Draft

Proposed Plan
for Soil, Sediment, and Surface Water
at RVAAP-44 Load Line 11

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

Leidos
8866 Commons Boulevard, Suite 201
Twinsburg, Ohio 44087

January 13, 2017

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None.

14. ABSTRACT

This Proposed Plan for Load Line 11 presents to the public the physical characteristics, geology, and hydrogeology of Load Line 11. 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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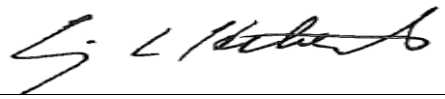
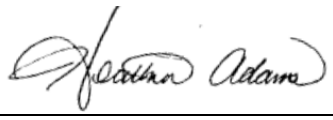
CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

Leidos has completed the Draft Proposed Plan for Soil, Sediment, and Surface Water at RVAAP-44 Load Line 11 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.



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

1/13/2017
Date



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

1/13/2017
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

1/13/2017
Date

PLACEHOLDER FOR:

Documentation of Ohio EPA Concurrence of Final Document

(Documentation to be provided once concurrence is issued.)

Draft

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ARNG = Army National Guard.
CO = Central Office.
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ILE = Installation, Logistics, and Environment.
OHARNG = Ohio Army National Guard.
NEDO = Northeast District Office.
REIMS = Ravenna Environmental Information Management System.
USACE = U.S. Army Corps of Engineers.

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LIST OF ACRONYMS

amsl	Above Mean Sea Level
AOC	Area of Concern
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMCOPC	Contaminant Migration Chemical of Potential Concern
COC	Chemical of Concern
COPEC	Chemical of Potential Ecological Concern
ERA	Ecological Risk Assessment
FWCUG	Facility-wide Cleanup Goal
FWGWMP	Facility-wide Groundwater Monitoring Program
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
IRA	Interim Removal Action
Ohio EPA	Ohio Environmental Protection Agency
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
RVAAP	Ravenna Army Ammunition Plant
SVOC	Semi-volatile Organic Compound
TNT	2,4,6-Trinitrotoluene
U.S. Army	U.S. Department of the Army
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 Load Line 11 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 11 is designated as AOC RVAAP-44. 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. The remedy will be selected for Load Line 11 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). 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.

This PP summarizes information that can be found in detail in the *Phase II Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-44, Load Line 11* (USACE 2016) and other documents contained in the Administrative Record file for Load Line 11.

In 2001, an Interim Removal Action (IRA) was completed at Load Line 11 as an early response to remove contamination at the site. The IRA included removing sump water from production buildings, grouting selected sanitary sewer manholes, performing limited excavations from open ditch systems that drain the AOC, and removing petroleum-contaminated soil (MKM 2004). A total of 230 yd^3 of contaminated soil

Public Comment Period:
Month DD, YYYY to Month DD, YYYY

Public Meeting:
The Army will hold an open house and public meeting to present the conclusions and additional details presented in the *Phase II Remedial Investigation Report for Soil, Sediment, and Surface Water at RVAAP-44 Load Line 11* (USACE 2016). 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 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.

were removed during the ditch excavation operations, and 130 yd^3 of petroleum-contaminated soil was removed from the 4-8 ft below ground surface (bgs) interval of a 30 by 30 by 8 ft hotspot area located in an open field north of Building AP-17.

Considering an IRA was previously conducted to remove contamination from the site and using information from investigations to assess the current site conditions, the Army's preferred alternative at Load Line 11 is no further action for soil, sediment, and surface water. The Army 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 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 11 DESCRIPTION AND BACKGROUND

3.1 Site Description

Load Line 11, formerly known as Booster Line #1, is an approximately 48-acre fenced AOC located immediately north and west of Fuze and Booster Spur Road and south of Newton Falls Road, in the south-central portion of Camp Ravenna (Figure 2). Remaining features at Load Line 11 include a one-lane asphalt perimeter road that enters the AOC from the south and encircles 75% of the former production area and an asphalt parking area located near former Building AP-11. The Load Line 11 perimeter fence is still in place, but it is not currently maintained. Small construction drainage ditches border the access road.

