

Draft

**Proposed Plan
for Soil, Sediment, and Surface Water
at RVAAP-46 Buildings F-15 and F-16**

**Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio**

Contract No. W912QR-15-C-0046

Prepared for:



**US Army Corps
of Engineers®**

**U.S. Army Corps of Engineers
Louisville District**

Prepared by:



**Leidos
8866 Commons Boulevard, Suite 201
Twinsburg, Ohio 44087**

February 6, 2019



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14. ABSTRACT This Proposed Plan for the Buildings F-15 and F-16 area of concern (AOC) presents to the public the physical characteristics, geology, and hydrogeology of the AOC; compiles historical and newly acquired environmental data; summarizes nature and extent of contamination in soil, sediment, and surface water; evaluates contaminant fate and transport; and provides human health and ecological risk assessments. These evaluations indicate there are no chemicals of concern (COCs) that pose unacceptable risk. Therefore, this plan presents to the public a recommendation of No Further Action (NFA) with respect to soil, sediment, and surface water to attain Unrestricted (Residential) Land Use.						
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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

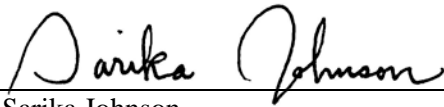
Leidos has completed the Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16 at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the 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 United States Army Corps of Engineers (USACE) policy.



Jed Thomas, P.E.
Study/Design Team Leader

February 6, 2019

Date



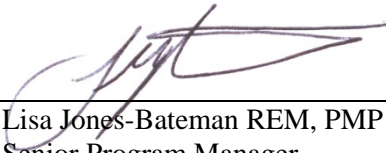
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Independent Technical Review Team Leader

February 6, 2019

Date

Significant concerns and explanation of the resolutions are documented within the project file.

As noted above, all concerns resulting from independent technical review of the project have been considered.



Lisa Jones-Bateman REM, PMP
Senior Program Manager

February 6, 2019

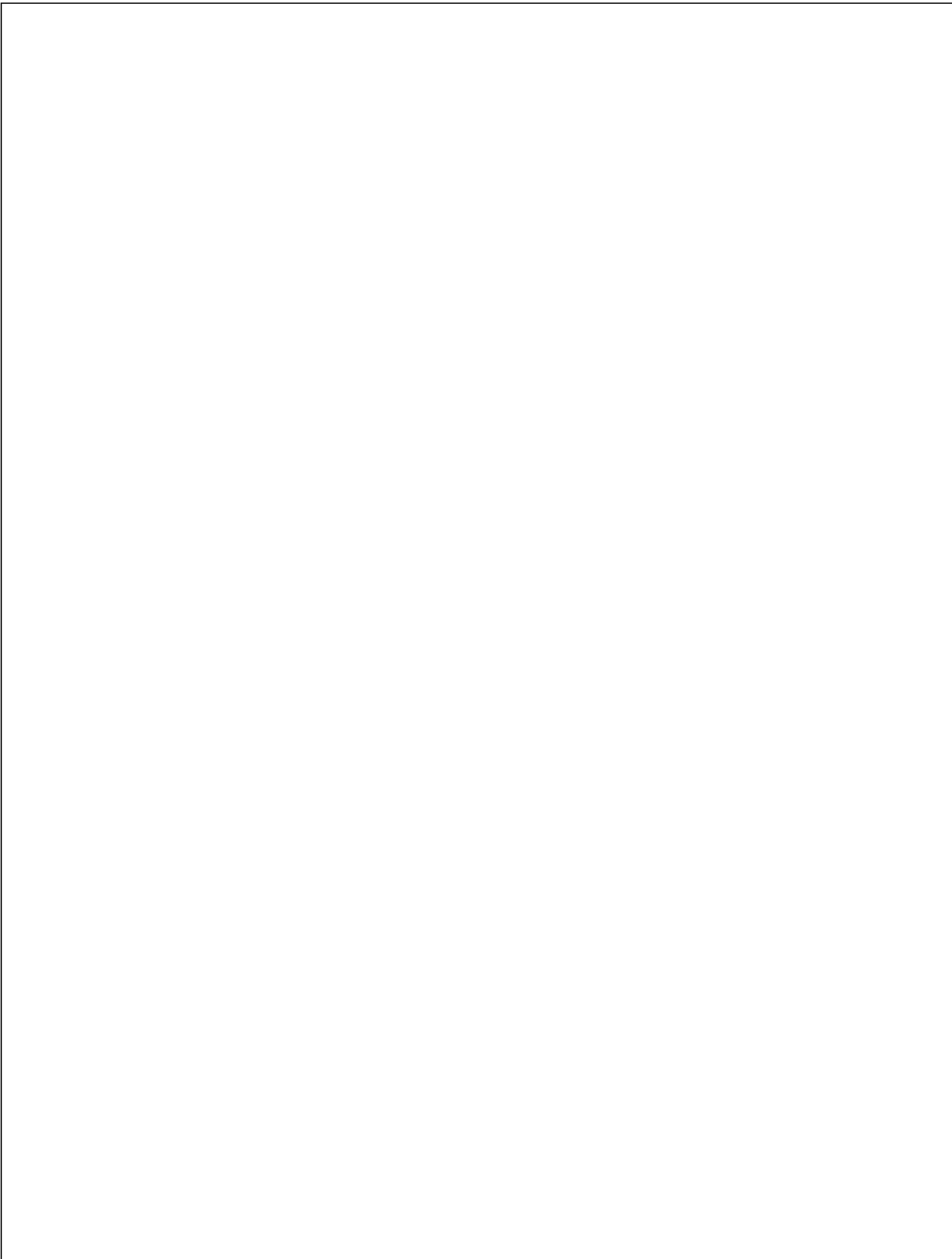
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PLACEHOLDER FOR:

**Documentation of Ohio EPA Concurrence
of Final Document**

(Documentation to be provided once concurrence is issued.)



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DOCUMENT DISTRIBUTION
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Portage and Trumbull Counties, Ohio

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ARNG = Army National Guard.
I&E = Installations & Environment.
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.



TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SITE BACKGROUND	2
2.1	Facility Description and Background	2
2.2	Buildings F-15 and F-16 AOC Background	2
2.3	Potential Contaminants	2
2.4	Remedial Investigations	3
2.4.1	Surface and Subsurface Soil	3
2.4.2	Sediment and Surface Water	4
3.0	SITE CHARACTERISTICS	5
4.0	SCOPE AND ROLE OF RESPONSE ACTION AND LAND USE	6
5.0	SUMMARY OF SITE RISKS	6
5.1	Human Health Risk Assessment	6
5.2	Ecological Risk Assessment	7
5.3	Impacts to Groundwater	7
6.0	CONCLUSIONS	8
7.0	COMMUNITY PARTICIPATION	8
7.1	Community Participation	8
7.2	Public Comment Period	8
7.3	Written Comments	8
7.4	Public Meeting	8
7.5	Review of Public Comments	9
	GLOSSARY OF TERMS	9
	REFERENCES	10

LIST OF FIGURES

Figure 1.	General Location and Orientation of Camp James A. Garfield	15
Figure 2.	Location of Buildings F-15 and F-16 at Camp James A. Garfield	16
Figure 3.	Buildings F-15 and F-16 Site Features	17
Figure 4.	Buildings F-15 and F-16 Sample Locations	18

LIST OF ACRONYMS

amsl	Above Mean Sea Level
AOC	Area of Concern
ARNG	Army National Guard
AST	Aboveground Storage Tank

bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CJAG	Camp James A. Garfield
CMCOC	Chemical Migration Chemical of Concern
CMCOPC	Contaminant Migration Chemical of Potential Concern
COC	Chemical of Concern
COPEC	Chemical of Potential Ecological Concern
DERP	Defense Environmental Restoration Program
ERA	Ecological Risk Assessment
FWCUG	Facility-wide Cleanup Goal
HHRA	Human Health Risk Assessment
HMX	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
HQ	Hazard Quotient
ISM	Incremental Sampling Method
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OHARNG	Ohio Army National Guard
Ohio EPA	Ohio Environmental Protection Agency
PAH	Polycyclic Aromatic Hydrocarbon
PBA08	2008 Performance-based Acquisition
PCB	Polychlorinated Biphenyl
PP	Proposed Plan
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
ROD	Record of Decision
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
SL	Screening Level
SVOC	Semi-volatile Organic Compound
TAL	Target Analyte List
TNT	2,4,6-Trinitrotoluene
TR	Target Risk
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compound

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1.0 INTRODUCTION

This Proposed Plan (PP) presents the conclusions and recommendations for soil, sediment, and surface water within the Buildings F-15 and F-16 area of concern (AOC) at the former Ravenna Army Ammunition Plant (RVAAP). The former RVAAP is now known as Camp James A. Garfield (CJAG) Joint Military Training Center and is located in Portage and Trumbull counties, Ohio (Figure 1). Buildings F-15 and F-16 are designated as AOC RVAAP-46.

The Army National Guard (ARNG), in coordination with the Ohio Environmental Protection Agency (Ohio EPA), is issuing this PP to provide the public with information necessary to comment on the selection of an appropriate response action. The remedy will be selected for the Buildings F-15 and F-16 AOC after all comments submitted during the 30-day public comment period are considered. Therefore, the public is encouraged to review and comment on the preferred alternative presented in this PP.

ARNG is issuing this PP as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 and Section 300.430(f) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 *Code of Federal Regulations* 300). Selection and implementation of a remedy will also be consistent with the requirements of the Ohio EPA *Director's Final Findings and Orders*, dated June 10, 2004 (Ohio EPA 2004).

This PP summarizes information that can be found in detail in the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16* (Leidos 2018) and other documents contained in the Administrative Record file for Buildings F-15 and F-16.

Public Comment Period:

Month DD, YYYY to Month DD, YYYY

Public Meeting:

ARNG will hold an open house and public meeting to present the conclusions and additional details presented in the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-46 Buildings F-15 and F-16* (Leidos 2018). Oral and written comments will also be accepted at the meeting. The open house and public meeting are scheduled for _____ PM, Month DD, YYYY, at the Shearer Community Center, 9355 Newton Falls Road, Ravenna, Ohio 44266.

Information Repositories:

Information used in selecting the remedy is available for public review at the following locations:

Reed Memorial Library

167 East Main Street
Ravenna, Ohio 44266
(330) 296-2827

Hours of operation:

9AM-9PM Monday-Thursday
9AM-6PM Friday
9AM-5PM Saturday
1PM-5PM Sunday

Newton Falls Public Library

204 South Canal Street
Newton Falls, Ohio 44444
(330) 872-1282

Hours of operation:

10AM-8PM Monday-Thursday
9AM-5PM Friday and Saturday

Online

<http://www.rvaap.org/>

The **Administrative Record File**, containing information used in selecting the remedy, is available for public review at the following location:

Camp James A. Garfield Joint Military Training Center (former Ravenna Army Ammunition Plant)

Environmental Office
1438 State Route 534 SW
Newton Falls, Ohio 44444
(614) 336-6136

Note: Access is restricted to the facility, but the file can be obtained or viewed with prior notice.

ARNG's preferred alternative at the AOC is no further action for soil, sediment, and surface water. ARNG encourages the public to review the site background documents to gain a more comprehensive understanding of the AOC, activities that have been conducted to date, and the rationale for the preferred alternative.

2.0 SITE BACKGROUND

The following subsections present the background of CJAG and the Buildings F-15 and F-16 AOC.

2.1 Facility Description and Background

The former RVAAP, now known as 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 (Figures 1 and 2). 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 for Ohio and subsequently licensed to the Ohio Army National Guard (OHARNG) for use as a military training site (Camp James A. Garfield).

2.2 Buildings F-15 and F-16 AOC Background

Buildings F-15 and F-16 were used for surveillance testing on explosives and propellants and testing disassembly processes during World War II, the Korean War, and the Vietnam War (between 1941 and 1974). The number of tests conducted on miscellaneous explosives and propellants, the quantities of material tested, and the exact dates of testing are unknown. Figure 3 presents current site features.

Building F-15 was demolished in 2005 (MKM 2005). The floor slabs and foundations associated with Buildings F-15 and F-16 were removed and disposed of in 2009 (PIKA 2010). The exact date of the demolition of Building F-16 is unknown.

A visual survey conducted by ARNG in 2016 confirmed that all buildings and structures at the Buildings F-15 and F-16 AOC have been demolished, except for one former coal-powered boiler house (Building U-17).

The survey also noted that ceramic insulators and metal debris were observed south of the old abandoned Building U-17 in an adjacent fenced area that is most likely the location of the former electrical equipment area. In addition, an old metal platform (in place) and wooden debris were located north of former Building F-15. Several debris piles, including corrugated metal, concrete, brick, asphalt, and wood, also were observed throughout the AOC. The debris piles and metal platform and wooden debris were removed and properly disposed of in November 2018. The ceramic insulators and metal debris associated with Building U-17 will be removed and properly disposed of when Building U-17 is demolished.

2.3 Potential Contaminants

The 1978 Installation Assessment identified the major contaminants of the former RVAAP to be 2,4,6-trinitrotoluene (TNT); composition B (a combination of TNT and hexahydro-1,3,5-trinitro-1,3,5-triazine [also known as RDX]); sulfates; nitrates; lead styphnate; and lead azide (USATHAMA 1978).

Additional site-specific contaminants include mercury fulminate; tetryl; octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX); nitroglycerine; nitrocellulose; nitroguanidine; and heavy metals (lead, chromium, mercury, and arsenic) from testing munitions. Site-specific contaminants also include polycyclic aromatic hydrocarbons (PAHs) from coal storage and their use in the two boiler houses

(Buildings U-17 and U-18) and polychlorinated biphenyls (PCBs) from the on-site transformers at Building F-15.

