Final

Record of Decision
for Soil, Sediment, and Surface Water
at RVAAP-50 Atlas Scrap Yard

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract No. W912QR-21-D-0016
Delivery Order No. W912QR-21-F-0274

Prepared for:

US Army Corps of Engineers®

U.S. Army Corps of Engineers
Louisville District

Prepared by:

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March 18, 2022

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None.

14. ABSTRACT

This Record of Decision for Atlas Scrap Yard presents the physical characteristics, geology, and hydrogeology of Atlas Scrap Yard. This decision document summarizes nature and extent of contamination in soil, sediment, and surface water; contaminant fate and transport; and human health and ecological risk assessments. Remedial alternatives were developed and assessed, resulting in the selection of two remedial alternatives:
- FIA Alternative 3: Excavation and Off-Site Disposal of Surface Soil – Attain Unrestricted (Residential) Land Use
- FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use
This information was presented to the public, and all public input was considered during the selection of the final remedy for soil, surface water, and sediment at Atlas Scrap Yard in this ROD.

15. SUBJECT TERMS

record of decision, cleanup goals, remedial action objective, risk assessment, weight of evidence, nature and extent, fate and transport, remedial alternative

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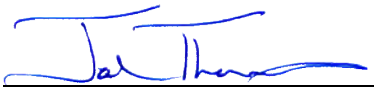
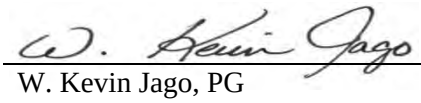
CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Leidos has completed the Record of Decision for Soil, Sediment, and Surface Water at RVAAP-50 Atlas Scrap Yard at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk and complexity inherent in the project. During the independent technical review, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of data quality objectives; technical assumptions; methods, procedures, and materials to be used; the appropriateness of data used and level of data obtained; and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing U.S. Army Corps of Engineers policy.



Jed Thomas, PE, PMP
Study/Design Team Leader

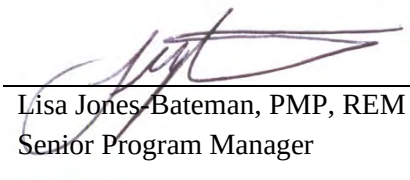
March 18, 2022
Date



W. Kevin Jago, PG
Independent Technical Review Team Leader

March 18, 2022
Date

Significant concerns and the explanation of the resolution are documented within the project file. As noted above, all concerns resulting from independent technical review of the project have been considered.



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March 18, 2022
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ARNG = Army National Guard
NEDO = Northeast District Office
OHARNG = Ohio Army National Guard
Ohio EPA = Ohio Environmental Protection Agency
REIMS = Ravenna Environmental Information Management System
SWDO = Southwest District Office
USACE = U.S. Army Corps of Engineers

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ACRONYMS AND ABBREVIATIONS

amsl	Above Mean Sea Level
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
ARNG	Army National Guard
Army	U.S. Department of the Army
AT123D	Analytical Transient 1-, 2-, and 3-Dimensional Model
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CJAG	Camp James A. Garfield
CMCOC	Contaminant Migration Chemical of Concern
CMCOPC	Contaminant Migration Chemical of Potential Concern
COC	Chemical of Concern
COPEC	Chemical of Potential Ecological Concern
CUG	Cleanup Goal
DFFO	Director's Final Findings and Orders
DNT	Dinitrotoluene
DoD	U.S. Department of Defense
ERA	Ecological Risk Assessment
FIA	Former Incinerator Area
FSA	Former Storage Area
FS	Feasibility Study
FWCUG	Facility-wide Cleanup Goal
FWGWMP	Facility-wide Groundwater Monitoring Program
H&S	Health and Safety
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
IRP	Installation Restoration Program
ISM	Incremental Sampling Methodology
LUC	Land Use Control
MMRP	Military Munitions Response Program
MRS	Munitions Response Site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
O&M	Operation and Maintenance
OAC	Ohio Administrative Code
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
ORAM	Ohio Rapid Assessment Method
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PMP	Project Management Professional
PRG	Preliminary Remediation Goal

ACRONYMS AND ABBREVIATIONS (Continued)

RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
REM	Registered Environmental Manager
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SEMS	Superfund Environmental Management System
SRC	Site-related Contaminant
SVOC	Semi-volatile Organic Compound
TCLP	Toxicity Characteristic Leaching Procedure
TR	Target Risk
USEPA	U.S. Environmental Protection Agency
USP&FO	U.S. Property and Fiscal Officer
VOC	Volatile Organic Compound

PART I: THE DECLARATION

A SITE NAME AND LOCATION

This Record of Decision (ROD) addresses soil, sediment, and surface water at Atlas Scrap Yard. Atlas Scrap Yard is designated as area of concern (AOC) RVAAP-50 within the former Ravenna Army Ammunition Plant (RVAAP) (Figures 1 and 2).

The former RVAAP, now known as Camp James A. Garfield (CJAG), located in northeastern Ohio within Portage and Trumbull counties, is approximately 3 miles east/northeast of the city of Ravenna and 1 mile north/northwest of the city of Newton Falls. The facility is approximately 11 miles long and 3.5 miles wide. The facility is bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad to the south; Garrett, McCormick, and Berry Roads to the west; the Norfolk Southern Railroad to the north; and State Route 534 to the east. In addition, the facility is surrounded by the communities of Windham, Garrettsville, Charlestown, and Wayland. The facility is federal property, which has had multiple accountability transfers amongst multiple Army agencies, making the property ownership and transfer history complex. The most recent administrative accountability transfer occurred in September 2013 when the remaining acreage (not previously transferred) was transferred to the U.S. Property and Fiscal Officer (USP&FO) for Ohio and subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site (Camp James A. Garfield).

Atlas Scrap Yard, formerly known as the construction camp, is approximately 73 acres and is located in the southeastern portion of CJAG (Figure 2). Atlas Scrap Yard is bordered by Newton Falls Road to the north and Paris-Windham Road to the east. The Superfund Environmental Management System (SEMS) Identifier for RVAAP is OH5210020736.

B STATEMENT OF BASIS AND PURPOSE

The Army National Guard (ARNG) is the lead agency and has chosen the selected remedy for Atlas Scrap Yard in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for the AOC.

The Ohio Environmental Protection Agency (Ohio EPA), the supporting state regulatory agency, concurred with the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-50 Atlas Scrap Yard* (Leidos 2017; herein referred to as the Atlas Scrap Yard Remedial Investigation [RI] Report), *Feasibility Study for Soil, Sediment, and Surface Water at RVAAP-50 Atlas Scrap Yard* (Leidos 2019; herein referred to as the Atlas Scrap Yard Feasibility Study [FS]), and *Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-50 Atlas Scrap Yard* (Leidos 2020; herein referred to as the Atlas Scrap Yard Proposed Plan).

The Director's Final Findings and Orders (DFFO) was finalized in June 2004 (Ohio EPA 2004). The objective of the DFFO was for the U.S. Department of the Army (Army) and Ohio EPA to "contribute

to the protection of public health, safety, and welfare and the environment from the disposal, discharge, or release of contaminants at or from the site, through implementation of a CERCLA-based environmental remediation program. This program will include the development by respondent of a Remedial Investigation (RI)/Feasibility Study (FS) for each AOC or appropriate group of AOCs at the site, and upon completion and publication of a Proposed Plan and ROD or other appropriate document for each AOC or appropriate group of AOCs, the design, construction, operation, and maintenance of the selected remedy as set forth in the ROD or other appropriate document for each AOC or appropriate group of AOCs."

The Atlas Scrap Yard RI Report (Leidos 2017) evaluated surface soil, subsurface soil, sediment, and surface water at Atlas Scrap Yard. No chemicals of concern (COCs) were identified as requiring remediation for any receptor in subsurface soil, sediment, or surface water; however, COCs that require remediation were identified in surface soil. The Atlas Scrap Yard FS (Leidos 2019) refined the areas requiring remediation to the Former Incinerator Area (FIA) and Former Storage Area (FSA). These specific locations within Atlas Scrap Yard are presented in Figure 3. No other areas within Atlas Scrap Yard have COCs requiring remediation.

Lead is a surface soil COC requiring remediation in the FIA. The Atlas Scrap Yard FS Report (Leidos 2019) provided an evaluation of remedial alternatives for surface soil at the FIA, and *FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use* was the recommended alternative. Subsequent to the approval of the Atlas Scrap Yard FS Report (Leidos 2019), Ohio EPA specified Resource Conservation and Recovery Act (RCRA) requirements for FIA Alternative 2. In response to those requirements, ARNG has selected *FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use*.

Polycyclic aromatic hydrocarbons (PAHs) are surface soil COCs that require remediation in the FSA. The Atlas Scrap Yard FS Report (Leidos 2019) provided an evaluation of remedial alternatives for surface soil at the FSA. *FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use* is the selected alternative.

The decision to conduct remedial actions to address contamination at Atlas Scrap Yard satisfies the requirements of the DFFO, as the Army has completed the CERCLA RI/FS phase of investigation at Atlas Scrap Yard. ARNG is publishing this ROD to select remedies for this site that are protective of human health and the environment. Part II, Section M explains how the selected remedies are protective of human health and the environment and that the selected remedies satisfy the statutory requirements of CERCLA Section 121 and the NCP.

C ASSESSMENT OF SITE

The response action selected in this ROD is necessary to protect public health, welfare, or the environment from actual or threatened releases of contaminants in soil at Atlas Scrap Yard.

D DESCRIPTION OF THE SELECTED REMEDIES

The potential future uses for Atlas Scrap Yard are Military Training Land Use or Commercial/Industrial Land Use. The Representative Receptors corresponding to these potential future uses are the National Guard Trainee and Industrial Receptor, respectively. Although residential use is not anticipated at the former RVAAP or at this AOC, an Unrestricted (Residential) Land Use scenario was evaluated. Unrestricted (Residential) Land Use is considered protective for, and may be applied to, all categories of land use on the former RVAAP, without further restriction.

The nature and extent of potentially impacted media has been adequately characterized, the fate and transport modeling did not identify soil or sediment contaminant migration chemicals of concern (CMCOCs) impacting groundwater, and no ecological risk was identified. Groundwater will be evaluated as an individual AOC for the entire facility (designated as RVAAP-66) under the Facility-wide Groundwater Monitoring Program (FWGWMP) and decisions specific to groundwater will be documented in a separate ROD.

No COCs were identified as requiring remediation for any receptor in subsurface soil, sediment, or surface water; however, COCs that require remediation were identified in surface soil. The following subsections present the remedies to address surface soil contamination at the FIA and FSA within Atlas Scrap Yard.

D.1 Former Incinerator Area

The southern portion of Atlas Scrap Yard currently contains a structure of a formerly used incinerator. Figure 4 presents a historical design drawing of the incinerator with current photographs. The outside structure associated with the former incinerator is still present, but other components associated with the incinerator have been razed.

The surface soil around the former incinerator was determined to have lead as a COC requiring remediation for the Resident Receptor, Industrial Receptor, and National Guard Trainee. The area containing this contaminated surface soil is designated as the FIA. The extent of the FIA is shown in Figure 5. The Atlas Scrap Yard FS Report (Leidos 2019) developed and evaluated the following remedial alternatives for soil at the FIA:

- FIA Alternative 1: No Action.
- FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use.
- FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use.

The selected remedy is *FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use*. This alternative involves removal and disposal of lead-contaminated soil from the FIA.

The selected remedy was chosen because it is protective of all receptors (Resident Receptor, Industrial Receptor, and National Guard Trainee); is cost effective; and can be performed in a timely manner (no operation and maintenance [O&M] sampling or 5-year reviews). The following briefly lists the activities associated with FIA Alternative 3:

- The former incinerator will be demolished and removed.
- Delineation/pre-excavation confirmation sampling will be conducted to confirm the limits of soil excavation.
- An estimated 366 yd^3 (ex situ) of lead-contaminated soil from the FIA will be removed and disposed of at an offsite engineered landfill. Due to previous lead sampling results, the soil generated during the removal action may require disposal as hazardous waste in a licensed hazardous waste landfill.
- Confirmation sampling will be conducted to determine if cleanup goals (CUGs) have been attained.
- Successfully remediated areas will be graded and backfilled with clean soil and then seeded.

The selected remedy will achieve a requisite level of protectiveness for the FIA. The cost of FIA Alternative 3 is $372,578. The Army will not be required to develop and implement O&M sampling or 5-year reviews, as this remedy attains Unrestricted (Residential) Land Use in the FIA.

D.2 Former Storage Area

The Atlas Scrap Yard RI Report (Leidos 2017) identified PAHs in surface soil as COCs requiring remediation. The U.S. Environmental Protection Agency (USEPA) Resident Soil regional screening levels (RSLs) were updated subsequent to the finalization of the Atlas Scrap Yard RI Report. Accordingly, the extent of surface soil requiring remediation was re-evaluated in the Atlas Scrap Yard FS Report (Leidos 2019).

The final extent of PAHs requiring remediation was refined to the FSA. After the Vietnam War, this area was used as a stockpile storage area for bulk material, including gravel, railroad ballasts, sand, culvert pipe, railroad ties, and telephone poles. Sometime between 2000 and 2002, railroad ties and timbers were placed in the FSA. The FSA was part of a specific sampling event in 2011 to assess PAH contamination. Figure 6 presents the PAH concentrations in surface soil from that investigation. Figure 7 depicts the area with surface soil containing PAH concentrations that exceeded the Resident Receptor CUGs. Figure 8 depicts the one sample area (ASYss-126M) in which a benzo(a)pyrene concentration exceeded the Industrial Receptor CUG. In no other sample location did a PAH concentration exceed the Industrial Receptor CUGs.

The following remedial alternatives were developed and evaluated to address the PAH COCs within surface soil in the FSA:

- FSA Alternative 1: No Action.
- FSA Alternative 2: Excavation and Offsite Disposal of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use.

- FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use.
- FSA Alternative 4: Excavation and Offsite Disposal of Surface Soil at the FSA – Attain Unrestricted (Residential) Land Use.
- FSA Alternative 5: Ex Situ Thermal Treatment of Surface Soil at the FSA – Attain Unrestricted (Residential) Land Use.

The selected remedy is *FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use*. This alternative uses ex situ thermal treatment for surface soil (0 to 1 foot below ground surface [bgs]) at sample location ASYss-126M to reduce the benzo(a)pyrene concentration to below the Industrial Receptor CUG.

The selected remedy was chosen because it is protective of all receptors (Resident Receptor, Industrial Receptor, and National Guard Trainee); is cost effective; is a green and highly sustainable alternative for onsite treatment and unrestricted reuse of soil; and implements a treatment alternative to reduce the toxicity, mobility, and volume of contamination. The following summarizes the activities associated with FSA Alternative 3:

- An estimated 473 yd^3 (ex situ) of contaminated soil from the FSA will be excavated and placed into a thermal treatment system to remove benzo(a)pyrene from soil.
- Confirmation sampling will be conducted of the excavation footprint and treated soil to determine if the CUG has been attained.
- Once the CUG has been attained, treated soil will be placed back into the excavated area.
- Successfully remediated areas will be graded and backfilled with clean soil and then seeded.

The cost of FSA Alternative 3 is $224,194. The Army will be required to develop and implement land use controls (LUCs) at the FSA, as Unrestricted (Residential) Land Use will not be achieved. The area requiring LUCs after implementation of FSA Alternative 3 is depicted in Figure 9.

In the event that a thermal treatment system is not available for use at the former RVAAP, *FSA Alternative 2: Excavation and Offsite Disposal of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use* would be readily available and could be implemented under this ROD. Excavation and offsite disposal alternatives have been implemented multiple times during restoration efforts at the former RVAAP. As with FSA Alternative 3, FSA Alternative 2 would require LUCs after implementation.

E STATUTORY DETERMINATIONS

The selected remedies protect human health and the environment, comply with federal and state laws and regulations that are applicable or relevant and appropriate, are cost effective, and utilize permanent solutions to the maximum extent practicable. The selected remedy at the FIA does not achieve a reduction in the toxicity or volume of contaminated media. However, the selected remedy at the FIA will reduce the mobility of lead in surface soil when transported to an offsite disposal facility.

The selected remedy at the FSA satisfies the statutory preference for treatment, as thermal treatment technology is part of the selected remedy for PAH-contaminated soil.

The selected remedy at the FSA does not achieve Unrestricted (Residential) Land Use. Only the FSA will be required to have annual inspections and CERCLA 5-year reviews.

F DATA CERTIFICATION CHECKLIST

Table 1 provides the location of key remedy selection information contained in Part II, Decision Summary. Additional information can be found in the Administrative Record file for Atlas Scrap Yard.

Table 1. ROD Data Certification Checklist

ROD Data Checklist Item	ROD Section
COCs and their respective concentrations	II.G.1
Baseline risk represented by the COCs	II.G
Cleanup goals established for COCs and the basis for these goals	II.H
How source materials constituting principal threats are addressed	II.K
Current and reasonably anticipated future land use assumptions used in the baseline risk assessment and ROD	II.F
Suitable potential land uses, following the selected remedy	II.L.1.4, II.L.2.4
Estimated capital and the total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected	II.L.1.3, II.L.2.3
Key factor(s) that led to selecting the remedy	II.L.1.1, II.L.2.1

COC = Chemical of concern.
ROD = Record of Decision.

G AUTHORIZING SIGNATURE AND APPROVAL

Anthony Hammett
Colonel, U.S. Army
Chief, G-9
Army National Guard

Date

PART II: DECISION SUMMARY

A SITE NAME, LOCATION, AND DESCRIPTION

When the RVAAP Installation Restoration Program (IRP) began in 1989, RVAAP (SEMS Identification Number OH5210020736) was identified as a 21,419-acre installation. In 2002 and 2003, OHARNG surveyed the property and found the total acreage to be 21,683 acres. The RVAAP IRP encompasses investigation and cleanup of past activities over the entire 21,683-acre former RVAAP.

As of September 2013, administrative accountability for the entire acreage of the facility has been transferred to the USP&FO for Ohio and subsequently licensed to OHARNG for use as a military training site. ARNG is the lead agency for any remediation, decisions, and applicable cleanup at Atlas Scrap Yard. These activities are being funded and conducted under the IRP. Ohio EPA is the supporting state regulatory agency.

CJAG is located in northeastern Ohio within Portage and Trumbull counties, approximately 3 miles east-northeast of the city of Ravenna and approximately 1 mile northwest of the city of Newton Falls. CJAG is a parcel of property approximately 11 miles long and 3.5 miles wide, bounded by State Route 5 and the CSX System Railroad on the south; Garrett, McCormick, and Berry roads on the west; the Norfolk Southern Railroad on the north; and State Route 534 on the east (see Figures 1 and 2). CJAG is surrounded by several communities: Windham 7 miles to the north, Garrettsville 6 miles to the north, Newton Falls 1 mile to the southeast, Charlestown 6 miles to the southwest, and Wayland 3 miles to the south.

Atlas Scrap Yard is a 73-acre AOC located southwest of the intersection of Newton Falls Road and Paris-Windham Road, north of Load Line 4, in the southeastern portion of CJAG (Figure 2). Atlas Scrap Yard, then known as the construction camp, was designed and utilized from 1940 to 1945 to house construction workers and their families. Following World War II through the 1950s, the AOC was used to support road and grounds maintenance activities. After the Vietnam War, Atlas Scrap Yard had been used for storage and stockpiling.

The southern portion of Atlas Scrap Yard currently contains a structure of a formerly used incinerator. Figure 4 presents a historical design drawing of the incinerator with current photographs. The outside structure associated with the former incinerator is still present, but other components associated with the incinerator have been razed.

The northcentral portion of Atlas Scrap Yard is designated as the FSA. This area was used as a stockpile storage area for bulk material, including gravel, railroad ballasts, sand, culvert pipe, railroad ties, and telephone poles. Sometime between 2000 and 2002, railroad ties and timbers were placed in the FSA. In early 2017, activities were conducted to remove the railroad ties and timbers, as well as stockpiled concrete and asphalt. These activities included sampling the waste material and subsequent determination that the waste streams were considered to be nonhazardous. Approximately 1,160 tons of stockpiled railroad ties and telephone poles and 1,655 tons of stockpiled concrete and asphalt were removed and disposed of offsite (ERT 2017).