Load Line 11 is currently overgrown with grass, trees, and scrub vegetation with some forest along the western, northern, and eastern boundaries of the AOC. Topography at Load Line 11 generally slopes towards the north-northwest. Ground surface elevations across Load Line 11 range from approximately 1,070–1,100 ft above mean sea level (amsl) (Figure 3).

Surface water drainage generally follows the topography of Load Line 11. The primary drainage routes for surface water are the East Ditch that flows north and the West Ditch that flows west-northwest. The ditches ultimately flow towards Sand Creek, which is located immediately north of the AOC.

Two small wetlands are located within Load Line 11. According to the Load Line 11 Remedial Investigation (RI) Report (USACE 2016), the larger of the two wetlands is 0.24 acres and is located within one of the drainage ditches that borders the western portion of the AOC. Approximately 0.13 acres of the wetland is located within the AOC. The second wetland is 0.02 acres and is located near the center of the AOC. The closest perennial feature to receive the majority of the surface drainage from Load Line 11 is Sand Creek, which is located immediately north of the AOC.

Clay to sand-rich silt glacial tills with interbedded sands and gravel lenses overlie the sandstone bedrock at Loan Line 11, except where disturbed by RVAAP activities. Bedrock has not been encountered during historical investigations at the site where borings extended to a maximum depth of 23 ft bgs.

Groundwater was encountered from 5–17 ft bgs and groundwater elevations ranged from 1,068.40–1,091.73 ft amsl, flowing north towards Sand Creek. The average hydraulic gradient at the AOC is 0.017 ft/ft (USACE 2016).

3.2 Background

From 1941–1945, Load Line 11 operated at full capacity to produce artillery primers. The Installation Assessment (USATHAMA 1978) indicated 50,660,725 primers were produced. From 1951–1957, Load Line 11 was reactivated to produce primers. From 1969–1971, it was reactivated to produce MR ZA4 fuzes.

Load Line 11 was deactivated, and all process equipment was removed in 1971. No historical information exists to indicate Load Line 11 was used for any other processes other than what is presented above.

In 2001, an IRA was completed at Load Line 11. The IRA was initiated following the Phase I RI activities as an early response action to remove the primary pathways for off-AOC contaminant migration. The IRA included removing sump water from production buildings, grouting selected sanitary sewer manholes, performing limited excavations from open ditch systems draining the AOC, and removing petroleum-contaminated soil (MKM 2004).

The buildings at Load Line 11, including building slabs and foundations, footers, and basements and the series of wood frame walkways connecting these buildings, were demolished and removed in 2001 and 2004–2005.

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 11 include explosives and inorganic chemicals (e.g., metals). Other potential contaminants at Load Line 11 include volatile organic compounds (VOCs) from former Building AP-17 utilized for solvent storage and polychlorinated biphenyls (PCBs) from on-site transformers. There is no evidence that bulk handling of the primary explosives took place within the boundaries of Load Line 11.

4.0 2001 INTERIM REMOVAL ACTION

In 2001, an IRA was conducted to remove sump water from production buildings, grout selected sanitary sewer manholes, perform limited excavations from open ditch systems draining the AOC, and remove petroleum-contaminated soil (MKM 2004). Figure 4 shows the removal locations conducted during the IRA, and the following summarizes these activities:

- Approximately 15,000 gal of water were removed from sumps and sewer manholes downgradient of each sump. The sewer manholes were filled with bentonite cement to prevent water from infiltrating back into the sumps during excavation and removal operations.
- Sumps located adjacent to Buildings AP-3, AP-5, AP-6, and AP-8 were excavated, removed, and disposed.
- A total of 230 yd^3 of contaminated soil were removed from six drainage ditch locations.
- A total of 130 yd^3 of petroleum-contaminated soil was removed from the 4-8 ft bgs interval of a 30 by 30 by 8 ft hotspot area located in an open field north of Building AP-17.

After removal, confirmation samples were collected; these samples verified attainment of project goals. The excavations were then backfilled and leveled to the original ground surface elevation.