In summary, potential contaminants at Buildings F-15 and F-16 include explosives and inorganic chemicals (e.g., metals). Other potential contaminants include PAHs and PCBs from previous site use at Buildings U-17 and U-18 (former coal-powered boiler houses).

2.4 Remedial Investigations

The AOC characteristics, nature and extent of contamination, and conceptual site model are based on investigations conducted from 1978–2014. The following environmental investigations have been conducted at Buildings F-15 and F-16:

- Installation Assessment (USATHAMA 1978);
- Relative Risk Site Evaluation for Newly Added Sites (USACHPPM 1998);
- 2004 Characterization of 14 AOCs (MKM 2007);
- 2009 Under Slab Sampling (URS 2010)
- 2009 U.S. Army Corps of Engineers (USACE) Incremental Sampling Method (ISM) Surface Soil Sampling (Prudent 2011); and
- 2008 Performance-based Acquisition (PBA08) Remedial Investigation (RI), as summarized in the *Remedial Investigation for Soil, Sediment, and Surface Water at the RVAAP-46 Buildings F-15 and F-16* (Leidos 2018).

Figure 4 presents sampling locations at the Buildings F-15 and F-16 AOC.

2.4.1 Surface and Subsurface Soil

In 2004, Characterization of 14 AOCs sampling was conducted at Buildings F-15 and F-16. Surface soil and sediment samples were collected from dry ditches and drainage pathways; surface water samples were collected from drainage pathways. Discrete

surface soil samples also were collected for volatile organic compounds (VOCs).

During the 2009 Under Slab Sampling, two surface soil ISM samples and three quality assurance/quality control samples were collected from the footprints of former Buildings F-15 and F-16. This investigation was performed after the buildings and structures at the AOC were demolished and removed (except Building U-17). These samples were collected from the footprints of former Buildings F-15 and F-16 to assess potential impact to surface soil. All ISM samples collected were analyzed for target analyte list (TAL) metals, explosives, and propellants. Eight discrete core samples (four from each building footprint) also were collected for field screening for TNT and RDX.

In the 2009 USACE ISM Surface Soil Sampling, surface soil ISM samples F15ss-040-0001-SO and F16ss-030-0001-SO were collected around the building footprints; samples were analyzed only for explosives. Surface soil ISM samples FWCss-007 and FWCss-008 were collected from the coal storage areas; samples were analyzed for TAL metals and semi-volatile organic compounds (SVOCs).

The results of the 2010 PBA08 RI sampling were combined with the results of the 2004 Characterization of 14 AOCs, 2009 Under Slab Sampling, and 2009 USACE ISM Surface Soil Sampling. The combined results were used to evaluate the nature and extent of contamination, assess potential future impacts to groundwater, conduct human health risk assessments (HHRAs) and ecological risk assessments (ERAs), and evaluate the need for remedial alternatives.

Ohio EPA identifies a target risk (TR) of 1E-05 as a cancer risk for carcinogens and an acceptable hazard quotient (HQ) of 1 for non-carcinogens. The evaluation summarized below was performed to assess which chemicals exceeded a TR of 1E-05 and an HQ of 1, and to establish which chemicals were

above their respective background concentrations.

Building F-15 Results

- No explosives, PCBs, or VOCs were detected in surface or subsurface soil samples.
- One propellant (nitrocellulose) was detected in one ISM surface soil sample (F15ss-006M) at a concentration below the screening level (SL). No propellants were detected in subsurface soil samples.
- Arsenic and cobalt were the only two inorganic chemicals to exceed their background concentrations and facility-wide cleanup goals (FWCUGs) of HQ of 0.1 or TR of 1E-06 in surface soil. Arsenic exceeded the background concentration of 15.4 mg/kg in two of the 2004 Characterization of 14 AOCs ISM surface samples; arsenic was not detected above background in subsurface soil samples.
- Benzo(a)pyrene at one location (F15ss-036M at 0.48 mg/kg) slightly exceeded the Resident Receptor (Adult and Child) FWCUG at a TR of 1E-05, HQ of 1 (0.221 mg/kg).
- PAHs were not detected in any subsurface soil samples. However, PAHs were identified as potential contaminants from previous site use at Building U-17, which was formerly used as a coal-powered boiler house. The concentrations in surface soil were less than SLs.

Building F-16 Results

- All explosive concentrations were below a TR of 1E-05, HQ of 1, or their respective background concentrations in surface or subsurface soil. Propellant concentrations were below their respective SLs in surface soil and were not detected in subsurface soil.
- Arsenic, cobalt, manganese, and thallium were the only four inorganic chemicals to exceed their background concentration and FWCUGs of HQ of 0.1 or TR of 1E-06 in surface soil.

- Cobalt and thallium did not exceed the FWCUGs of HQ of 1 or TR of 1E-05 and were not detected in subsurface soil samples.
- Arsenic exceeded the background concentration of 15.4 mg/kg in the 2004 Characterization of 14 AOCs ISM surface sample F16ss-004M (18 mg/kg) and in PBA08 RI sample location F16sb-021 (31.3 mg/kg).
- Arsenic also exceeded the background concentration of 19.8 mg/kg in subsurface soil at F16sb-021 (24.3J mg/kg from 4–7 ft below ground surface [bgs]).
- Manganese was detected above the background concentration (1,450 mg/kg) and FWCUG at a TR of 1E-05, HQ of 1 (2,927 mg/kg) in only one of the two discrete surface soil samples at a concentration of 2,140 mg/kg at PBA08 RI location F16sb-022. Manganese was detected at concentrations below the SL in all subsurface samples at these locations.
- Benzo(a)pyrene and benzo(b)fluoranthene, the only PAHs detected above the SLs, were detected below the FWCUG at a TR of 1E-05, HQ of 1 in all surface soil samples. PAHs were not detected in subsurface soil samples.
- The detected VOC, pesticide, and PCB concentrations in surface soil were all below the FWCUGs at a TR of 1E-05, HQ of 1. No VOCs, PCBs, or pesticides were detected in subsurface soil samples collected at Building F-16.

2.4.2 Sediment and Surface Water

Sediment and surface water are not considered media of concern at the Buildings F-15 and F-16 AOC, as surface water is only intermittent at the AOC. However, during the 2004 Characterization of 14 AOCs, two ISM sediment samples (F16sd-001M-SD and F16sd-002M-SD) and two surface water samples (F16sw-001 and F16sw-002) were collected.

Sediment sample F16sd-001M-SD was collected from the former coal storage area immediately south of former Building F-16. USACE collected sample FWCss-008-0001-SO in 2009 in that same area. The more recent sample collected (FWCss-008-0001-SO) is used in the risk assessment.

The 2004 sample F16sd-001M-SD was only analyzed for explosives and metals. No explosives were detected, and metal concentrations did not exceed the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 1 or TR of 1E-05.

