

**Final**

**Proposed Plan  
for Soil, Sediment, and Surface Water  
at RVAAP-39 Load Line 5**

**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. Corps of Engineers  
Louisville District**

**Prepared by:**



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

**December 6, 2016**

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14. ABSTRACT This Proposed Plan for Load Line 5 presents to the public the physical characteristics, geology, and hydrogeology of Load Line 5. This plan summarizes nature and extent of contamination in soil, sediment, and surface water; contaminant fate and transport; and human health and ecological risk assessments. These evaluations indicate there are no chemicals of concern (COCs) that pose unacceptable risk. Therefore, this plan presents a recommendation of No Further Action (NFA) with respect to soil, sediment, and surface water to attain Unrestricted (Residential) Land Use to the public.					
15. SUBJECT TERMS proposed plan, no further action, land use, chemicals of concern					
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**CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW**

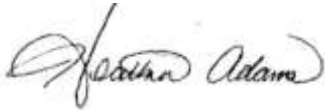
Leidos has completed the Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-39 Load Line 5 at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk 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.



\_\_\_\_\_  
Craig Hebert, P.G.  
Study/Design Team Leader

\_\_\_\_\_  
10/28/2016

Date



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Heather Adams, P.G.  
Independent Technical Review Team Leader

\_\_\_\_\_  
10/28/2016

Date

Significant concerns and the explanation of the resolution are as follows:

Internal Leidos Independent Technical Review comments are recorded on a Document Review Record per Leidos standard operating procedure ESE A3.1, Document Review. This Document Review Record is maintained in the project file. Changes to the report addressing the comments have been verified by the Study/Design Team Leader. As noted above, all concerns resulting from independent technical review of the project have been considered.



\_\_\_\_\_  
Lisa Jones-Bateman  
Senior Program Manager

\_\_\_\_\_  
10/28/2016

Date



John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Craig W. Butler, Director

January 17, 2017

**Re: US Army Ravenna Ammunition PLT RVAAP  
Remediation Response  
Project Records  
Remedial Response  
Trumbull County  
267000859116**

Mr. Mark Leeper  
Chief (Acting)  
Cleanup/Restoration Branch ARNG  
Army National Guard Directorate  
111 South George Mason Drive  
Arlington, VA 22204

**SUBJECT: "RAVENNA ARMY AMMUNITION PLANT PORTAGE/TRUMBULL  
COUNTIES, FINAL, PROPOSED PLAN FOR SOIL, SEDIMENT, AND  
SURFACE WATER AT RVAAP-39 LOAD LINE 5," DATED  
DECEMBER 6, 2016**

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Final, Proposed Plan (PP) for Soil, Sediment, and Surface Water at RVAAP-39 Load Line 5," document for the Ravenna Army Ammunition Plant (RVAAP), Portage/Trumbull Counties. The document is dated and was received at the Northeast District Office (NEDO) on December 6, 2016. This letter serves to document Ohio EPA's approval regarding the proposal of No Further Action (NFA) for the RVAAP Load Line 5 site contained in the Final Proposed Plan (PP).

Based on the information contained in the Final PP document, other investigation documents/reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA approves the Final PP document for the RVAAP Load Line 5 and concurs with the NFA alternative recommended by the Army. As stated in the Final PP, the Army will offer a public comment period and hold an open house/public meeting in the near future to present the conclusions and investigative findings for Load Line 5.

**RECEIVED**  
24 Jan 2017

MR. MARK LEEPER  
ARMY NATIONAL GUARD DIRECTORATE  
PAGE 2

If you have any questions concerning the above, please feel free to contact Vicki Deppisch, NEDO, at (330) 963-1207.

Sincerely,



Michael Proffitt, Chief  
Division of Environmental Response and Revitalization

VD/nvr

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John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Craig W. Butler, Director

November 8, 2016

Mr. Mark Leeper  
Chief (Acting)  
Cleanup/Restoration Branch  
Army National Guard Directorate  
111 South George Mason Drive  
Arlington, VA 22204

Re: **US Army Ammunition PLT RVAAP  
Remediation Response  
Project Records  
Remedial Response  
Portage County  
267000859116**

**Subject: Ravenna Army Ammunition Plant, Portage/Trumbull Counties. "Draft, Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-39, Load Line 5," Dated October 28, 2016**

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Draft, Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-39 Load Line 5" for the Ravenna Army Ammunition Plant (RVAAP), Portage/Trumbull Counties. This report is dated and was received at Ohio EPA, Northeast District Office (NEDO) on October 28, 2016.

The Draft Proposed Plan is approved. Please send the Final Proposed Plan to Ohio EPA.

If you have any questions, please call me at (330) 963-1207.

Sincerely,

A handwritten signature in black ink, appearing to read "Vicki Deppisch", is written over a faint, larger version of the same signature.

Vicki Deppisch  
Hydrogeologist/Project Coordinator  
Division of Environmental Response and Revitalization

VD/nvr

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RECEIVED  
15 Nov 2016

**Final**

**Proposed Plan  
for Soil, Sediment, and Surface Water  
at RVAAP-39 Load Line 5**

Former Ravenna Army Ammunition Plant  
Portage and Trumbull Counties, Ohio

Contract No. W912QR-15-C-0046

**Prepared for:**  
U.S. Army Corps of Engineers  
Louisville District

**Prepared by:**  
Leidos  
8866 Commons Boulevard, Suite 201  
Twinsburg, Ohio 44087

December 6, 2016

**DOCUMENT DISTRIBUTION**  
**for the**  
**Final**  
**Proposed Plan**  
**for Soil, Sediment, and Surface Water**  
**at RVAAP-39 Load Line 5**  
**Former Ravenna Army Ammunition Plant**  
**Portage and Trumbull Counties, Ohio**

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ARNG = Army National Guard.

CO = Central Office.

DERR = Division of Environmental Response and Revitalization.

ILE = Installation, Logistics, and Environment.

OHARNG = Ohio Army National Guard.