Additional features throughout Atlas Scrap Yard include several one-lane gravel roads that enter the AOC from the north and east and small construction drainage ditches that border the access roads. The AOC is currently vegetated with shrub/scrub vegetation in unpaved areas and is forested around its perimeter.

B SITE HISTORY AND ENFORCEMENT ACTIVITIES

RVAAP was constructed in 1940 and 1941 for depot storage and ammunition assembly/loading and was placed on standby status in 1950. The primary purpose of the former RVAAP was to load medium and major caliber artillery ammunition (i.e., bombs, mines, fuze and boosters, primers, percussion elements) and store finished components. Load Lines 5 through 11 produced fuzes, boosters, primers, detonators, and percussion elements.

In June 2004, the DFFO (Ohio EPA 2004) was finalized. The objective of the DFFO was for the Army and Ohio EPA to "contribute to the protection of public health, safety, and welfare and the environment from the disposal, discharge, or release of contaminants at or from the site, through implementation of a CERCLA-based environmental remediation program. This program will include the development by respondent of an RI/FS for each AOC or appropriate group of AOCs at the site, and upon completion and publication of a Proposed Plan and ROD or other appropriate document for each AOC or appropriate group of AOCs, the design, construction, operation, and maintenance of the selected remedy as set forth in the ROD or other appropriate document for each AOC or appropriate group of AOCs."

From 1940 to 1945, Atlas Scrap Yard operated as a construction camp to house workers and their families during construction of the facility. By the end of World War II, the majority of buildings and structures at Atlas Scrap Yard were demolished or relocated to other areas of the facility. Following World War II, more storage structures were constructed, to support the roads and grounds maintenance activities, in the north central storage and stockpiling area of the AOC, also referred to as the FSA. During the Vietnam War, the FSA was used as stockpile storage for bulk material, including gravel, railroad ballasts, sand, culvert pipe, railroad ties, and telephone poles.

No CERCLA enforcement actions have been conducted related to Atlas Scrap Yard.

C COMMUNITY PARTICIPATION

Using the RVAAP community relations program, the Army and Ohio EPA have interacted with the public through public notices, public meetings, reading materials, direct mailings, an Internet website, and receiving and responding to public comments.

Specific items in the community relations program include the following:

- **Restoration Advisory Board –** The Army established a Restoration Advisory Board in 1996 to promote community involvement in U.S. Department of Defense environmental cleanup

activities and allow the public to review and discuss the progress with decision makers. Board meetings are generally held two to three times per year and are open to the public.

- **Community Relations Plan –** The *Community Relations Plan* (Chenega 2021) is maintained to establish processes to keep the public informed of activities at RVAAP. The plan is available in the Administrative Record at CJAG.
- **Internet Website –** The Army established an internet website in 2004 for RVAAP. It is accessible to the public at www.rvaap.org.

In accordance with CERCLA Section 117(a) and NCP Section 300.430(f)(2), ARNG released the Atlas Scrap Yard Proposed Plan (Leidos 2020) to the public on August 17, 2020. The Proposed Plan and other project-related documents were made available to the public in the Administrative Record maintained at CJAG and in the Information Repositories at Reed Memorial Library in Ravenna, Ohio, and Newton Falls Public Library in Newton Falls, Ohio. A notice of availability for the Proposed Plan was sent to radio stations, television stations, and newspapers (e.g., *Warren Tribune-Chronicle* and *Ravenna Record Courier*), as specified in the Community Relations Plan. The notice of availability initiated the 30-day public comment period beginning August 17, 2020 and ending September 16, 2020.

ARNG held a public meeting on August 26, 2020 at CJAG to present the Proposed Plan. At this meeting, representatives of ARNG provided information and were available to answer any questions. A transcript of the public meeting is available to the public and has been included in the Administrative Record. Responses to any comments received at this meeting and during the public notification period are included in the Responsiveness Summary, which is Part III of this ROD.

ARNG considered public input from the public meeting on the Proposed Plan when selecting the remedy.

D SCOPE AND ROLE OF RESPONSE ACTIONS

The overall program goal of the IRP at the former RVAAP is to clean up previously contaminated lands to reduce contamination to concentrations that are not anticipated to cause risks to human health or the environment. No IRP remedial activities have been performed at Atlas Scrap Yard to date.

This ROD addresses soil, sediment, and surface water. The potential future Land Uses for Atlas Scrap Yard are Military Training Land Use or Commercial/Industrial Land Use, which are consistent with the intended future land uses for CJAG. No COCs require remediation for subsurface soil, sediment, or surface water at Atlas Scrap Yard; however, COCs that require remediation were identified in surface soil at the FIA and FSA. The surface soil contamination present at Atlas Scrap Yard poses a potential risk to human health because the COC concentrations exceeded CUGs for the Representative Receptor for Military Training Land Use (National Guard Trainee) and Commercial/Industrial Land Use (Industrial Receptor), as well as the Resident Receptor for Unrestricted (Residential) Land Use.

Implementing the remedies described in this ROD will address potential risk through thermal treatment of PAH-contaminated soil and stabilization, removal, and offsite disposal of lead-contaminated soil. The selected remedies described in the ROD is consistent with, and protective for, the intended future

use (Military Training or Commercial/Industrial) at the AOC. Other media (e.g., groundwater) and AOCs at CJAG will be managed as separate actions or decisions by ARNG and will be considered under separate RODs.

Potential impacts to groundwater from soil (e.g., contaminant leaching) were evaluated in the Atlas Scrap Yard RI Report (Leidos 2017), as protectiveness to groundwater was included in the fate and transport analysis. However, groundwater will be evaluated as an individual AOC for the entire facility (designated as RVAAP-66) under the FWGWMP.

E SITE CHARACTERISTICS

This section presents the site characteristics, nature and extent of contamination, and conceptual site model for Atlas Scrap Yard. These characteristics and findings are based on investigations conducted from 1978 to 2011 and are further summarized in the Atlas Scrap Yard RI Report (Leidos 2017).

E.1 Physical Characteristics

This section describes the topography/physiology, geology, hydrogeology, and ecological characteristics of CJAG and Atlas Scrap Yard that were key factors in identifying the potential contaminant transport pathways, receptor populations, and exposure scenarios to evaluate human health and ecological risks.

E.1.1 Topography/Physiography

The topography of CJAG is gently undulating with an overall decrease in ground elevation from a topographic high of approximately 1,220 feet above mean sea level (amsl) in the far western portion of the facility to low areas at approximately 930 feet amsl in the far eastern portion. Ground elevations within Atlas Scrap Yard range from approximately 976 to 986 feet amsl. Topographic relief at Atlas Scrap Yard is low, with a topographic high in the northwestern portion of the site that slopes downward to the topographic low in the central-eastern boundary. Surface water follows topographic relief and drains into roadside ditches along the eastern portion of the AOC.

E.1.2 Geology

Atlas Scrap Yard is located within the Hiram Till glacial deposit. The primary soil types found at Atlas Scrap Yard are the Mahoning silt loam (2 to 6 percent slopes) and the Trumbull silt loam (0 to 2 percent slopes). The Mahoning silt loam is a gently sloping, poorly drained soil formed in silty clay loam or clay loam glacial till, generally where bedrock is greater than 6 feet bgs. The Mahoning silt loam has low permeability, with rapid runoff and seasonal wetness, and is present primarily in the central 60 percent of the site (USDA 2010). The Trumbull silt loam covers the remaining 40 percent of the AOC and is poorly drained soil formed in silty clay till, generally where bedrock is greater than 6 feet bgs. The Trumbull silt loam is typically formed in depressions with a moderate water capacity with groundwater existing near ground surface (USDA 2010), as shown in Figure 10.

The bedrock formation at Atlas Scrap Yard is the Pennsylvanian age Pottsville Formation, Sharon Sandstone member, informally referred to as the Sharon Conglomerate (Winslow and White 1966). The Sharon Sandstone Member, the lowest unit of the Pottsville Formation, is a highly porous, loosely cemented, permeable, cross-bedded, frequently fractured and weathered orthoquartzite sandstone, which is locally conglomeratic. The Sharon Conglomerate exhibits locally occurring thin shale lenses in the upper portion of the unit, as shown in Figure 11.

During well installation activities, as part of the 2004 Characterization of 14 AOCs (MKM 2007), bedrock was observed at Atlas Scrap Yard at 20 to 29 feet bgs. Bedrock was not encountered in any of the 21 soil or geotechnical borings installed to a maximum depth of 13 feet bgs during the 2010 RI (Leidos 2017).

E.1.3 Hydrogeology

A total of 10 groundwater monitoring wells (ASYmw-001 to ASYmw-010) were installed at Atlas Scrap Yard during the Characterization of 14 AOCs. All monitoring wells are screened in the unconsolidated monitoring zone with the screened intervals ranging from 9.5 to 27 feet bgs.

In April 2019, water elevations at Atlas Scrap Yard ranged from 968.7 to 973.73 feet amsl, with historical data showing large seasonal fluctuations in the general groundwater flow direction. The potentiometric surface of Atlas Scrap Yard is shown in Figure 12. The local potentiometric surface within the AOC shows the groundwater flow pattern to the west-northwest with radial flow at the southern portion of the AOC. The average horizontal hydraulic gradient for the unconsolidated zone is approximately 0.0046 feet/foot.

E.1.4 Ecology

The ecological risk assessment (ERA) in the Atlas Scrap Yard RI Report (Leidos 2017) concluded that the AOC contains important and significant ecological resources. Wetlands have been identified near contamination. The findings of the Level I Scoping ERA invoked a Level II Screening ERA. The Level II Screening ERA evaluated soil using historical and 2010 RI data, and identified and evaluated integrated chemicals of potential ecological concern (COPECs). Based on the limited exceedances of individual incremental sampling methodology (ISM) samples in the wetlands, the Level II Screening ERA recommended no further action for the ecological perspective.

The main habitats at Atlas Scrap Yard include forest alliances consisting of seasonally flooded, pin oak/swamp white oak alliance; dry, red maple, successional forest alliance; dry, late-successional, cold-deciduous shrubland; dry, early-successional, herbaceous field; and semi-permanently flooded cattail/bulrush alliances (Figure 13). The northern long-eared bat (*Myotis septentrionalis*; endangered species) exists at CJAG. No other federally listed species and no critical habitat occur on CJAG. Atlas Scrap Yard has not been previously surveyed for rare, threatened, or endangered species; therefore, no sightings of rare, threatened, or endangered species have been documented at the AOC (OHARNG 2014).

E.2 Site Investigations

In 1978, the U.S. Army Toxic and Hazardous Materials Agency conducted an Installation Assessment of RVAAP to review the potential for contaminant releases at multiple former operations areas, as documented in the *Installation Assessment of Ravenna Army Ammunition Plant* (USATHAMA 1978). This report initially evaluated CJAG and began to prioritize the AOCs.

Potential contaminants at Atlas Scrap Yard, based on operational history, include metals, polychlorinated biphenyls (PCBs), explosives, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs). These chemical groups are associated stockpile storage and roads/grounds equipment storage and maintenance (Leidos 2017). In addition, Atlas Scrap Yard was previously evaluated as a Munitions Response Site (MRS) under the Military Munitions Response Program (MMRP), as there was a suspected burial area containing 40-mm fragments and casings that was located near the central portion of Atlas Scrap Yard. Munitions were not encountered at the site during the MMRP RI; therefore, the *No Further Action Record of Decision for RVAAP-050-R-01 Atlas Scrap Yard* (HGL 2018) concluded that explosive safety hazards associated with munitions were not present and there was no risk from munition constituent-related contamination.

Atlas Scrap Yard has been included in various historical assessments and investigations conducted at the former RVAAP. The following environmental investigations have been completed for Atlas Scrap Yard:

- Relative Risk Site Evaluation for Newly Added Sites (USACHPPM 1998),
- 2004/2005 Characterization of 14 AOCs (MKM 2007),
- 2010 RI, and
- 2011 Supplemental Sampling.

The results from these investigations were used to evaluate the nature and extent of contamination, assess potential future impacts to groundwater, conduct human health risk assessments (HHRAs) and ERAs, and evaluate the need for remedial alternatives, as summarized in the Atlas Scrap Yard FS Report (Leidos 2019).

E.3 Nature and Extent of Contamination

Metals, PCBs, explosives, SVOCs, and VOCs were evaluated. Five SVOCs and 22 metals were detected above background and/or the residential preliminary remediation goal (PRG). All of the five SVOCs that were detected over the screening level were present in the surface soil at Atlas Scrap Yard.

E.3.1 Surface and Subsurface Soil

The Atlas Scrap Yard RI Report identified lead in surface soil (0 to 1 foot bgs) as a COC requiring a remedial action in one general area located in the proximity of the FIA. The surface soil concentrations for lead were 1,200 mg/kg at ASYss-019M and 3,570J mg/kg at ASYsb-064. These concentrations exceed the Resident Receptor facility-wide cleanup goal (FWCUG) (400 mg/kg), Composite Worker

RSL (800 mg/kg), and National Guard Trainee FWCUG (800 mg/kg). Results and the estimated extent of contamination are shown in Figure 5. No other locations at Atlas Scrap Yard require remediation for lead.

The Atlas Scrap Yard RI Report (Leidos 2017) identified PAHs in surface soil (0 to 1 foot bgs) as requiring a remedial action at Atlas Scrap Yard. The executive summary within the Atlas Scrap Yard RI Report divided Atlas Scrap Yard into Area 1, Area 2, and Area 3 based on PAH COC concentrations relative to screening levels (Resident Receptor FWCUGs) available at that time. Since the submittal of the Atlas Scrap Yard RI Report, USEPA updated the cancer slope factors for the carcinogenic PAHs using more recent toxicity studies. These updated cancer slope factors are utilized in the June 2017 USEPA RSLs. The Resident Receptor FWCUGs and the USEPA Resident Soil RSLs at a target risk (TR) of 1E-05 for the PAH COCs, updated in June 2017, are presented in Table 2. The Atlas Scrap Yard FS Report (Leidos 2019) presented an analysis of the PAH concentrations using the new RSLs, provided a detailed weight-of-evidence, and concluded that the FSA is the only area requiring a remedial action for PAHs within Atlas Scrap Yard. These locations and corresponding PAH concentrations are presented in Figure 6.

A data gap was identified in the Atlas Scrap Yard RI Report in surface soil at the location of the former Building T-4704 Roads and Grounds Maintenance Building. This location is depicted in Figure 3. PCBs were not previously collected from this location. Although documented releases of PCBs have not occurred at this location and the previous use of this building is not well documented, additional sampling to assess if the previous use of the building contributed PCB contamination to soil is warranted. In the event that the sample reveals PCB contamination at the location of the former Building T-4704 Roads and Grounds Maintenance Building, ARNG will conduct additional actions to address the contamination.

E.3.2 Sediment and Surface Water

A surface water sample was not collected within the AOC during the 2010 RI, as surface water only occurs intermittently as stormwater runoff at Atlas Scrap Yard. One surface water sample (L12sw-308) was collected in the ditch east of Atlas Scrap Yard along Paris-Windham Road under the 2010 RI for Load Line 12.

This surface water sample was incorporated into the Atlas Scrap Yard evaluation to represent the potential exit point for runoff or surface drainage from the AOC. However, this sample point also is immediately adjacent to Paris-Windham Road and can be subjected to contaminants associated with roads (e.g., PAHs from asphalt). This sample was analyzed for RVAAP full-suite analytes. No propellants or explosives were detected or identified as site-related contaminants (SRCs) in surface water at L12-308.

A total of 17 inorganic chemicals (16 metals and 1 nitrate) were identified as SRCs. Only five inorganic chemicals were identified as SRCs in the co-located 2010 RI sediment sample L12sd-308, with only three (beryllium, cadmium, and nickel) corresponded to surface water SRCs. Concentrations of six of the inorganic chemicals (aluminum, arsenic, barium, copper, manganese, and zinc) detected in surface

water sample L12sw-308 were on average an order of magnitude higher than their respective background concentrations.

Seven SVOCs (all of which were PAHs with the exception of bis[2-ethylhexyl]phthalate) were identified as SRCs for surface water. With the exception of bis(2-ethylhexyl)phthalate, all of the SVOC SRCs detected also were detected in the co-located 2010 RI sediment sample at this location.

E.4 Conceptual Site Model

Conceptual site model elements are discussed in this section, including primary and secondary contaminant sources and release mechanisms, contaminant migration pathways and discharge or exit points, and potential human receptors and ecological resources.

E.4.1 Primary and Secondary Contaminant Sources and Release Mechanisms

No primary contaminant sources are located at Atlas Scrap Yard, and the minor residual infrastructure (e.g., former incinerator) remains in place. Secondary sources (contaminated soil) are located at Atlas Scrap Yard. The potential mechanisms for contaminant releases from secondary sources at Atlas Scrap Yard include:

- Eroding soil with sorbed contaminants and mobilization in turbulent surface water flow under storm conditions,
- Dissolving soluble contaminants and transport in surface water,
- Re-suspending contaminated sediment during periods of high flow with downstream transport within the surface water system, and
- Contaminant leaching to groundwater.

E.4.2 Contaminant Migration Pathways and Exit Points

The potential for soil and sediment contaminants to impact groundwater was evaluated in the fate and transport evaluation presented in the Atlas Scrap Yard RI Report (Leidos 2017). Contaminants in surface soil may migrate to surface water via drainage ditches in the dissolved phase following a storm event or as particulates in stormwater runoff. Another potential secondary source of contamination at the AOC is contaminated sediment, which if deposited adjacent to a stream/ditch during a storm event, has potential to leach contaminants to groundwater.

Maximum site-related contaminant concentrations identified in surface and subsurface soil were evaluated using a series of generic screening steps to identify initial contaminant migration chemicals of potential concern (CMCOPCs). These CMCOPCs for soil were further evaluated using the Seasonal Soil Compartment model to predict leaching concentrations and identify final CMCOPCs based on RVAAP facility-wide background criteria and the lowest risk-based screening criteria among USEPA maximum contaminant levels, USEPA tap water RSLs, or RVAAP groundwater FWCUGs for the Resident Receptor Adult. Final CMCOPCs were evaluated using the Analytical Transient 1-, 2-, and 3-Dimensional (AT123D) model to predict groundwater mixing concentrations beneath source areas

and concentrations at the nearest downgradient groundwater receptor to the AOC (e.g., stream). Maximum site-related contaminant concentrations in sediment were evaluated using an analytical solution to identify final CMCOPCs for evaluation using AT123D. The AT123D modeling results were evaluated with respect to AOC groundwater monitoring data, as well as model limitations and assumptions, to identify chemicals to be retained as CMCOCs.

SESOIL modeling was performed for initial CMCOPCs that have the potential to reach the water table within 1,000 years based on the soil screening analysis results. Conclusions of the soil and sediment screening, leachate modeling, and groundwater modeling are as follows:

- Final sediment CMCOPCs (barium; chromium; copper; lead; mercury; selenium; 2-amino-4,6-dinitrotoluene [DNT]; benz[a]anthracene; benzo[a]pyrene; benzo[b]fluoranthene; dibenz[a,h]anthracene; indeno[1,2,3-cd]pyrene; and naphthalene) show peak concentrations in groundwater beneath the source would occur very quickly (<20 years). Considering the timeline of Atlas Scrap Yard activities, peak concentrations likely occurred in the past and modeling results do not indicate potential future impacts.
- Among the soil CMCOPCs, 2-nitrotoluene; 3-nitrotoluene; 2,6-DNT; 2-amino-4,6-DNT; 4-amino-2,6-DNT; 2-methylnaphthalene; and naphthalene were predicted to exceed the screening criteria in groundwater beneath the source area.

A qualitative assessment of the sample results was performed, and the limitations and assumptions of the models were considered to identify if any CMCOCs are present in soil or sediment at Atlas Scrap Yard that may potentially impact groundwater. This qualitative assessment concluded no CMCOCs were present in soil and sediment that may impact the groundwater beneath the source or at the downstream receptor location. No further action is required for soil and sediment at Atlas Scrap Yard for the protection of groundwater. Groundwater will be further evaluated under the FWGWMP.

E.4.3 Potential Human Receptors and Ecological Resources

In February 2014, the Army and Ohio EPA amended the risk assessment process to address changes in the RVAAP restoration program. The *Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the RVAAP Installation Restoration Program* (ARNG 2014) identified the following three Categorical Land Uses and Representative Receptors to be considered during the RI phase of the CERCLA process.