Sediment sample F16sd-002M-SD was collected downstream from the Building F-16 aggregate in the unnamed tributary to Sand Creek. Only explosives and metals analyses were performed. No explosives were detected. Cobalt, detected at 11 mg/kg, was the only metal that exceeded the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 0.1 (2.3 mg/kg) but not at an HQ of 1 (23 mg/kg).

Surface water sample F16sw-002 was collected downstream from the Building F-16 aggregate in the unnamed tributary to Sand Creek. All surface water sample concentrations were below their background concentration or the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 1 or TR of 1E-05.

Surface water sample F16sw-001 was collected from the former coal storage area immediately south of former Building F-16. Effectively, this was a sample from accumulated, ponded water. The metal, SVOC, VOC, PCB, and pesticide concentrations were either non-detectable or had a concentration below the lowest FWCUG for the Resident Receptor (Adult and Child) and National Guard Trainee at a target HQ of 1 or TR of 1E-05. Nitroglycerin at 0.0021 mg/L exceeded the tap water regional screening level (RSL) of 0.0002 mg/L at HQ of 0.1 and 0.002 mg/kg at HQ of 1.

3.0 SITE CHARACTERISTICS

The AOC, which is the combined operational areas for both Buildings F-15 and F-16, is approximately 12.3 acres (6.6 and 5.7 acres, respectively) located west of Block D and east of Slagle Road in the west-central portion of RVAAP (Figure 2).

Historical facilities at the AOC included five process and support buildings. All buildings and structures at the AOC have been demolished, except for one former coal-powered boiler house (Building U-17).

Two former coal piles were located south of Buildings F-15 and F-16. These are addressed as a separate AOC (designated as CC-RVAAP-73). The historical records review produced documentation of a 1,100-gal aboveground storage tank (AST) near Building U-17 that contained #2 fuel oil (heating oil) and was surrounded by a 2-ft berm. The AST was managed under the *Spill Prevention Control & Counter Measures Plan for the Ravenna Army Ammunition Plant* (RAI 1992). It is estimated that the AST was removed between 1994 and 1996.

The AOC is relatively flat with drainage ditches beside access roads and at the western boundary of the AOC along Slagle Road. The Building F-15 area is currently a gravel- and grass-covered clearing with dense vegetation growing on the edges of the site (ARNG 2016). Gravel-lined roads lead to the site off of Slagle Road. The Building F-16 area is densely vegetated with trees and grass, with a gravel- and grass-covered clearing located in the southeastern portion of the site. Gravel roads lead to the clearing off of Slagle Road. A railroad track bed oriented in a north-south direction is located in the eastern portion of the AOC. This track bed only contains ballasts, as the tracks have been removed. No fences exist around the perimeter boundary of the AOC operational areas.

The topography within the AOC ranges from approximately 1,120 ft above mean sea level (amsl) near the southern and northern

boundaries of the AOC to 1,130 ft amsl in the center of the AOC (Figure 3).

Surface water follows topographic relief and drains into ditches that exit the AOC. Surface runoff from the Building F-15 operational area flows overland to the northwest to a tributary to Eagle Creek. Surface runoff from the Building F-16 operational area flows overland to the southeast to a tributary to Sand Creek.

Bedrock (shale) was encountered at the AOC from 30–37 ft bgs during groundwater well installation activities at Buildings U-17 and U-18 in the 1940s. Bedrock was not encountered during PBA08 RI activities where subsurface borings were drilled to a maximum depth of 13 ft bgs.

A mixture of yellowish-brown and gray, medium dense, silty clay tills with trace gravel overlies shale bedrock at Buildings F-15 and F-16, except where disturbed by former RVAAP activities.

Groundwater was encountered from 4.8 ft bgs in soil borings placed in ditches to approximately 10.8 ft bgs in soil borings at the Building F-16 operational area. Groundwater was not encountered in any subsurface soil borings at the Building F-15 operational area.

4.0 SCOPE AND ROLE OF RESPONSE ACTION AND LAND USE

ARNG, in coordination with Ohio EPA, is implementing the Installation Restoration Program with the overall program strategy of addressing the principal environmental threats at each site posing a risk to applicable receptors. This PP addresses soil, sediment, and surface water. The response action for these media at the Buildings F-15 and F-16 AOC is being conducted to meet this overall program strategy. Groundwater will be addressed under the RVAAP Facility-wide Groundwater AOC (RVAAP-66) as a separate decision. However, the selected remedy for soil at Buildings F-15 and F-16 must also be protective of groundwater.

The potential future uses for the Buildings F-15 and F-16 AOC are Military Training Land Use or Commercial/Industrial Land Use. Although residential use is not anticipated at CJAG or at the Buildings F-15 and F-16 AOC, Unrestricted (Residential) Land Use was evaluated in accordance with Defense Environmental Restoration Program (DERP) Manual 4715.20 (DoD 2012) in order to make appropriate risk management decisions.

Resident Receptor (Adult and Child) FWCUGs were used to conduct an Unrestricted (Residential) Land Use evaluation. Sites that meet the standards for Unrestricted (Residential) Land Use also are considered protective for Military Training and Commercial Industrial Land Uses.

No prior removal actions have been conducted at this site, and early or interim actions are not planned. The proposed response actions at the Buildings F-15 and F-16 AOC will be implemented under the authority of and in accordance with the requirements of the Ohio EPA *Director's Final Findings and Orders*, dated June 10, 2004 (Ohio EPA 2004).

5.0 SUMMARY OF SITE RISKS

5.1 Human Health Risk Assessment

Using information presented in Section 4.0, an HHRA was performed to identify chemicals of concern (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 for the Resident Receptor (Adult and Child) were surface soil (0–1 ft bgs) and subsurface soil (1–13 ft bgs).

No COCs were identified in any of the media of concern for the Resident Receptor; therefore, the site is considered protective for Unrestricted (Residential) Land Use. Because the site is protective for Unrestricted (Residential) Land Use, it is also protective for

Commercial/Industrial Land Use and Military Training Land Use.

5.2 Ecological Risk Assessment

The ecological habitat at Buildings F-15 and F-16 is dry, early-successional, herbaceous field; dry, late-successional, cold-deciduous shrubland; *Acer rubrum* successional forest; mixed, cold-deciduous, successional forest; and a wetland. The defined AOC area does not include the forested area between the two buildings.

The vegetation provides a habitat for birds, mammals, insects, and other organisms that typically require approximately 1 acre of habitat. The northern long-eared bat (*Myotis septentrionalis*; federally threatened) exists at CJAG. There are no other federally listed species or critical habitats on CJAG. Buildings F-15 and F-16 have not had a site-specific survey for federal- or state-listed species. However, surveys have been conducted throughout the facility and have not identified state-listed, federally listed, threatened, or endangered species at the AOC (OHARNG 2014).

The Level I ERA presents important ecological resources on or near the AOC and evaluates the potential for current contamination to impact ecological resources. Eighteen integrated soil chemicals of potential ecological concern (COPECs) were detected at the Buildings F-15 and F-16 AOC based on the soil data collected for the historical ERA and for the PBA08 RI. These COPECs consist of inorganic chemicals, explosives, PCBs, pesticides, and SVOCs. Thus, contamination is present at the AOC.

