

Revised Final

**Proposed Plan
for Soil, Sediment, and Surface Water
at RVAAP-40 Load Line 7**

**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
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March 16, 2018

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14. ABSTRACT This Proposed Plan for Load Line 7 presents to the public the physical characteristics, geology, and hydrogeology of Load Line 7. 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.						
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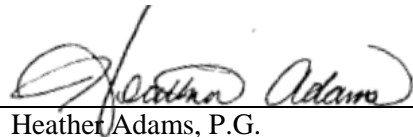
Leidos has completed the Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7 at the Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. Notice is hereby given that an independent technical review has been conducted that is appropriate to the level of risk 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

3/16/2018

Date



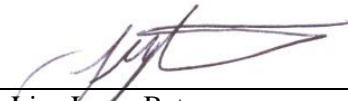
Heather Adams, P.G.
Independent Technical Review Team Leader

3/16/2018

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

3/16/2018

Date



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



April 16, 2018

Mr. Mark Leeper
Team Lead
Cleanup and Restoration Branch
ARNG Directorate
111 South George Mason
Arlington, VA 22204

Re: **US Army Ravenna Ammunition Plt RVAAP
Remediation Response
Project records
Remedial Response
Portage County
267000859118**

Subject: Concurrence of Revised Final Proposed Plan for Soil, Sediment, and Surface Water at Load Line 7 for the Former Ravenna Army Ammunition Plant (RVAAP) Document (Work Activity No. 267000859118)

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the Revised Final Proposed Plan (PP) for Soil, Sediment and Surface Water at RVAAP-40 Load Line 7. The document is dated March 16, 2018 and was received at Ohio EPA, Northeast District Office (NEDO) on March 16, 2018. This Revised Final PP supersedes the Final PP dated March 22, 2017. This letter serves to document Ohio EPA's concurrence regarding the proposal of no further action (NFA) to attain Unrestricted (Residential) Land Use for the RVAAP Load Line 7 site as contained in the Revised Final PP.

Based on the information contained in the Revised Final PP document, other investigation documents/reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA concurs with the Revised Final PP document for the RVAAP Load Line 7 for NFA. As stated in the Revised 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 7.

If you have any questions concerning the above, please feel free to contact Megan Oravec at (330) 963-1168.

Sincerely,

Michael Proffitt, Chief
Division of Environmental Response and Revitalization

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Portage and Trumbull Counties, Ohio

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Prepared for:
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8866 Commons Boulevard, Suite 201
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March 16, 2018

DOCUMENT DISTRIBUTION
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at RVAAP-40 Load Line 7
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Portage and Trumbull Counties, Ohio

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ARNG = Army National Guard.

CO = Central Office.

DERR = Division of Environmental Response and Revitalization.

IED = Installation and Environment Division.

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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LIST OF ACRONYMS

amsl	Above Mean Sea Level
AOC	Area of Concern
Army	U.S. Department of the Army
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMCOC	Contaminant Migration Chemical of Concern
COC	Chemical of Concern
COPEC	Chemical of Potential Ecological Concern
ERA	Ecological Risk Assessment
FS	Feasibility Study
FWCUG	Facility-wide Cleanup Goal
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
Ohio EPA	Ohio Environmental Protection Agency
PAH	Polycyclic Aromatic Hydrocarbon
PBA08	2008 Performance-based Acquisition
PP	Proposed Plan
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
RSL	Regional Screening Level
RVAAP	Ravenna Army Ammunition Plant
TNT	2,4,6-Trinitrotoluene
TR	Target Risk
USEPA	U.S. Environmental Protection Agency

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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 7 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, abbreviated as Camp Ravenna, and is located in Portage and Trumbull counties, Ohio (Figure 1). Load Line 7 is designated as AOC RVAAP-40.

1.1 Public Participation

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 necessary information to comment on selecting an appropriate response action for Load Line 7. The remedy will be selected after all comments submitted during the 30-day public comment period are considered. Therefore, the public is encouraged to review the conclusion 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). Selecting and implementing a remedy will be consistent with the requirements of the Ohio EPA *Director's Final Findings and Orders*, dated June 10, 2004.

The Army encourages the public to review the background documents to gain a more comprehensive understanding of the AOC, activities that have been conducted to date, and the rationale for the conclusion.

Public Comment Period:

June 6, 2018 to July 6, 2018

Public Meeting:

The Army will hold an open house and public meeting to present the conclusions and additional details presented in the *Remedial Investigation/Feasibility Study Report for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7* (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 21, 2018, 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:

9AM-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
(614) 336-6136

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

1.2 Significant Change to Preferred Alternative

This Revised Final PP supersedes the Final PP dated March 22, 2017. This PP summarizes information that can be found in the *Remedial Investigation/Feasibility Study Report for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7* (herein referred to as the Load Line 7 RI/FS Report; USACE 2016) and other documents contained in the Administrative Record file for Load Line 7.

The Load Line 7 RI/FS Report (USACE 2016) identified benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene as surface soil chemicals of concern (COCs) to be carried forward for potential remediation at sample locations LL7ss-097M and LL7ss-098M for Unrestricted (Residential) Land Use. The Load Line 7 RI/FS Report recommended Alternative 4: Ex-situ Thermal Treatment-Attain Unrestricted (Residential) Land Use to address contamination at the AOC.