Ohio EPA = Ohio Environmental Protection Agency.

NEDO = Northeast Ohio District Office.

REIMS = Ravenna Environmental Information Management System.

USACE = U.S. Army Corps of Engineers.



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## LIST OF ACRONYMS

AOC	Area of Concern
Army	U.S. Department of the Army
bgs	Below Ground Surface
Camp Ravenna	Camp Ravenna Joint Military Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Chemical of Concern
COPC	Chemical of Potential Concern
COPEC	Chemical of Potential Ecological Concern
ERA	Ecological Risk Assessment
FPA	Former Production Area
FWCUG	Facility-wide Cleanup Goal
HHRA	Human Health Risk Assessment
Ohio EPA	Ohio Environmental Protection Agency
PAH	Polycyclic Aromatic Hydrocarbon
PP	Proposed Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RVAAP	Ravenna Army Ammunition Plant
SRC	Site-related Contaminant
SVOC	Semi-volatile Organic Compound
TNT	2,4,6-Trinitrotoluene

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## 1.0 INTRODUCTION

This Proposed Plan (PP) presents the conclusions and recommendations for soil, sediment, and surface water within the Load Line 5 area of concern (AOC) at the former Ravenna Army Ammunition Plant (RVAAP). The former RVAAP is now known as Camp Ravenna Joint Military Training Center (Camp Ravenna) and is located in Portage and Trumbull counties, Ohio (Figure 1). Load Line 5 is designated as RVAAP-39. The U.S. Department of the Army (Army), in coordination with the Ohio Environmental Protection Agency (Ohio EPA), issues 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 Load Line 5 after all comments submitted during the 30-day public comment period are considered. Therefore, the public is encouraged to review and comment on all alternatives presented in this PP.

The Army 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 (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.

This PP summarizes information that can be found in greater detail in the *Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-39 Load Line 5* (USACE 2016) and other documents contained in the Administrative Record file for Load Line 5.

The Army's preferred alternative at Load Line 5 is no further action for soil, sediment, and surface water. The Army encourages the public to review the site background documents to gain

### **Public Comment Period:**

June 12, 2017, to July 12, 2017

### **Public Meeting:**

The Army 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-39 Load Line 5* (USACE 2016). Oral and written comments will also be accepted at the meeting. The open house and public meeting are scheduled for 6:00pm, June 27, 2017, 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 Ravenna Joint Military Training Center (former Ravenna Army Ammunition Plant)**

Environmental Office  
1438 State Route 534 SW  
Newton Falls, Ohio 44444  
(330) 872-8003

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

a more comprehensive understanding of the AOC, activities that have been conducted to date, and the rationale for the preferred alternative.

## **2.0 RVAAP DESCRIPTION AND BACKGROUND**

The facility, consisting of 21,683 acres, is federally owned and is located in northeastern Ohio within Portage and Trumbull counties, approximately 4.8 km (3 miles) east/northeast of the City of Ravenna and approximately 1.6 km (1 mile) northwest of the City of Newton Falls (Figure 1). The facility, previously known as RVAAP, was formerly used as a load, assemble, and pack facility for munitions production. As of September 2013, administrative accountability for the entire acreage of the facility has been transferred to the U.S. Property and Fiscal Officer for Ohio and subsequently licensed to the Ohio Army National Guard for use as a military training site (Camp Ravenna). References in this document to RVAAP relate to previous activities at the facility as related to former munitions production activities or to activities being conducted under the restoration/cleanup program.

## **3.0 LOAD LINE 5 DESCRIPTION AND BACKGROUND**

Load Line 5, formerly known as Fuze Line #1, is a 39-acre fenced AOC located south of Fuze and Booster Road in the south-central portion of Camp Ravenna (Figure 2). From 1941–1945, Load Line 5 operated at full capacity as a finished product assembly line to produce fuzes for artillery projectiles. With the exception of a mercury fulminate primer that was loaded and assembled at Load Line 5 and black powder used in fuzes, all primary explosive products were delivered to Load Line 5 as sealed, finished sub-assemblies (e.g., detonators from Load Line 9).

Load Line 5 was deactivated at the end of World War II, and the process equipment was removed. Load Line 5 has not been used since 1945, and no historical information exists to indicate Load Line 5 was used for any other processes other than producing fuzes. No fuel storage tanks were present at the AOC during operations. Additionally, no fuel materials were

used operationally at Load Line 5, and no burning was conducted (USACE 2016).

All buildings, including slabs and foundations, were removed in 2006 and 2007. Remaining features at Load Line 5 include a one-lane asphalt perimeter road that enters the AOC from the northwest and surrounds the locations of the former production area (FPA) and access roads within the AOC. The FPA consists of 11.1 acres. The non-production area is 27.1 acres and includes the areas between the perimeter road and perimeter fence. The Load Line 5 perimeter fence is still in place, but it is not currently maintained. Small construction drainage ditches border the perimeter road.

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 (RDX)]; sulfates; nitrates; lead styphnate; and lead azide (USATHAMA 1978). Additional potential contaminants at Load Line 5, based on operation history, include black powder, mercury fulminate, and heavy metals (lead, chromium, mercury, and arsenic) from munitions assembly activities; volatile organic compounds from former Building 1F-15 that was utilized for paint storage; polychlorinated biphenyls from on-site transformers; and polycyclic aromatic hydrocarbons (PAHs) from former Building 1F-2, which was used as a heater house.

The following environmental investigations have been completed for Load Line 5:

- Installation Assessment of Ravenna Army Ammunition Plant (USATHAMA 1978);
- Resource Conservation and Recovery Act (RCRA) Facility Assessment (Jacobs 1989);
- Preliminary Assessment for the Characterization of Areas of Contamination (USACE 1996);
- Relative Risk Site Evaluation for Newly Added Sites (USACHPPM 1998);
- Characterization of 14 AOCs (MKM 2007);

- Investigation of the Under Slab Surface Soils (USACE 2009); and
- 2008 Performance-based Acquisition Remedial Investigation, as summarized in the Remedial Investigation for Soil, Sediment, and Surface Water at the RVAAP 39 Load Line 5 (USACE 2016).

