

WORK PLAN AND SAMPLING AND ANALYSIS PLAN ADDENDUM

AREA OF CONCERN 74



Prepared for:

**Camp Stanley Storage Activity
Boerne, Texas**

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ADDENDUM TO WORK PLAN AND SAMPLING AND ANALYSIS PLAN SITE CLOSURE INVESTIGATION FOR AOC-74

Parsons is currently under contract to provide an investigation at Area of Concern 74 (AOC-74) at Camp Stanley Storage Activity (CSSA), Boerne, Texas. This document serves as both an addendum to the existing CSSA *Work Plan*, February, 1996 (see CSSA Environmental Encyclopedia (www.stanley.army.mil), Volume 1-1) and Work Plan Addenda, and an addendum to the existing CSSA *Field Sampling Plan*, February, 1996 (see CSSA Environmental Encyclopedia, Volume 1-4) and Sampling and Analysis Plan Addenda contained therein.

Previous investigations show that metals concentrations in soils at AOC-74 are potentially in excess of identified Texas Risk Reduction Program (TRRP) protective concentration limits (PCLs) (see Section 2.3). The goal of the investigation is the removal of all soils that exceed those criteria. It is expected that upon completion of this investigation, a Release Investigation Report (RIR) will be prepared. Both the identified PCLs and the type of closure report may be modified based on the investigation findings.

This Addendum describes additional activities to be conducted as part of this investigation, and addresses specific sampling and analysis plan items related to those activities. Work will be performed in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA) 3008(h) Order in effect for CSSA and in accordance with 30 Texas Administrative Code (TAC) §350, the TRRP administered by the Texas Commission on Environmental Quality (TCEQ).

Additional specific activities associated with this investigation are described in the *RCRA Facility Investigation Interim Measures Waste Management Plan (RFI/IM WMP) Addendum for AOC-74*, November, 2011.

SITE DESCRIPTION AND BACKGROUND

1.1 Description

AOC-74 is a 2-acre site located in the northeastern portion of CSSA's Inner Cantonment (Figure 1). The site was identified as a potential AOC based on visual evidence of surficial construction debris.

Due to the age of the construction debris, regulated asbestos-containing material (RACM) may be present at the site. According to the U.S. Environmental Protection Agency (EPA), RACM is defined as any material containing greater than 1% asbestos and is friable where the material can be crumbled, pulverized or reduced to a powder by hand pressure when dry. Use of asbestos in the manufacturing of several building products was banned by the year 1978.

Additional background information on AOC-74 can be found in CSSA Environmental Encyclopedia, Volume 3-2.

1.2 Previous Investigations

Previous investigations at AOC-74 are limited to an x-ray fluorescence (XRF) survey conducted at the site in June 2011. The survey revealed elevated levels of lead and zinc throughout the site's surface soil. The locations of the XRF survey points, with the results above Tier 1 PCLs indicated, are shown on Figure 2. No other sampling has been conducted at AOC-74.

2.0 INVESTIGATION PROCEDURES

This investigation involves excavation of contaminated soils and media, appropriate management of all associated debris and soils, and confirmation soil sampling to ensure the success of the excavation.

All removal work will be performed in Level D personal protective equipment and under the health and safety protocol outlined in the *Health and Safety Plan*, December, 2010. If RACM is encountered, work will proceed as described in Section 2.1. No munitions are suspected to be present at AOC-74. If munitions debris or munitions and explosives of concern (MEC) are encountered during the excavation effort, all work will stop and unexploded ordinance (UXO) support will be brought in to provide support. If other foreign materials, such as medical debris, is encountered, removal work and the management of the debris will proceed as is appropriate and in coordination with CSSA.

2.1 Excavation Effort

An estimated 1,500 to 3,500 cubic yards (CY) of contaminated soils may be excavated from an area of approximately 1 acre. Confirmation samples will be collected, as described in Section 2.3, from the site prior to excavation, as shown on Figure 2, to help delineate the lateral extent of contamination and confirm the excavation boundary. The currently proposed excavation extent is shown on Figure 3. Soils identified as contaminated (criteria described in Section 2.3) through the field screening effort and confirmation sampling will be excavated and managed accordingly. The excavated soil material may be either stockpiled along and adjacent to the excavation, or moved directly to the respective staging area and placed into 500 cubic yard (CY) piles.

