

# WORK PLAN AND SAMPLING AND ANALYSIS PLAN ADDENDUM

AREA OF CONCERN 75



*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-75**

Parsons is currently under contract to provide an investigation at Area of Concern - 75 (AOC-75), 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-75 are 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 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 AOC-75*, October, 2012.

### **SITE DESCRIPTION AND BACKGROUND**

#### **1.1 Description**

AOC-75 is a 1.2- acre site located in the northeastern portion of CSSA's Inner Cantonment (Figure 1). There are no records or visible evidence of past military practices, waste handling, or disposal activities at the site. The site was identified as a potential AOC based on surface soil sampling at neighboring Solid Waste Management Unit (SWMU) B-4 which indicated high levels of mercury in the area. Additional background information on AOC-75 can be found in CSSA Environmental Encyclopedia, Volume 3-2.

#### **1.2 Previous Investigations**

Previous investigations at AOC-75 include the sampling of both surface and shallow subsurface soils. Samples were collected in 2010 and in 2011 as part of Affected

Property Assessment (APA) for SWMU B-4, which is located directly to the south of the site. Analytical results are shown on Figures 3a-c. Some of the samples were analyzed for the MC suite of metals of barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc; others just for barium and mercury; and others for mercury alone. In 2012, additional surface and shallow subsurface samples were collected as part of this investigation. Those samples were analyzed for barium, lead, and mercury. **Figures 3a – c** depict the samples collected at the surface (0-0.5 feet(ft) below ground surface (bgs)) (**Figure 3a**), 0.8 – 1.5 ft (**Figure 3b**), and 2.0 – 2.5 ft bgs (**Figure 3c**). The various analyte sampling suites are depicted by different symbology on the sampling location point.

## **2.0 INVESTIGATION PROCEDURES**

This investigation will include: 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*, May, 2012.

### **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 2,000 cubic yards (CY) of contaminated soils may be excavated from an area of approximately 1.2 acre (see **Figure 4**). Excavated soil will be staged in the staging area (**Figure 5**) and will be characterized for management as described below.

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**

It is anticipated that approximately 2,000 CY of excavated materials will require some form of 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-75*, October, 2012.

For excavated soils, waste characterization sampling will occur at a frequency rate 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, as appropriate. Soils will only be re-used at the site if sample analysis of CSSA 9 metals, VOCs, and VOCs shows results lower than the identified PCLs. 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 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 characteristic hazardous criteria (40 Code of Federal Regulations [CFR] 261.24) 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. 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. Parsons will coordinate the transportation of the soils to the East Pasture berm with CSSA personnel. Erosion control will follow the *Storm Water Pollution Prevention Plan for AOC-75, October 2012*.

Stockpiles of soil identified containing concentrations of contaminants greater than hazardous toxicity criteria within the excavated area will be covered with plastic until the removal process begins. Excavated non-hazardous soils will remain uncovered.

### **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 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**

Erosion control and site rehabilitation will follow the *Storm Water Pollution Prevention Plan for AOC-75*, October 2012. 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 nine 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-75. 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-75

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	0.75	<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, June 2012, (<http://www.tceq.state.tx.us/remediation/trrp/trppcls.html>).