The Load Line 7 RI/FS Report was issued in July 2016 and approved by Ohio EPA in August 2016. Since that time, the U.S. Environmental Protection Agency (USEPA) updated the cancer slope factors for carcinogenic polycyclic aromatic hydrocarbons (PAHs) using more recent toxicity studies. These updated factors, which resulted in higher regional screening levels (RSLs) for previously identified PAH COCs, are utilized in the June 2017 USEPA RSLs. As presented in Section 6.1 of this PP, Human Health Risk Assessment, the human health risk was reassessed using the June 2017 USEPA RSLs.

This PP provides rationale for the no further action preferred alternative at Load Line 7. This is considered a significant change in accordance with the *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (USEPA 1999), as it impacts the scope, performance, and cost from what was recommended in the Load Line 7 RI/FS Report. Accordingly, the Army is

documenting the significant change in this PP to ensure the public is afforded the opportunity to review and comment on the no further action preferred remedy prior to selection of the remedy in the Record of Decision.

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 7 DESCRIPTION AND BACKGROUND

3.1 Site Description

Load Line 7, formerly known as Booster Line #1, is a 37-acre fenced AOC located on the west side of Fuze and Booster Spur Road, south of Load Line 11, and northeast of Water Works #4 in the south-central portion of Camp Ravenna (Figure 2). Remaining features at Load Line 7 include a one-lane asphalt road that enters the AOC from the south and runs along the east and north sides of the locations of the former production buildings. The buildings at Load Line 7 were demolished and removed in 2006. Three access roads lead from the road to the western production areas. The Load Line 7 perimeter fence is still in place, but it is not currently maintained. Small

constructed drainage ditches border the access road. Load Line 7 is currently overgrown with grass, trees, and scrub vegetation

Topographic relief at the AOC is moderate, with a topographic high on the western boundary of the AOC that slopes downward to the topographic low in the northeastern boundary of the AOC. Ground elevations within Load Line 7 range from approximately 1,110–1,146 ft above mean sea level (amsl) (Figure 3).

Surface water drainage generally follows the topography of Load Line 7 and drains toward the east. However, surface water at Load Line 7 occurs intermittently as storm water runoff within constructed or natural drainage ditches or conveyances throughout the AOC. These ditches contain water for short periods only during precipitation or periods of snow melt. The ditches ultimately flow towards Sand Creek, which is located 1,775 ft east of the AOC.

There are no wetlands present within the Load Line 7 AOC; however, a planning-level survey has identified five wetland areas within 400 ft of the AOC boundary.

Silty clay tills with trace gravel followed by fine-grained sand overlie the sandstone bedrock at Load Line 7, except where disturbed by RVAAP activities. The top of bedrock (Homewood sandstone) was encountered in soil borings drilled at Load Line 7 at depths ranging from 3.5–13 ft below ground surface (bgs). Groundwater was encountered from 11–19 ft bgs and groundwater elevations ranged from 1,108.36–1,113.39 ft amsl, flowing east towards Sand Creek. The average hydraulic gradient at the AOC is 0.00834 ft/ft.

3.2 Background

From 1941–1945, Load Line 7 and Load Line 8 operated at full capacity to produce booster charges for artillery projectiles. The Installation Assessment (USATHAMA 1978) indicated 44,297,485 miscellaneous boosters

were produced. At the end of World War II, Load Line 7 was deactivated, and the process equipment was removed.

In 1968, Load Line 7 was modified to produce M-406 High Explosive and M-407A1 practice 40mm projectiles. Load Line 7 was reactivated from 1969–1970. During this time, 16,000,000 40mm projectiles were assembled and produced at Load Line 7.

In 1970, Load Line 7 was again deactivated, and the process equipment was removed. No historical information exists to indicate Load Line 7 was used for any other processes other than what is presented above.

All buildings and structures have been demolished, and building slabs and footers have been removed. Soil near former production buildings was extensively disturbed during building demolition activities. The work areas were re-graded, cavities were filled with approved fill dirt as needed, and the area was vegetated in 2007 (USACE 2016).

3.3 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 (RDX)]; sulfates; nitrates; lead styphnate; and lead azide (USATHAMA 1978).

Potential contaminants at Load Line 7 include explosives and inorganic chemicals (e.g., metals). Other potential contaminants at Load Line 7 include volatile organic compounds from former Building 1B-22 that was utilized for solvent storage, polychlorinated biphenyls from on-site transformers, and PAHs from former Buildings 1B-23 and 1B-24 that were used as heater houses. There is no evidence that bulk handling of the primary explosives took place within the boundaries of Load Line 7.

4.0 REMEDIAL INVESTIGATIONS

The AOC characteristics, nature and extent of contamination, and conceptual site model are based on investigations conducted from 1978–2011.

The following environmental investigations have been conducted at Load Line 7:

- Installation Assessment (USATHAMA 1978);
- Resource Conservation and Recovery Act Facility Assessment (Jacobs 1989);
- Preliminary Assessment (USACE 1996);
- Relative Risk Site Evaluation (USACHPPM 1998);
- Characterization of 14 AOCs (MKM 2007);
- Investigation of the Under Slab Surface Soil (USACE 2009); and
- 2008 Performance-based Acquisition (PBA08) RI, as summarized in the *Remedial Investigation/Feasibility Study Report for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7* (USACE 2016).

4.1 Surface and Subsurface Soil

The results of the 2004 Characterization of 14 AOCs (MKM 2007), 2007 Investigation of the Under Slab Surface Soil (USACE 2009), and 2010 and 2011 PBA08 RI (USACE 2016) were used to evaluate 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. Figure 4 shows the sample locations included in the RI.

