

# WORK PLAN AND SAMPLING AND ANALYSIS PLAN ADDENDUM

AREA OF CONCERN 51-A



*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 AOC51-A**

Parsons is currently under contract to provide an investigation at Area of Concern (AOC) 51-A, 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](http://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.

The presence of both munitions and explosives of concern (MEC) has been documented within the AOC-51 area. However munitions constituents (MC) contamination in the area has been found to be more limited in scope. This investigation is limited to one of the areas identified with MC contamination – AOC51-A. The goal of this investigation is to remove all identified soils with metal levels in excess of identified Texas Risk Reduction Program (TRRP) protective concentration limits (PCLs) (see Section 2.3) within that area. It is expected that upon completion of this investigation, a Release Investigation Report (RIR) will be prepared for the AOC-51 area. 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 SAP 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 AOC51-A*, March, 2012.

### **SITE DESCRIPTION AND BACKGROUND**

#### **1.1 Description**

AOC51-A is located in the southeast portion of CSSA, in the East Pasture (Figure 1). AOC51-A covers approximately 2.6 acres. There are no records of waste management occurring within AOC51-A. Historical documents and physical evidence in the vicinity of the site indicate that the area in the vicinity of AOC51-A was used during World War I for military trench warfare and other training activities. During a brush clearance and unexploded ordnance (UXO) sweep in the AOC-51 area in 1997, MEC, including 20-pound intact fragmentation bombs, were identified. Potential habitat for the special status bird species – the black-capped vireo (*Vireo atricapilla*) and the golden-cheeked warbler (*Dendrocia chrysoparia*) is located in the vicinity, but not within AOC51-A.

Additional background information on AOC-51 can be found in the CSSA Environmental Encyclopedia ([Volume 1-3, AOC-51](#)).

## **1.2 Previous Investigations**

In May 2005, nine surface soil samples (SS01 - SS09) were collected within the AOC-51 area and analyzed for metals and explosives. The results were all below Tier 1 PCLs.

An x-ray fluorescence (XRF) survey for lead and zinc was conducted in December 2010. The XRF field screening results showed both lead and zinc present at the site soils above Tier 1 PCLs. In November 2011, three surface soil samples (SS10 – SS12) were collected from these areas to confirm the elevated XRF values. These samples were analyzed for metals and explosives. No explosives were detected; however, one sample (SS11) at AOC51-A exceeded the Tier 1 PCL for copper and lead.

XRF samples were also collected as part of a UXO investigation conducted within the AOC 51 area in November and December 2011. A number of locations showed elevated levels of both lead and zinc. In January 2012, six additional surface soil samples (SS13 – SS18) were collected to confirm these elevated XRF values. Three samples exceeded the Tier 1 PCL for zinc and one sample exceeded the Tier 1 PCL for lead.

Most recently, in February 2012, fourteen additional surface soil samples (SS19 – SS32) were collected in the vicinity of AOC51-A to help delineate the proposed excavation extent. These samples were also analyzed for metals and explosives. Results showed concentrations of copper, lead, and zinc above Tier 1 PCLs at two of the sample locations (SS24 and SS27).

## **2.0 INVESTIGATION PROCEDURES**

This investigation will include a preliminary sweep of the excavation and work areas by UXO personnel for potential MEC; the excavation of contaminated soils; and the collection of confirmation samples for laboratory analysis to verify the successful removal of all contaminated soils from the site. 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.

Based on the site history and previously encountered MEC and MD, the contaminants of potential concern (COPC) at the site include CSSA 9 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc), and explosives.

### **2.1 Excavation Effort**

Soils identified as contaminated (criteria described in Section 2.3) through the field screening effort and confirmation sampling will be excavated and managed accordingly. An estimated 1,200 cubic yards (CY) of contaminated soils may be excavated from an area of approximately 0.7 acres (Figure 2). The excavated soil material may be either stockpiled along

and adjacent to the excavation to allow for inspection, or moved directly to the respective staging area (Figure 2) and placed into 500 CY piles.

