional soil volume to achieve cleanup goals. Laboratory samples will confirm when cleanup goals have been achieved.
- The GCC will load and transport the excavated impacted soil to a properly licensed disposal facility (See section 8). The transported soil will be properly manifested for waste disposal (hazardous vs non-hazardous) based on the results of the stockpile characterization samples.
- Place and compact suitable imported backfill soils and cover with clean imported fill material in accordance with DTSC's *Information Advisory – Clean Imported Fill Material* (Appendix D).
- Because the selected removal action will leave arsenic and lead concentrations which exceed background concentrations, the selected remedy shall include a land use covenant (LUC) pursuant to California Code of Regulations, Title 22, Section 67391.1.

5.5 Cost Estimate for Selected Remedy

The selected removal action will be performed by the selected General Construction Contractor in a manner to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance. The contractor will have the necessary HAZWOPER training to work on a hazardous substance site. A summary of estimated costs for the proposed remedy of excavation and offsite disposal follows.

Task Description	Amount	Units	Cost in $
Project Management and Removal Action Workplan (Ninyo & Moore)	1	ea	23,500
Community Outreach (General Construction Contractor; if needed)	1	ea	10,900
Cleanup Implementation Oversight:			
Labor (Ninyo & Moore)	1	ea	82,600
Laboratory analytical testing (external vendor)	(1)	LS	14,700
Earthwork Contractor American Paving – Cost Breakdown			
Mobilize, Excavate and Stockpile Contaminated soil	1	LS	116,500
Transport & Dispose of Class 2 Non-Hazardous soil	7,842	ton	392,100
Transport & Dispose of Class I RCRA Hazardous soil	40-50	ton	5,940
Import Borrow	$16.30	cy	37,032
Earthwork Contractor – American Paving –Potential costs	***-***	***-***	***-***
Transport & Dispose of Class I Non-RCRA soil (per ton	***-***	***-***	***106/ton***
Transport & Dispose of Class 2 Non-RCRA soil (per ton	***-***	***-***	***50/ton***
Remobilize for additional Excavation, if needed	***-***	***-***	***3,300***
Perform Additional Excavation & Stockpiling (per cubic	***-***	***-***	***36/cu***
Remobilize for Additional Loading of Additional Stockpile	***-***	***-***	***3,300***
Loading Additional Stockpiled Material (per cubic yard)	***-***	***-***	***7.25***
Removal Action Completion Report (Ninyo & Moore)	1	ea	11,000
DTSC Oversight	1	ea	41,000
DTSC RAW Oversight	1	ea	25,000
Estimated Total			**$760,027**
DTSC Oversight (per year)		year	2,500
Estimated Total			**$762,772**

Disposal costs for transportation and landfill acceptance are presented above and both RCRA and non RCRA-destination landfill facilities are presented in Transportation, Section 8.3.

6 REMOVAL ACTION IMPLEMENTATION

Analytical results from Ninyo & Moore's previous subsurface site investigations indicate the presence of arsenic and lead in soil at concentrations exceeding cleanup goals as discussed in Section 4.3. Based on discussions with the City of Parlier and the DTSC, soil excavation/removal and disposal at an off-site disposal facility or strategic placement of soil on site has been selected as the preferred method of remediation. On approval of this RAW, and the selection of the GCC, Ninyo & Moore will commence with removal activities under the supervision of a California licensed Professional Engineer (PE), Professional Geologist (PG), or Certified Engineering Geologist (CEG).

The removal transportation and disposal of site soils will be performed in accordance with applicable Federal, State and local laws, regulations and ordinances. The remedial excavation activities (based on the contractors estimates) is expected to last approximately 4-weeks in duration, and will follow operational guidelines to prevent cross-media transfer of contaminants as specified in Best Management Practices (BMP) for Soils Treatment Technologies (USEPA, 1997). The proposed project schedule is presented below:

Task Description	Proposed Schedule
Draft RAW Public Comment Period	August 24 to September 24
DTSC Response to Public Comments and Approval of Final RAW	September 24 to September 28
Contractor mobilization for remedial excavation	October 1 to October 5
Remedial Excavation Activities (soil excavation and removal, excavation confirmation sampling, stockpile, confirmation sampling of excavated material, soil disposal, and excavation backfill)	October 8 to November 2

The soil removal action will incorporate the USEPA's green remediation techniques to the extent practical.

6.1 Site Preparation and Security Measures

Pre-field activities will be conducted prior to equipment mobilization to the site for the proposed removal actions. Pre-field activities include site inspections, staking, subsurface utility mark-out and USA notification, surveying as-needed, and any utility connections or disconnections. As a preliminary security measure, the site will be secured around the project perimeter with temporary fencing.

6.1.1 Delineation of Excavation Areas

Ninyo & Moore will delineate the planned removal excavation boundaries and notify the City prior to commencing removal activities. The proposed excavation areas will be demarcated in the field using stakes, survey markers, ribbon, and high visibility spray paint, and will be based on GPS coordinates wherever this data is available.

6.1.2 Utility Clearance

Clearance of utilities and underground hazards will be performed prior to initiating any soil removal actions.

6.1.3 Security Measures

To prevent unauthorized personnel from entering the site or trespassing after hours, security measures will be implemented which may include:

- Installation of perimeter site fencing and gates as discussed;
- Posting No Hiring on-Site signage and directing all visitors to the Site Supervisor in the field office;
- Maintaining a visitor's log. All visitors will be required to sign in and receive site-specific Health and Safety training before being granted access;
- Visitors will be required to sign out from the site on completion of their visit;
- Maintaining an organized site with storage and lay-down areas safely secured in exclusion zones;

All visitors must demonstrate a valid purpose to the Site Supervisor before being granted access to the project site, and must demonstrate that they have all required personal protective equipment and training, prior to accessing the site.

6.1.4 Contaminant Control

In order to prevent any potential exposure to contaminants by nearby residents, businesses, or pedestrians, all excavation and loading of soils will be controlled for fugitive dust by wetting with hoses. No excavation or loading will be performed during periods of high winds or if activities generate visible dust. Work activities may be limited to hours between 7:00 AM and 5:00 PM Monday through Friday.

6.1.5 Permits and Plans

As discussed in Section 4.2, regulatory permits and approvals from municipalities and regulatory agencies will be secured prior to the initiation of excavation/removal activities.

6.2 Excavation Methodology

The excavation of contaminated soil will be conducted by the selected GCC utilizing an excavator with a bucket loader. The planned excavation depths are between 2.5-5 ft. bgs. All of the excavated soil (roughly 5,809 cy) will require offsite landfill disposal.

The limits and depths of proposed excavation boundaries have been determined from previous subsurface site investigations in 2013 and 2015. Proposed boundaries are shown of Figures 5A and 5B. Excavation will occur in the central portions of the site to depths of 2.5 ft. bgs. The excavation field mobilization, (based on the contractors estimates) expected to last approximately 4-weeks in duration. Once a starting date has been set, excavation and selective

stockpiling of soils will proceed for approximately three weeks with stockpile analytical testing to take place on completion. Off-haul and backfill activities will take place until stockpiled materials have been removed and backfilled materials have passed compaction testing. Soils from this area will be stockpiled during the 4 week duration in the CA hazardous soil stockpile. Any unexpected debris will be removed and stored on plastic sheeting, and transported to the proper receiving facility depending on composition. The remaining hot spots identified on Figures 5A and 5B, will then be excavated to a depth of 5 ft. Soils from these hot spots will be stockpiled on the CA hazardous material stockpile.

The Environmental Consultant will utilize a portable XRF analyzer to assist in defining the extent of the remedial excavation and to segregate soils into appropriate stockpiles. The same XRF unit that was utilized during the July 2018 sampling will be used during the excavation and removal activities, and the July 5, 2018 soil sample results will be utilized to generate a new calibration curve for the XRF unit, prior to initiating remediation or screening excavated soils.

Confirmation soil samples will be collected as samples for laboratory analysis from the floor of the 2.5- and the 5.0- foot excavations on a grid pattern at approximately 50-foot centers. Sidewall confirmation samples will be collected at approximately 100-foot intervals. Targeted confirmation soil samples will be collected as-needed where field indicators suggest further investigation. Confirmation sampling will be complete when submitted samples are confirmed to be at or below screening levels of 18 mg/kg arsenic and 80 mg/kg for lead.

On completion of excavation and confirmation over-excavation, an orange demarcation geotextile (such as Mirafi® 140N/O or equivalent) will be placed at the bottom of any excavation (at depths of 5 ft. bgs or greater) in which soil contamination exceeds cleanup goals. The textile will serve as a boundary between upper clean imported soils and existing soils which exceed cleanup goals, but are under the required 5-ft. of clean fill. On completion, Figures indication the locations of impacted soils remaining in-place will be included in the removal action completion report (RACR).

6.2.1 Confined Space Entry Requirements

For the proposed removal action, confined-space entry procedures apply only in the targeted hot-spot excavations to depths below 4 ft. bgs. Engineering restraints such as confirmation sample collection from the bucket loader will be utilized to prevent confined-space entry whenever possible. The site-specific HASP will address engineering controls and confined-space entry.

6.2.2 Soil Staging and Storage Options

Soils will be staged at the locations depicted on figure 6. Staged soils will be temporarily stored onsite pending profiling for acceptance by the qualified landfill facility prior to offsite transportation and disposal. Soils are expected to remain on-site for approximately 1-2 weeks during excavation and remediation activities, prior to disposal. At the designated staging areas, soils will be stockpiled on 6-mil plastic sheeting and covered with plastic sheeting daily and when not in use. Covers shall be weighted down with sandbags and rope at intervals sufficient to secure the covers in the wind. The perimeter of the covered stockpiles will be bermed with straw roll to help minimize potential run-off. The existing ground surface will be scraped clean on completion of stockpile removal. Proposed stockpile locations, loading zones, and truck routes are shown on Figure 6.

6.2.3 Soil and Waste Segregation Operations

Prior to stockpiling/staging, the excavated soil will be segregated to the extent possible to minimize the mixture of hazardous and non-hazardous soil. The segregation process will minimize the amount of hazardous waste soil generated and the associated disposal costs. Soil segregation will be based on criteria for hazardous and non-hazardous waste soil relative to historical soil concentrations and on in-field analysis of soil for arsenic and lead concentrations using the portable XRF analyzer. Soil deemed RCRA or CA hazardous waste will be transported to a Class I landfill receiving facility or (if necessary) to an out-of-state disposal facility. Non-hazardous soil will be transported to a licensed Class II landfill.

6.2.4 Green Remediation

Ninyo & Moore as the Environmental Consultant along with the City, and the State of California, are committed to completing the proposed removal action using USEPA Green Remediation strategies to help reduce the carbon footprint and maximize the environmental outcome of this environmental cleanup. Selected actions to meet these goals may include maximizing the use of renewable energy, minimizing emissions, conserving water through re-use and waste minimization techniques.

The primary green remediation technique will be the reuse of excavated soils as backfill wherever possible, to minimize the amount of soil to be transported to disposal facilities and to minimize the amount of imported fill material to be brought onto the site. In this manner, emissions associated with transportation, both as priority pollutants and greenhouse gases, are significantly reduced by limiting the volume of all transported materials. Other techniques include instituting a no-idle policy for transporters, using locally-sourced materials when possible, using efficient dust control, and using low-emission vehicles.

Procedures will be documented in accordance will American Society for Testing and Materials (ASTM) Standard E 2893.

6.2.5 Decontamination Area

Only authorized personnel will be allowed entry into the contaminated areas of the site, to avoid unnecessary exposure and related transfer of contaminants. Trucks that are used for transporting excavated soil for offsite disposal will not require decontamination because they will not be driving over contaminated areas. Equipment will be decontaminated if needed in a designated area before leaving the project site.

Equipment and trucks that come into contact with contaminated soils will be decontaminated to help assure the quality of any additional collected samples and to avoid cross-contamination. Disposable equipment intended for one-time use will be packaged for proper disposal. The non-disposable sampling equipment used will be decontaminated using typical standard procedures such as:

- Non-phosphate detergent and tap water, using a brush where necessary;
- Tap water rinse;
- Initial purified water rinse; and
- Final purified water rinse.

Following completed excavation, the excavator/backhoe will be dry decontaminated with brooms, brushes, and or towels on top of plastic sheeting for proper disposal. Clean equipment will be stored on plastic in uncontaminated areas and storage. Materials will be covered when not in use. Water used for decontamination will be added to stockpiles for offsite disposal.

6.2.6 Excavation Plan

The planned excavation areas and initial excavation depths are shown on Figures 5A and 5B. The excavations will generate up to 5,809 cy or 7,842 tons, using an assumed in-place soil density of 100 pounds per cubic foot (pcf). The final extent of the excavation will depend on the results of confirmation sampling as discussed in Section 7.6.

Figure 5A shows the Northern portion of Heritage Park measuring approximately 23,236 square feet (sf) with arsenic concentrations less than 18 mg/kg Soils here will be left in place.

The Central portion of the cleanup area measuring approximately 49,628 sf with arsenic concentrations above 18 mg/kg, will be excavated to anticipated depths ranging from 2.5 ft. bgs to 5 ft. bgs, yielding 4,615 cy or approximately 6,230 tons.

