CORNERSTONE EARTH GROUP

Type of Services	**Draft Removal Action Work Plan**
Location	**Planned Tribal School** **3141 Taylor Road** **Placer County, California**
Prepared For	**UNITED AUBURN INDIAN COMMUNITY** **10720 Indian Hills Road** **Auburn, California 95650**
Project Number	**411-16-3**
Date	**June 5, 2018**

DRAFT

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LIST OF ACRONYMS

ACBMs	Asbestos-Containing Building Materials
AOC	Areas of Concern
APN	Assessor's Parcel Number
CAM	California Assessment Manual
CCR	California Code of Regulations
CCP	Community Protection Plan
CEQA	California Environmental
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act of 1980, SuperFund Act
CFR	Code of Federal Regulations
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CSM	Conceptual Site Model
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DHS	Department of Health Services
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
DTSC-SL	Department of Toxic Substances Control Screening Level
USEPA	United States Environmental Protection Agency
EE/CA	Engineering Evaluation/Cost Analysis
ERC	Emergency Response Contractor
ESA	Environmental Site Assessment
ESL	Environmental Screening Level
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High-Efficiency Particulate Arrestance
HERO	Human and Ecological Risk, Office
HHRA	Human Health Risk Assessment
HSP	Health and Safety Plan
mg/Kg	milligram per kilogram or part per million (ppm)
mg/m3	milligram per cubic meter
Msl	Mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NELAC	National Environmental Laboratory Accreditation Conference
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NOA	Naturally Occurring Asbestos
NOE	Notice of Exemption
NTCRA	Non-Time-Critical Removal Actions
OCPs	Organochlorine Pesticides
OSHA	Occupational Safety and Health Administration
PEA	Preliminary Endangerment Assessment
PCBs	Polychlorinated Biphenyls
ppb	Parts per billion
PPE	Personal Protective Equipment
ppm	Parts per million
PSI	Professional Services Industries, Inc.
QA/QC	Quality Assurance and Quality Control
RA	Removal Action
RAW	Removal Action Work Plan
RAOs	Remedial Action Objectives

LIST OF ACRONYMS CONTINUED

REC	Recognized Environmental Condition
RCRA	Resource Conservation and Recovery Act
RDIP	Remedial Design and Implementation Plan
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
STLC	Soluble Threshold Limit Concentration
SSO	Site Safety Officer
SWQCB	State Water Quality Control Board
TCLP	Toxicity Characteristic Leaching Procedure
TTLC	Total Threshold Limit Concentration
UAIC	United Auburn Indian Community
UCL	Upper Confidence Limit
USA	Underground Service Alert
USGS	United States Geologic Survey
VCA	Voluntary Cleanup Agreement
VOC	Volatile Organic Compound

Type of Services	**Draft Removal Action Work Plan**
Location	**3141 Taylor Road** **Placer County, California 95650**

SECTION 1: INTRODUCTION

On behalf of United Auburn Indian Community (UAIC), Cornerstone Earth Group (Cornerstone) prepared this Removal Action Work Plan (RAW) that presents an evaluation of removal action alternatives and a plan for implementing the selected alternative at 3141 Taylor Road in Placer County, California (Site) as shown on Figures 1 and 2. This RAW has been prepared in general accordance with the California Health and Safety Code Section 25323.1. UAIC entered into a voluntary cleanup agreement (VCA) (HAS-FY 16/17-112) with the Department of Toxic Substances Control (DTSC) for investigation and remediation of the Site, as summarized in Section 1.3.

1.1 SITE DESCRIPTION

The project Site is located at 3141 Taylor Road in Placer County, California. The Site is bounded by Taylor Road from the north, Tumble Lane to the east, and residential developments to the west and south.

The approximately 42.3-acre Site (Assessor's Parcel Number [APN] 043-013-010-000) is currently developed with six structures: two, 2-story buildings formerly used as an Inn and annex, a single-story event space, a caretaker's residence, a detached garage, and a maintenance barn (Figure 2). The remainder of the site is undeveloped; approximately 24-acres of the property were formally occupied by an orchard.

1.2 PLANNED DEVELOPMENT

A private school is currently planned for the Site that will include an elementary school, a middle school, a tribal education center, library with pre-kindergarten classrooms, and a science/cultural arts building. A recreation field, garden and cultural center are also planned. The current development plan is shown on Figure 3.

Appurtenant parking, landscaping, and other improvements necessary for Site development are anticipated.

1.3 REGULATORY INVOLVEMENT

UAIC entered into a VCA with DTSC on May 25, 2017 for review of prior environmental reports prepared for the Site, oversight of additional Site characterization and review of a Preliminary Endangerment Assessment (PEA) report. On November 29, 2017, the DTSC provided a draft

amendment of the VCA for the preparation and implementation of a Removal Action Workplan (RAW). Key documents prepared to date are listed below:

- Professional Services Industries, Inc. November 23, 2015. Phase I Environmental Site Assessment.
- Cornerstone Earth Group. December 22, 2016. Limited Phase II Soil Quality Evaluation.
- Cornerstone Earth Group. June 28, 2017. Final Preliminary Endangerment Assessment Work Plan.
- DTSC. PEA Work Plan approval letter dated June 29, 2017
- Cornerstone Earth Group. August 28, 2017. Arsenic Bioavailability Work Plan.
- DTSC. September 5, 2017. Arsenic Bioavailability Work Plan approval letter.
- Cornerstone Earth Group. November 16, 2017. Final Preliminary Endangerment Assessment Report.
- DTSC. November 16, 2017. Approval of Final PEA Report.

1.4 ELEMENTS OF THE RAW

To implement the recommendations contained in the PEA Report and to satisfy regulatory requirements, this RAW includes the following elements:

- A description of the nature and extent of the chemicals of concern (COC) at the Site;
- The goals to be achieved by the remedial action; and
- The general steps that will be taken to implement the selected remedial alternative: *Soil Excavation and Disposal of COC-Impacted Soil*

This report is organized as follows:

- Section 2 – Prior PEA Investigation
- Section 3 – Areas of Concern Evaluated During PEA
- Section 4 – Environmental Setting
- Section 5 – Cleanup Goals
- Section 6 – Engineering Evaluation for the Removal Action
- Section 7 – Soil Removal Action Implementation

SECTION 2: PRIOR PEA INVESTIGATION

During the PEA investigation, soil sampling was performed to address the areas requiring further evaluation identified in the DTSC-approved PEA Work Plan. This section presents the soil sampling performed to evaluate these Areas of Concern (AOC). Please refer directly to the Final PEA report for a complete overview of the work performed.

2.1 SITE HISTORY

Based on the information presented in the Phase I ESA, the approximately 42.5-acre Site appears to have been occupied by an orchard in 1938, with a residence. The residence appears to be in the same location as the current Inn and caretaker's home. By 1966, the

orchard appeared to be diminishing in extent and density of trees, although remnants of apparent orchard trees are visible on aerial photographs through 2005. The current structures and pond are visible on the 1984 aerial photograph.

2.2 2015 PHASE I ESA FINDINGS

During the 2015 Phase I ESA, small quantities of lubricants, oils, gasoline and herbicides were reported stored within the barn. No staining or other evidence of a release from these materials was reportedly observed.

A septic tank was reportedly located on-Site. In addition, a water supply well was reportedly located in the garden on the northwest portion of the Site.

No hazardous materials release incidents were reported in the Site vicinity that appeared likely to significantly affect ground water or soil vapor quality beneath the Site.

The Phase I ESA concluded that no hazardous waste or materials were identified at the Site that would constitute a Recognized Environmental Condition[1] (REC). No significant data gaps were identified during the Phase I ESA, no Historical Recognized Environmental Conditions[2], or Controlled Recognized Environmental Conditions[3] were identified during PSI's Phase I ESA.

2.3 DECEMBER 2016 LIMITED PHASE II SOIL QUALITY EVAULATION

On December 16, 2016, Cornerstone's staff geologist collected 24 near-surface soil samples from across the former agricultural area of the Site, with approximately one sample per acre (Figures 4a and 4b). Sample frequency of the former agricultural area was selected in general accordance with the Department of Toxic Substances Control (DTSC) "Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision)" (August 26, 2002). Samples were collected from the natural ground surface to a depth of approximately ½ foot using hand-sampling equipment.

Following standard protocols, Cornerstone's staff engineer collected soil samples in new and pre-cleaned 2½ inch by 6-inch stainless steel liners and were taped, capped, and labeled with a unique identification number. All samples were labeled with a unique name and were placed in an ice chilled cooler and transported under chain of custody documentation to a State certified analytical testing lab. Analytical results were reported by the laboratory based on a wet-weight basis.

[1] The presence or likely presence of hazardous substances or petroleum products on the Site: 1) due to significant release to the environment; 2) under conditions indicative of a significant release to the environment; or 3) under conditions that pose a material threat of a future significant release to the environment.
[2] A past Recognized Environmental Condition has been addressed to the satisfaction of the applicable regulatory agency or meeting of unrestricted use criteria established by the applicable regulatory agency without subjecting the Site to required controls or restrictions.
[3] A Recognized Environmental Condition that has been addressed to the satisfaction of the applicable regulatory agency with hazardous substances

2.3.1 Soil Quality Results

The laboratory analytical results are as follows:

- Dichlorodiphenyltrichloroethane (DDT) was detected in 22 of 24 soil samples at concentrations up to 0.138 mg/kg. The residential RSL for DDT is 1.9 mg/kg. The DDT detected in the Site's topsoil does not appear to pose a significant risk to human health for the planned school Site use.

- Dichlorodiphenyldichloroethane(DDD) was detected in 2 of 24 soil samples at concentrations up to 0.0186 mg/kg. The residential RSL for DDD is 2.2 mg/kg. The DDD detected in the Site's topsoil does not appear to pose a significant risk to human health for the planned school Site use.

- Dichlorodiphenyldichloroethylene (DDE) was detected in 24 of 24 soil samples at concentrations up to 0.522 mg/kg. The residential RSL for DDE is 1.6 mg/kg. The DDE detected in the Site's topsoil does not appear to pose a significant risk to human health for the planned school Site use.

- Total DDT (the sum of DDT, DDD and DDE) was detected at concentrations less than the TTLC value of 1.0 mg/kg in all 24 soil samples analyzed.

- No other organochlorine pesticide (OCP) compounds were detected.

- Lead was detected at concentrations ranging between 3.75 mg/kg and 79.8 mg/kg; all detected lead concentrations were below the residential DTSC-SL of 80 mg/kg.

- Arsenic was detected at concentrations ranging between 4.07 mg/kg and 29.2 mg/kg. Arsenic was detected exceeding the established screening level of 12 mg/kg, set in the DTSC document Interim Guidance for Sampling Agriculture Properties (DTSC, 2008), in six of 24 samples analyzed. A discussion of Site background arsenic concentrations is presented in Section 4.3.2.1.

- Mercury was not detected above the laboratory reporting limits.

SECTION 3: AREAS OF CONCERN EVALUATED DURING PEA

3.1 PEA AOCS AND IMPLEMENTATION

A PEA was performed to determine whether current or past hazardous material management practices or waste management practices had resulted in the release or threatened release of hazardous materials, or whether naturally occurring hazardous materials were present, which posed a threat to public health or the environment. The PEA Work Plan described the following areas of potential concern that required additional investigation. Results of the PEA Work Plan implementation are summarized in Section 3.2.

3.1.1 Polychlorinated Biphenyls (PCBs) – Transformers

Two pole-mounted transformers are located on-Site; one near Taylor Road, and one near the event building (Figure 2). There is a potential that PCBs may have been historically used within the transformers. PCBs are man-made chemicals commonly used in the past as coolants and lubricants. PCBs are found as a clear to yellow, heavy oily liquid or waxy solid. PCBs were frequently used as insulation in electrical equipment because of their stability, low water solubility, high boiling point, low flammability, and low electrical conductivity. Prior to 1978, PCBs were often used in the manufacture of transformers and capacitors, and leaks or releases from transformers producing contaminated areas have been documented. The age of the transformer does not necessarily indicate the presence or absence of impacts to soil from PCBs, as releases of PCBs from a previous transformer may have occurred before its replacement. Once released to the environment, PCBs bind to soil particles and are very persistent.

3.1.2 Lead Paint, Pest Control, and PCB building Materials

Soil adjacent to former and existing structures that are painted with lead-containing paint and/or caulking around windows containing polychlorinated biphenyls (PCBs) can become impacted with lead and/or PCBs as a result of the weathering and/or peeling of painted and/or caulked surfaces. Soil near wood framed structures also can be impacted by organochlorine pesticides (OCPs) used to control termites. There is a potential that residual concentrations of lead, PCBs, and/or OCPs may be present in shallow soil near older structures such as those located on-Site.

3.1.3 Pond Sediment Sampling

The Site topography generally slopes to the northeast towards the pond. During heavy rainfall events, overland flow could transport surface soil to the pond. During our May 3, 2017 scoping meeting, DTSC staff requested sampling of the sediment in the pond to determine if OCPs or pesticide related metals have been transported and deposited in the pond.

3.1.4 Arsenic in Soil

As noted above, arsenic was detected in soil samples collected in December 2016 potentially exceeding background levels. The greatest concentration of arsenic was detected in sample SS-12 at 29.2 mg/kg. Additional soil samples were collected to evaluate the lateral and vertical extent of the elevated arsenic detected.

3.1.5 Naturally Occurring Asbestos

Asbestos occurs naturally in ultramafic rock. The six regulated asbestos-form minerals include: Chrysotile, Amosite, Crocidolite, Tremolite, Anthophyllite, and Actinolite. When this material or other Asbestos-form minerals are disturbed in connection with construction or grading, asbestos-containing dust can be generated. Exposure to asbestos can result in health ailments. The Department of Toxic Substances Control (DTSC) 2004 interim guidance document titled *Naturally Occurring Asbestos (NOA) at School Sites* recommends soil sampling when a proposed school site is located within a 10-mile radius of an NOA geologic formation.

The Site is located within the Sierra Nevada geomorphic province, a tilted fault block almost 400 miles long that is characterized by intrusions of granitic rocks and block faulting along its eastern boundary. The Site is located on the western slope of the Sierra Nevada mountain range.

Based on our review of readily available geologic maps, the nearest ultramafic geologic formation that may contain NOA is located approximately 4.5 miles east of the Site (Figure 5). Another ultramafic outcrop is mapped approximately 8 miles north-northeast of the Site.

Soil in areas downslope of ultramafic NOA-containing rock may contain NOA because of ultramafic particles transported by gravitational and hydrologic processes. The ultramafic geologic formation outcrops are separated from the Site by the American River, other topographic lows and ridges. Because the intervening elevation lows and ridges between the ultramafic outcrops and the Site, transport of soil/sediment from these outcrops to the Site is not considered likely. Therefore, NOA is not suspected to be present in soil beneath the Site.

3.1.6 CAM 17 Metals

Surface soil samples collected in December 2016 were analyzed for arsenic, lead and mercury as an initial soil quality screening. In accordance with our May 3, 2017 meeting with DTSC, analyses for 17 California Assessment Manual (CAM) metals was required.

3.2 PEA WORK PLAN IMPLEMENTATION

During this PEA investigation, soil sampling was performed to address the areas requiring further evaluation identified in the DTSC-approved PEA Work Plan. Soil samples were collected near existing and former buildings to evaluate potential impacts from possible pest control spraying near building foundations, and potential impacts from building materials such as lead-based paint and/or PCB caulking compounds. Soil samples were also collected from the former orchard areas to evaluate potential impacts from pesticide application, and from beneath transformers to evaluate the presence of PCBs.

No OCPs were detected in soil samples collected from former orchard areas at concentrations exceeding residential RSLs. In addition, no PCBs were detected in soil samples collected from the transformer locations.

Laboratory analyses of the soil samples collected from the perimeter of the Inn and Annex buildings detected lead and the OCP compound chlordane at concentrations that exceed residential environmental screening levels. The occurrence of these contaminants is likely related to lead-based paint on former building materials and pest control spraying. Soil removal from around the perimeter of the Inn and Annex buildings is recommended.

Arsenic background concentrations from the orchard areas were statistically evaluated, and concentrations were detected in excess of the background levels. To evaluate the health risk, an arsenic bioavailability assessment was conducted. The assessment concluded that samples with arsenic above background levels at the Site appear to be more bioavailable, which likely reflects anthropogenic sources.

The remaining metal concentrations detected were below their respective screening levels or published background levels.

The PEA recommended that soil around the perimeter of the Inn and Annex buildings be removed. In addition, the PEA recommended the removal of soil where detected arsenic concentrations exceeded the Site-specific background level.

3.3 APRIL 2018 SUPPLEMENTAL SOIL SAMPLING

Wetland mapping by the project biologist identified wetlands located in close proximity to the southernmost soil removal area (see Section 8.3.1). To evaluate whether the initial soil removal area can be configured to avoid the wetland area, on April 23, 2018, Cornerstone field personnel collected soil samples from five locations within and near the wetlands using hand-sampling equipment (SS-100 through SS-500). The sampling locations are presented on Figure 7C.

Soil samples were collected from the approximate upper six inches of soil in accordance with the sampling protocol presented in the June 28, 2017 PEA Work Plan. The collected samples were placed in an ice chilled cooler and transported to the project laboratory under chain of custody control. The five soil samples collected were analyzed for arsenic (EPA Test Method 6010B). Analytical results are presented on Figure 7C. The laboratory report and chain of custody documentation were presented in the May 10, 2018 Supplemental Soil Quality Evaluation report (Cornerstone) (Appendix C).

SECTION 4: ENVIRONMENTAL SETTING

4.1 PHYSICAL SETTING

A 1978 USGS 7.5 minute topographic map was reviewed to evaluate the physical setting of the Site. The Site's elevation is approximately 450 feet above mean sea level; topography in the vicinity of the Site slopes downward gently to the southwest towards the Central Valley.

4.2 GEOLOGY AND HYDROGEOLOGY

4.2.1 Local Geology

The Site is located on the eastern transition of Sacramento Valley to the base of the Sierra Nevada foothills, where sandy loam overlays Mesozoic dioritic to granitic rocks. The Sierra Nevada batholith consisting of metavolcanics, gabbroic, and ultramafic rocks. The 1987 California Division of Mines and Geology *Geologic Map of the Sacramento Quadrangle* shows the subject property to be underlain by Mesozoic dioritic (granite-like) rock.

4.2.2 Hydrogeology

Based on information reviewed from PSI's 2015 Phase I ESA, quarterly groundwater monitoring report for former Penryn Beacon located at 3129 Penryn Road, Penryn, California, approximately ¼ mile east of the Site, shallow groundwater is approximately 15 to 20 feet below

ground surface, and reportedly moves to the southwest. Groundwater flow beneath the Site is likely influenced by surface topography and the on-Site pond.

4.3 NATURE AND EXTENT OF CONTAMINATION

This section includes: 1) a discussion of Environmental Screening Criteria selected for the Site; and 2) a summary of the COC and results of the soils samples collected at the Site. Data summary tables presenting the results of the PEA are included in the Tables Section of this RAW.

4.3.1 Environmental Screening Criteria

The soil sampling results were compared to the DTSC recommended Screening Levels (SLs) presented in DTSC Office of Human and Ecological Risk guidance document (HERO) *Human Health Risk Assessment (HHRA) Note 3* updated 2017 (HERO, 2017). If a SL has not been established, the soil results were compared to Regional Screening Levels (RSLs) established by the USEPA Region 9 (USEPA, November 2017). Arsenic was compared to the Site background of 17.5 mg/kg, as discussed in Section 5.

4.3.2 Chemical of Concern

The soil analytical results of the PEA investigation are presented in Tables 1 and 2 in the tables Section of this report. The analytical results are summarized below. Note that Tables 1 and 2 also includes analytical results for soil samples collected December 16, 2016.

4.3.2.1 Arsenic

Natural background concentrations of arsenic are often well above the health-based DTSC screening level of 0.11 mg/kg; however, DTSC generally does not require cleanup of metals in soil to below background levels. An evaluation of background arsenic concentrations was performed by Integral Consulting, Inc. using Site arsenic data in accordance with DTSC guidance titled *Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities* (DTSC, 1997) and *Arsenic Strategies – Determination of Arsenic Remediation – Development of Arsenic Cleanup Goals* (DTSC 2009).

As presented in the PEA, the 95th and 99th percentiles of the background population were calculated as 16.5 mg/kg and 17.5 mg/kg, respectively. Because the background dataset is large (n=65), the data are considered robust, and the distribution is well defined, the 99th percentile of 17.5 milligrams per kilogram (mg/kg) is considered representative of the Site-specific background. As noted in Section 5, as an added health protective measure, UAIC elected to use 16.5 mg/kg as the cleanup goal for arsenic.

Based on laboratory analyses of the soil samples collected, arsenic was detected exceeding 16.5 mg/kg in samples SS-12, SS-12B, SS-12C, SS-12D, SS-15,SS-16, SS-100 and SS-200 (Figures 4A and 7C).

4.3.2.2 Lead and OCPs

Lead was detected in 22 of 22 soil samples at concentrations ranging from 3.96 mg/kg to 260 mg/kg, with 4 samples exceeding the residential DTSC-SL of 80 mg/kg. The four samples exceeding 80 mg/kg were collected from the exterior perimeters of the Inn and Annex buildings. Laboratory analyses of soil samples collected from the orchard areas detected lead exceeding the residential RSL in sample SS-16 (121 mg/kg). The Site-wide 95 percent upper confidence limit (UCL) for lead is 58 mg/kg. One sample, collected in the upper ½ foot of soil, near the Inn and Annex, detected chlordane at a concentration exceeding the residential DTSC-SL of 0.44 mg/kg. The source of the OCPs and lead appears associated with pest control activities and lead-based paint near the structures.

4.4 EXPOSURE PATHWAYS

Exposure pathways are the mechanisms by which a receptor (e.g. construction worker or future Site user) may contact COCs at the Site. Exposure pathways consist of three parts: (1) a source of contaminants, (2) an exposure point where the receptor may come into contact with contaminants (e.g. contaminated soil, drinking water, and/or indoor air), and (3) an exposure route (e.g. dermal, ingestion, and/or inhalation).

Arsenic was detected exceeding background concentrations in several soil samples. Concentrations of lead and OCPs detected in shallow surface samples were below residential screening criteria. As noted above, additional sampling was performed to evaluate the presence of OCPs and lead at locations of current structures and sediment in the pond. Therefore, the COC in shallow soil consist of arsenic, lead and OCPs.

No PCBs were detected in the soil samples analyzed. Therefore, PCBs are not considered COC for the Site.

The physical characteristics of OCPs, arsenic and lead mainly make them relatively persistent and immobile. These COC typically do not readily dissolve in water and migrate to ground water, as they readily adsorb to soil particles. Additionally, these COC will not readily volatilize or migrate as vapors. These chemicals may migrate if adsorbed to soil particles that become entrained into ambient air as a result of wind erosion of surface soil.

There are no identified COC for soil vapor or ground water on-Site.

4.5 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) was developed to assist in understanding Site conditions and potential pathways by which humans may be exposed to contaminants of concern at the Site. An exposure pathway is considered complete if it presents a means of exposure to a receptor. A complete exposure pathway includes all of the following: a source of contamination, release mechanism, transport mechanism, exposure point, and a receptor. Figure 6 presents the CSM for the Site.

SECTION 5: CLEANUP GOALS

This section presents detailed information regarding the cleanup goals for the COC at the Site. The cleanup goals, based on the screening level evaluation from the PEA, will be used to support decisions with respect to the need for and the extent of remediation.

Except for arsenic, Regional Screening Levels (RSLs) established by the USEPA Region 9 (USEPA, November 2017) were selected as the cleanup goals for COC identified at the Site unless an alternate screening level is recommended in the DTSC Office of Human and Ecological Risk (HERO) guidance document titled *Human Health Risk Assessment* (HHRA) *Note 3, Use of USEPA Regional Screening Levels* (HERO, 2017). Lead was compared to the screening level of 80 milligrams per kilogram recommended by HHRA Note 3.

As noted in Section 4.3.2.1, the 95th and 99th percentiles of the background population were calculated as 16.5 mg/kg and 17.5 mg/kg, respectively. The 99th percentile concentration was determined to be representative of Site background. As a health protective measure, UAIC has elected to use the 95th percentile, 16.5 mg/kg, as the arsenic cleanup goal.

In summary, the cleanup goals for COC identified for the Site are presented in Table 1. If additional constituents are detected during soil removal activities, concentrations will be compared to residential RSLs.