Ohio EPA identifies a target risk (TR) of 1E-05 for carcinogens and an acceptable hazard quotient (HQ) of 1 for non-carcinogens. The evaluation summarized below was performed to assess which chemicals exceeded the Resident Receptor facility-wide cleanup goal (FWCUG) at a TR of 1E-05, HQ of 1, and to establish which chemicals in surface soil (0–1

ft bgs) and subsurface soil (greater than 1 ft bgs) were above their respective background concentrations.

- All explosive, propellant, volatile organic compound, polychlorinated biphenyl, and pesticide concentrations were below a Resident Receptor FWCUG at a TR of 1E-05, HQ of 1.
- PAHs were the only semi-volatile organic compounds found to exceed the Resident Receptor FWCUG at a TR of 1E-05, HQ of 1. Five surface soil locations (LL7ss-005M, LL7ss-013M, LL7ss-043M, LL7ss-073M, and LL7ss-074M) had PAH concentrations above the Resident Receptor FWCUG at a TR of 1E-05, HQ of 1 during the 2004, 2007, and 2010 sampling events.
 - At three of these locations (LL7ss-005M, LL7ss-043M, and LL7ss-073M), benzo(a)pyrene was the only compound that exceeded the Resident Receptor FWCUG at a TR of 1E-05, HQ of 1 (0.221 mg/kg) with a maximum concentration of 0.48 mg/kg. These sample locations did not require further evaluation due to the low concentrations and the fact that these samples were collected adjacent to asphalt and slag/gravel roads where parking was common.
 - Soil sample locations LL7ss-013M and LL7ss-074M were further evaluated, as discussed in Section 6.1.
- Two subsurface soil locations (LL7sb-061 and LL7sb-069) had PAH concentrations above the Resident Receptor FWCUG at a TR of 1E-05, HQ of 1 during the 2010 sampling event in the 1–4 ft bgs layer. The maximum benzo(a)pyrene concentration was 2 mg/kg at LL7sb-061. However, soil borings had benzo(a)pyrene concentrations below the Resident Receptor FWCUG at a TR of 1E-05, HQ of 1 in the upper interval (0–1 ft bgs) and lower interval (4–7 ft bgs). The exposure point concentrations for most of the PAHs are below the Resident Receptor FWCUG, and PAHs at these locations were determined not to require remediation to address risk.

- Arsenic and manganese were the only metals that had concentrations that exceeded a TR of 1E-05, HQ of 1 and background concentrations. However, arsenic was not identified as a COC in the HHRA based on the one surface soil exceedance with a concentration of 16 mg/kg only being slightly above the established background concentration (15.4 mg/kg). Two subsurface exceedances had maximum subsurface soil concentrations of 27 mg/kg only slightly above the established background concentration (19.8 mg/kg). Additionally, manganese was only detected above its background concentration once at 1,600 mg/kg, which is only slightly above the established background concentration (1,450 mg/kg). Therefore, manganese was not identified as a COC in the HHRA.

4.2 Sediment and Surface Water

Sediment and surface water were not evaluated during the RI at Load Line 7, as surface water is not a permanent feature at the AOC.

4.3 Impacts to Groundwater

The potential for soil and sediment contaminants to impact groundwater was evaluated in the fate and transport evaluation presented in the Load Line 7 RI/FS Report (USACE 2016). This evaluation included modeling and compared 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 7 to the closest downgradient surface water features (tributary to Sand Creek).

Modeling results indicated that one inorganic chemical, one semi-volatile organic compound, and five explosives in soil were contaminant migration chemicals of concern (CMCOCs). Four CMCOCs (silver, TNT, 3-nitrotoluene, and naphthalene) could potentially leach from soil or sediment and mix

with groundwater beneath Load Line 7, resulting in concentrations above maximum contaminant levels, USEPA RSLs, and RVAAP groundwater FWCUGs. The results also indicated that three CMCOCs (2,6-dinitrotoluene; nitroglycerin; and RDX) could potentially exceed screening criteria at the downgradient receptor location.

Evaluation of modeling results with respect to current AOC groundwater data and model limitations indicates that identified soil site-related contaminants are not currently impacting groundwater beneath the source areas or the downgradient receptor, 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 soil or sediment CMCOCs were identified as impacting groundwater or the downgradient receptor. Groundwater will be further evaluated under the Facility-wide Groundwater Monitoring Program.

5.0 SCOPE AND ROLE OF RESPONSE ACTION

Resident Receptor (Adult and Child) FWCUGs were used to evaluate Unrestricted (Residential) Land Use, which is considered protective for all other Land Uses at Camp Ravenna (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 associated with Load Line 7 will assess and, if needed, address CERCLA risk and contamination identified in the HHRA or ERA such that the site can 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 7 must also be protective of groundwater.

6.0 SUMMARY OF HUMAN AND ECOLOGICAL RISKS

6.1 Human Health Risk Assessment

Using information presented in Section 4.0, an HHRA was performed in the Load Line 7 RI/FS Report to identify COCs and provide a risk management evaluation to determine if remediation is required under CERCLA based on potential risks to human receptors. In addition, as indicated in Section 1.0, this PP includes an additional assessment of previously identified PAH COCs using the USEPA Resident Soil RSLs updated in June 2017.