During the excavation effort, waste material will be sorted and managed as appropriate. Excavated soil media will be characterized for management as described below. Any trees removed during site operations will be managed (such as with the Public Works "Cedar Eater") in coordination with the CSSA Environmental Office. Passenger vehicles and equipment trailers will not enter the excavated area. Excavating equipment will be parked on a trailer prior to leaving CSSA.

If RACM is reported in samples collected during the AOC-74 site investigation, field activities will proceed as follows:

- 1) Personnel licensed in RACM removal will be brought on-site to manage the RACM containing material.
- 2) An area air monitoring program will be established at the site to confirm that asbestos fibers are not being released into the air during site activities. If fibers are detected, then site excavation and debris handling methods will be adjusted at the site.
- 3) Three work zones (exclusion zone, contaminant reduction zone and support zone) will be identified and maintained at the job site.
- 4) Work will be performed in Level C with a half face air-purifying respirator and the equipment operator will conduct excavation activities while in an enclosed cab.
- 5) A water truck will be mobilized to the site and used to minimize dusting during excavation activities and to wet all surfaces prior to excavation. During excavation, debris that appears to be associated with RACM will be segregated and managed within a designated area at the site.
- 6) Excavation activities will be temporarily suspended when the wind speed is greater than 10 miles per hour (mph). To help assess the approximate wind speed and wind direction, a temporary wind sock will be located on the site during the excavation activities.
- 7) The segregated RACM will be wetted, placed into a dumpster that has been lined with polyethylene sheeting. The dumpster will be properly covered and then transported offsite to disposal facility licensed in the handling of asbestos.
- 8) A decontamination area will be established and the equipment used on-site will be properly decontaminated prior to demobilizing from the site. Any wastewater collected during decontamination will be collected and filtered with a minimum 5.0 micron filter prior to discharge.

2.2 Waste Management

Contaminated soils will be managed in accordance with CSSA's *RFI Interim Measures Waste Management Plan*, Parsons, 2006 and the *RFI/IM Addendum for AOC-74*, November, 2011.

For excavated soils, waste characterization sampling will occur at a frequency of 1 sample per 500 CY. Waste characterization samples will be analyzed by the toxicity characteristic leaching procedure (TCLP) for RCRA 8 metals, in addition to other analysis, such as asbestos and pesticides, as appropriate. All impacted soil media that meets non-hazardous criteria, and CSSA standards for berm reuse (e.g. no pieces of metal greater than six inches, no materials identified as MEC items, etc.), will be transported to the East Pasture berm for reuse. Parsons will coordinate the transportation of soils to the East Pasture berm with CSSA personnel.

Impacted soil media suspected to be above the characteristic hazardous criteria (40 Code of Federal Regulations [CFR] 261.24) or that contains potential contaminants of concern (COCs) greater than 20 times the regulated TCLP criteria (*i.e.*, 20 times rule) will undergo waste characterization sampling at a frequency of 1 sample per 200 CY. Any soil media identified above the characteristic hazardous criteria will be treated in accordance with the *RFI/Interim Measures Waste Management Plan* (*i.e.* with use of Portland Cement, etc.) to non-hazardous levels and managed at the East Pasture berm or off-post as appropriate.

2.3 Soil Sampling

The TRRP Tier 1 PCL identified for this investigation is defined as the lowest value among following: 1) the TRRP Tier 1 Residential 30-acre PCL for total soil combined ($^{Tot}Soil_{Comb}$); 2) the TRRP Tier 1 Residential 30-acre PCL for groundwater protection ($^{GW}Soil_{Ing}$); and 3) the TCEQ Ecological Benchmark for Soil. If the lowest of these three values is less than the CSSA soil background value, the soil background value becomes the Tier 1 PCL. If the Texas-specific soil background value is greater than the CSSA soil background value (which is the case for barium), that value then becomes the Tier 1 PCL. Table 1 outlines these values and identifies PCLs for the CSSA 9 metal analytes. The TRRP Human Health PCLs for other analytes can be found at <http://www.tceq.state.tx.us/remediation/trrp/trrppcls.html>. The identified PCLs may be modified based on investigation findings, if necessary.