#### 4.0 AREA OF CONCERN CHARACTERISTICS

The AOC characteristics, nature and extent of contamination, and conceptual site model are based on the investigations conducted from 1978 through 2012.

Ground surface elevations across Load Line 5 range from approximately 1,112–1,130 ft above mean sea level. The northwestern portion of Load Line 5 is a topographic high that slopes downward to the topographic low in the southeastern portion of the AOC (Figure 3).

Surface water at Load Line 5 occurs intermittently as storm water runoff within constructed or natural drainage ditches or conveyances throughout the AOC. Surface water drainage generally follows the topography of Load Line 5, flowing radially outward into ditch conveyances that surround the FPA.

Three wetlands are within Load Line 5. Two wetlands (a 0.01-acre, scrub-shrub wetland and a 0.02-acre, forested wetland) are in the northeastern portion of the AOC. These wetlands are seasonally inundated. The largest wetland, a 0.30-acre forested wetland referred to as the Load Line 5 Wetland in the RI Report (USACE 2016), is in the northwest portion of the AOC and is regularly inundated/saturated. The closest perennial feature to receive the majority of the surface drainage from Load Line 5 is an unnamed tributary located approximately 500 ft southeast of the AOC boundary. The tributary flows in a southeast direction to its confluence with the west branch of the Mahoning River.

Sandy silt glacial soil overlies sandstone bedrock at Load Line 5, except where disturbed

by RVAAP activities. During site investigations, bedrock was encountered at 21–28 ft below ground surface (bgs). Depths to groundwater ranged from 11–19 ft bgs. Groundwater at the site flows to the southwest.

In surface soil (0–1 ft bgs) and subsurface soil (greater than 1 ft bgs) at Load Line 5, the prevalent site-related contaminants (SRCs) and chemicals of potential concern (COPCs) detected were inorganic chemicals and semi-volatile organic compounds (SVOCs). No conclusive spatial trend is evident for the inorganic chemicals. The majority of SVOCs were PAHs.

No historical data or information exists to indicate Load Line 5 was used for any process other than producing fuzes (MKM 2007). No fuel storage tanks were present at the AOC during operations. Additionally, no fuel materials were used operationally at Load Line 5, and no burning was conducted.

Figure 4 shows sample locations of samples included in the RI. Two surface soil locations (LL5ss-064M at 0.53 mg/kg and LL5ss-069M at 0.5 mg/kg) slightly exceeded the benzo(a)pyrene risk-based screening level of 0.221 mg/kg. However, the RI did not indicate records or field evidence of PAH-contaminated waste disposal at Load Line 5 from operational activities. Rather, evaluation of PAH concentrations associated with common anthropogenic sources (e.g., areas impacted by sources such as asphalt parking lots and roads, vehicle traffic, etc.) indicates the concentrations reported at Load Line 5 are at or below those concentrations.

Sediment and surface water samples were collected at two locations (LL5-078 and LL5-086) within the Load Line 5 Wetland (Figure 4). Aluminum was identified as a sediment COPC, as the concentration in sediment sample LL5sd-078 of 14,900 mg/kg was above the background concentration (13,900 mg/kg) and exceeded the screening level (3,496 mg/kg) established in the RI. According to the RI Report, aluminum was not associated with historical operation activities

(USACE 2016). The concentration of aluminum in sediment was below the facility-wide cleanup goal (FWCUG) of 73,798 mg/kg; therefore, it was not retained as a chemical of concern (COC). Four surface water and co-located sediment samples were collected downstream of Load Line 5 to assess off-AOC conditions. No surface water or sediment COPCs were identified at the downstream locations.

The potential for soil and sediment contaminants to impact groundwater was evaluated in a fate and transport evaluation presented in the RI Report (USACE 2016). The fate and transport evaluation included modeling and comparing the model results to current groundwater monitoring data. The modeling evaluated the potential for contaminants to leach from soil and sediment and impact groundwater beneath the AOC. The modeling also evaluated if contaminants could potentially migrate from Load Line 5 to the closest downgradient surface water features (e.g., the unnamed tributary to Sand Creek and the unnamed tributary to the Mahoning River). Modeling results indicated four soil and one sediment contaminant migration chemicals of potential concern could potentially leach from soil or sediment and mix with groundwater beneath Load Line 5, resulting in concentrations above maximum contaminant levels, U.S. Environmental Protection Agency regional screening levels, and RVAAP groundwater FWCUGs.

Evaluation of modeling results with respect to current AOC groundwater data and model limitations indicates that identified soil SRCs are not currently impacting groundwater beneath the source areas and that predicted future impacts would be mitigated by factors such as chemical and biological degradation and lateral dispersivity. Based on the fate and transport evaluation, no contaminant migration chemicals of concern for soil or sediment were identified as impacting groundwater. The groundwater will be further evaluated under the Facility-Wide Groundwater Monitoring Program (FWGWMP).

## **5.0 SCOPE AND ROLE OF RESPONSE ACTION**

An evaluation using Resident Receptor (Adult and Child) FWCUGs was used to provide an Unrestricted (Residential) Land Use evaluation. Unrestricted (Residential) Land Use is considered protective for all categories of land use at Camp Ravenna, such as Military Training and Commercial/Industrial Land Use. Additional human health receptors associated with Camp Ravenna are the National Guard Trainee and Industrial Receptor. The response action evaluated alternatives to attain Unrestricted (Residential) Land Use for soil, sediment, and surface water.

Groundwater will be addressed under the RVAAP Facility-wide Groundwater AOC (RVAAP-66) as a separate decision. However, the selected remedy for soil at Load Line 5 must also be protective of groundwater.