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). The HHRA in the Load Line 7 RI/FS Report identified four PAH COCs in surface soil (0–1 ft bgs): benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene based on exceedances of Resident Receptor FWCUG at a TR of 1E-05, HQ of 1. As shown on Figure 5, locations LL7ss-005M, LL7ss-013M, LL7ss-043M, LLss-073M, and LL7ss-074M had an exceedance of at least one Resident Receptor FWCUG in surface soil.

The area associated with sample locations LL7ss-013M and LL7ss-074M was re-evaluated as part of the April 2011 sampling event using a subset of six incremental sampling methodology samples ranging in size from 0.02–0.11 acres to further refine the area of contamination. The six sample locations were LL7ss-096M to LL7ss-101M and are presented in Figure 6.

The results of this new sampling event were discussed in the Load Line 7 RI/FS Report. However, since the finalization of this report, USEPA updated the cancer slope factors for the carcinogenic PAHs using more recent toxicity studies. These updated values are utilized in the June 2017 USEPA RSLs. The Resident Receptor FWCUG and the USEPA Resident Soil RSLs at a TR of 1E-05 for the

PAH COCs, updated in June 2017, are presented in Table 1.

The six locations sampled in April 2011 (LL7ss-096M to LL7ss-101M) and the COC concentrations are presented in Table 1 and on Figure 6. The following discusses the April 2011 sample results and compares concentrations to the 2017 USEPA Residential Soil RSLs:

- The concentration of benzo(a)pyrene at sample location LL7ss-096M (1.3 mg/kg) slightly exceeded the 2017 Residential RSL of 1.1 mg/kg. This exceedance is attributed to the adjacent asphalt driveway.
- The concentration of benzo(a)pyrene at sample location LL7ss-097M (1.4 mg/kg) slightly exceeded the 2017 Residential RSL of 1.1 mg/kg. This 0.06-acre sample is surrounded by sample locations LL7ss-098, LL7ss-099, and LL7ss-100 (which represent a combined 0.26 acres). Concentrations in these three samples range from 0.059–0.47 mg/kg.
- The concentrations of all other PAH COCs collected from the delineation samples were below the 2017 Residential RSLs.

Evaluation of PAH concentrations associated with common anthropogenic sources indicates the concentrations at Load Line 7 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 updated HHRA, including comparison to the current USEPA Resident RSLs within this PP, does not identify COCs requiring remediation under CERCLA to be protective of the Resident Receptor (Adult and Child).

Table 1. USEPA RSLs (June 2017) for PAH COCs

Chemical of Concern	Concentrations (mg/kg)							
	Screening Levels		April 2011 Sample Results					
	Resident FWCUG at TR of 1E-05	Resident Soil RSL at TR of 1E-05 (June 2017)	LL7ss-096M	LL7ss-097M	LL7ss-098M	LL7ss-099M	LL7ss-100M	LL7ss-101M
Benz(a)anthracene	2.21	11	1.6	1.8	0.58	0.14	0.072	0.33
Benzo(a)pyrene	0.221	1.1	1.3	1.4	0.47	0.12	0.059	0.28
Benzo(b)fluoranthene	2.21	11	1.5	1.6	0.6	0.14	0.083	0.34
Dibenz(a,h)anthracene	0.221	1.1	0.17	0.23	0.071	0.018	0.0076	0.032

mg/kg = Milligrams per kilogram.

RSL = Regional Screening Level.

TR = Target Risk.

USEPA = U.S. Environmental Protection Agency.

6.2 Ecological Risk Assessment

The ecological habitat at Load Line 7 consists of 36.7 acres of herbaceous field (grasses) surrounded by dry shrubland to the west, north, and east and further surrounded by red maple forest to the west and north. A seasonally flooded pin-oak/swamp white oak forest alliance within the eastern boundary of Load Line 7 is limited in extent. There is no aquatic habitat; intermittent surface water flows in small drainage ditches bordering the roads and features within the AOC.

The terrestrial vegetation provides a habitat for birds, mammals, insects, and other organisms. 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 7 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 Level I Scoping ERA presents important ecological resources on or near the AOC and evaluates whether chemical contamination is present in the environment. Ecological resources at Load Line 7 were compared to the list of important ecological places and resources (USACE 2016). Based on the 39 criteria defining important places and resources as identified by the Army and Ohio

EPA, no important ecological resources were identified at Load Line 7. The ERA incorporates available data to identify integrated chemicals of potential ecological concern (COPECs). There is chemical contamination present in soil. This contamination was identified using historical and PBA08 RI data.

The Level I ERA concluded that there are no important ecological resources present near contamination at Load Line 7. Per the *Guidance for Conducting Ecological Risk Assessments* (Ohio EPA 2008), the ERA was completed. No further action is recommended to be protective from an ecological perspective at Load Line 7.

7.0 CONCLUSIONS

Based on the investigation results, Load Line 7 has been adequately characterized and the nature and extent of the contamination has been defined. The ERA concluded that there are no important or ecologically significant resources at the AOC; consequently, no further action is recommended from the ecological risk perspective. The fate and transport assessment concluded that chemicals in soil are not adversely impacting groundwater quality and are not predicted to have future impacts. The groundwater will be further evaluated under the Facility-wide Groundwater Monitoring Plan.

As explained in Section 6.1, human health risk was reassessed using the June 2017 USEPA RSLs. This reassessment concluded that no further action is required to protect human health. 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 7. This recommendation is considered a significant change from the recommendation presented in the Load Line 7 RI/FS Report.