Table 1. Cleanup Goals

Contaminant	Residential/Unrestricted Site Use Cleanup Goal (mg/kg)	Basis for Cleanup Goal
Arsenic	16.5	Site-Specific Background (95th Percentile) (Cornerstone, 2017)
Lead	80	HHRA Note 3 (DTSC, 2017)
Chlordane	0.44	HHRA Note 3 (DTSC, 2017)
Dieldrin	0.034	RSL (USEPA, 2017)
Heptachlor	0.13	RSL (USEPA, 2017)
Heptachlor Epoxide	0.07	RSL (USEPA, 2017)
4,4-DDE	2	RSL (USEPA, 2017)
4,4-DDD	2.3	RSL (USEPA, 2017)
4,4-DDT	1.9	RSL (USEPA, 2017)

SECTION 6: ENGINEERING EVALUATION FOR THE REMOVAL ACTION

This Engineering Evaluation/Cost Analysis (EE/CA) was conducted for the proposed removal action at the Site in accordance with the USEPA guidance, titled “Guidance on Conducting Non-Time-Critical Removal Actions (NTCRA) under CERCLA (USEPA, 1993)”. It was prepared, as part of the RAW developed for the Site, to aid in the evaluation of remediation alternatives for the mitigation of impacted soils at the Site.

The proposed removal action at the Site has been determined to be a non-time-critical removal, based on the risk evaluation and Site considerations. The proposed removal action will be conducted in accordance with protocols of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) codified in Part 300 of Code of Federal Regulations, Title 40 (40 CFR 300). Under 40 CFR 300.415 of the NCP, an EE/CA is required to address the implementability, effectiveness, and cost of NTCRA.

This EE/CA will be used as the basis for the planned non-time-critical RA. As the lead agency, DTSC has final authority of the selected alternative and of overall public participation activities.

6.1 REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are goals developed for the protection of human health and the environment and are based on chemical concentrations and potential exposure routes. Protection of human health can be achieved by reducing chemical concentrations and/or by eliminating exposure pathways. The RAO for the Site is to mitigate the threat to human health and the environment from the identified COC-impacted soil, soil vapor, and ground water in a manner that will not constrain or limit school development of the property. Site specific RAOs include:

- Minimize or eliminate the potential for COC-impacted media to be encountered during Site development activities;
- Minimize or eliminate potential exposure of future school occupants (receptors) to COC-impacted media through direct contact, ingestion and inhalation;
- Minimize or eliminate the potential for uncontrolled migration of COC-impacted soil during construction activities;
- Reduce the concentration of COC in soil to levels that will allow maximum flexibility for school development and reuse of the Site as intended; and
- Achieve compliance with local, State and Federal regulations.

6.2 REMOVAL ACTION ALTERNATIVES

This section provides the analysis of three removal action alternatives for mitigating the threat to human health and the environment posed by the COC-impacted soil and soil vapor at the Site. These removal alternatives include the following:

- Alternative 1 – No action.
- Alternative 2 – Excavation and on-Site Consolidation of Arsenic, Lead, and OCP Impacted Soil; excavation and disposal of arsenic exceeding Site-specific background of 16.5 mg/kg.

- Alternative 3 – Excavation and off-Site disposal of lead and OCP-impacted soil exceeding Environmental Screening Criteria; excavation and disposal of arsenic exceeding Site-specific background of 16.5 mg/kg.

Other potential alternatives or innovative technologies have not been included because they are unlikely to be timely, implementable, and/or cost-effective.

6.2.1 Alternative 1 – No Action

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and DTSC require the consideration of no action as a baseline alternative during the feasibility screening process. This remedial alternative would not involve the removal or capping of the impacted soil at the Site.

6.2.2 Alternative 2 – Excavation and on-Site Consolidation of Arsenic, Lead, and OCP Impacted Soil

Under this alternative, the arsenic, lead, and OCP -impacted soil will be excavated, consolidated on-Site and capped with hardscape surfaces (e.g. asphalt pavement or concrete).

Institutional controls including a deed restriction and long-term operation and maintenance (O&M) plan will be implemented. The deed restriction will apply to the capped consolidation area where the arsenic, lead and OCP-impacted soil is present. The long-term O&M plan will include an annual and 5-year review, inspection and reporting of the consolidation area;

6.2.3 Alternative 3 – Excavation and Off-Site Disposal of Lead and OCP-Impacted Soil Exceeding Environmental Screening Criteria; Excavation and Disposal of Arsenic Exceeding Site-Specific Background of 16.5 mg/kg.

Alternative 3 is similar to Alternative 2 except that the arsenic, lead, and OCP-impacted soil will be excavated and disposed at an off-Site permitted facility, and no O&M will be required. The remedial excavations will be regraded or backfilled with clean on-Site soil that meets the Environmental Screening Criteria

6.3 EVALUATION OF REMOVAL ACTION ALTERNATIVES

The evaluation of removal action alternatives should consider the effectiveness, implementability, and cost of each remedial alternative. These evaluation criteria are discussed and compared below for each of the three proposed removal action alternatives.

6.3.1 Effectiveness

The evaluation of the effectiveness of each alternative is based on:

- Performance and reliability to eliminate or reduce the risk associated with the identified COC (in terms of toxicity, mobility, or volume) at the Site

- Overall protection of public health and the environment (threshold factor)

- Long- and short-term effectiveness (balancing factor)
- Reduction of toxicity, mobility, or volume through treatment (balancing factor)
- Ability to meet the RAOs presented in Section 6.1 (threshold factor)

Alternative 1 would not be protective of human health and the environment.

For Alternative 2, Site preparation for development will involve excavating and consolidating on-Site the upper approximate 2 feet of soil containing arsenic, lead, and OCP-impacted material. Consolidated material would be capped by hardscape surfaces such as flatwork, a drive aisle or parking areas. Due to the physical characteristics of the COC, this alternative would be protective of the environment. The COC are relatively persistent and immobile. These COC typically do not readily dissolve in water and migrate to ground water, as they readily adsorb to soil particles. The COC will not readily volatilize or migrate as vapors. Since the impacted soil would be capped by asphalt pavement or concrete surfaces, the impacted soil would not become entrained into ambient air as a result of wind erosion of surface soil. Alternative 2 is considered effective.

Alternative 3 is effective. It also is the most conservative of the alternatives because under this alternative the arsenic exceeding a background concentration of 16.5 mg/kg, and lead and OCP-impacted soil exceeding Environmental Screening Criteria would be removed from the Site; thus, the potential for on-going exposure to on-Site lead and OCP-impacted soil would be eliminated. However, there would be added risk of exposure during excavation and subsequent transportation of the impacted soil to a disposal facility. Additionally, this alternative likely has the largest “carbon footprint” due to anticipated natural resource consumption and vehicle emissions associated with hauling the impacted soil from the Site to off-Site landfills potentially more than 150 miles away.

6.3.2 Implementability

Implementability of a remedial alternative is based on the technical and institutional feasibility of implementing the alternative. Technical feasibility includes the availability of necessary materials, equipment and skilled workers to implement the alternative. Institutional feasibility includes the ability to obtain the necessary permits and regulatory concurrence.

Each of the three remedial alternatives is technically implementable. Alternatives 2 and 3 are also institutionally feasible. Alternative 1 is not considered to be institutionally feasible.

6.3.3 Cost

The cost of implementing an alternative includes capital and continuing costs. Continuing costs are defined as on-going costs associated with implementation and maintenance of the selected remedy. To compare the total cost of implementing each alternative, costs associated with implementing each alternative were estimated. The capital costs and continuing costs associated with implementing the three alternatives described above are summarized in Appendix A.

6.3.3.1 Capital Cost

Capital costs associated with implementing Alternatives 2 and 3 include construction, labor and disposal costs (e.g., constructing an asphalt/concrete cap, and excavation of impacted soil and capping or disposal off-site), engineering costs (e.g., preparing plans and specifications, and performing construction oversight), reporting costs, and regulatory agency oversight costs.

6.3.3.2 Continuing Cost

Since DTSC will require deed restrictions (Alternative 2), and operation and maintenance activities (Alternative 2), continuing costs will be incurred as a result of these institutional controls. Such events will include periodic inspections, repair, and operation and maintenance costs. These events will pertain to the hardscape cap over the lead and OCP-impacted soil (Alternative 2):

- Notifying overseeing regulatory agencies in advance of performing cap repair/maintenance;
- Using contractors with proper health and safety training to perform cap maintenance/repair if the capped soil will be disturbed;
- Conducting cap and vapor mitigation system inspections and maintenance/repair;
- Preparing reports summarizing inspections, maintenance/repair activities;
- Preparation of 5-year assessments.

6.3.3.3 Estimated Costs for Removal Action

Estimated remediation costs for implementing each alternative are calculated based on the sum of capital costs and continuing costs. Appendix A reflects the cost estimates with a 20 percent contingency for implementing the remedial alternatives.

Alternative 1: $0

Alternative 2: Estimated cost is approximately $ 423,000

Alternative 3: Estimated cost is approximately $ 392,000

6.4 REMOVAL ACTION ALTERNATIVE SELECTION

Alternative 1 is the least effective of the proposed alternatives in mitigating the threat to human health and the environment and is not considered effective or implementable.

Alternative 2 is considered effective and implementable but would require a deed restriction and may increase the project construction schedule. Alternative 2 is less cost-effective than Alternative 3.

Alternative 3 is effective and implementable, and will not significantly impact the overall project schedule. This alternative, however, has the greatest "carbon footprint". Excavation and off-haul costs of the arsenic, lead and OCP-impacted soil could increase or decrease depending on the percentage of the excavated soil requiring disposal at a Class I hazardous landfill. Our estimate of probable costs for Alternative 3 assumes 20 percent of the excavated soil may require disposal at a Class I landfill.

Based on consideration of the above factors, Alternative 3 is recommended as the removal action alternative for the Site.

SECTION 7: APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Remedial action objectives should be consistent with Applicable or Relevant and Appropriate Requirements (ARAR) (40 CFR Section 300.415). The underlying definitions are derived from the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Section 300.5). The ARARs are discussed below and are summarized in Table 2.

Applicable Requirements: Cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, remedial action, location, or other circumstance at a site.

Relevant and Appropriate Requirements: Cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a site, address problems or situations sufficiently similar to those encountered at the site that their use is well-suited to the particular site.

ARARs typically are separated into three categories as follows.

Chemical-specific ARARs: These are health-based or risk-based standards, which define the allowable limits of specific chemical compounds, found in or discharged to the environment. They can provide cleanup and discharge levels, governing the extent of site remediation. Most of the chemical-specific ARARs are for ground water used for drinking water; few are available for ambient air or soil.

Location-specific ARARs: These requirements apply to natural site features (e.g., wetlands, flood plains, endangered species) and man-made features (e.g., landfills, city zoning, and places for historical or archaeological significant). Location-specific ARARs restrict the types of remedial actions, which can be implemented based on the characteristics or location of the site.

Action-specific ARARs: These ARARs are technology-based or activity-based limitations which set performance and design restrictions. They specify permit requirements and engineering controls which must be instituted during site activities, and restrict particular activities.

Federal and state non-promulgated standards, policies, or guidance documents, and legal requirements, are not ARARs. However, according to the NCP guidance, these criteria also are

to be considered when evaluating and selecting remedial actions necessary to protect human health and the environment.

Potential chemical and action-specific ARARs for on-site soil include the following.

Regional Screening Levels (RSLs) (USEPA 2017): RSLs combine current EPA toxicity values with standard exposure factors to estimate media-specific concentrations in soil that are protective of humans over a lifetime of exposure. Concentrations exceeding RSLs do not automatically trigger a response action; however, exceeding a RSL suggests that further evaluation of the potential risk that may be posed by site contaminants is appropriate.

TTLCs/STLCs: Title 22 of the California Code of Regulations lists total threshold limit concentrations (TTLCs) and soluble threshold limit concentrations (STLCs) for classification of hazardous wastes. A waste is considered hazardous in California when laboratory results of representative samples collected from the waste indicate that contaminant levels exceed their respective TTLC or STLC.

Listing and Characteristics: The EPA uses two procedures to define wastes as hazardous, Listing and Hazardous Characteristics. The listing procedure involves identifying industries or processes that produce waste which pose hazards to human health and the environment.

The second procedure involves identifying properties or characteristics that, if exhibited by any waste, indicate a potential hazard if the waste is not properly controlled. Reactivity, toxicity, ignitability, and corrosivity are the four characteristics that must be considered when identifying a waste as hazardous.

Table 2. Potentially Applicable or Relevant and Appropriate Requirements

Standard, Requirement, Criteria, Limitation	Citation	Description	Type of ARARs (Chemical, Location, Action, or To Be Considered [TBC])
Federal			
Classification and Regulation of Hazardous Waste	42 USC* 7401-7642	Establishes criteria for the determination of hazardous waste and its regulation	Chemical/Action
Hazardous Waste Identification	40 CFR** 261.24	Establishes criteria to determine whether solid waste exhibits hazard characteristics of toxicity	Chemical
Drinking Water Standards	40 CFR 141.11-141.16 40 CFR 141.60-141.63	Establishes national primary drinking water standards	Chemical
Transport of Hazardous Waste	40 CFR 263	Standards applicable to transporters of hazardous waste	Action
Clean Air Act	42 USC 7401-7642	Emission standards from stationary and mobile sources	Chemical
Occupational Health and Safety	29 CFR 1910.120	Establishes requirements for health and safety training	Action
Toxic Substances Control Act	40 CFR 750 and 761	Establishes cleanup criteria and protocol for responding to a release of PCBs	Chemical
Health Risk Assessment	US EPA, Risk Assessment Guidance for Superfund, 1989	Guidance and framework to assess health risk	TBCs (Action)
State and Local			
Hazardous Waste Generator Requirements	22 CCR 66262.1 et seq.	Establishes standards applicable to generators of hazardous waste	Action

Standard, Requirement, Criteria, Limitation	Citation	Description	Type of ARARs (Chemical, Location, Action, or To Be Considered [TBC])
Determination of Hazardous Waste	22 CCR† 66260.1 et seq.	Establishes criteria for determining waste classification for the purposes of transportation and disposal of wastes	Chemical
Ambient Air Quality Standards	H&S‡ Sec. 39000-44071	Establishes standards for emissions of chemical vapors and dust	Chemical
Transportation of Hazardous Waste	22 CCR Chapter 13	Governs transportation of hazardous materials	Action
Drinking Water Standards	22 CCR Division 4, Chapter 14 Sec. 64401 et seq.	Establishes drinking water standards for public water supply system	Chemical
Environmental Impact Review	Public Resources Code Sections 21000-21177	Mandates environmental impact review of projects approved by governmental agencies	Action
Emission Standard	Regulation 6, Rule 40 Regulation 8	Establishes emission standard for particulate matter; and notification requirement	Chemical
Disposal of Lead in Soil	H&S Sec. 25157.8	Establishes a standard for disposal of lead to a Hazardous Waste Land Disposal Facility	Chemical
Grading Permit	Placer County	Permit required for site excavation and grading activities	Action
Stockpiling Requirements of Contaminated Soil	H&S Sec. 25123.3(a)(2)	Establishes standards for stockpiling of non-RCRA contaminated soil	Action
Occupational Health and Safety	8 CCR Sec. 1500, 2300, and 3200 et seq.	Establishes standards for working conditions and employees	Action
Hazardous Waste Transport	H&S Sec 25160	Standards applicable to transporters of hazardous waste	Action

*USC – United States Code
**CFR – Code of Federal Regulation
†CCR – Code of California Regulation
‡H&S – Health and Safety Code

SECTION 8: SOIL REMOVAL ACTION IMPLEMENTATION

This Section presents the protocols that will be followed for excavation and off-Site disposal of the arsenic, lead and OCP-impacted soil at the Site. The preliminary remedial excavation areas are shown on Figures 7A and 7B.

8.1 FIELD PREPARATION FOR REMEDIAL ACTION

8.1.1 Contractor's Licensing and Training

Work activities will be performed by a licensed hazardous materials contractor (hereinafter "Contractor") with a hazardous substance removal and remedial action certificate ("A-haz" contractor) and personnel with training in hazardous waste operations (40-hour OSHA Training). The Contractor will be required to perform several pre-field activities prior to the initiation of soil remediation activities as discussed in this section.

8.1.2 Utility Clearance

To locate public underground utilities, the Contractor will contact Underground Service Alert (USA) at least 48 hours prior to the initiation of excavation activities to clear utilities in the general area of the Site. In addition, a private utility locator also will be used to help locate utilities, if any, in the exploration areas.

8.1.3 Health and Safety Plan

All contractors will be responsible for operating in accordance with the most current requirements of Title 8, California Code of Regulations, section 5192 (8 CCR 5192) and Title 29, Code of Federal Regulations, section 1910.120 (29 CFR 1910.120), Standards for Hazardous Waste Operations and Emergency Response (HAZWOPER). On-Site personnel are responsible for operating in accordance with all applicable regulations of the Occupational Safety and Health Administration (OSHA) outlined in 8 CCR General Industry and Construction Safety Orders and 29 CFR 1910 and 29 CFR 1926, Construction Industry Standards, as well as other applicable federal, state and local laws and regulations. All personnel will operate in compliance with all California OSHA requirements. A Site Specific Health and Safety Plan (HSP) is attached as Appendix B. The HSP was prepared to establish health and safety protocols for personnel working at the Site. This HSP meets federal and State of California (OSHA) standards for hazardous waste operations discussed above.

8.1.4 Personal Protection Equipment (PPE)

Personal Protection Equipment (PPE) will be used to isolate individuals from COC and physical hazards. The minimum level of protection for workers performing excavation activities on Site will be Level D protection:

- Nitrile gloves (direct contact with impacted soil)
- Washable boots
- Safety glasses (optional)
- Hard hat
- Hearing protection (if noise levels exceed 85 dBA)
- Tyvek coveralls (direct contact with impacted soil)

Daily use of PPE and personnel monitoring will be documented by the Contractor and Cornerstone in a daily written log.

8.1.5 Site Security

The Site will be fenced and gated with lock. Access to the Site shall be limited by the Contractor and United Auburn Indian Community to authorized personnel. Site control is intended to control the potential spread of contamination from the Site. Prior to excavation activities, the Contractor will divide the Site into three zones: exclusion zone, decontamination zone, and support zone. The planned areas of excavation are identified as exclusion zones.

8.1.5.1 Exclusion Zones

Ingress to and egress from the exclusion zones (remedial excavation areas) will be controlled by the Contractor until the removal of soil exceeding Environmental Screening Criteria is complete. The exclusion zones and access corridors will be clearly defined in the field by the Contractor with a combination of construction staking, fencing, barricades, and/or caution tape. Unauthorized individuals will not be allowed within the exclusion zone during excavation activities. Temporary access corridors will be used for travel between work zones and to the

decontamination zone. The exclusion zones will remain cordoned off until removal activities are complete.

The Contractor will post signs on the perimeter fence around the Site that state:

WARNING **CONTAMINATED WORK AREA** **AUTHORIZED PERSONNEL ONLY** **Questions or Concerns, Please Call:** Client's Phone Number	**WARNING** **This Site contains chemicals known to the State of California to cause cancer or other reproductive toxicity.** **AUTHORIZED PERSONNEL ONLY** **Questions or Concerns, Please Call:** Client's Phone Number

8.1.5.2 Decontamination Zones and Procedures

Prior to the initiation of soil excavation activities, the Contractor will establish the decontamination zone(s). Decontamination procedures will be performed before leaving the work areas as part of general protocols for minimizing the physical transfer of impacted materials from the Site. Vehicles leaving the Site will be observed by Contractor and/or Cornerstone to note that appropriate decontamination and safety measures have been followed; a daily written report prepared by the Contractor will be provided to Cornerstone.

Prior to beginning soil excavation activities, decontamination zones will be established on-Site by the Contractor such that dust, debris and soil are removed from equipment, transportation vehicles and personnel leaving the work zones. The decontamination zone will be large enough to accommodate steam cleaning or pressure washing of all equipment including excavators, dozers and loaders, if necessary. However, personnel decontamination will also take place as Site personnel leave the work zones. The location and size of the decontamination zone for personnel may change as Site conditions and operations dictate.

Water used for on-Site decontamination will be collected and stored in on-Site storage containers (drums or closed-top tanks) provided by the Contractor. Wastewater will be analyzed and disposed off-Site at a permitted facility.

8.1.5.3 Support Zone/Staging Area

The support zone/staging area will be set up on-Site by the Contractor prior to starting excavation activities. This area will provide for administrative and support functions (command post, first-aid station, rest area, drinking facility, etc.) necessary to keep the field activities operating smoothly. The Contractor will provide potable water and wash facilities for the field personnel in this location.

8.2 RISK REDUCTION MEASURES

8.2.1 Dust and Erosion Control

The Contractor will utilize effective means of dust and erosion control to minimize the generation of dust and erosion associated with excavation activities, truck and vehicle traffic onto and off the Site, and the effects of ambient wind traversing exposed soil.

Work activities, such as clearing, excavation and grading operations, construction vehicle traffic on unpaved ground, and wind blowing over disturbed soil surfaces may generate dust and particulate matter whenever exposed soil surfaces are dry. The Contractor will eliminate or minimize dust emissions to the maximum extent possible. To accomplish minimal dust emissions, the Contractor will implement dust control measures in accordance with Air District rules and regulations.

An effective means of dust control will be utilized to minimize the generation of dust associated with the earthwork activities, truck traffic onto and off the Site, and the effects of ambient wind traversing exposed soil. The Contractor will be required to prepare and implement a detailed Dust Control Plan for all phases of construction that contact contaminated soil. Dust control measures utilized at the Site will include several or more of the following on an as needed basis:

- Providing equipment and staffing during normal working hours for watering of all exposed or disturbed soil surfaces sufficient to suppress dust plumes.
- Using dust suppressant additives in the water, which can be a small amount of ordinary liquid detergent.
- Covering or wetting of stockpiles of debris, soil, sand or other materials that can be blown by the wind.
- Misting or spraying water while excavating soil and loading transportation vehicles.
- Minimizing drop heights while loading/unloading excavated soil.
- For track-out prevention, a gravel pad near the Site exit will constructed for vehicle decontamination. Decontamination procedures outlined in Section 6.1.5.2 will be followed.

Any track-out on a paved public road at any location where vehicles exit the work Site will be cleaned by using wet sweeping or a HEPA filter equipped vacuum device by the end of each work day. Dry sweeping of paved roadways will be prohibited.

- Wetting inactive portions of the Site that have exposed soil surfaces or treating these areas with an approved dust suppressant.
- Suspending earth moving or other dust producing activities during periods of high winds whenever dust control measures are unable to prevent visible dust plumes.

Watering to control dust will not result in ponded water or runoff. If runoff occurs, it will be contained on-Site.

8.2.2 Air and Meteorological Monitoring

Air monitoring for the particulate matter at the Site will be performed to document worker exposures and off-Site migration of dust, during soil removal activities.

8.2.3 Perimeter Dust Monitoring

Perimeter air monitoring will be conducted at the Site to document the effectiveness of dust control measures. Prior to the beginning of soil removal activities, a windsock or anemometer will be used to monitor the wind direction at the Site and to help determine the location of monitors along the fence lines. Fence line monitoring will be conducted at three locations: one upwind and two downwind at the Site. Each dust monitor will be positioned within the breathing zone at approximately 5 feet above the ground level. Dust monitoring will be conducted daily during remedial excavation activities, and whenever personal or fence line air monitoring is performed.

- Real time monitoring of total dust (<10 µm diameter) will be conducted daily throughout the duration of the removal action during activities that may significantly disturb COC-impacted soil. The monitoring will be performed using three DataRAM PDR-1000 particulate monitors. These meters log the detected airborne dust concentrations.

- The particulate meters will be monitored by the field engineer or geologist to evaluate if excessive dust is migrating off-Site. Each time the meters are checked, the differences between the average upwind dust concentration and the average downwind concentration will be calculated.

- The DTSC recommended work zone action level is 5 milligrams per cubic meter (mg/m3). This concentration is half the 8-hour threshold limit value of 10 mg/m3 for total particulates established by the American Conference of Governmental Industrial Hygienists for occupational exposure. For perimeter dust monitoring, the calculated difference between the upwind and downwind meter will be compared to the DTSC recommended action level of 0.05 mg/m^3. Trigger levels for dust are established at one-half the action level. Exceedance of the trigger levels will require increased dust mitigation measures until the trigger levels can be achieved.

8.3 MANAGEMENT OF LEAD AND PESTICIDE-IMPACTED SOIL

8.3.1 Construction Sequence

This section presents a remedial construction sequence the Contractor will be required to follow at the Site. The sequence of activities is provided below followed by a discussion of selected tasks. It is assumed that the Inn and Annex buildings will be demolished prior to the start of the soil removal activities.

Asbestos and Lead-Based Paint Survey →
Asbestos Abatement →
Demolish Buildings →
Perform Remedial Excavation Work →

8.3.2 Excavation of COC Impacted Soil

The remedial action consists of excavating soil with COC concentrations exceeding Site cleanup goals and transportation of the excavated material to permitted off-Site facilities for disposal. The preliminary remedial excavation areas are presented on Figures 7A and 7B. Initial excavation depth of approximately 2 feet is proposed, with approximately 200 cubic yards (CY) of soil removed from the Inn/Annex building area, and approximately 1,100 CY removed from the SS-12, SS-15 and SS-16 areas. The final excavation extent and depths may vary based on confirmation sampling results.