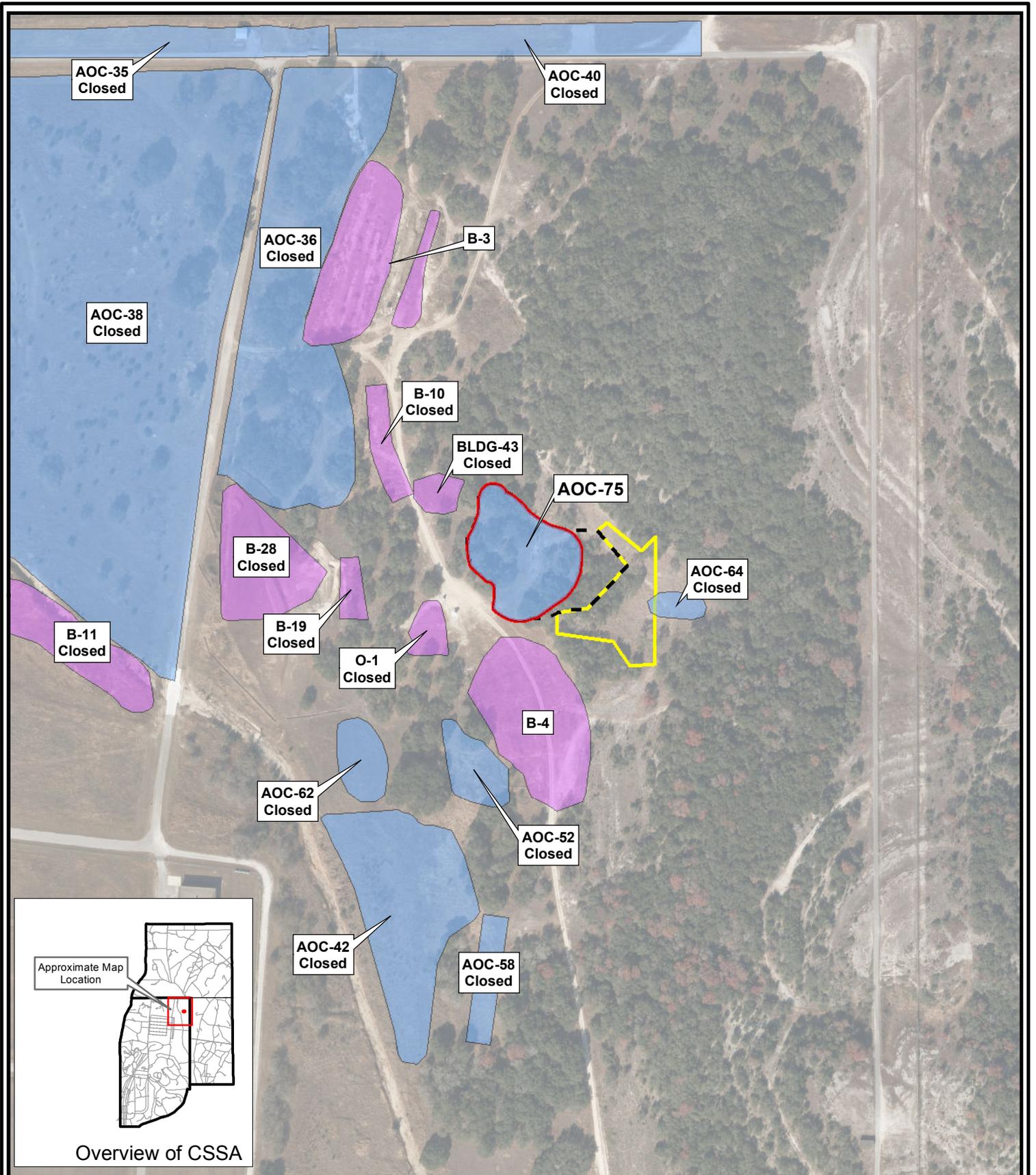
2) Texas Risk Reduction Program Rule Tier 1 Protective Concentration Levels (PCLs) <sup>GW</sup>Soil<sub>Ing</sub>, for 30-acre source area, June 2012, (<http://www.tceq.state.tx.us/remediation/trrp/trppcls.html>).