This recommendation is not a final decision. The Army, in coordination with Ohio EPA, will select the remedy for Load Line 7 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 remedy.

The comment period extends from June 6, 2018 to July 6, 2018. This period includes a public meeting at which the Army will present this PP and accept oral and written comments.

8.2 Public Comment Period

The 30-day comment period is from June 6, 2018 to July 6, 2018, 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.

The Army and Ohio EPA will consider all public comments before selecting a remedy. During the comment period, the public is encouraged to review documents pertinent to Load Line 7.

This information is available at the Information Repository and online at www.rvaap.org. To obtain further information,

contact Kathryn Tait of the Camp Ravenna Environmental Office at 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 6, 2018).

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

8.4 Public Meeting

The Army will hold an open house and public meeting on this PP on June 21, 2018, at 6:00 PM, 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.

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 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.

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:

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

Online

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

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
(614) 336-6136

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

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 (AOC) 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 AOC that potentially poses significant human health or ecological risks. COCs are typically further evaluated for remedial action.

Chemical of Potential Ecological Concern (COPEC): a chemical substance specific to an AOC 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 Ravenna Army Ammunition Plant (RVAAP).

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 signed legal record 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): a 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 Proposed Plan.

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.

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

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

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MKM (MKM Engineers, Inc.) 2007. *Characterization of 14 AOCs at the Ravenna Army Ammunition Plant at Ravenna Army Ammunition Plant*. March 2007.

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

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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 -LL 8, and RVAAP-43 Load Line 10 at Ravenna Army Ammunition Plant, Ravenna, Ohio*. January 2009.

USACE 2016. *Remedial Investigation/Feasibility Study Report for Soil, Sediment, and Surface Water at RVAAP-40 Load Line 7, Former Ravenna Army Ammunition Plant Portage and Trumbull Counties, Ohio*. July 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.

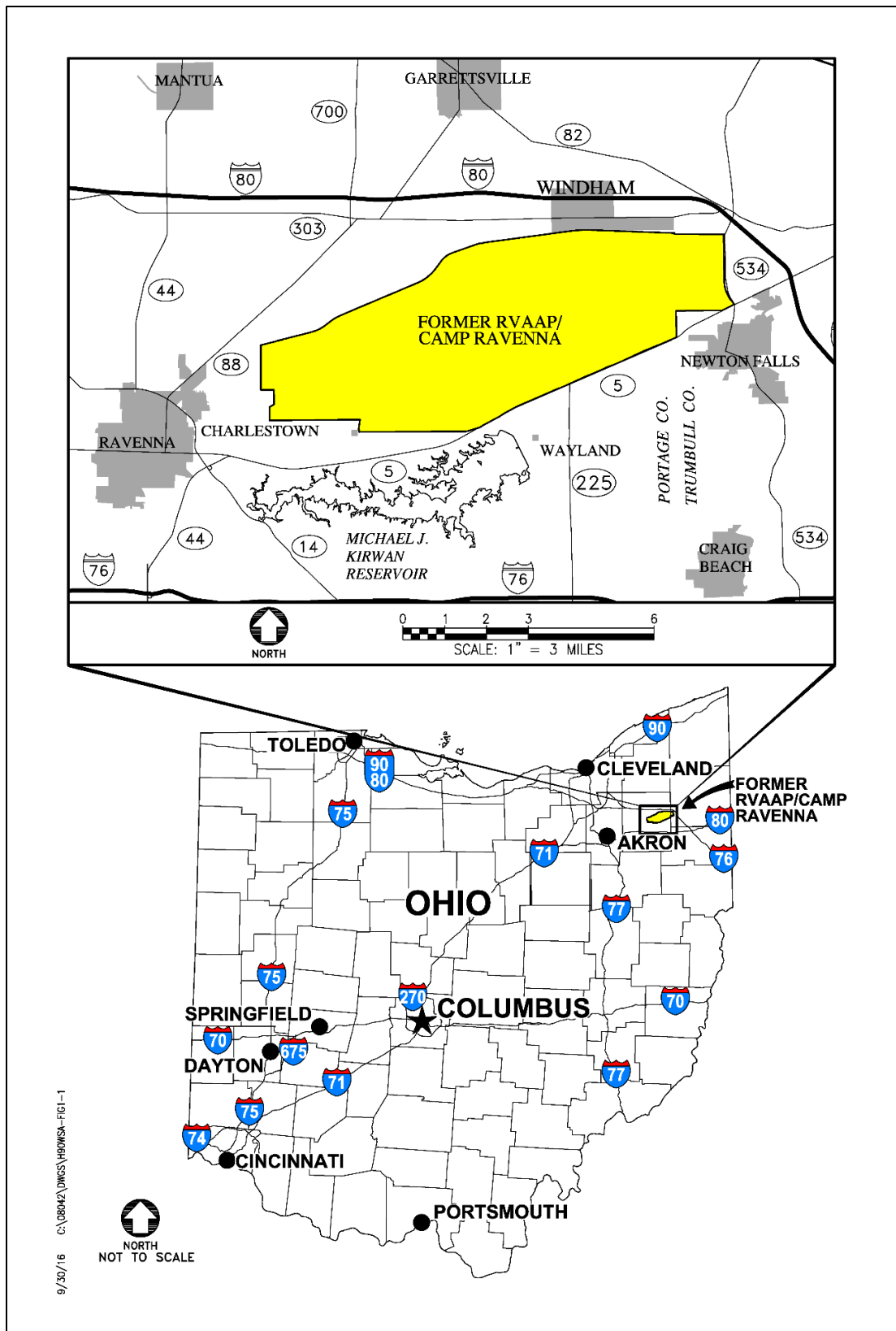
USATHAMA (U.S. Army Toxic and Hazardous Materials Agency) 1978. *Installation Assessment of Ravenna Army Ammunition Plant*, Records Evaluation Report No. 132. November 1978.