Soil excavated from each removal area will be placed in its own temporary soil stockpile in accordance with protocol presented in Section 7.3.3.1. Each stockpile will be sampled by Cornerstone to profile the material for off-Site disposal. Following excavation, Cornerstone will collect confirmation soil samples from the excavations to evaluate if sufficient impacted soil has been removed; confirmation sampling/laboratory analyses are discussed in Section 7.4. Remedial excavation activities will be considered complete when the confirmation samples collected from the remaining in-place soil do not contain COC concentrations that exceed Site cleanup goals. The Contractor will off-haul the stockpiled material to a permitted waste disposal facility; disposal facilities and transportation routes are discussed in Section 7.6.

8.3.2.1 Stockpiling Protocol

Excavated soil will be placed top of and covered by an “impermeable” liner (6 mil) to reduce infiltration by rainwater and contamination of underlying soil. If a stockpile will remain on-site greater than 48 hours, sandbags will be placed around the stockpile to secure the plastic sheeting. While remaining on-site, stockpiles will be checked daily to verify that they are adequately covered.

8.4 CONFIRMATION SOIL SAMPLING

To document removal of soil with COC concentrations that exceed Site cleanup goals, Cornerstone will collect confirmation soil samples from the in-place soil at the base and in the sidewalls of the excavations. The base confirmation samples will be collected at an approximate frequency of one sample for every approximately 500 square feet of excavation base. Sidewall samples will be collected at an approximate frequency of at least one sample for every approximately 50 feet of sidewall, with a minimum of one sample per sidewall.

Soil removal adjacent to the Inn and Annex buildings will be performed before the buildings are demolished. Verification soil samples will be collected from the crawlspaces, where accessible, to document soil quality that will remain after the buildings are demolished.

Sidewall and bottom confirmation soil samples will not be collected from excavation sidewalls and bottoms that extend to a prior sampling location where a soil sample was previously collected and analyzed and did not contain COC concentrations above Environmental Screening Criteria.

8.4.1 Confirmation Soil Sample Locations and Depths

The confirmation sample locations will be randomly selected in the base and sidewalls of the excavations in accordance with the above-mentioned frequencies. Sidewall soil samples will be collected at mid-point of the sidewall. For example, if the excavation extends to 2 feet, a sidewall sample will be collected from an approximate depth of 1 foot. Bottom samples will be collected from the upper ½-foot of soil at the base of the excavation.

8.4.2 Soil Sampling Procedure

Soil samples will be obtained by manually scraping a 2½- by 6-inch brass sampling tube into freshly exposed soil in the excavation sidewall. Bottom samples will be obtained by manually pressing a sampling tube to a depth of approximately 6 inches. If the soil is too dense to manually press the brass sampling tube into the soil, the tube will be driven into the soil using a slide hammer or equivalent device.

The ends of the liners will be covered in Teflon film, fitted with plastic end caps, and labeled with a unique identification number. The samples will then be placed in an ice-chilled cooler and transported to a state-certified analytical laboratory with chain of custody documentation.

8.4.3 Laboratory Analyses

The confirmation soil samples collected from the former orchard area excavations will be analyzed at a state-certified laboratory for arsenic (EPA Test Method 6010B). Confirmation samples collected from near the Inn and Annex will be analyzed for lead (EPA Test Method 6010B) and OCPs (EPA Test Method 8081A). The Contractor should assume that approximately three working days will be needed to obtain the analytical results from the laboratory and for the Cornerstone to review the data.

8.4.4 Additional Excavation and Confirmation Sampling

If concentrations of the COC exceeding Site cleanup goals are detected in the confirmation soil samples, additional excavation will be performed. Cornerstone will select an approximate distance to extend the excavation boundary. This process will be repeated until the remaining concentrations detected in the in-place soil do not exceed Environmental Screening Criteria.

8.4.5 Excavation Backfilling and Delineation

Construction of the new school facility will not require importing of soil. Earthwork/grading of soil will be performed on the northern portion of the Site in the area of the future structures, parking/drive areas and athletic field. As such, the excavation areas either will be re-graded during construction or will be backfilled with on-Site soil.

Excavation depths are not expected to exceed approximately 2 feet. Prior to the start of earthwork/grading activities, for safety precautions, the excavation areas will be delineated in orange construction fencing.

8.5 PROFILING OF EXCAVATED SOIL

To profile stockpiled soil for off-Site disposal, Cornerstone will collect 4-point composite soil samples from each stockpile in random areas and depths. The number of samples and laboratory testing program will be determined based on professional judgement and/or the Contractor's selected waste disposal facility's acceptance criteria. At a minimum, the samples will be submitted to a state-certified laboratory and analyzed for arsenic, lead, and OCPs. Depending on the acceptance criteria of the Contractor's selected disposal facility, selected stockpile samples may also be analyzed for California Assessment Manual (CAM17 metals (EPA Test Methods 6000/7000), total petroleum hydrocarbons (EPA Test Method 8015), VOCs (EPA Test Method 8260), and polyaromatic hydrocarbons (EPA Test Method 8270SIM). Based on these results, selected composite samples may also be analyzed for soluble metals using Soluble Threshold Limit Concentration (STLC) and/or Toxicity Characteristic Leaching Procedure (TCLP) extraction techniques.

Cornerstone will provide the analytical results to the Contractor who will then forward the data to disposal facilities to determine the appropriate destination of the stockpiled material. Prior to off-Site disposal, additional analytical testing may be required in accordance with the requirements of the selected disposal facility. UAIC will be responsible for signing all waste profile forms and manifests.

Based on the analytical results, soil excavated from the Inn/Annex area is anticipated to require disposal as a Class I California hazardous waste; disposal at the Kettleman Hill Landfill (Class I) in Kettleman City, California, is assumed. Remaining soil is expected to be accepted for disposal as a Class II non-hazardous waste; disposal at the Ostrom Road Landfill in Wheatland, California, is assumed.

8.6 SOIL DISPOSAL

8.6.1 Loading

During loading activities, the Contractor will place heavy plastic sheeting beneath the trucks to collect any spilled soil. To avoid spreading of the contamination, after each truck is loaded and prior to moving off the plastic sheeting, the top rails, fences, tires, and all other surfaces with visible dust or soil spilled during loading will be removed by dry brushing methods at the point of loading. The collected soil on the plastic will be periodically removed to avoid the spreading of impacted soil on the truck tires.

8.6.2 Transportation Procedures

This section outlines the requirements and procedures for transportation of impacted soil to an off-Site disposal facility. The Contractor will profile the soil to determine an appropriate disposal facility. The following transportation procedures will be followed. These procedures are based on guidelines contained in the *Transportation Plan – Preparation Guidance for Site Remediation* (Cal/EPA 1994). Approximately 130 truck loads are anticipated.

The soil will be transported by a licensed transporter. The necessary documents, such as the bills of lading and/or waste manifest forms, will be completed and accompany the truck driver to

the landfill. The trucks will be loaded at the Site and appropriately covered (tarped) in accordance with Department of Transportation (DOT) regulations.

8.6.2.1 Transportation Routes

Loaded trucks will exit the Site onto Taylor Road heading north, turn right onto Penryn Road heading south, and turn left onto Boyington Road to merge into westbound Interstate 80.

Highway routes are provided for transportation of the soil to the Kettleman Hill Landfill (Class I) in Kettleman City, California and the Ostrom Road Landfill (Class II) in Wheatland, California, The Contractor shall verify these landfills accept pesticide and/or metal-containing waste. These routes are most direct and will provide the least risk of exposure to surrounding communities. The Contractor shall confirm none of the roadways selected are listed with the California Highway Patrol as prohibited for hauling hazardous waste. The trucks will attempt to avoid the major commute times and will avoid residential areas as much as possible. The following is a description of the transportation routes:

- The route to Kettleman Hills Landfill, California follows Interstate 80 west. The trucks will follow Interstate 80 west to Exit 86 for Interstate 5 South towards Los Angeles. Continue on Interstate 5 South to Exit 309 for California Route (CA-41). Turn right onto CA-41 south and follow to Old State Highway. Turn right on Old State Highway along which the landfill is located.

- The route to Ostrom Road Landfill in Wheatland, California follows Interstate 80 west. The trucks will follow Interstate 80 west to exit 106 for California Route 65 (CA-65) towards Lincoln/Marysville. The trucks will follow CA-65 North and turn right onto Main Street heading east. The trucks will make a slight right onto Spenceville Road and then turn left onto Jasper Lane heading north. Jasper Lane dead-ends into Ostrom Road. The trucks will turn right onto Ostrom Road heading east along which the landfill is located.

8.6.2.2 Emergency Service and Response

Prior to the start of transport operations, the transportation contractor's Project Manager will contact an Emergency Response Contractor (ERC). In the event of a spill, accident, or breakdown, the transport driver will stay with the truck until law enforcement, California Highway Patrol, or other assistance arrives. The driver should contact their dispatcher who will in turn contact the ERC. Also, the driver should place traffic cones around the spill and keep onlookers away from the area. The driver is not to attempt to clean up the spilled material. The ERC is responsible for contacting all appropriate outside agencies based on the knowledge of the existing conditions (e.g., law enforcement, Caltrans, RWQCB, State or County Health Departments, California Office of Emergency Services). Due to the number of variables that could impact any off-Site spillage scenario, specific spill mitigation procedures are not provided.

8.6.2.3 Training of Transportation Personnel

The selected transportation contractor will have an on-going training program for the truck drivers; such a program will be specifically required in the transportation contract. Drivers will

have: DOT required hazardous materials hauler training; and training as required by 29 CFR 1910.120(e), specifically 40 hours of off-site training, and 8-hour refresher training as required. The contractor's Site Safety Officer (SSO) will provide the transportation contractor with a copy of the HSP to allow the contractor to train the drivers regarding the hazardous characteristics of the material being transported. All training will be the responsibility of the transportation contractor.

8.6.3 Asbestos and Lead-Based Paint Survey and Building Demolition

Due to the age of the on-Site structure, building materials may contain asbestos. Prior to demolition, United Auburn Indian Community consultant will perform an asbestos and lead-based paint survey as required by local authorities and/or National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines. NESHAP guidelines require the removal of potentially friable asbestos-containing building materials (ACBMs) prior to building demolition or renovation that may disturb the ACBM.

Following completion of soil removal from the area of the Inn and Annex buildings, and completion of asbestos and lead-paint abatement, the Contractor will demolish the on-Site buildings in accordance with a demolition permit obtained from Placer County and applicable local, state and federal regulations. Measures will be taken to protect soil in soil removal areas adjacent to structures from paint that may become detached from building components during demolition. Such measures include placing plastic sheeting around the perimeter of the building, and removal of the plastic sheeting and any accumulated debris along with the demolition debris.

8.7 QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan was presented in the PEA Work Plan that was approved by DTSC. For completeness, the plan is repeated below and will be implemented during RAW soil removal activities.

To check the precision and accuracy of field and laboratory data, we will collect quality assurance and quality control (QA/QC) samples and will review QA/QC data provided by the chemical testing laboratories. This section presents the following QAQC requirements:

- Field Documentation;
- Data Quality:
- Field Duplicates;
- Equipment and Trip Blanks;
- Sample Receipt and Handling;
- Laboratory Quality Control; and
- Data Validation

8.7.1 Field Documentation

Cornerstone will be present on a part- to full-time basis during remedial excavation activities. This individual will be responsible for observing excavation and off-haul activities, monitoring health and safety measures, air monitoring, confirmation sampling, and confirming that Contractor activities are being completed in conformance with this document. As part of this

process, daily field reports documenting Site activities will be completed and made available for inspection by authorized oversight personnel for the duration of the project.

Photographs of Site activities will be taken periodically by Cornerstone to further document the remedial action implementation.

8.7.2 Data Quality

Cornerstone selected an analytical laboratory on the basis of qualifications, reputation, and appropriate certifications and licensing. Torrent Laboratory, Inc is a California Department of Health Services (DHS) and National Environmental Laboratory Accreditation Conference (NELAC) certified laboratory (Certificate # 01107CA).

8.7.3 Field QA/QC

The field QA/QC procedures will consist of field duplicate and equipment blank collection and analysis.

8.7.3.1 Field Duplicates

Field duplicate samples are two co-located samples of the same matrix, collected in the same approximate location and time, and similar overall homogeneity. Analysis of field duplicates provides a quantitative measure of the variability of the overall sampling and laboratory analysis process due to sample heterogeneity, sampling techniques, and/or analytical methods. The field duplicates will be assigned a different sample ID but will be packaged and transported in the same manner as the primary sample. For this investigation, one field duplicate soil sample will be collected from selected sampling locations.

8.7.3.2 Equipment Blank

Equipment blank samples are collected prior to sampling activities by pouring analyte free water (deionized water) over or through decontaminated field sampling equipment. Analysis of equipment blanks evaluate the adequacy of the decontamination process and assess contamination from the total sampling, sample preparation process, when decontaminated sampling equipment is used to collect samples. For this investigation, one equipment blank will be collected from the hand sampling equipment to be used for soil sampling.

8.7.4 Sample Receipt and Handling

Sample handling and documentation will be reviewed during the data quality assessment and will include evaluating chain-of-custody documentation, technical sample integrity, preservation, and technical holding times. Samples will be delivered to the analytical laboratory with proper chain-of-custody documentation. Sample cooler temperatures for soil samples submitted to Test America of Pleasanton will be recorded at the time of sample receipt. After transfer of sample custody to the laboratory, the samples will be placed in storage refrigerators, maintaining a temperature of 6° Celsius or below. The analytical testing will be performed within the technical holding times for sample preparation and analyses.

8.7.5 Laboratory Quality Control

Samples will be delivered with proper chain-of-custody documentation to a state-certified analytical laboratory. The analytical laboratory QA/QC program will include sample receipt verification, sample hold times, and the preparation and analysis of laboratory QC samples. Laboratory QC samples will include:

- Method Blanks: A method blank is a laboratory-prepared contaminant-free matrix sample that is carried through the entire sample preparation and analytical process with the analytical batch. The method blank is used to assess the existence and magnitude of contamination resulting from laboratory activities.

- Laboratory Control Samples: A laboratory control sample (LCS) is a contaminant-free matrix (i.e., same used for a method blank), spiked with known concentration(s) of target analyte(s), that is carried through the entire sample preparation and analytical process with the analytical batch. The LCS is used to assess the overall accuracy of the method.

- Matrix Spike and Matrix Spike Duplicates: A matrix spike (MS), and matrix spike duplicate (MSD), are aliquots of a sample that have been spiked with target analyte(s) of known concentration(s) during sample preparation. The impact of sample matrix on target analyte recovery (i.e. accuracy) and precision is assessed by the MS and MSD percent recovery (%R) and RPD.

- Surrogate Recoveries: A surrogate is a non-target analyte spiked during sample preparation at known concentration in every sample, including field and laboratory QC samples. Surrogate analyses are used to monitor method performance on a matrix-specific/sample-specific basis.

At a minimum, one laboratory QC sample is required per 14 days or one per 20 samples (including blanks), whichever is greater. One laboratory QC sample will be chosen at random by the laboratory for the matrix spike and matrix spike duplicate (MS/MSD) per 14 days or one per 20 samples (including blanks), whichever is greater.

8.7.6 Data Validation

To test the validity of the analytical data, Level II data validation will be performed for the analytical data obtained during the RAW implementation. Data validation is a sample-specific process implemented to determine the quality of a given data set beyond the method specification, determines any causes for non-conformance to the standard method, and verifies that the reported results are within acceptable ranges. The data evaluation will be performed by third-party consultant Laboratory Data Consultants, Inc. (LDC) in Carlsbad, California. A Level II Data Validation package will be presented in the completion report.

8.8 SOIL REMOVAL COMPLETION REPORT

After completion of the remedial action, a Soil Removal Completion Report will be prepared. The report will document that the remedial action has been performed in accordance with this document 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 (bills of lading, waste manifests);
- Health and safety and results of air monitoring.

SECTION 9: PUBLIC PARTICIPATION

The public participation requirements for the RAW process included: (1) the development of a community profile, (2) publishing a notice of the availability of the Draft RAW for a 30-day public review and comment, (3) making the Draft RAW and other supporting documents available at DTSC's office and in the local information repository, and (4) responding to public comments received on the Draft RAW and CEQA documents.

SECTION 10: CALIFORNIA ENVIRONMENTAL QUALITY ACT

The California Environmental Quality Act (CEQA) is a statute that requires State and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. In response to the passage of the National Environmental Policy Act (NEPA) in 1969, the California Legislature passed the CEQA in 1970 as a system of checks and balances for land use development and management decisions in California.

A CEQA project is a California project that has a potential for resulting in a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. CEQA applies to discretionary projects proposed to be carried out or approved by California public agencies, unless an exemption applies. Once an activity is determined as a CEQA project, the lead agency shall conduct a preliminary review to determine whether the project is exempt from CEQA.

Placer County is the CEQA lead agency for the UAIC School Project, given that the County is the public agency having principal responsibility for approving the project. The County has determined that the proposed school project is not exempt from CEQA, and has prepared an environmental impact report (EIR) to evaluate the potential physical environmental effects associated with development of the proposed project. The County has included analysis of the proposed remediation activities within the EIR, with the intent to enable DTSC, as a responsible agency, to rely upon the EIR for approval of the RAW.

SECTION 11: LIMITATIONS

This report was prepared for the sole use of United Auburn Indian Community and the Department of Toxic Substances Control. Cornerstone makes no warranty, expressed, or implied, except that our services have been performed in accordance with environmental principals generally accepted at this time and location.

SECTION 12: REFERENCES

Cornerstone Earth Group. December 22, 2016. Limited Phase II Soil Quality Evaluation., 3141 Taylor Road, Loomis, California.

Cornerstone Earth Group. June 28, 2017. Final Preliminary Endangerment Assessment Work Plan, Planned Tribal School, 3141 Taylor Road, Placer County, California.

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DTSC, 2015. *Preliminary Endangerment Assessment (PEA) Guidance Manual, Revised October 2015.*

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PSI, November 23, 2015. Report of Phase I Environmental Site Assessment, The Gathering Place, 3141 Taylor Road, Loomis, California 95650.

U.S. E.P.A, 2017. Regional Screening Levels for Chemical Contaminants at Superfund Sites, Regional Screening Levels (RSL) Summary Table, http://www.epa.gov/region9/superfund/prg/

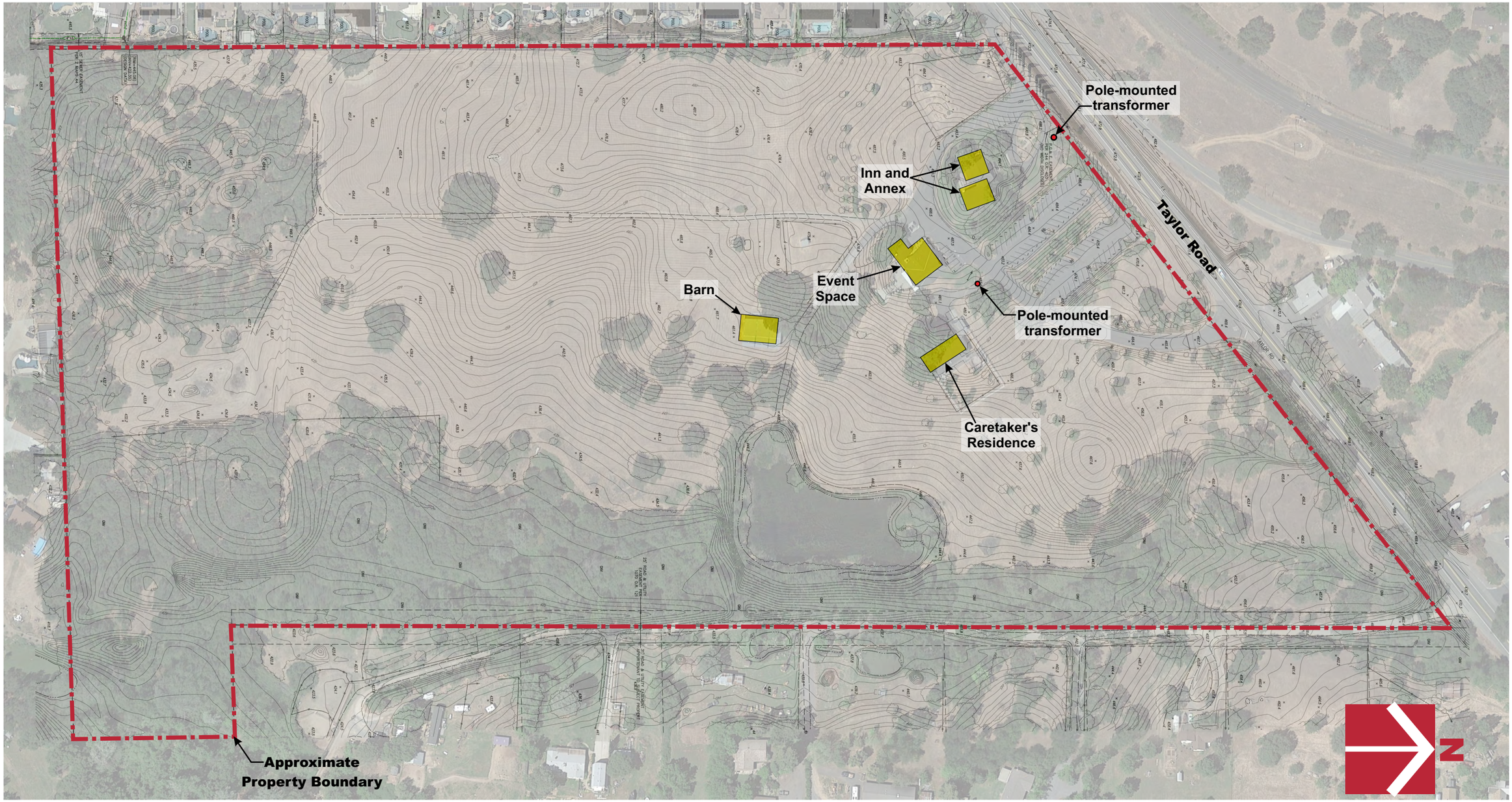
U.S. EPA. December 1993. *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*. https://www.epa.gov/superfund/non-time-critical-removal-actions

CORNERSTONE EARTH GROUP

Vicinity Map

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-4
Figure Number	Figure 1
Date	December 2017
Drawn By	RRN



Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

CORNERSTONE EARTH GROUP

Site Plan

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-4
Figure Number	Figure 2
Date	December 2017
Drawn By	RRN

Base by Google Earth, dated 7/10/2016
Overlay: Development Plan, undated

CORNERSTONE EARTH GROUP

Development Plan

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-5
Figure Number	Figure 3
Date	June 2018
Drawn By	RRN

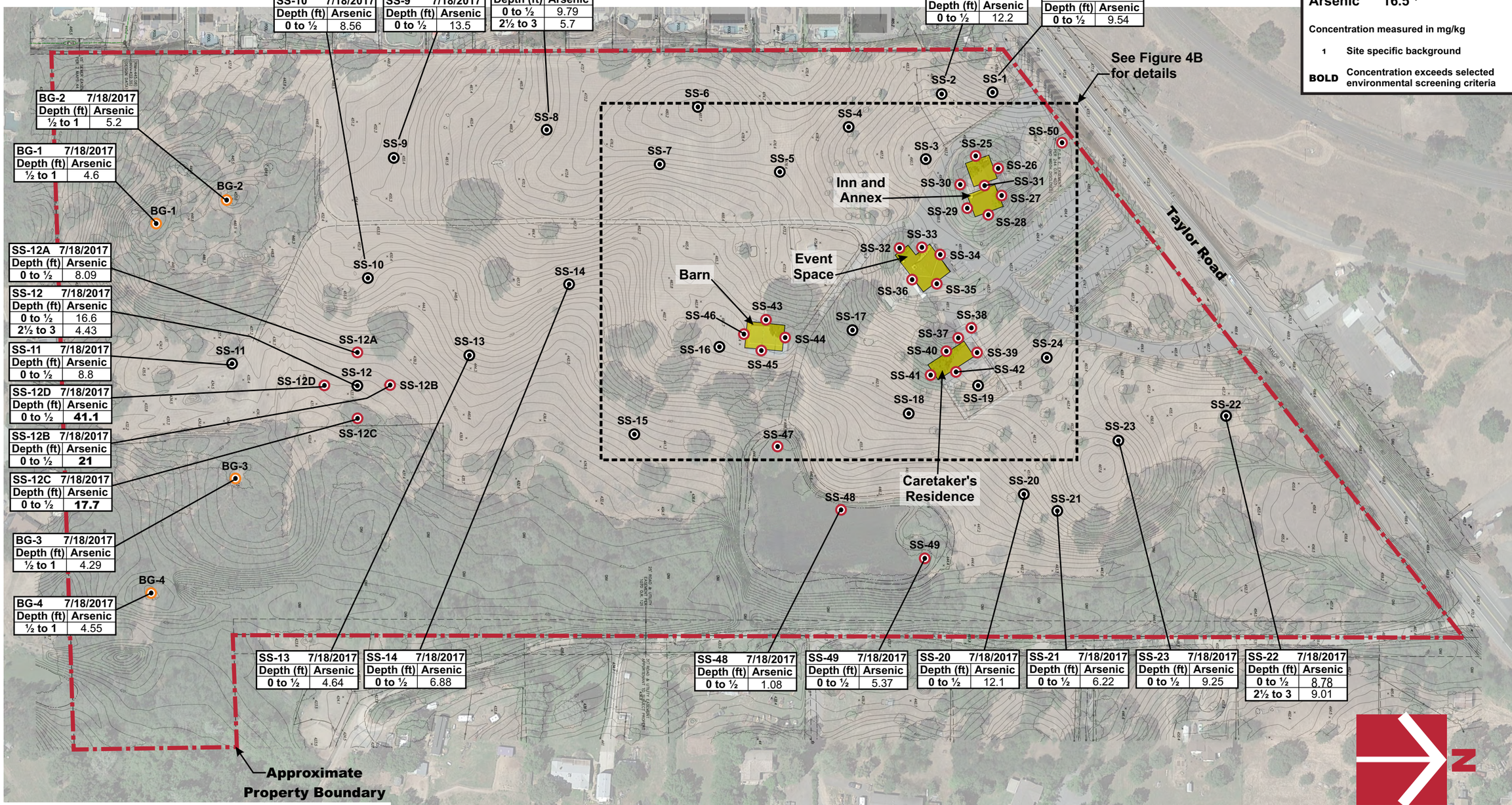
Screening Levels

Arsenic	16.5 [1]