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



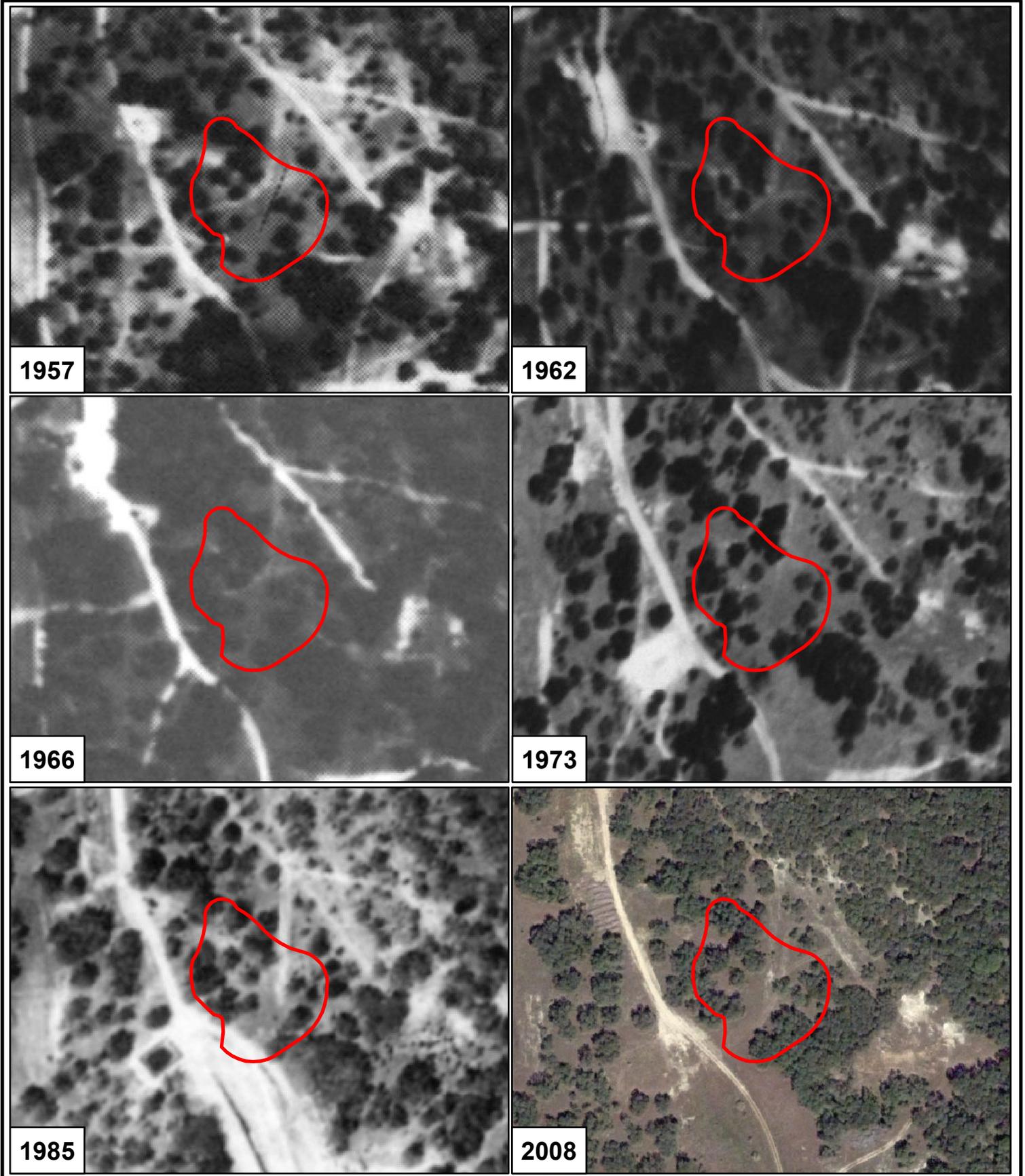
300 150 0 300 Feet

- AOC-75 Site Boundary
- Proposed Excavation Area
- Weston AOC-64 Boundary
- AOC Boundary
- SWMU Boundary