## **6.0 SUMMARY OF HUMAN AND ECOLOGICAL RISKS**

### **6.1 Human Health Risk Assessment**

A human health risk assessment (HHRA) was performed to identify COCs and provide a risk management evaluation to determine if remediation is required under CERLCA, based on potential risks to human receptors.

The exposure depths evaluated in the HHRA for the Resident Receptor (Adult and Child) were surface soil (0–1 ft bgs), subsurface soil (1–13 ft bgs), sediment, and surface water.

No surface water COPCs were identified for Load Line 5 and, therefore, no COCs were identified for surface water.

Aluminum was identified as the only sediment COPC. However, the detected concentrations were less than the FWCUG for this inorganic chemical, and aluminum was not identified as a COC.

No COCs were identified in the subsurface soil at Load Line 5. Four PAHs [benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene] were identified as COCs in surface soil, as concentrations of these chemicals in soil either exceeded FWCUGs or contributed to a sum-of-ratios greater than one. Evaluation of PAH concentrations associated with common anthropogenic sources indicates the concentrations at Load Line 5 are at or near those concentrations, meaning the PAHs at the site are from common anthropogenic sources (e.g., areas impacted by sources such as asphalt parking lots and roads, vehicle traffic, etc.). The HHRA did not identify COCs requiring remediation under CERCLA to be protective of the Resident Receptor (Adult and Child).

## 6.2 Ecological Risk Assessment

The ecological habitat in Load Line 5 consists of 39 acres of herbaceous field (grasses), forest, and shrubs. There are no streams or ponds at the AOC; however, aquatic resources, including three wetlands (0.33 acres), are present at Load Line 5. The vegetation provides a habitat for birds, mammals, insects, and other organisms. Intermittent surface water flows in small drainage ditches bordering the roads and within the FPA. During most of the year, there is no water in the drainage ditches; however, there is sufficient precipitation at Camp Ravenna to maintain aquatic habitat at Load Line 5.

Ecological resources at Load Line 5 were compared to the list of important ecological places and resources (USACE 2016). Based on the 39 criteria defining important places as identified by the Army and Ohio EPA, one important ecological resource was identified at the AOC: wetlands. The vegetation types present at Load Line 5 are also found elsewhere near the AOC, at Camp Ravenna, and in the ecoregion.

The northern long-eared bat (*Myotis septentrionalis*; federally threatened) exists at Camp Ravenna. There are no other federally listed species or critical habitats on Camp Ravenna. Load Line 5 has not been previously surveyed for federal or state-listed

species; however, there have been no documented sightings of state-listed, federally listed, threatened, or endangered species at the AOC (OHARNG 2014).

The ecological risk assessment (ERA) for Load Line 5 (USACE 2016) evaluated chemical contamination to determine if it posed a risk to the environment. The ERA incorporated available data to identify integrated chemicals of potential ecological concern (COPECs). There are 19 integrated soil COPECs, one integrated sediment COPEC, and no integrated surface water COPECs that were identified in the Level I ERA at Load Line 5.

There are important ecological resources (i.e., wetlands) at Load Line 5. Contaminants are not present in the 0.33-acre wetland, and the soil concentrations and topography surrounding the smaller wetlands indicate that contaminants are not likely present at levels of ecological concern. Therefore, these wetlands are not considered significant ecological resources. Consequently, the ERA for Load Line 5 was concluded with a Level I Scoping Level Risk Assessment, with a recommendation of no further action to be protective of important ecological receptors.

## 7.0 CONCLUSIONS

The HHRA determined that no remediation is required to be protective for Resident Receptors (Adult and Child). The ERA concluded there are no significant ecological resources. The fate and transport assessment determined chemicals in soil and sediment are not impacting groundwater. The groundwater will be further evaluated under the FWGWMP. Accordingly, the Army, in coordination with Ohio EPA, is recommending no further action to attain Unrestricted (Residential) Land Use for soil, sediment, and surface water at Load Line 5.

This recommendation is not a final decision. The Army, in coordination with Ohio EPA, will select the remedy for Load Line 5 after reviewing and considering all comments submitted during the 30-day public comment period.

## **8.0 COMMUNITY PARTICIPATION**

### **8.1 Community Participation**

Public participation is an important component of the remedy selection. The Army, in coordination with Ohio EPA, is soliciting input from the community on the preferred alternative.

The comment period extends from June 12, 2017, to July 12, 2017. This period includes a public meeting at which the Army will present this PP. The Army will accept oral and written comments at this meeting.

### **8.2 Public Comment Period**

The 30-day comment period is from June 12, 2017, to July 12, 2017, and provides an opportunity for public involvement in the decision-making process for the proposed action. The public is encouraged to review and comment on this PP.

All public comments will be considered by the Army and Ohio EPA before selecting a remedy. During the comment period, the public is encouraged to review documents pertinent to Load Line 5.

This information is available at the Information Repository and online at [www.rvaap.org](http://www.rvaap.org). To obtain further information, contact Kathryn Tait of the Camp Ravenna Environmental Office at [kathryn.s.tait.nfg@mail.mil](mailto:kathryn.s.tait.nfg@mail.mil).

### **8.3 Written Comments**

If the public would like to comment in writing on this PP or other relevant issues, please deliver comments to the Army at the public meeting or mail written comments (postmarked no later than July 12, 2017).

### **8.4 Public Meeting**

The Army will hold an open house and public meeting on this PP on June 27, 2017, at 6:00pm, in the Shearer Community Center, 9355

Newton Falls Road Ravenna, Ohio 44266 to accept comments.

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

#### **POINT OF CONTACT FOR WRITTEN COMMENTS**

**Mailing Address:**

**Camp Ravenna 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](mailto:kathryn.s.tait.nfg@mail.mil)

### **8.5 Army Review of Public Comments**

The Army will review the public's comments as part of the process in reaching a final decision for the most appropriate action to be taken.

The Responsiveness Summary, a document that summarizes the Army's responses to comments received during the public comment period, will be included in the Record of Decision (ROD). The Army's final choice of action will be documented in the ROD.