Soil samples for laboratory analysis will be collected before, during, and post-excavation, as necessary, to confirm the excavation extent and the successful removal of contaminated soils. Soil samples with results lower than the identified PCLs will be used to confirm contamination removal at a rate of approximately 1 sample per 50 feet along the horizontal excavation boundary, and 1 sample per 10,000 square feet to confirm the vertical excavation boundary. If any results indicate contamination above the identified PCLs, the excavation of soils will be expanded in that direction until confirmation samples show no indication of metal contamination above PCLs. The number and location of confirmation samples will be dependent on the extent of excavation.

All confirmation soil samples will be collected and analyzed for CSSA 9 metals. Approximately ten percent of the samples will also be analyzed for VOCs, and SVOCs. Depending on the investigation findings, additional analytes, such as asbestos and explosives may be added.

Soil samples will be discrete grab samples and will be collected as described in the *CSSA SAP*, February, 1996. The collection and analysis of quality assurance/quality control (QA/QC) samples is described in the *CSSA Base-wide Quality Assurance Project Plan, Version 1.0*, January, 2003 (see CSSA Environmental Encyclopedia, Volume 1-4). The QA/QC samples and their collection frequency are as follows:

- One Field Duplicate (FD) per 10 samples
- One Matrix Spike (MS) and one Matrix Spike Duplicate (MSD) per 20 samples
- One Equipment Blank (EB) per site.

Full QA/QC will be performed on confirmation samples and 100% of the results will be validated/verified by a chemist.

The necessary turnaround time (TAT) for the samples will be based on the current timeframe of the excavation and may range from expedited (3-day) to the standard TAT (21-day).

2.4 Erosion Control Measures and Site Rehabilitation

Erosion control and site rehabilitation will follow the *Storm Water Pollution Prevention Plan for AOC-74*, November 2011. The area to be disturbed during the excavation effort is less than 5 acres so a Notice of Intent is not required.

There will be no permanent storm water controls. Once the excavation is complete, the site will be restored in coordination with CSSA's future plans for the area. If the area is to remain free of construction, native grasses will be planted to help control erosion.

3.0 SCHEDULE

This investigation may take place at any time and is anticipated to take approximately two weeks. All excavation work will be coordinated and scheduled in advance with CSSA.

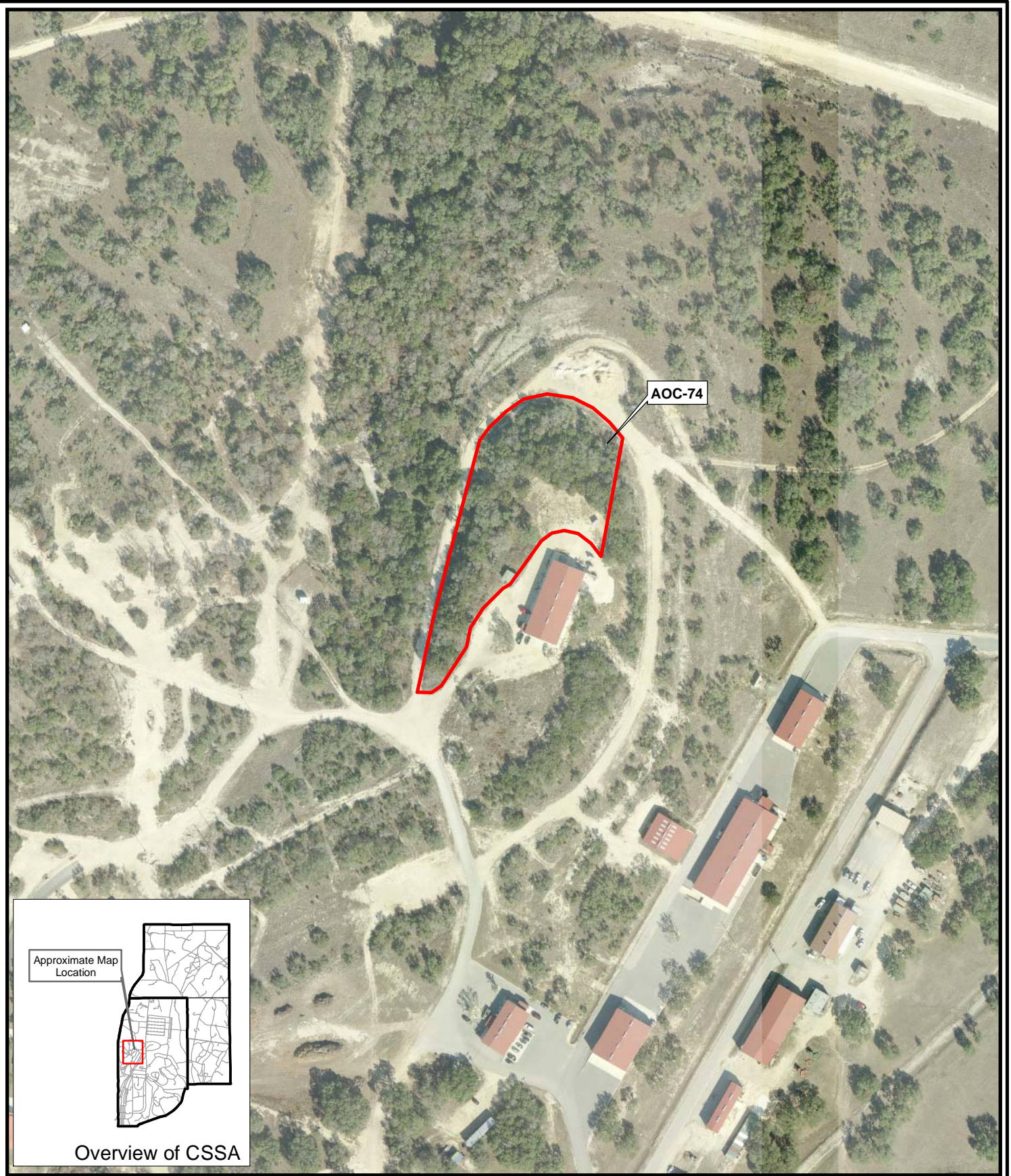
Upon completion of the field effort, a Release Investigation Report (RIR) will be completed for AOC-74. As discussed previously, if the investigation results warrant, another type of closure report may be completed instead.