1. Unrestricted (Residential) Land Use – Resident Receptor (Adult and Child) (formerly called Resident Farmer).
2. Military Training Land Use – National Guard Trainee.
3. Commercial/Industrial Land Use – Industrial Receptor (USEPA Composite Worker).

An evaluation using Resident Receptor (Adult and Child) FWCUGs was used to provide an Unrestricted (Residential) Land Use evaluation. If a site meets the standards for Unrestricted (Residential) Land Use, it can be used for all categories of land use at CJAG. The receptor is assumed to be exposed to surface soil from 0 to 1 foot bgs and subsurface soil from 1 to 13 feet bgs.

Atlas Scrap Yard has wetlands, which are collectively an important and significant ecological resource. In addition, the lead-contaminated surface soil at the FIA and PAH-contaminated surface soil at the FSA pose a threat to human health. All other areas within Atlas Scrap Yard meet the requirements for Unrestricted (Residential) Land Use without implementing a remedial action.

F CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Atlas Scrap Yard is currently managed by ARNG/OHARNG. The potential future uses for Atlas Scrap Yard are Military Training Land Use or Commercial/Industrial Land Use. The representative receptors corresponding to these potential future uses are the National Guard Trainee and Industrial Receptor.

G SUMMARY OF SITE RISKS

The HHRA and ERA estimated risks to human receptors and ecological resources; identified exposure pathways; presented COCs and COPECs, if any; and provided a basis for remedial decisions. This section of the ROD summarizes the results of the HHRA and ERA, which are presented in detail in the Atlas Scrap Yard RI Report (Leidos 2017), Atlas Scrap Yard FS Report (Leidos 2019), and Atlas Scrap Yard Proposed Plan (Leidos 2020) located in the Administrative Record and Information Repositories.

G.1 Human Health Risk Assessment

An HHRA was performed to identify COCs and provide a risk management evaluation to determine if remediation is required under CERCLA based on potential risks to human receptors. The media evaluated in the HHRA were surface soil, subsurface soil, sediment, and surface water. Using the results from the 2004/2005 Characterization of 14 AOCs, 2010 RI, and 2011 Supplemental Sampling, in addition to the USEPA RSLs revised in June 2017, the following COCs are recommended to be carried forward:

- Lead as a soil COC to be carried forward for remediation at the FIA to be protective of the Resident Receptor, Industrial Receptor, and National Guard Trainee.
- Five PAHs as COC in surface soil (0 to 1 foot bgs) of the FSA: benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenz(a,h)anthracene.

G.2 Ecological Risk Assessment

Chemical contamination is present in soil at Atlas Scrap Yard. This contamination was identified using historical and 2010 RI data. Wetlands are important and significant ecological resources and have been identified near contamination in the AOC. These findings invoked a Level II assessment.

The ERA was conducted in accordance with the *Guidance for Conducting Ecological Risk Assessments* (Ohio EPA 2008). The Level II assessment evaluated soil data and identified COPECs. The integrated soil COPECs were further evaluated with technical and refinement factors in Step 3A. The factors in Step 3A showed no integrated COPECs are present that are of ecological concern and require remediation or further evaluation. In addition, based on their Ohio Rapid Assessment Method (ORAM) category, size, and location, Wetlands 1, 6, 8, and 9 were evaluated using individual ISM samples

representative of the wetland or the area between the wetland and potential source areas. Based on the limited exceedances in these individual ISM samples, significant releases from the source areas at Atlas Scrap Yard to the wetlands have not occurred. Consequently, the ERA for Atlas Scrap Yard concluded with Level II and no further action from the ecological perspective.

H REMEDIAL ACTION OBJECTIVES

The remedial action objective (RAO) references CUGs and risk levels that are considered protective of human health under current and future use scenarios. The RAO for Atlas Scrap Yard is to prevent Resident Receptor exposure to 1) surface soil (0-1 foot bgs) with concentrations of lead above 400 mg/kg at the FIA; and 2) surface soil (0 to 1 foot bgs) with concentrations of benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenz(a,h)anthracene above CUGs in the FSA.

Figure 3 presents the estimated extent of surface soil (0 to 1 foot bgs) requiring remediation. Table 2 presents the remedial CUGs for PAHs at the FSA.

Table 2. Remedial Cleanup Goals for PAHs

Chemical of Concern	Concentration (mg/kg)		
	Maximum Surface Soil Concentration	Resident Receptor	Industrial Receptor
Former Storage Area			
Benz(a)anthracene	51J	11	210
Benzo(a)pyrene	50J	1.1	21
Benzo(b)fluoranthene	56J	11	210
Benzo(k)fluoranthene	37J	110	2100
Dibenz(a,h)anthracene	7.7J	1.1	21

The Resident Receptor CUGs for PAHs are based on the USEPA Resident Soil RSL at TR of 1E-05, dated June 2017.
The Industrial Receptor CUGs for PAHs are based on the USEPA Composite Worker Soil RSL at TR of 1E-05, dated June 2017. Only one sample location (ASYss-126M) had an exceedance of a PAH Industrial Receptor cleanup goal.
CUG = Cleanup Goal
J = Analyte detected at the estimated concentration
mg/kg = Milligrams per Kilogram
PAH = Polycyclic Aromatic hydrocarbon
RSL = Regional Screening Level
TR = Target Risk
USEPA = U.S. Environmental Protection Agency

I DESCRIPTION OF ALTERNATIVES

The following subsections describe remedial alternatives developed to address contamination within the FIA and FSA.

I.1 Former Incinerator Area

Remedial alternatives for soil at the FIA were developed and evaluated in the Atlas Scrap Yard FS Report (Leidos 2019). The remedial alternatives are listed below:

- FIA Alternative 1: No Action.
- FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use.

- FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use.

I.1.1 FIA Alternative 1: No Action

FIA Alternative 1 provides no remedial action and is required under the NCP as a baseline for comparison with other remedial alternatives. FIA Alternative 1 provides no additional protection to human health and the environment. No future legal, administrative, or physical LUC mechanisms would be employed. Environmental monitoring would not be performed, and 5-year reviews would not be conducted in accordance with CERCLA 121(c). In addition, no restrictions on land use would be pursued. COCs at the FIA are not removed or treated.

I.1.2 FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use

This alternative would include the removal, stabilization, and offsite disposal of surface soil containing lead at concentrations above the Resident Receptor CUG (400 mg/kg) to achieve Unrestricted (Residential) Land Use. Implementation of FIA Alternative 2 would comprise excavation, stabilization, and offsite disposal of approximately 366 yd^3 (ex situ) of contaminated soil.

I.1.2.1 Demolition and Removal of Former Incinerator

The former incinerator is within the area containing lead-contaminated soil. The former incinerator was used at the time Atlas Scrap Yard functioned as a construction camp. The outside structure associated with the former incinerator is still present, but other components associated with the incinerator have been razed.

As part of this remedial alternative, this incinerator will be demolished and removed, including the brick walls and mortar and railroad rails used in the ceiling and floor. An estimated 76 tons of material are assumed to be associated with this former incinerator.

Demolition debris from the incinerator will be sampled for waste characterization prior to disposal. In September 2018, OHARNG collected samples of the red brick, white brick, and grout from within the former incinerator for laboratory analysis of toxicity characteristic leaching procedure (TCLP) metals, PCBs, and asbestos. The TCLP and PCB results were below regulatory limits, and asbestos was not detected in the sampled material. For cost estimating purposes within the FS, it was assumed that the material associated with the incinerator could be disposed of as nonhazardous waste.

I.1.2.2 Delineation/Pre-Excavation Confirmation Sampling

To coincide with and support development of the remedial design (RD), delineation/pre-excavation confirmation sampling will be conducted to confirm the limits of soil excavation. The excavation will include the area known as the FIA, including the footprint of the demolished former incinerator. The

delineation/pre-excavation sampling plan will be implemented with the intent of adequately defining the extent of soil requiring removal.

A delineation/pre-excavation confirmation sampling plan prepared by ARNG will be coordinated with Ohio EPA. This plan will present a scheme of discrete soil sample locations within the FIA to be analyzed for lead.

To address a data gap identified in the Atlas Scrap Yard RI Report (Leidos 2017), ARNG will collect a surface soil (0 to 1 foot bgs) sample at the location of the former Building T-4704 Roads and Grounds Maintenance Building for PCBs. PCBs were not previously collected from this location. Although documented releases of PCBs have not occurred at this location and the previous use of this building is not well documented, additional sampling to assess if the previous use of the building contributed PCB contamination to soil is warranted. In the event that the sample reveals PCB contamination at the location of the former Building T-4704 Roads and Grounds Maintenance Building, ARNG will conduct additional actions to address the contamination.

I.1.2.3 Waste Characterization Sampling

Waste characterization samples will be collected from the FIA. The waste characterization samples will be collected from the areas undergoing this remedy to provide data to properly profile the waste and determine if it is characteristically non-hazardous or hazardous. Sample analyses may include, but are not limited to, TCLP metals, TCLP SVOCs), TCLP pesticides, TCLP herbicides, reactive cyanide, reactive sulfide, and PCBs.

I.1.2.4 Remedial Design

An RD will be developed prior to initiating remedial actions. The RD will contain the laboratory results of the delineation sampling and waste characterization sampling. Using the waste characterization results, a waste analysis plan will be included in the RD to describe the procedures the Army will carry out to comply with the treatment standards prior to disposal.

Wetlands have been identified on the AOC and potentially within the remedial action area. Therefore, a wetland delineation will be conducted to identify any wetlands that would potentially be impacted during the remedial action. In the event that wetlands will be disturbed during remedial action activities, the RD will provide requirements for wetland restoration and address any necessary permits or notifications required.

This RD will outline site preparation activities (e.g., staging and equipment storage areas, stabilization areas, truck routes, stormwater controls); the extent of the excavation; sequence and description of excavation and site restoration activities; stabilization application protocol; decontamination; and segregation, transportation, and disposal of various waste streams. Engineering and administrative controls (e.g., erosion controls, health and safety [H&S] controls) will be developed during the active construction period to ensure remediation workers and the environment are protected.

I.1.2.5 Soil Excavation, Stabilization, and Offsite Disposal

Prior to any ground disturbance, the excavation area will be surveyed and demarcated by stakes. Erosion control material, such as silt fences and straw bales, will be installed to minimize sediment runoff. Dust generation will be minimized during excavation activities by keeping equipment movement areas and excavation areas misted with water. The H&S of remediation workers, onsite CJAG employees, and the general public will be covered in a site-specific Health and Safety Plan (HASP).

Soil removal will be accomplished using conventional construction equipment, such as backhoes, bulldozers, front-end loaders, and scrapers. Oversize debris will be crushed or otherwise processed to meet disposal facility requirements.

Soil will be transferred to a mixing area, where the stabilization agent will be added to the soil. The soil and stabilizing agent will be mixed in this area until a homogeneous mixture is achieved. Upon completion of the mixing phase, soil samples will be collected and undergo TCLP analysis.

Once the soil samples indicate the stabilized soil meets and achieves the treatment standard, the Army will send a one-time written notice to the treatment, storage, or disposal facility receiving the waste, and place a copy in the generator's files. The notice will include the information in column B of Table 1 of Ohio Administrative Code (OAC) 3745-270-07A, this rule, and the following certification statement, signed by an authorized representative:

> "I certify under penalty of law that I personally have examined and am familiar with the waste, through analysis and testing or through knowledge of the waste, to support this certification that the waste complies with the treatment standards specified in rules 3745-270-40 to 3745-270-49 of the Administrative Code. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

The stabilized soil will be hauled by truck to a licensed and permitted disposal facility. All trucks will be inspected prior to exiting the AOC. Appropriate waste manifests will accompany each waste shipment. Only regulated and licensed transporters and vehicles will be used. All trucks will travel pre- designated routes within CJAG.

I.1.2.6 Confirmation Sampling of Excavation Footprint

Upon completing the excavation at the FIA, confirmatory samples will be collected from the excavation floor and sidewalls per the sampling methodology and scheme approved in the RD to ensure contaminated soil has been successfully removed. The confirmatory soil samples will be analyzed for lead. The laboratory results will be compared to the Resident Receptor CUG (400 mg/kg), and additional excavation and soil stabilization will be conducted if the Resident Receptor CUG is not met. Once the laboratory analysis determines the lead concentration is below the Resident Receptor CUG, the FIA will meet requirements for Unrestricted (Residential) Land Use.

I.1.2.7 Restoration

Upon completing soil excavation, all disturbed and excavated areas will be backfilled with clean soil and graded to meet neighboring contours. The backfill soil will come from a clean source that was previously sampled and approved for use by the Army and Ohio EPA. Given that the contaminated soil is stabilized and the lead effectively remains in the soil, the stabilized soil will not be placed back in the excavation footprint. It is ARNG's preference to bring in clean, new backfill.

After the area is backfilled and graded, workers will apply a seed mixture (as approved by OHARNG) and mulch. Restored areas will be inspected and monitored as required in the stormwater best management practices established in the RD.

I.1.3 FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use

This alternative would include the removal and offsite disposal of surface soil containing lead at concentrations above the Resident Receptor CUG (400 mg/kg) to achieve Unrestricted (Residential) Land Use. Implementation of FIA Alternative 3 would comprise excavation and offsite disposal of approximately 366 yd^3 (ex situ) of contaminated soil.

This remedial alternative will require coordinating remediation activities with Ohio EPA, OHARNG, and ARNG. Coordinating with stakeholders during implementation of the excavation will minimize H&S risks to onsite personnel and potential disruptions of CJAG activities.

I.1.3.1 Demolition and Removal of Former Incinerator

The former incinerator is within the area containing lead-contaminated soil. The former incinerator was used at the time Atlas Scrap Yard functioned as a construction camp. The outside structure associated with the former incinerator is still present, but other components associated with the incinerator have been razed.

As part of this remedial alternative, this incinerator will be demolished and removed, including the brick walls and mortar and railroad ties used in the ceiling and floor. An estimated 76 tons of material are assumed to be associated with this former incinerator.

Demolition debris from the incinerator will be sampled for waste characterization prior to disposal. In September 2018, OHARNG collected samples of the red brick, white brick, and grout from within the former incinerator for laboratory analysis of TCLP metals, PCBs, and asbestos. The TCLP and PCB results were below regulatory limits, and asbestos was not detected in the sampled material. For cost estimating purposes within the FS, it was assumed that the material associated with the incinerator could be disposed of as nonhazardous waste.

I.1.3.2 Delineation/Pre-Excavation Confirmation Sampling

To coincide with and support development of the RD, delineation/pre-excavation confirmation sampling will be conducted to confirm the limits of soil excavation. The excavation also will include the footprint of the demolished former incinerator. The delineation/pre-excavation sampling plan will be implemented with the intent of adequately defining the extent of soil requiring removal.

A delineation/pre-excavation confirmation sampling plan prepared by ARNG will be coordinated with Ohio EPA. This plan will present a scheme of discrete soil sample locations within the FIA to be analyzed for lead.

To address a data gap identified in the Atlas Scrap Yard RI Report (Leidos 2017), ARNG will collect a surface soil (0 to 1 foot bgs) sample at the location of the former Building T-4704 Roads and Grounds Maintenance Building for PCBs. PCBs were not previously collected from this location. Although documented releases of PCBs have not occurred at this location and the previous use of this building is not well documented, additional sampling to assess if the previous use of the building contributed PCB contamination to soil is warranted. In the event that the sample reveals PCB contamination at the location of the former Building T-4704 Roads and Grounds Maintenance Building, ARNG will conduct additional actions to address the contamination.

I.1.3.3 Waste Characterization Sampling

Waste characterization samples will be collected from the FIA. The waste characterization samples will be collected from the areas undergoing this remedy to provide data to properly profile the waste and determine if it is characteristically non-hazardous or hazardous. Sample analyses may include, but are not limited to, TCLP metals, TCLP SVOCs, TCLP pesticides, TCLP herbicides, reactive cyanide, reactive sulfide, and PCBs.

The TCLP regulatory limits for disposing of lead-contaminated soil as hazardous waste is 5 mg/L. Using the “Rule of 20,” which provides an estimate of TCLP concentrations based on total concentrations, the Atlas Scrap Yard FS Report (Leidos 2019) assumed the area requiring a remedial action at the FIA will require the soil to be disposed of as hazardous waste, unless otherwise tested or treated.

I.1.3.4 Remedial Design

An RD will be developed prior to initiating remedial actions. The RD will contain the laboratory results of the delineation sampling and waste characterization sampling. Using the waste characterization results, a waste analysis plan will be included in the RD to describe the procedures the Army will carry out to comply with the treatment standards prior to disposal.

Wetlands have been identified on the AOC and potentially within the remedial action area. Therefore, a wetland delineation will be conducted to identify any wetlands that would potentially be impacted during the remedial action. In the event that wetlands will be disturbed during remedial action activities,

the RD will provide requirements for wetland restoration and address any necessary permits or notifications required.

This RD will outline site preparation activities (e.g., staging and equipment storage areas, truck routes, stormwater controls); the extent of the excavation; the sequence and description of excavation and site restoration activities; decontamination; and segregation, transportation, and disposal of various waste streams. Engineering and administrative controls (e.g., erosion controls, H&S controls) will be developed during the active construction period to ensure remediation workers and the environment are protected.

I.1.3.5 Soil Excavation and Offsite Disposal

Prior to any ground disturbance, the excavation area will be surveyed and demarcated by stakes. Erosion control material, such as silt fences and straw bales, will be installed to minimize sediment runoff. Dust generation will be minimized during excavation activities by keeping equipment movement areas and excavation areas misted with water. The H&S of remediation workers, onsite CJAG employees, and the general public will be covered in a site-specific HASP.

Soil removal will be accomplished using conventional construction equipment, such as backhoes, bulldozers, front-end loaders, and scrapers. Oversize debris will be crushed or otherwise processed to meet disposal facility requirements. If the contaminated soil does not meet the treatment standards, with the initial shipment of waste to each treatment or storage facility, the Army will send a one-time written notice to each treatment or storage facility receiving the waste.

The excavated soil will be hauled by truck to a licensed and permitted disposal facility to accept hazardous waste. All trucks will be inspected prior to exiting the AOC. Appropriate waste manifests will accompany each waste shipment. Only regulated and licensed transporters and vehicles will be used. All trucks will travel pre-designated routes within CJAG.

I.1.3.6 Confirmation Sampling of Excavation Footprint

Upon completing the excavation at the FIA, confirmatory samples will be collected from the excavation floor and sidewalls per the sampling methodology and scheme approved in the RD to ensure contaminated soil has been successfully removed. The confirmatory soil samples will be analyzed for lead. The laboratory results will be compared to the Resident Receptor CUG (400 mg/kg), and additional excavation will be conducted if the Resident Receptor CUG is not met. Once the laboratory analysis determines the lead concentration is below the Resident Receptor CUG, the FIA will meet requirements for Unrestricted (Residential) Land Use.

I.1.3.7 Restoration

Upon completing soil excavation, all disturbed and excavated areas will be backfilled with clean soil and graded to meet neighboring contours. The backfill soil will come from a clean source that was previously sampled and approved for use by the Army and Ohio EPA.

After the area is backfilled and graded, workers will apply a seed mixture (as approved by OHARNG) and mulch. Restored areas will be inspected and monitored as required in the stormwater best management practices established in the RD.

I.2 Former Storage Area

Remedial alternatives for soil at the FSA were developed and evaluated in the Atlas Scrap Yard FS Report (Leidos 2019). The remedial alternatives are listed below:

- FSA Alternative 1: No Action.
- FSA Alternative 2: Excavation and Offsite Disposal of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use.
- FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use.
- FSA Alternative 4: Excavation and Offsite Disposal of Surface Soil at the FSA – Attain Unrestricted (Residential) Land Use.
- FSA Alternative 5: Ex Situ Thermal Treatment of Surface Soil at the FSA – Attain Unrestricted (Residential) Land Use.

This section includes a description of various components of the remedial alternatives identified in the Atlas Scrap Yard FS Report (Leidos 2019), including soil removal, disposal, and handling.