Concentration measured in mg/kg

1 Site specific background

BOLD Concentration exceeds selected environmental screening criteria



Legend

- Approximate location of background sample (BG)
- Approximate location of soil sample (SS)
- Approximate location of soil sample (SS) (Cornerstone, 2016)

0 160 320

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

CORNERSTONE EARTH GROUP

Soil Sample Locations and Arsenic Results

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-4
Figure Number	Figure 4A
Date	December 2017
Drawn By	RRN

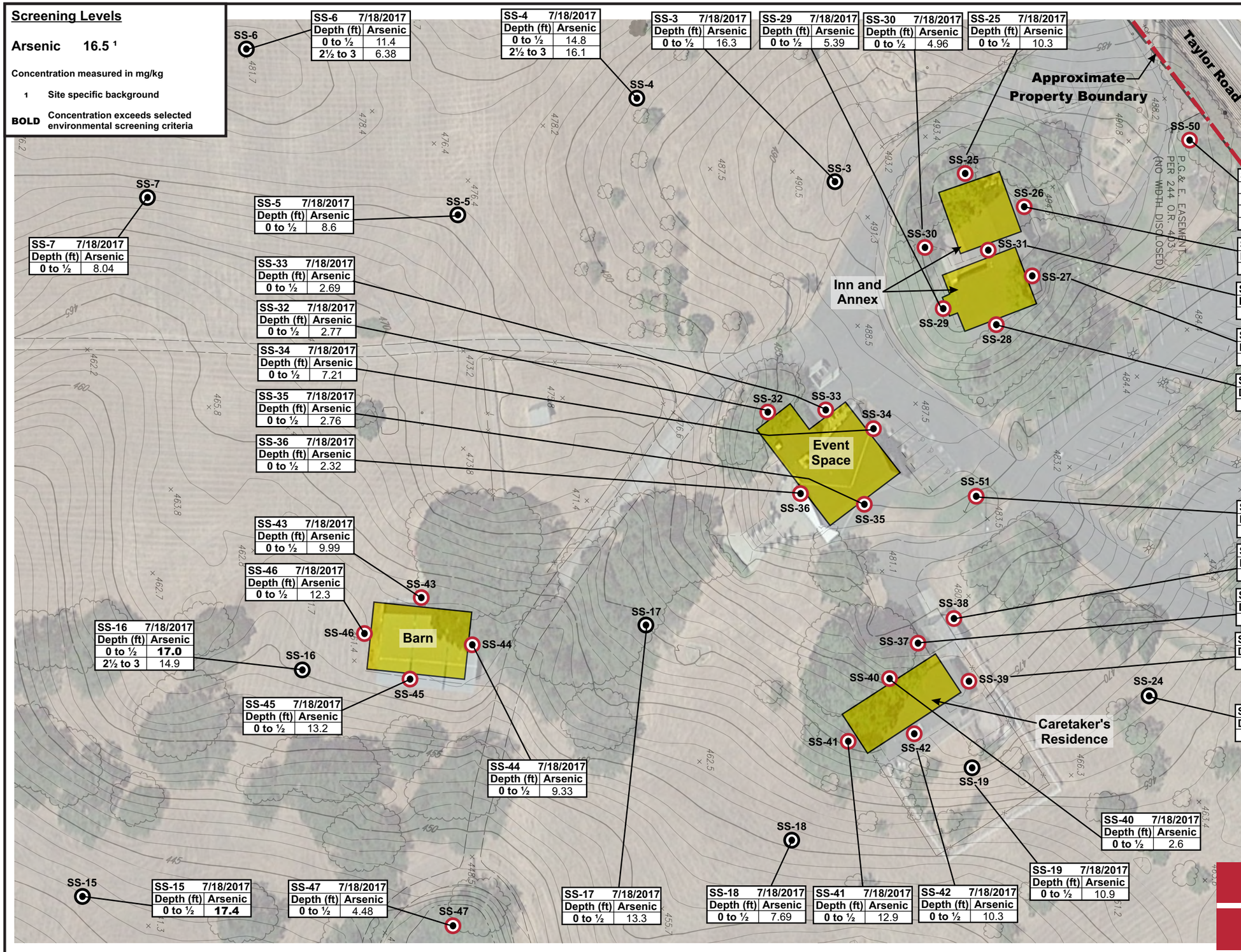
Screening Levels

Arsenic 16.5 [1]

Concentration measured in mg/kg

1 Site specific background

BOLD Concentration exceeds selected environmental screening criteria



SS-6	7/18/2017
Depth (ft)	Arsenic
0 to ½	11.4
2½ to 3	6.38

SS-4	7/18/2017
Depth (ft)	Arsenic
0 to ½	14.8
2½ to 3	16.1

SS-3	7/18/2017
Depth (ft)	Arsenic
0 to ½	16.3

SS-29	7/18/2017
Depth (ft)	Arsenic
0 to ½	5.39

SS-30	7/18/2017
Depth (ft)	Arsenic
0 to ½	4.96

SS-25	7/18/2017
Depth (ft)	Arsenic
0 to ½	10.3

SS-50	7/18/2017
Depth (ft)	Arsenic
0 to ½	---
1 to 1½	---
2 to 3	---

SS-26	7/18/2017
Depth (ft)	Arsenic
0 to ½	8.95

SS-31	7/18/2017
Depth (ft)	Arsenic
0 to ½	5.57

SS-27	7/18/2017
Depth (ft)	Arsenic
0 to ½	10.7

SS-28	7/18/2017
Depth (ft)	Arsenic
0 to ½	7.45

SS-51	7/18/2017
Depth (ft)	Arsenic
0 to ½	---

SS-38	7/18/2017
Depth (ft)	Arsenic
0 to ½	3.92

SS-37	7/18/2017
Depth (ft)	Arsenic
0 to ½	3.7

SS-39	7/18/2017
Depth (ft)	Arsenic
0 to ½	8.96

SS-24	7/18/2017
Depth (ft)	Arsenic
0 to ½	5.29

SS-40	7/18/2017
Depth (ft)	Arsenic
0 to ½	2.6

SS-19	7/18/2017
Depth (ft)	Arsenic
0 to ½	10.9

SS-42	7/18/2017
Depth (ft)	Arsenic
0 to ½	10.3

SS-41	7/18/2017
Depth (ft)	Arsenic
0 to ½	12.9

SS-18	7/18/2017
Depth (ft)	Arsenic
0 to ½	7.69

SS-17	7/18/2017
Depth (ft)	Arsenic
0 to ½	13.3

SS-7	7/18/2017
Depth (ft)	Arsenic
0 to ½	8.04

SS-5	7/18/2017
Depth (ft)	Arsenic
0 to ½	8.6

SS-33	7/18/2017
Depth (ft)	Arsenic
0 to ½	2.69

SS-32	7/18/2017
Depth (ft)	Arsenic
0 to ½	2.77

SS-34	7/18/2017
Depth (ft)	Arsenic
0 to ½	7.21

SS-35	7/18/2017
Depth (ft)	Arsenic
0 to ½	2.76

SS-36	7/18/2017
Depth (ft)	Arsenic
0 to ½	2.32

SS-43	7/18/2017
Depth (ft)	Arsenic
0 to ½	9.99

SS-46	7/18/2017
Depth (ft)	Arsenic
0 to ½	12.3

SS-16	7/18/2017
Depth (ft)	Arsenic
0 to ½	**17.0**
2½ to 3	14.9

SS-45	7/18/2017
Depth (ft)	Arsenic
0 to ½	13.2

SS-44	7/18/2017
Depth (ft)	Arsenic
0 to ½	9.33

SS-15	7/18/2017
Depth (ft)	Arsenic
0 to ½	**17.4**

SS-47	7/18/2017
Depth (ft)	Arsenic
0 to ½	4.48

Legend

Approximate location of soil sample (SS) (Cornerstone, 2016)

Approximate location of soil sample (SS)

0 60 120

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

Project Number 411-16-4

Figure Number Figure 4B

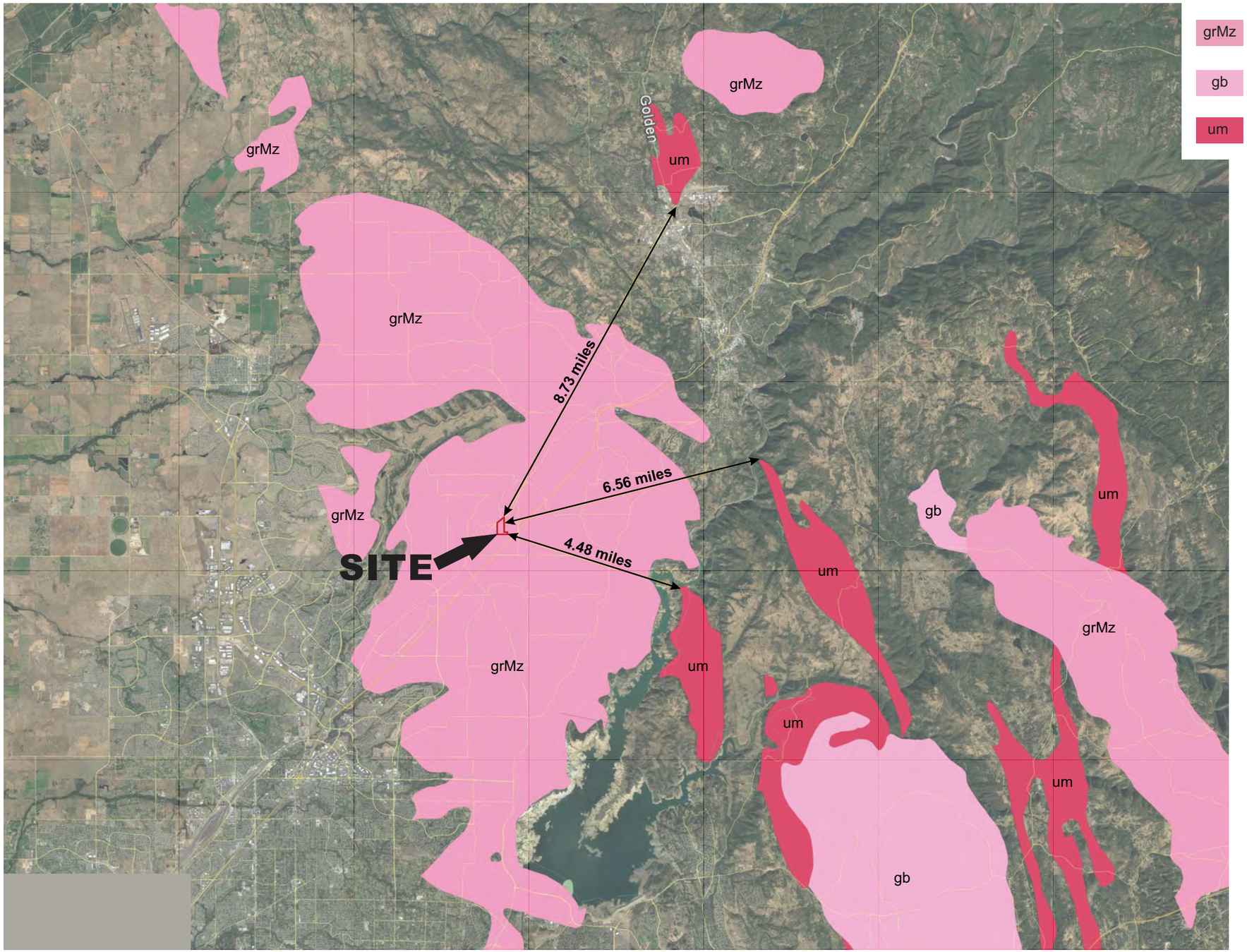
Drawn By RRN

Date December 2017

Soil Sample Locations and Arsenic Results

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

CORNERSTONE EARTH GROUP



Geologic Units

grMz	Mesozoic granite rocks (Permian to Tertiary; most Mesozoic)
gb	Ultramafic rocks, chiefly Mesozoic (Late Proterozoic to Early Jurassic)
um	Mesozoic gabbroic rocks (Triassic to Cretaceous)

N

0 14,000 28,000

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 10/25/2016

Project Number 411-16-4

Figure Number Figure 5

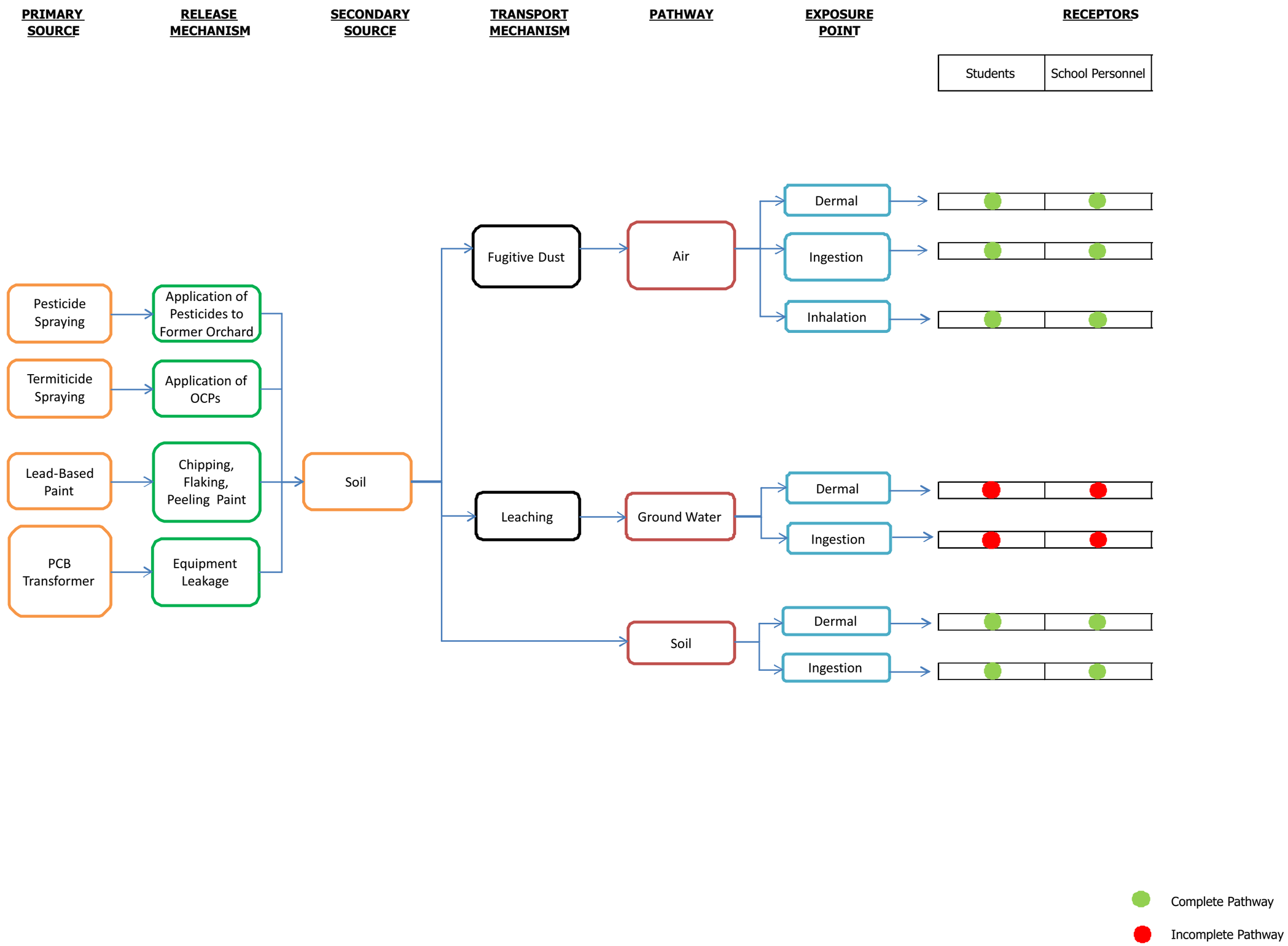
Drawn By RRN

Date December 2017

Ultramafic Map

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

CORNERSTONE EARTH GROUP



Project Number 411-16-4

Figure Number Figure 6

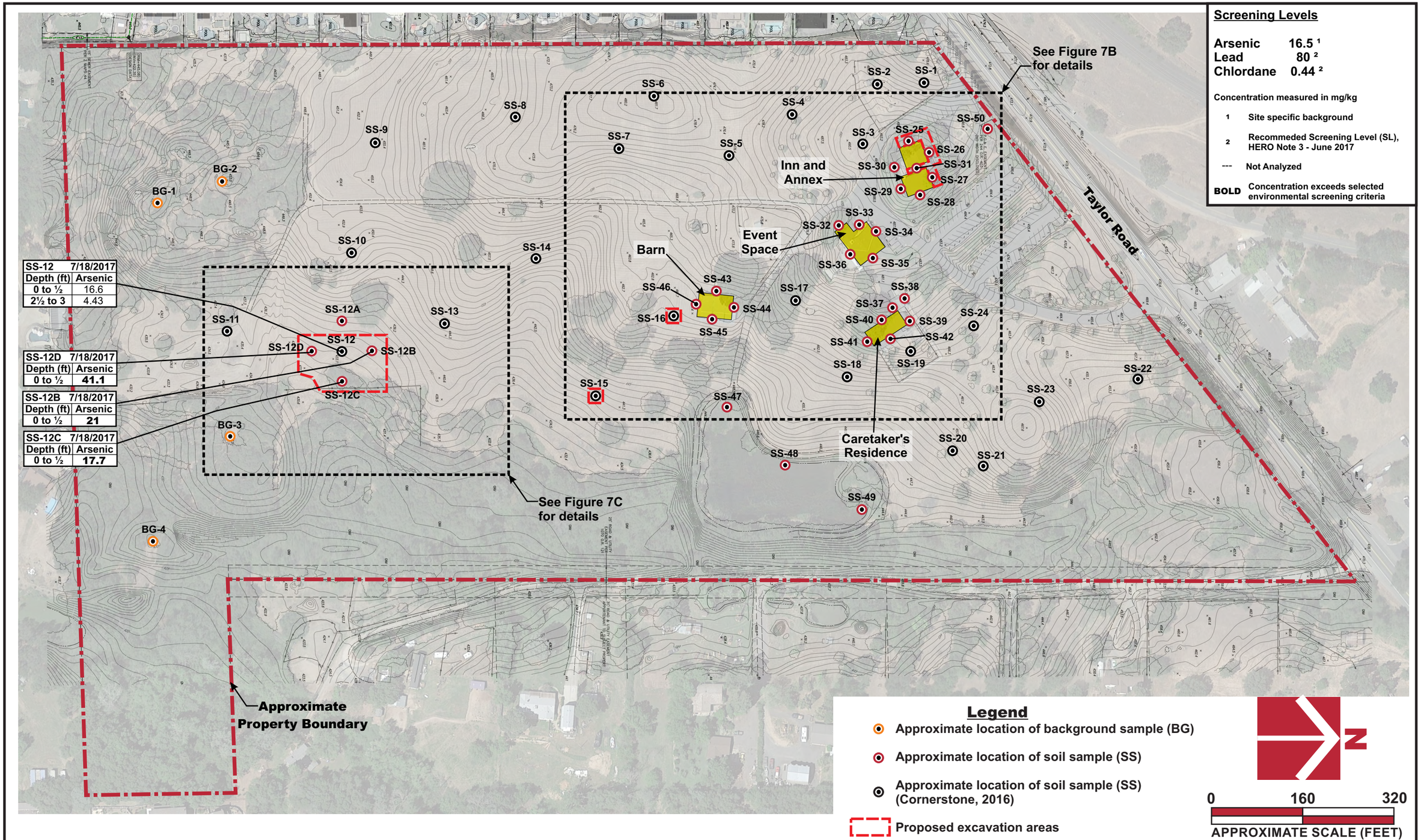
Drawn By RRN

Date December 2017

Conceptual Site Model

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

CORNERSTONE EARTH GROUP



SS-12	7/18/2017
Depth (ft)	Arsenic
0 to ½	16.6
2½ to 3	4.43

SS-12D	7/18/2017
Depth (ft)	Arsenic
0 to ½	**41.1**

SS-12B	7/18/2017
Depth (ft)	Arsenic
0 to ½	**21**

SS-12C	7/18/2017
Depth (ft)	Arsenic
0 to ½	**17.7**

Screening Levels

Arsenic	16.5 [1]
Lead	80 [2]
Chlordane	0.44 [2]

Concentration measured in mg/kg

1 Site specific background

2 Recommeded Screening Level (SL), HERO Note 3 - June 2017

--- Not Analyzed

BOLD Concentration exceeds selected environmental screening criteria

Legend

- Approximate location of background sample (BG)
- Approximate location of soil sample (SS)
- Approximate location of soil sample (SS) (Cornerstone, 2016)
- Proposed excavation areas

N

0 160 320

APPROXIMATE SCALE (FEET)

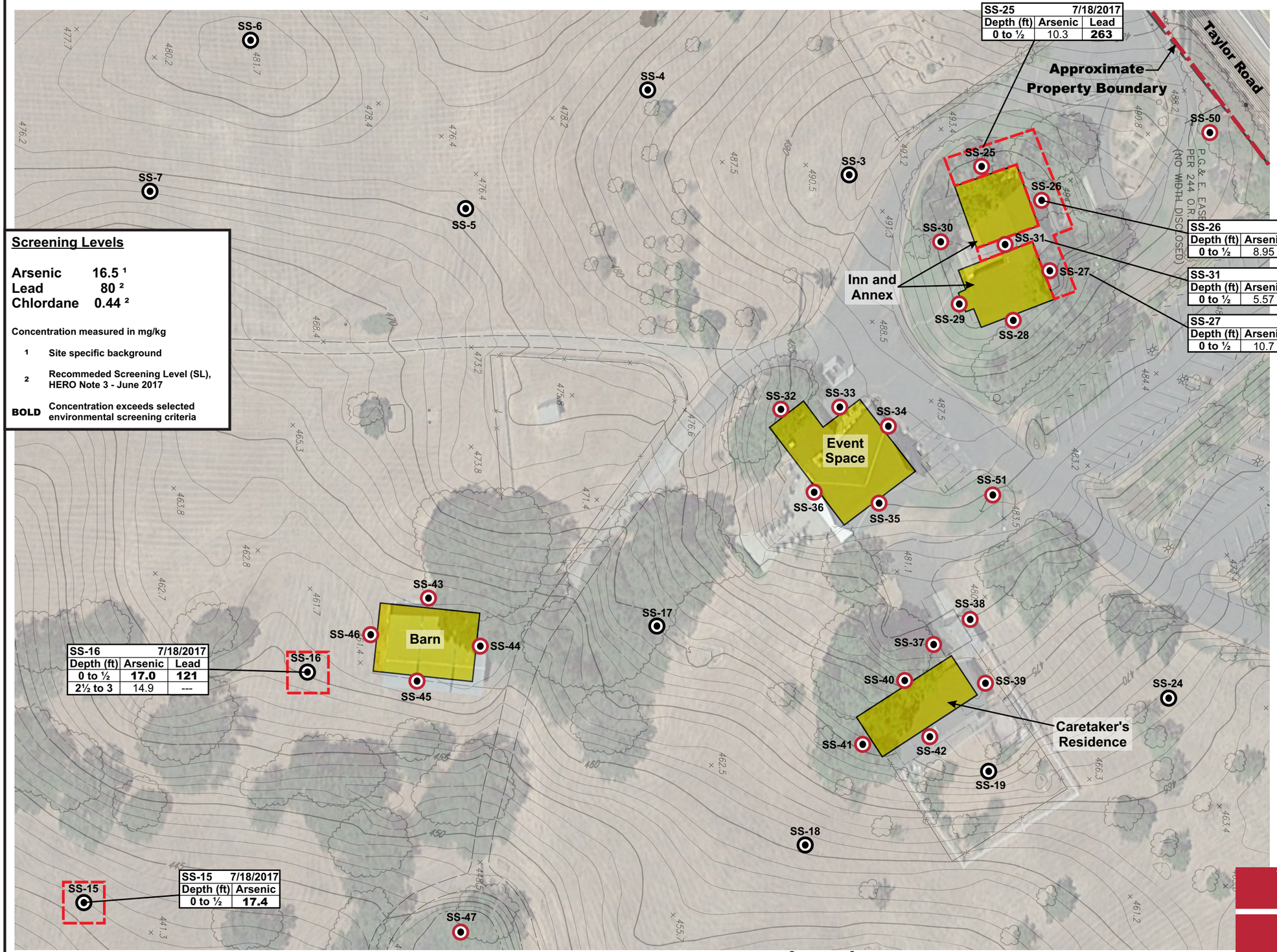
Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