The Southern portion of the site measuring approximately 39,104 sf with arsenic concentrations less than 18 mg/kg will be left in place, with the exception of a 5-foot radius cylinder of soil to be excavated to a depth of 5-ft to be removed at B-3 location, based on elevated lead concentrations of greater than 80 mg/kg.

Seven areas of targeted over-excavation are planned within the 2.5-foot excavation area to an additional 2.5-foot depth (which constitutes a total depth of 5 ft. below original ground surface).

- One area of 285 cy proposed for excavation is in the northwest portion of the site at borings SB-1/SB-14/DG-2.
- Three areas of 100, 100, and 100 cy, respectively, are proposed for excavation at locations DG-10/DG-13/ SB-3.
- Two areas of 130 and 130 cy, respectively are proposed for excavation at locations SB-8/DG-16.
- One location of 320 cy is proposed for excavation at the SB-6/SB-18 area.
- Three areas of shallow confirmation testing are proposed at DG-3, DG-12 and DG-14. These areas are already proposed to be excavated to 2.5 ft. bgs, and may need only a foot of localized excavation to reach cleanup levels. No additional volumes of soil are calculated for these areas at this time, although small amounts of soil may need to be removed at these 3 locations.
- The total volume of the above proposed 5.0-foot excavations is 1,165 cy or 1,574 tons.

The total estimated volume and tonnage of soil requiring removal action is approximately 5,809 cy, or 7,842 tons.

6.3 Dust Control Plan

The GCC will implement appropriate BMPs to control the generation of airborne dust during the soil removal action and park construction activities. Such procedures will include (but may not be limited to) the following:

- Generation of airborne dust during the removal activities and park construction activities will be minimized as necessary with the use of water as a dust suppressant. The water will be supplied using a water wagon from a local water service company fire hydrant. The GCC will control dust generation by spraying water prior to daily work activities during excavation and truck loading activities (as-needed to maintain concentrations below action levels), and at truck staging locations. Watering equipment will be continuously available to provide dust control.

- Offsite tracking will be controlled at exit gates and if necessary, a truck-wash station will be constructed.

- If required, the Site Safety Officer will monitor onsite conditions and require cessation of work. All removal activities will cease in the event high-wind conditions cause visible dust emissions.

6.4 Backfill and Site Restoration

The completed remedial site excavations will be backfilled to near the pre-existing grades with suitable imported clean fill material from an approved offsite source. Based on a Ninyo & Moore geotechnical evaluation done at the site (Ninyo & Moore, 2013), soils will be selected in order to provide a compacted surface capable of supporting structures such as outdoor pavilions, restroom facilities, and lighting support structures for the athletic fields.

In general, fill should not consist of pea gravel and should be free of rocks or lumps in excess of 3 inches in median dimension, hazardous materials, trash, debris, and vegetation or other deleterious material. In addition, import fill should be close graded with 35 percent or more by dry weight passing the No. 4 sieve and either: an expansion index of 50 or less, a plasticity index of 12 or less, or less than 10 percent by dry weight passing the No. 200 sieve.

Fill should be placed and compacted by hand tampers or mechanical means in lifts to 95 percent of the reference density as evaluated by ASTM D1557. The allowable lift thickness is influenced by the type of compaction equipment utilized but generally should not exceed 8 inches in loose thickness. Field density testing should be performed on fill in accordance with ASTM D6938 at vertical intervals of 2 ft. or less to evaluate the degree of compaction achieved. Following backfilling, any necessary erosion controls will be established as necessary.

6.4.1 Borrow Source Evaluation

Evaluation of any imported soils for the presence of potential contaminants will be performed prior to consideration for use as replacement fill at the site. Only soils that meet DTSC criteria will be transported to the site. DTSC criteria are presented in the DTSC's *Information Advisory – Clean Imported Fill Material* (Appendix D). It is anticipated that fill material will be obtained from a local quarry source that is certified as non-impacted excavated native soil.

6.4.2 Load Checking

Loads of imported fill material will be checked periodically using a properly calibrated photoionization detector (PID) for volatile organic compounds (VOCs) and petroleum hydrocarbons and a hand-held XRF for metals, and by visually screening for staining or other field indicators of potential impacts. If contaminated soils (prohibited materials) are

found or suspected, the imported fill soils will be isolated. The hauler of the prohibited materials will be identified and the RRM Site Manager will be contacted to determine what appropriate actions will be taken. Segregated improper materials will be removed from the working face immediately. These materials will be reloaded to the transporters vehicle when possible or stockpiled in an appropriate area for later removal by a properly licensed waste hauler.

Any fill loads which enter the site and are subsequently rejected will be recorded. Data compiled will include when the incident occurred, who the hauler was, why the load was rejected, whether the load was dumped prior to rejection, and what steps were taken to remove the rejected material.

6.4.3 Field Variances

As conditions in the field may vary, it may become necessary to implement minor modification to soil removal activities as presented in this RAW. Field personnel will notify the Ninyo & Moore Project Manager when deviations from this RAW are necessary. DTSC will be notified of the modification immediately, and a verbal or written approval will be obtained from DTSC before implementing the modifications, as appropriate. Modifications to the approved RAW will be documented in the field logbook and in the Report of Completion for this RAW.

7 SAMPLING AND ANALYSIS PLAN

A site-specific Sampling and Analysis Plan (SAP) will be prepared for the proposed RAW removal action activities. The SAP will provide guidance for sample collection, laboratory analysis, data quality assurance (QA), and quality control (QC), and data management, review, and analysis to help assure that the analytical results satisfy pre-defined goals and performance criteria.

7.1 Confirmation and Waste Profile Sampling

7.1.1 Waste Profile Sampling

Waste profile samples will be collected from soil stockpiles and analyzed for COCs and any other constituents specified by the accepting disposal facilities. One four-part composite sample will be collected from each approximately 500 cy of soil stockpiled, or less volume if the disposal facility requires less. The individual discrete samples will be collected directly into laboratory-supplied sampling jars, properly labeled, and placed in a chilled cooler for transport to the laboratory under chain-of-custody documentation. The contract laboratory, TestAmerica Laboratories of Pleasanton, California will be instructed to composite the

individual discrete samples for each stockpile prior to analysis. The waste-profiling samples collected from each soil stockpile will be analyzed by TestAmerica for Title 22 Metals by USEPA Method 6010B, and for TPH as diesel and motor oil (TPHd/mo) by USEPA Method 8015M. Another analytical laboratory may be selected by the Environmental Consultant based on analytical costs and laboratory schedule.

7.1.2 Confirmation Sampling

Once excavated to the proposed dimensions, confirmation soil samples will be collected from the floor (one per 50 by 50-foot grid) of the 1-foot and 2.5-foot excavations, and from the perimeter (one per side not to exceed 100 linear ft.) of the excavated areas. XRF field screening will assist in targeting any over-excavation areas. Soils below 5.5 ft. bgs will be left in place and confirmation sampling will be conducted at these depths at the same rate as other confirmation discussed above. Additional targeted confirmation sampling will be performed where localized areas of potential contamination remain, where the COCs are detected above cleanup goals in the initial confirmation samples, or where statistical analysis indicates additions excavation is required.

The confirmation soil samples will be collected directly into laboratory-supplied sampling jars, properly labeled, and placed in chilled coolers for transport to the laboratory under chain-of-custody documentation. The confirmation samples collected from the site excavations will be analyzed by TestAmerica for arsenic and lead only by USEPA Method 6010B.

8 TRANSPORTATION PLAN

The excavated soil will be tested by the Environmental Consultant and profiled. Approval of soil acceptance at the selected landfill will be received before any excavated materials are hauled offsite. Based on the soil analytical results from previous Ninyo & Moore site investigations, some of the stockpiled soil will be reusable at depths below 1 foot bgs. The majority of the soil at the site, due to site design and clean-up criteria, will not be suitable for re-use, and will be handled, transported, and disposed of offsite to an accepting landfill facility as non-hazardous waste. Some soils excavated from the site will require disposal as Non-RCRA California hazardous waste and/or RCRA hazardous waste. A list of desired landfills will be requested of the City and final selection of the landfill for disposal will be at the discretion of the City.

Final determination of the landfill used for disposal will be based on approval from the landfill of the waste-stream and the cost-effectiveness of that facility. Once the landfill is selected, copies of waste profile reports (based on laboratory analytical reports) used to secure disposal

permission from the landfill will be provided to the DTSC. In addition, compliance with the land disposal restrictions and land ban requirements for hazardous wastes will be documented and provided to the DTSC once it is determined which disposal facility will be used.

8.1 Characteristics of Transported Soil

The primary COCs, with respect to waste characterization are arsenic and lead. The anticipated maximum volume of excavated soil requiring offsite disposal is estimated to be approximately 5,809 cy.

Any excavated soil with arsenic concentrations exceeding the CA TTLC of 500 mg/kg or the STLC of 5 mg/l will require disposal as a CA hazardous waste at an accepting CA Class I disposal facility. Any excavated soil that exceeds the Federal TCLP of 5.0 mg/l for arsenic will require disposal as a RCRA hazardous waste at an accepting CA Class I disposal facility or out-of-state facility.

Any excavated soil with lead concentrations exceeding the CA TTLC of 1,000 mg/kg or the STLC of 5 mg/l will require disposal as a CA hazardous waste at an accepting CA Class I disposal facility. Any excavated soil that exceeds the Federal TCLP of 5.0 mg/l for lead will require disposal as a RCRA hazardous waste at an accepting CA Class I disposal facility or out-of-state facility.

Hazardous wastes shall be properly managed, manifested, and transported by a registered hazardous waste hauler under uniform hazardous waste manifest.

8.2 Truck Transportation

8.2.1 Requirements of Transporters

The selected GCC will be responsible for subcontracting with a qualified waste transporter. The selected transporter must be a CA-registered hazardous waste hauler, and will be licensed and insured to transport non-hazardous and hazardous soil (if necessary).

8.2.2 Truck Loading Procedures

The following truck loading procedures will be followed:

- Truck loading will take place in the designated loading area;
- Drivers will we notified of the no idling policy;
- Water will be applied during loading as a dust control measure;
- The loading operator will take care to not spill soil outside of the truck's carrier compartments;

- All truck loads must be covered for transport;
- Trucks will be inspected and decontaminated by brushing and scraping to remove soil and dust to minimize roadway track-out. When dry methods are not effective, wet methods such as pressure washing may be used; and
- Every truck shipment will be checked for the proper shipping documentation (e.g. waste manifest, licenses, insurance and transportation plan). Each truck shipment will be documented in an outbound shipment logbook.

8.3 Traffic Considerations

Soil for offsite shipping and disposal will be transported in covered end-dump trailers to the designated disposal facility. Prior to loading, the trucks will be staged along the widened shoulder of East Parlier Avenue, east of Bigger Avenue. "Truck Crossing" signs will be placed at the onsite truck entrance and exit locations and, depending on local traffic conditions, flagging will be used to assist trucks entering and exiting the site. While onsite, trucks must maintain slow speeds (i.e. less than 5 miles an hour) for both safety purposes and dust control mitigation.

Transportation of excavated soil will be on local streets and highways approved for truck traffic to minimize potential impacts on local neighborhoods. Transportation to the Waste Management Kettleman Hills landfill facility is presented on Figure 7, although another landfill facility may be selected based on the City of Parlier preferences.

The smaller amounts of RCRA hazardous waste (estimated at 40-50 cy) will be shipped to the Clean Harbors, Buttonwillow facility located at 2500 West Lokern Road, Buttonwillow, California, although another landfill facility may be selected by the City of Parlier pending preferred shipping and disposal costs.

8.4 Field Documentation

8.4.1 Field Logbooks

Daily field notes will be recorded by the field scientists in Ninyo & Moore field notebooks. Arrival times and departure times of relevant individuals will be recorded. Times of significant events will be recorded in real time, such as calls made to inspectors, lunch time taken, deliveries received, contractor departures and equipment down time including repairs made.

Daily health-and-safety meeting records will be documented as required by OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) guidelines, as well as the names of everyone present.

Field logbooks will be used in lieu of daily field notes for project-specific information. At a minimum, the following information will be recorded during the collection of each sample:

- Sample location and description (if different from proposed locations);
- Sampler's name(s);
- Date and time of sample collection;
- Designation of sample as composite or grab;
- Type of sample matrix (soil or water);
- Type of sampling equipment used;
- Field instrument readings and calibration;
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odors, colors, etc.);
- Preliminary sample descriptions (e.g., for soils: color, moisture content, density, soil type, other descriptors);
- Sample preservation;
- Lot numbers of the sample containers, sample identification numbers and any explanatory codes and chain-of-custody form numbers;
- Sample shipping arrangements (e.g. overnight Fed Ex. air bill number);
- Name(s) of recipient laboratory(ies);
- In addition to the sampling information, the following specific information will also be recorded in the field notes or field logbook for each day of sampling:
    - Team members and their responsibilities;
    - Time of arrival/entry on site and time of site departure;
    - Other personnel on site;
    - Summary of any meetings or discussions with, GCC, City of Parlier, RRM, or regulatory agency personnel;
    - Deviations from sampling plans, site safety plans and QA Project Plan procedures;
    - Changes in personnel and responsibilities with reasons for the changes;
    - Changes in levels of safety protection; and
    - Calibration readings for any equipment used and equipment model and serial number.