A UXO technician will provide construction support during all ground breaking activities. Passenger vehicles and equipment trailers will not enter the excavated area. Excavating equipment will be parked on a trailer prior to leaving CSSA.

## **2.2 Waste Management**

Contaminated soils will be managed in accordance with CSSA's *RFI/IM WMP*, Parsons, 2006 and the *RFI/IM Addendum for AOC51-A*, March, 2012.

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. All impacted soils that meet non-hazardous criteria and CSSA standards for berm reuse will be transported to the East Pasture berm. Impacted soil media which is believed to contain COPCs 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 characteristic hazardous criteria (40 Code of Federal Regulations [CFR] 261.24) will be treated in accordance with the *RFI/IM WMP* (*i.e.* with use of PIMS, etc.) to non-hazardous levels and managed at the East Pasture berm or off-post as appropriate. Parsons will coordinate the transportation of soils to the East Pasture berm with CSSA personnel.

## **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. Table 1 outlines these values and the identifies PCLs for the CSSA 9 metal analytes. The identified PCLs may be modified based on investigation findings, if necessary.

Soil samples for laboratory analysis may be collected during and post-excavation, as necessary, to confirm 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.

Confirmation soil samples will be collected and analyzed for CSSA 9 metals and explosives. 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 these 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**

Due to the small footprint of the proposed excavation area, less than 1 acre, the development of a Storm Water Pollution Prevention Plan (SWPPP) is not necessary for AOC51-A. In addition, a Notice of Intent is not required for construction sites less than 5 acres.

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. It is anticipated to take approximately six weeks. All excavation work will be coordinated and scheduled in advance with CSSA.

Upon completion of the field effort, an RIR will be completed for AOC-51. 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  
 AOC51-A

Chemical of Potential Concern	Residential Tier 1 <sup>Tot</sup> Soil <sub>Comb</sub> (mg/kg) <sup>1</sup>	Residential Tier 1 <sup>GW</sup> Soil <sub>Ing</sub> (mg/kg) <sup>2</sup>	CSSA Soil Background (mg/kg) <sup>3</sup>	Texas-Specific Soil Background (mg/kg) <sup>4</sup>	EcoBenchmark (mg/kg) <sup>5</sup>
Arsenic	24.2	2.51	<b>19.6</b>	5.9	18
Barium	8,095	221.9	186	<b>300</b>	330
Cadmium	52.4	1.5	<b>3.0</b>	NA	32
Chromium	26,569	1,200	<b>40.2</b>	30	0.4
Copper	548.2	521.2	23.2	15	<b>61</b>
Lead	500	1.51	<b>84.5</b>	15	120
Mercury	2.09	0.0039	<b>0.77</b>	0.04	0.1
Nickel	832.1	78.68	<b>35.5</b>	NA	30
Zinc	9,921	1,180.2	73.2	30	<b>120</b>

1) Texas Risk Reduction Program Rule Tier 1 Protective Concentration Levels (PCLs) <sup>Tot</sup>Soil<sub>Comb</sub>, for 30-acre source area, May 2011, (<http://www.tceq.state.tx.us/remediation/trrp/trppcls.html>).