CORNERSTONE EARTH GROUP

Proposed Excavation Areas

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-5
Figure Number	Figure 7A
Date	June 2018
Drawn By	RRN



SS-25	7/18/2017
Depth (ft)	Arsenic	Lead
0 to ½	10.3	**263**

SS-26	7/18/2017	
Depth (ft)	Arsenic	Lead	Chlordane
0 to ½	8.95	**260**	**1.49**

SS-31	7/18/2017	
Depth (ft)	Arsenic	Lead
0 to ½	5.57	**263**

SS-27	7/18/2017	
Depth (ft)	Arsenic	Lead
0 to ½	10.7	**87.7**

SS-16	7/18/2017	
Depth (ft)	Arsenic	Lead
0 to ½	**17.0**	**121**
2½ to 3	14.9	---

SS-15	7/18/2017
Depth (ft)	Arsenic
0 to ½	**17.4**

Screening Levels

Arsenic	16.5 [1]
Lead	80 [2]
Chlordane	0.44 [2]

Concentration measured in mg/kg

1 Site specific background

2 Recommeded Screening Level (SL), HERO Note 3 - June 2017

BOLD Concentration exceeds selected environmental screening criteria

Legend

Approximate location of soil sample (SS) (Cornerstone, 2016)

Approximate location of soil sample (SS)

Proposed excavation areas

0 60 120

APPROXIMATE SCALE (FEET)

Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

Project Number 411-16-5

Figure Number Figure 7B

Drawn By RRN

Date June 2018

Proposed Excavation Areas

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

CORNERSTONE EARTH GROUP

Screening Levels

Arsenic	16.5 [1]
Lead	80 [2]
Chlordane	0.44 [2]

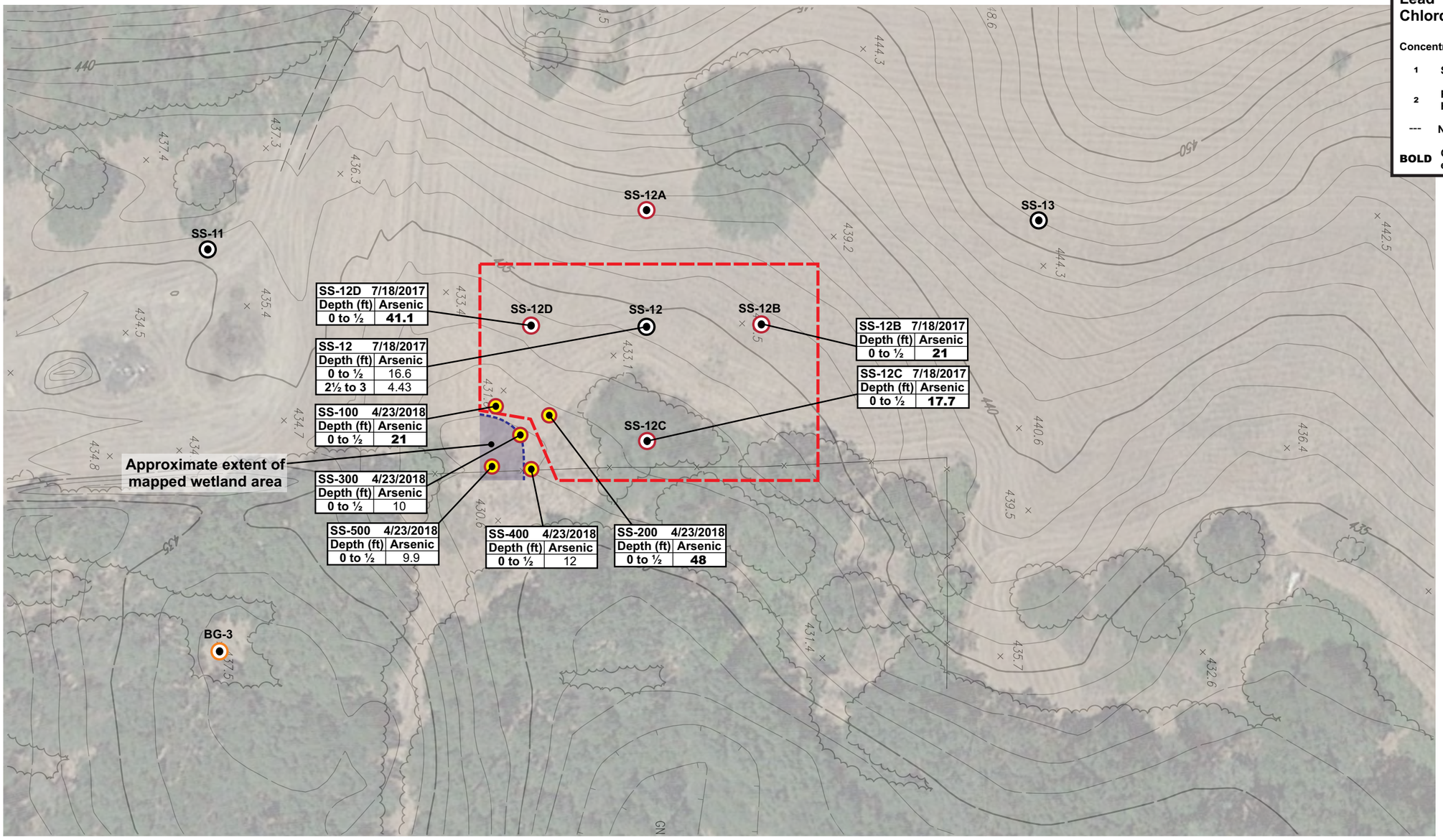
Concentration measured in mg/kg

1 Site specific background

2 Recommeded Screening Level (SL), HERO Note 3 - June 2017

--- Not Analyzed

BOLD Concentration exceeds selected environmental screening criteria



Legend

- Approximate location of proposed soil sample
- Approximate location of background sample (BG)
- Approximate location of soil sample (SS)
- Approximate location of soil sample (SS) (Cornerstone, 2016)
- Proposed excavation area

Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

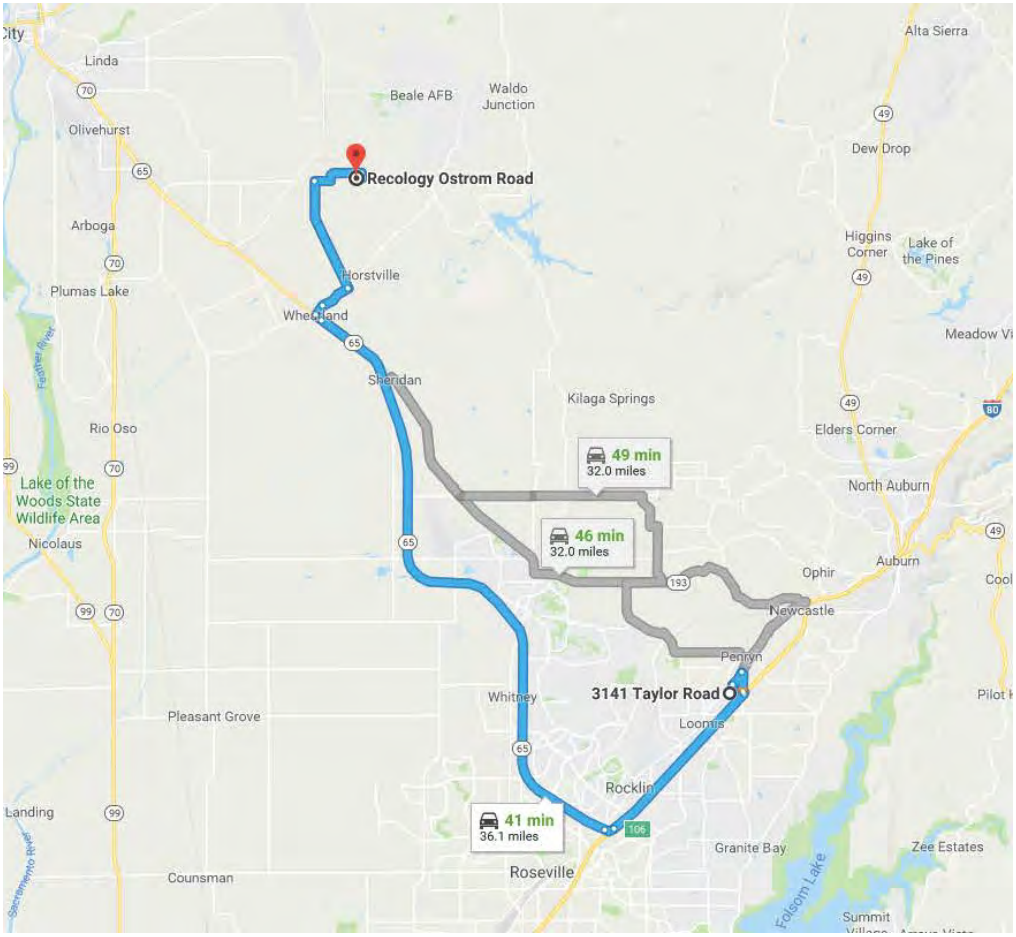
0 50 100
APPROXIMATE SCALE (FEET)

CORNERSTONE EARTH GROUP

Proposed Excavation Area

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-5
Figure Number	Figure 7C
Date	June 2018
Drawn By	RRN



3141 Taylor Rd
Loomis, CA 95650

Get on I-80 W from Taylor Rd and Penryn Rd — 4 min (1.6 mi)

1. Head north on Tumble Ln toward Taylor Rd — 0.3 mi
2. Turn right onto Taylor Rd — 0.5 mi
3. Turn right onto Penryn Rd — 0.6 mi
4. Turn left to merge onto I-80 W toward Sacramento — 0.1 mi

Take CA-65 N to State St in Yuba County — 25 min (27.4 mi)

5. Merge onto I-80 W — 6.0 mi
6. Take exit 106 for CA-65 toward Lincoln/Marysville — 0.3 mi
7. Continue onto CA-65 N — 21.0 mi

Take Jasper Ln and Ostrom Rd to your destination — 12 min (7.2 mi)

8. Turn right onto State St — 0.3 mi
9. Turn right onto Main St — 0.4 mi
10. Slight right onto Spenceville Rd — 1.0 mi
11. Turn left onto Jasper Ln — 3.7 mi
12. Turn right onto Ostrom Rd — 1.7 mi
13. Turn right at S Erle St — 0.2 mi
    Restricted usage road

Recology Ostrom Road
5900 Ostrom Rd, Wheatland, CA 95692

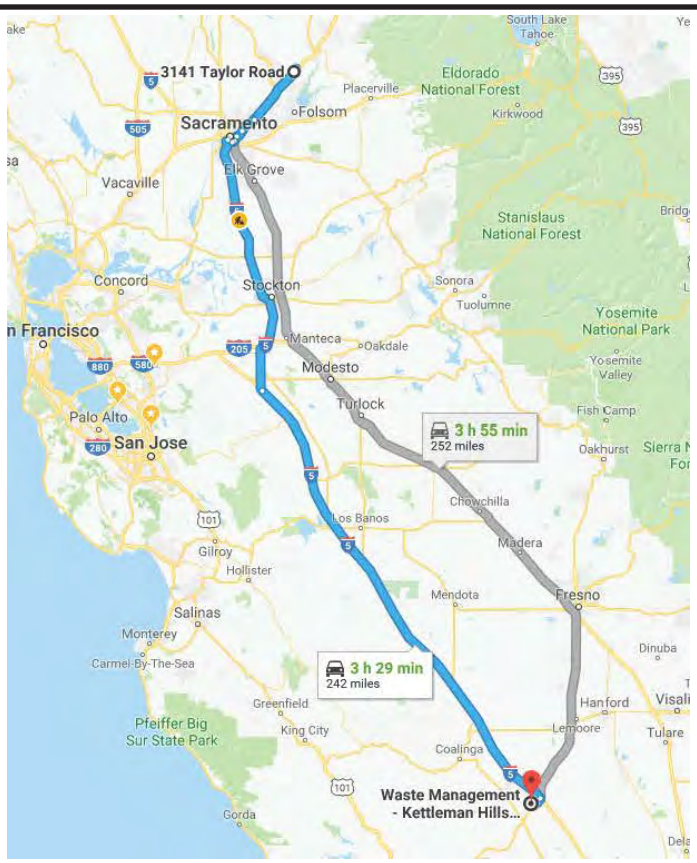
Base by Google Maps, dated 2018

CORNERSTONE EARTH GROUP

Truck Route to Recology Ostrom Road

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-4
Figure Number	Figure 8A
Date	January 2018
Drawn By	RRN



3141 Taylor Rd

Loomis, CA 95650

Get on I-80 W from Taylor Rd and Penryn Rd

4 min (1.6 mi)

1. Head north on Tumble Ln toward Taylor Rd — 0.3 mi
2. Turn right onto Taylor Rd — 0.5 mi
3. Turn right onto Penryn Rd — 0.6 mi
4. Turn left to merge onto I-80 W toward Sacramento — 0.1 mi

Take I-5 S to CA-41 S in Kings County. Take exit 309 from I-5 S

3 h 25 min (237 mi)

5. Merge onto I-80 W — 16.9 mi
6. Use the right 3 lanes to take exit 14B-95 for I-80 BUS toward Watt Ave/Sacramento/CA-99 S/Capital City Freeway — 0.2 mi
7. Continue onto I-80BUS W/Capital City Freeway (signs for Capital City Fwy/Sacramento) — 4.7 mi
8. Keep left at the fork to continue on I-80BUS W — 298 ft
9. Continue onto I-80BL — 0.2 mi
10. Continue onto I-80BUS W — 1.4 mi
11. Take exit 6A for I-80 W toward I-5/San Francisco — 0.8 mi
12. Merge onto I-305 W/I-80BUS W — 1.2 mi
13. Use the 3rd from the right lane to take exit 4A for Interstate 5 N/Interstate 5 S/State Route 99 North toward Redding/Los Angeles — 0.1 mi
14. Keep left at the fork, follow signs for Los Angeles/I-5 S and merge onto I-5 S — 72.8 mi
15. I-5 S turns slightly right and becomes I-5 S — 1.7 mi
16. Take exit 309 for CA-41 toward Kettleman City/Paso Robles — 0.3 mi

Continue on CA-41 S. Drive to Skyline Rd

6 min (3.4 mi)

17. Turn right onto CA-41 S — 2.6 mi
18. Turn right onto Old State Hwy — 0.7 mi
19. Continue onto Skyline Rd — 0.3 mi

Waste Management - Kettleman Hills Hazardous Waste Facility

35251 Skyline Rd, Kettleman City, CA 93239

Base by Google Maps, dated 2018

CORNERSTONE EARTH GROUP

Truck Route to Waste Management - Kettleman Hills Hazardous Waste Facility

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-4
Figure Number	Figure 8B
Date	January 2018
Drawn By	RRN

CORNERSTONE EARTH GROUP

DATA SUMMARY TABLES

Data Table 1. Analytical Results of Selected Soil Samples - Metals
(Concentrations in mg/kg)

Sample ID	Date	Depth (feet)	Sample Location	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Silver	Vanadium	Zinc
BG-1 (0.5-1)	7/18/2017	½-1	Undeveloped Areas Background Arsenic Concentrations	---	4.6	---	---	---	---	---	---	---	---	---	---	---	---	---
BG-2 (0.5-1)	7/18/2017	½-1		---	5.2	---	---	---	---	---	---	---	---	---	---	---	---	---
BG-3 (0.5-1)	7/18/2017	½-1		---	4.29	---	---	---	---	---	---	---	---	---	---	---	---	---
BG-4 (0.5-1)	7/18/2017	½-1		---	4.55	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-1 (0-0.5)	7/18/2017	0-½	Former Orchard Areas	0.165[J]	9.54	59.7	<0.16	0.102[J]	28.3	6.78	23.1	17.6	0.252[J]	13.6	<0.035	<0.14	30.5	39.9
SS-2 (0-0.5)	7/18/2017	0-½		0.322[J]	12.2	81.9	0.173[J]	0.156[J]	45.9	9.2	32.1	32.8	0.706[J]	19	<0.035	<0.13	46.4	68.4
SS-3 (0-0.5)	7/18/2017	0-½		0.238[J]	16.3	76.9	<0.25	<0.13	42.3	11	35.4	26.6	0.462[J]	19.9	<0.054	<0.15	50.4	53.4
SS-4 (0-0.5)	7/18/2017	0-½		0.22[J]	14.8	72.3	0.164[J]	0.105[J]	32.6	8.47	31.9	31	0.373[J]	14.4	<0.035	0.406[J]	36.4	34.7
SS-4 (2.5-3)	7/18/2017	2½-3		---	16.1	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-5 (0-0.5)	7/18/2017	0-½		0.154[J]	8.6	71.3	<0.16	<0.084	22.3	5.69	21.6	32.1	0.146[J]	10.4	<0.035	<0.099	24.3[J]	25.2
SS-6 (0-0.5)	7/18/2017	0-½		0.233[J]	11.4	79.9	<0.20	0.147[J]	34.3	8.9	29.7	31.2	0.298[J]	18.4	<0.043	<0.12	40.8	42.2
SS-6 (2.5-3)	7/18/2017	2½-3		---	6.38	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-7 (0-0.5)	7/18/2017	0-½		0.197[J]	8.04	91.3	<0.19	0.109[J]	30.7	7.79	31.1	28	0.25[J]	14.5	<0.041	<0.12	34.3	34
SS-8 (0-0.5)	7/18/2017	0-½		0.186[J]	9.79	90.7	<0.17	0.0879[J]	26.5	7.16	31.1	42.4	0.182[J]	12.7	<0.036	<0.10	27.9	29
SS-8 (2.5-3)	7/18/2017	2½-3		---	5.7	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-9 (0-0.5)	7/18/2017	0-½		0.167[J]	13.5	115	<0.22	0.124[J]	34.1	8.98	44.2	56	0.265[J]	17	<0.047	<0.13	37.9	42
SS-10 (0-0.5)	7/18/2017	0-½		0.163[J]	8.56	114	0.189[J]	0.0985[J]	40.5	10.8	38.8	24.2	0.267[J]	19.4	<0.035	<0.099	48.5	44.1
SS-11 (0-0.5)	7/18/2017	0-½		0.285[J]	8.8	108	0.164[J]	0.166[J]	24.6	7.14	18.5	21.1	0.491[J]	14.6	<0.035	<0.099	37	55.7
SS-12 (0-0.5)	7/18/2017	0-½		0.16[J]	16.6	53.5	<0.19	<0.10	20.5	5.64	12.7	53.1	<0.16	9.05	<0.042	<0.12	21.5[J]	21.5
SS-12 (2.5-3)	7/18/2017	2½-3		---	4.43	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-12A (0-0.5)	7/18/2017	0-½		---	8.09	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-12B (0-0.5)	7/18/2017	0-½		---	**21**	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-12C (0-0.5)	7/18/2017	0-½		---	**17.7**	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-12D (0-0.5)	7/18/2017	0-½		---	**41.1**	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-13 (0-0.5)	7/18/2017	0-½		<0.12	4.64	70	<0.16	<0.084	20.9	5.78	18.8	13.1	<0.13	10	<0.035	<0.098	25	23.1
SS-14 (0-0.5)	7/18/2017	0-½		0.188[J]	6.88	86.1	<0.16	0.115[J]	28.6	6.99	28.3	30.2	0.212[J]	12.9	<0.035	<0.098	29.1	33.3
SS-15 (0-0.5)	7/18/2017	0-½		0.462[J]	17.4	128	0.326[J]	0.183[J]	50.8	12.7	28.4	42.9	0.668[J]	24.1	<0.050	<0.14	61.7	69.7
SS-16 (0-0.5)	7/18/2017	0-½		0.468[J]	17	43.3	0.193[J]	0.15[J]	92.1	19.5	60.2	**121**	0.416[J]	55.8	<0.037	<0.11	144	99.2
SS-16 (2.5-3)	7/18/2017	2½-3		---	14.9	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-17 (0-0.5)	7/18/2017	0-½		0.35[J]	13.3	103	0.188[J]	0.17[J]	50.1	10	34.9	35.1	0.77[J]	20.7	<0.038	<0.11	50.5	76.8
SS-18 (0-0.5)	7/18/2017	0-½		0.182[J]	7.69	54.9	0.161	<0.084	35.3	8.46	19.5	12.2	0.314[J]	13	<0.035	<0.099	39.9	43.3
SS-19 (0-0.5)	7/18/2017	0-½		0.295[J]	10.9	78.2	0.24[J]	0.0975[J]	34.7	8	20.5	15.4	0.418[J]	18.2	<0.035	<0.099	43.2	89.7
SS-20 (0-0.5)	7/18/2017	0-½		0.257[J]	12.1	78.4	<0.18	0.124J	34.5	7.94	38.4	58	0.223[J]	13.5	<0.039	<0.11	32.1	45.5
SS-21 (0-0.5)	7/18/2017	0-½		0.131[J]	6.22	40.1	<0.16	<0.084	26.9	6.41	26.2	19.9	<0.13	10.5	<0.035	<0.099	26.1	25.2
SS-22 (0-0.5)	7/18/2017	0-½		0.166[J]	8.78	51.7	<0.16	0.086	26.1	8.08	15.7	28.6	0.168[J]	9.99	<0.036	<0.10	25.3[J]	30.6
SS-22 (2.5-3)	7/18/2017	2½-3		---	9.01	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-23 (0-0.5)	7/18/2017	0-½		0.163[J]	9.25	61.1	<0.19	<0.099	41.8	10.6	33.5	13.8	0.264[J]	16.2	<0.041	<0.12	41.5	41.6
SS-24 (0-0.5)	7/18/2017	0-½		0.143[J]	5.29	50.1	<0.16	<0.084	32.6	6.36	26.7	11.8	0.132[J]	12	<0.035	<0.098	29.2	31.7
SS-25 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Inn and Annex Buildings	0.876[J]	10.3	76.9	<0.19	0.26[J]	34.2	7.24	55.5	**263**	0.228[J]	13.5	<0.041	<0.12	30.7	143
SS-26 (0-0.5)	7/18/2017	0-½		0.363[J]	8.95	93.5	<0.18	0.331[J]	40	7.23	61.7	**260**	0.292[J]	17.1	<0.040	<0.11	33.2	208
SS-27 (0-0.5)	7/18/2017	0-½		0.489[J]	10.7	95.9	<0.27	0.557[J]	43.7	9.2	31.4	**87.7**	0.341[J]	20.5	<0.058	<0.17	38.1[J]	132
SS-28 (0-0.5)	7/18/2017	0-½		<0.20	7.45	64.1	<0.27	<0.14	24.5	6.19	22.1	46.2	1.99	14	<0.058	<0.16	30.4[J]	229
SS-29 (0-0.5)	7/18/2017	0-½		0.3[J]	5.39	77	<0.28	<0.15	34.5	8.02	18.5	29.1	<0.23	31.7	<0.061	<0.17	28.8[J]	83
SS-30 (0-0.5)	7/18/2017	0-½		0.31[J]	4.96	45.1	<0.16	0.11[J]	16.6	4.14	18.1	22.8	<0.13	8.24	<0.036	<0.10	17.4[J]	218
SS-31 (0-0.5)	7/18/2017	0-½		0.198[J]	5.57	65.8	<0.24	0.235[J]	25	6.5	25.1	**263**	<0.20	15.3	<0.052	<0.15	22.3[J]	234
SS-32 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Event Space	<0.15	2.77	42.9	<0.19	<0.10	22.8	7.51	19.3	3.16	<0.16	13.4	<0.042	<0.12	25.8[J]	29.7
SS-33 (0-0.5)	7/18/2017	0-½		<0.14	2.69	31.9	<0.18	<0.096	20.8	4.98	17.1	3.96	<0.15	11.2	<0.040	<0.11	21.9[J]	37.4
SS-34 (0-0.5)	7/18/2017	0-½		<0.13	7.21	38.5	<0.17	<0.089	15.2	3.56	10.7	32.8	<0.14	7.56	<0.037	<0.10	14.5[J]	21.7
SS-35 (0-0.5)	7/18/2017	0-½		<0.14	2.76	25.1	<0.19	<0.10	15.4	3.89	11.7	8.39	<0.16	7.72	<0.041	<0.12	15.5[J]	33.8
SS-36 (0-0.5)	7/18/2017	0-½		0.27[J]	2.32	40	<0.22	<0.12	13.6	3.23	9.68	6.91	<0.18	6.65[J]	<0.048	<0.14	12.6[J]	32.9
SS-37 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Caretakers Residence	0.237[J]	3.7	35.4	<0.23	0.472[J]	16.5	4.31	101	12.9	<0.19	8.58	<0.050	<0.14	22.4[J]	160
SS-38 (0-0.5)	7/18/2017	0-½		<0.13	3.92	35.4	<0.17	0.622[J]	20.5	4.94	21.3	22.7	<0.14	9.29	<0.037	<0.11	22.0[J]	189
SS-39 (0-0.5)	7/18/2017	0-½		0.405[J]	8.96	42.6	0.217[J]	0.0941[J]	14.4	3.64	13.3	10.4	0.254[J]	10.3	0.131[J]	<0.11	20.7[J]	37
SS-40 (0-0.5)	7/18/2017	0-½		<0.13	2.6	28.1	<0.17	<0.091	15.3	3.56	12.8	9.29	<0.14	7.9	<0.038	<0.11	15.3[J]	49
SS-41 (0-0.5)	7/18/2017	0-½		0.652[J]	12.9	99.5	0.231[J]	0.239[J]	51.4	10.5	39.7	49.2	0.434[J]	21.8	<0.041	0.12[J]	51.3	122
SS-42 (0-0.5)	7/18/2017	0-½		1.02[J]	10.3	68.7	<0.22	<0.12	43.4	8.06	38	33.2	0.374[J]	18.9	<0.048	<0.14	42.1	63.6
SS-43 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Barn	0.192[J]	9.99	65.4	0.196[J]	0.14[J]	46.9	8.41	23.3	8.56	0.339[J]	21.4	<0.042	<0.12	51.5	276
SS-44 (0-0.5)	7/18/2017	0-½		0.445[J]	9.33	63.9	<0.27	0.347[J]	72.3	7.48	31.6	38.1	2.55	35.4	<0.059	<0.17	35.5[J]	136
SS-45 (0-0.5)	7/18/2017	0-½		0.224[J]	13.2	58.8	0.195[J]	0.154[J]	39.9	12.4	20.3	19.1	0.34[J]	16.7	<0.037	<0.11	49.8	206
SS-46 (0-0.5)	7/18/2017	0-½		0.379[J]	12.3	71.1	0.198[J]	0.125[J]	46.4	8.76	24.5	14.9	0.456[J]	18.8	<0.035	<0.099	53.8	75.4
SS-47 (0-0.5)	7/18/2017	0-½	Pond Sediment	<0.31	4.48	24.8	<0.41	<0.21	19.7	6.16	17.8	11.2	0.429[J]	10.1[J]	<0.088	<0.25	14.5J	23.1
SS-48 (0-0.5)	7/18/2017	0-½		<0.16	1.08[J]	7.64	<0.22	<0.11	6.99	0.793[J]	3.5	1.36	<0.18	2.72[J]	<0.047	<0.13	3.69[J]	4.9
SS-49 (0-0.5)	7/18/2017	0-½		<0.18	5.37	37.6	<0.24	<0.13	37.4	7.49	27.2	3.45	<0.20	16.5	<0.052	<0.15	37.8	35.2
SS-50 (0-0.5)	7/18/2017	0-½	On-Site Transformers	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-50 (1-1.5)	7/18/2017	1-1½		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-50 (2-3)	7/18/2017	2-3		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-51 (0-0.5)	9/7/2017	0-½		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-51 (1 - 1.5)	9/7/2017	1-1½		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-101 (0-0.5)	7/18/2017	0-½	SS-47 Duplicate	<0.12	3.35	24.8	<0.16	<0.084	19.1	4.19	13.3	5.33	<0.13	9.8	<0.035	<0.14	21.3[J]	20.3
SS-102 (0-0.5)	7/18/2017	0-½	SS-28 Duplicate	0.356[J]	8.49	87.5	0.172[J]	0.165[J]	23.7	6.07	22.9	38.9	0.846[J]	13.8	<0.035	0.25[J]	40.7	112
Screening Level				31	17.5	15,000	15	5.2	NE	23	3,100	80	390	490	390	390	390	23,000
Basis				RSL[1]	BG[2]	RSL[1]	DTSC-SL[3]	DTSC-SL[3]	NE	RSL[1]	RSL[1]	DTSC-SL[3]	RSL[1]	DTSC-SL[3]	RSL[1]	RSL[1]	RSL[1]	RSL[1]
Bradford, 1996 [a]	Background Range			0.15 to 1.95	0.6 to 11	133 to 1,400	0.25 to 2.7	0.05 to 1.7	23 to 1,579	2.7 to 46.9	9.1 to 96.4	12.4 to 97.1	0.1 to 9.6	9 to 509	0.015 to 0.43	0.1 to 8.3	39 to 288	88 to 236
	Upper Quartile			0.73	4.7	625	1.53	0.44	115	18.3	36.6	26.7	1.4	56	0.05	0.53	134	170
LBNL, 2009 [b]	99th Percentile			<6	28	410	1	5.6	120	25	63	43	4.8	272	4.9	2.9	90	140
	95% Upper Tolerance Limit (UTL)			5.5	19.1	323.6	1	2.7	99.6	22.2	69.4	16.1	7.4	119.8	5.6	1.8	74.3	106.1