8.4.2 Chain-of-Custody Records

All sample shipments for analyses will be accompanied by a chain-of-custody record. A copy of the form will be completed and sent with the samples for each laboratory and each shipment (i.e., each day). If multiple coolers are sent to a single laboratory on a single day, form(s) will be completed and sent with the samples for each cooler.

The chain-of-custody form will identify the contents of each shipment and maintain the custodial integrity of the samples. 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 the samples are shipped, the custody of the samples will be the responsibility of Ninyo & Moore. The sampling team leader or designee will sign the chain-of-custody form in the "relinquished by" box and note date, time and air bill number.

A self-adhesive custody seal will be placed across the lid of each sample container. The shipping containers in which samples are stored (cooler or ice chest) will be sealed with self-adhesive custody seals any time they are not in someone's possession or view before shipping. All custody seals will be signed and dated.

8.4.3 Photographs

Photographs will be taken at the sampling locations and at other areas of interest on the site or sampling area. They will serve to verify information entered in the field logbook and to clarify locations of relocated samples and any obstructions encountered. For each photograph taken, the following information will be written in the logbook or recorded in a separate field photography log:

- Time, date, location (gps coordinates) and weather conditions;
- Description of the subject photographed; and
- Name of person taking the photograph.

8.4.4 Shipment Documentation

Non-Hazardous Waste Shipment

For excavated soil that is profiled as non-hazardous waste a proper shipping document (such as a bill of lading, weigh ticket, invoice, etc.) of the hauler will be used to document and accompany each truck shipment. At a minimum, the shipping paperwork will include name and address of the waste generator, transporter and disposal facility, and a description of and quantity of the amount of waste shipped. The RRM Site Manager, or their

excavation General Contractor will maintain a copy of the shipping document for each truckload onsite until completion of the removal action.

Hazardous Waste Shipment

For excavated soil that is profiled as hazardous waste, the Uniform Hazardous Waste Manifest form will be used to track the movement of hazardous waste from the generator to the point of ultimate disposition. Prior to transporting the excavated soil offsite, an authorized representative of the City of Parlier will sign the manifests and give one copy to RRM's Site Manager. RRM or their General Contractor will maintain a copy of the hazardous waste manifest for each truckload onsite until completion of the removal action.

9 REPORTING

Based on the projected schedule, removal activities associated with COC-affected soils are expected to be completed within 30 working days of approval of the Final RAW.

A Draft Removal Action Completion Report ("RACR") will be prepared for submittal to DTSC within 30 days of completion. We estimate DTSC will issue a final determination on the RACR within two months following submittal of the Draft RACR. Concurrence of the remediation by DTSC on the completed removal action will be requested concurrent with the submittal of the draft RACR.

The RACR will document that the removal action has been performed in accordance with the approved RAW, and will include, at a minimum, the following elements:

- Summary of excavation activities (volume, extent, etc.);
- Procedures, location, and results (i.e., analytical reports) of the confirmation soil;
- sampling;
- Documentation of off-Site transport and disposal of excavated soil (i.e., bills of lading,
- hazardous waste manifests);
- Health and safety measures and results of air monitoring;
- Daily field reports; and
- Copies of all required permits.

10 REFERENCES

California Department of Conservation, California Geological Survey (CGS, 2002), California Geomorphic Provinces, Note 36.

California Department of Toxic Substances Control (DTSC) California Human Health Screening Levels (CHHSLs) for Contaminated Properties. January 2005 and September 2009 (Revised Lead CHHSL).

California Department of Toxic Substances Control (DTSC), Arsenic Strategies, Determination of Arsenic Remediation, Development of Arsenic Cleanup Goal. January 16, 2009.

California Department of Toxic Substances Control (DTSC), Information Advisor, Clean Imported Fill Material, dated October, 2001.

California Department of Toxic Substances Control (DTSC), Additional Soil Investigation Results, Proposed Heritage Park Site, Parlier, California, Approval Letter. September 11, 2015.

California Department of Toxic Substances Control (DTSC) Voluntary Cleanup Agreement dated October 19, 2014.

California Department of Toxic Substances Control (DTSC), Memorandum from the Human and Ecological Risk Office (HERO), dated July 23, 2018.

California State Water Resources Control Board, 2012, GeoTracker Website <http://geotracker.waterboards.ca.gov/>.

Weather http://www.idcide.com/weather/ca/parlier.htm

Ninyo & Moore, 2013. Phase I Environmental Site Assessment, Heritage Park, Parlier, California, dated May 10.

Ninyo & Moore, 2013. Geotechnical Evaluation, Heritage Park, S. Newmark Avenue and Fresno Street, Parlier, California, dated July 5.

Ninyo & Moore, 2014. Subsurface Investigation, Proposed Heritage Park, Parlier, California, dated January 7.

Ninyo & Moore, 2015. Additional Phase II report titled, Additional Soil Investigation Results, Proposed Heritage Park Site, Parlier, California, dated August 27.

Table 1 - 2013 Investigation Soil Data Table

Boring/Sample Number	Sample Depth (ft)	Date Sample Collected	Metals																			TPH		OCP
			Antimony	Arsenic (Total)	Arsenic (Soluble - STLC)	Arsenic (TCLP)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury	TPH as Diesel	TPH as Motor Oil	Creosote & Pentachlorophenol
SB-1-0	0	5/8/2013	1.0	140	NA	NA	57	<0.25	<0.50	19	4.7	14	13	<0.25	20	<0.75	<0.25	<0.75	31	54	0.072	<1.0	<10	NA
SB-1-1	1	5/8/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-1-2.5	2.5	5/8/2013	<0.75	41.0	NA	NA	52.0	<0.25	<0.50	6.9	3.2	6.4	2.4	0.28	6.4	<0.75	<0.25	<0.75	27	26	<0.05	NA	NA	NA
SB-2-0	0	5/8/2013	1.4	280	44.2	1.52	58	<0.25	<0.50	35	7.1	26	57	0.45	55	<0.75	<0.25	<0.75	33	480	<0.05	50	350	ND All
SB-2-1	1	5/8/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-2-2.5	2.5	5/8/2013	<0.75	16	NA	NA	56	<0.25	<0.50	8.9	3.5	7.5	2.7	0.3	7.4	<0.75	<0.25	<0.75	36	28	<0.05	NA	NA	NA
SB-3-0	0	5/8/2013	<0.75	120	NA	NA	61	0.28	<0.50	18	4.9	14	12	0.36	23	<0.75	<0.25	<0.75	35	130	<0.05	NA	NA	NA
SB-3-1	1	5/8/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-3-2.5	2.5	5/8/2013	<0.75	60	NA	NA	49	<0.25	<0.50	62	13	9.6	3.4	0.25	260	<0.75	<0.25	<0.75	30	28	<0.05	25	150	ND All
SB-4-0	0	5/8/2013	0.9	270	NA	NA	43	<0.25	<0.50	27	6.7	14	31	0.34	47	<0.75	<0.25	<0.75	31	460	0.06	NA	NA	NA
SB-4-1	1	5/8/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	<10	NA
SB-4-2.5	2.5	5/8/2013	<0.75	18	NA	NA	39	<0.25	<0.50	7.6	2.9	5.6	1.9	<0.25	8.8	<0.75	<0.25	<0.75	35	21	<0.05	NA	NA	NA
SB-5-0	0	5/8/2013	<0.75	120	8.7	NA	84	<0.25	<0.50	19	7.4	34	41	0.55	21	<0.75	<0.25	<0.75	53	240	<0.05	42	210	NA
SB-5-1	1	5/8/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND All
SB-5-2.5	2.5	5/8/2013	<0.75	2.9	NA	NA	56	<0.25	<0.50	7.4	3.1	6.4	2.4	0.27	6.5	<0.75	<0.25	<0.75	30	26	<0.05	NA	NA	NA
SB-6-0	0	5/8/2013	3.1	1000	119	27.8	97	0.58	<2.4	120	42	21	13	0.36	310	<0.75	<0.25	1.0	50	480	<0.05	NA	NA	NA
SB-6-1	1	5/8/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-6-2.5	2.5	5/8/2013	<0.75	18	NA	NA	49	<0.25	<0.50	7.2	3.0	6.2	2.2	<0.25	6.4	<0.75	<0.25	<0.75	32	28	<0.05	<1.0	<10	NA
SB-7-0	0	11/6/2013	NA	37	NA	NA	NA	NA	NA	NA	NA	NA	3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-2.5	2.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-3.5	3.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-5	5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-7-10	10	11/6/2013	NA	2.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-0	0	11/6/2013	NA	110	5.6	NA	NA	NA	NA	NA	NA	NA	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-2.5	2.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-3.5	3.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-5	5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-8-10	10	11/6/2013	NA	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-0	0	11/6/2013	NA	7.9	NA	NA	NA	NA	NA	NA	NA	NA	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-2.5	2.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-3.5	3.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-5	5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-9-10	10	11/6/2013	NA	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Boring/Sample Number	Sample Depth (ft)	Date Sample Collected	Metals																			TPH		OCP
			Antimony	Arsenic (Total)	Arsenic (Soluble - STLC)	Arsenic (TCLP)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury	TPH as Diesel	TPH as Motor Oil	Creosote & Pentachlorophenol
SB-10-0	0	11/6/2013	NA	7.8	NA	NA	NA	NA	NA	NA	NA	NA	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-10-2.5	2.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-10-3.5	3.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-10-5	5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-10-10	10	11/6/2013	NA	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-11-0	0	11/6/2013	NA	11.7	NA	NA	NA	NA	NA	NA	NA	NA	6.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-11-2.5	2.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-11-3.5	3.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-11-5	5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-11-10	10	11/6/2013	NA	4.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-12-0	0	11/6/2013	NA	3.6	NA	NA	NA	NA	NA	NA	NA	NA	5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-12-2.5	2.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-12-3.5	3.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-12-5	5	11/6/2013	NA	9.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-12-10	10	11/6/2013	NA	6.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-13-0	0	11/6/2013	NA	64	2.7	NA	NA	NA	NA	NA	NA	NA	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-13-2.5	2.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-13-3.5	3.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-13-5	5	11/6/2013	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-13-10	10	11/6/2013	NA	2.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-14-3.5	3.5	11/6/2013	NA	40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-14-5	5	11/6/2013	NA	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-14-7.5	7.5	11/6/2013	NA	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-14-10	10	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-15-3.5	3.5	11/6/2013	NA	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-15-5	5	11/6/2013	NA	4.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-15-7.5	7.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-15-10	10	11/6/2013	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-16-3.5	3.5	11/6/2013	NA	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-16-5	5	11/6/2013	NA	4.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-16-7.5	7.5	11/6/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-16-10	10	11/6/2013	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-17-3.5	3.5	11/6/2013	NA	55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-17-5	5	11/6/2013	NA	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-17-7.5	7.5	11/6/2013	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-17-10	10	11/6/2013		NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Boring/Sample Number	Sample Depth (ft)	Date Sample Collected	Metals																			TPH		OCP
			Antimony	Arsenic (Total)	Arsenic (Soluble - STLC)	Arsenic (TCLP)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury	TPH as Diesel	TPH as Motor Oil	Creosote & Pentachlorophenol
SB-18-3.5	3.5	11/6/2013	NA	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-18-5	5	11/6/2013	NA	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-18-7.5	7.5	11/6/2013	NA	25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-18-10	10	11/6/2013	NA	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1-0	0	6/3/2013	NA	5.0	NA	NA	NA	NA	NA	NA	NA	NA	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1-2.5	2.5	6/3/2013	NA	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-1-6.0	6	6/3/2013	NA	4.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-2-0	0	6/3/2013	NA	9.5	NA	NA	NA	NA	NA	NA	NA	NA	6.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-2-2.5	2.5	6/3/2013	NA	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-2-5.5	5.5	6/3/2013	NA	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-3-0	0	6/3/2013	NA	18	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-3-2.5	2.5	6/3/2013	NA	8.0	NA	NA	NA	NA	NA	NA	NA	NA	90	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-3-5.5	5.5	6/3/2013	NA	4.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Direct Exposure ESLs			120	10	NA	NA	61,000	180	110	460000*	49	12,000	320	1,500	6,100	1,500	1,500	3.1	1,500	93,000	27	900	2,800	NA
Residential Land Use ESLs			20	0.39	NA	NA	750	4	12	750*	23	230	80	40	150	10	20	78	200	600	6.7	100	500	NA
Residential Land Use CHHSLs			30	0.7	NA	NA	5,200	150	1.7	100000*	660	3,000	80***	380	1,600	380	380	5	530	23,000	18	NE	NE	NA
TTLC			500	500	NA	NA	10,000	75	100	2,500	8,000	2,500	1,000	3,500	2,000	100	500	700	2,400	5,000	20	NE	NE	NA
STLC (mg/l)			NA	NA	5.0	NA	100	0.75	1	5**	80	25	5	350	20	1	5	7	24	250	0.2	NA	NA	NA
TCLP (mg/l)			NA	NA	NA	5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bold indicates screening level concentration exceedance.

mg/kg - milligrams per kilogram | mg/l - milligrams per lite

Total Arsenic (mg/kg) / Soluble Arsenic (mg/l) / TCLP Arsenic (mg/l)

*Total Chromium ESL and CHHSL not established. Used ESL and CHHSLs for Chromium II

**Total Chromium and Chromium III

*** Value taken from Revised California Human Health Screening Levels For Lead, September 200

NE - not established

Direct Exposure ESL: Table K-3, SFRWQCB Environmental Screening Levels (February, 2013) for Construction / Trench Workers.