I.2.1 FSA Alternative 1: No Action

FSA Alternative 1 provides no remedial action and is required under the NCP as a baseline for comparison with other remedial alternatives. FSA Alternative 1 provides no additional protection to human health and the environment. No future legal, administrative, or physical LUC mechanisms would be employed. Environmental monitoring would not be performed, and 5-year reviews would not be conducted in accordance with CERCLA 121(c). In addition, no restrictions on land use would be pursued. COCs at the FSA are not removed or treated.

I.2.2 FSA Alternative 2: Excavation and Offsite Disposal of ASYss-126M – Attain Commercial/Industrial Land Use

This alternative includes the removal and offsite disposal of surface soil containing benzo(a)pyrene at a concentration above the Industrial Receptor CUGs to achieve Commercial/Industrial Land Use. Excavation and offsite disposal of approximately 473 yd^3 (ex situ) of surface soil (0 to 1 foot bgs).

Under this alternative, PAH COCs will remain onsite that exceed the Resident Receptor CUG; therefore, this alternative also will rely on LUCs to prevent Resident Receptor exposure to contaminants in surface soil (0 to 1 foot bgs) in those areas. It will be ARNG/OHARNG's responsibility to implement, inspect, maintain, and enforce LUCs at the former RVAAP. This remedial alternative requires coordinating remediation activities with Ohio EPA, OHARNG, and ARNG. Coordinating with

stakeholders during implementation of the excavation minimizes H&S risks to onsite personnel and potential disruptions of CJAG activities.

I.2.2.1 Waste Characterization Sampling

Waste characterization samples will be collected from ASYss-126M prior to removal. The waste characterization samples will be collected to provide data to properly profile the waste and determine if it is characteristically non-hazardous or hazardous. Sample analyses may include, but are not limited to, TCLP metals, TCLP SVOCs, TCLP pesticides, TCLP herbicides, reactive cyanide, reactive sulfide, and PCBs.

I.2.2.2 Remedial Design

An RD will be developed prior to initiating remedial actions. The RD will contain the laboratory results of the waste characterization sampling.

Wetlands have been identified on the AOC and potentially within the remedial action area. Therefore, a wetland delineation will be conducted to identify any wetlands that would potentially be impacted during the remedial action. In the event that wetlands will be disturbed during remedial action activities, the RD will provide requirements for wetland restoration and address any necessary permits or notifications required.

This RD will outline site preparation activities (e.g., staging and equipment storage areas, truck routes, stormwater controls); the extent of the excavation; sequence and description of excavation and site restoration activities; decontamination; and segregation, transportation, and disposal of various waste streams. Engineering and administrative controls (e.g., erosion controls, H&S controls) will be developed during the active construction period to ensure remediation workers and the environment are protected.

I.2.2.3 Soil Excavation and Disposal

Prior to any ground disturbance, the excavation area at ASYss-126M will be surveyed and demarcated by stakes. Erosion control material, such as silt fences and straw bales, will be installed to minimize sediment runoff. Dust generation will be minimized during excavation activities by keeping equipment movement areas and excavation areas misted with water. The H&S of remediation workers, onsite CJAG employees, and the general public will be covered in a site-specific HASP.

Soil removal will be accomplished using conventional construction equipment, such as backhoes, bulldozers, front-end loaders, and scrapers. Oversize debris will be crushed or otherwise processed to meet disposal facility requirements. Excavated soil will be segregated if certain areas have different soil characteristics. The soil will be hauled by truck to a licensed and permitted disposal facility. All trucks will be inspected prior to exiting Atlas Scrap Yard. Appropriate waste manifests will accompany each waste shipment. Only regulated and licensed transporters and vehicles will be used. All trucks will travel pre-designated routes within CJAG.

I.2.2.4 Confirmation Sampling

Upon completing the surface soil excavation at ASYss-126M, confirmatory samples will be collected from the excavation floor and sidewalls per the sampling methodology and scheme approved in the remedial design to ensure contaminated soil has been successfully removed. The confirmatory soil samples will be analyzed for benzo(a)pyrene. The laboratory results will be compared to the Industrial Receptor CUG for benzo(a)pyrene (21 mg/kg), and additional excavation will be conducted if the confirmation samples exceeds this CUG. Once the laboratory analysis determines the benzo(a)pyrene concentration of the final excavation is below the Industrial Receptor CUG, the FSA will meet requirements for Commercial/Industrial Land Use.

I.2.2.5 Restoration

Upon completing soil excavation, all disturbed and excavated areas will be backfilled with clean soil and graded to meet neighboring contours. The backfill soil will come from a clean source that was previously sampled and approved for use by the Army and Ohio EPA. After the area is backfilled and graded, workers will apply a seed mixture (as approved by OHARNG) and mulch. Restored areas will be inspected and monitored as required in the stormwater best management practices established in RD.

I.2.2.6 Land Use Control Remedial Design

PAH COCs will remain onsite above the Resident Receptor CUGs in the FSA; therefore, this alternative also will rely on LUCs to prevent Resident Receptor exposure to PAH COCs in the FSA. As an attachment to the Remedial Action Completion Report, a LUC RD will be developed to present the site's land use, activities, RAOs, and LUC requirements for the FSA. The LUC requirements will include annual inspections and CERCLA 5-year reviews.

This information will be presented in an appendix to the Property Management Plan. The Property Management Plan identifies LUCs and restrictions for specific AOCs/MRSs within the former RVAAP. The procedures within the Property Management Plan are intended to comply with the U.S. Department of Defense (DoD) Manual, Defense Environmental Restoration Program Management, Number 4715.20, March 9, 2012 (DoD Office of the Under Secretary of Defense for Acquisition, Technology and Logistics), Incorporating Change 1 dated August 31, 2018, and Ohio Revised Code 5913.10.

I.2.3 FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use

This alternative would utilize ex situ thermal treatment for surface soil (0 to 1 foot bgs) at ASYss-126M to reduce the benzo(a)pyrene concentration to below the Industrial Receptor CUG (21 mg/kg). Implementing this remedial technology will attain Commercial/Industrial Land Use. Implementation of FSA Alternative 3 would result in thermal treatment of 473 yd^3 of soil.

Under this alternative, PAH COCs will remain onsite at concentrations that exceed the Resident Receptor CUG; therefore, this alternative also will rely on LUCs to prevent Resident Receptor exposure

to contaminants in surface soil (0 to 1 foot bgs) in those areas. ARNG/OHARNG will be responsible for implementing, inspecting, maintaining, and enforcing LUCs at the former RVAAP. This remedial alternative requires coordinating remediation activities with Ohio EPA, OHARNG, and ARNG. Coordinating with stakeholders during implementation of the excavation minimizes H&S risks to onsite personnel and potential disruptions of CJAG activities.

I.2.3.1 Remedial Design

An RD will be developed prior to initiating remedial actions. Wetlands have been identified on the AOC and potentially within the remedial action area. Therefore, a wetland delineation will be conducted to identify any wetlands that would potentially be impacted during the remedial action. In the event that wetlands will be disturbed during remedial action activities, the RD will provide requirements for wetland restoration and address any necessary permits or notifications required.

This RD will outline site preparation activities (e.g., staging and equipment storage areas, truck routes, stormwater controls); the extent of the excavation; sequence and description of excavation and site restoration activities; decontamination; and segregation, transportation, and disposal of various waste streams. Engineering and administrative controls (e.g., erosion controls, H&S controls) will be developed during the active construction period to ensure remediation workers and the environment are protected. In addition to the RD elements discussed for FSA Alternative 2, design will include details of the thermal treatment system and the process to implement the thermal treatment of the contaminated soil.

I.2.3.2 Thermal Treatment of Soil

The contaminated soil at ASYss-126M will be excavated using conventional construction equipment, such as backhoes, bulldozers, front-end loaders, and scrapers. The contaminated soil will then be staged to undergo ex situ thermal treatment, which will remove PAH contaminants through exposure to high temperature in treatment cells or combustion chambers. Upon completing the thermal treatment of soil, soil samples will be collected from the individual stockpiles to ensure contaminated soil has been successfully treated to PAH concentrations below the CUGs.

I.2.3.3 Confirmation Sampling

Upon completing the surface soil excavation at ASYss-126M, confirmatory samples will be collected from the excavation floor and sidewalls per the sampling methodology and scheme approved in the RD to ensure contaminated soil has been successfully removed. The confirmatory soil samples will be analyzed for benzo(a)pyrene. The laboratory results will be compared to the Industrial Receptor CUG for benzo(a)pyrene (21 mg/kg), and additional excavation will be conducted if the confirmation samples exceeds this CUG.

Upon completing the thermal treatment of soil, soil samples will be collected from the individual stockpiles to ensure contaminated soil has been successfully treated to PAH concentrations below the CUGs. The confirmatory soil samples will be analyzed for benzo(a)pyrene. The laboratory results will be compared to the Industrial Receptor CUG for benzo(a)pyrene (21 mg/kg). Once the laboratory

analysis determines that benzo(a)pyrene concentration in the stockpiles is below the Industrial Receptor CUG, the treated soil will be used for backfill and site restoration. Should confirmation samples indicate that benzo(a)pyrene in the surface soil is not sufficiently treated, the soil will be rerun through the thermal treatment system, likely at a higher temperature, until the target post-treatment levels are reached.

Once the laboratory analysis determines the benzo(a)pyrene concentration of the thermally treated soil and the final excavation footprint are below the Industrial Receptor CUG, the FSA will meet requirements for Commercial/Industrial Land Use.

I.2.3.4 Restoration

Upon confirming that the treated soil is below the Industrial Receptor CUG for benzo(a)pyrene, all treated soil will be placed back into the excavated area and graded to meet neighboring contours. To ensure adequate vegetation is established within the excavated area, a layer of topsoil from a clean source that was previously sampled and approved for use by Ohio EPA will be placed on the treated soil. After the area is backfilled and graded, workers will apply a seed mixture (as approved by OHARNG) and mulch. Restored areas will be inspected and monitored as required in the stormwater best management practices established in the RD.

I.2.3.5 Land Use Control Remedial Design

PAH COCs will remain onsite above the Resident Receptor CUGs in the FSA; therefore, this alternative also will rely on LUCs to prevent Resident Receptor exposure to COCs in the FSA. A LUC RD will be developed to present the site's land use, activities, RAOs, and LUC requirements for the FSA. The LUC requirements will include annual inspections and CERCLA 5-year reviews.

This information will be presented in an appendix to the Property Management Plan. The Property Management Plan identifies LUCs and restrictions for specific AOCs/MRSs within the former RVAAP. The procedures within the Property Management Plan are intended to comply with the DoD Manual, Defense Environmental Restoration Program Management, Number 4715.20, March 9, 2012 (DoD Office of the Under Secretary of Defense for Acquisition, Technology and Logistics), Incorporating Change 1 dated August 31, 2018, and Ohio Revised Code 5913.10.

I.2.4 FSA Alternative 4: Excavation and Offsite Disposal of Surface Soil at the FSA – Attain Unrestricted (Residential) Land Use

This alternative includes the removal and offsite disposal of surface soil (0 to 1 foot bgs) within the FSA containing COCs at concentrations above the Residential CUGs. This alternative will achieve Unrestricted (Residential) Land Use; therefore, LUCs will not be required for any receptor upon completion of the excavation and disposal activities. The assumed extent of the excavation is the entirety of the FSA and is approximately 30,505 yd^3 of soil.

This remedial alternative will require coordinating remediation activities with Ohio EPA, OHARNG, and ARNG. Coordinating with stakeholders during implementation of the excavation will minimize H&S risks to onsite personnel and potential disruptions of CJAG activities. The time period to complete this remedial action is relatively short and will not require long-term management of the FSA associated with LUCs because the Unrestricted (Residential) Land Use scenario will be achieved.

I.2.4.1 Delineation Sampling

To coincide with and support development of the RD, delineation/pre-excavation confirmation sampling will be conducted to confirm the limits of the soil requiring excavation/treatment. The delineation/pre-excavation sampling plan will be implemented with the intent of adequately defining the extent of soil requiring excavation/treatment.

A delineation/pre-excavation confirmation sampling plan prepared by ARNG will be coordinated with Ohio EPA. This plan will present a scheme of discrete soil sample locations within the FSA to be analyzed for PAH COCs.

I.2.4.2 Waste Characterization Sampling

Waste characterization samples will be collected from the FSA prior to removal. The waste characterization samples will be collected to provide data to properly profile the waste and determine if it is characteristically non-hazardous or hazardous. Sample analyses may include, but are not limited to, TCLP metals, TCLP SVOCs, TCLP pesticides, TCLP herbicides, reactive cyanide, reactive sulfide, and PCBs.

I.2.4.3 Remedial Design

An RD will be developed prior to initiating remedial actions. The RD will contain the laboratory results of the delineation sampling and waste characterization sampling.

Wetlands have been identified on the AOC and potentially within the remedial action area. Therefore, a wetland delineation will be conducted to identify any wetlands that would potentially be impacted during the remedial action. In the event that wetlands will be disturbed during remedial action activities, the RD will provide requirements for wetland restoration and address any necessary permits or notifications required.

This RD will outline site preparation activities (e.g., staging and equipment storage areas, truck routes, stormwater controls); the extent of the excavation; sequence and description of excavation and site restoration activities; decontamination; and segregation, transportation, and disposal of various waste streams. Engineering and administrative controls (e.g., erosion controls, H&S controls) will be developed during the active construction period to ensure remediation workers and the environment are protected.

I.2.4.4 Soil Excavation and Disposal

Prior to any ground disturbance, the excavation area will be surveyed and demarcated by stakes. Erosion control material, such as silt fences and straw bales, will be installed to minimize sediment runoff. Dust generation will be minimized during excavation activities by keeping equipment movement areas and excavation areas misted with water. The H&S of remediation workers, onsite CJAG employees, and the general public will be covered in a site-specific HASP.

Soil removal will be accomplished using conventional construction equipment, such as backhoes, bulldozers, front-end loaders, and scrapers. Oversize debris will be crushed or otherwise processed to meet disposal facility requirements. Excavated soil will be segregated if certain areas have different soil characteristics. The soil will be hauled by truck to a licensed and permitted disposal facility. All trucks will be inspected prior to exiting Atlas Scrap Yard. Appropriate waste manifests will accompany each waste shipment. Only regulated and licensed transporters and vehicles will be used. All trucks will travel pre-designated routes within CJAG.

I.2.4.5 Confirmation Sampling

Upon completing the surface soil excavation at the FSA, confirmatory samples will be collected from the excavation floor and sidewalls per the sampling methodology and scheme approved in the RD to ensure contaminated soil has been successfully removed. The confirmatory soil samples will be analyzed for the PAH COCs. The laboratory results will be compared to the Resident Receptor CUGs, and additional excavation will be conducted if the confirmation sample exceeds this CUG. Once the laboratory analysis determines the PAH COC concentrations of the final excavation are below the Resident Receptor CUG, the FSA will meet requirements for Unrestricted (Residential) Land Use.

I.2.4.6 Restoration

Workers will apply a seed mixture (as approved by OHARNG) and mulch. Restored areas will be inspected and monitored as required in the stormwater best management practices established in the RD.

I.2.5 FSA Alternative 5: Ex Situ Thermal Treatment of Surface Soil at the FSA – Attain Unrestricted (Residential) Land Use

This alternative would utilize ex situ thermal treatment at the FSA to reduce PAH concentrations in soil to below Residential CUGs. Implementing this remedial technology will attain Unrestricted (Residential) Land Use. LUCs will not be required for any receptor upon completion of the remediation. The evaluation of this alternative assumes that a mobile thermal treatment system is already onsite and readily available for use. Implementation of FSA Alternative 5 would result in thermal treatment and excavation of 30,505 yd^3 of soil.

This remedial alternative will require coordinating remediation activities with Ohio EPA, OHARNG, and ARNG. Coordinating with stakeholders during implementation of the excavation will minimize

H&S risks to onsite personnel and potential disruptions of CJAG activities. The time period to complete this remedial action is relatively short and will not require long-term management of the FSA associated with LUCs because the Unrestricted (Residential) Land Use scenario will be achieved.

The delineation/pre-excavation confirmation sampling, waste characterization sampling, RD, soil excavation and offsite disposal, confirmation sampling, and site restoration are anticipated to occur as described in FSA Alternative 3.

I.2.5.1 Delineation Sampling

To coincide with and support development of the RD, delineation/pre-excavation confirmation sampling will be conducted to confirm the limits of the soil requiring excavation/treatment. The delineation/pre-excavation sampling plan will be implemented with the intent of adequately defining the extent of soil requiring excavation/treatment.

A delineation/pre-excavation confirmation sampling plan prepared by ARNG will be coordinated with Ohio EPA. This plan will present a scheme of discrete soil sample locations within the FSA to be analyzed for PAHs.

I.2.5.2 Remedial Design

An RD will be developed prior to initiating remedial actions. The RD will contain the laboratory results of the delineation sampling.

Wetlands have been identified on the AOC and potentially within the remedial action area. Therefore, a wetland delineation will be conducted to identify any wetlands that would potentially be impacted during the remedial action. In the event that wetlands will be disturbed during remedial action activities, the RD will provide requirements for wetland restoration and address any necessary permits or notifications required.

This RD will outline site preparation activities (e.g., staging and equipment storage areas, truck routes, storm-water controls); the extent of the excavation; sequence and description of excavation and site restoration activities; decontamination; and segregation, transportation, and disposal of various waste streams. Engineering and administrative controls (e.g., erosion controls, H&S controls) will be developed during the active construction period to ensure remediation workers and the environment are protected. In addition, the RD will include details of the thermal treatment system and the process to implement the thermal treatment of the contaminated soil.

I.2.5.3 Thermal Treatment of Soil

The contaminated soil at the FSA will be excavated using conventional construction equipment, such as backhoes, bulldozers, front-end loaders, and scrapers. The contaminated soil will then be staged to undergo ex situ thermal treatment, which will remove PAH contaminants through exposure to high temperature in treatment cells or combustion chambers. Upon completing the thermal treatment of soil,

soil samples will be collected from the individual stockpiles to ensure contaminated soil has been successfully treated to PAH concentrations below the CUGs.

I.2.5.4 Confirmation Sampling

Upon completing the surface soil excavation at the FSA, confirmatory samples will be collected from the excavation floor and sidewalls per the sampling methodology and scheme approved in the RD to ensure contaminated soil has been successfully removed. The confirmatory soil samples will be analyzed for the PAH COCs. The laboratory results will be compared to the Resident Receptor CUGs, and additional excavation will be conducted if the confirmation samples exceed these CUGs.

Upon completing the thermal treatment of soil, soil samples will be collected from the individual stockpiles to ensure contaminated soil has been successfully treated to PAH concentrations below the CUGs. The confirmatory soil samples will be analyzed for the PAH COCs. The laboratory results will be compared to the Resident Receptor CUGs. Once the laboratory analysis determines that the PAH COCs are below the Resident Receptor CUG, the treated soil will be used for backfill and site restoration. Should confirmation samples indicate that any contaminants are not sufficiently treated, those soils will be rerun through the thermal treatment system, likely at a higher temperature, until the target post-treatment levels are reached.

Once the laboratory analysis determines the PAH COC concentrations of the thermally treated soil and the final excavation footprint are below the Resident Receptor CUGs, the FSA will meet requirements for Unrestricted (Residential) Land Use.

I.2.5.5 Restoration

Upon confirming that the treated soil is below Resident Receptor CUGs, all treated soil will be placed back into the excavated area and graded to meet neighboring contours. To ensure adequate vegetation is established within the excavated area, a layer of topsoil from a clean source that was previously sampled and approved for use by Ohio EPA will be placed on the treated soil. After the area is backfilled and graded, workers will apply a seed mixture (as approved by OHARNG) and mulch. Restored areas will be inspected and monitored as required in the stormwater best management practices established in the RD.

J COMPARATIVE ANALYSIS OF ALTERNATIVES

These alternatives were evaluated with respect to the nine comparative analysis criteria. These criteria are further described, as outlined by CERCLA, in Table 3.

Table 3. CERCLA Evaluation Criteria

Overall Protection of Human Health and the Environment – Considers whether or not an alternative provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
Compliance with ARARs – Considers how a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and/or provide grounds for invoking a waiver.
Long-term Effectiveness and Permanence – Considers the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.
Reduction of Toxicity, Mobility, or Volume Through Treatment – Considers the anticipated performance of the treatment technologies that may be employed in a remedy.
Short-Term Effectiveness – Considers the speed with which the remedy achieves protection, as well as the potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.
Implementability – Considers the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.
Cost – Considers capital costs and operation and maintenance costs associated with the implementation of the alternative.
State Acceptance – Indicates whether the state concurs with, opposes, or has no comment on the preferred alternative.
Community Acceptance – Considers public input following a review of the public comments received on the RI/FS Report and Proposed Plan.