Table 1. Assessment Levels for Chemicals of Potential Concern
 CSSA 9 Metals
 AOC-74

Chemical of Potential Concern	Residential Tier 1 ^{Tot} Soil _{Comb} (mg/kg) ¹	Residential Tier 1 ^{GW} Soil _{Ing} ² (mg/kg) ²	CSSA Soil Background (mg/kg) ³	Texas-Specific Soil Background (mg/kg) ⁴	EcoBenchmark (mg/kg) ⁵
Arsenic	24.17	2.51	19.6	5.9	18
Barium	8,095	221.92	186	300	330
Cadmium	52.42	0.75	3.0	NA	32
Chromium	26,569	1,200	40.2	30	0.4
Copper	548.2	521.25	23.2	15	61
Lead	500	1.51	84.5	15	120
Mercury	2.09	0.0039	0.77	0.04	0.1
Nickel	832.1	78.68	35.5	NA	30
Zinc	9,921.5	1,180.24	73.2	30	120


- 1) Texas Risk Reduction Program Rule Tier 1 Protective Concentration Levels (PCLs) ^{Tot}Soil_{Comb}, for 30 acre source area, May 2011 (<http://www.tceq.state.tx.us/remediation/trrp/trrpcls.html>).
- 2) Texas Risk Reduction Program Rule Tier 1 Protective Concentration Levels (PCLs) ^{GW}Soil_{Ing}, for 30 acre source area, May 2011 (<http://www.tceq.state.tx.us/remediation/trrp/trrpcls.html>).
- 3) Second Revision to Evaluation of Background Metals Concentrations in Soils and Bedrock, February 2002.
- 4) Background Geochemistry of Some Rocks, Soils, Plants, and Vegetables in the Conterminous United States”, by Jon J. Connor, Hansford T. Shacklette, et al., Geological Survey Professional Paper 574-F, US Geological Survey.
- 5) TCEQ Ecological Benchmark for Soil as stated in Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas, Regulatory Guidance (RG)-263, Revised (January 2006) (<http://www.tceq.state.tx.us/assets/public/remediation/eco/0106eragupdate.pdf>).

Identified PCLs are shown in **bold**.