CHHSLs = Cal/EPA: California Human Health Screening Levles for Soil. Table 1 (January 2005).

TTLC: Total Threshold Limit Concentration used to determine if a contaminant is a hazardous waste. If a substance is greater than or equal to the TTLC, it is considered a hazardous waste for disposal purposes (California Code of Regulations, Title 22, Chapter 11, Article 3).

STLC: Soluble Threshold Limit Concenttration used to determine if a contaminant is a hazardous waste based on its soluble portion. If a substance has a solubility greater than or equal to the STLC, it is considered a hazardous waste for disposal purposes (California Code of Regulations, Title 22, Chapter 11, Article 3).

TCLP: Toxicity Concentration Leaching Procedure used to determine if a contaminant is a RCRA hazardous waste based on its soluble portion. If a substance has a STLC equal to or greater than 5 mg/l, further testing by TCLP is necessary to determine if the substance is a RCRA waste for disposal purposes.

[1] - indicates the ESL for TPH as middle distillates, TPH as diesel (a middle distillate) is typically quantified as carbon chain range C10-C28 by the analytical laboratory

[2] - indicates the ESL for TPH as residual fuels. TPH as motor oil (a residual fuel) is typically quantified as carbon chain range C18-C36 by the analytical laboratory

NA - not analyzed / not applicable

ND - not detected

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
SB-1-0	0	5/8/2013	N/A	140	N/A	NA	NA	N/A	13	N/A	NA	NA
SB-1-1	1	5/8/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-1-2.5	2.5	5/8/2013	N/A	41.0	N/A	NA	NA	N/A	2.4	N/A	NA	NA
SB-2-0	0	5/8/2013	N/A	280	N/A	44.2	1.52	N/A	57	N/A	NA	NA
SB-2-1	1	5/8/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-2-2.5	2.5	5/8/2013	N/A	16	N/A	NA	NA	N/A	2.7	N/A	NA	NA
SB-3-0	0	5/8/2013	N/A	120	N/A	NA	NA	N/A	12	N/A	NA	NA
SB-3-1	1	5/8/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-3-2.5	2.5	5/8/2013	N/A	60	N/A	NA	NA	N/A	3.4	N/A	NA	NA
SB-4-0	0	5/8/2013	N/A	270	N/A	NA	NA	N/A	31	N/A	NA	NA
SB-4-1	1	5/8/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-4-2.5	2.5	5/8/2013	N/A	18	N/A	NA	NA	N/A	1.9	N/A	NA	NA
SB-5-0	0	5/8/2013	N/A	120	N/A	8.7	NA	N/A	41	N/A	NA	NA
SB-5-1	1	5/8/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-5-2.5	2.5	5/8/2013	N/A	2.9	N/A	NA	NA	N/A	2.4	N/A	NA	NA
SB-6-0	0	5/8/2013	N/A	1000	N/A	119	27.8	N/A	13	N/A	NA	NA
SB-6-1	1	5/8/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-6-2.5	2.5	5/8/2013	N/A	18	N/A	NA	NA	N/A	2.2	N/A	NA	NA
SB-7-0	0	11/6/2013	N/A	37	N/A	NA	NA	N/A	3.3	N/A	NA	NA
SB-7-2.5	2.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-7-3.5	3.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-7-5	5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-7-10	10	11/6/2013	N/A	2.2	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-8-0	0	11/6/2013	N/A	110	N/A	5.6	NA	N/A	5.0	N/A	NA	NA
SB-8-2.5	2.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-8-3.5	3.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-8-5	5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-8-10	10	11/6/2013	N/A	1.4	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-9-0	0	11/6/2013	N/A	7.9	N/A	NA	NA	N/A	38	N/A	NA	NA
SB-9-2.5	2.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-9-3.5	3.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-9-5	5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-9-10	10	11/6/2013	N/A	1.6	N/A	NA	NA	N/A	NA	N/A	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
SB-10-0	0	11/6/2013	N/A	7.8	N/A	NA	NA	N/A	29	N/A	NA	NA
SB-10-2.5	2.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-10-3.5	3.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-10-5	5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-10-10	10	11/6/2013	N/A	1.6	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-11-0	0	11/6/2013	N/A	11.7	N/A	NA	NA	N/A	6.9	N/A	NA	NA
SB-11-2.5	2.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-11-3.5	3.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-11-5	5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-11-10	10	11/6/2013	N/A	4.7	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-12-0	0	11/6/2013	N/A	3.6	N/A	NA	NA	N/A	5.1	N/A	NA	NA
SB-12-2.5	2.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-12-3.5	3.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-12-5	5	11/6/2013	N/A	9.2	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-12-10	10	11/6/2013	N/A	6.0	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-13-0	0	11/6/2013	N/A	64	N/A	2.7	NA	N/A	35	N/A	NA	NA
SB-13-2.5	2.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-13-3.5	3.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-13-5	5	11/6/2013	N/A	ND	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-13-10	10	11/6/2013	N/A	2.7	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-14-3.5	3.5	11/6/2013	N/A	40	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-14-5	5	11/6/2013	N/A	31	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-14-7.5	7.5	11/6/2013	N/A	22	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-14-10	10	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-15-3.5	3.5	11/6/2013	N/A	14	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-15-5	5	11/6/2013	N/A	4.3	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-15-7.5	7.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-15-10	10	11/6/2013	N/A	ND	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-16-3.5	3.5	11/6/2013	N/A	16	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-16-5	5	11/6/2013	N/A	4.0	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-16-7.5	7.5	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-16-10	10	11/6/2013	N/A	ND	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-17-3.5	3.5	11/6/2013	N/A	55	N/A	NA	NA	N/A	NA	N/A	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
SB-17-5	5	11/6/2013	N/A	14	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-17-7.5	7.5	11/6/2013	N/A	11	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-17-10	10	11/6/2013	N/A	NA	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-18-3.5	3.5	11/6/2013	N/A	35	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-18-5	5	11/6/2013	N/A	33	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-18-7.5	7.5	11/6/2013	N/A	25	N/A	NA	NA	N/A	NA	N/A	NA	NA
SB-18-10	10	11/6/2013	N/A	12	N/A	NA	NA	N/A	NA	N/A	NA	NA
B-1-0	0	6/3/2013	N/A	5.0	N/A	NA	NA	N/A	15	N/A	NA	NA
B-1-2.5	2.5	6/3/2013	N/A	3.5	N/A	NA	NA	N/A	NA	N/A	NA	NA
B-1-6.0	6	6/3/2013	N/A	4.5	N/A	NA	NA	N/A	NA	N/A	NA	NA
B-2-0	0	6/3/2013	N/A	9.5	N/A	NA	NA	N/A	6.8	N/A	NA	NA
B-2-2.5	2.5	6/3/2013	N/A	16	N/A	NA	NA	N/A	NA	N/A	NA	NA
B-2-5.5	5.5	6/3/2013	N/A	16	N/A	NA	NA	N/A	NA	N/A	NA	NA
B-3-0	0	6/3/2013	N/A	18	N/A	NA	NA	N/A	100	N/A	NA	NA
B-3-2.5	2.5	6/3/2013	N/A	8.0	N/A	NA	NA	N/A	90	N/A	NA	NA
B-3-5.5	5.5	6/3/2013	N/A	4.0	N/A	NA	NA	N/A	NA	N/A	NA	NA
DG-1-0.0	0	05/12/15	<10.6	NA	7.7	NA	NA	22	NA	25.4	NA	NA
Reshot XRF		07/05/18	6	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-1-1.0	1	05/12/15	<18.1	9.8	15.2	NA	NA	126	88	46.7	NA	NA
Reshot XRF		07/05/18	7	3.6	**	NA	NA	NA	14.2	NA	NA	NA
DG-1-3.5	3.5	05/12/15	10	NA	7.1	NA	NA	<12.5	NA	22.1	NA	NA
DG-2-0.0	0	05/12/15	68	NA	65.3	NA	NA	<13	NA	22.2	NA	NA
DG-2-1.0	1	05/12/15	68	NA	65.3	NA	NA	<12.8	NA	22.2	NA	NA
DG-2-3.5	3.5	05/12/15	31	NA	28.2	NA	NA	<12.5	NA	22.1	NA	NA
DG-3-0.0	0	05/12/15	451	NA	449.7	NA	NA	66	NA	34.4	NA	NA
DG-3-1.0	1	05/12/15	15	NA	12.1	NA	NA	<13.2	NA	22.2	NA	NA
DG-3-3.5	3.5	05/12/15	<9.1	3.4	6.2	NA	NA	<12.5	2.6	22.1	NA	NA
Reshot XRF		07/05/18	10	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-4-0.0	0	05/12/15	296	NA	294.1	NA	NA	36	NA	28.2	NA	NA
DG-4-1.0	1	05/12/15	50	NA	47.3	NA	NA	<13.7	NA	22.3	NA	NA
DG-4-3.5	3.5	05/12/15	19	NA	16.1	NA	NA	<11.4	NA	22.0	NA	NA
DG-5-0.0	0	05/12/15	135	NA	132.5	NA	NA	14	NA	23.7	NA	NA
DG-5-1.0	1	05/12/15	47	39	44.2	NA	NA	<12.5	2.7	22.1	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
DG-5-3.5	3.5	05/12/15	17	NA	14.1	NA	NA	<13.5	NA	22.2	NA	NA
DG-6-0.0	0	05/12/15	89	NA	86.4	NA	NA	10	NA	22.9	NA	NA
DG-6-1.0	1	05/12/15	31	NA	28.2	NA	NA	9	NA	22.7	NA	NA
DG-6-3.5	3.5	05/12/15	<3.0	NA	0.1	NA	NA	10	NA	22.9	NA	NA
DG-7-0.0	0	05/12/15	110	NA	107.5	NA	NA	58	NA	32.8	NA	NA
DG-7-1.0	1	05/12/15	65	NA	62.3	NA	NA	15	NA	23.9	NA	NA
DG-7-3.5	3.5	05/12/15	1.0	2.8	1.0	NA	NA	13	2.5	23.5	NA	NA
DG-8-0.0	0	05/12/15	116	NA	113.5	NA	NA	59	NA	33.0	NA	NA
DG-8-1.0	1	05/12/15	49	NA	46.2	NA	NA	<11.3	NA	22.0	NA	NA
DG-8-3.5	3.5	05/12/15	<9.2	NA	6.3	NA	NA	<12.2	NA	22.1	NA	NA
Reshot XRF		07/05/18	<3.6	2.04	**	NA	NA	NA	NA	NA	NA	NA
DG-9-0.0	0	05/12/15	130	NA	127.5	NA	NA	37	NA	28.5	NA	NA
DG-9-1.0	1	05/12/15	36	NA	33.2	NA	NA	<12.0	NA	22.1	NA	NA
DG-9-3.5	3.5	05/12/15	<8.7	NA	5.8	NA	NA	<12.2	NA	22.1	NA	NA
Reshot XRF		07/05/18	<3.6	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-10-0.0	0	05/12/15	84	NA	81.4	NA	NA	24	NA	25.8	NA	NA
DG-10-1.0	1	05/12/15	72	NA	69.3	NA	NA	<12.5	NA	22.1	NA	NA
DG-10-3.5	3.5	05/12/15	<4.0	NA	1.1	NA	NA	<12.5	NA	22.1	NA	NA
Reshot XRF		07/05/18	24	26.4	**	NA	NA	NA	NA	NA	NA	NA
DG-11-0.0	0	05/12/15	223	NA	220.9	NA	NA	25	NA	26.0	NA	NA
DG-11-1.0	1	05/12/15	112	NA	109.5	NA	NA	<13	NA	22.2	NA	NA
DG-11-3.5	3.5	05/12/15	<9.3	NA	6.4	NA	NA	<12.1	NA	22.1	NA	NA
Reshot XRF		07/05/18	11	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-12-0.0	0	05/12/15	104	NA	101.4	NA	NA	67	NA	34.6	NA	NA
DG-12-1.0	1	05/12/15	98	NA	95.4	NA	NA	<10.3	NA	21.9	NA	NA
DG-12-3.5	3.5	05/12/15	22	NA	19.2	NA	NA	<12.6	NA	22.1	NA	NA
DG-13-0.0	0	05/12/15	190	NA	187.7	NA	NA	69	NA	35.0	NA	NA
DG-13-1.0	1	05/12/15	82	NA	79.4	NA	NA	<13.1	NA	22.2	NA	NA
DG-13-3.5	3.5	05/12/15	27	NA	24.2	NA	NA	<12.7	NA	22.2	NA	NA
DG-14-0.0	0	05/12/15	526	800	524.9	NA	NA	26	36	26.2	NA	NA
DG-14-1.0	1	05/12/15	98	NA	95.4	NA	NA	<13.8	NA	22.3	NA	NA
DG-14-3.5	3.5	05/12/15	<9.8	NA	6.9	NA	NA	<12.7	NA	22.2	NA	NA
Reshot XRF		07/05/18	23	NA	**	NA	NA	NA	NA	NA	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
DG-15-0.0	0	05/13/15	125	220	122.5	NA	NA	71	60	35.4	NA	NA
DG-15-1.0	1	05/13/15	52	NA	49.3	NA	NA	8	NA	22.5	NA	NA
DG-15-3.5	3.5	05/13/15	<3.8	NA	0.9	NA	NA	6	NA	22.1	NA	NA
Reshot XRF		07/05/18	17	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-16-0.0	0	05/13/15	186	NA	183.7	NA	NA	68	NA	34.8	NA	NA
DG-16-1.0	1	05/13/15	252	93	250.0	NA	NA	50	10	31.1	NA	NA
DG-16-3.5	3.5	05/13/15	29	NA	26.2	NA	NA	6	NA	22.1	NA	NA
DG-17-0.0	0	05/12/15	22	6.2	19.2	NA	NA	59	39	33.0	NA	NA