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



### ADMINISTRATIVE RECORD FILE

#### **Camp Ravenna Joint Military Training Center (former Ravenna Army Ammunition Plant)**

Environmental Office  
1438 State Route 534 SW  
Newton Falls, Ohio 44444  
(330) 872-8003

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

### 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/>

### GLOSSARY OF TERMS

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

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

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

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

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

**Chemical of Potential Ecological Concern (COPEC):** a chemical substance specific to an area of concern that potentially poses ecological risks and requires further evaluation in the RI. COPECs are typically not evaluated for remedial action.

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

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

**Important Ecological Place or Resource:** a place or resource that exhibits unique, special, or other attributes that makes it of great value.

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

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

**Remedial Investigation (RI):** CERCLA investigation that involves sampling environmental media, such as air, soil, and water, to determine the nature and extent of contamination and to calculate human health and environmental risks that result from the contamination.

**Responsiveness Summary:** a section of the ROD that documents and responds to written and oral comments received from the public about the PP.

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

**Significant Ecological Resource:** an important ecological resource found at an AOC, or in its vicinity, that is subject to contaminant exposure.

**Sum-of-Ratio (SOR):** to adjust for multiple chemicals, divide the standard for each COC by the number of COCs. The adjusted value can then be compared to the single chemical value, and each ratio summed. If the summed ratios are less than 1, the applicable standards are met. If summed ratios exceed 1, the applicable standards are not met.

**Target Risk:** the Ohio Environmental Protection Agency (2009) identifies 1E-05 as a target for cancer risk for carcinogens and an acceptable target hazard index of 1 for non-carcinogens.

**Unrestricted (Residential) Land Use:** a land use defined for the former RVAAP restoration that is considered protective for all three land uses at Camp Ravenna Joint Military Training Center (Camp Ravenna). If an area of concern meets the requirements for Unrestricted (Residential) Land Use, then the area of concern can also be used for Military Training and Commercial/Industrial purposes.

## REFERENCES

Jacobs (Jacobs Engineering Group, Inc.) 1989. *RCRA Facility Assessment, Preliminary Review/Visual Site Inspection, Ravenna Army Ammunition Plant Ravenna, Ohio*. October 1989.

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OHARNG (Ohio Army National Guard) 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.

Ohio EPA 2009. *Technical Decision Compendium: Human Health Cumulative Carcinogenic Risk and Non-carcinogenic Hazard Goals for DERR Remedial Response Program*. August 2009.

USACE (U.S. Army Corps of Engineers) 1996. *Preliminary Assessment for the Characterization of Areas of Contamination at the Ravenna Army Ammunition Plant, Ravenna, Ohio*. February 1996.

USACE 2009. *Final Investigation of the Under Slab Surface Soils, Post Slab and Foundation Removal at RVAAP-39 Load Line 5, RVAAP-40 Load Line 7, RVAAP-41 Load Line 8, and RVAAP-43 Load Line 5, Version 1.0, Ravenna Army Ammunition Plant, Ravenna, Ohio.* January 2009.

USACE 2016. *Remedial Investigation Report for Soil, Sediment, Surface Water at RVAAP-39 Load Line 5, Former Ravenna Army Ammunition Plant Portage and Trumbull Counties, Ohio.* June 2016.

USACHPPM (U.S. Army Center for Health Promotion and Preventive 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.

USATHAMA (U.S. Army Toxic and Hazardous Materials Agency) 1978. *Installation Assessment of Ravenna Army Ammunition Plant, Records Evaluation Report No. 132.* November 1978.

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**FIGURES**

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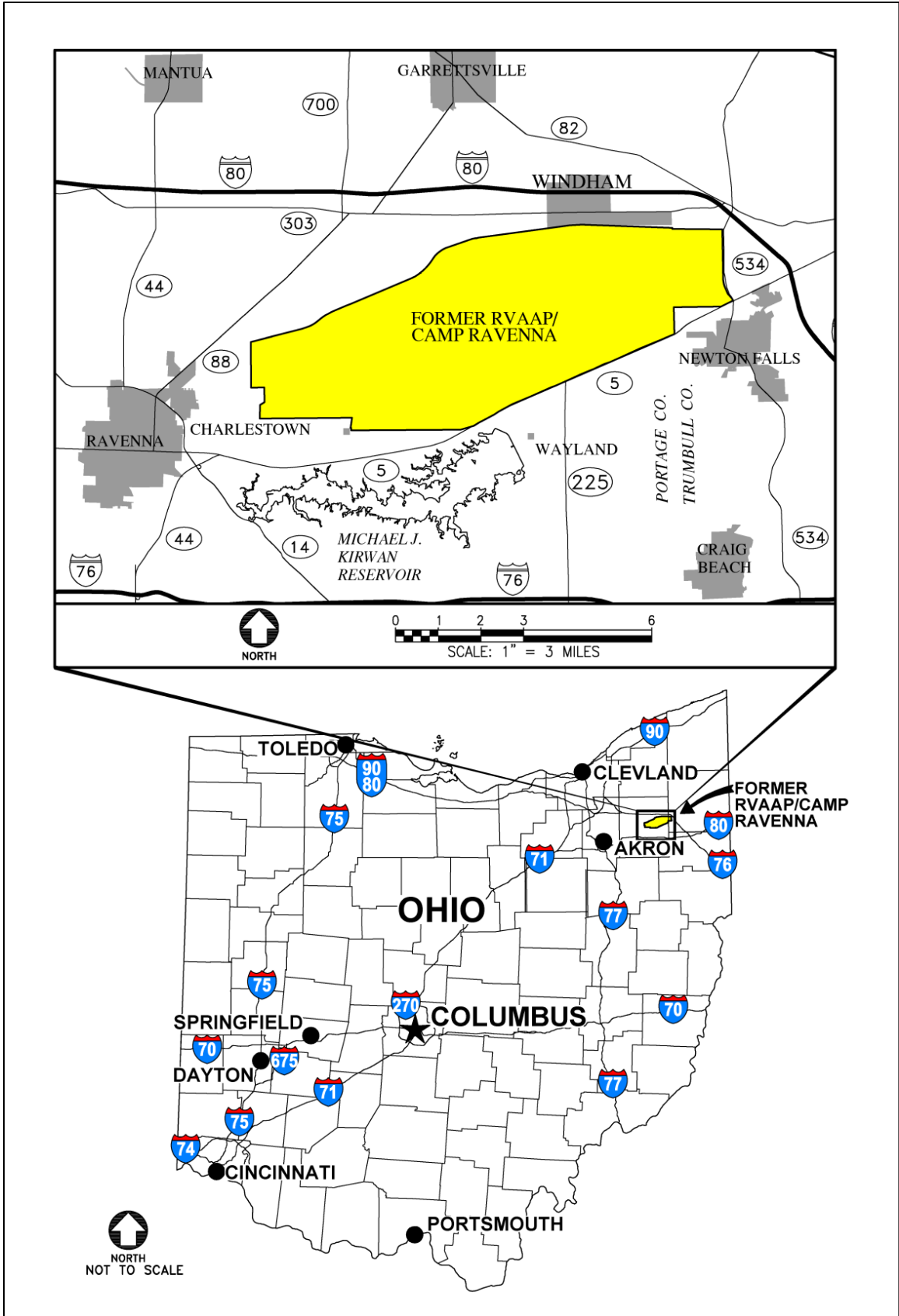