5.0 REMEDIAL INVESTIGATIONS

The AOC characteristics, nature and extent of contamination, and conceptual site model are

based on investigations conducted from 1978–2010 and take into account information from the 2001 IRA. The following environmental investigations have been conducted at Load Line 11:

- Installation Assessment (USATHAMA 1978);
- Resource Conservation and Recovery Act Facility Assessment (Jacobs 1989);
- Preliminary Assessment (USACE 1996);
- Relative Risk Site Evaluation (USACHPPM 1996);
- IRA confirmation sampling (MKM 2004);
- Phase I RI (MKM 2005); and
- 2008 Performance-based Acquisition (PBA08) RI, as summarized in the *Phase II Remedial Investigation Report for Soil, Sediment, and Surface Water at the RVAAP-44 Load Line 11* (USACE 2016).

5.1 Surface and Subsurface Soil

In surface soil (0–1 ft bgs) and subsurface soil (greater than 1 ft bgs), the prevalent site-related contaminants and chemicals of potential concern were identified as discussed below.

Figure 4 shows the sample locations included in the RI. The results of the 2010 PBA08 RI sampling were combined with the results of the Phase I RI (MKM 2005) investigations 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, HQ of 1, and to establish which chemicals were above their respective background concentrations.

- All explosive, propellant, VOC, PCB, and pesticide concentrations were below a TR of 1E-05, HQ of 1, or their respective background concentrations in surface or subsurface soil, and only one semi-volatile organic compound (SVOCs) [benzo(a)pyrene] had four samples exceeding a TR of 1E-05, HQ of 1 in surface soil with a maximum detected concentration of 0.45 mg/kg at sample location LL11sb-060.
- Arsenic, barium, and manganese were the only metals that had concentrations that exceeded a TR of 1E-05, HQ of 1, and their respective background concentrations. However, these metals were not identified as chemicals of concern (COCs) in the HHRA based on comparing exposure point concentrations to facility-wide cleanup goals (FWCUGs) or their respective background concentrations.

5.2 Sediment and Surface Water

Sediment and surface water samples were collected from West Ditch and East Ditch aggregates to determine nature and extent and are summarized below:

- No explosives or propellants were detected in surface water in either aggregate. Only nitrocellulose was detected in one sediment sample from each aggregate, but concentrations were below a TR of 1E-05, HQ of 1; therefore, no explosives or propellants were identified as COCs in the HHRA.
- Arsenic was the only inorganic chemical detected at a concentration that exceeded a TR of 1E-05, HQ of 1, and its respective background concentration at one sediment location in the East Ditch aggregate. The arsenic concentration in this sample (19.7 mg/kg) was only slightly above the sediment background screening concentration of 19.5 mg/kg. No surface water detections of arsenic exceeded the TR of 1E-05, HQ of 1, or its respective background concentration.
- The SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene exceeded a TR of

1E-05, HQ of 1, and their respective background concentrations in surface water and sediment in one West Ditch surface water sample.

- No VOCs, pesticides, or PCBs were detected in sediment samples collected from either aggregate.
- The pesticide and PCB detections of beta-hexachlorocyclohexane and gamma-chlordane in surface water did not exceed the TR of 1E-05, HQ of 1, and their respective background concentrations. No VOCs were detected in surface water.

5.3 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 11 RI Report (USACE 2016). The fate and transport 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 11 to the closest downgradient surface water features (Sand Creek).

Modeling results indicated that six inorganic chemicals, four SVOCs, and one explosive in soil were contaminant migration chemicals of potential concern (CMCOPCs). CMCOPCs could potentially leach from soil or sediment and mix with groundwater beneath Load Line 11, resulting in concentrations above maximum contaminant levels, U.S. Environmental Protection Agency regional screening levels, and RVAAP groundwater FWCUGs. The results indicated that no chemicals were predicted to be above 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 contaminant migration COCs for soil or sediment were identified as impacting groundwater or the downgradient receptor. Groundwater will be further evaluated under the Facility-wide Groundwater Monitoring Program (FWGWMP).

6.0 SCOPE AND ROLE OF RESPONSE ACTION

Resident Receptor (Adult and Child) FWCUGs were used to evaluate Unrestricted (Residential) Land Use. Unrestricted (Residential) Land Use is considered protective for Land Uses 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 11 must also be protective of groundwater.