Aerial Photo Date: 2009



 AOC-74 Boundary

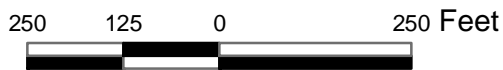
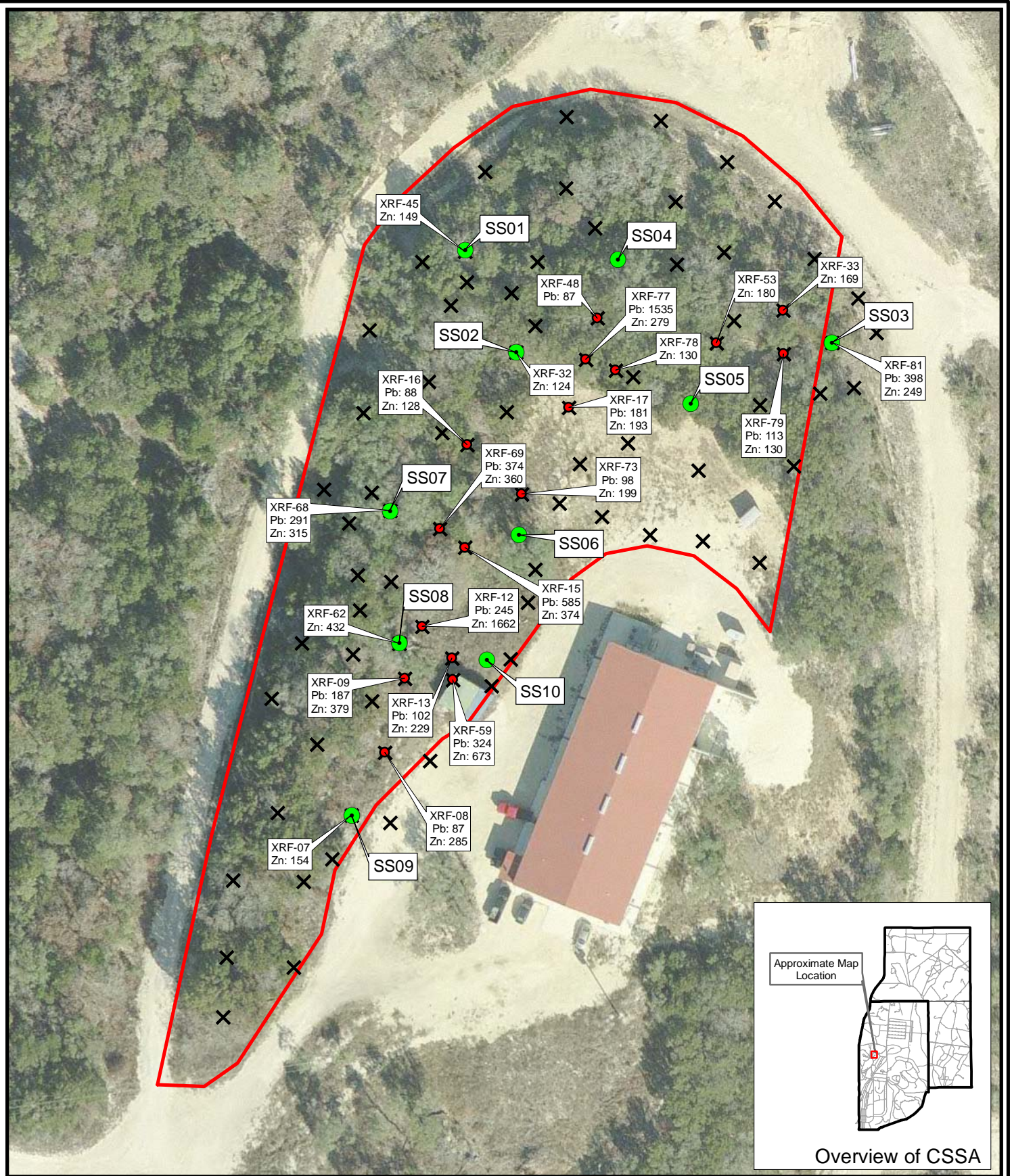