Figure 1. General Location and Orientation of Camp Ravenna

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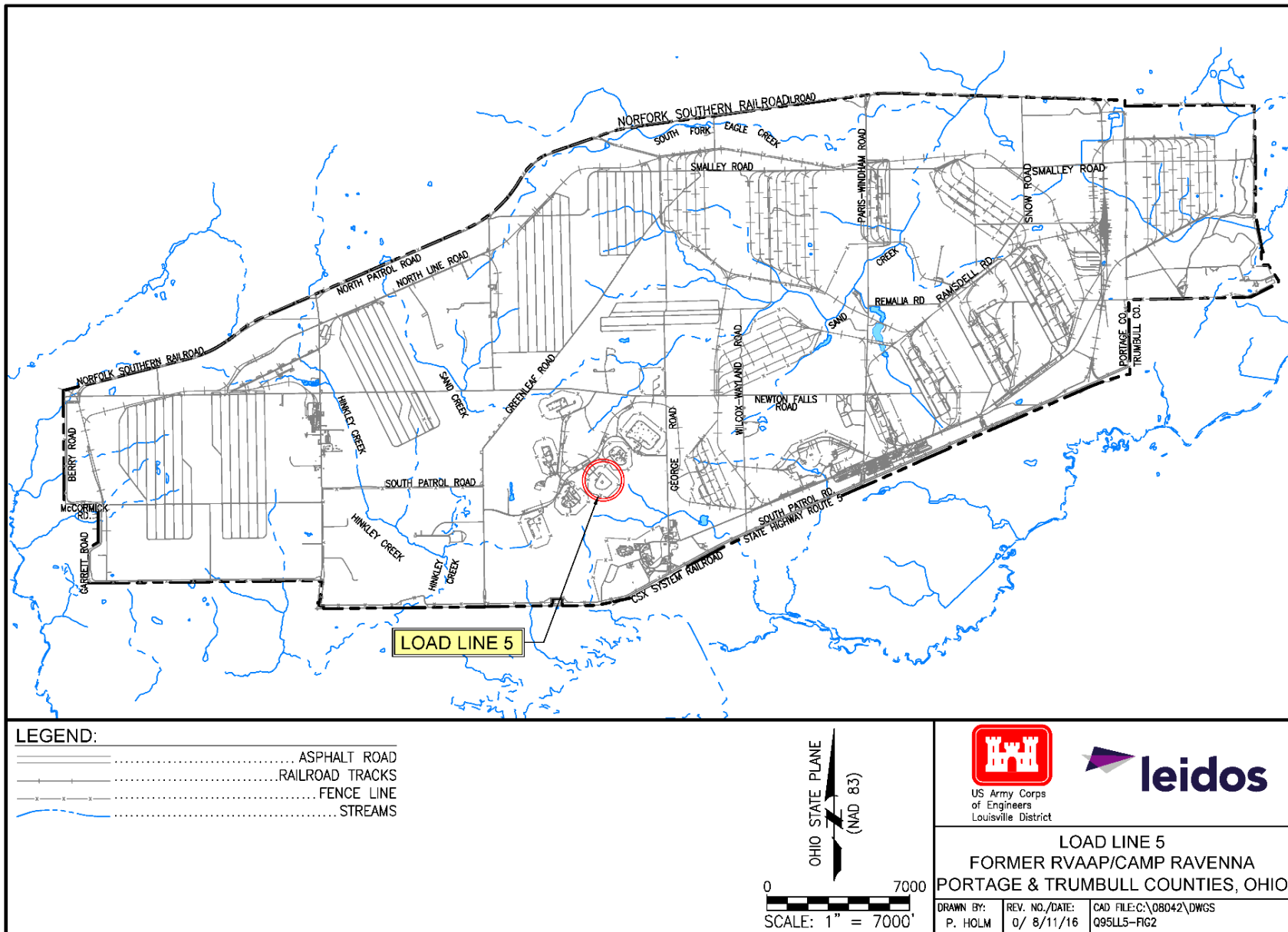
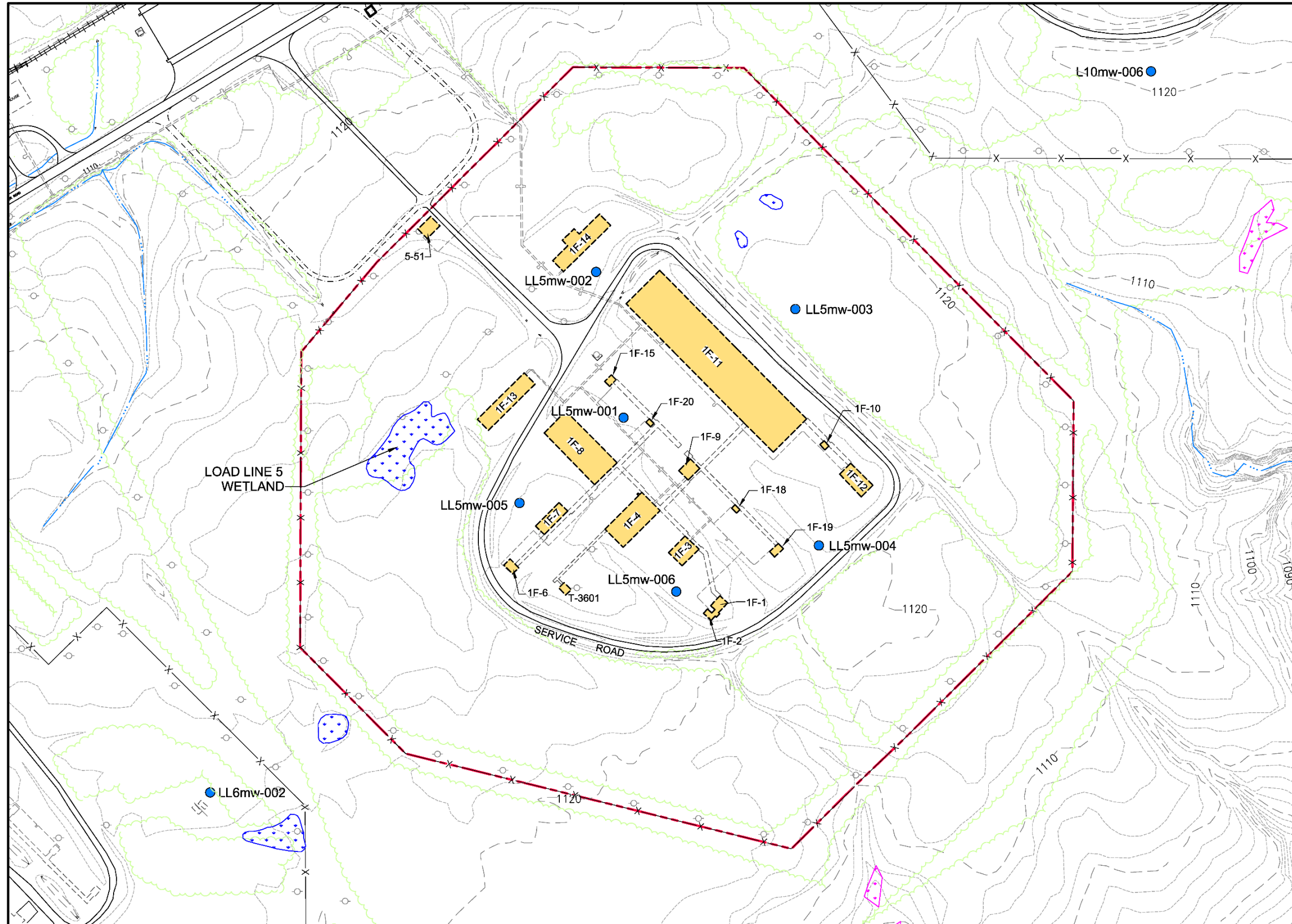