Ecological resources at the Buildings F-15 and F-16 AOC were compared to the list of important ecological places and resources. Only 1 of the 39 important places (wetlands) was present. Although the wetland is an important resource, it is not a significant resource, as soil sampling results in and around the wetland do not indicate chemicals are present at concentrations of concern for

ecological receptors. The ERA summarizes the chemicals and resources in detail to demonstrate that there is contamination at the Buildings F-15 and F-16 AOC, but no significant ecological resources are present.

The Buildings F-15 and F-16 AOC has contamination and an important resource, but there are no known significant ecological places or resources. Consequently, the ERA can conclude with a Level I Scoping Level Risk Assessment, with the recommendation that no further action is required to be protective of important ecological resources.

5.3 Impacts to Groundwater

The potential for soil and sediment contaminants to impact groundwater was evaluated in a fate and transport evaluation presented in the RI Report (Leidos 2018). The fate and transport evaluation included an analysis of leaching and migration from soil and sediment to groundwater. The modeling evaluated the potential for contaminants to leach from soil and sediment and impact groundwater beneath the AOC.

Modeling results indicated the contaminant migration chemicals of concern (CMCOCs) naphthalene at the Building F-15 aggregate and naphthalene, nitroglycerin, and selenium at the Building F-16 aggregate could potentially leach from soil and mix with groundwater beneath Buildings F-15 and F-16, resulting in concentrations above maximum contaminant levels, U.S. Environmental Protection Agency RSLs, and RVAAP groundwater FWCUGs. No sediment contaminant migration chemicals of potential concern (CMCOPCs) were identified during the evaluation.

A qualitative evaluation of these modeling results with respect to anticipated peak concentrations (compared to historical use dates and screening criteria) and model limitations/conservatism was performed. This evaluation concluded that soil site-related contaminants (including selenium and naphthalene) are not currently influencing groundwater beneath the source areas and that

1 predicted future impacts would be mitigated by
2 factors such as chemical and biological
3 degradation and lateral dispersivity. Based on
4 the fate and transport evaluation, no CMCOCs
5 for soil or sediment were identified as
6 impacting groundwater. The groundwater will
7 be further evaluated as part of the Facility-
8 wide Groundwater AOC RVAAP-66.

10 6.0 CONCLUSIONS

11
12 The HHRA determined that no remediation is
13 required to be protective for the Resident
14 Receptor (Adult and Child). The ERA
15 concluded that no chemicals require
16 remediation or further evaluation to protect the
17 environment. The fate and transport
18 assessment determined chemicals in soil and
19 sediment will not impact groundwater.
20 Groundwater will be further evaluated under
21 the Facility-wide Groundwater AOC RVAAP-
22 66. Accordingly, ARNG, in coordination with
23 Ohio EPA, is recommending no further action
24 to attain Unrestricted (Residential) Land Use
25 for soil, sediment, and surface water at
26 Buildings F-15 and F-16.

27
28 This recommendation is not a final decision.
29 ARNG, in coordination with Ohio EPA, will
30 select the remedy for Buildings F-15 and F-16
31 after reviewing and considering all comments
32 submitted during the 30-day public comment
33 period.

35 7.0 COMMUNITY PARTICIPATION

37 7.1 Community Participation

38
39 Public participation is an important component
40 of the remedy selection. ARNG, in
41 coordination with Ohio EPA, is soliciting input
42 from the community on the preferred
43 alternative.

44
45 The comment period extends from Month DD,
46 YYYY to Month DD, YYYY. This period
47 includes a public meeting at which ARNG will
48 present this PP. ARNG will accept oral and
49 written comments at this meeting.

51 7.2 Public Comment Period

52
53 The 30-day comment period is from Month
54 DD, YYYY to Month DD, YYYY, and
55 provides an opportunity for public involvement
56 in the decision-making process for the
57 proposed action. The public is encouraged to
58 review and comment on this PP.

59
60 ARNG and Ohio EPA will consider all public
61 comments before selecting a remedy. During
62 the comment period, the public is encouraged
63 to review documents pertinent to Buildings
64 F-15 and F-16.

65
66 This information is available at the
67 Information Repository and online at
68 www.rvaap.org. To obtain further information,
69 contact Kathryn Tait of the CJAG
70 Environmental Office at kathryn.s.tait.nfg@mail.mil.

73 7.3 Written Comments

74
75 If the public would like to comment in writing
76 on this PP or other relevant issues, please
77 deliver comments to ARNG at the public
78 meeting or mail written comments
79 (postmarked no later than Month DD, YYYY).

POINT OF CONTACT FOR WRITTEN COMMENTS

Mailing Address:

**Camp James A. Garfield Joint Military
Training Center**

Environmental Office

Attn: Kathryn Tait

1438 State Route 534 SW

Newton Falls, Ohio 44444

E-mail Address:

kathryn.s.tait.nfg@mail.mil

82 7.4 Public Meeting

83
84 ARNG will hold an open house and public
85 meeting on this PP on Month DD, YYYY, at
86 PM, in the Shearer Community Center,
87 9355 Newton Falls Road Ravenna, Ohio 44266
88 to accept comments.

1 This meeting will provide an opportunity for
2 the public to comment on the proposed action.
3 Comments made at the meeting will be
4 transcribed.

5 **7.5 Review of Public Comments**

6
7 ARNG will review the public's comments as
8 part of the process in reaching a final decision
9 for the most appropriate action to be taken.

10
11 The Responsiveness Summary, a document
12 that summarizes ARNG's responses to
13 comments received during the public comment
14 period, will be included in the Record of
15 Decision (ROD). ARNG's final choice of
16 action will be documented in the ROD.

17
18 The ROD will be added to the RVAAP
19 Restoration Program Administrative Record
20 and Information Repositories.

21

ADMINISTRATIVE RECORD FILE

Camp James A. Garfield Joint Military Training Center (former Ravenna Army Ammunition Plant)

Environmental Office
1438 State Route 534 SW
Newton Falls, Ohio 44444
(614) 336-6136

*Note: Access is restricted to Camp James A
Garfield, but the file can be obtained or
viewed with prior notice.*

22 **GLOSSARY OF TERMS**

23

24 **Administrative Record:** a collection of
25 documents, typically reports and
26 correspondence, generated during site
27 investigation and remedial activities.
28 Information in the Administrative Record
29 represents the information used to select the
30 preferred alternative.

31

32

33

INFORMATION REPOSITORIES

Reed Memorial Library

167 East Main Street
Ravenna, Ohio 44266
(330) 296-2827

Hours of operation:
9AM-9PM Monday-Thursday
9AM-6PM Friday
9AM-5PM Saturday
1PM-5PM Sunday

Newton Falls Public Library

204 South Canal Street
Newton Falls, Ohio 44444
(330) 872-1282

Hours of operation:
10AM-8PM Monday-Thursday
9AM-5PM Friday and Saturday

Online

<http://www.rvaap.org/>

34

35 **Comprehensive Environmental Response,**
36 **Compensation, and Liability Act**
37 **(CERCLA):** a federal law passed in 1980,
38 commonly referred to as the Superfund
39 Program. It provides liability, compensation,
40 cleanup, and emergency response in
41 connection with the cleanup of inactive
42 hazardous substance release sites that endanger
43 public health or the environment.