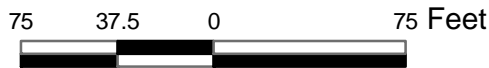
Figure 1

AOC-74
Site Location Map
Camp Stanley Storage Activity

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Aerial Photo Date: 2009



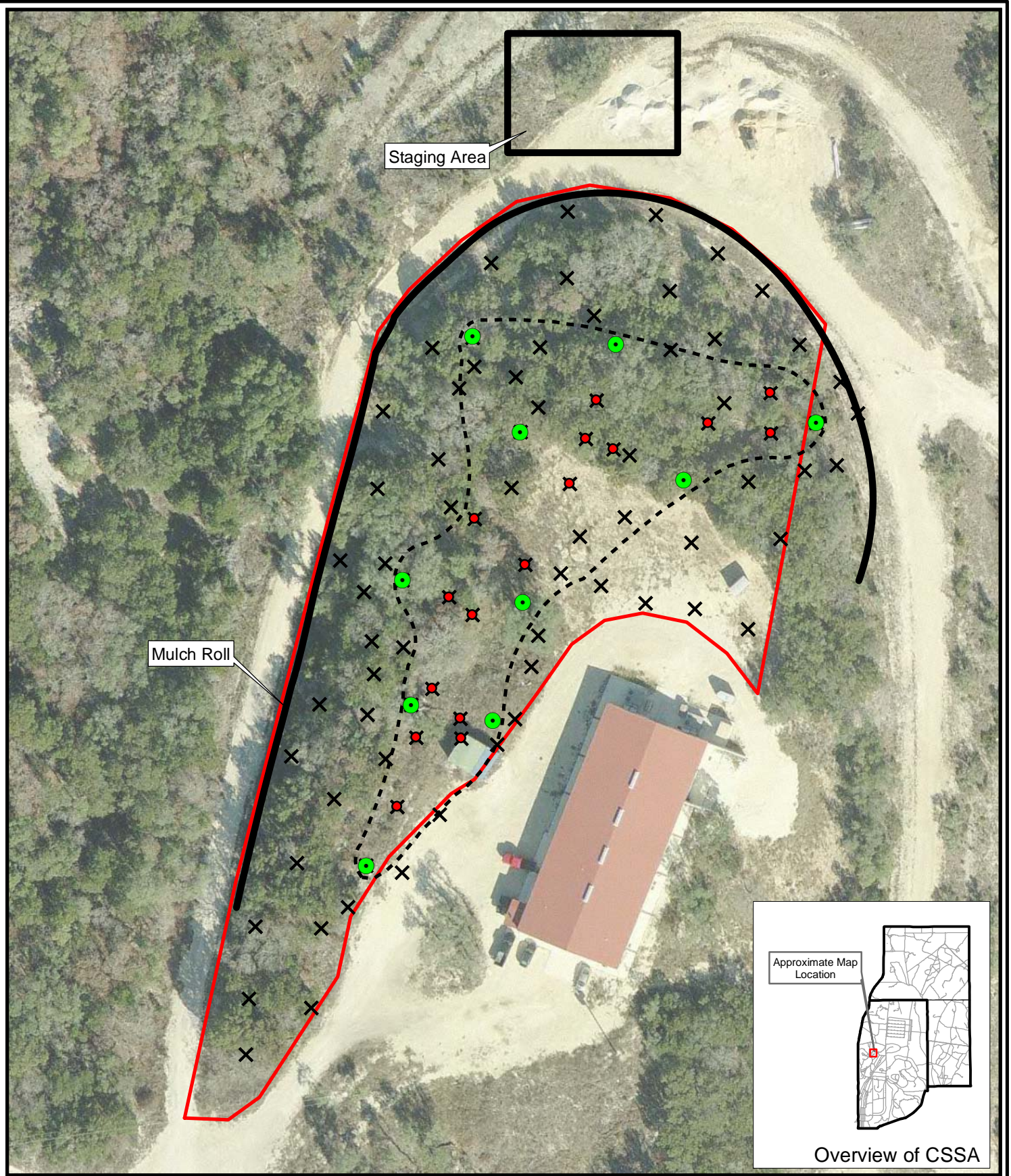
- Proposed Soil Sample
- XRF Results above Tier 1 PCLs (in mg/kg)
- ✕ XRF Sample Location
- AOC-74 Boundary

Figure 2

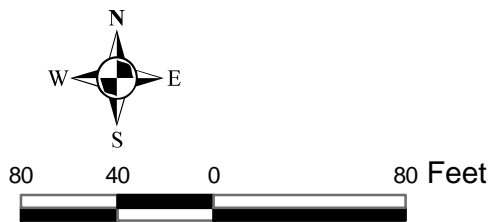
AOC-74 Site Map

Camp Stanley Storage Activity

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Aerial Photo Date: 2009



- Proposed Soil Sample
- Proposed Excavation Extent
- XRF Results above Tier 1 PCLs (in mg/kg)
- X XRF Sample Location
- AOC-74 Boundary

Figure 3

AOC-74
Proposed Excavation Area
Camp Stanley Storage Activity

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