DG-17-1.0	1	05/12/15	<10.2	NA	7.3	NA	NA	23	NA	25.6	NA	NA
Reshot XRF		07/05/18	10	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-17-3.5	3.5	05/12/15	<9.5	NA	6.6	NA	NA	<12.8	NA	22.2	NA	NA
Reshot XRF		07/05/18	<3.7	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-18-0.0	0	05/12/15	<13.9	NA	11.0	NA	NA	79	NA	37.1	NA	NA
Reshot XRF		07/05/18	13	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-18-1.0	1	05/12/15	<11.6	NA	8.7	NA	NA	45	NA	30.1	NA	NA
Reshot XRF		07/05/18	<3.8	1.86	**	NA	NA	NA	NA	NA	NA	NA
DG-19-0.0	0	05/12/15	<15.1	NA	12.2	NA	NA	114	NA	44.3	NA	NA
Reshot XRF		07/05/18	11	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-19-1.0	1	05/12/15	<9.6	NA	6.7	NA	NA	<13.3	NA	22.2	NA	NA
Reshot XRF		07/05/18	<3.7	2.28	**	NA	NA	NA	NA	NA	NA	NA
DG-19-3.5	3.5	05/12/15	<9.1	NA	6.2	NA	NA	<12.1	NA	22.1	NA	NA
Reshot XRF		07/05/18	<3.7	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-20-0.0	0	05/12/15	<13.6	NA	10.7	NA	NA	74	NA	36.1	NA	NA
Reshot XRF		07/05/18	9	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-20-1.0	1	05/12/15	<9.5	NA	6.6	NA	NA	<12.8	NA	22.2	NA	NA
Reshot XRF		07/05/18	<3.9	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-20-3.5	3.5	05/12/15	<8.9	NA	6.0	NA	NA	<12.2	NA	22.1	NA	NA
Reshot XRF		07/05/18	<3.6	1.95	**	NA	NA	NA	NA	NA	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
DG-21-0.0	0	05/12/15	<11.4	NA	8.5	NA	NA	41	NA	29.3	NA	NA
Reshot XRF		07/05/18	6	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-21-1.0	1	05/12/15	<10.7	2.5	7.8	NA	NA	26	27	26.2	NA	NA
Reshot XRF		07/05/18	<4.0	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-21-3.5	3.5	05/12/15	<10.3	NA	7.4	NA	NA	19	NA	24.8	NA	NA
Reshot XRF		07/05/18	<4.3	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-22-0.0	0	05/12/15	<10.6	NA	7.7	NA	NA	24	NA	25.8	NA	NA
Reshot XRF		07/05/18	11	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-22-1.0	1	05/12/15	<10.2	NA	7.3	NA	NA	20	NA	25.0	NA	NA
Reshot XRF		07/05/18	<3.7	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-22-3.5	3.5	05/12/15	<9.2	NA	6.3	NA	NA	<12.2	NA	22.1	NA	NA
Reshot XRF		07/05/18	<3.9	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-23-0.0	0	05/12/15	<11.2	NA	8.3	NA	NA	34	NA	27.8	NA	NA
Reshot XRF		07/05/18	6	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-23-1.0	1	05/12/15	<10.7	NA	7.8	NA	NA	27	NA	26.4	NA	NA
Reshot XRF		07/05/18	5	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-23-3.0	3	05/12/15	<11.5	NA	8.6	NA	NA	28	NA	26.6	NA	NA
Reshot XRF		07/05/18	6.4	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-24-0.0	0	05/12/15	8	NA	5.1	NA	NA	44	NA	29.9	NA	NA
DG-24-1.0	1	05/12/15	<3.9	NA	1.0	NA	NA	40	NA	29.1	NA	NA
Reshot XRF		07/05/18	4	NA	**	NA	NA	NA	NA	NA	NA	NA
DG-24-3.5	3.5	05/12/15	<3.0	NA	0.1	NA	NA	51	NA	31.3	NA	NA
DG-25-0.0	0	05/12/15	6	NA	3.1	NA	NA	29	NA	26.8	NA	NA
DG-25-1.0	1	05/12/15	<3.2	NA	0.3	NA	NA	7	NA	22.3	NA	NA
DG-25-3.5	3.5	05/13/15	<3.3	2.3	0.4	NA	NA	10	2.4	22.9	NA	NA
DG-26-0.0	0	05/13/15	5	NA	2.1	NA	NA	18	NA	24.5	NA	NA
DG-26-1.0	1	05/13/15	<3.2	NA	0.3	NA	NA	8	NA	22.5	NA	NA
DG-26-3.5	3.5	05/13/15	<3.1	NA	0.2	NA	NA	6	NA	22.1	NA	NA
DG-27-0.0	0	05/13/15	7	12	4.1	NA	NA	131	10	47.8	NA	NA
DG-27-1.0	1	05/13/15	<3.1	NA	0.2	NA	NA	10	NA	22.9	NA	NA
DG-27-3.5	3.5	05/13/15	5	NA	2.1	NA	NA	10	NA	22.9	NA	NA
B-3A-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	1656	360	361.2	NA	NA
B-3A-5.5	5.5	05/13/15	N/A	NA	N/A	NA	NA	15	NA	23.9	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
B-3A-7.5	7.5	05/13/15	N/A	NA	N/A	NA	NA	7	NA	22.3	NA	NA
SO3-1-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	78	NA	36.9	NA	NA
SO3-1-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	222	NA	66.5	NA	NA
SO3-1-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	39	NA	28.9	NA	NA
SO3-2-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	48	NA	30.7	NA	NA
SO3-2-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	96	NA	40.6	NA	NA
SO3-2-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	12	NA	23.3	NA	NA
SO3-3-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	37	NA	28.5	NA	NA
SO3-3-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	20	NA	25.0	NA	NA
SO3-3-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	14	70	23.7	NA	NA
SO3-4-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	55	NA	32.2	NA	NA
SO3-4-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	19	NA	24.8	NA	NA
SO3-4-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	6	NA	22.1	NA	NA
SO3-4-5.5	5.5	05/13/15	N/A	NA	N/A	NA	NA	6	NA	22.1	NA	NA
SO3-4-7.5	7.5	05/13/15	N/A	NA	N/A	NA	NA	8	NA	22.5	NA	NA
SO3-5-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	64	NA	34.0	NA	NA
SO3-5-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	38	NA	28.7	NA	NA
SO3-5-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	6	NA	22.1	NA	NA
SO3-5-5.5	5.5	05/13/15	N/A	NA	N/A	NA	NA	7	NA	22.3	NA	NA
SO3-5-7.5	7.5	05/13/15	N/A	NA	N/A	NA	NA	7	NA	22.3	NA	NA
SO3-6-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	39	NA	28.9	NA	NA
SO3-6-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	19	NA	24.8	NA	NA
SO3-6-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	5	NA	21.9	NA	NA
SO3-6-5.5	5.5	05/13/15	N/A	NA	N/A	NA	NA	9	NA	22.7	NA	NA
SO3-6-7.5	7.5	05/13/15	N/A	NA	N/A	NA	NA	8	NA	22.5	NA	NA
SO3-7-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	44	NA	29.9	NA	NA
SO3-7-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	224	NA	66.9	NA	NA
SO3-8-0.0	0	05/13/15	N/A	NA	N/A	NA	NA	31	39	27.2	NA	NA
SO3-8-1.0	1	05/13/15	N/A	NA	N/A	NA	NA	7	NA	22.3	NA	NA
SO3-8-3.5	3.5	05/13/15	N/A	NA	N/A	NA	NA	9	NA	22.7	NA	NA
SO3-8-5.5	5.5	05/13/15	N/A	NA	N/A	NA	NA	9	NA	22.7	NA	NA
SO3-8-7.5	7.5	05/13/15	N/A	NA	N/A	NA	NA	8	NA	22.5	NA	NA
SB-6A-3.5	3.5	05/14/15	14	4.1	11.1	NA	NA	N/A	NA	N/A	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
SB-6A-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SB-6A-7.5	7.5	05/14/15	<3.0	NA	0.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-1-0.0	0	05/14/15	628	450	627.3	NA	NA	N/A	NA	N/A	NA	NA
SO6-1-1.0	1	05/14/15	174	NA	171.7	NA	NA	N/A	NA	N/A	NA	NA
SO6-2-0.0	0	05/14/15	68	42	65.3	NA	NA	N/A	NA	N/A	NA	NA
SO6-2-1.0	1	05/14/15	12	NA	9.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-2-3.0	3	05/14/15	26	NA	23.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-2-5.5	5.5	05/14/15	11	NA	8.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-2-7.5	7.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-3-0.0	0	05/14/15	179	NA	176.7	NA	NA	N/A	NA	N/A	NA	NA
SO6-3-1.0	1	05/14/15	51	NA	48.3	NA	NA	N/A	NA	N/A	NA	NA
SO6-3-3.5	3.5	05/14/15	56	NA	53.3	NA	NA	N/A	NA	N/A	NA	NA
SO6-3-5.5	5.5	05/14/15	32	NA	29.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-3-7.5	7.5	05/14/15	<3.0	NA	0.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-4-0.0	0	05/14/15	117	NA	114.5	NA	NA	N/A	NA	N/A	NA	NA
SO6-4-1.0	1	05/14/15	105	NA	102.4	NA	NA	N/A	NA	N/A	NA	NA
SO6-4-3.5	3.5	05/14/15	23	NA	20.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-4-5.5	5.5	05/14/15	12	NA	9.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-4-7.5	7.5	05/14/15	4	5.8	1.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-5-0.0	0	05/14/15	150	NA	147.6	NA	NA	N/A	NA	N/A	NA	NA
SO6-5-1.0	1	05/14/15	45	NA	42.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-5-3.5	3.5	05/14/15	39	NA	36.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-5-5.5	5.5	05/14/15	20	NA	17.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-5-7.5	7.5	05/14/15	8	NA	5.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-6-0.0	0	05/14/15	27	NA	24.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-6-1.0	1	05/14/15	58	NA	55.3	NA	NA	N/A	NA	N/A	NA	NA
SO6-6-3.5	3.5	05/14/15	41	NA	38.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-6-5.5	5.5	05/14/15	38	NA	35.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-6-7.5	7.5	05/14/15	19	NA	16.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-7-0.0	0	05/14/15	157	NA	154.6	NA	NA	N/A	NA	N/A	NA	NA
SO6-7-1.0	1	05/14/15	43	NA	40.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-7-3.5	3.5	05/14/15	15	NA	12.1	NA	NA	N/A	NA	N/A	NA	NA
SO6-7-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
SO6-7-7.5	7.5	05/14/15	<3.2	NA	0.3	NA	NA	N/A	NA	N/A	NA	NA
SO6-8-0.0	0	05/14/15	199	NA	196.8	NA	NA	N/A	NA	N/A	NA	NA
SO6-8-1.0	1	05/14/15	48	NA	45.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-8-3.5	3.5	05/14/15	41	NA	38.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-8-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SO6-8-7.5	7.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SB-8A-3.5	3.5	05/14/15	<3.2	NA	0.3	NA	NA	N/A	NA	N/A	NA	NA
SB-8A-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SB-8A-7.5	7.5	05/14/15	<3.3	NA	0.4	NA	NA	N/A	NA	N/A	NA	NA
SO8-1-0.0	0	05/14/15	14	NA	11.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-1-1.0	1	05/14/15	33	NA	30.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-1-3.5	3.5	05/14/15	21	NA	18.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-1-5.5	5.5	05/14/15	9	8.3	6.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-2-0.0	0	05/14/15	60	NA	57.3	NA	NA	N/A	NA	N/A	NA	NA
SO8-2-1.0	1	05/14/15	5	NA	2.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-2-3.5	3.5	05/14/15	16	NA	13.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-2-5.5	5.5	05/14/15	<3.2	NA	0.3	NA	NA	N/A	NA	N/A	NA	NA
SO8-2-7.5	7.5	05/14/15	<3.3	NA	0.4	NA	NA	N/A	NA	N/A	NA	NA
SO8-3-0.0	0	05/14/15	48	NA	45.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-3-1.0	1	05/14/15	16	NA	13.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-3-3.5	3.5	05/14/15	4	NA	1.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-3-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-3-7.5	7.5	05/14/15	<2.9	NA	2.9	NA	NA	N/A	NA	N/A	NA	NA
SO8-4-0.0	0	05/14/15	57	NA	54.3	NA	NA	N/A	NA	N/A	NA	NA
SO8-4-1.0	1	05/14/15	49	NA	46.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-4-3.5	3.5	05/14/15	<3.2	NA	0.3	NA	NA	N/A	NA	N/A	NA	NA
SO8-4-5.5	5.5	05/14/15	<3.0	NA	0.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-4-7.5	7.5	05/14/15	5	NA	2.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-5-0.0	0	05/14/15	294	280	292.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-5-1.0	1	05/14/15	50	NA	47.3	NA	NA	N/A	NA	N/A	NA	NA
SO8-5-3.5	3.5	05/14/15	26	NA	23.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-5-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-5-7.5	7.5	05/14/15	<3.0	NA	0.1	NA	NA	N/A	NA	N/A	NA	NA