44

45 **Contaminant Migration Chemical of**
46 **Concern (CMCOC):** a chemical substance
47 specific to an area of concern (AOC) that
48 potentially poses significant potential to leach
49 to groundwater at a concentration above
50 human health risks goals. CMCOCs are
51 typically further evaluated for remedial action.

52

53 **Chemical of Concern (COC):** a chemical
54 substance specific to an AOC that potentially
55 poses significant human health or ecological
56 risks. COCs are typically further evaluated for
57 remedial action.

58

59

1 **Chemical of Potential Concern (COPC):** a
2 chemical substance specific to an AOC that
3 potentially poses human health risks and
4 requires further evaluation in the RI. COPCs
5 are typically not evaluated for remedial action.
6

7 **Chemical of Potential Ecological Concern**
8 **(COPEC):** a chemical substance specific to an
9 AOC that potentially poses ecological risks
10 and requires further evaluation in the RI.
11 COPECs are typically not evaluated for
12 remedial action.
13

14 **Ecological Receptor:** a plant, animal, or
15 habitat exposed to an adverse condition.
16

17 **Human Receptor:** a hypothetical person,
18 based on current or potential future land use,
19 who may be exposed to an adverse condition.
20 For example, the National Guard Trainee is
21 considered the hypothetical person when
22 evaluating Military Training Land Use at the
23 former RVAAP.
24

25 **National Oil and Hazardous Substances**
26 **Pollution Contingency Plan (NCP):** the set of
27 regulations that implement CERCLA and
28 address responses to hazardous substances and
29 pollutants or contaminants.
30

31 **Record of Decision (ROD):** a signed legal
32 record that describes the cleanup action or
33 remedy selected for a site, the basis for
34 selecting that remedy, public comments, and
35 responses to comments.
36

37 **Remedial Investigation (RI):** a CERCLA
38 investigation that involves sampling
39 environmental media, such as air, soil, and
40 water, to determine the nature and extent of
41 contamination and to calculate human health
42 and environmental risks that result from the
43 contamination.
44

45 **Responsiveness Summary:** a section of the
46 ROD that documents and responds to written
47 and oral comments received from the public
48 about the Proposed Plan.
49
50

51 **Risk Assessment:** an evaluation that
52 determines potential harmful effects, or lack
53 thereof, posed to human health and the
54 environment due to exposure to chemicals
55 found at a CERCLA site.
56

57 **Target Risk:** the Ohio EPA (2009) identifies
58 1E-05 as a target for cancer risk for
59 carcinogens and an acceptable target HQ of 1
60 for non-carcinogens.
61

62 **Unrestricted (Residential) Land Use:** A land
63 use defined for the former RVAAP restoration
64 that is considered protective for all three Land
65 Uses at Camp James A. Garfield Joint Military
66 Training Center. If an AOC meets the
67 requirements for Unrestricted (Residential)
68 Land Use, then the AOC can also be used for
69 Military Training and Commercial/Industrial
70 purposes.
71

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FIGURES

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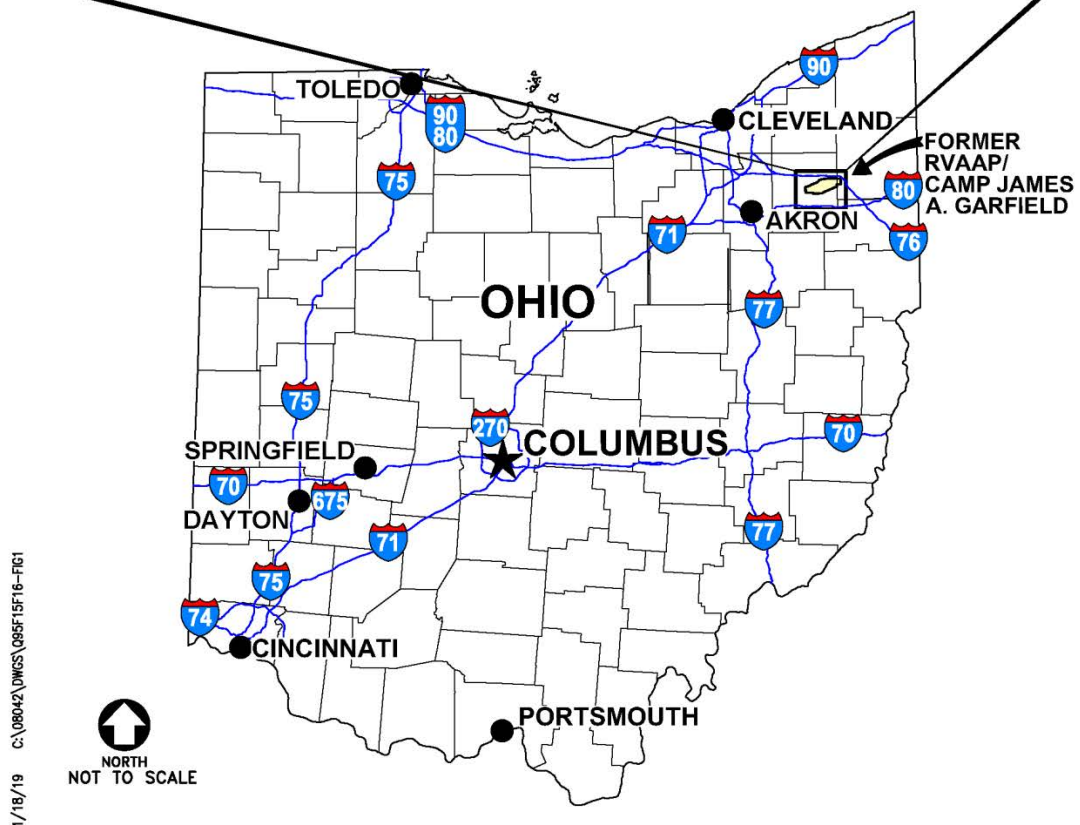
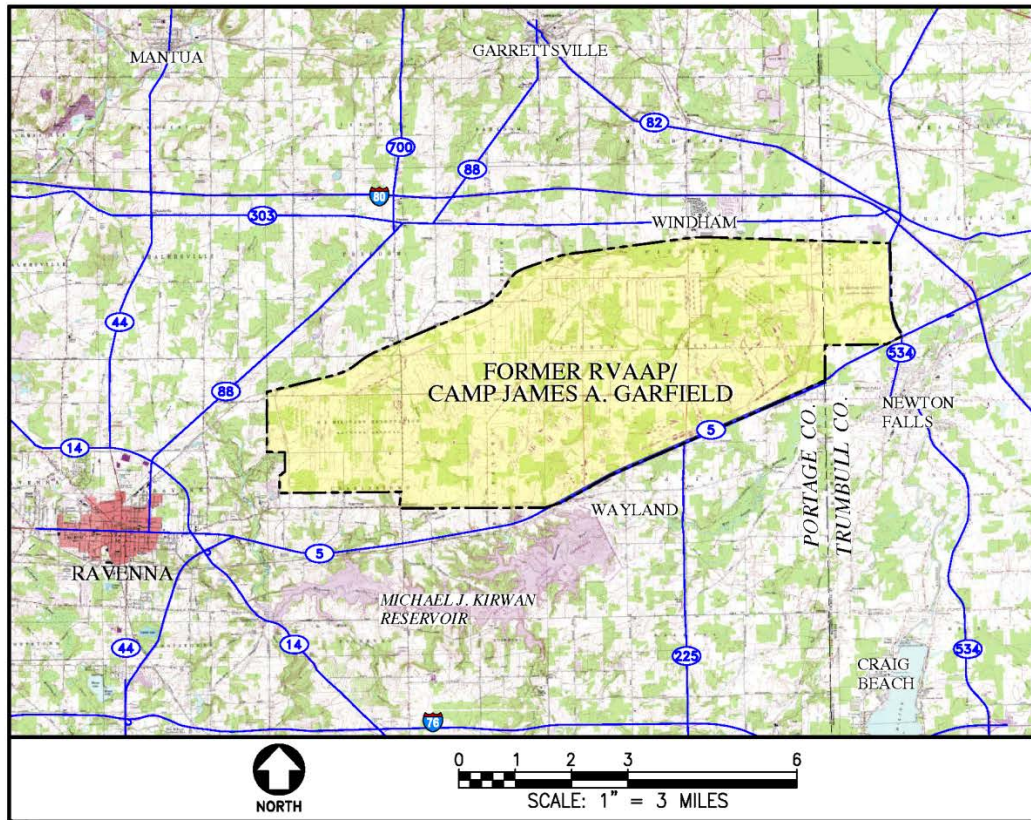