Figure 1

AOC-75  
Site Location Map  
Camp Stanley Storage Activity

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1957

1962

1966

1973

1985

2008



 AOC-75 Boundary

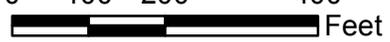
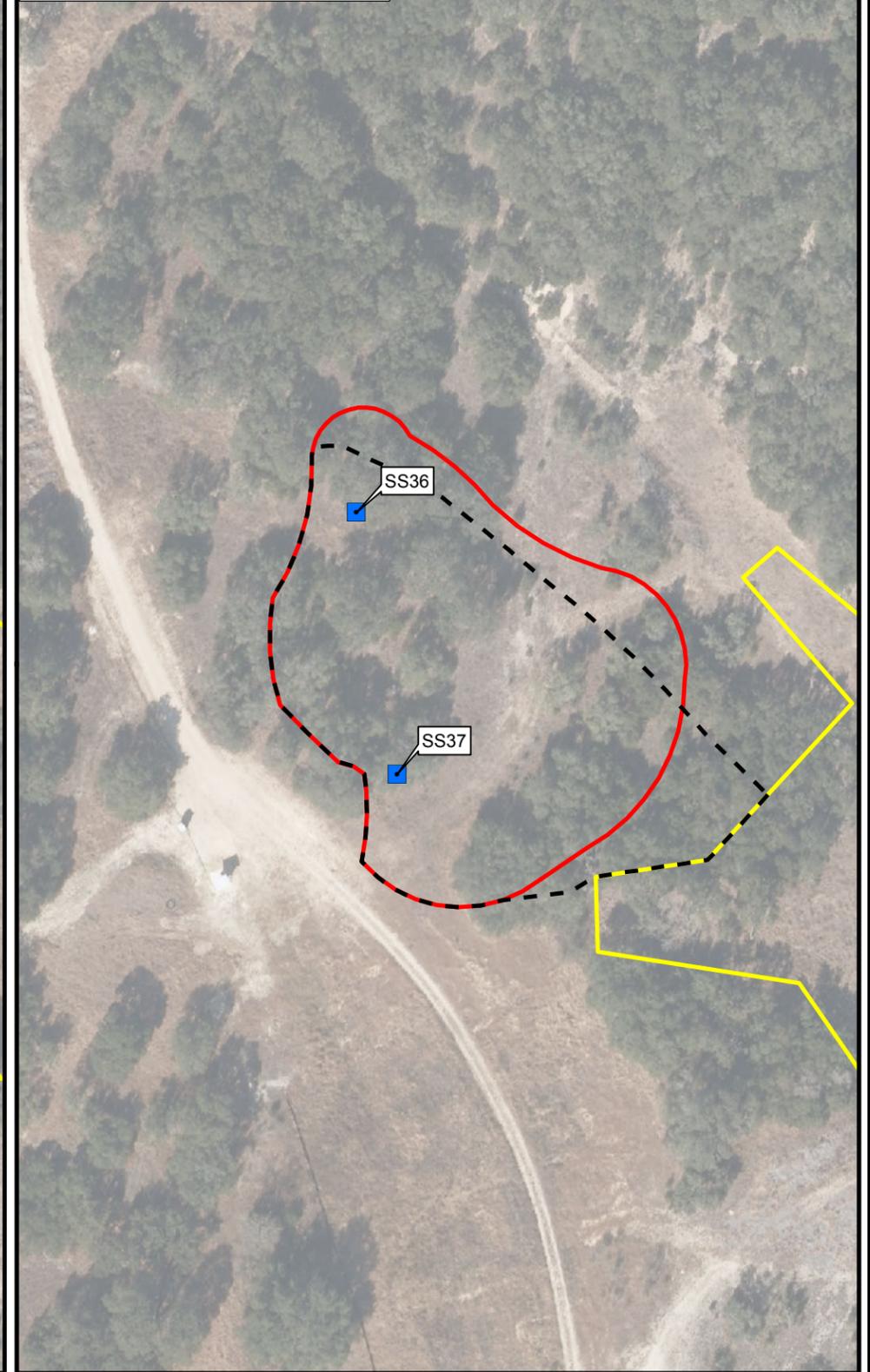