1 Regional Screening Level (RSL), USEPA Region 9 - June 2017.
2 Site-Specific background (see Section 6.1)
3 Recommended Screening Level (SL), HERO Note 3 - June 2017
a Bradford, et. al. March 1996. Background Concentrations of Trace and Major Elements in California Soils.
b LBNL, 2009. Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory.
< Not detected at or above laboratory reporting limit
NE Not Established
--- Not Analyzed
BOLD Concentration exceeds selected environmental screening criteria

Data Table 2. Analytical Results of Selected Soil Samples - OCPs and PCBs
(Concentrations in mg/kg)

Sample ID	Date	Depth (feet)	Sample Location	4,4´-DDD	4,4´-DDE	4,4´-DDT	DDT Total	alpha-Chlordane	gamma-Chlordane	Chlordane	Dieldrin	Heptachlor	Heptachlor epoxide	PCBs
BG-1 (0.5-1)	7/18/2017	½-1	Undeveloped Areas for Background Arsenic Concentrations	---	---	---	---	---		---	---	---	---	---
BG-2 (0.5-1)	7/18/2017	½-1		---	---	---	---	---		---	---	---	---	---
BG-3 (0.5-1)	7/18/2017	½-1		---	---	---	---	---		---	---	---	---	---
BG-4 (0.5-1)	7/18/2017	½-1		---	---	---	---	---		---	---	---	---	---
SS-1 (0-0.5)	12/16/2016	0-½	Former Orchard Areas	<0.0023	0.14	0.0201	0.1601	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-2 (0-0.5)	12/16/2016	0-½		<0.0057	0.0291	0.0117[J]	0.0291	<0.0017	<0.0016	<0.021	<0.0015	<0.0011	<0.00078	---
SS-3 (0-0.5)	12/16/2016	0-½		<0.0023	0.0112	0.00458[J]	0.0112	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-4 (0-0.5)	12/16/2016	0-½		<0.002	0.0456	0.0106	0.0562	<0.002	<0.0016	<0.02	<0.002	<0.002	<0.002	---
SS-4 (2.5-3)	7/18/2017	2½-3		---	---	---	---	---	---	---	---	---	---	---
SS-5 (0-0.5)	12/16/2016	0-½		<0.0023	0.14	0.0167	0.1567	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-6 (0-0.5)	12/16/2016	0-½		<0.002	0.043	0.0194	0.0624	<0.002	<0.0016	<0.02	<0.002	<0.002	<0.002	---
SS-6 (2.5-3)	7/18/2017	2½-3		---	---	---	---	---	---	---	---	---	---	---
SS-7 (0-0.5)	12/16/2016	0-½		<0.0023	0.426	0.0971	0.5231	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-8 (0-0.5)	12/16/2016	0-½		<0.0023	0.124	0.0265	0.1505	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-8 (2.5-3)	7/18/2017	2½-3		---	---	---	---	---	---	---	---	---	---	---
SS-9 (0-0.5)	12/16/2016	0-½		<0.0023	0.444	0.0623	0.5063	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-10 (0-0.5)	12/16/2016	0-½		<0.0023	0.0937	0.0238	0.1175	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-11 (0-0.5)	12/16/2016	0-½		<0.002	0.00335	<0.002	0.00335	<0.002	<0.0016	<0.02	<0.002	<0.002	<0.002	---
SS-12A (0-0.5)	12/16/2016	0-½		---	---	---	---	---	---	---	---	---	---	---
SS-12B (0-0.5)	12/16/2016	0-½		---	---	---	---	---	---	---	---	---	---	---
SS-12C (0-0.5)	12/16/2016	0-½		---	---	---	---	---	---	---	---	---	---	---
SS-12D (0-0.5)	12/16/2016	0-½		---	---	---	---	---	---	---	---	---	---	---
SS-12 (0-0.5)	12/16/2016	0-½		<0.02	0.398	0.138	0.536	<0.02	<0.0016	<0.2	<0.02	<0.02	<0.02	---
SS-12 (2.5-3)	7/18/2017	2½-3		---	---	---	---	---	---	---	---	---	---	---
SS-13 (0-0.5)	12/16/2016	0-½		<0.0017	0.0643	0.0146	0.0789	<0.00052	<0.00049	<0.0063	<0.00044	<0.00032	<0.00023	---
SS-14 (0-0.5)	12/16/2016	0-½		0.0186[J]	0.522	0.106	0.628	<0.0017	<0.0016	<0.021	<0.0015	<0.0011	<0.00078	---
SS-15 (0-0.5)	12/16/2016	0-½		0.00694	0.0624[J]	0.00694[J]	0.00694	<0.0017	<0.0016	<0.021	<0.0015	<0.0011	<0.00078	---
SS-16 (0-0.5)	12/16/2016	0-½		<0.0023	0.315	0.0434	0.3584	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-16 (2.5-3)	7/18/2017	2½-3		---	---	---	---	---	---	---	---	---	---	---
SS-17 (0-0.5)	12/16/2016	0-½		<0.0057	0.15	0.0339	0.1839	<0.0017	<0.0016	<0.021	<0.0015	<0.0011	<0.00078	---
SS-18 (0-0.5)	12/16/2016	0-½		<0.0023	0.013	<0.0023	0.013	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-19 (0-0.5)	12/16/2016	0-½		<0.002	0.0112	0.00772	0.01892	<0.00017	<0.0016	<0.0021	<0.00015	<0.00011	<0.000078	---
SS-20 (0-0.5)	12/16/2016	0-½		<0.0023	0.0997	0.0152	0.1149	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-21 (0-0.5)	12/16/2016	0-½		<0.0023	0.0678	0.0114	0.0792	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-22 (0-0.5)	12/16/2016	0-½		<0.0023	0.259	0.0579	0.3169	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-22 (2.5-3)	7/18/2017	2½-3		---	---	---	---	---	---	---	---	---	---	---
SS-23 (0-0.5)	12/16/2016	0-½		<0.0023	0.0228	0.0105	0.0333	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-24 (0-0.5)	12/16/2016	0-½		<0.0023	0.0368	0.0156	0.0524	<0.00069	<0.00065	<0.0084	<0.00059	<0.00042	<0.00031	---
SS-25 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Inn and Annex Buildings	<0.002	0.122	0.0772	0.1992	0.0194	0.0159	0.304	<0.00052	<0.00037	0.00376[J]	ND
SS-26 (0-0.5)	7/18/2017	0-½		<0.0019	0.161	0.161	0.322	0.147	0.121	**1.49**	<0.00051	0.003[J]	0.00621[J]	ND
SS-27 (0-0.5)	7/18/2017	0-½		<0.0029	0.167	0.136	0.303	0.0291	0.0218	0.373	<0.00075	0.0053[J]	<0.0004	ND
SS-28 (0-0.5)	7/18/2017	0-½		0.00429[J]	0.0996	0.0242	0.12809	<0.00087	<0.00082	<0.011	<0.00075	<0.00053	<0.00039	ND
SS-29 (0-0.5)	7/18/2017	0-½		<0.003	0.0407	0.0121	0.0528	<0.00092	<0.00087	<0.011	<0.00079	<0.00056	<0.00041	ND
SS-30 (0-0.5)	7/18/2017	0-½		0.009	0.0828	0.0304	0.1222	<0.00053	<0.00050	<0.0065	<0.00046	<0.00032	<0.00024	ND
SS-31 (0-0.5)	7/18/2017	0-½		<0.0026	0.219	0.267	0.486	0.0612	0.0588	<0.0096	<0.00067	0.00786[J]	<0.00035	ND
SS-32 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Event Space	<0.0021	0.0116	0.0091	0.0091	<0.00063	<0.0006	<0.0077	<0.00054	<0.00038	<0.00029	ND
SS-33 (0-0.5)	7/18/2017	0-½		<0.0019	0.0118	0.0134	0.0252	<0.0006	<0.00056	<0.0073	<0.00051	<0.00036	<0.00027	ND
SS-34 (0-0.5)	7/18/2017	0-½		<0.0018	0.121	0.0507	0.1717	<0.00055	<0.00052	<0.0067	<0.00047	<0.00033	<0.00025	ND
SS-35 (0-0.5)	7/18/2017	0-½		<0.002	0.041	0.0162	0.0572	<0.00062	<0.00059	<0.0076	<0.00053	<0.00038	<0.00028	ND
SS-36 (0-0.5)	7/18/2017	0-½		<0.0023	0.0372	0.00968	0.04688	<0.00072	<0.00067	<0.0087	<0.00061	<0.00043	<0.00032	ND
SS-37 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Caretakers Residence	<0.0025	0.0178	0.00989	0.02769	0.0217	0.0166	0.232	<0.00065	<0.00046	<0.00034	ND
SS-38 (0-0.5)	7/18/2017	0-½		<0.0018	0.0463	0.0398	0.0861	0.00299[J]	0.00271[J]	0.093	<0.00048	<0.00034	<0.00025	ND
SS-39 (0-0.5)	7/18/2017	0-½		<0.0019	0.0124	0.0138	0.0262	0.00154[J]	0.00140[J]	0.115	0.00149[J]	<0.00035	<0.00026	ND
SS-40 (0-0.5)	7/18/2017	0-½		<0.0018	0.00545[J]	0.007	0.01245	0.0182	0.0146	0.12	<0.00048	<0.00034	<0.00026	ND
SS-41 (0-0.5)	7/18/2017	0-½		<0.002	0.034	0.0252	0.0592	0.00724	0.00773	0.157	<0.00053	<0.00038	<0.00028	ND
SS-42 (0-0.5)	7/18/2017	0-½		<0.0024	0.0453	0.0558	0.1011	0.00151[J]	0.00207[J]	0.0507[J]	<0.00062	<0.00044	<0.00033	ND
SS-43 (0-0.5)	7/18/2017	0-½	Exterior Perimeter of Barn	<0.0021	0.0218	0.0158	0.0376	<0.00063	<0.0006	<0.0077	<0.00054	<0.00038	<0.00029	---
SS-44 (0-0.5)	7/18/2017	0-½		<0.0029	0.25	0.0556	0.3056	<0.00089	<0.00084	<0.011	<0.00076	<0.00054	<0.0004	---
SS-45 (0-0.5)	7/18/2017	0-½		<0.0018	0.114	0.0444	0.1584	<0.00056	<0.00053	<0.0068	<0.00048	<0.00034	<0.00025	---
SS-46 (0-0.5)	7/18/2017	0-½		<0.0017	0.085	0.0162	0.1012	<0.00052	<0.00049	<0.0064	<0.00045	<0.00032	<0.00024	---
SS-47 (0-0.5)	7/18/2017	0-½	Pond Sediment	<0.0043	0.0655	0.0148[J]	0.0803	<0.0013	<0.0012	<0.016	<0.0011	<0.0008	<0.00059	---
SS-48 (0-0.5)	7/18/2017	0-½		<0.00076	<0.00026	<0.00017	<0.00017	<0.00023	<0.00022	<0.0028	<0.0002	<0.00014	<0.00011	---
SS-49 (0-0.5)	7/18/2017	0-½		<0.0025	0.0122	<0.00058	0.0122	<0.00078	<0.00073	<0.0095	<0.00067	<0.00047	<0.00035	---
SS-50 (0-0.5)	7/18/2017	0-½	On-Site Transformer	---	---	---	---	---	---	---	---	---	---	ND
SS-50 (1-1.5)	7/18/2017	1-1½		---	---	---	---	---	---	---	---	---	---	ND
SS-50 (2-3)	7/18/2017	2-3		---	---	---	---	---	---	---	---	---	---	ND
SS-51 (0-0.5)	9/7/2017	0-½		---	---	---	---	---	---	---	---	---	---	ND
SS-51 (1 - 1.5))	9/7/2017	1-1½		---	---	---	---	---	---	---	---	---	---	ND
SS-101 (0-0.5)	7/18/2017	0-½	SS-47 Duplicate	<0.0024	0.0378	0.00301[J]	0.04081	<0.00074	<0.00069	<0.009	<0.00063	<0.00045	<0.00033	---
SS-102 (0-0.5)	7/18/2017	0-½	SS-28 Duplicate	<0.0018	0.0452	0.0125	0.0577	<0.00057	<0.00053	<0.0069	<0.00048	<0.00034	<0.00026	ND
EqB-1 (µg/L)	7/18/2017	---	Equipment Blank	<0.0028	<0.0088	<0.0051	<0.0088	<0.0035		<0.13	<0.0031	<0.010	<0.0031	ND
Screening Level				2.3	2	1.9	1	NE	NE	0.44	0.034	0.13	0.07	Variable
Basis				RSL	RSL	RSL	TTLC	NE	NE	DTSC-SL	RSL	RSL	RSL	Variable

1	Regional Screening Level (RSL), USEPA Region 9 - June 2017.
2	Recommended Screening Level (SL), HERO Note 3 - June 2017
<	Not detected at or above laboratory reporting limit
ND	Not detected at or above reporting limit
NE	Not Established
---	Not Analyzed
BOLD	Concentration exceeds selected environmental screening criteria

Data Table 3. Summary Statistics - Arsenic, Lead and Detected Organochlorine Pesticides
(Concentrations in mg/kg)

Chemical Detected	Number of Samples	Number of Detects	Screening Level (mg/kg)	Frequency of Detection (Percent)	Minimum Detected (mg/kg)	Maximum Detected (mg/kg)	No. of Samples Exceeding Screening Level	Location of Maximum	Mean Concentration (mg/kg)	Site Wide 95% UCL (mg/kg)
Arsenic	65	65	17.5 [a]	100%	1.08	41.11	3	SS-12D	9.256	10.51
Lead	49	49	80	100%	1.36	263	5	SS-25, SS-31	41.25	58.04
Chlordane	49	9	0.44	18%	0.0507	1.49	1	SS-26	0.326	0.166
Dieldrin	49	1	0.034	2%	0.00149	0.00149	0	SS-39	NC	NC
Heptachlor	49	3	0.13	6%	0.003	0.00786	0	SS-26	NC	NC
Heptachlor Epoxide	49	2	0.07	4%	0.00376	0.00621	0	SS-26	NC	NC
4,4-DDE	49	48	2	98%	0.00335	0.522	0	SS-14	NC	NC
4,4-DDD	49	4	2.3	8%	0.00429	0.0186	0	SS-14	NC	NC
4,4-DDT	49	45	1.9	92%	0.00458	0.267	0	SS-31	NC	NC

NC - Not calculated due to small number of detections or maximum concentration below screening level
a - Site-specific backgroud (see Section 6.1)

APPENDIX A – OPINION OF ESTIMATED REMEDIAL COSTS

Alternative 2: COC Impacted Soil Capping with Institutional Controls

Assumed Approximate Area of Consolidation Cell	50,000	square feet
Depth of Cell	1	feet
Volume of Cell	1852	cubic yards
Volume of Impacted Soil	1293	cubic yards

Task	**Unit Cost**	**Unit**	**Quantity**	**Total**
Excavate Consildation Cell and Stockpile	$ 12	per cubic yard	1852	$ 22,222
Excavate and Place Impacted Soil	$ 12	per cubic yard	1425	$ 17,100
Excavate and Place "Clean" Soil	$ 12	per cubic yard	1852	$ 22,222
				$ 61,544
			with 20 percent contingency	$ 73,853

Other Costs

Professional Services such as Observation, Sampling, Monitoring, and Reporting	$ 75,000
Geotextile Fabric	$ 10,000
DTSC Oversight (30 year timeframe)	$ 105,000
O/M, 5-year review, 30 year timeframe	$ 75,000
Deed Restriction	$ 10,000
Sub-Total	$ 348,853

TOTAL ESTIMATE $ 422,707

Note: Unit costs are approximate and may differ from estimates provided by contractors.

Alternative 3: Soil Off-Haul

	Approximate Area			Depth			In-place Volume	
SS-12 Vicinity	13,750	square feet	x	2.0	feet	=	27,500	cubic feet
Inn and Annex	2,450	square feet	x	2.0	feet	=	4,900	cubic feet
SS-15	625	square feet	x	2.0	feet	=	1,250	cubic feet
SS-16	625	square feet	x	2.0	feet	=	1,250	cubic feet
							34,900	cubic feet
							1,293	cubic yards

Approximate In-Place Volume of Impacted Soil	1,293	cubic yards
Assumed Soil bulk density	1.8	tons per cubic yard
Approximate Total Tonnage	2,327	tons
Assumed Percent Class I	0.20	---
Assumed Percent Class II	0.80	---
Approximate Class I tonnage	465	tons
Approximate Class II tonnage	1,861	tons

Task	**Unit Cost**	**Unit**	**Quantity**	**Total**
Class I (excavate, haul, and dispose)	$ 150	per ton	465	$ 69,800
Class II (excavate, haul, and dispose)	$ 65	per ton	1,861	$ 120,987
Clean Fill (import, place, compact)	$ 15	per ton	2327	$ 34,900
				$ 225,687
			with 20 percent Contingency	$ 270,824

Other Costs	
Professional Services such as Observation, Sampling, Monitoring, and Reporting	$ 75,000
BOE Hazardous Waste Generator Fee (2018)	$46,040
Sub-Total	$ 121,040
TOTAL ESTIMATE	$ 391,864

Note: Unit costs are approximate and may differ from estimates provided by contractors.

APPENDIX B – HEALTH AND SAFETY PLAN

CORNERSTONE EARTH GROUP

Type of Services	**Draft Site Specific Health and Safety Plan**
Location	**Planned Tribal School** **3141 Taylor Road** **Placer County, California**
Client	**United Auburn Indian Community**
Client Address	**10720 Indian Hills Road** **Auburn, California 95650**
Project Number	**411-16-3**
Date	**December 6, 2017**

Prepared by

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CORNERSTONE EARTH GROUP

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ATTACHMENT 1 – HOSPITAL ROUTE

Type of Services	**Site Specific Health and Safety Plan**
Location	**3141 Taylor Road** **Placer County, California**

SECTION 1.0: INTRODUCTION

Cornerstone Earth Group (Cornerstone) has prepared this Health and Safety Plan (HSP) to inform its personnel of potential hazards associated with soil excavation and removal activities at the approximately 42.3-acre property located at 3141 Taylor Road (Site), as shown on Figures 1 and 2 of the Remedial Action Workplan (RAW) of which this document is an Appendix.

This HSP is intended to supplement the Remedial Action Workplan prepared by Cornerstone for the Site and was developed to provide general health and safety guidance such that field activities can be conducted in a safe manner. Cornerstone will be responsible for the health and safety of their employees while on-Site for observation of excavation activities. Note that contractors performing work at the Site who may encounter Contaminants of Potential Concern (COPC), as summarized below, are required to prepare their own HSPs specific to their activities. The contractors may use this HSP as a basis for the preparation of the own HSP. Note that contractors are responsible for the health and safety of their own employees. Cornerstone is not responsible for job-site safety or compliance with this HSP other than for Cornerstone's own employees.