Figure 2. Location of Load Line 5 at Camp Ravenna

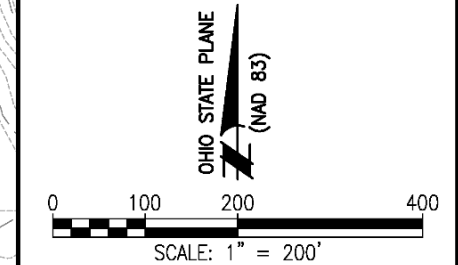
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**LEGEND:**

- DEMOLISHED BUILDING
- DEMOLISHED WALKWAY
- ASPHALT ROAD
- GRAVEL ROAD
- FENCE LINE
- SURFACE WATER
- VEGETATION
- GROUND CONTOUR (2-FT)
- GROUND CONTOUR (10-FT)
- DEMOLISHED STEAM LINE
- FORMER UTILITY POLE
- AOC BOUNDARY
- JURISDICTIONAL WETLAND
- PLANNING LEVEL SURVEY WETLAND
- GROUNDWATER MONITORING WELL

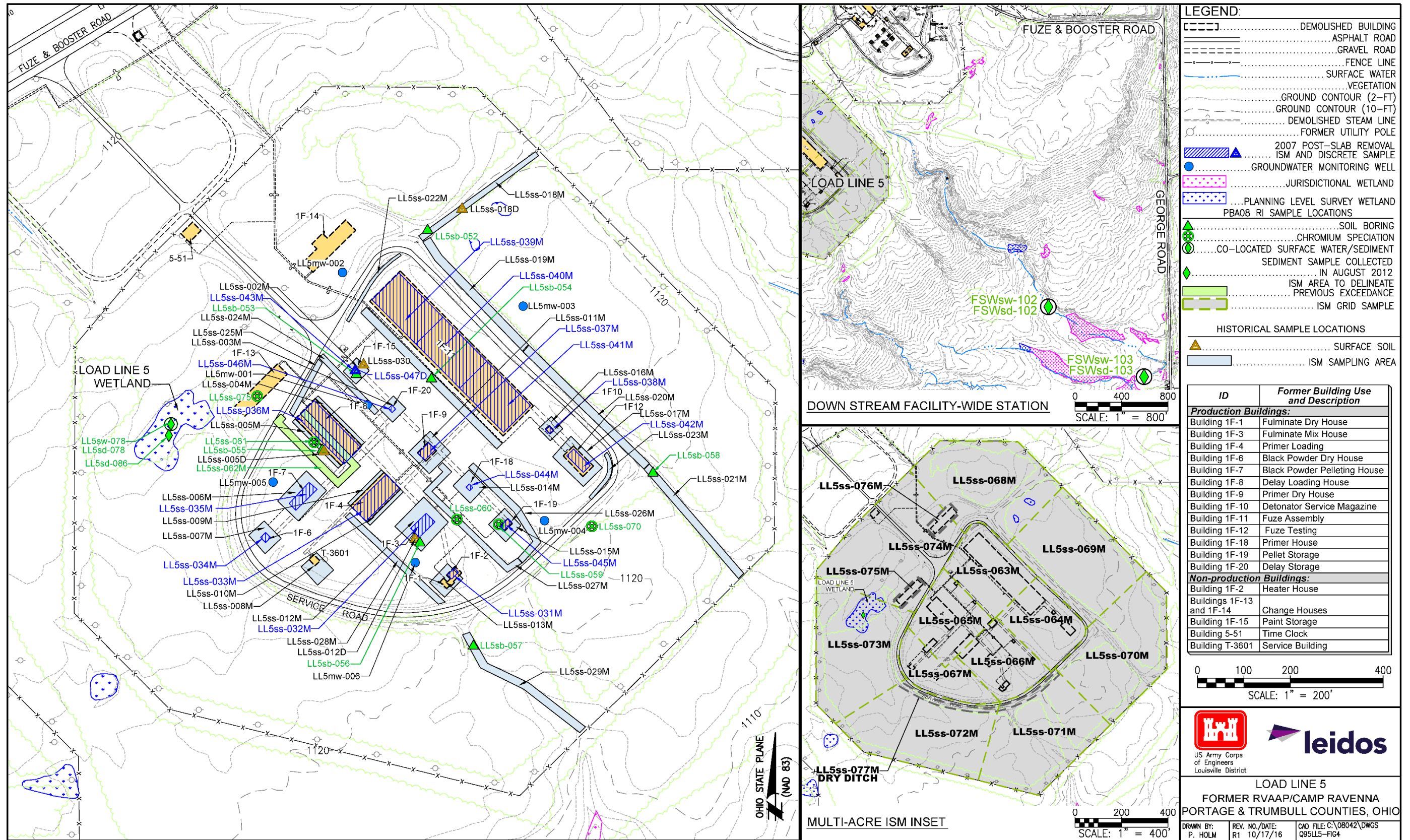
ID	Former Building Use and Description
<b>Production Buildings:</b>	
Building 1F-1	Fulminate Dry House
Building 1F-3	Fulminate Mix House
Building 1F-4	Primer Loading
Building 1F-6	Black Powder Dry House
Building 1F-7	Black Powder Pelleting House
Building 1F-8	Delay Loading House
Building 1F-9	Primer Dry House
Building 1F-10	Detonator Service Magazine
Building 1F-11	Fuze Assembly
Building 1F-12	Fuze Testing
Building 1F-18	Primer House
Building 1F-19	Pellet Storage
Building 1F-20	Delay Storage
<b>Non-production Buildings:</b>	
Building 1F-2	Heater House
Buildings 1F-13 and 1F-14	Change Houses
Building 1F-15	Paint Storage
Building 5-51	Time Clock
Building T-3601	Service Building



**LOAD LINE 5**  
**FORMER RVAAP/CAMP RAVENNA**  
**PORTAGE & TRUMBULL COUNTIES, OHIO**

DRAWN BY: P. HOLM    REV. NO./DATE: REV. 0/8/11/16    CAD FILE: C:\08042\DWGS\085LL5-FIG3

Figure 3. Load Line 5 Site Features



**LEGEND:**

- [---]..... DEMOLISHED BUILDING
- ..... ASPHALT ROAD
- ..... GRAVEL ROAD