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l
SO8-6-0.0	0	05/14/15	188	NA	185.7	NA	NA	N/A	NA	N/A	NA	NA
SO8-6-1.0	1	05/14/15	35	NA	32.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-6-3.5	3.5	05/14/15	4	NA	1.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-6-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-6-7.5	7.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-7-0.0	0	05/14/15	82	NA	79.4	NA	NA	N/A	NA	N/A	NA	NA
SO8-7-1.0	1	05/14/15	63	54	60.3	NA	NA	N/A	NA	N/A	NA	NA
SO8-7-3.5	3.5	05/14/15	5	NA	2.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-7-5.5	5.5	05/14/15	<3.1	NA	0.2	NA	NA	N/A	NA	N/A	NA	NA
SO8-7-7.5	7.5	05/14/15	<3.0	NA	0.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-8-0.0	0	05/14/15	69	NA	66.3	NA	NA	N/A	NA	N/A	NA	NA
SO8-8-1.0	1	05/14/15	78	NA	75.4	NA	NA	N/A	NA	N/A	NA	NA
SO8-8-3.5	3.5	05/14/15	<3.3	NA	0.4	NA	NA	N/A	NA	N/A	NA	NA
SO8-8-5.5	5.5	05/14/15	6	NA	3.1	NA	NA	N/A	NA	N/A	NA	NA
SO8-8-7.5	7.5	05/14/15	3	NA	0.1	NA	NA	N/A	NA	N/A	NA	NA
Direct Exposure ESLs				10	10	NA	NA		320		NA	NA
Residential Land Use ESLs				0.39	0.39	NA	NA		80		NA	NA
Residential Land Use CHHSLs				0.7	0.7	NA	NA		80*		NA	NA
TTLC				500	500	NA	NA		1,000		NA	NA
STLC (mg/l)				NA	NA	5.0	NA		5		5.0	NA
TCLP (mg/l)				NA	NA	NA	5.0		NA		NA	5.0

Table 2. Parlier Soil Sampling Results - Arsenic and Lead

Sample ID	Sample Depth (ft)	Sample Date	Arsenic					Lead				
			As - XRF Result (mg/kg)	As -Laboratory Result (mg/kg)	As - Corrected Concentration (mg/kg)[1]	Arsenic (Soluble - STLC) - mg/l	Arsenic (TCLP) mg/l	Pb - XRF result (mg/kg)	Pb - Laboratory Result (mg/kg)	Pb- Corrected Concentration (mg/kg)	Lead (Soluble - STLC) mg/l	Lead (TCLP) mg/l

mg/kg - milligrams per kilogram | mg/l - milligrams per liter

* Value taken from Revised California Human Health Screening Levels For Lead, September 2009

**: corrected value not determined.

NE - not established

Direct Exposure ESL: Table K-3, SFRWQCB Environmental Screening Levels (February, 2013) for Construction / Trench Workers.

CHHSLs = Cal/EPA: California Human Health Screening Levles for Soil. Table 1 (January 2005).

TTLC: Total Threshold Limit Concentration used to determine if a contaminant is a hazardous waste. If a substance is greater than or equal to the TTLC, it is considered a hazardous waste for disposal purposes (California Code of Regulations, Title 22, Chapter 11, Article 3).

STLC: Soluble Threshold Limit Concenttration used to determine if a contaminant is a hazardous waste based on its soluble portion. If a substance has a solubility greater than or equal to the STLC, it is considered a hazardous waste for disposal purposes (California Code of Regulations, Title 22, Chapter 11, Article 3).

TCLP: Toxicity Concentration Leaching Procedure used to determine if a contaminant is a RCRA hazardous waste based on its soluble portion. If a substance has a STLC equal to or greater than 5 mg/l, further testing by TCLP is necessary to determine if the substance is a RCRA waste for disposal purposes.

Arsenic Corrected Concentration (mg/kg): y=1.0035*XRFconc-2.9228

Lead Corrected Concentration (mg/kg): y=0.2055*XRFconc+20.85

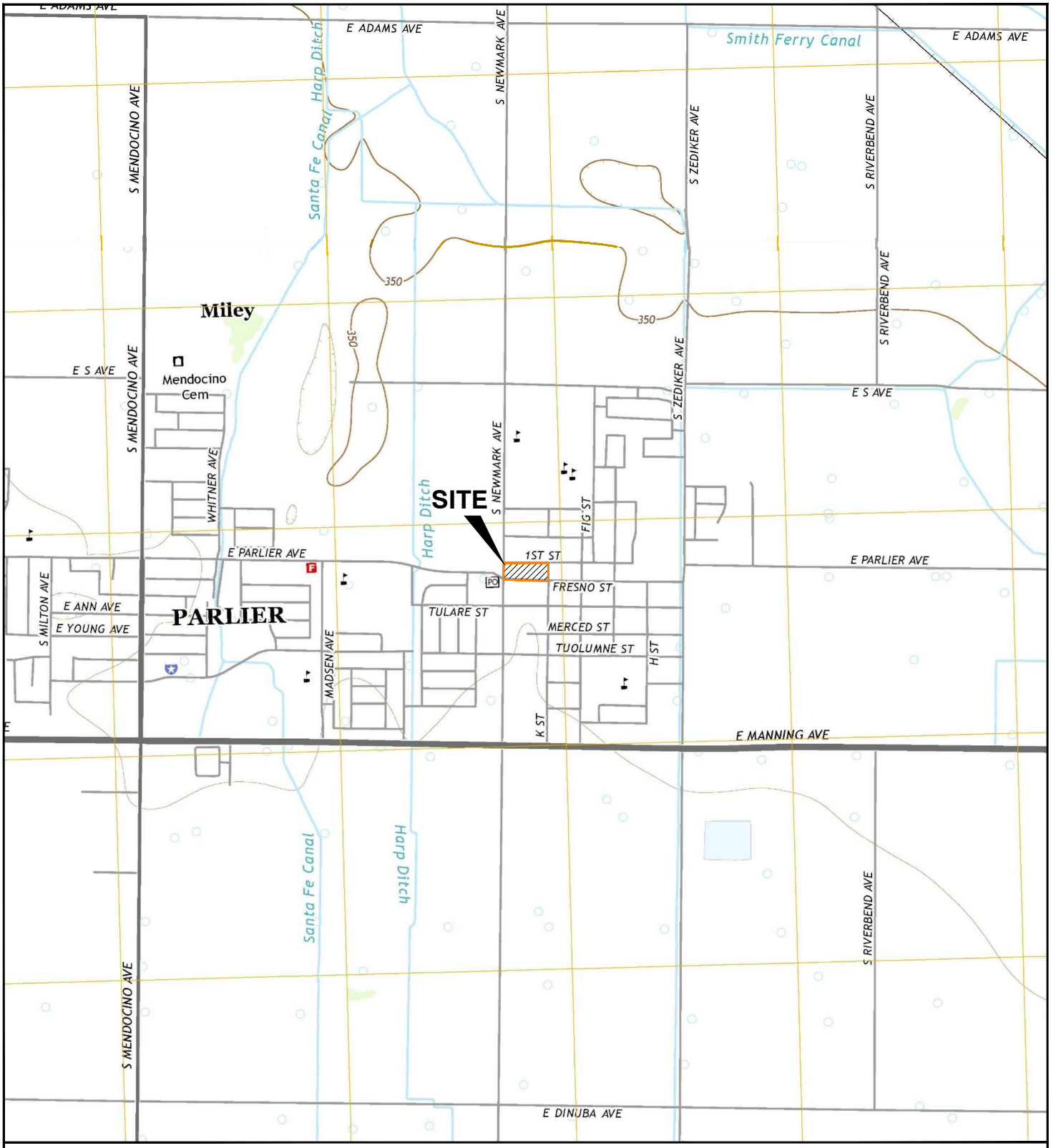
Bold = Since arsenic corrected values cannot be negative, Non-detected values resulting in negative values were recalculated as (1.0035*reporting limit XRF)-2.9228; or if XRF is ND less than 3.0, **bold** = reporting limit.

N/A - not applicable

NA - not analyzed

ND - not detected

FIGURES



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: USGS, 2015

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FIGURE 1

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SITE LOCATION

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 01/18

LEGEND

SITE BOUNDARY

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE | REFERENCE: GOOGLE EARTH IMAGERY, 2017; ESRI, I-CUBED, USDA FSA, USGS, AEX, GEOEYE, GETMAPPING, AEROGRID, IGP

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FIGURE 2

Ninyo & Moore

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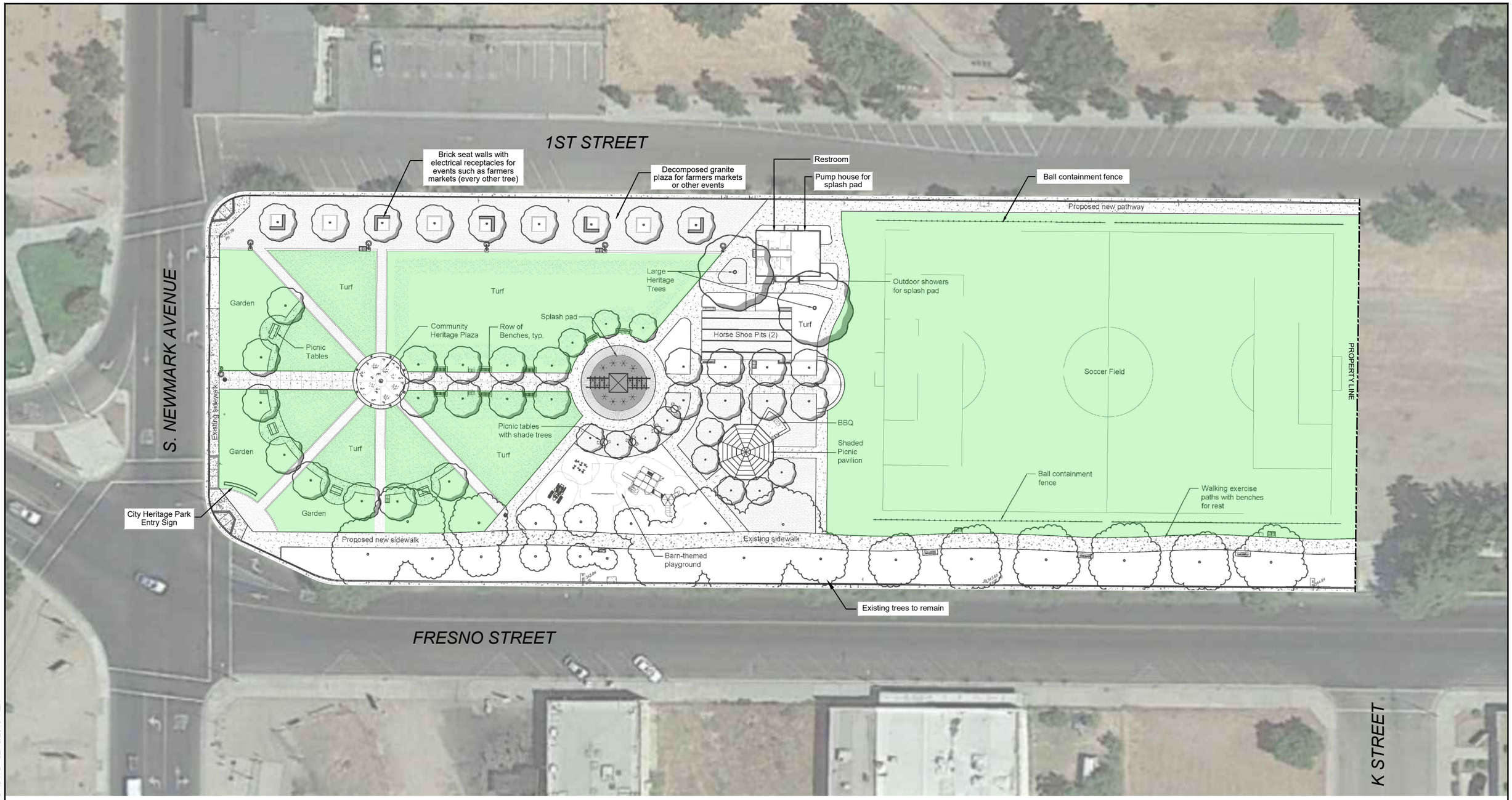
SITE VICINITY

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 01/18



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE | REFERENCE: RRM DESIGN GROUP, 2017

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FIGURE 3

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CONCEPTUAL SITE USE PLAN

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 02/18

LEGEND

- SITE BOUNDARY
- SB-1 MAY 2013 SOIL BORING
- B-1 GEOTECHNICAL BORING
- SB-7 NOVEMBER 2013 SOIL BORING
- DG-1 DATA-GAP BORING
- SO-3-1 STEP-OUT BORING