7.0 SUMMARY OF HUMAN AND ECOLOGICAL RISKS

7.1 Human Health Risk Assessment

Using information presented in Section 5.0, an HHRA was performed to identify COCs and provide a risk management evaluation to determine if remediation is required under CERCLA based on potential risks to human receptors.

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

While COCs were identified, such as benzo(a)pyrene, the evaluation in the Load Line 11 RI Report indicated that there were no COCs requiring remediation for any media of concern for the Resident Receptor. Therefore, the site is 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.

7.2 Ecological Risk Assessment

The ecological habitat at Load Line 11 consists of 48 acres of shrubland, herbaceous field (grasses), and forests. Aquatic resources, including two wetlands (0.15 acres), are present at Load Line 11. Intermittent surface water flows in small drainage ditches bordering the roads and within the AOC. 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. 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 11 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 the potential for current contamination to impact ecological resources. There is chemical contamination present in soil, sediment, and surface water at Load Line 11. This contamination was identified using historical and PBA08 RI data. Ecological resources at Load Line 11 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, the wetlands at the AOC were determined to be important and significant ecological resources. Because contamination is at or near the important ecological resources, these findings invoked a requirement of a Level II ERA. The Level II ERA incorporated available data to identify integrated chemicals of potential ecological concern (COPECs). A total of 20 integrated soil COPECs, 5 integrated sediment COPECs, and 5 integrated surface water COPECs were identified in the Level II ERA at Load Line 11.

The integrated soil, sediment, and surface water COPECs were further evaluated with technical and refinement factors agreed upon by the Army and Ohio EPA. The results concluded that there are no chemicals requiring remediation or further evaluation to be protective of the environment. Per Ohio EPA guidance, there was sufficient justification to recommend no further action to be protective of ecological receptors at Load Line 11.

8.0 CONCLUSIONS

In 2001, an IRA was completed at Load Line 11 as an early response to remove contamination at the site. The IRA included removing sump water from production buildings, grouting selected sanitary sewer manholes, performing limited excavations from open ditch systems draining the AOC, and removing a petroleum-contaminated hotspot (MKM 2004). A total of 230 yd^3 of contaminated soil were removed during the ditch excavation operations, and 130 yd^3 of petroleum-contaminated soil was removed from the 4-8 ft bgs interval of a 30 by 30 by 8 ft hotspot area located in an open field north of Building AP-17.

A further assessment considered current site conditions and available data (including confirmation samples collected during the IRA). The HHRA determined that no remediation is required to be protective for the Resident Receptors (Adult and Child). The ERA concluded that no chemicals require further evaluation to protect the environment. 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 11.

This recommendation is not a final decision. The Army, in coordination with Ohio EPA, will select the remedy for Load Line 11 after reviewing and considering all comments submitted during the 30-day public comment period.

9.0 COMMUNITY PARTICIPATION

9.1 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 Month DD, YYYY to Month DD, YYYY. This period includes a public meeting at which the Army will present this PP and accept oral and written comments.

9.2 Public Comment Period

The 30-day comment period is from Month DD, YYYY to Month DD, YYYY, 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 11.

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.

9.3 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 Month DD, YYYY).

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

9.4 Public Meeting

The Army will hold an open house and public meeting on this PP on Month DD, YYYY, at ___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.

9.5 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. The Army's final choice of action will be documented in the Record of Decision. The ROD will be added to the RVAAP Restoration Program Administrative Record and Information Repositories.

INFORMATION REPOSITORIES

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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.

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 Concern (COPC): a chemical substance specific to an AOC 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 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.

Exposure Point Concentration (EPC): in accordance with the *RVAAP Facility-wide Human Health Risk Assessors Manual – Amendment 1* (USACE 2005), the EPC is the calculated 95% upper confidence limit of the mean concentration of a chemical or the maximum detected concentration of a chemical, whichever value is lowest.

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.

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 one, the applicable standards are met. If summed ratios exceed one, 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 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.