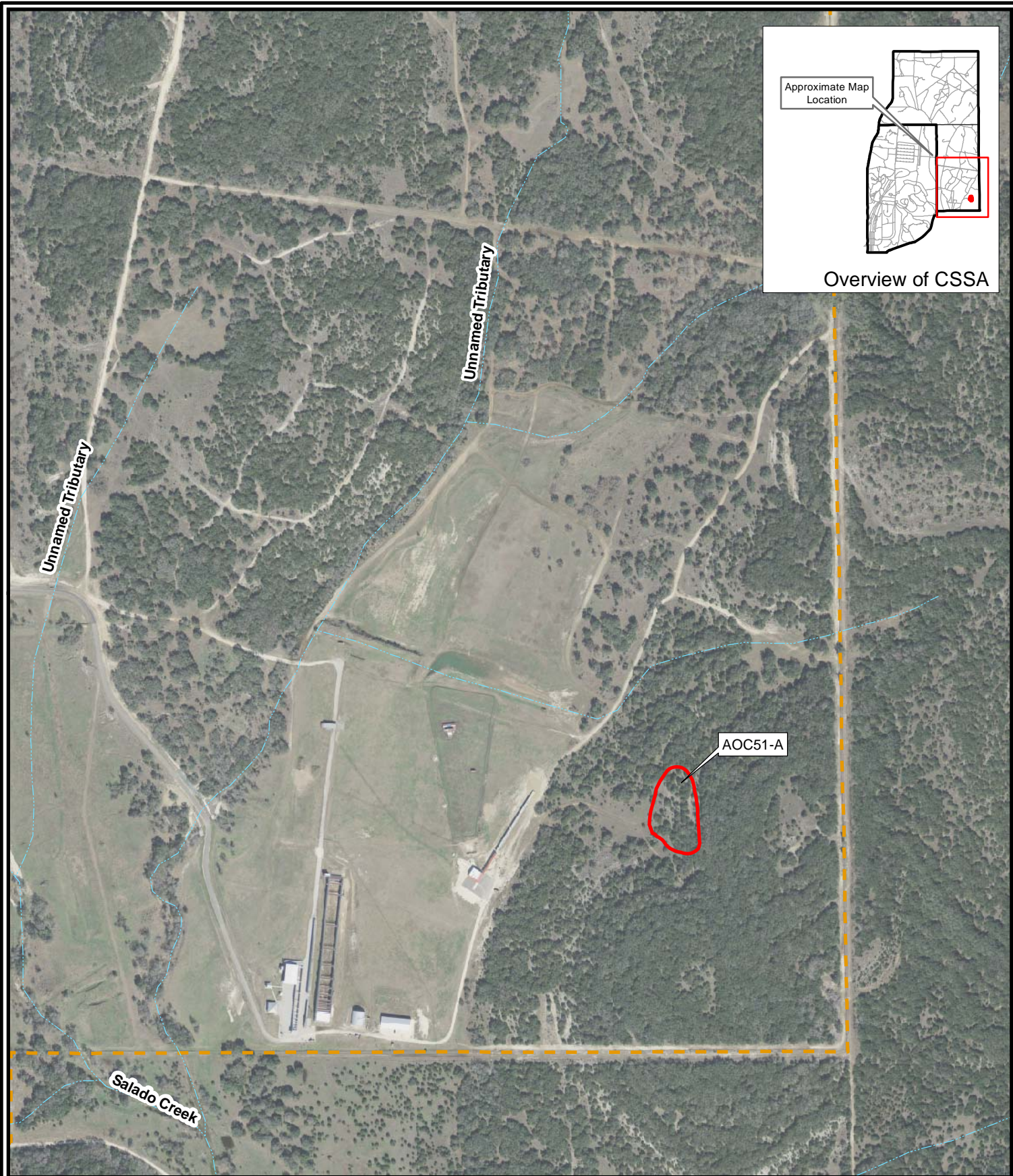
2) Texas Risk Reduction Program Rule Tier 1 Protective Concentration Levels (PCLs) <sup>GW</sup>Soil<sub>Ing</sub>, for 30-acre source area, May 2011, (<http://www.tceq.state.tx.us/remediation/trrp/trppcls.html>).

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, Jon J. Connor, Hansford T. Shacklette, and Richard J. Ebens, Geological Survey Professional Paper 574-F, United States Geological Survey, 1975.

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/remediations/eco/0106eragupdate.pdf>).

Identified PCLs are shown in **bold**.