Contractors shall determine the level of training required for their Site employees, based on their activities, possibly including completion of a 40-hour HAZWOPER training course (29 CFR 1910.120 (e)), including respirator and personal protective equipment training, as needed.

As stated within the RAW, the Contractor will utilize effective means of dust and erosion control to minimize the generation of dust and erosion associated with excavation activities, truck and vehicle traffic onto and off the Site, and the effects of ambient wind traversing exposed soil.

Table 1 below identifies the COPC and their greatest concentrations previously reported in soil at the Site.

Table 1. Primary Chemicals of Concern (COC) Detected in soil

Chemical	Maximum Soil Concentration (mg/kg)	Area
Metals:		
Arsenic	41.1	SS-12D to 0.5 feet (former orchard areas)
Lead	263	SS-31 to 0.5 feet (exterior perimeter of inn and annex buildings)
Organochlorine Pesticides:		
Chlordane	1.49	SS-26 to 0.5 feet (exterior perimeter of inn and annex buildings)
Dieldrin	0.00149	SS-39 to 0.5 feet (exterior perimeter of caretakers residence)
Heptachlor	0.00786	SS-31 to 0.5 feet (exterior perimeter of inn and annex buildings)
Heptachlor Epoxide	0.00621	SS-26 to 0.5 feet (exterior perimeter of inn and annex buildings)
4,4-DDE	0.522	SS-14 to 0.5 feet (former orchard areas)
4,4-DDD	0.0186	SS-14 to 0.5 feet (former orchard areas)
4,4-DDT	0.267	SS-31 to 0.5 feet (exterior perimeter of inn and annex buildings)

This HSP addresses the potential hazards posed by the proposed excavation activities and identifies the controls to be implemented for these activities.

SECTION 2.0: PROJECT SAFETY AUTHORITY

2.1 HEALTH AND SAFETY PERSONNEL

2.1.1 Cornerstone Earth Group And Site Safety Officer (SSO)

United Auburn Indian Community will provide this HSP to on-Site contractors. Each contractor will appoint an on-Site Site Safety Officer (SSO) for their on-Site personnel. Each contractor also will develop their own Site-specific Health and Safety Plan unique to their assigned tasks. The SSO is an individual who is responsible to the employer and has the authority, training, experience, and knowledge necessary to implement the HSP and verify compliance with applicable safety and health requirements. Each subcontractor will be solely responsible for the health and safety of their employees as well as for compliance with all applicable federal, state, and local laws and guidelines.

The SSO must verify that all on-Site personnel are qualified, trained, and prepared to implement the HSP and safely perform the planned Site work. Field personnel should be required to indicate in writing that they have read and understand the provisions of the HSP.

Safe work practices should be emphasized during safety meetings to be conducted by the SSO and implemented throughout the project.

2.2 ENFORCEMENT OF THE HSP

Enforcement of the policies and practices of the HSP will be the responsibility of the SSO(s). The SSO has the authority to suspend work in the area of the Site where the provisions of the HSP are not being met.

2.3 EVALUATION OF EFFECTIVENESS

The SSO shall evaluate the effectiveness of the HSP. As applicable, deficiencies and associated corrective actions must be documented and a written summary evaluation prepared and maintained on-Site.

SECTION 3.0: CHEMICAL HAZARD ASSESSMENT AND CONTROL MEASURES

This HSP provides standard operating procedures for personnel involved in activities that may expose them to COCs during additional Site investigation activities that disturb impacted soil and soil vapor. Physical hazards also exist. For example, excavating equipment presents a high potential for physical hazards.

Field personnel are required to control chemical exposure primarily through the use of safe work practices and engineering controls (Sections 4.0, 5.0, 6.0, and 7.0). The working conditions will be assessed using air monitoring instruments and/or visual observations. A DataRam PDR-1000 dust meter will be used to monitor total dust concentrations during excavation activities. If dust concentrations exceed 50 micrograms per cubic meter ($\mu g/m^3$) in the immediate work zone, the excavation activities will stop until dust levels decrease.

3.1 EXPOSURE PATHWAYS

The primary exposure pathways for the COC in soil include incidental ingestion, dermal contact, and inhalation of windblown dust or vapors during the field activities. The windblown dust potential exposure pathway must be mitigated by appropriate dust removal measures (Section 7.0) implemented during Site remediation and Site investigation activities. The inhalation, ingestion and dermal exposure pathways will be mitigated by personal protective gear and safe work practices.

3.2 ACTIVITIES THAT COULD GENERATE CHEMICAL DUSTS

The following activities that will be performed during the course of activities at the Site could locally release COC-bearing dusts if control measures described in this plan are not stringently implemented:

- Excavation and stockpiling of impacted soils
- Loading of impacted soils into dump trucks

Mitigation measures to address the potential release of airborne COC during these activities are described in the following sections of this plan.

3.3 HAZARDOUS SUBSTANCE INFORMATION

Table 3 summarizes the hazardous substance information for the designated COCs.

TABLE 3. HAZARDOUS SUBSTANCE INFORMATION

COC	Max Conc.	TLV or PEL (mg/m^3)	IDLH (mg/m^3)	Routes of Exposure	Potential Effects of Overexposure
Arsenic	41.1 mg/kg	0.010	100	Inhalation, ingestion, skin and/or eye contact	In Animals: irritation skin, possible dermatitis; resp distress; diarrhea; kidney damage; muscle tremor, convulsions; possible gastrointestinal tract, reproductive effects; possible liver damage

COC	Max Conc.	TLV or PEL (mg/m^3)	IDLH (mg/m^3)	Routes of Exposure	Potential Effects of Overexposure
Lead	263 mg/kg	0.050	100	Inhalation, ingestion, skin and/or eye contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy ; kidney disease; irritation eyes; hypertension
Chlordane	1.49	0.5	100	Inhalation, skin absorption, ingestion, skin and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria; In Animals: lung, liver, kidney damage; [potential occupational carcinogen]

COC	Max Conc.	TLV or PEL (mg/m^3)	IDLH (mg/m^3)	Routes of Exposure	Potential Effects of Overexposure
Dieldrin	0.00149	0.25	50	Inhalation, skin absorption, ingestion, skin and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; ; In Animals: liver, kidney damage [potential occupational carcinogen]
Heptachlor Heptachlor Epoxide	0.00786 0.00621	0.5	35	Inhalation, skin absorption, ingestion, skin and/or eye contact	In Animals: tremor, convulsions; liver damage; [potential occupational carcinogen]
4,4-DDE 4,4-DDD 4,4-DDT	0.522 0.0186 0.267	0.5 / 1 for skin (for DDT)	500 (for DDT)	Inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]

PEL = Permissible Exposure Limit given in Title 8, CCR, Section 5155, or Threshold Limit Value from ACGIH 2011.

NE= not established.
mg/m^3 = milligrams per cubic meter.
IDLH = Immediately Dangerous to Life and Health.
* = Conversion for PCE is 1 ppm = 6.78 mg/m3 as stated by NIOSH *Pocket Guide to Chemical Hazards* (U.S. Department of Health and Human Services, September 2007)
Routes of entry and acute exposure to symptoms given in NIOSH *Pocket Guide to Chemical Hazards* (U.S. Department of Health and Human Services, September 2007)

3.4 HAZARD EVALUATION

3.4.1 Inhalation

Potential inhalation exposures were conservatively evaluated by assuming that the maximum concentration of COCs in site soil is proportional in a total dust concentration of 5 mg/m^3. This assumption is conservative since total dust at a concentration of 5 mg/m^3 is visible in air and is the threshold limit value (ACGIH TLV) for nuisance dust and the OSHA PEL for the respirable fraction of nuisance dust particulates not otherwise regulated (OSHA, 1989).

If the fraction of lead concentration in soil (263 ppm or 0.02%) is assumed to be the same as that in the air, then 0.0002 x 5 mg/m^3 = 0.001 mg/m^3, which is below the PEL.

For all COC reviewed, excavation activities will not likely generate occupationally significant airborne chemical exposures.

If respiratory protection is used voluntarily, personnel must have completed respiratory protection training, be certified by a medical doctor to use a respirator, and have a recent fit test.

3.4.2 Ingestion and Dermal Exposure Pathway Risks

Ingestion and dermal exposure pathways shall be controlled using hygienic measures and protective clothing (Section 5.1).

SECTION 4.0: PHYSICAL HAZARDS

Physical hazards associated with excavation activities, such as occupational noise, heavy equipment, heat-related disorders, slips, trips, falls, and falling objects, flying debris, electrical shock, buried utilities, overhead power lines, and excavation cave ins (if applicable), may be present on-Site and can present a greater risk of injury than the COC in soil at the Site. Each contractor's Injury and Illness Prevention Plan (IIPP) must address these hazards. All activities within the scope of this project must comply with all applicable regulations, including Cal/OSHA standards.

4.1 NOISE HAZARDS

Noise-generating equipment will be used during field activities. The noise levels near this type of equipment may exceed 85 dBA. Elevated noise levels could constitute a hearing hazard and interfere with communication. Employers must protect their field personnel from noise levels exceeding 85 dBA and provide appropriate PPE.

4.2 HEAVY EQUIPMENT HAZARDS

Heavy equipment can pose significant hazards to on-Site employees. Contractors working on-Site must ensure that their motor vehicles and material handling equipment meet the requirements specified in the Department of Industrial Relations, General Industry Safety Orders and Construction Safety Orders (8 CCR Division 1, Chapter 4, Subchapters 4 and 7). The following safe work practices are to be followed during work around heavy equipment:

- Never walk directly behind or to the side of heavy equipment without the operator's knowledge. Be aware of the location and operation of heavy equipment; do not assume that the operator is aware of keeping track of your presence.
- While working on-Site, wear reflective/visible safety vests, maintain visual contact with the operator at all times, and remain alert.
- All heavy equipment must be fitted with audible reversing signals as mandated by OSHA.
- Unless a spotter is present to guide the operator, equipment with an obstructed rear view will have an audible alarm that sounds when moving in the reverse direction.
- Establish hand signals with the operator when verbal communication is not possible.
- Whenever excavation is conducted in tight quarters, the equipment contractor should make provisions for another person to help guide the operator's movements.
- Hydraulic systems will be fully lowered and parking brakes engaged whenever equipment is not in use.
- All non-essential personnel will be kept out of work areas.
- Deep excavation (not anticipated during this project) may require shoring to prevent cave-ins or ground failures.
- All heavy equipment used at COC-impacted portions of the Site will remain there until construction activities are completed. Each contractor will be responsible for completely decontaminating equipment in designated decontamination areas.

4.3 HEAT OR COLD-RELATED DISORDERS

Heat (or cold) related disorders could be a significant issue depending upon the temperatures encountered during excavation activities. Cornerstone will be responsible for monitoring their workers for signs and symptoms of heat stress or cold stress. Water

must be provided on-Site and the Site supervisor should have first aid/CPR training and be familiar with the early signs of heat related disorders, and appropriate treatment procedures per Cal/OSHA Title 8 CCR 1524 and Title 8 CCR 1512. Accommodations for reduction of cold stress should additionally be provided, as necessary.

4.4 SLIPS, TRIPS, AND FALLS

Slipping, tripping, and falling are the most common sources of injuries at these types of sites. These injuries can be prevented by proper Site control measures, safe work practices, and by keeping the work area free from obstructions. Tailgate safety briefings should be held prior to each day's field activities to identify specific Site locations of concern (slippery surfaces or uneven terrain), and to specify work practices and controls necessary to avoid or eliminate the hazards in those areas.

4.5 BURIED UTILITIES

The buried utilities at the Site (if any) must be identified through Underground Service Alert (USA). If buried utilities, such as natural gas piping, are damaged during construction-related activities, the area should be immediately evacuated and Emergency 911 should be immediately notified. The Contractors' SSOs should notify all on-Site employees of the rupture and the area of the release should be evacuated.

4.6 MUSCULAR-SKELETON INJURY HAZARDS

Field activities may require some lifting of heavy objects. No one should attempt to lift large, heavy (greater than 50 pounds), or cumbersome objects without assistance. All on-Site employees who are generally called upon to do frequent lifting are to be instructed in proper lifting procedures.

4.7 BIOLOGICAL HAZARDS

The biological hazards that may be encountered include spiders and bees. A first aid kit to treat minor skin irritations, stings, and bites must be maintained at the Site.

4.8 OTHER HAZARDS

Although not supported by site investigations to date, other unforeseen hazards may be of potential concern. If unusual odors, smoke, and/or unusual signs and symptoms of exposure (upper respiratory tract, eye irritation, behavioral/mood changes) are noticed, work should be stopped at the particular location and workers be directed away from the potential sources of exposure. Cornerstone Earth Group's project manager and the Contractors' SSO(s) will make a determination of hazard and/or determine if outside emergency services are required, prior to allowing work to proceed. Cornerstone Earth Group will determine if additional investigation and other notifications are required.

SECTION 5.0: SAFETY EQUIPMENT, PERSONAL HYGIENE

5.1 PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE and clothing are used to isolate individuals from COC and physical hazards. The minimum level of protection for workers is Level D.

1. Nitrile gloves
2. Chemical-resistant steel-toe boots
3. Safety glasses (optional)
4. Hard hat
5. Hearing protection (if noise levels exceed 85 dBA)

5.2 SANITATION

The Contractor, in accordance with Title 8 CCR 5192, must provide potable water, toilet, and washing facilities at the Site in the support area.

SECTION 6.0: SITE CONTROL

6.1 VISITORS

Visitors will not be allowed access to the excavation area. Visitors failing to adhere to this provision of this HSP will be escorted from the Site.

SECTION 7.0: DUST REMOVAL PROCEDURES

7.1 EQUIPMENT DUST REMOVAL

Dust removal in chemically impacted areas of the Site must be performed to reduce the physical transfer of chemical residues from the project area work zone. Before being removed from the Site and between soil removal locations, all equipment (including truck tires) and tools in contact with COC impacted soil must be thoroughly washed to remove residual soil and prevent the transfer of impacted soil to other areas of the Site.

7.2 PERSONNEL DUST REMOVAL

Personnel dust removal includes boot cleansing and removal of soil residues from clothing, hard hat, gloves and brushing off coveralls (if used), removing work gloves and washing hands and face prior to eating, drinking, smoking, or leaving the Site. Workers should minimize the amount of dirt or dust on their hands, face, clothing, and shoes. If any of these are visibly soiled, they should be brushed off and left at the Site. Prior to leaving the Work Area, workers must thoroughly wash hands and face.

SECTION 8.0: TRAINING AND MEDICAL SURVEILLANCE

Health and safety training and hazard communication must be implemented as addressed below. All on-Site personnel must be familiar with the provisions of this HSP and verify in writing that they have read it and understand it.

Employees conducting excavation activities at the site shall complete a 40-hour HAZWOPER training course (29 CFR 1910.120 (e)), including respirator and personal protective equipment training. The 8 hour refresher training is required where applicable. The SSO will verify that each and every applicable worker possesses this training.

8.1 SITE-SPECIFIC TRAINING PROGRAM

A Site-specific training program must be instituted prior to Site work. Attendees at all meetings should be documented by signature. The Site-specific training should include a discussion of the following.

1. The health effects (acute and chronic) of the chemical and physical hazards that may be encountered at the Site
2. Proper control measures for the chemical and physical hazards that may be encountered
3. The importance of dust control at the Site
4. Proper personal hygiene procedures
5. Dust removal on equipment and personnel
6. Emergency procedures
7. Proper management of impacted soil
8. Potential physical hazards at the Site

8.2 MEDICAL MONITORING

Periodic medical monitoring is not required for this project. Employees conducting excavation should be medically cleared to perform their duties for this project, including wearing air purifying respirators, if respirator use is needed.

SECTION 9.0: EMERGENCY AND CONTINGENCY PLANNING

9.1 RELEVANT FIRST AID PROCEDURES

Minor injuries, including minor cuts, scrapes, and abrasions should be treated on-Site. If an injured individual requires further attention, the individual should be immediately transported to the nearest hospital. Attachment 1 illustrates the route to the nearest emergency medical facility. All accidents, without regard to severity, must be reported in writing to the SSO and, for Cornerstone Earth Group's employees, Cornerstone Earth Group within 24 hours.

9.2 EVACUATION PROCEDURES

Various emergencies may warrant a Site evacuation. Although these conditions are not anticipated, they may include fire, explosion, chemical release, or other event that could cause personal injury. Emergency evacuation procedures must be discussed in advance of site activities.

9.3 EMERGENCY SERVICES AND CONTACT TELEPHONE NUMBERS

The emergency medical facility designated for this project is Sutter Roseville Medical Center at 1 Medical Plaza Drive in Roseville**,** approximately 10 miles south-southwest of the Site (Attachment A). If an injury is serious enough to require ambulance medical transport or the fire department, immediately call 911.

Sutter Roseville Medical Center
(Emergency Department)
1 Medical Plaza Drive
Roseville, California

Phone: (916) 781-1800

SECTION 10.0: INJURY AND ILLNESS PREVENTION PROGRAM

All contractors are required to have an Injury and Illness Prevention Program (IIPP) in accordance with Cal OSHA regulations in Title 8 of the California Code of Regulations. Each IIPP must include a discussion of safety measures that are implemented, including the measures presented in this HSP, to help prevent illness and injury to their employees. Investigation and reporting procedures in case of an accident or injury also should be discussed in the IIPP. Cornerstone's IIPP is available for review upon request.

SECTION 11.0: INTERNAL AND EXTERNAL COMMUNICATIONS

All personnel will have a cell phone and/or radio for communication between personnel. Due to the relatively small Site size, verbal commands, radios, and cellular telephones should be adequate means of communication.

11.1 EMERGENCY CONTACT LIST

The list below provides names and telephone numbers for emergency contact personnel. The SSO or designee will notify the appropriate outside emergency organization.

TABLE 3. EMERGENCY CONTACT LIST

ORGANIZATION	**TELEPHONE**
Ambulance	(911)
Police	(911)
Fire	(911)
Hospital Sutter Roseville Medical Center – Emergency Department	916-781-1800
Sacramento Metropolitan Air Quality Management District	916-874-4800
Central Valley Regional Water Quality Control Board	916-464-3291
EPA National Response Center	800-424-8802
Cornerstone Earth Group, Project Manager Peter Langtry, PG, CEG	925-988-9500 (office) 925-817-8814 (cell) plangtry@cornerstoneearth.com

SECTION 12.0: DAILY SIGN-IN SHEETS

A daily sign-in sheet shall be maintained at the Site for all workers and visitors. The worker sign-in sheet and visitor sign-in sheets follow.

Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date
Print Name	Signature and Date

SECTION 13.0: REFERENCES

California Department of Industrial Relations. *Hazardous Waste Operations and Emergency Response, Section 5192*.

California Department of Industrial Relations. Table AC-1. *Permissible Exposure Levels for Chemical Contaminants*.

California Department of Industrial Relations. *Hazard Communication, Section 5194*.

Cornerstone Earth Group. *Final Preliminary Endangerment Assessment Report, Planned Tribal School 3141 Taylor Road, Placer County, California*. November 16, 2017.

National Institute of Occupational Safety and Health (NIOSH). September 2007. *NIOSH Pocket Guide to Chemical Hazards*.

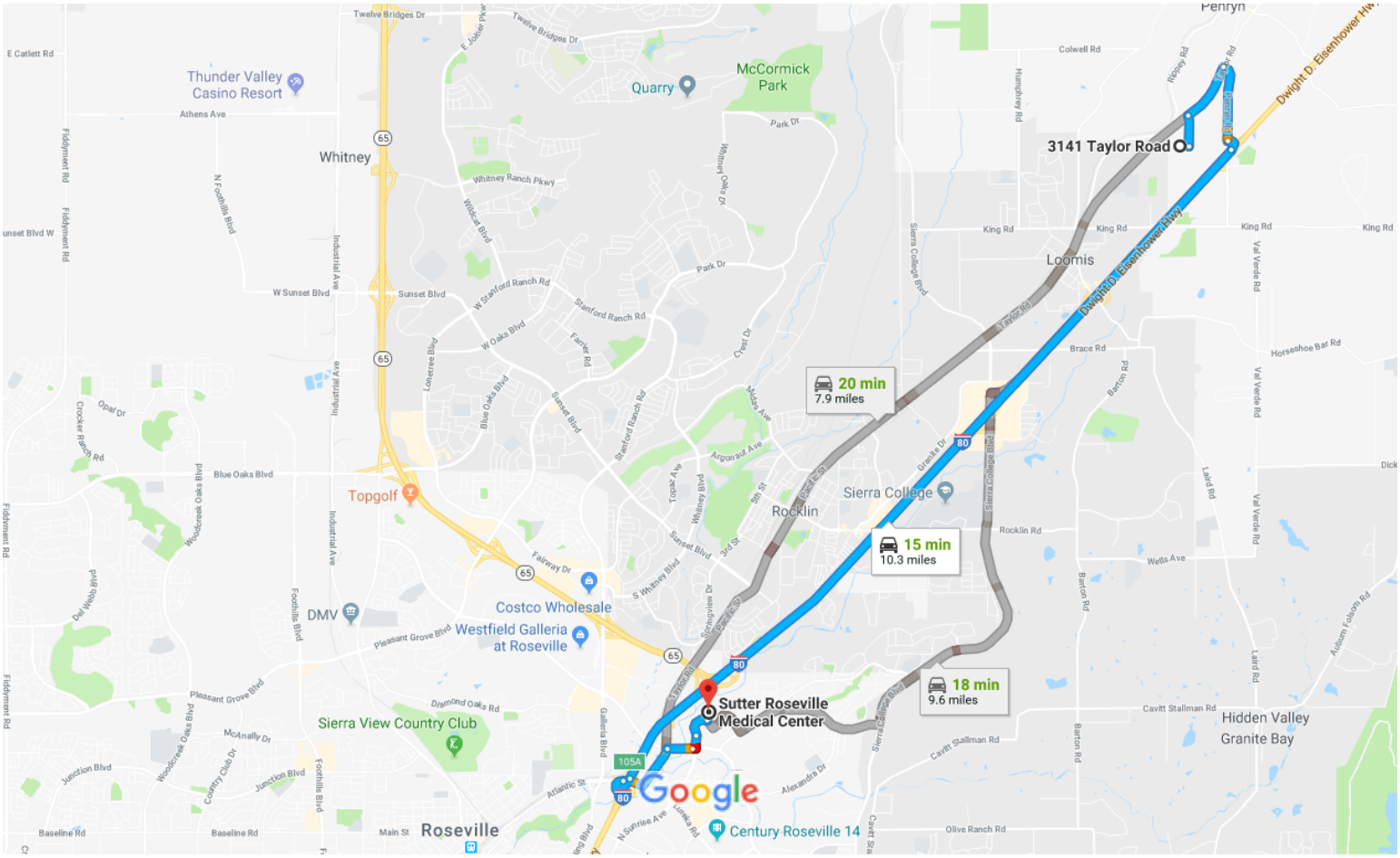
CORNERSTONE EARTH GROUP

ATTACHMENT A – HOSPITAL ROUTE

Google Maps

3141 Taylor Rd, Loomis, CA 95650 to Sutter Roseville Medical Center

Drive 10.3 miles, 15 min



Map data ©2017 Google 1 mi

3141 Taylor Rd

Loomis, CA 95650

Get on I-80 W from Taylor Rd and Penryn Rd

4 min (1.6 mi)

1. Head north on Tumble Ln toward Taylor Rd

0.3 mi

2. Turn right onto Taylor Rd

0.5 mi

3. Turn right onto Penryn Rd

0.6 mi

4. Turn left to merge onto I-80 W toward Sacramento

0.1 mi

Follow I-80 W to Atlantic St in Roseville. Take exit 105A from I-80 W

7 min (7.6 mi)

5. Merge onto I-80 W

7.3 mi

6. Take exit 105A for Eureka Road toward Taylor Road

0.3 mi

Take Taylor Rd, E Roseville Pkwy and Medical Pz to your destination

4 min (1.1 mi)

7. Merge onto Atlantic St

0.2 mi

8. Use the left 2 lanes to turn left onto Taylor Rd

0.4 mi

9. Turn right onto E Roseville Pkwy

0.2 mi

10. Use the left 2 lanes to turn left onto N Sunrise Ave

0.1 mi

11. Continue onto Medical Pz

0.2 mi

12. Turn left

Destination will be on the right

118 ft

Sutter Roseville Medical Center

1 Medical Plaza Dr, Roseville, CA 95661

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

CORNERSTONE EARTH GROUP

APPENDIX C – MAY 10, 2018 SUPPLEMENTAL SOIL QUALITY EVALUATION REPORT

CORNERSTONE EARTH GROUP

Date:	May 10, 2018
Project No.:	411-16-5
Prepared For:	Mr. Dean Wright **DEPARTMENT OF TOXIC SUBSTANCES CONTROL** 8800 Cal Center Drive Sacramento, California 95826
Re:	Supplemental Soil Quality Evaluation 3141 Taylor Road Loomis, California

Dear Mr. Wright:

On behalf of United Auburn Indian Community (UAIC) we are pleased to submit this letter summarizing the results of supplemental soil samples collected at 3141 Taylor Road in Loomis, California (Site, Figures 1 and 2). This work was performed for RSC Engineering (RSC) and UAIC in accordance with the April 17, 2018 Work Plan for Supplemental Soil Quality Evaluation (Work Plan). The Work Plan was conditionally approved on April 19, 2018.