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE | REFERENCE: GOOGLE EARTH IMAGERY, 2017; ESRI, I-CUBED, USDA FSA, USGS, AEX, GEOEYE, GETMAPPING, AEROGRID, IGP

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FIGURE 4A

SITE PLAN WITH HISTORICAL SOIL SAMPLE LOCATIONS

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 01/18

LEGEND

- SITE BOUNDARY
- SB-1 MAY 2013 SOIL BORING
- B-1 GEOTECHNICAL BORING
- SB-7 NOVEMBER 2013 SOIL BORING
- DG-1 DATA-GAP BORING
- SO-3-1 STEP-OUT BORING

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE | REFERENCE: GOOGLE EARTH IMAGERY, 2017; ESRI, I-CUBED, USDA FSA, USGS, AEX, GEOEYE, GETMAPPING, AEROGRID, IGP

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FIGURE 4B

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STEP-OUT BORING LOCATION DETAIL

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 01/18

LEGEND

- SITE BOUNDARY
- SB-1 MAY 2013 SOIL BORING
- B-1 GEOTECHNICAL BORING
- SB-7 NOVEMBER 2013 SOIL BORING
- DG-1 DATA-GAP BORING
- SO1-0 STEP-OUT BORING

- PROPOSED EXCAVATION TO 2.5' BGS
- PROPOSED EXCAVATION TO 5' BGS

- ARSENIC CONCENTRATIONS BETWEEN 3.5 & 18 mg/kg* (AREA OF NO PLANNED EXCAVATION, LEAVE SOIL IN PLACE)
- 1 ARSENIC CONCENTRATIONS >18 mg/kg* (TO BE MANAGED BELOW 5' OF CLEAN SOIL OR HARDSCAPE AND 1' OF CLEAN SOIL)
- 5 SOIL WITH LEAD CONCENTRATIONS >80 mg/kg* (TO BE EXCAVATED OR MANAGED BELOW AT LEAST 1' OF CLEAN SOIL)

- ARSENIC-IMPACTED SOILS TO BE DISPOSED OF AS HAZARDOUS
- LEAD-IMPACTED SOILS TO BE DISPOSED OF AS HAZARDOUS

* = NUMBERS ASSOCIATED WITH COLOR-CODED SYMBOLS INDICATE DEPTH OF DETECTED CONCENTRATIONS

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE □REFERENCE: GOOGLE EARTH IMAGER□, 2017□ESRI, I□CU□ED, USDA FSA, USGS, AEX, GEOE□E, GETMAPPING, AEROGRID, IGP

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FIGURE 5A

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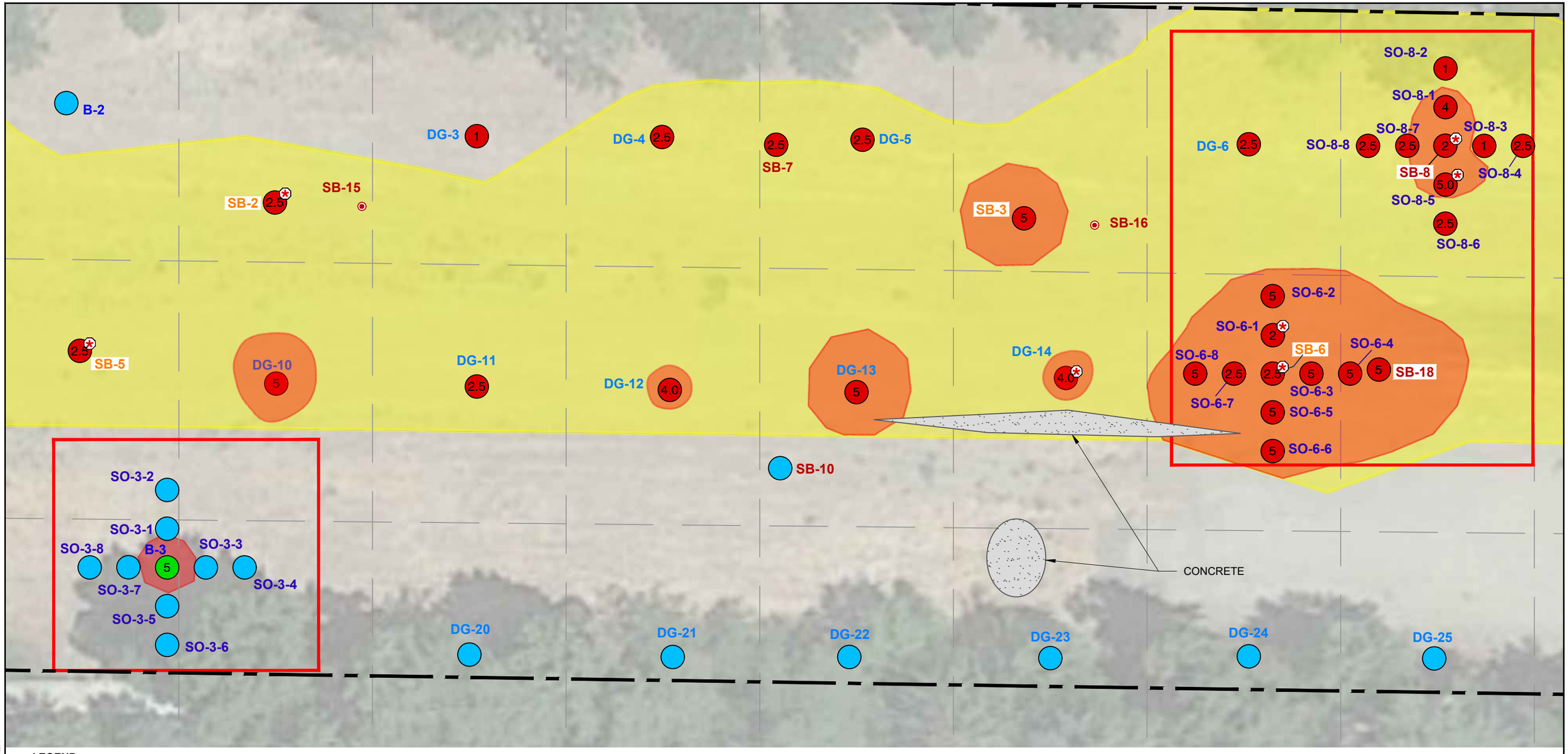
REMEDIAL EXCAVATION PLAN

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 08/18



LEGEND

- SITE BOUNDARY
- SB-1 MAY 2013 SOIL BORING
- B-1 GEOTECHNICAL BORING
- SB-7 NOVEMBER 2013 SOIL BORING
- DG-1 DATA-GAP BORING
- SO1-0 STEP-OUT BORING

- PROPOSED EXCAVATION TO 2.5' BGS
- PROPOSED EXCAVATION TO 5' BGS

- ARSENIC CONCENTRATIONS BETWEEN 3.5 & 18 mg/kg* (AREA OF NO PLANNED EXCAVATION, LEAVE SOIL IN PLACE)
- 1 ARSENIC CONCENTRATIONS >18 mg/kg* (TO BE MANAGED BELOW 5' OF CLEAN SOIL OR HARDSCAPE AND 1' OF CLEAN SOIL)
- 5 SOIL WITH LEAD CONCENTRATIONS >80 mg/kg* (TO BE EXCAVATED OR MANAGED BELOW AT LEAST 1' OF CLEAN SOIL)

- ARSENIC-IMPACTED SOILS TO BE DISPOSED OF AS HAZARDOUS

* = NUMBERS ASSOCIATED WITH COLOR-CODED SYMBOLS INDICATE DEPTH OF DETECTED CONCENTRATIONS; As CONCENTRATIONS <3.5 mg/kg AND Pb CONCENTRATIONS <80 mg/kg NOT PRESENTED

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE □REFERENCE: GOOGLE EARTH IMAGER□, 2017□ESRI, I□CU□ED, USDA FSA, USGS, AEX, GEOE□E, GETMAPPING, AEROGRID, IGP

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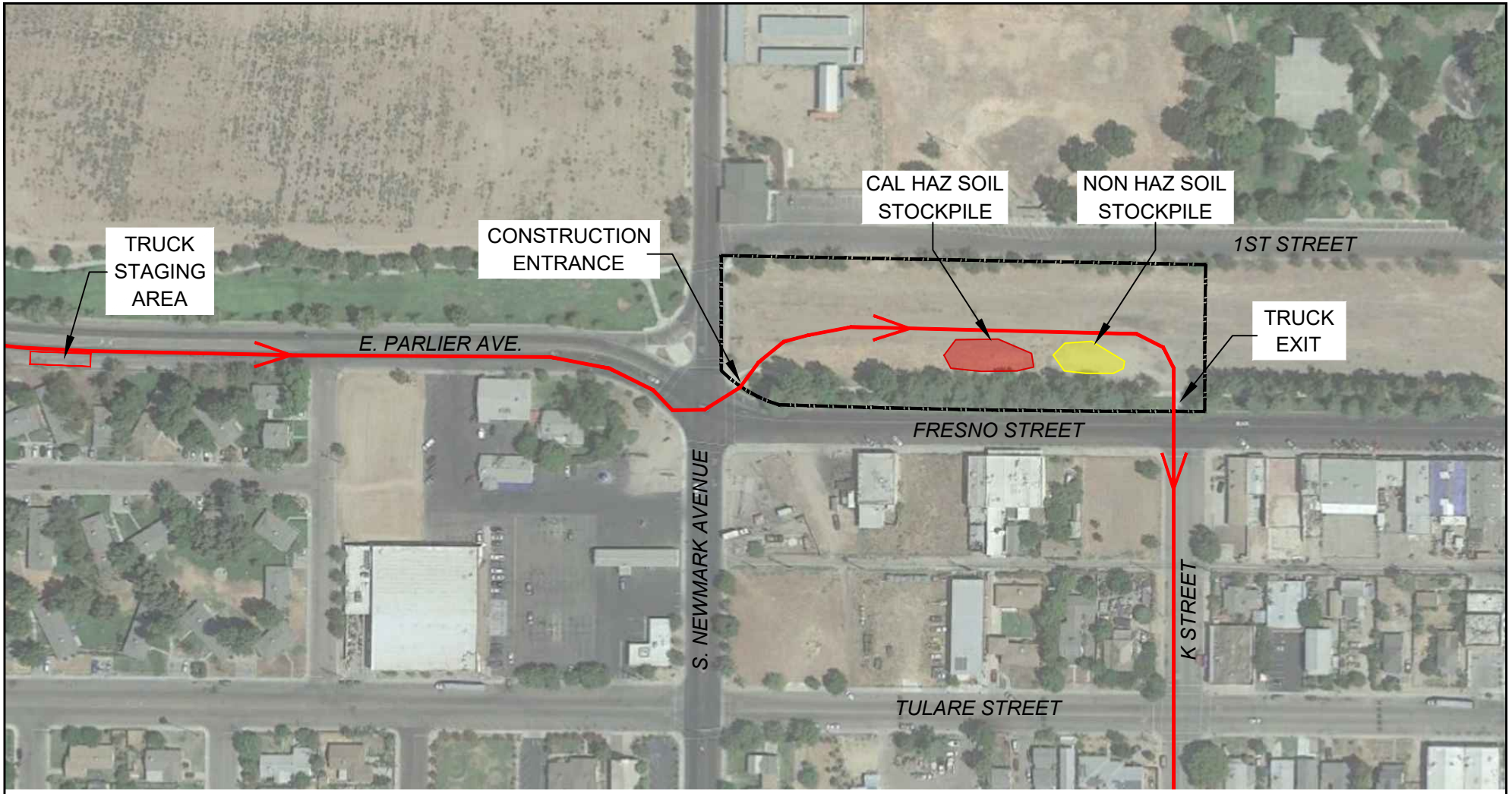
FIGURE 5B

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

REMEDIAL EXCAVATION PLAN - STEP-OUT BORING AREA DETAILS

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 08/18



LEGEND

SITE BOUNDARY

REMOVAL ROUTE

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE | REFERENCE: GOOGLE EARTH IMAGERY, 2017; ESRI, I-CUBED, USDA FSA, USGS, AEX, GEOEYE, GETMAPPING, AEROGRID, IGP