ARAR = Applicable or Relevant and Appropriate Requirement
FS = Feasibility Study
RI = Remedial Investigation

The nine criteria are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria, as follows:

Threshold Criteria – Must be met for the alternative to be eligible for selection as a remedial option.

1. Overall protection of human health and the environment.
2. Compliance with applicable or relevant and appropriate requirements (ARARs).

Primary Balancing Criteria – Used to weigh major trade-offs among alternatives.

3. Long-term effectiveness and permanence.
4. Reduction of toxicity, mobility, or volume through treatment.
5. Short-term effectiveness.
6. Implementability.
7. Cost.

Modifying Criteria – FS consideration to the extent that information was available. Evaluated fully after public comment period on the Proposed Plan.

8. State acceptance.
9. Community acceptance.

The following subsections discuss the comparative analysis of the alternatives developed for the FIA and FSA, and a scoring of these alternatives is presented in Tables 4 and 5.

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Table 4. Summary of Comparative Analysis of Remedial Alternatives for the Former Incinerator Area

NCP Evaluation Criteria	FIA Alternative 1: No Action	FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use	FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use
Threshold Criteria	***Result***	***Result***	***Result***
1. Overall Protectiveness of Human Health and the Environment	Not protective	Protective	Protective
2. Compliance with ARARs	Not compliant	Compliant	Compliant
Balancing Criteria	***Score***	***Score***	***Score***
3. Long-Term Effectiveness and Permanence	Not applicable	2	2
4. Reduction of Toxicity, Mobility, or Volume Through Treatment	Not applicable	2	1
5. Short-Term Effectiveness	Not applicable	1	2
6. Implementability	Not applicable	1	2
7. Cost	Not applicable ($0)	2 ($235,655)	1 ($372,578)
Balancing Criteria Score	*Not applicable*	*8*	*8*

Any alternative considered "not protective" for overall protectiveness of human health and the environment or "not compliant" for compliance with ARARs is not eligible to be the selected alternative. Therefore, that alternative is not scored as part of the balancing criteria evaluation.
Scoring for the balancing criteria is as follows for applicable alternatives: Most favorable = 2, least favorable = 1. The alternative with the highest total balancing criteria score is considered the most feasible.
ARAR = Applicable or Relevant and Appropriate Requirement
FIA = Former Incinerator Area
NCP = National Contingency Plan

Table 5. Summary of Comparative Analysis of Remedial Alternatives for the Former Storage Area

NCP Evaluation Criteria	FSA Alternative 1: No Action	FSA Alternative 2: Excavation and Offsite Disposal of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use	FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use	FSA Alternative 4: Excavation and Offsite Disposal of Surface Soil at the Former Storage Area – Attain Unrestricted (Residential) Land Use	FSA Alternative 5: Ex Situ Thermal Treatment of Surface Soil at the Former Storage Area – Attain Unrestricted (Residential) Land Use
Threshold Criteria	***Result***	***Result***	***Result***	***Result***	***Result***
1. Overall Protectiveness of Human Health and the Environment	Not protective	Protective	Protective	Protective	Protective
2. Compliance with ARARs	Not compliant	Compliant	Compliant	Compliant	Compliant
Balancing Criteria	***Score***	***Score***	***Score***	***Score***	***Score***
3. Long-Term Effectiveness and Permanence	Not applicable	1	2	4	3
4. Reduction of Toxicity, Mobility, or Volume Through Treatment	Not applicable	1	3	2	4
5. Short-Term Effectiveness	Not applicable	3	4	1	2
6. Implementability	Not applicable	4	3	2	1
7. Cost	Not applicable ($0)	3 ($294,389)	4 ($224,194)	1 ($4,496,580)	2 ($2,718,988)
Balancing Criteria Score	*Not applicable*	*12*	*16*	*10*	*12*

Any alternative considered "not protective" for overall protectiveness of human health and the environment or "not compliant" for compliance with ARARs, it is not eligible to be the selected alternative. Therefore, that alternative is not scored as part of the balancing criteria evaluation.
Scoring for the balancing criteria is as follows for applicable alternatives: Most favorable = 4, least favorable = 1. The alternative with the highest total balancing criteria score is considered the most feasible.
ARAR = Applicable or Relevant and Appropriate Requirement
FSA = Former Storage Area
NCP = National Contingency Plan

J.1 Overall Protection of Human Health and the Environment

Overall protection and compliance with ARARs are threshold criteria that must be met by any alternative to be eligible for selection. If any alternative is considered "not protective" for overall protectiveness of human health and the environment or "not compliant" for compliance with ARARs, it is not eligible for selection as the selected alternative.

J.1.1 Former Incinerator Area

FIA Alternative 1 is not protective of human health. In addition, FIA Alternative 1 does not meet the RAO to prevent Resident Receptor exposure to surface soil (0 to 1 foot bgs). The concentrations of lead are above CUGs at the FIA and the concentrations of PAHs are above CUGs at the FSA. Therefore, Alternative 1 is not eligible for selection.

The comparative analysis for the FIA has been updated due to the recent Ohio EPA specified RCRA requirements. Alternative 2 and FIA Alternative 3 have equal scores within the comparative analysis. Both FIA Alternative 2 and FIA Alternative 3 are effective in the long term, as the contaminants will be removed from the site. FIA Alternative 2 is a green and highly sustainable alternative for onsite treatment and stabilization of the lead-contaminated soil, and this alternative reduces the mobility of the contaminants that will be disposed of in an offsite facility. FIA Alternative 3 is technically and administratively feasible, as excavation and offsite disposal is commonly used to address contaminated soil. FIA Alternative 3 is more administratively feasible; therefore, it is the selected alternative for the FIA

J.1.2 Former Storage Area

FSA Alternative 1 is not protective of human health and is not compliant with ARARs. In addition, FSA Alternative 1 does not meet the RAO to prevent Resident Receptor exposure to surface soil (0 to 1 foot bgs) with concentrations of benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenz(a,h)anthracene above CUGs at the FSA. Therefore, FSA Alternative 1 is not eligible for selection.

If an onsite thermal treatment system is available at CJAG, FSA Alternative 3 scores the highest and is the selected alternative. *FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/ Industrial Land Use* is effective in the long term through treatment of benzo(a)pyrene in soil and LUCs. In addition, FSA Alternative 3 is a green and highly sustainable alternative for onsite treatment and reuse of soil and implements a treatment alternative to reduce the toxicity, mobility, and volume of contamination.

In the event that a thermal treatment system is not available for use at the former RVAAP, *FSA Alternative 2: Excavation and Offsite Disposal of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use* would be readily available and could be implemented under this ROD. Excavation and offsite disposal alternatives have been implemented multiple times during

restoration efforts at the former RVAAP. As with FSA Alternative 3, FSA Alternative 2 would require LUCs after implementation.

J.2 State Acceptance

State acceptance was evaluated formally after the public comment period on the Proposed Plan. Ohio EPA expressed its support for *FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use* during the public comment period. However, subsequent to the approval of the Proposed Plan, Ohio EPA specified RCRA requirements for FIA Alternative 2. In response to those requirements, ARNG has selected *FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use*.

Consistent with the Proposed Plan, the selected alternative at the FSA is *FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use*.

J.3 Community Acceptance

Community acceptance was evaluated formally after the public comment period. During the public meeting, the community voiced no objections to *FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use* or *FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/ Industrial Land Use*, as indicated in Part III of this ROD, the Responsiveness Summary. A description of *FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use* was also provided during the public meeting, and the public did not express concern regarding this alternative.

K PRINCIPAL THREAT WASTES

Principal threat wastes, as defined by USEPA in *A Guide to Principal Threat and Low Level Threat Wastes* (USEPA 1991), are source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur.

Wastes that generally are considered to constitute principal threats include, but are not limited to:

- **Liquids** – Wastes contained in drums, lagoons, or tanks, free product floating on or under groundwater.
- **Mobile Source Material** – Surface soil or subsurface soil containing high concentrations of chemicals that are mobile due to wind entrainment, volatilization, surface runoff, or subsurface transport.
- **Highly Toxic Source Material** – Buried drummed non-liquid wastes, buried tanks containing non-liquid wastes, or soil containing significant concentrations of highly toxic materials.

USEPA guidance indicates where mobility and toxicity of source material combine to pose a potential risk of 10^{-3} or greater, generally treatment alternatives should be considered. Atlas Scrap Yard does not contain source materials that are considered principal threat wastes, as described above, and no chemicals pose a risk of 10^{-3} or greater. As such, no remedies are required to address principal threat wastes at this AOC.

L SELECTED REMEDIES

The following subsections describe the rationale for the selected remedies at both the FIA and FSA. The selected remedies meet the threshold criteria and provide the best overall balance of trade-offs in terms of the five balancing criteria:

- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, and volume;
- Short-term effectiveness;
- Implementability; and
- Cost.

L.1 Former Incinerator Area

FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use is selected for implementation at the FIA. This alternative also attains the requisite level of cleanup for Military Training Land Use and Commercial/Industrial Land Use.

L.1.1 Rationale for the Selected Remedy

FIA Alternative 3 is protective for the future use and can be performed in a timely manner. Based on the available risk assessment information, the selected remedy will achieve the RAO, which prevents Resident Receptor exposure to surface soil (0 to 1 foot bgs) with concentrations of lead above CUGs.

Using engineering controls, personal protective equipment, erosion and sediment controls, proper waste handling practices, and monitoring will mitigate short-term effects during construction. The selected remedy addresses state and community concerns by removing contaminated soil from Atlas Scrap Yard.

L.1.2 Description of the Selected Remedy

FIA Alternative 3 consists of excavating and offsite disposal of lead-contaminated soil to achieve Unrestrictive (Residential) Land Use. This alternative is described in more detail in Section I.1.

L.1.3 Summary of the Estimated Remedy Costs

The cost to complete FIA Alternative 3 is approximately $372,578 (in base year 2018 dollars).

This cost estimate is based on the best available information regarding the anticipated scope of the selected remedy. This is an order of magnitude engineering cost estimate that is expected to be within -30 to +50 percent of the actual project cost in accordance with USEPA guidance (USEPA 1988).

L.1.4 Expected Outcomes of the Selected Remedy

Table 2 summarizes the CUGs to be achieved for soil at Atlas Scrap Yard after the remedial activities are complete. Residual risks at the FIA after implementing the selected remedy will be within the acceptable risk range for the future use and will meet the criteria for Unrestricted (Residential) Land Use. Removing contaminated soil will reduce the likelihood of contaminant migration to other environmental media, such as surface water or groundwater. Removing soil to attain human health CUGs also will reduce risks to ecological receptors.

No negative socioeconomic and community revitalization impacts are expected from this remedial action. Positive socioeconomic impacts are expected from treating and excavating soil exceeding the CUGs because additional resources will be available for use by the OHARNG training mission.

L.2 Former Storage Area

FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use is selected for implementation at the FSA. This alternative also attains the requisite level of cleanup for Military Training Land Use and Commercial/Industrial Land Use.

L.2.1 Rationale for the Selected Remedy

FSA Alternative 3 is a green and highly sustainable alternative for onsite treatment and unrestricted reuse of PAH-contaminated soil and implements a treatment alternative to reduce the toxicity, mobility, and volume of contamination.

Using engineering controls, personal protective equipment, erosion and sediment controls, proper waste handling practices, and monitoring will mitigate short-term effects during construction. The selected remedy addresses state and community concerns by removing or treating contaminated soil from Atlas Scrap Yard.

L.2.2 Description of the Selected Remedy

FSA Alternative 3 consists of thermally treating PAH-contaminated soil to achieve Commercial/Industrial Land Use. In the event that a thermal treatment system is not onsite at the former RVAAP, *FSA Alternative 2: Excavation and Offsite Disposal of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use* would be readily available and considered for implementation by ARNG. This alternative is described in more detail in Section I.2.

L.2.3 Summary of the Estimated Remedy Costs

The cost to complete FSA Alternative 3 is approximately $224,194 (in base year 2018 dollars). This cost assumes an existing thermal treatment system is onsite and ready for mobilization. This cost estimate is based on the best available information regarding the anticipated scope of the selected remedy. This is an order of magnitude engineering cost estimate that is expected to be within -30 to +50% of the actual project cost in accordance with USEPA guidance (USEPA 1988).

L.2.4 Expected Outcomes of the Selected Remedy

Table 2 summarizes the CUGs to be achieved for soil at Atlas Scrap Yard after the remedial activities are complete. Residual risks at the FSA after implementing the selected remedy will be within the acceptable risk range for the future use by the Industrial Receptor but will not meet the criteria for Unrestricted (Residential) Land Use. Removing contaminated soil will reduce the likelihood of contaminant migration to other environmental media, such as surface water or groundwater. Removing soil to attain human health CUGs also will reduce risks to ecological receptors.

No negative socioeconomic and community revitalization impacts are expected from this remedial action. Positive socioeconomic impacts are expected from treating and excavating soil exceeding the CUGs because additional resources will available for use by the OHARNG training mission.

L.3 Data Gap Sampling

To address a data gap identified in the Atlas Scrap Yard RI Report (Leidos 2017), ARNG will collect a surface soil (0 to 1 foot bgs) sample at the location of the former Building T-4704 Roads and Grounds Maintenance Building for PCBs. PCBs were not previously collected from this location. Although documented releases of PCBs have not occurred at this location and the previous use of this building is not well documented, additional sampling to assess if the previous use of the building contributed PCB contamination to soil is warranted. In the event that the sample reveals PCB contamination at the location of the former Building T-4704 Roads and Grounds Maintenance Building, ARNG will conduct additional actions to address the contamination.

M STATUTORY DETERMINATIONS

The selected remedies satisfy the statutory requirements of CERCLA Section 121 and the NCP, as described below.

M.1 Protection of Human Health and the Environment

Human exposure to COCs will be eliminated to levels that are protective through excavation and offsite disposal of lead-contaminated soil; treatment of PAH-contaminated soil; and LUCs. The selected remedies also protects environmental resources from potential exposure to COC-contaminated media. The selected remedies will attain the CUGs listed in Table 2.

M.2 Compliance with ARARs

The selected remedies will comply with the action-specific ARARs listed in Appendix A.

M.3 Cost Effectiveness

The selected remedies meet the statutory requirement for a cost-effective remedy. Cost effectiveness is concerned with the reasonableness of the relationship between the effectiveness afforded by each alternative and its costs compared to other available options.

M.4 Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable

The selected remedies represent practicable, effective, and permanent solutions to achieve RAOs for soil at Atlas Scrap Yard. The selected remedies represent the best balance of trade-offs between the alternatives because they provide a permanent solution for contaminated media and are cost-effective. The remedy at the FIA eliminates the need for long-term LUCs respective to chemical contaminants at the FIA.

M.5 Preference for Treatment as a Principal Element

The remedy selected for the FSA uses permanent solutions to the maximum extent practicable. The remedy satisfies the statutory preference for treatment, as ex situ thermal treatment is the selected remedy for PAH-contaminated soil.

M.6 Five-Year Review Requirements

Five-year reviews in compliance with CERCLA Section 121(c) and NCP Section 300.430(f)(4)(ii) will not be required for the FIA.

CERCLA Section 121(c) 5-year reviews will be conducted for the FSA to assess the effectiveness of the LUCs and whether a need to modify the LUCs exists. ARNG/OHARNG will verify whether the LUCs continue to be properly documented and maintained. Each review of the remedy will evaluate whether land use has changed. If the risk levels have changed since initial LUC implementation, LUC modifications will be considered, which may include a change in monitoring frequency. A 5-year review report will be submitted. No other areas within Atlas Scrap Yard require LUCs. Figure 9 depicts the area (FSA) within Atlas Scrap Yard requiring LUCs after implementation of the selected remedies.

N DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVES OF PROPOSED PLAN

The Atlas Scrap Yard Proposed Plan (Leidos 2020) was released for public comment on August 17, 2020. Feedback received from the public during the public comment period and public meeting are presented in Part III of this ROD.

The Proposed Plan identified *FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil – Attain Unrestricted (Residential) Land Use* as the preferred alternative for the FIA. No significant changes were necessary or appropriate following the conclusion of the public comment period. However, subsequent to the public comment period, Ohio EPA specified RCRA requirements for FIA Alternative 2. In response to those requirements, ARNG has selected *FIA Alternative 3: Excavation and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use*.

The Proposed Plan identified *FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use* as the preferred alternative for the FSA. During the presentation to the public, it was also noted that in the event that a thermal treatment system is not available for use at the former RVAAP, *FSA Alternative 2: Excavation and Offsite Disposal of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use*, would be readily available. No significant changes were necessary or appropriate following the conclusion of the public comment period.

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PART III: RESPONSIVENESS SUMMARY FOR PUBLIC COMMENTS ON THE ARMY PROPOSED PLAN FOR RVAAP-50 ATLAS SCRAP YARD

A OVERVIEW

On August 17, 2020, ARNG released the Atlas Scrap Yard Proposed Plan (Leidos 2020) for public comment. A 30-day public comment period was held from August 17 to September 16, 2020. ARNG hosted a public meeting on August 26, 2020 to present the Proposed Plan and take questions and comments from the public for the record. The public comment period and public meeting also included the Proposed Plan for C Block Quarry.

For soil, surface water, and sediment at Atlas Scrap Yard, ARNG recommended the following alternatives:

- FIA Alternative 2: Excavation, Stabilization, and Offsite Disposal of Surface Soil at the FIA – Attain Unrestricted (Residential) Land Use; and
- FSA Alternative 3: Ex Situ Thermal Treatment of Surface Soil at ASYss-126M – Attain Commercial/Industrial Land Use.

Ohio EPA concurred with the recommendation of these alternatives during the public meeting. The community voiced no objections to these recommendations. All public input, including the oral and written comments provided, was considered during the selection of the final remedy for soil, surface water, and sediment at Atlas Scrap Yard in this ROD.

B STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES

The following subsections summarize the oral and written comments provided during the public comment period and public meeting. ARNG's responses provided below are considered final upon approval of the Final ROD.

B.1 Oral Comments from Public Meeting

Comment 1: What is the cost for FSA Alternative 3?

Response: The cost of FSA Alternative 3 is $224,194.

B.2 Written Comments

No written comments were received during the public comment period.

C TECHNICAL AND LEGAL ISSUES

No technical or legal issues were raised during the public comment period.

PART IV: REFERENCES

ARNG (Army National Guard) 2014. *Final Technical Memorandum: Land Uses and Revised Risk Assessment Process for the Ravenna Army Ammunition Plant (RVAAP) Installation Restoration Program, Portage/Trumbull Counties, Ohio*. Memorandum between ARNG-ILE Cleanup and the Ohio Environmental Protection Agency. February 2014.

Chenega (Chenega Tri-Services LLC) 2021. *2021 Community Relations Plan, Ravenna Army Ammunition Plant Restoration Program.* March 2021.

ERT (ERT Inc.) 2017. *Construction Completion Report for FY16 Recycling of Materials at RVAAP-50 Atlas Scrap Yard Area of Concern and Setup of Temporary Storage Facility*. August 2017.

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Leidos 2020. *Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-50 Atlas Scrap Yard*. June 2020.

MKM (MKM Engineering, Inc.) 2007. *Characterization of 14 Areas of Concern*. August 2007.

OHARNG (Ohio Army National Guard) 2008. *Updated Integrated Natural Resources Management Plan for the Ravenna Training and Logistics Site, Portage and Trumbull Counties, Ohio*. March 2008.

OHARNG 2014. *Integrated Natural Resources Management Plan at the Camp Ravenna Joint Military Training Center, Portage and Trumbull Counties, Ohio.* December 2014.

Ohio EPA (Ohio Environmental Protection Agency) 2004. *Director's Final Findings and Orders for the Ravenna Army Ammunition Plant*. June 2004.

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USACHPPM (U.S. Army Center for Health Promotion and Preventative Medicine) 1998. *Relative Risk Site Evaluation for Newly Added Sites at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. Hazardous and Medical Waste Study No. 37-EF-5360-99. October 1998.