Aerial Photo Date: 2010



650 325 0 650 Feet

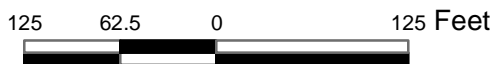
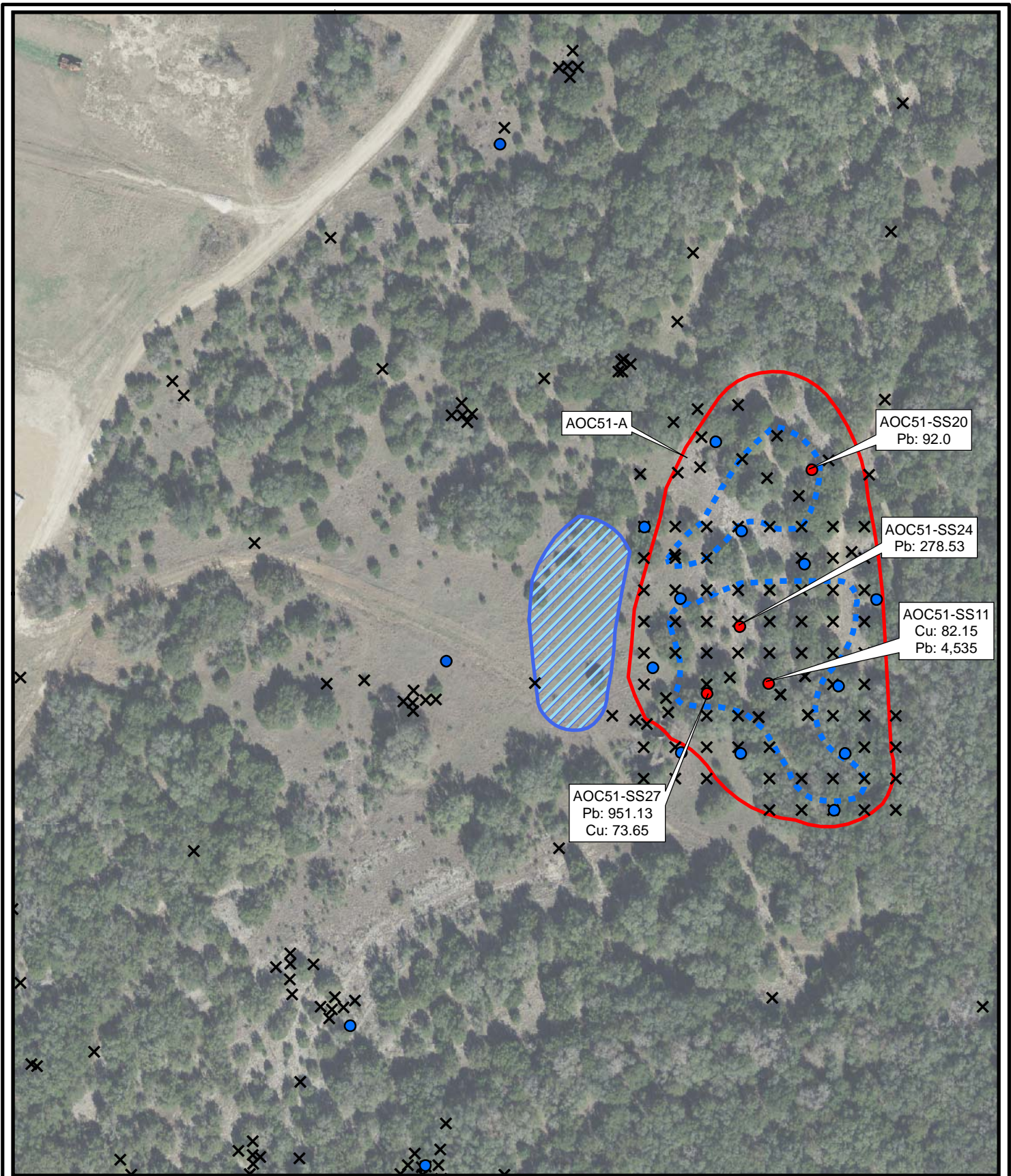


- AOC51-A Boundary
- ~ Stream
- CSSA Outer Fence Line

Figure 1

AOC51-A  
Site Location Map  
Camp Stanley Storage Activity

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- Soil Sample
- Soil Sample with result above Tier 1 PCL (mg/kg)
- x XRF Sample Location
- AOC51-A Boundary
- Proposed Excavation Area
- Staging Area

Figure 2

AOC51-A Site Map  
Camp Stanley Storage Activity

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