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FIGURE 6

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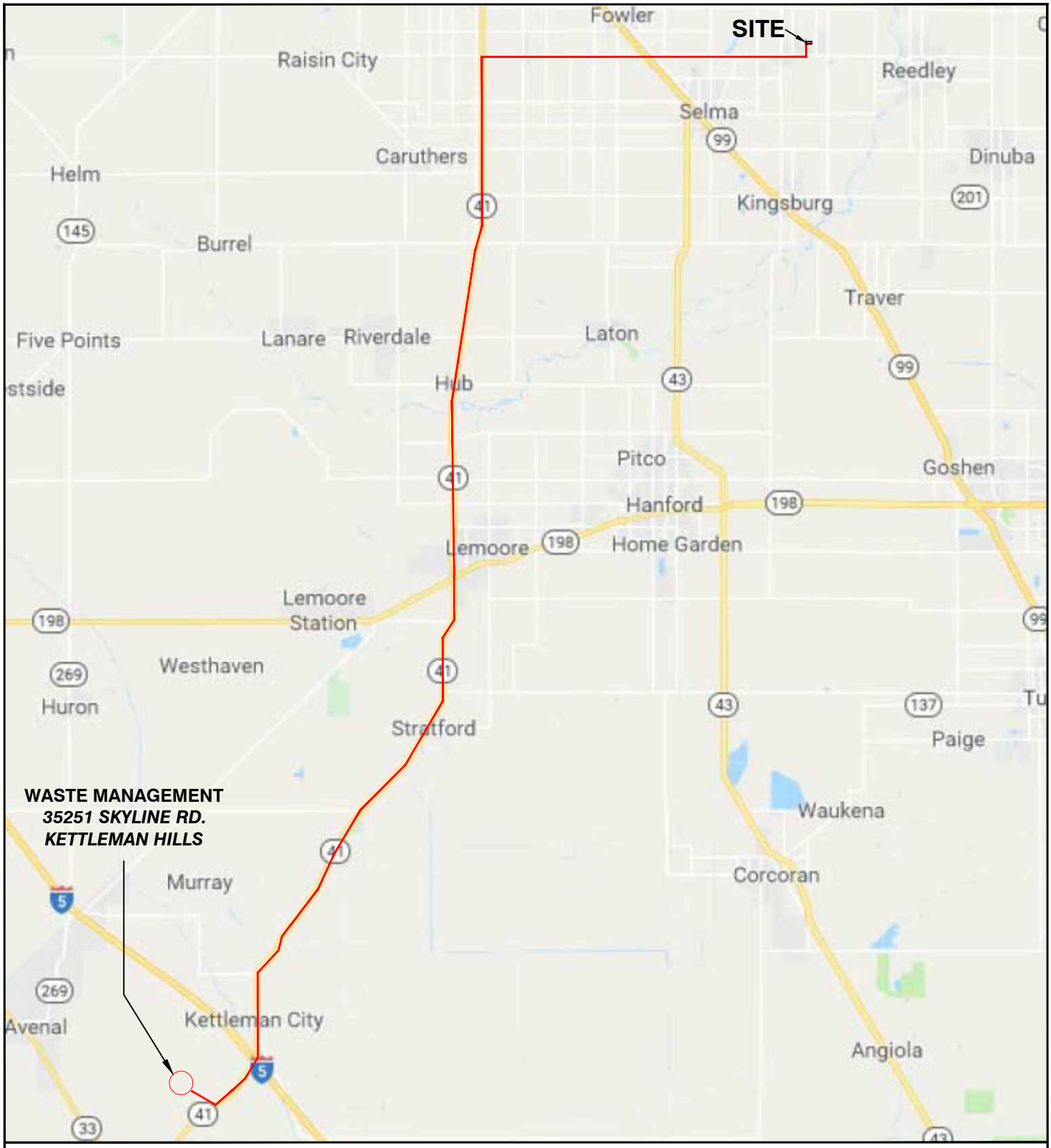
PLANNED REMOVAL ACTION LAYOUT

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 01/18



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. I REFERENCE: GOOGLE MAPS, 2018

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FIGURE 7

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LANDFILL ROUTE MAP

REMOVAL ACTION WORKPLAN
HERITAGE PARK
PARLIER, CALIFORNIA
402137004 I 01/18

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APPENDIX A

Assessor's Parcel Map

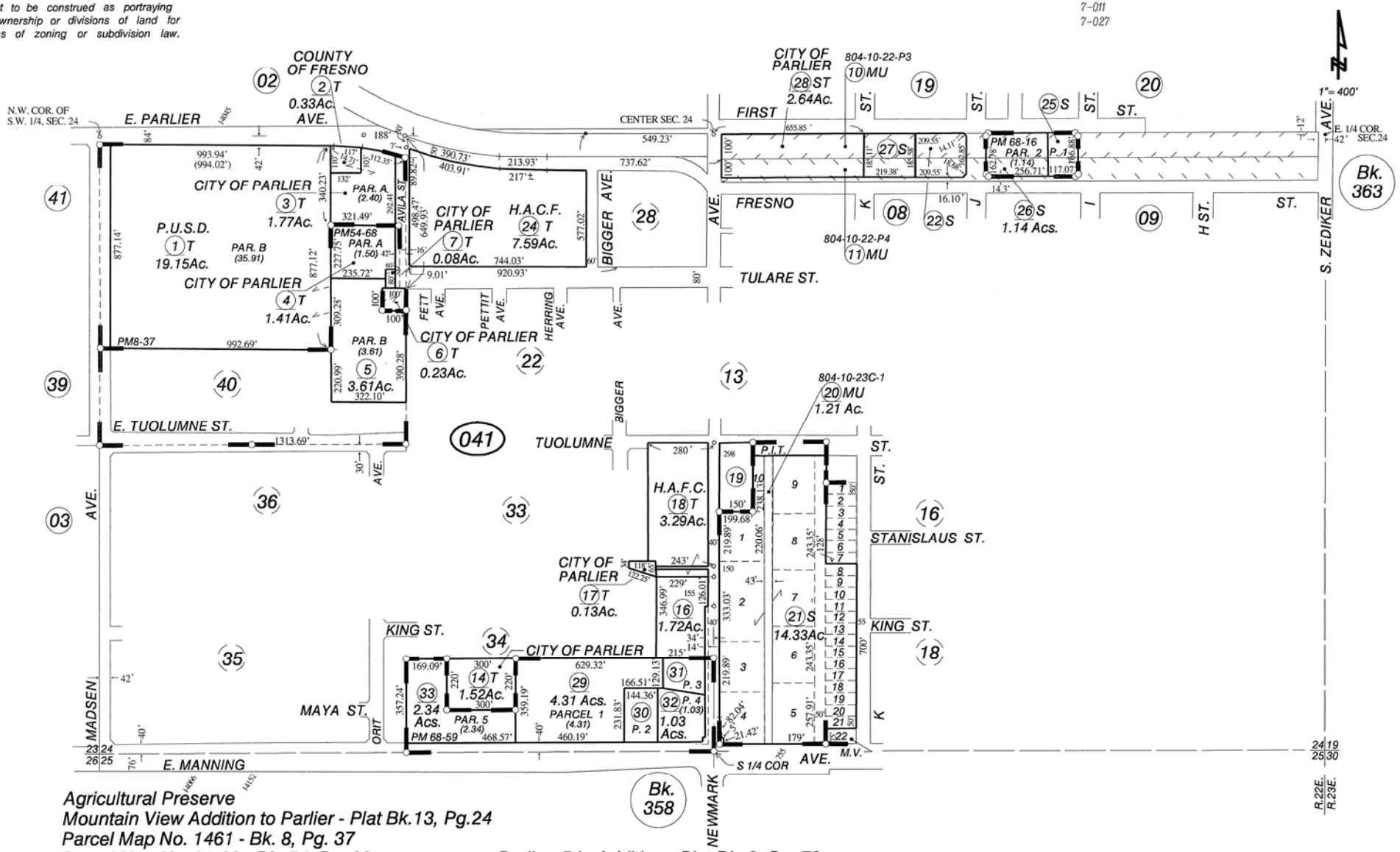
--- NOTE ---

This map is for Assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

SUBDIVIDED LAND IN POR. SEC. 24, T.15S., R.22E., M.D.B.&M.

Tax Rate Area
7-005
7-011
7-027

355-04



Agricultural Preserve
Mountain View Addition to Parlier - Plat Bk.13, Pg.24
Parcel Map No. 1461 - Bk. 8, Pg. 37
Parcel Map No. 91-02 - Bk. 54, Pg. 68
Parcel Map No. 07-05 - Bk. 68, Pgs.16 & 17
Parcel Map No. 07-01 - Bk. 68, Pgs. 59 & 60

Parlier, 5th. Addition - Plat Bk. 9, Pg. 73
Parlier Industrial Tract - Plat Bk. 10, Pg. 15

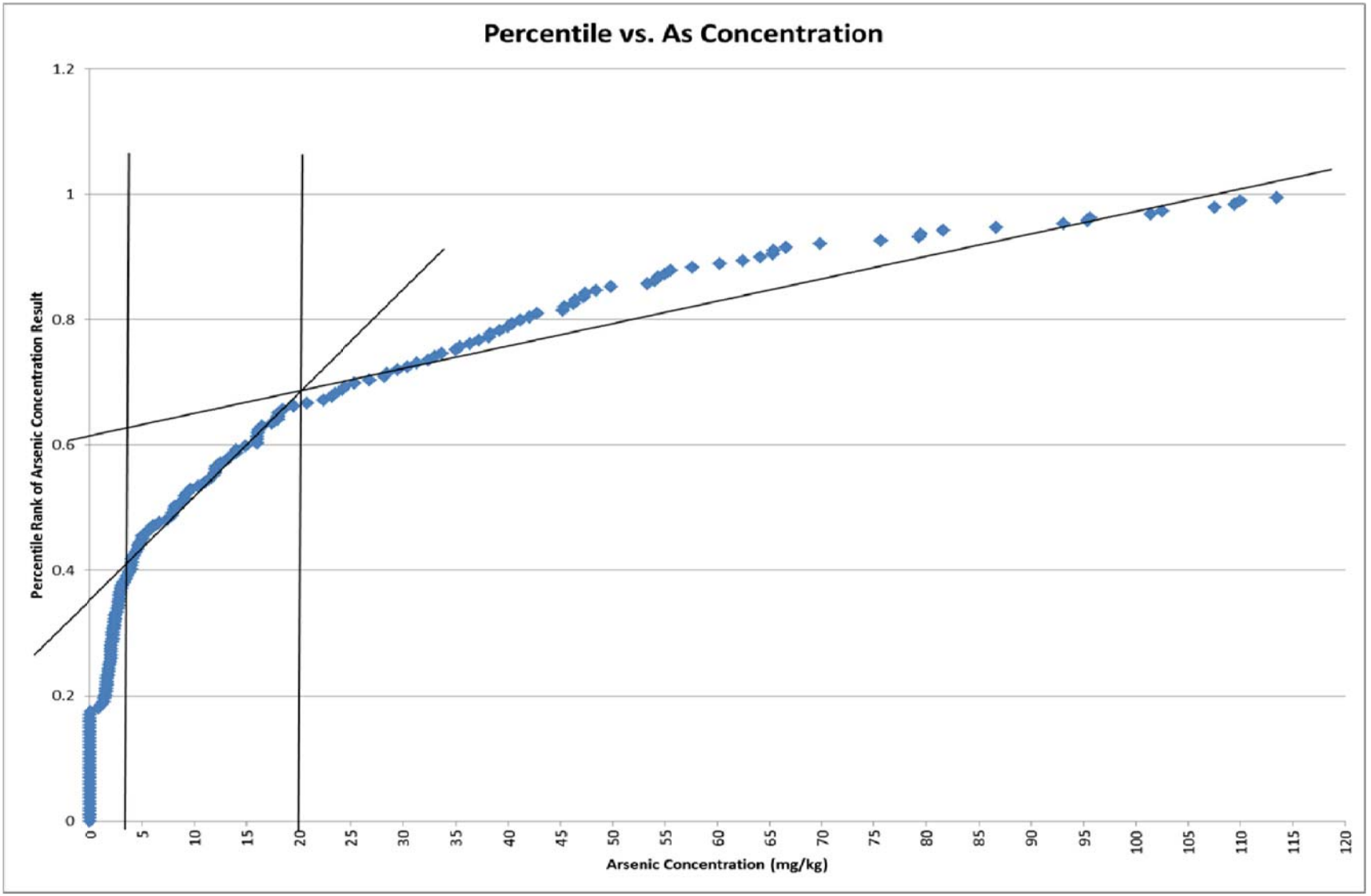
NOTE - Assessor's Block Numbers Shown in Ellipses.
Assessor's Parcel Numbers Shown in Circles.

Assessor's Map Bk.355 - Pg. 04
County of Fresno, Calif.

10-13-2014 DK 15R

APPENDIX B

Graphical Background Arsenic Determination



Ninyo & Moore		PERCENTILE VS ARSENIC CONCENTRATION PLOT	FIGURE
PROJECT NO.	DATE	SUBSURFACE INVESTIGATION HERITAGE PARK PARLIER, CALIFORNIA	7
402137003	7/15		

APPENDIX C

Health and Safety Plan

Health & Safety Plan will be included in the Final RAW

APPENDIX D

DTSC Information Advisory – Clean Imported Fill Material

Information Advisory
Clean Imported Fill Material

October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California

California Environmental Protection Agency

Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed. It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contamination and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

Fill Source:	Target Compounds
Land near to an existing freeway	Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310)
Land near a mining area or rock quarry	Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH
Agricultural land	Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A)
Residential/acceptable commercial land	VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191)

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area	Sampling Requirements
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every 1/2 acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 subsamples per location
Volume of Borrow Area Stockpile	**Samples per Volume**
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1000 cubic yards + 1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

terials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all compounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyseshave been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

For further information, call Richard Coffman, Ph.D., R.G., at (818) 551-2175.

APPENDIX E

DTSC Responsiveness Summary

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Ninyo & Moore

Geotechnical & Environmental Sciences Consultants

2020 Challenger Drive, Suite 103 | Alameda, California 94501 | p. 510 343-3400

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