USEPA (U.S. Environmental Protection Agency). 1999. *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*. July 1999.

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FIGURES

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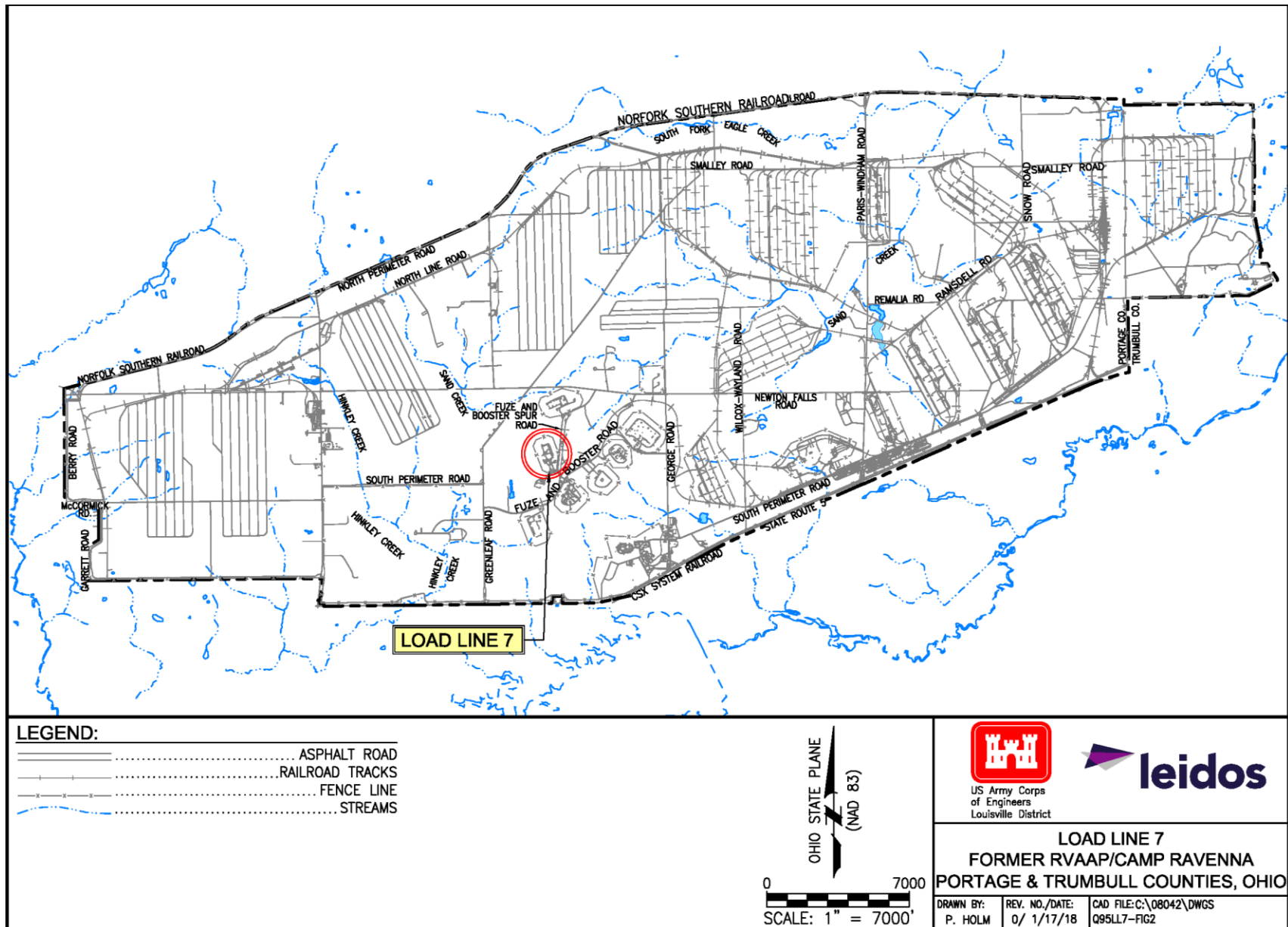