Figure 1. General Location and Orientation of Camp James A. Garfield

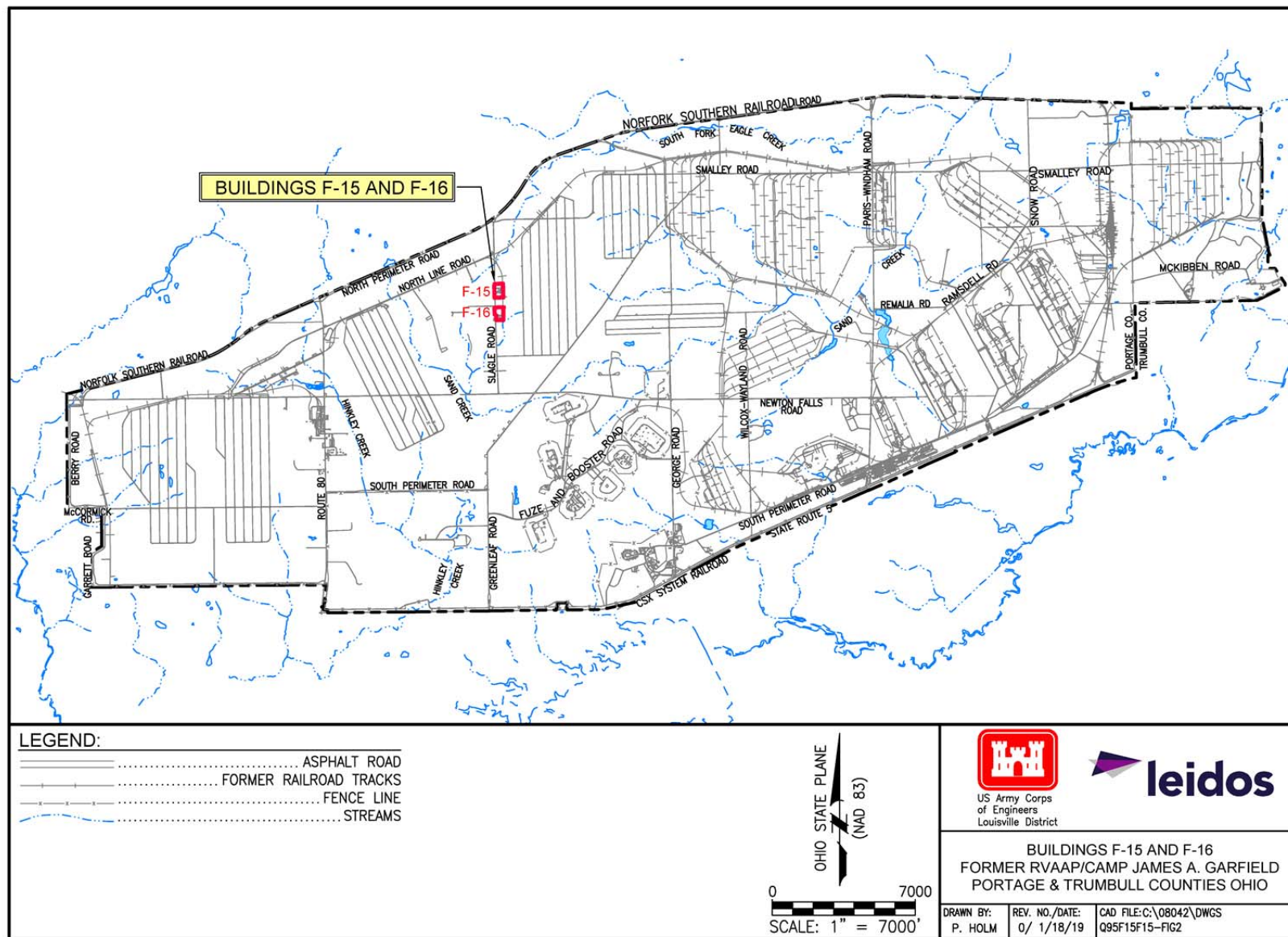


Figure 2. Location of Buildings F-15 and F-16 at Camp James A. Garfield