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USEPA 1991. *A Guide to Principal Threat and Low Level Threat Wastes*. Superfund Publication 9380.3-06FS. November 1991.

Winslow, J.D. and G.W. White 1966. *Geology and Ground-water Resources of Portage County, Ohio. Geological Survey Professional Paper 511*. 1966.

FIGURES

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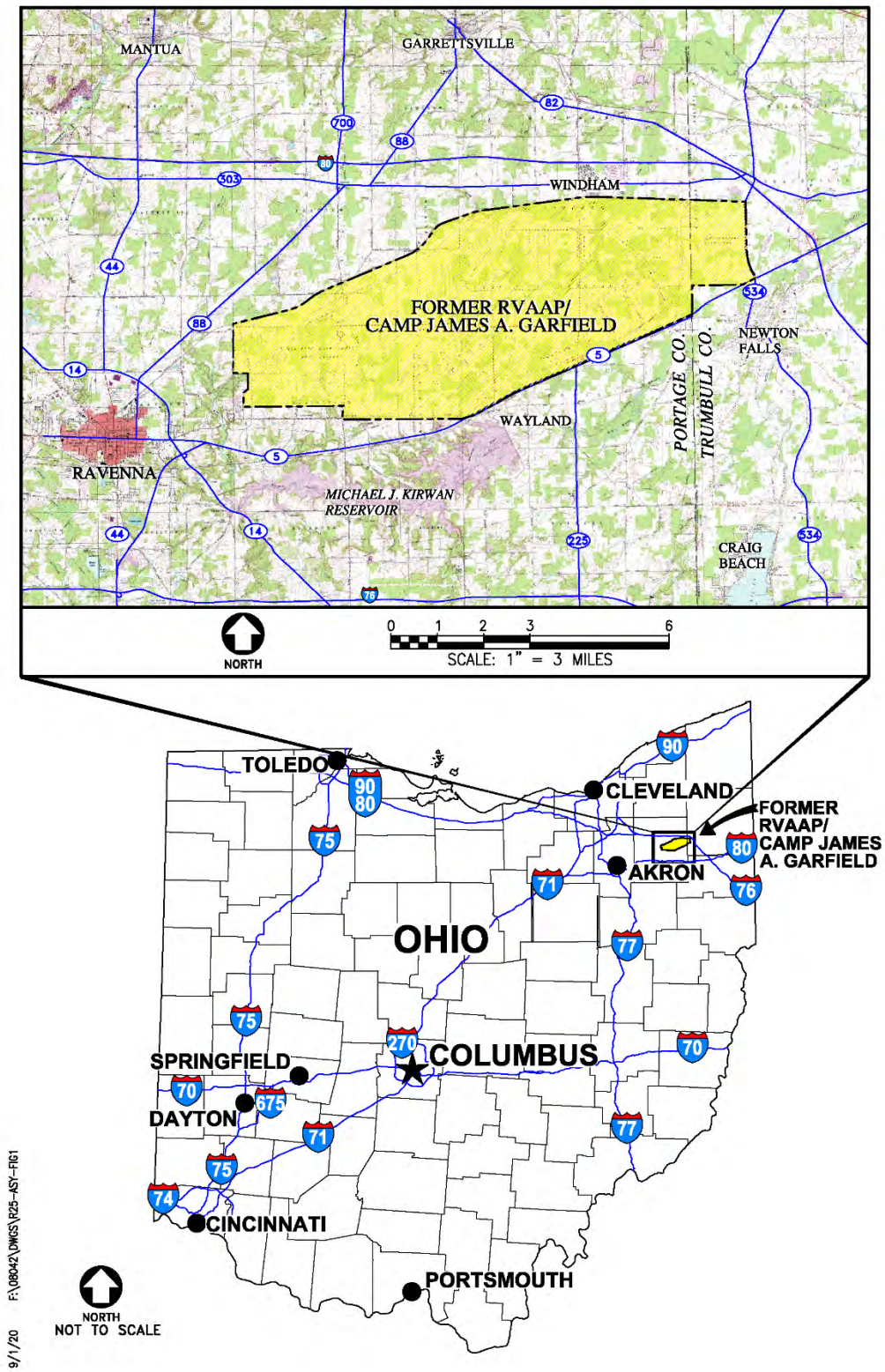

Figure 1. General Location and Orientation of Camp James A. Garfield

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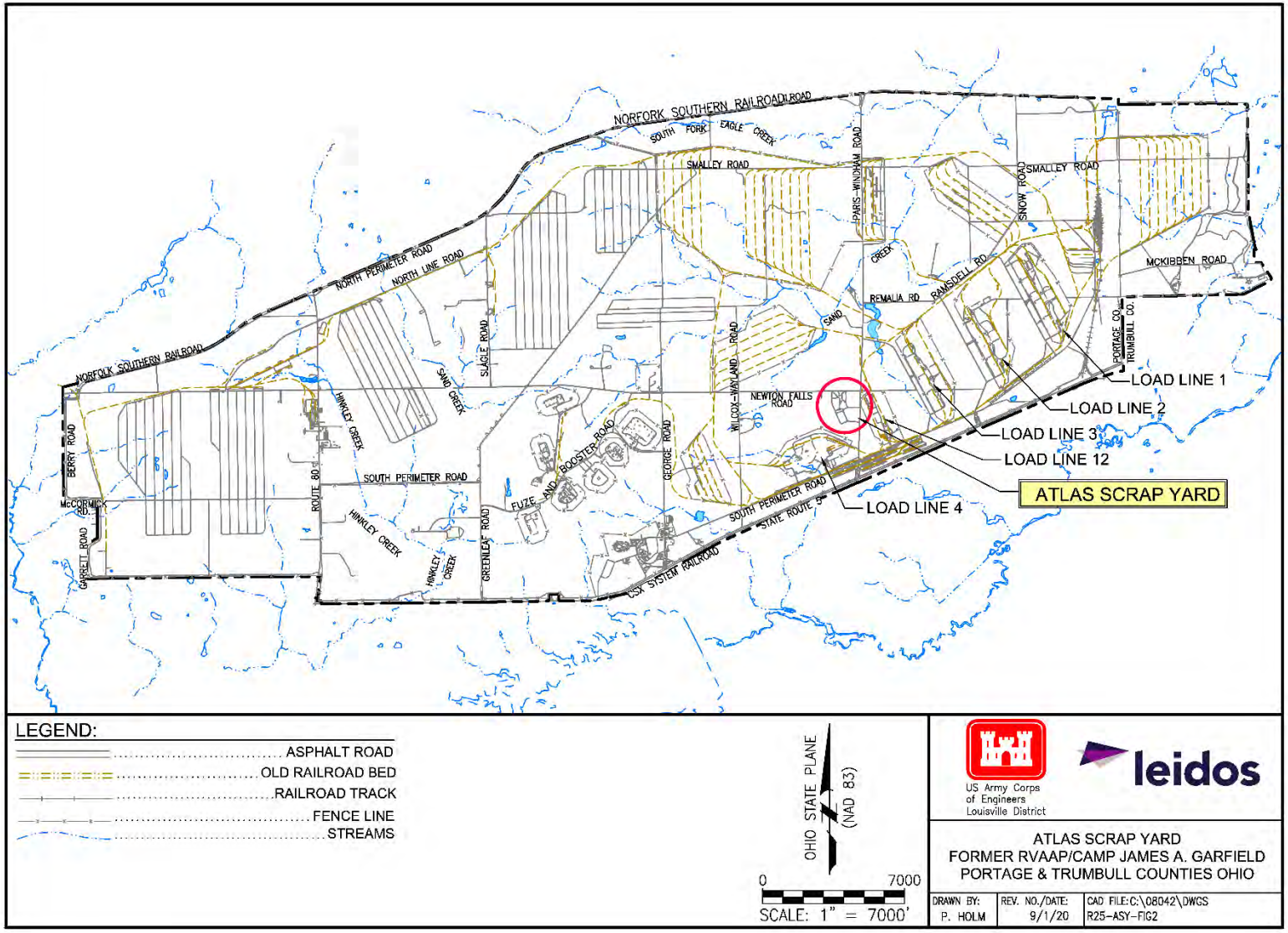

Figure 2. Location of Atlas Scrap Yard within Camp James A. Garfield

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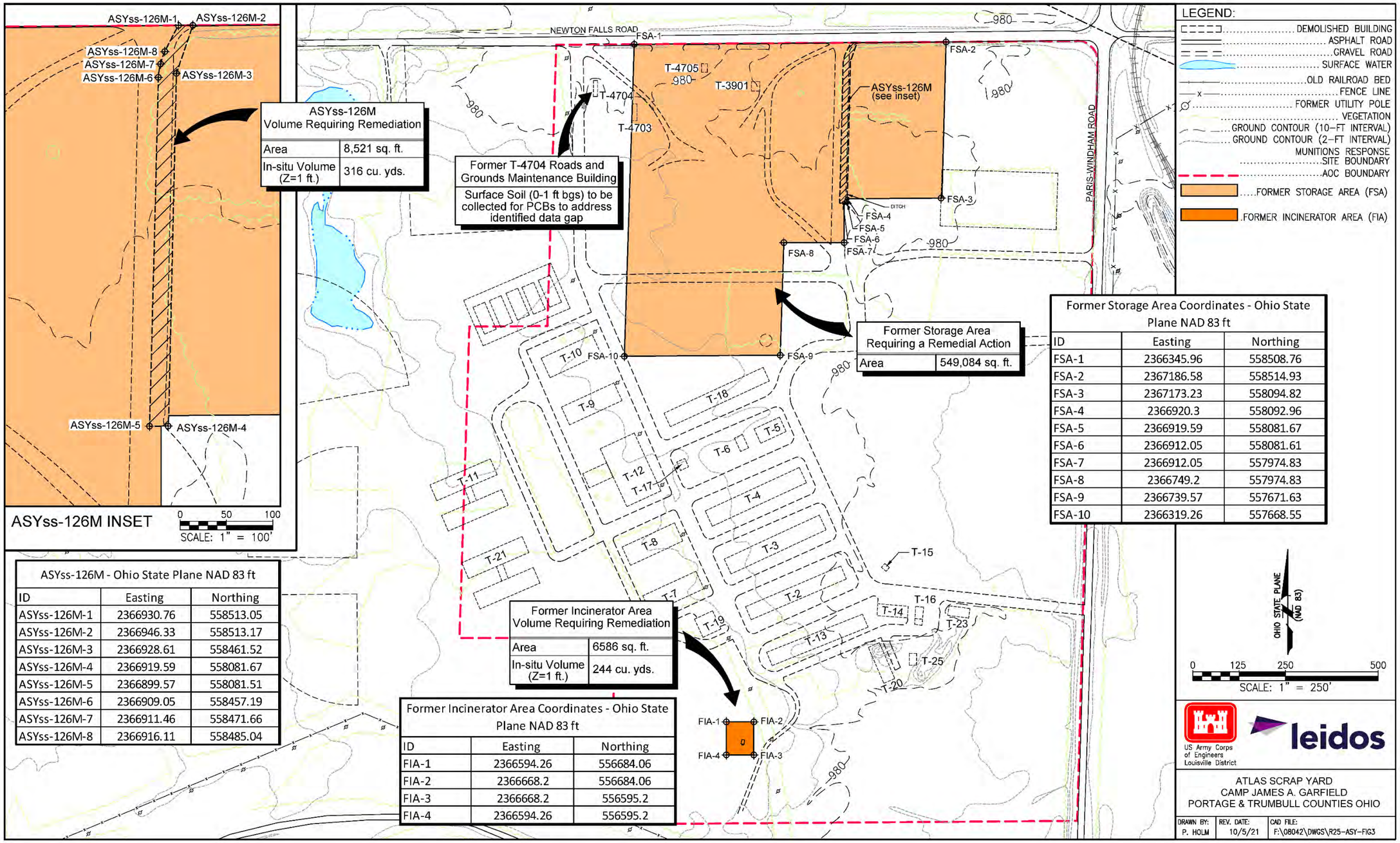


Figure 3. Location of FIA and FSA within Atlas Scrap Yard

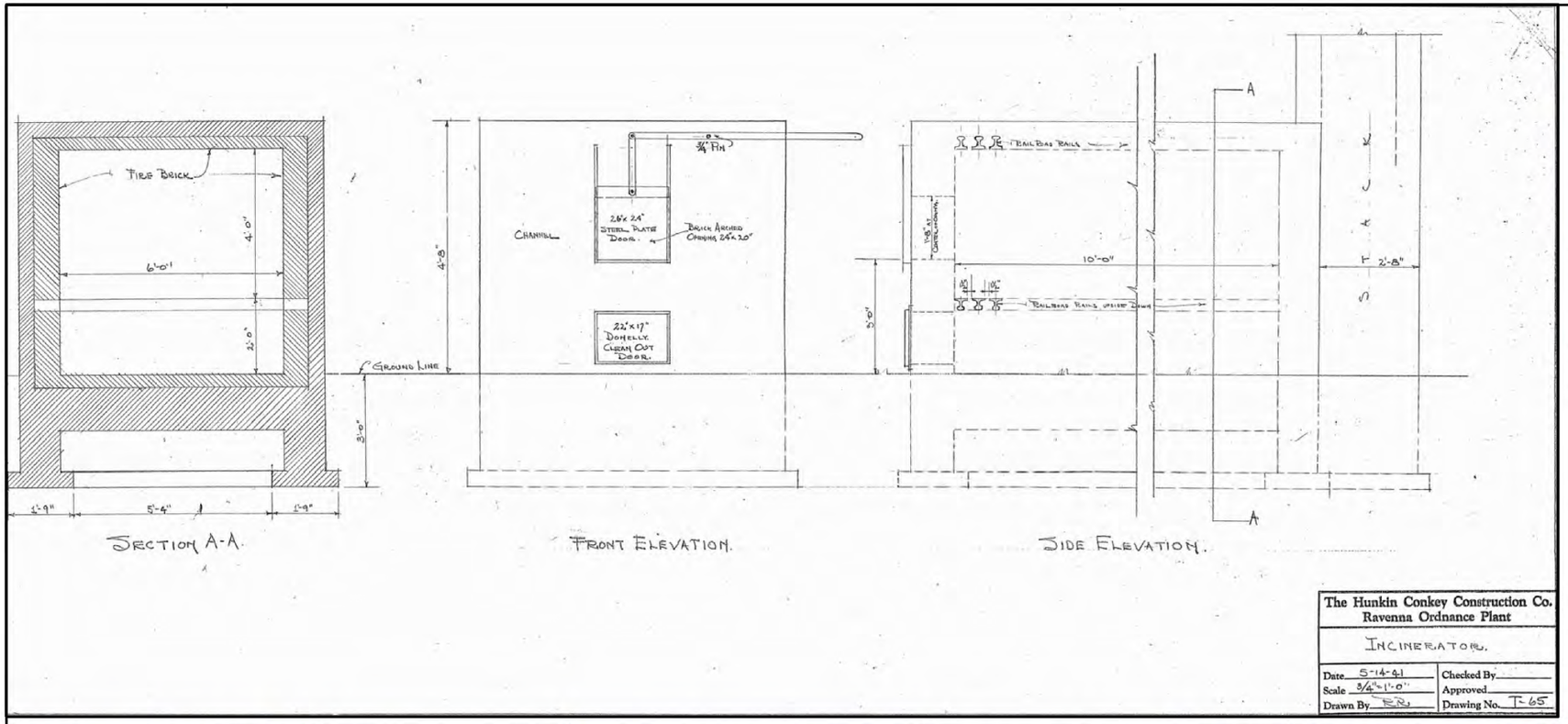


PHOTO FACING INCINERATOR LOOKING WEST

FACING INCINERATOR LOOKING NORTH

FACING INCINERATOR

Note: The tree adjacent to the incinerator on the west side is approximately 32-inches in diameter.

INSIDE CHANNEL FROM MAIN DOOR

Note: The material beneath the grate in the channel has not been sampled.

INTERIOR CEILING

DONELLY CLEANOUT DOOR

Note: The metal debris, including the cleanout door and steel plate door, are on the ground surface in front of the channel opening.

STEEL PLATE DOOR - BURIED

GENERAL NOTES:

1. PHOTOS WERE TAKEN IN MAY 2018.
2. THE INTERIOR AND EXTERIOR BRICK WAS SAMPLED FOR ACM, PCBs, AND TCLP METALS.

US Army Corps of Engineers Louisville District

leidos

ATLAS SCRAP YARD
FORMER RVAAP/CAMP JAMES A. GARFIELD
PORTAGE & TRUMBULL COUNTIES OHIO

DRAWN BY:	REV. NO./DATE:	CAD FILE:C:\08042\DWGS
P. HOLM	9/24/20	R25-ASY-FIG4

Figure 4. Incinerator Design Drawing

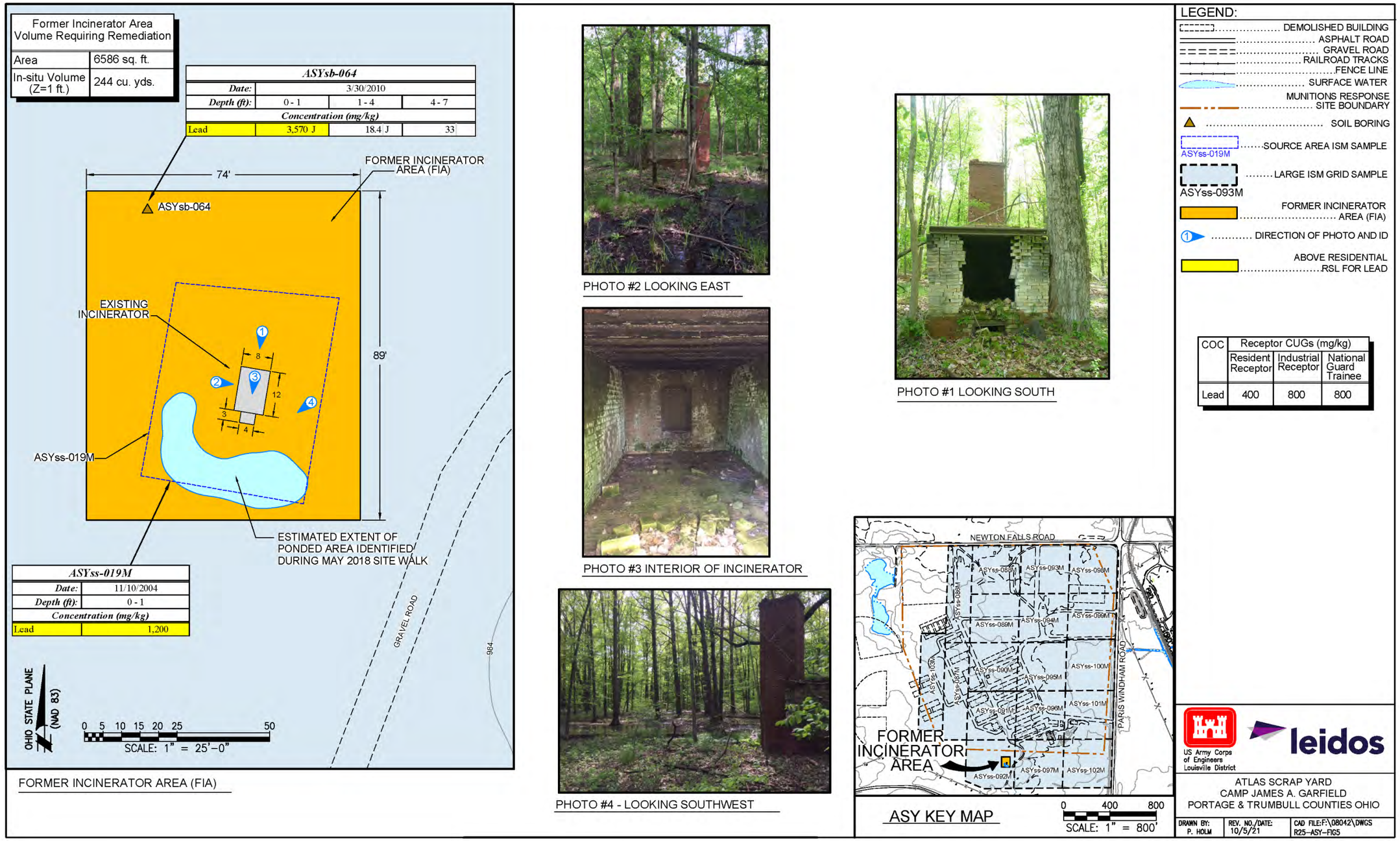


Figure 5. Exceedances of Lead at the Former Incinerator Area

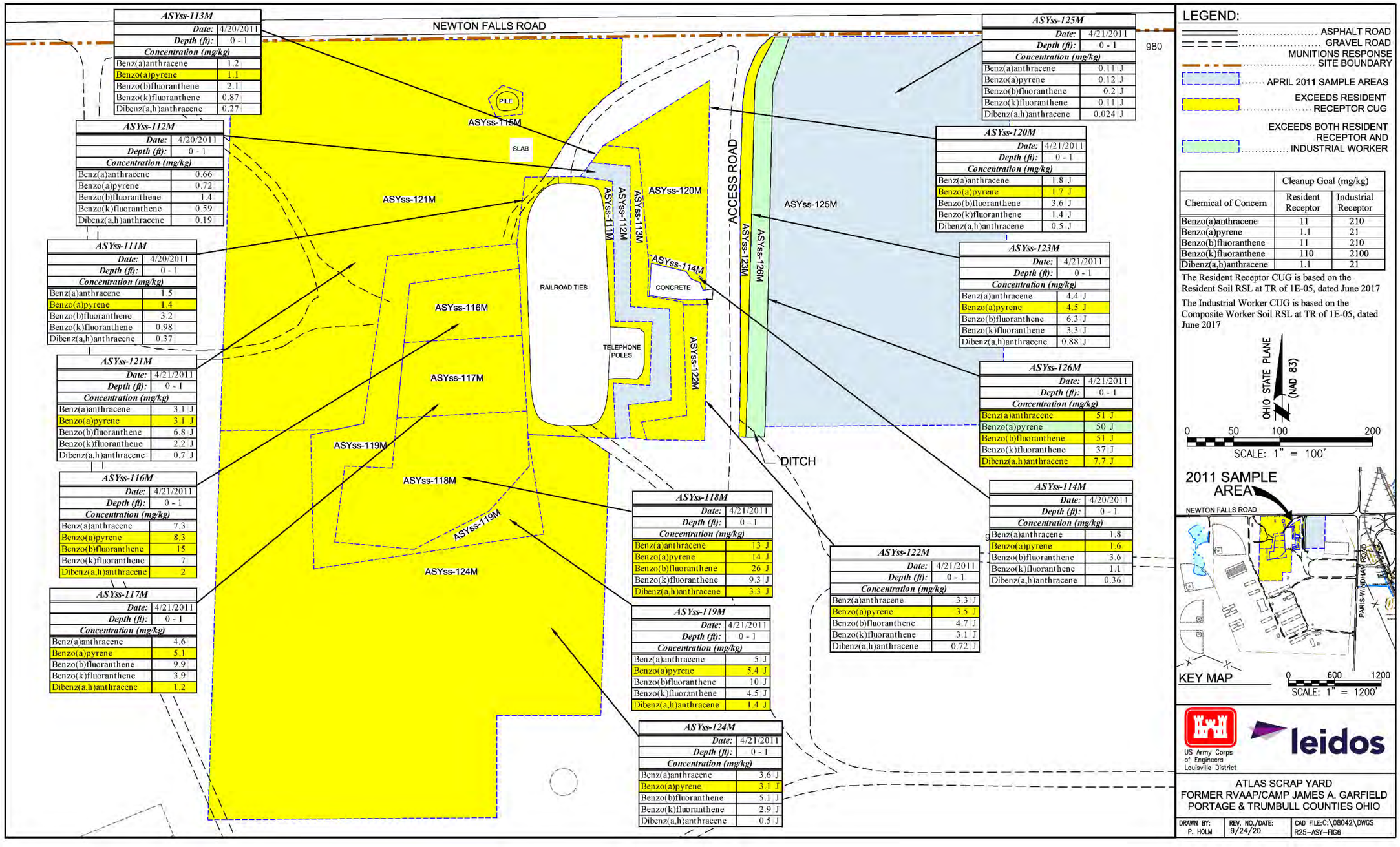


Figure 6. Exceedances of PAHs in the Former Storage Area

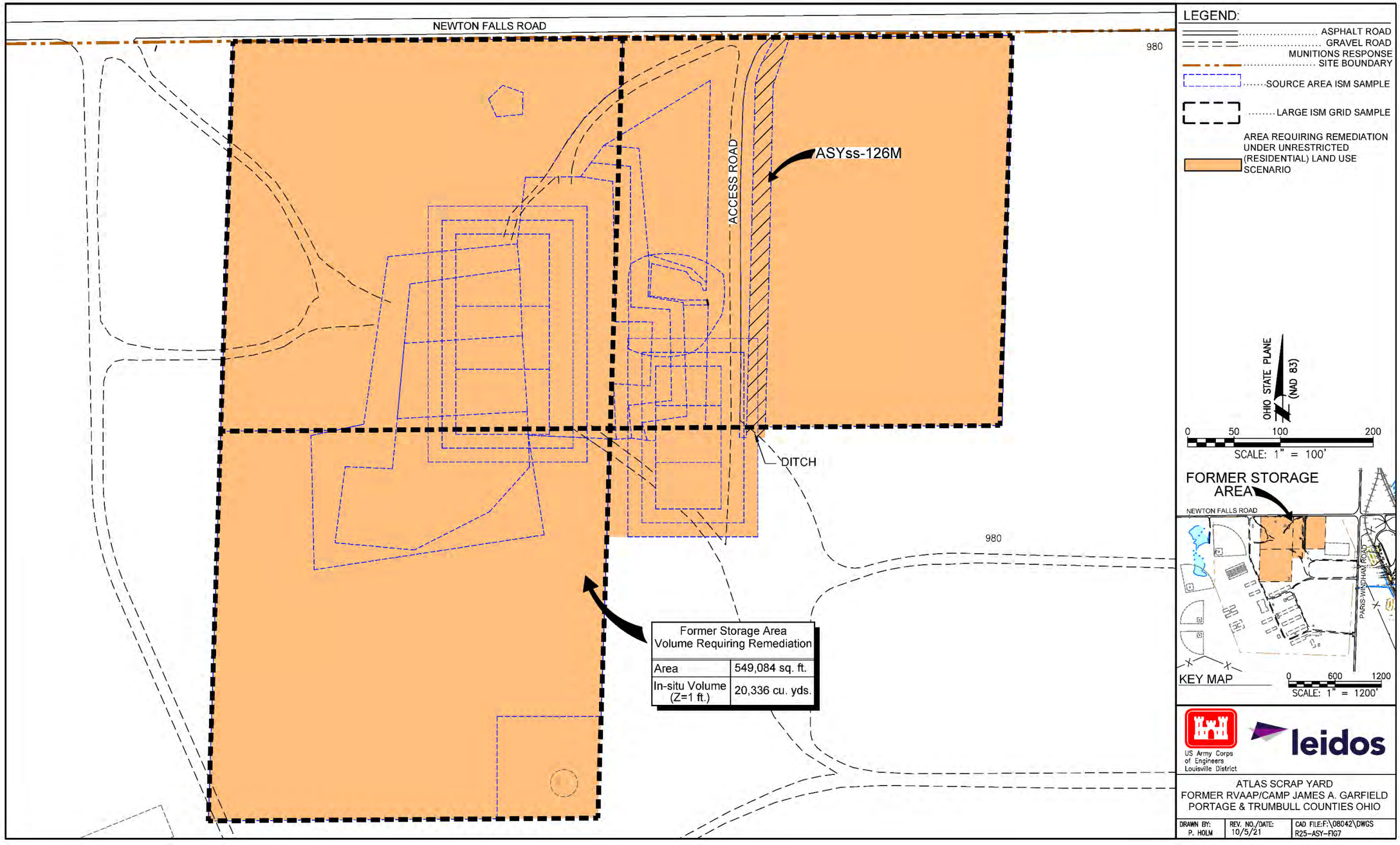


Figure 7. Former Storage Area – Area Requiring a Remedial Action for PAHs to Attain Unrestricted (Residential) Land Use

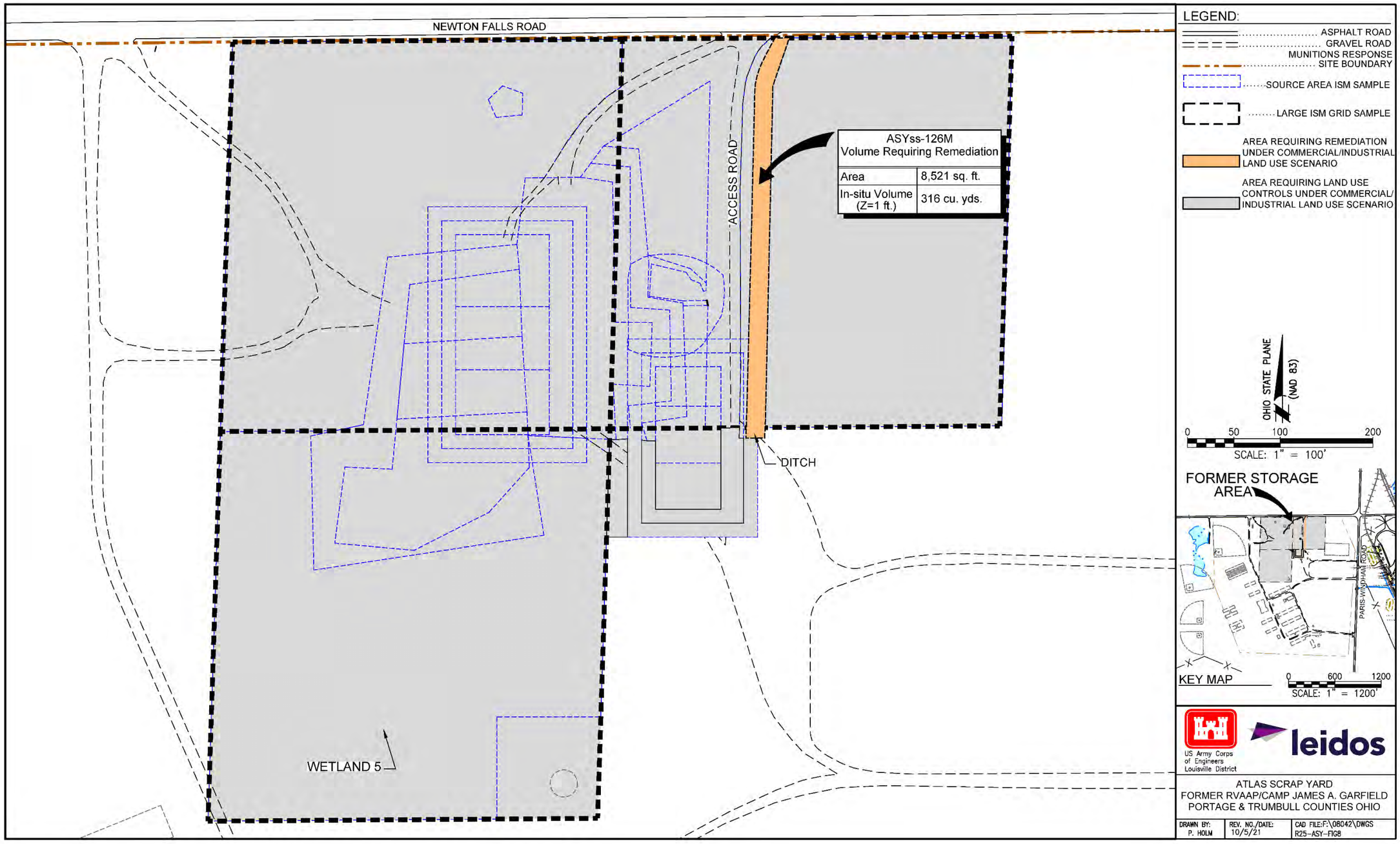
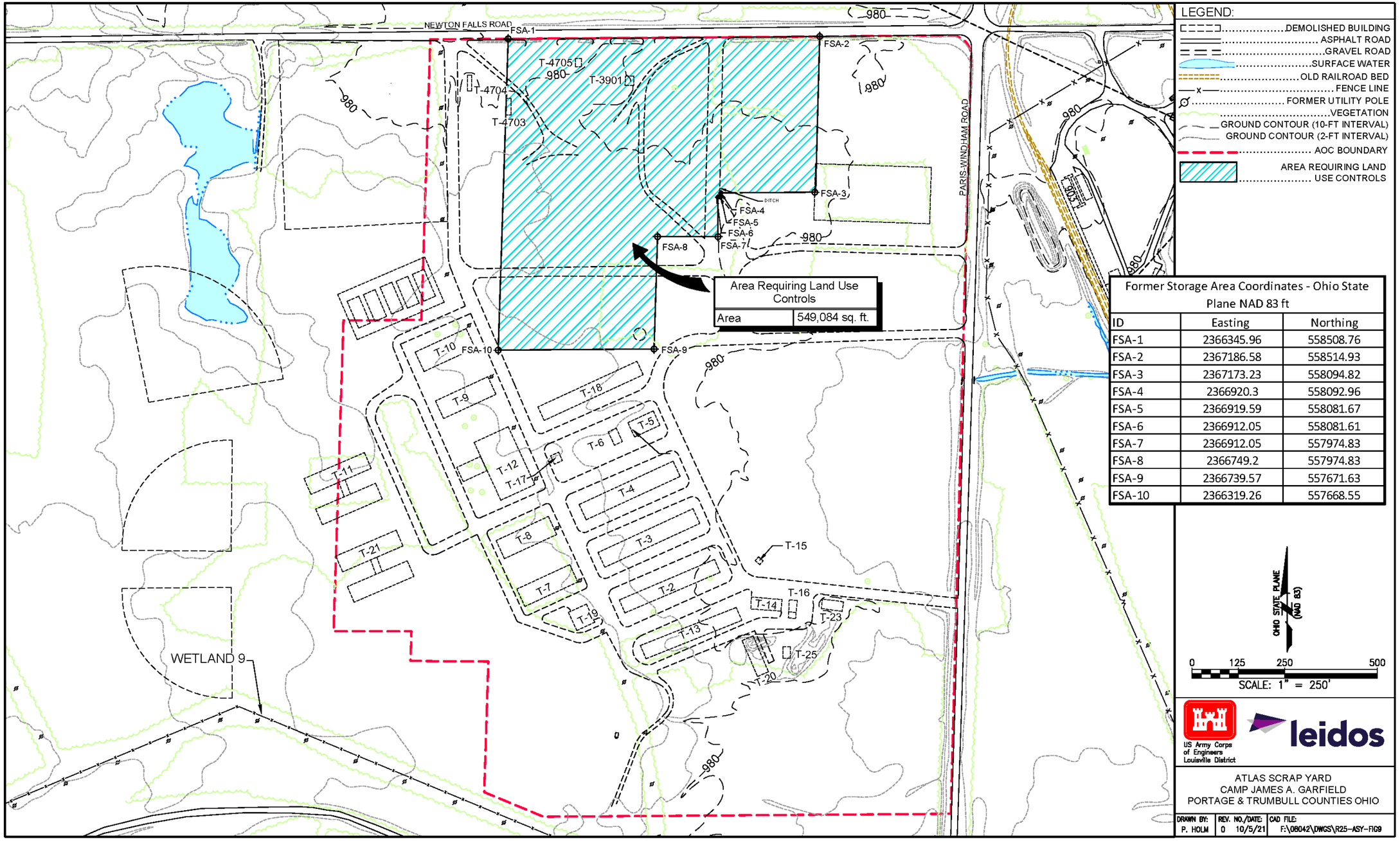


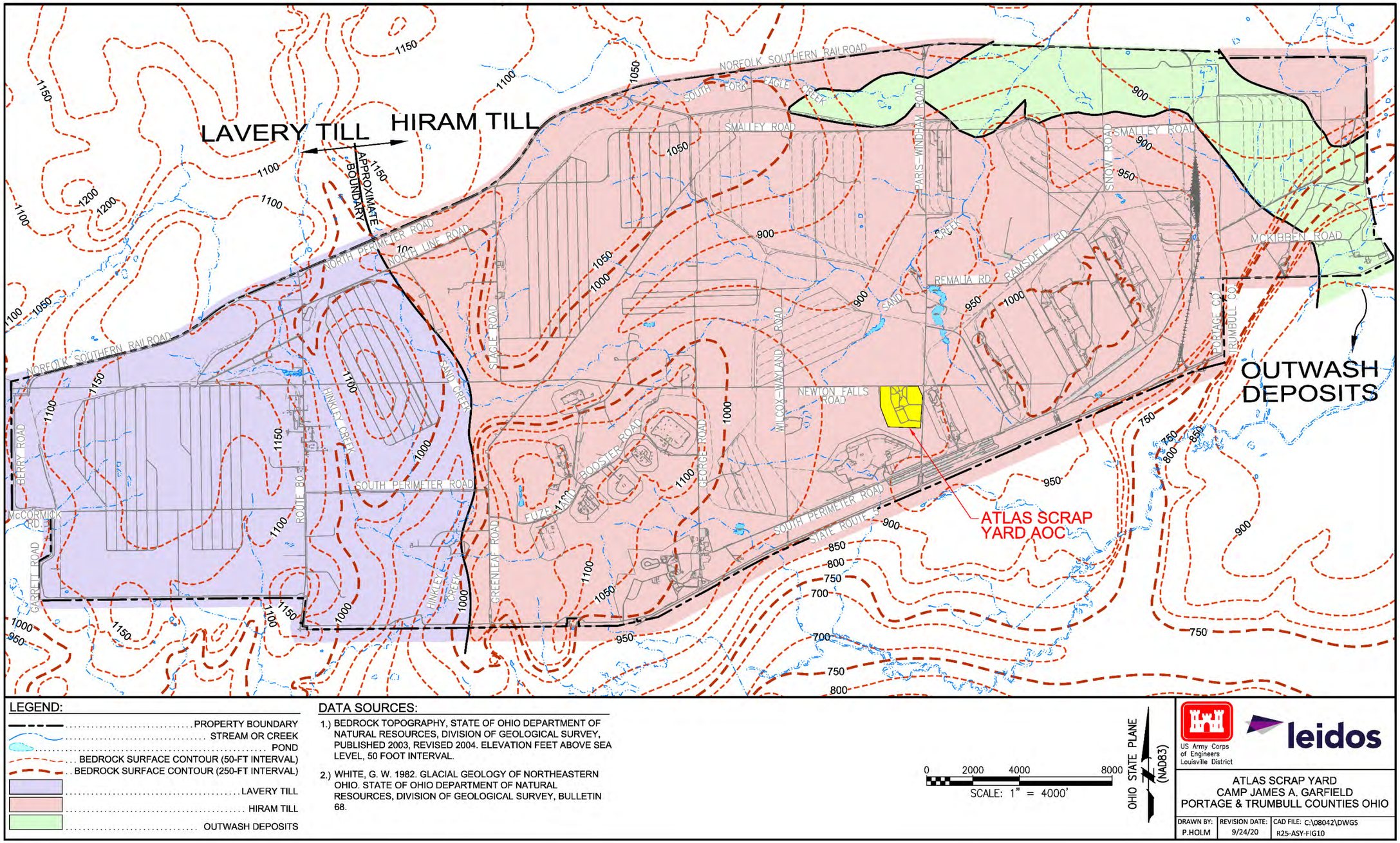
Figure 8. Former Storage Area – Area Requiring a Remedial Action for PAHs to Attain Commercial/Industrial Land Use



Former Storage Area Coordinates - Ohio State Plane NAD 83 ft

ID	Easting	Northing
FSA-1	2366345.96	558508.76
FSA-2	2367186.58	558514.93
FSA-3	2367173.23	558094.82
FSA-4	2366920.3	558092.96
FSA-5	2366919.59	558081.67
FSA-6	2366912.05	558081.61
FSA-7	2366912.05	557974.83
FSA-8	2366749.2	557974.83
FSA-9	2366739.57	557671.63
FSA-10	2366319.26	557668.55

Figure 9. Area Requiring Land Use Controls after Implementation of Selected Alternatives



LEGEND:

- PROPERTY BOUNDARY
- STREAM OR CREEK
- POND
- BEDROCK SURFACE CONTOUR (50-FT INTERVAL)
- BEDROCK SURFACE CONTOUR (250-FT INTERVAL)
- LAVERY TILL
- HIRAM TILL
- OUTWASH DEPOSITS

DATA SOURCES:

1.) BEDROCK TOPOGRAPHY, STATE OF OHIO DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGICAL SURVEY, PUBLISHED 2003, REVISED 2004. ELEVATION FEET ABOVE SEA LEVEL, 50 FOOT INTERVAL.