Figure 2. Location of Load Line 7 at Camp Ravenna

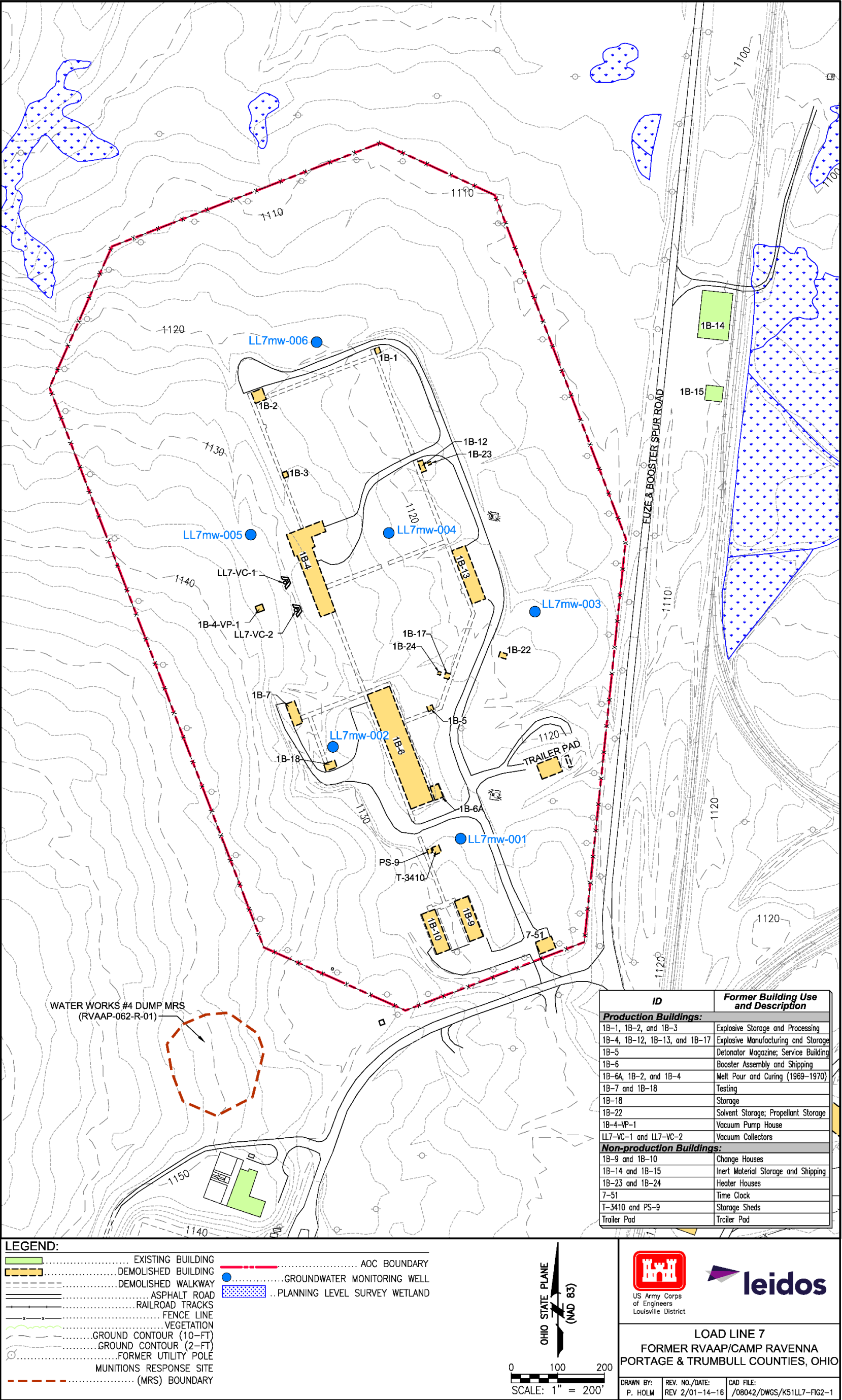


Figure 3. Load Line 7 Site Features

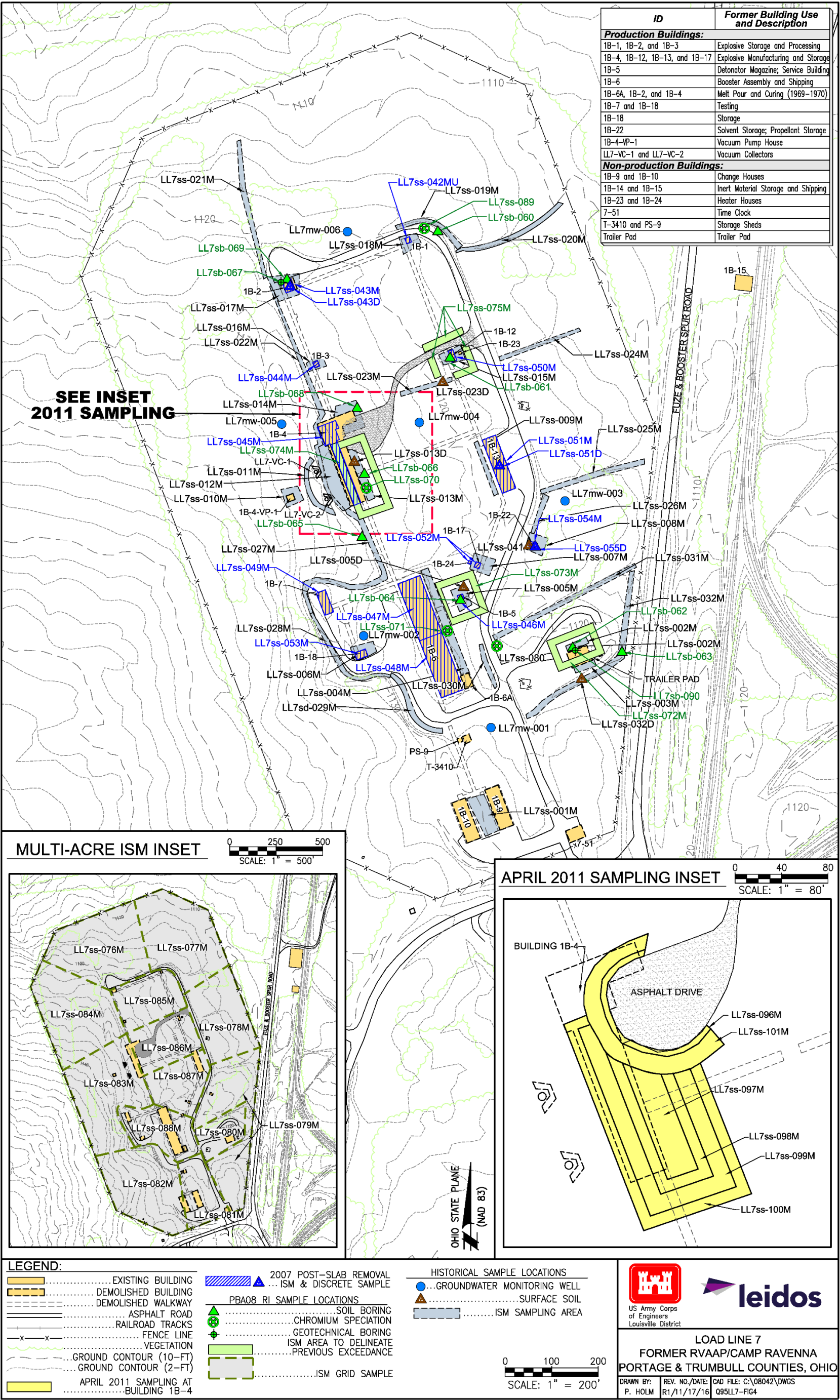