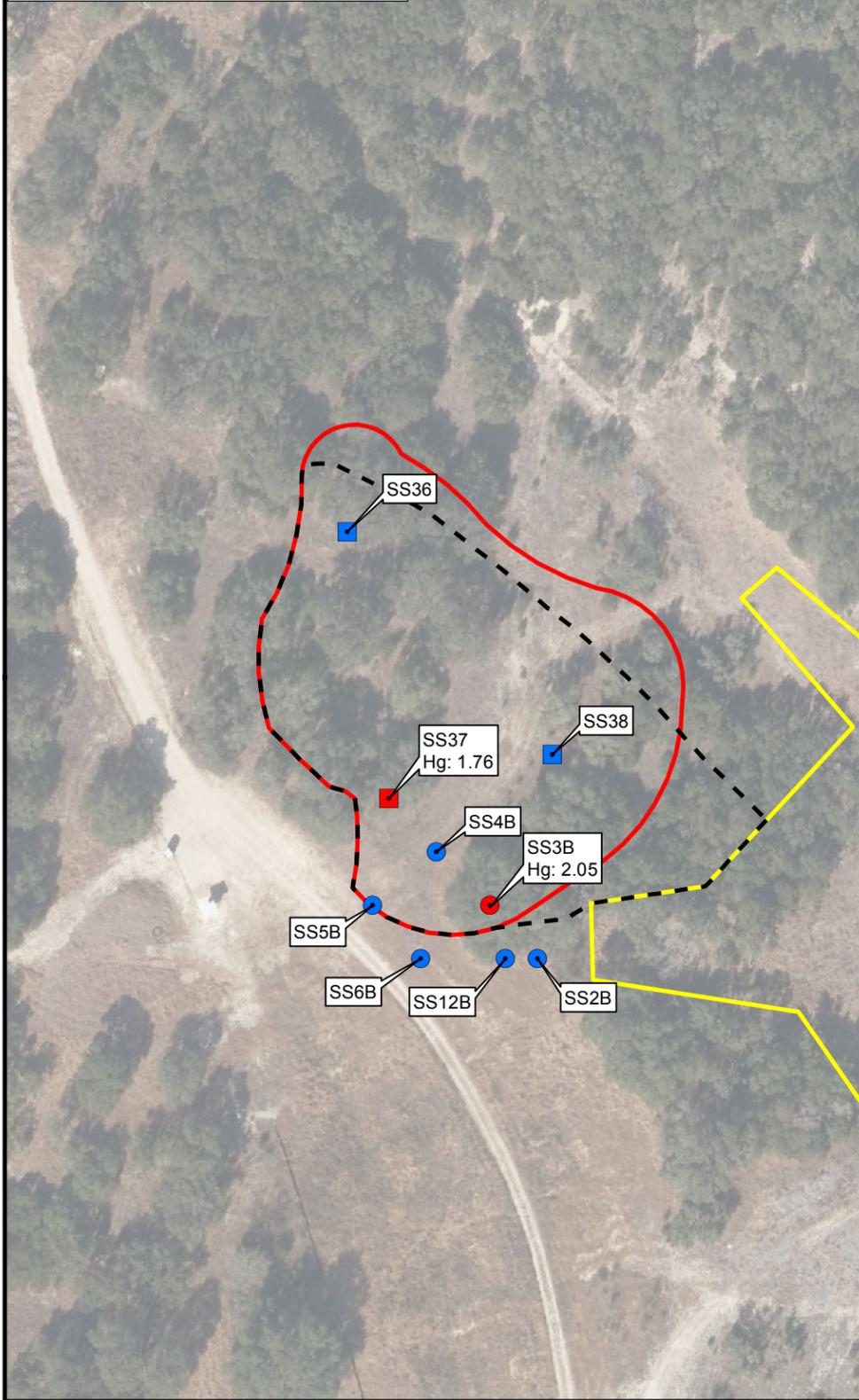
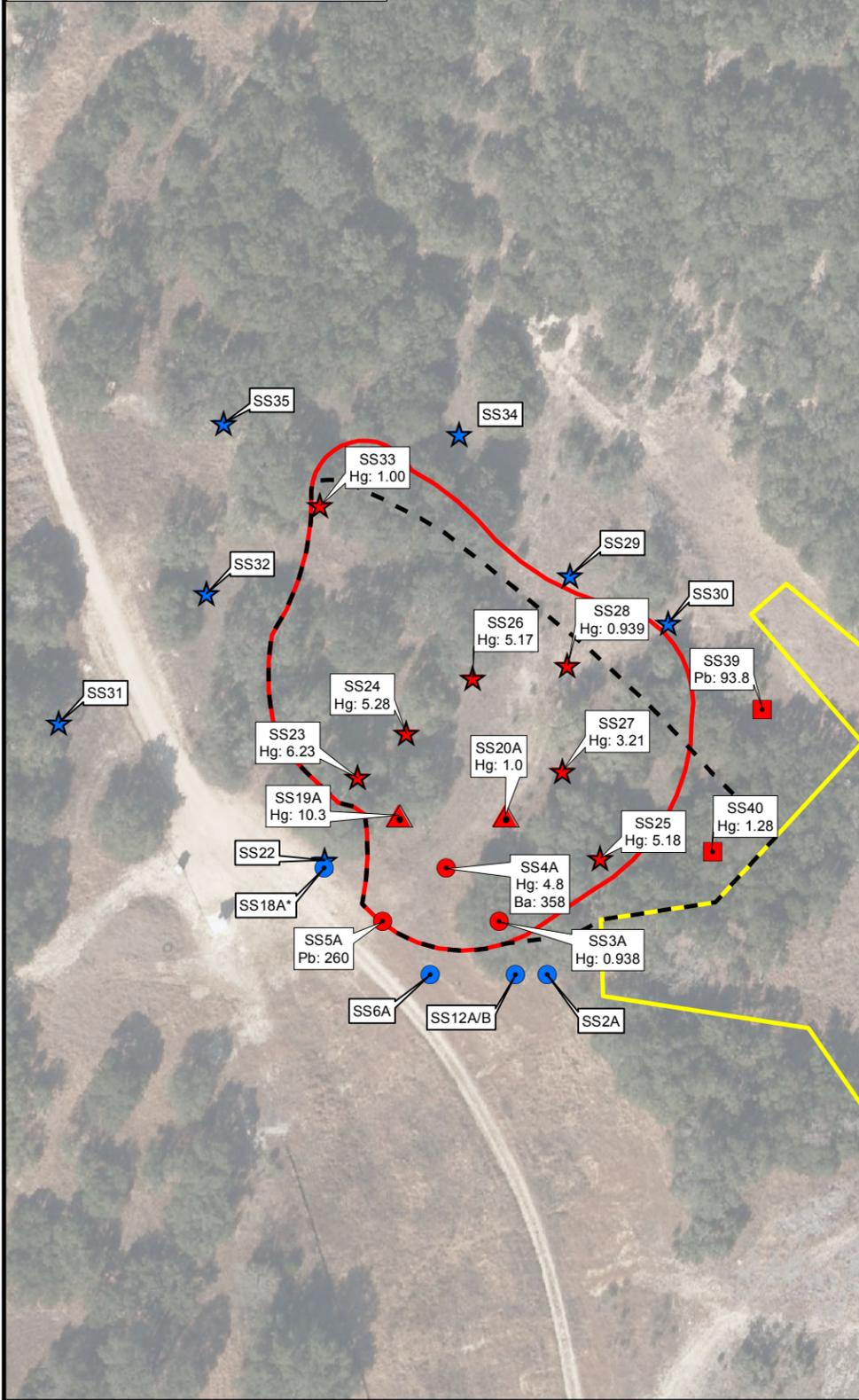
0 100 200 400  
 Feet