- ..... FENCE LINE
- ..... SURFACE WATER
- ..... VEGETATION
- ..... GROUND CONTOUR (2-FT)
- ..... GROUND CONTOUR (10-FT)
- ..... DEMOLISHED STEAM LINE
- ..... FORMER UTILITY POLE
- [Blue Triangle] 2007 POST-SLAB REMOVAL ISM AND DISCRETE SAMPLE
- [Blue Circle] GROUNDWATER MONITORING WELL
- [Pink Dotted] JURISDICTIONAL WETLAND
- [Blue Dotted] PLANNING LEVEL SURVEY WETLAND
- [Green Dotted] PBA08 RI SAMPLE LOCATIONS
- [Green Triangle] SOIL BORING
- [Green Circle] CHROMIUM SPECIATION
- [Green Square] CO-LOCATED SURFACE WATER/SEDIMENT SEDIMENT SAMPLE COLLECTED
- [Green Diamond] IN AUGUST 2012
- [Green Outline] ISM AREA TO DELINEATE PREVIOUS EXCEEDANCE
- [Green Dotted] ISM GRID SAMPLE

**HISTORICAL SAMPLE LOCATIONS**

- [Yellow Triangle] SURFACE SOIL
- [Blue Outline] ISM SAMPLING AREA

ID	Former Building Use and Description
<b>Production Buildings:</b>	
Building 1F-1	Fulminate Dry House
Building 1F-3	Fulminate Mix House
Building 1F-4	Primer Loading
Building 1F-6	Black Powder Dry House
Building 1F-7	Black Powder Pelleting House
Building 1F-8	Delay Loading House
Building 1F-9	Primer Dry House
Building 1F-10	Detonator Service Magazine
Building 1F-11	Fuze Assembly
Building 1F-12	Fuze Testing
Building 1F-18	Primer House
Building 1F-19	Pellet Storage
Building 1F-20	Delay Storage
<b>Non-production Buildings:</b>	
Building 1F-2	Heater House
Buildings 1F-13 and 1F-14	Change Houses
Building 1F-15	Paint Storage
Building 5-51	Time Clock
Building T-3601	Service Building

Figure 4. Load Line 5 Sample Locations