REFERENCES

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USACE 2005. *RVAAP Facility-wide Human Health Risk Assessors Manual – Amendment 1*. December 2005.

USACE 2016. *Phase II Remedial Investigation Report for Soil, Sediment, Surface Water at RVAAP-44 Load Line 11, Former Ravenna Army Ammunition Plant Portage and Trumbull Counties, Ohio.* August 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. November 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.

FIGURES

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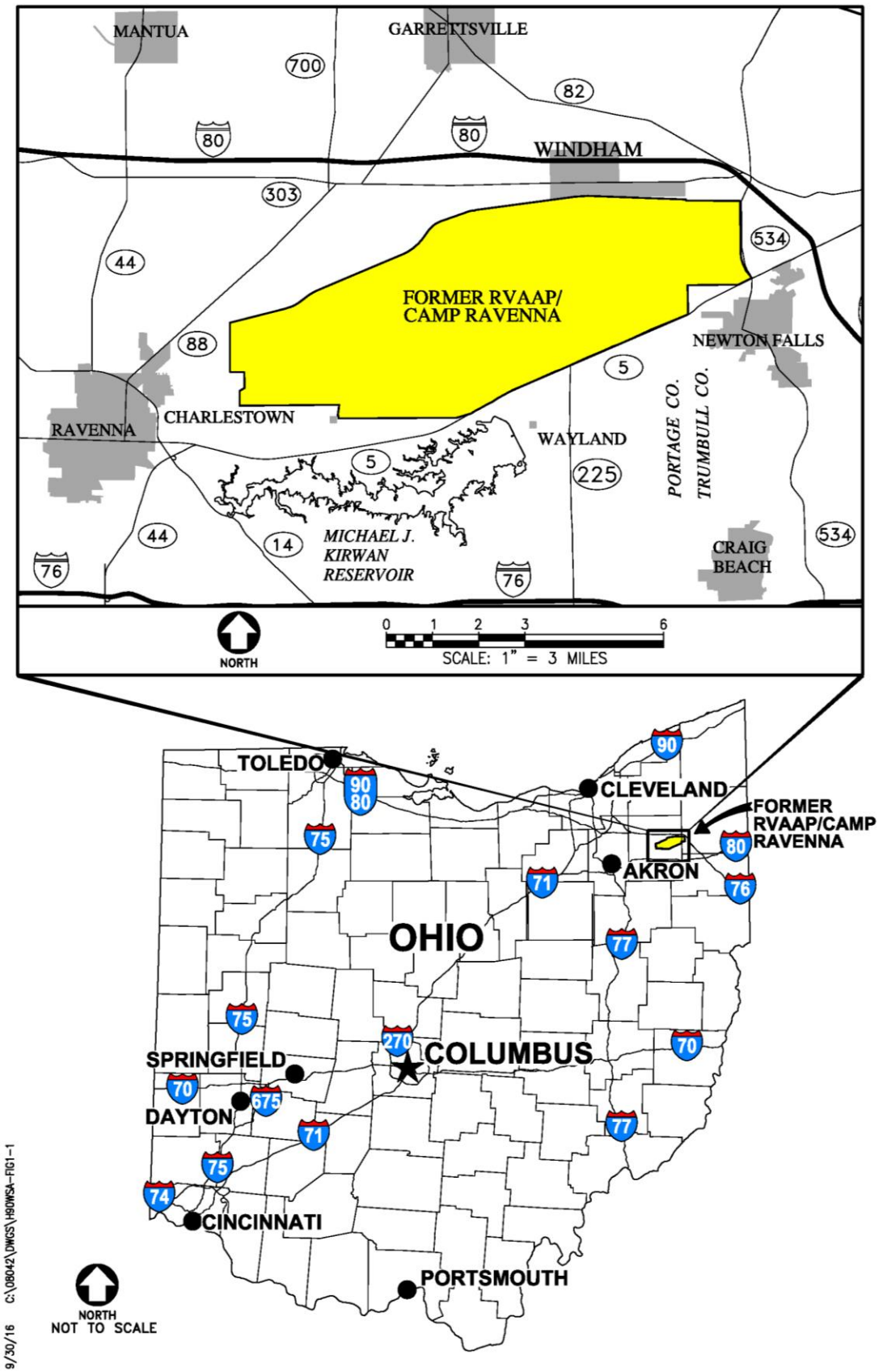