Figure 2  
 AOC-75  
 Aerial Photographs  
 Camp Stanley Storage Activity  
**PARSONS**

Surface Samples (0-0.5 ft bgs)

Subsurface Soils (0.8-1.5 ft bgs)

Subsurface Soils (2-2.5 ft bgs)



Aerial Photo Date: 2010



Red outline: AOC-75 Boundary

Yellow outline: Weston AOC-64 Boundary

Dashed black outline: Proposed Excavation Area

Soil Sample Locations

Blue star: Mercury

Blue triangle: Barium, Mercury

Blue square: Barium, Mercury, Lead

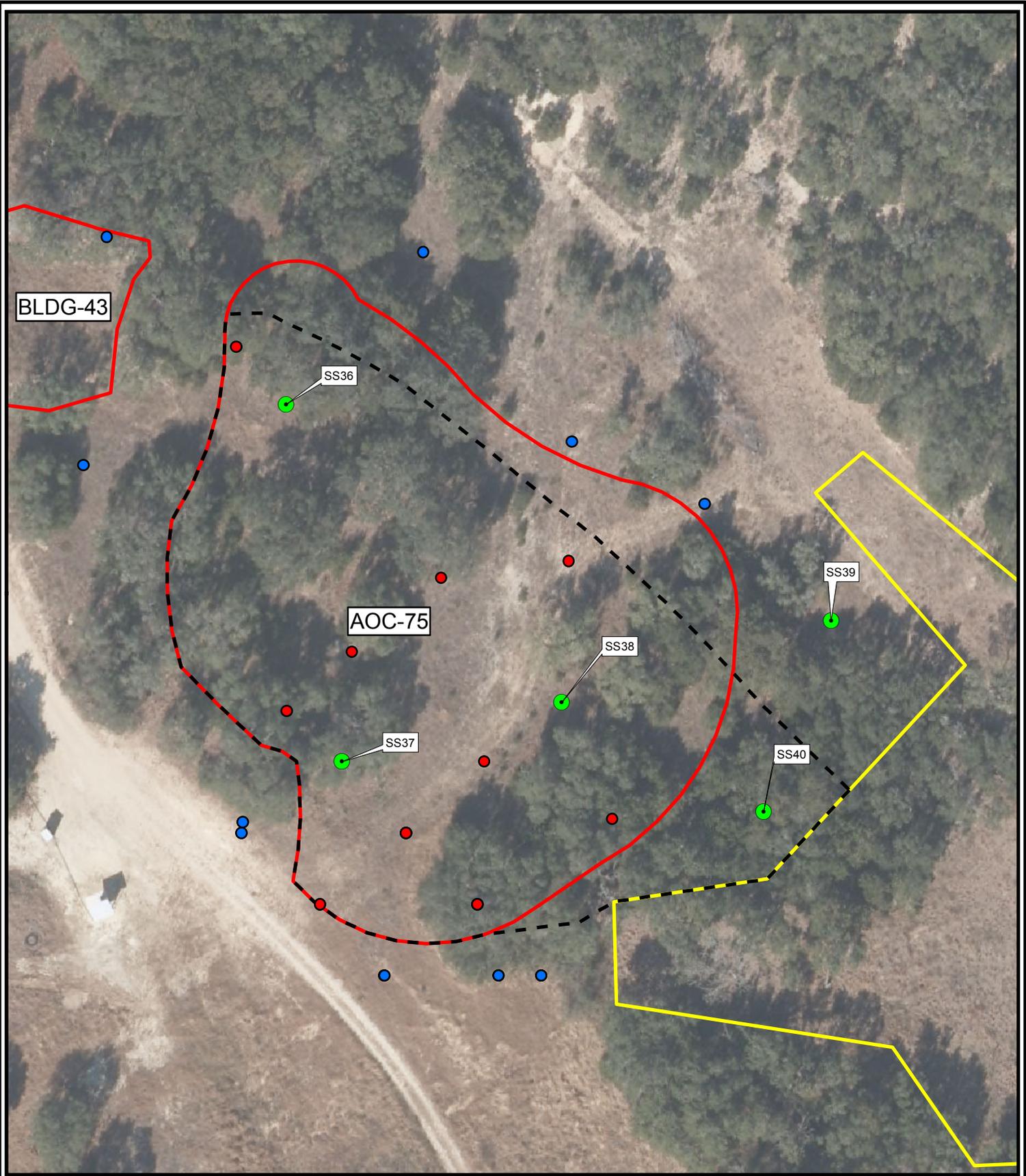
Blue circle: CSSA 9 Metals (\* indicates Lead only)

(Red indicates an exceedance of the Tier 1 PCL. Exceeding concentrations are indicated above.)