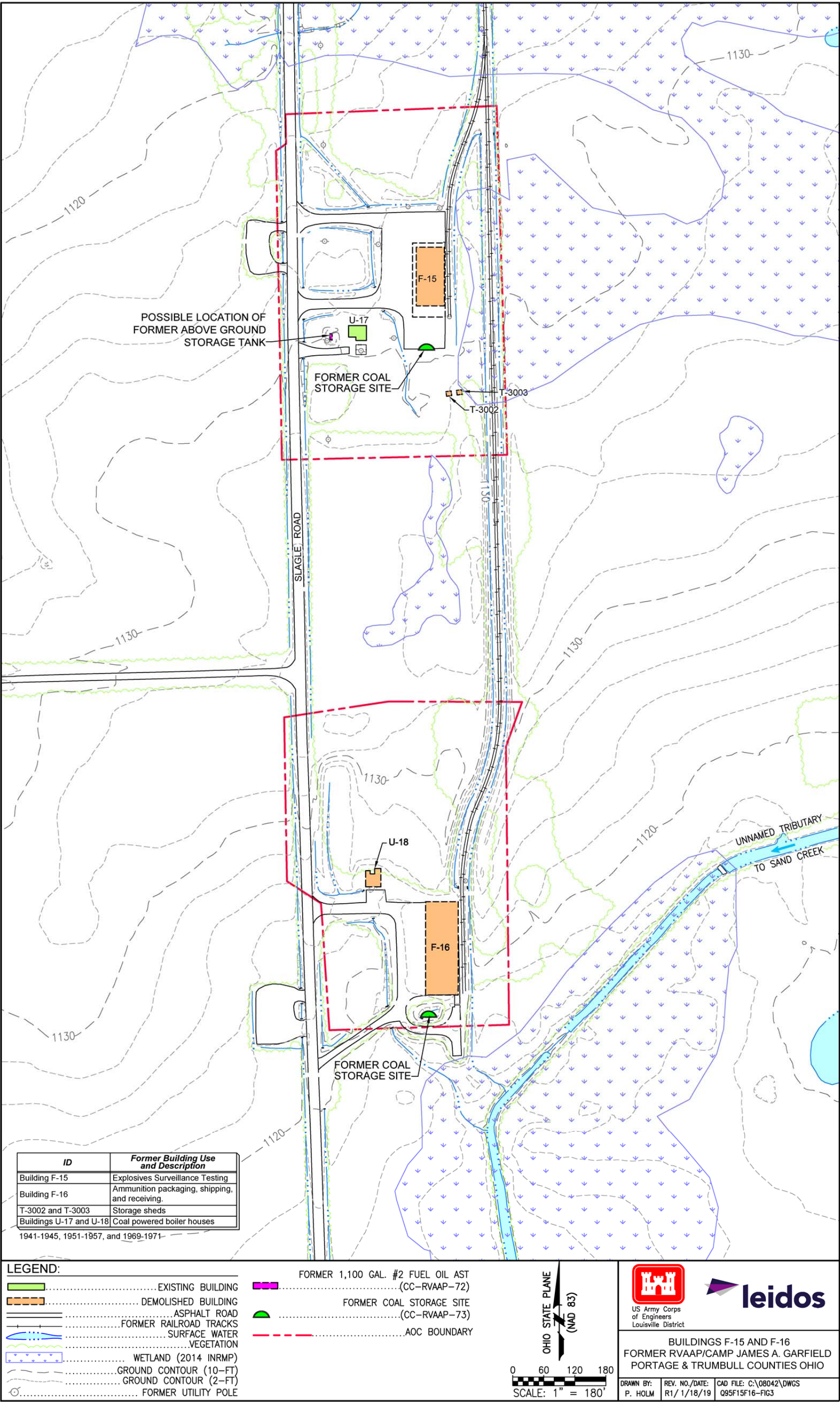


Figure 3. Buildings F-15 and F-16 Site Features

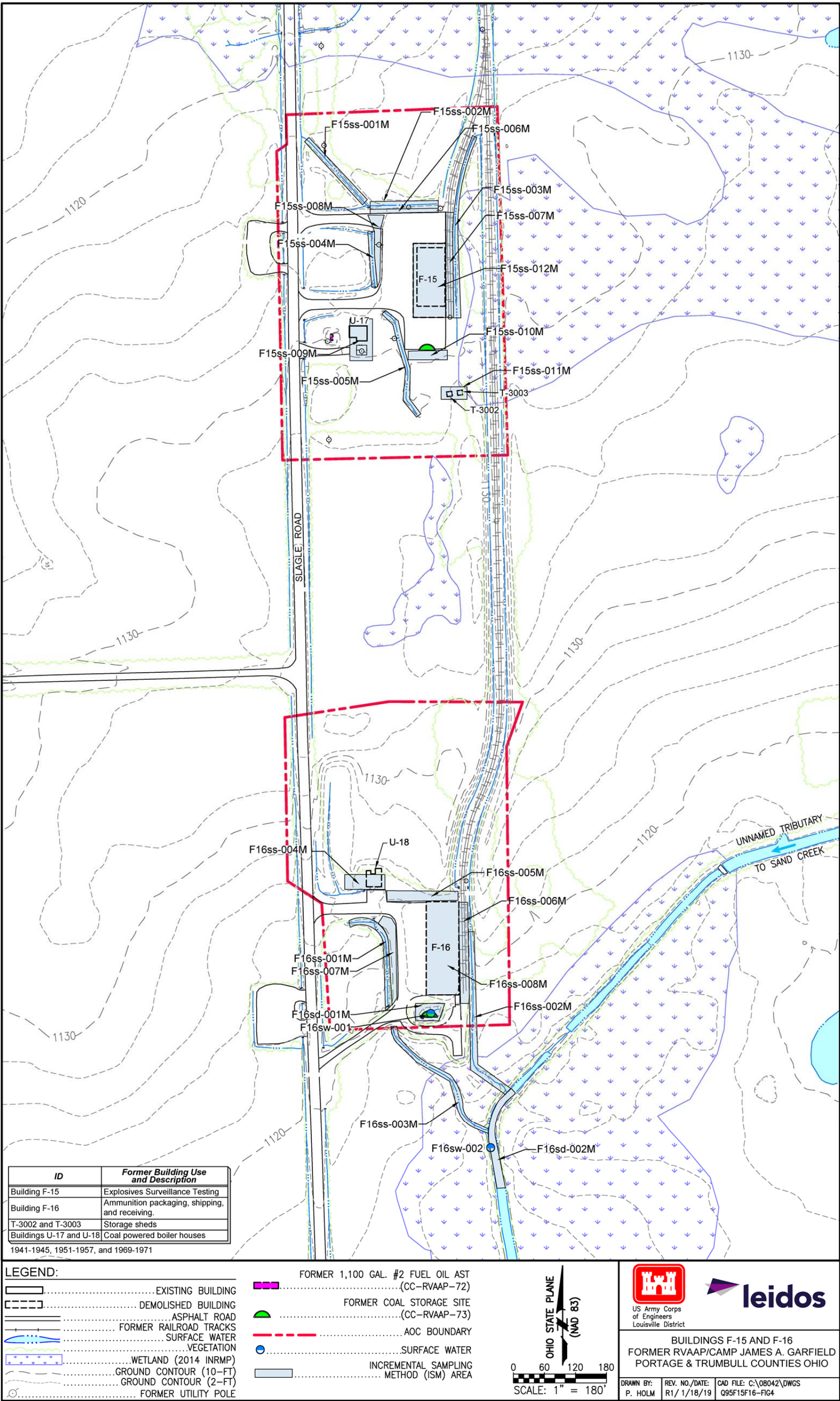


Figure 4. Buildings F-15 and F-16 Sample Locations