2.) WHITE, G. W. 1982. GLACIAL GEOLOGY OF NORTHEASTERN OHIO. STATE OF OHIO DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGICAL SURVEY, BULLETIN 68.

0 2000 4000 8000
SCALE: 1" = 4000'

OHIO STATE PLANE (NAD83)

US Army Corps of Engineers Louisville District

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ATLAS SCRAP YARD
CAMP JAMES A. GARFIELD
PORTAGE & TRUMBULL COUNTIES OHIO

DRAWN BY:	REVISION DATE:	CAD FILE: C:\08042\DWGS
P.HOLM	9/24/20	R25-ASY-FIG10

Figure 10. Geologic Map of Unconsolidated Deposits on Camp James A. Garfield

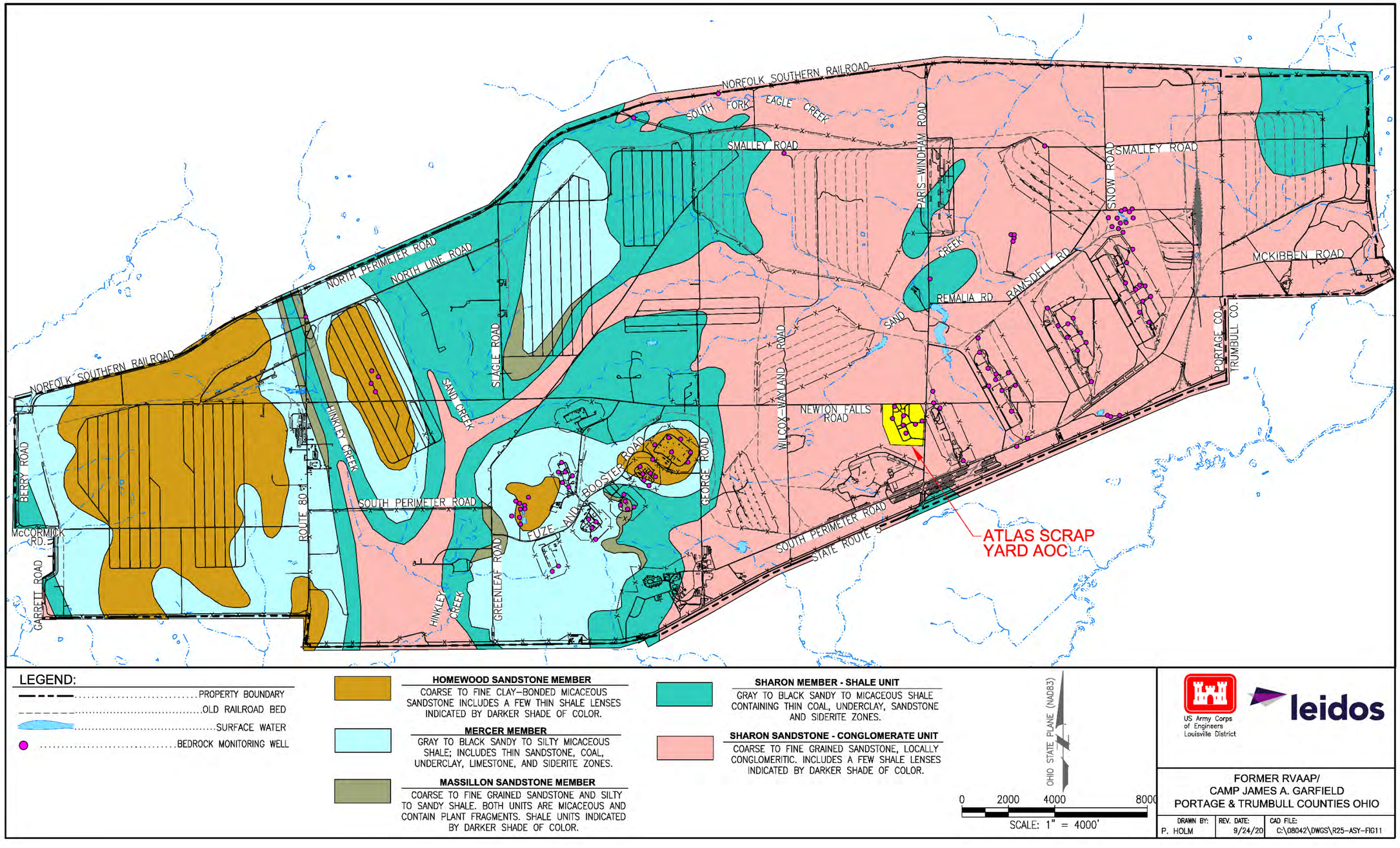

Figure 11. Geologic Bedrock Map and Stratigraphic Description of Units on Camp James A. Garfield

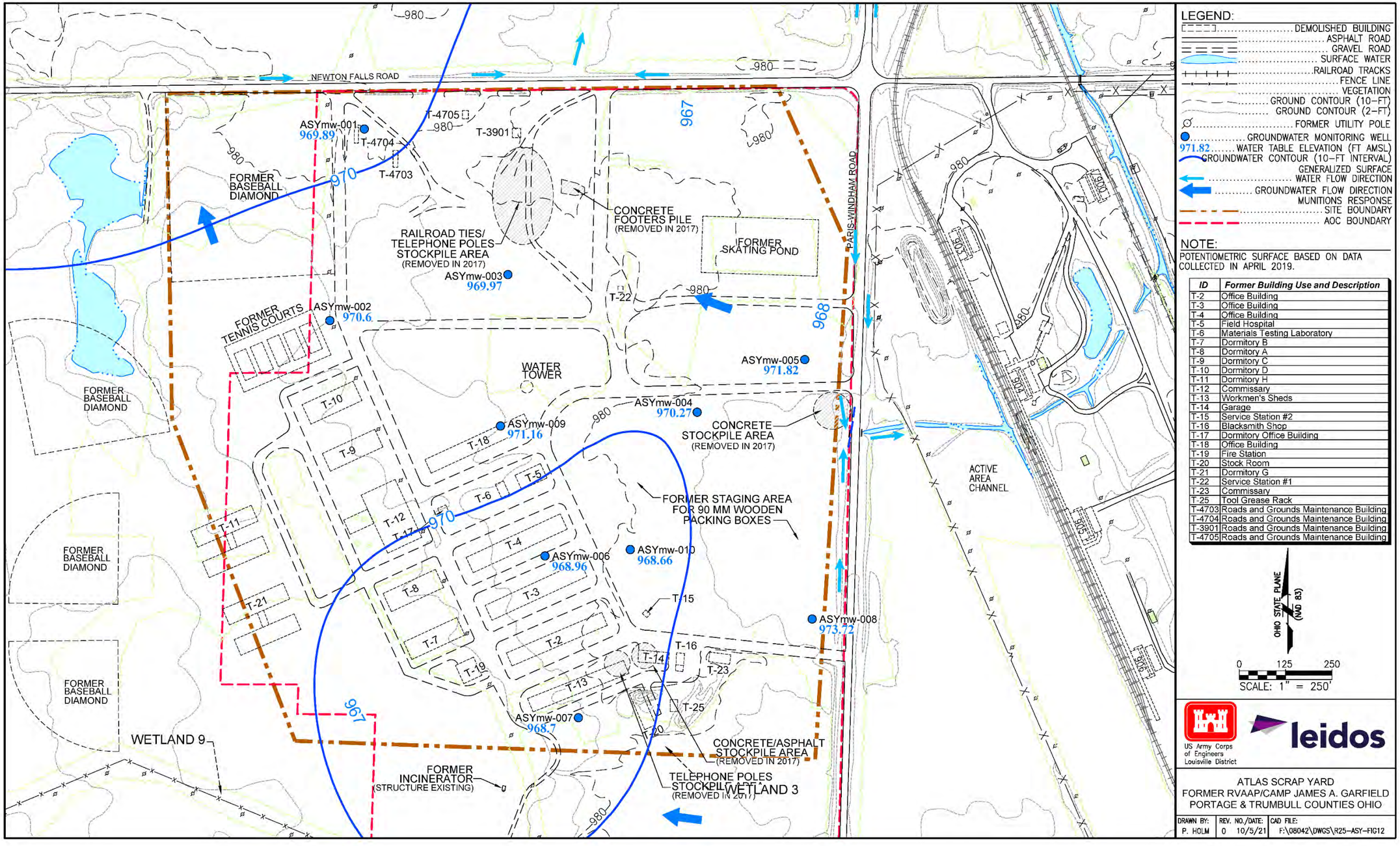

Figure 12. Topography, Groundwater Flow, and Surface Water Flow at Atlas Scrap Yard

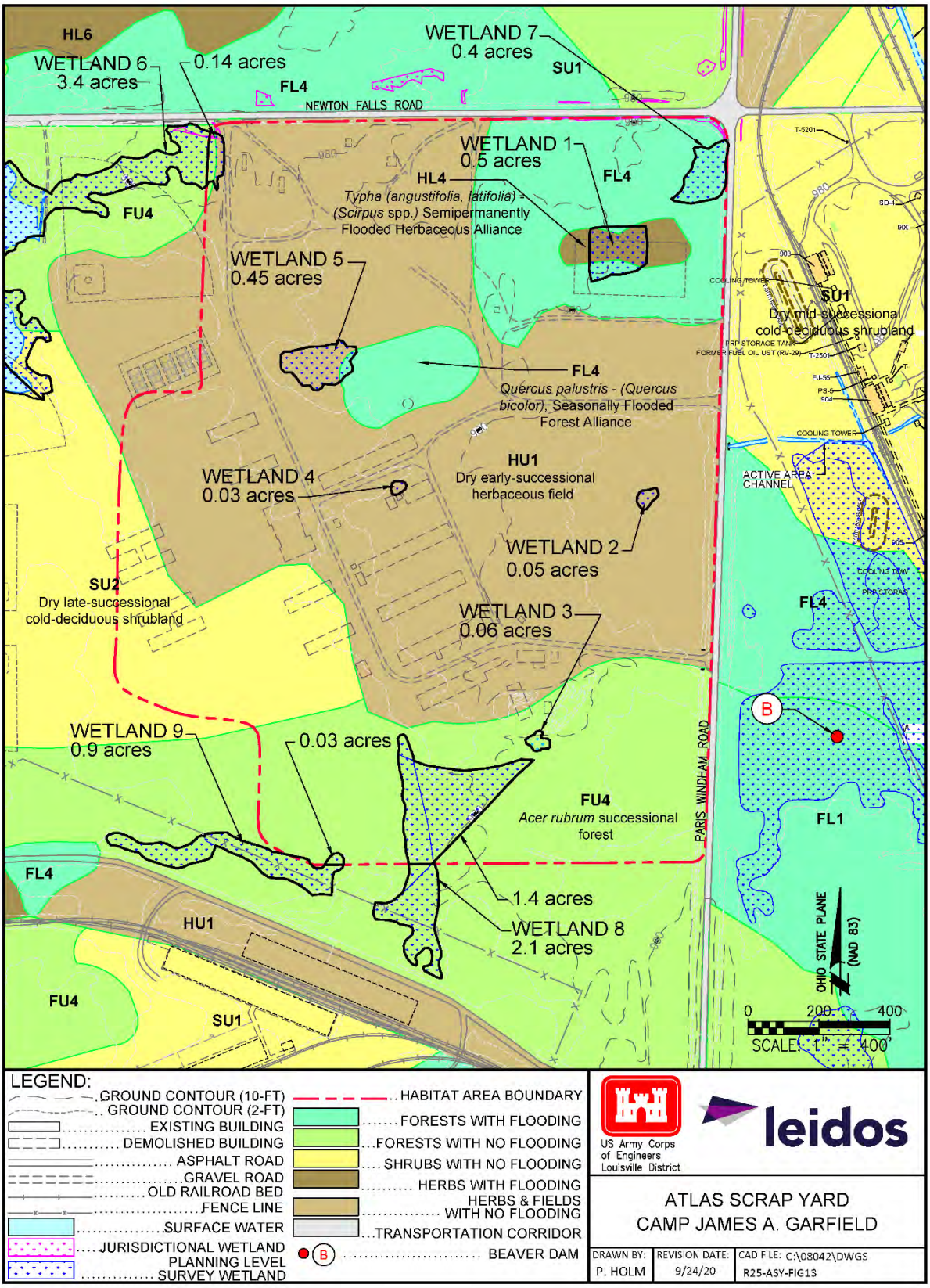

Figure 13. Natural Resources at Atlas Scrap Yard

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APPENDIX A.

Applicable or Relevant and Appropriate Requirements (ARARs)

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Table A-1. Action-Specific ARARs

Media and Citation	Description of Requirement	ARAR Status	Standard
Prohibition of air pollution nuisances (e.g., fugitive dust) OAC Section 3745-15-07	These rules prohibit a release of nuisance air pollution that endangers the health, safety, or welfare of the public or causes personal injury or property damage.	Applies to any activity that could result in the release of a nuisance air pollutant. This would include dust from excavation or soil management processes.	Any person undertaking an activity is prohibited from emitting nuisance air pollution.
Hazardous waste management 40 CFR 264.171-175	These rules require that hazardous waste be properly packaged, labeled, marked, and accumulated on site pending onsite or offsite disposal.	Applies to any hazardous waste or media containing a hazardous waste that is generated from onsite activities.	All hazardous waste must be accumulated in a compliant manner. This includes proper marking, labeling, and packaging such waste in accordance with the specified regulations. Containers or container areas will be inspected where hazardous waste is accumulated onsite.

ARAR = Applicable or Relevant and Appropriate Requirement
CFR = Code of Federal Regulations
OAC = Ohio Administrative Code
USEPA = U.S. Environmental Protection Agency

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APPENDIX B.

Affidavits

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Affidavit of Publication, Tribune Chronicle, August 16, 2020 and August 23, 2020

PUBLIC NOTICE

Proposed Plans for Atlas Scrap Yard and C Block Quarry at the Former Ravenna Army Ammunition Plant (RVAAP) Available for Public Comment

The Proposed Plans for two Areas of Concern at the former RVAAP are available for public comment. The Atlas Scrap Yard Proposed Plan presents two recommendations: 1) Excavation, Stabilization, and Off-site disposal of lead-contaminated soil; and 2) Ex-situ Thermal Treatment of PAH-contaminated soil. The Proposed Plan for C-Block Quarry presents a recommendation of Surficial Asbestos-Containing Material (ACM) Removal and Land Use Controls (LUCs). Each Proposed Plan provides the rationale for these recommendations.

The Proposed Plans are available at www.rvaap.org and the information repositories listed below:

Newton Falls Public Library
204 South Canal Street
Newton Falls, Ohio 44444

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266

Please join us for an OPEN HOUSE and PUBLIC MEETING.

The Army National Guard will host an informational open house and a public meeting to explain the recommendations in the Proposed Plans. Oral and written comments will be accepted at the meeting. Written comments may also be mailed to the Camp James A. Garfield Environmental Office: 1438 State Route 534 SW, Newton Falls, OH 44444. Comments will be accepted during the public comment period from August 17, 2020 to September 15, 2020.

Due to COVID-19 safety precautions, face coverings are mandatory and social distancing will be observed. The public meeting will be held at an outdoor pavilion (weather permitting) or alternate location within Camp James A. Garfield. Once you arrive at Camp James A. Garfield, the guard will provide directions to the meeting venue.

The public meeting is scheduled for:

Wednesday August 26, 2020 at: **Camp James A. Garfield (Main Entrance)**
5:00 pm Open House 8451 State Route 5
5:30 pm Public Meeting Ravenna, OH 44266

For more information or if you need special accommodations to attend, please contact Katie Tait at 614-336-6136.

#5284

#229-2T-August 16 & 23, 2020

PROOF OF PUBLICATION

STATE OF OHIO
TRUMBULL COUNTY SS: CONNIE PACEK

BEING DULY SWORN, UPON OATH STATES THAT SHE IS AN AUTHORIZED REPRESENTATIVE OF EASTERN OHIO NEWSPAPERS INC , PUBLISHERS OF THE TRIBUNE CHRONICLE AND THE VINDICATOR (an edition of the Tribune Chronicle), NEWSPAPERS PRINTED AND IN THE GENERAL CIRCULATION OF TRUMBULL, MAHONING, COLUMBIANA COUNTIES IN OHIO AND IN MERCER COUNTY IN PENNSYLVANIA.

THE ATTACHED ADVERTISEMENT WAS PUBLISHED IN

Y THE TRIBUNE CHRONICLE
Y THE VINDICATOR

EVERY: SUNDAY

FOR TWO CONSECUTIVE WEEKS AND

THAT THE FIRST INSERTION WAS ON SUNDAY

THE 16th DAY OF AUGUST 2020

CONNIE PACEK

SWORN TO BEFORE ME AND SUBSCRIBED IN MY PRESENCE ON THIS

26TH DAY OF August 2020

NOTARY PUBLIC

SEAL

LAWRENCE J. KOVACH, Notary Public
STATE OF OHIO
MY COMMISSION EXPIRES SEPTEMBER 23, 2022

ADVERTISING COST $ 724.84

Affidavit of Publication, Record-Courier, August 16 , 2020 and August 23, 2020

31193093

Proof of Publication
Record Publishing Company
1050 W. Main Street,
Kent, OH 44240
Phone (330) 541-9400
Fax (330) 673-6363

I, Teresa Smilam being first duly sworn depose and say that I am Advertising Clerk of
Record Publishing Company

30 Record-Courier a newspaper printed and published in the city of Kent, and of General circulation in the County of Portage, State of Ohio, and personal knowledge of the facts herein stated and that the notice hereto annexed was Published in said newspapers for 2 insertions on the same day of the week from and after the 16th day of August, 2020 and that the fees charged are legal.

Teresa S Milam

Name of Account: Leidos
Ad Number: 12665977
No. of Lines: 28

Day(s) Published: 08/16, 08/23.
Printers Fee: $240.40

Sworn to and subscribed before this 25th day of August, 2020.

Elizabeth McDaniel
Notary Public
Commission Expires June 19, 2021

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RC, Aug 16, 23, 2020, 12665977

For more information or if you need special accommodations to attend, please contact Katie Tait at 614-336-6136.

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APPENDIX C.

Ohio EPA Comments

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Ohio Environmental Protection Agency

Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

February 7, 2022

TRANSMITTED ELECTRONICALLY

Mr. Kevin M. Sedlak
Army National Guard
Installations & Environment - Cleanup Branch
IPA Designation
1438 State Route 534 SW
Newton Falls, OH 44444

RE: US Army Ravenna Ammunition Plt RVAAP
Remediation Response
Project records
Remedial Response
Portage County
267000859110

Subject: Revised Draft Record of Decision for Soil, Sediment, and Surface Water at RVAAP 50 Atlas Scrap Yard

Dear Mr. Sedlak:

Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) has received and reviewed the Draft Record of Decision for Soil, Sediment, and Surface Water at RVAAP-50 Atlas Scrap Yard," dated October. It was prepared by Leidos.

Ohio EPA has no further comments. Please submit the document in final form.

At this time, we will not be issuing hard-copy mail. This letter is an official response from Ohio EPA that will be maintained as a public record. If you have any questions concerning this letter, please contact me at (330) 963-1170, or by email at ed.damato@epa.ohio.gov.

Sincerely,

Edward J D'Amato

Edward D'Amato
Site Coordinator
Division of Environmental Response and Revitalization

ED/ams

ec: Nat Peters, USACE
Katie Tait, OHARNG RTLS
Rebecca Shreffler, Chenega
Steven Kvaal, USACE
Natalie Oryshkewych, Ohio EPA, NEDO, DERR
Megan Oravec, Ohio EPA, NEDO, DERR
Bob Princic, Ohio EPA, NEDO, DERR
Tom Schneider, Ohio EPA, SWDO, DERR
William Damschroder, Ohio EPA, Central Office, Legal
Frank Zingales, Ohio EPA, NEDO, DERR

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