The Project

The approximately 42.3-acre site is currently undeveloped with the exception of five structures consisting of a two-story building formerly used as an inn, a single-story event space, a caretaker's residence, a detached garage, and a maintenance barn. A small pond is located near the eastern property boundary (Figure 2).

UAIC entered into a Voluntary Cleanup Agreement (VCA) with Department of Toxic Substances Control (DTSC) to provide oversight of Site investigation and review of a Preliminary Endangerment Assessment (PEA). The PEA, dated October 6, 2017, presented laboratory analytical results of soil samples collected from former orchard areas, evaluated background concentrations of arsenic and arsenic relative bioavailability. Soil samples also were collected near existing and former buildings to evaluate potential impacts from possible pest control spraying near building foundations, and potential impacts from building materials such as lead-based paint and/or PCB caulking compounds.

As presented in the PEA, the 95th and 99th percentiles of the background concentrations were calculated as 16.5 milligrams per kilogram (mg/kg) and 17.5 mg/kg, respectively. Because the background dataset is large (n=65), the data are considered robust, and the distribution is well defined, the 99th percentile of 17.5 milligrams per kilogram (mg/kg) is considered representative of the Site-specific background. As an added health protective measure, UAIC elected to use 16.5 mg/kg as the cleanup goal for arsenic, as presented in the January 9, 2018 Draft Removal Action Work Plan.

The RAW presented initial excavation areas for removal of soil with arsenic detected exceeding the Site-specific background level/cleanup goal. Final excavation extent will be determined based on laboratory analyses of verification soil samples collected from the excavation sidewalls and bottoms. One of the proposed excavation areas (Figure 3) extended into a wetland area that has been mapped on-Site.

Purpose

As described in the Work Plan, the purpose of this Supplemental Soil Quality Investigation was to determine whether the initial boundary of the excavation area shown on Figure 3 can be revised to avoid the wetland.

Soil Sampling and Laboratory Analyses

Prior to our sampling, the perimeter of the mapped wetland within the planned excavation area had been flagged in the field by a biologist from Environmental Science Associates (ESA). On April 23, 2018, Cornerstone field personnel collected soil samples from five locations within and near the wetlands using hand-sampling equipment (SS-100 through SS-500). The sampling locations are presented on Figure 3.

Soil samples were collected from the approximate upper six inches of soil. Samples were collected in clean stainless-steel liners, ends covered in Teflon tape, capped, and labeled with a unique identification number in accordance with the sampling protocol presented in the June 28, 2017 PEA Work Plan (Cornerstone). The collected samples were placed in an ice chilled cooler and transported to the project laboratory under chain of custody control. The five soil samples collected were analyzed for arsenic (EPA Test Method 6010B).

A data summary table, analytical data sheets, and chain of custody documentation are attached to this letter.

Conclusion

Arsenic was detected above the cleanup goal of 16.5 mg/kg in 2 of 5 samples (SS-100 [21 mg/kg] and SS-200 [48 mg/kg]). Concentrations detected decreased significantly within the wetland area. Based on analytical data collected to date, we propose modifying the initial excavation extent to avoid the wetland, as shown on Figure 3. In accordance with the RAW, the final excavation extent will be based on laboratory analyses of verification soil samples.

Limitation

Cornerstone makes no warranty, expressed or implied, except that our services have been performed in accordance with the environmental principles generally accepted at this time and location.

Closing

Should you have any questions regarding this letter, please contact us at your convenience.

Sincerely,

Cornerstone Earth Group, Inc.

Peter Langtry, P.G., C.E.G.
Principal Geologist

Attachments: Figures
Data Summary Table
Attachment A - Laboratory Data Report

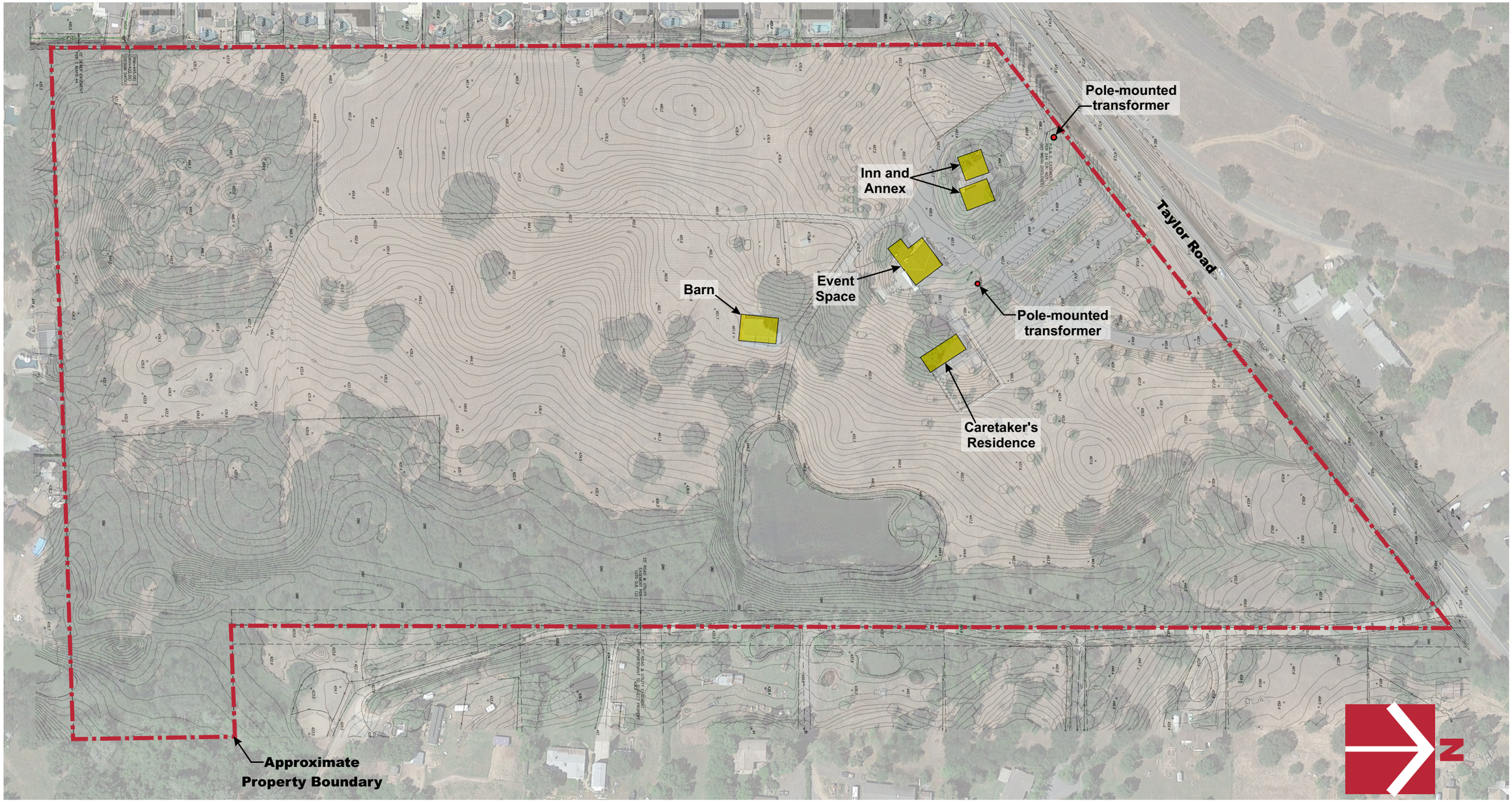
Copies: Addressee (by email)
RSC Engineering (by email)
Attn: Tiffany Wilson

CORNERSTONE EARTH GROUP

Vicinity Map

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-4
Figure Number	Figure 1
Date	December 2017
Drawn By	RRN



Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

CORNERSTONE EARTH GROUP

Site Plan

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-4
Figure Number	Figure 2
Date	December 2017
Drawn By	RRN

Screening Levels

Arsenic	16.5 [1]
Lead	80 [2]
Chlordane	0.44 [2]

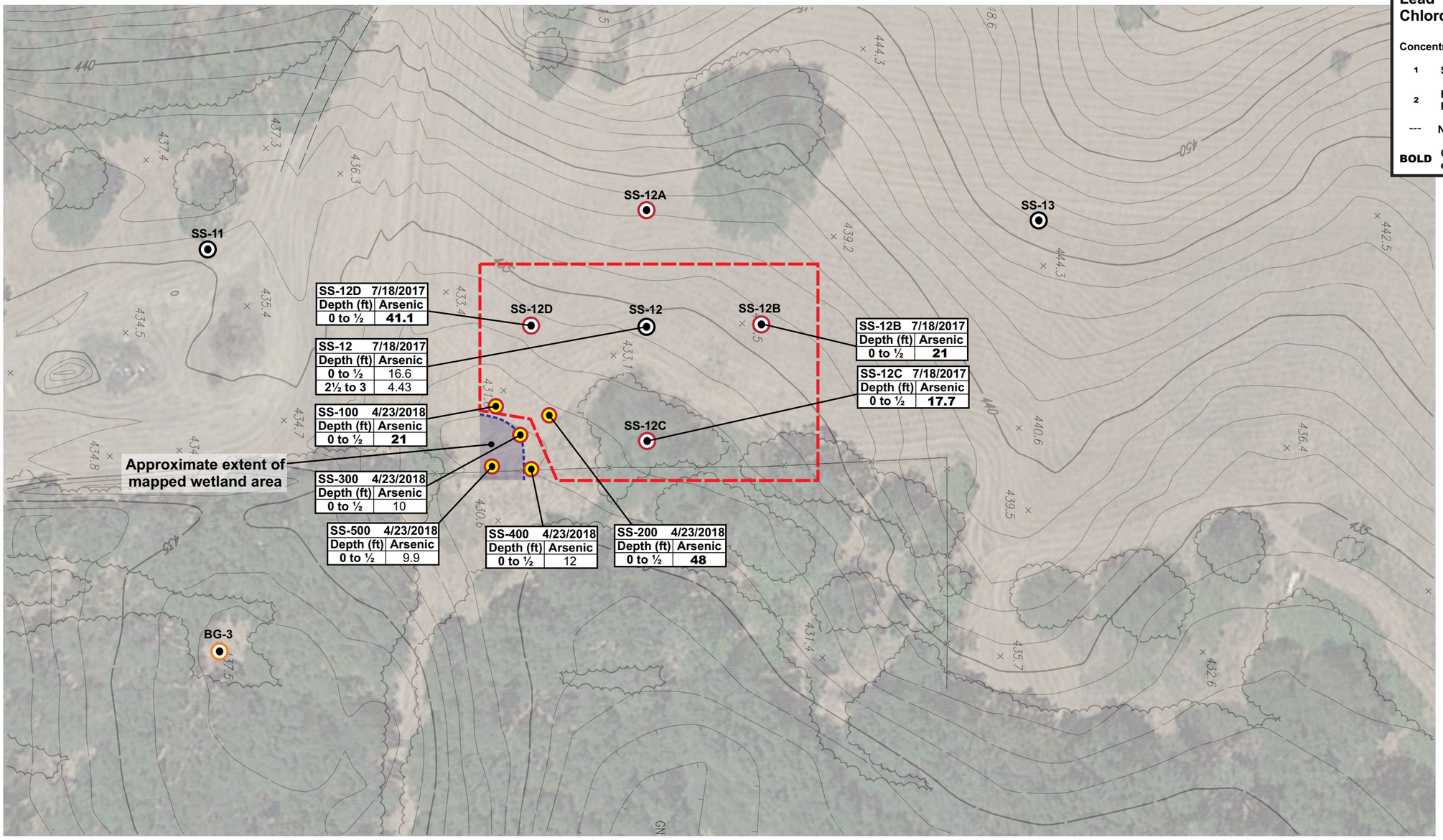
Concentration measured in mg/kg

1 Site specific background

2 Recommeded Screening Level (SL), HERO Note 3 - June 2017

--- Not Analyzed

BOLD Concentration exceeds selected environmental screening criteria



Legend

- Approximate location of proposed soil sample
- Approximate location of background sample (BG)
- Approximate location of soil sample (SS)
- Approximate location of soil sample (SS) (Cornerstone, 2016)
- Proposed excavation area

Base by Google Earth, dated 7/10/2016
Overlay by RSC Engineering, Topographic Survey, dated October 2016

0 50 100
APPROXIMATE SCALE (FEET)

CORNERSTONE EARTH GROUP

Proposed Excavation Area

United Auburn Indian Community School
3141 Taylor Road
Placer County, CA

Project Number	411-16-5
Figure Number	Figure 3
Date	March 2018
Drawn By	RRN

CORNERSTONE EARTH GROUP

Table 1. Analytical Results of Selected Soil Samples
(Concentrations in mg/kg)

Sample ID	Date	Depth (feet)	Arsenic
SS-100 (0-0.5)	4/23/2018	0-½	**21**
SS-200 (0-0.5)	4/23/2018	0-½	**48**
SS-300 (0-0.5)	4/23/2018	0-½	10
SS-400 (0-0.5)	4/23/2018	0-½	12
SS-500 (0-0.5)	4/23/2018	0-½	9.9
Site Cleanup Goal [1]			16.5

1 Site-specific background from RAW
BOLD Concentration exceeds Site cleanup goal

CORNERSTONE EARTH GROUP

ATTACHMENT A – LABORATORY REPORT

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-86055-1
Client Project/Site: Taylor Rd.

For:
Cornerstone Earth Group
1270 Springbrook Road, Suite 101
Walnut Creek, California 94597

Attn: Peter Langtry

Authorized for release by:
4/26/2018 3:31:29 PM

Afsaneh Salimpour, Senior Project Manager
(925)484-1919
afsaneh.salimpour@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Job ID: 720-86055-1

Laboratory: TestAmerica Pleasanton

Narrative

Job Narrative
720-86055-1

Comments
No additional comments.

Receipt
The samples were received on 4/24/2018 5:20 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.1° C and 0.6° C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Client Sample ID: SS-100 (0-0.5) — Lab Sample ID: 720-86055-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	21		2.2		mg/Kg	4		6010B	Total/NA

Client Sample ID: SS-200 (0-0.5) — Lab Sample ID: 720-86055-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	48		2.9		mg/Kg	4		6010B	Total/NA

Client Sample ID: SS-300 (0-0.5) — Lab Sample ID: 720-86055-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	10		2.6		mg/Kg	4		6010B	Total/NA

Client Sample ID: SS-400 (0-0.5) — Lab Sample ID: 720-86055-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	12		3.6		mg/Kg	4		6010B	Total/NA

Client Sample ID: SS-500 (0-0.5) — Lab Sample ID: 720-86055-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	9.9		2.8		mg/Kg	4		6010B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Client Sample ID: SS-100 (0-0.5)

Lab Sample ID: 720-86055-1

Date Collected: 04/23/18 12:30

Matrix: Solid

Date Received: 04/24/18 17:20

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	21		2.2		mg/Kg		04/25/18 13:44	04/26/18 11:20	4

Client Sample Results

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Client Sample ID: SS-200 (0-0.5)

Lab Sample ID: 720-86055-2

Date Collected: 04/23/18 12:40

Matrix: Solid

Date Received: 04/24/18 17:20

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	48		2.9		mg/Kg		04/25/18 13:44	04/26/18 11:25	4

Client Sample Results

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Client Sample ID: SS-300 (0-0.5)

Lab Sample ID: 720-86055-3

Date Collected: 04/23/18 12:54

Matrix: Solid

Date Received: 04/24/18 17:20

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	10		2.6		mg/Kg		04/25/18 13:44	04/26/18 11:30	4

Client Sample Results

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Client Sample ID: SS-400 (0-0.5)

Lab Sample ID: 720-86055-4

Date Collected: 04/23/18 13:06

Matrix: Solid

Date Received: 04/24/18 17:20

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12		3.6		mg/Kg		04/25/18 13:44	04/26/18 11:34	4

Client Sample Results

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Client Sample ID: SS-500 (0-0.5)

Lab Sample ID: 720-86055-5

Date Collected: 04/23/18 13:16

Matrix: Solid

Date Received: 04/24/18 17:20

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	9.9		2.8		mg/Kg		04/25/18 13:44	04/26/18 11:39	4

QC Sample Results

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 720-242932/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 243045 — **Prep Batch: 242932**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		1.0		mg/Kg		04/25/18 13:44	04/26/18 10:10	1

Lab Sample ID: LCS 720-242932/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 243045 — **Prep Batch: 242932**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic			50.0	46.1		mg/Kg		92	80 - 120		

Lab Sample ID: 720-86040-A-1-E MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 243045 — **Prep Batch: 242932**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	ND		45.0	40.2		mg/Kg		83	75 - 125		

Lab Sample ID: 720-86040-A-1-F MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 243045 — **Prep Batch: 242932**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	ND		46.3	40.2		mg/Kg		81	75 - 125	0	20

QC Association Summary

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Metals

Prep Batch: 242932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-86055-1	SS-100 (0-0.5)	Total/NA	Solid	3050B	
720-86055-2	SS-200 (0-0.5)	Total/NA	Solid	3050B	
720-86055-3	SS-300 (0-0.5)	Total/NA	Solid	3050B	
720-86055-4	SS-400 (0-0.5)	Total/NA	Solid	3050B	
720-86055-5	SS-500 (0-0.5)	Total/NA	Solid	3050B	
MB 720-242932/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 720-242932/2-A	Lab Control Sample	Total/NA	Solid	3050B	
720-86040-A-1-E MS	Matrix Spike	Total/NA	Solid	3050B	
720-86040-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Analysis Batch: 243045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-86055-1	SS-100 (0-0.5)	Total/NA	Solid	6010B	242932
720-86055-2	SS-200 (0-0.5)	Total/NA	Solid	6010B	242932
720-86055-3	SS-300 (0-0.5)	Total/NA	Solid	6010B	242932
720-86055-4	SS-400 (0-0.5)	Total/NA	Solid	6010B	242932
720-86055-5	SS-500 (0-0.5)	Total/NA	Solid	6010B	242932
MB 720-242932/1-A	Method Blank	Total/NA	Solid	6010B	242932
LCS 720-242932/2-A	Lab Control Sample	Total/NA	Solid	6010B	242932
720-86040-A-1-E MS	Matrix Spike	Total/NA	Solid	6010B	242932
720-86040-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	6010B	242932

Lab Chronicle

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Client Sample ID: SS-100 (0-0.5)

Lab Sample ID: 720-86055-1
Date Collected: 04/23/18 12:30
Matrix: Solid
Date Received: 04/24/18 17:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			242932	04/25/18 13:44	MAG	TAL PLS
Total/NA	Analysis	6010B		4	243045	04/26/18 11:20	BKR	TAL PLS

Client Sample ID: SS-200 (0-0.5)

Lab Sample ID: 720-86055-2
Date Collected: 04/23/18 12:40
Matrix: Solid
Date Received: 04/24/18 17:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			242932	04/25/18 13:44	MAG	TAL PLS
Total/NA	Analysis	6010B		4	243045	04/26/18 11:25	BKR	TAL PLS

Client Sample ID: SS-300 (0-0.5)

Lab Sample ID: 720-86055-3
Date Collected: 04/23/18 12:54
Matrix: Solid
Date Received: 04/24/18 17:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			242932	04/25/18 13:44	MAG	TAL PLS
Total/NA	Analysis	6010B		4	243045	04/26/18 11:30	BKR	TAL PLS

Client Sample ID: SS-400 (0-0.5)

Lab Sample ID: 720-86055-4
Date Collected: 04/23/18 13:06
Matrix: Solid
Date Received: 04/24/18 17:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			242932	04/25/18 13:44	MAG	TAL PLS
Total/NA	Analysis	6010B		4	243045	04/26/18 11:34	BKR	TAL PLS

Client Sample ID: SS-500 (0-0.5)

Lab Sample ID: 720-86055-5
Date Collected: 04/23/18 13:16
Matrix: Solid
Date Received: 04/24/18 17:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			242932	04/25/18 13:44	MAG	TAL PLS
Total/NA	Analysis	6010B		4	243045	04/26/18 11:39	BKR	TAL PLS

Laboratory References:

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Accreditation/Certification Summary

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Laboratory: TestAmerica Pleasanton

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2496	01-31-20

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL PLS
3050B	Preparation, Metals	SW846	TAL PLS

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: Cornerstone Earth Group
Project/Site: Taylor Rd.

TestAmerica Job ID: 720-86055-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-86055-1	SS-100 (0-0.5)	Solid	04/23/18 12:30	04/24/18 17:20
720-86055-2	SS-200 (0-0.5)	Solid	04/23/18 12:40	04/24/18 17:20
720-86055-3	SS-300 (0-0.5)	Solid	04/23/18 12:54	04/24/18 17:20
720-86055-4	SS-400 (0-0.5)	Solid	04/23/18 13:06	04/24/18 17:20
720-86055-5	SS-500 (0-0.5)	Solid	04/23/18 13:16	04/24/18 17:20

CORNERSTONE EARTH GROUP

Chain of Custody Record 720-86055

#152906

4/26/2018

Cornerstone Earth Group, Inc.	Project Manager: Peter Langtry	Site Sampler: KAK	Date:	COC No:
1270 Springbrook Rd	Tel/Fax: 925-988-9500 ext. 217	Lab Contact: Afsaneh Salimpour	Lab: Test America	____ of ____ COCs
Walnut Creek, CA 94597	Analysis Turnaround Time			Laboratory's Job No.
(925)-988-9500 Phone	TAT if different from Below			
(925)-988-9501 FAX	☐ 1 week			
Project Name: Taylor Rd.	☐ 3 days			
Site 3141 Taylor Rd, Loomis, CA	■ 2 days			
Project Number: 411-16-5	☐ 1 day			

RUSH!

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Arsenic (EPA Test Method 6010B)	Laboratory's Sample Specific Notes.
GG-100 (0-0.5)	4/23/18	12:30	Liner	Soil	1		X	
GG-200 (0-0.5)		12:40					X	
GG-300 (0-0.5)		12:54					X	
GG-400 (0-0.5)		13:06					X	
GG-500 (0-0.5)		13:16					X	

720-86055 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments: If additional sample is needed, please use the liner. Please email results to: plangtry@cornerstoneearth.com; kknoll@cornerstoneearth.com

0.6°C 0.1°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
K. Knoll	Cornerstone Earth Group	4/24/18 10:34	[signature]	TA 720	4-24-18 10:34
[signature]	TA 720	4-24-18 720	[signature]		4-24-18 12:20
Relinquished by:	Company:	Date/Time	Received by	Company:	Date/Time:

4/24/18

CORNERSTONE EARTH GROUP

Chain of Custody Record 720-86055

#182906

4/26/2018

Cornerstone Earth Group, Inc.	Project Manager: Peter Langtry	Site Sampler: KAK	Date:	COC No
1270 Springbrook Rd	Tel/Fax: 925-988-9500 ext. 217	Lab Contact: Afsaneh Salimpour	Lab: Test America	____ of ____ COCs
Walnut Creek, CA 94597	Analysis Turnaround Time			Laboratory's Job No
(925)-988-9500 Phone	TAT if different from Below ____			
(925)-988-9501 FAX	☐ 1 week			
Project Name. Taylor Rd.	☐ 3 days			
Site: 3141 Taylor Rd, Loomis, CA	■ 2 days			
Project Number 411-16-5	☐ 1 day			

RUSH!

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	Arsenic (EPA Test Method 6010B)	Laboratory's Sample Specific Notes:
SS-100 (0-0.5)	4/23/18	12:30	Liner	soil	1		X	
SS-200 (0-0.5)		12:40					X	
SS-300 (0-0.5)		12:54					X	
SS-400 (0-0.5)		13:06					X	
SS-500 (0-0.5)		13:16					X	

720-86055 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown*

Sample Disposal
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*

Special Instructions/QC Requirements & Comments: If additional sample is needed, please use the liner. Please email results to: plangtry@cornerstoneearth.com; kknoll@cornerstoneearth.com

0.6°C 0.1°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
K. Knoll	Cornerstone Earth Group	4/24/18 10:34	[illegible]	TA 720	4-24-18 10:34
Relinquished by:	Company:	Date/Time:	Received by:	Company	Date/Time
[illegible]	TA 720	4-24-18 1720	[illegible]		4-24-18 19:20
Relinquished by:	Company	Date/Time:	Received by:	Company:	Date/Time:

4/24/18

Login Sample Receipt Checklist

Client: Cornerstone Earth Group

Job Number: 720-86055-1

Login Number: 86055

List Source: TestAmerica Pleasanton

List Number: 1

Creator: Perry, Janae R

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	