Figure 4. Load Line 7 Sample Locations

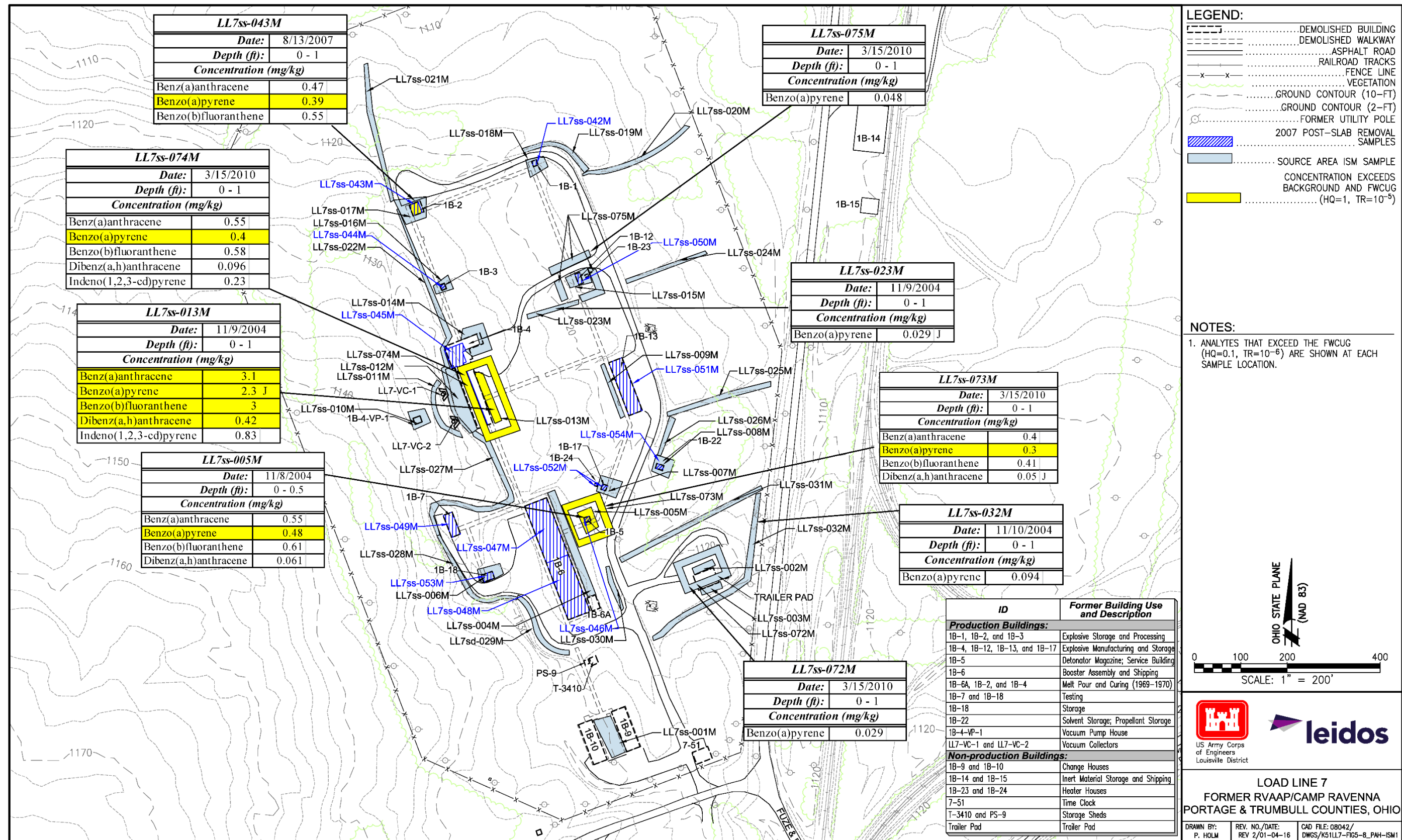


Figure 5. PAH Exceedances of FWCUG in Surface Soil (Source Area ISM Samples)