Figure 3

AOC-75  
Sampling Map  
Camp Stanley Storage Activity

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Aerial Photo Date: 2010

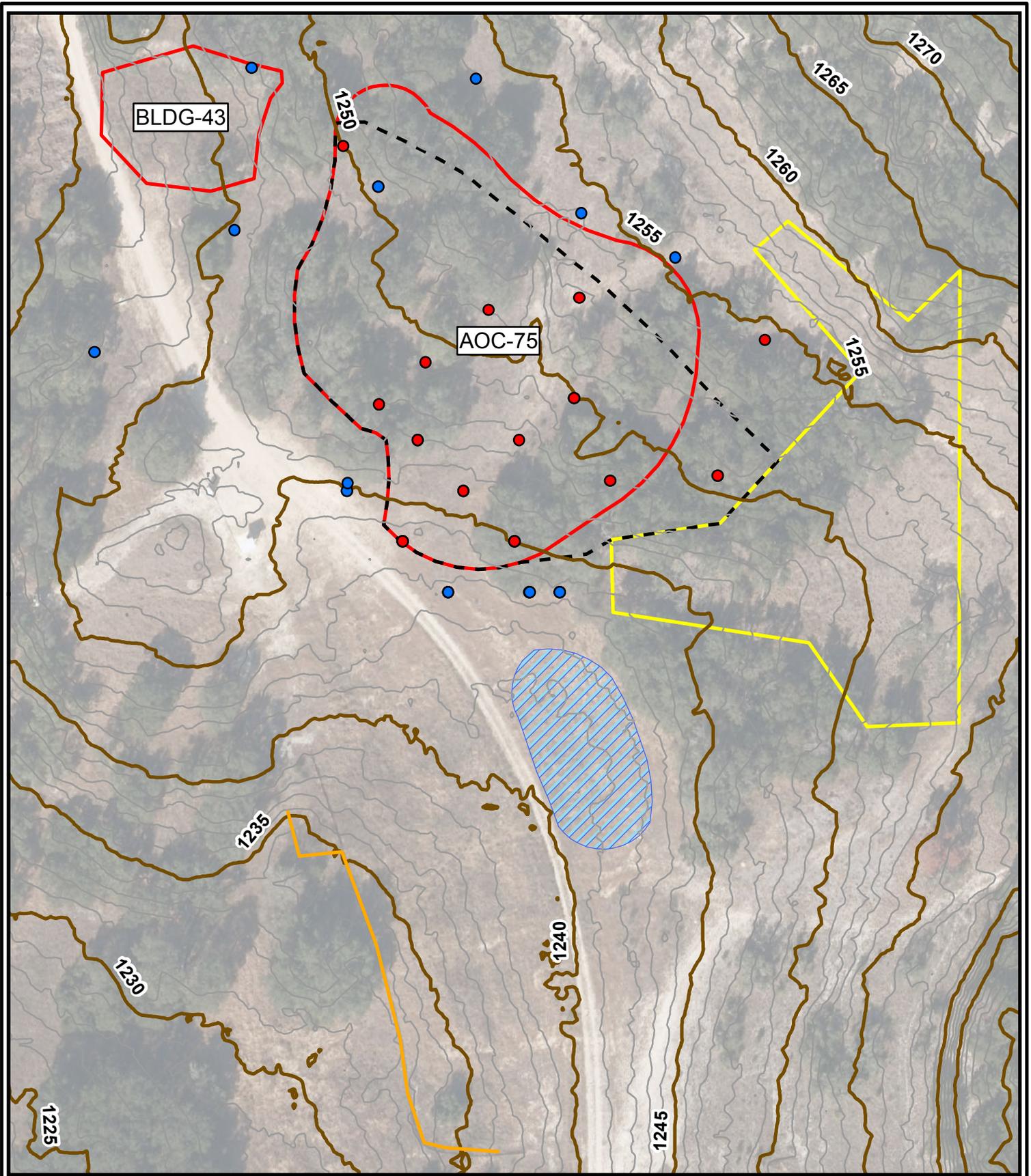


- Proposed Soil Sample
- Soil Sample
- Soil Sample with result in mg/kg above Tier 1 PCL
- Site Boundary
- Proposed Excavation Area
- Weston AOC-64 Boundary

Figure 4

AOC-75  
 Proposed Excavation Effort  
 Camp Stanley Storage Activity

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Aerial Photo Date: 2010



- Soil Sample
- Soil Sample with result above Tier 1 PCL
- Site Boundary
- Proposed Excavation Area
- Silt Fence
- Staging Area
- Weston AOC-64 Boundary
- 5 Foot Contours
- 1 Foot Contours

Figure 5

AOC-75  
 Drainage Control Features  
 Camp Stanley Storage Activity

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