Figure 1. General Location and Orientation of Camp Ravenna

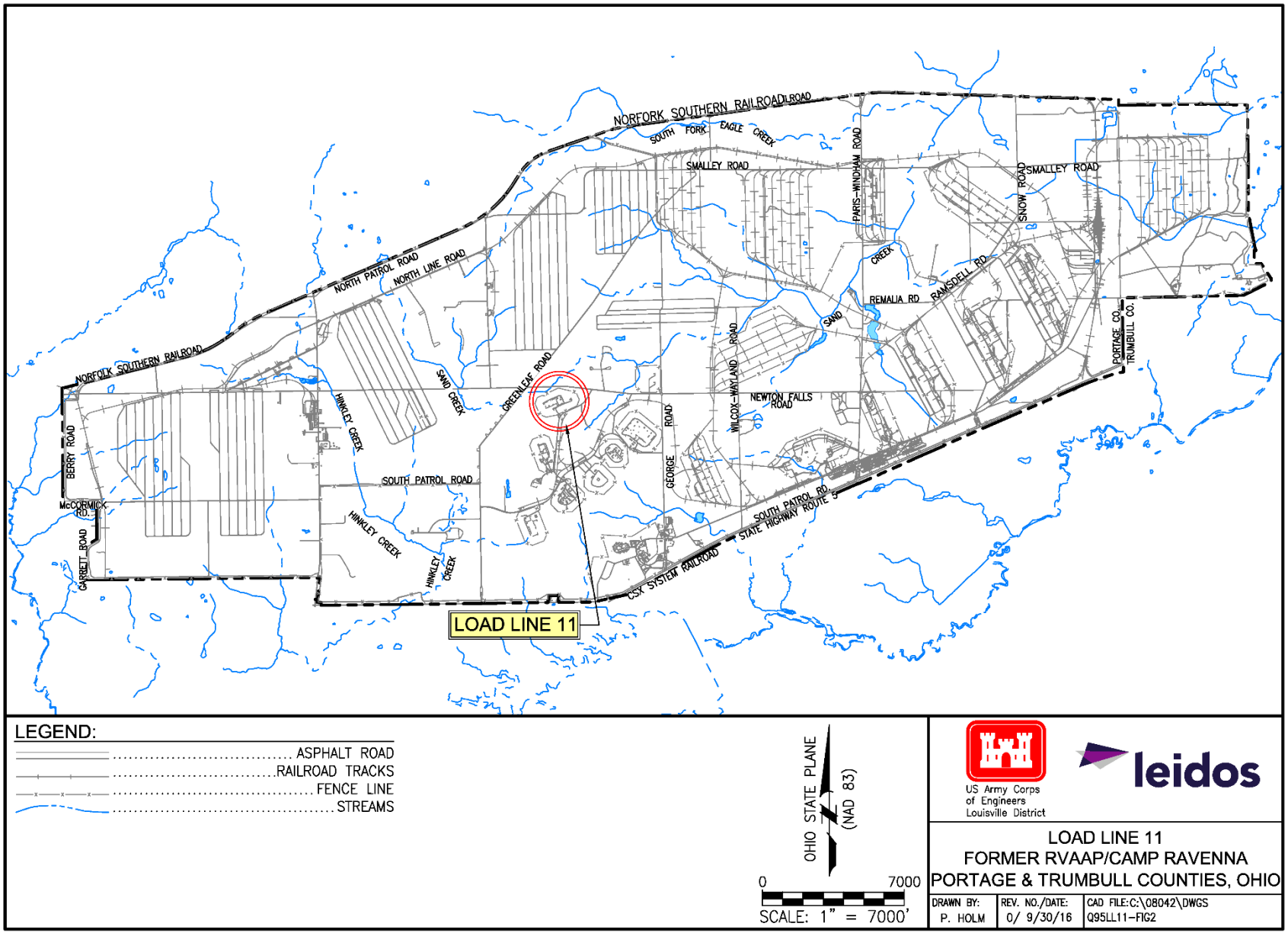
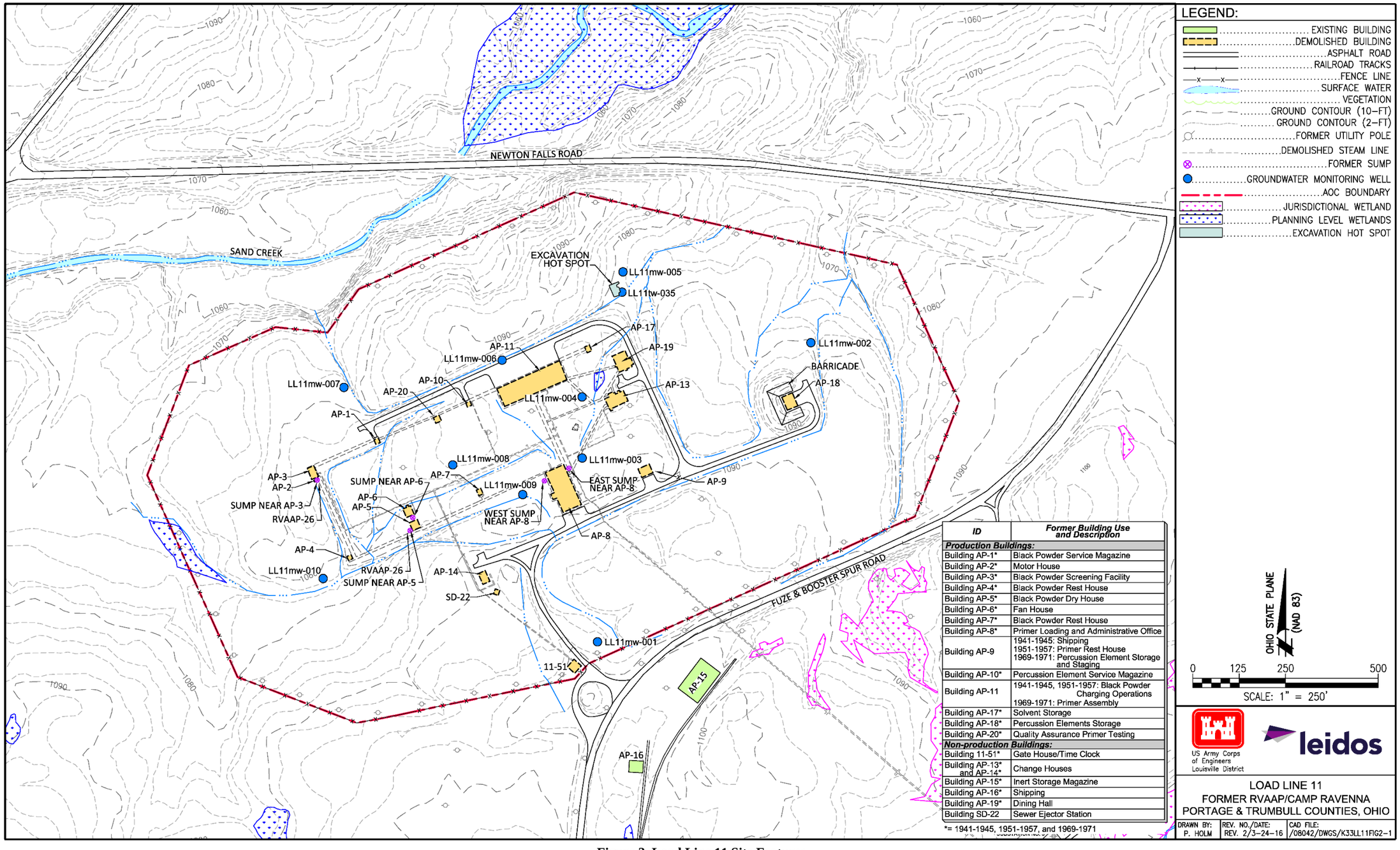


Figure 2. Location of Load Line 11 at Camp Ravenna



ID	Former Building Use and Description
Production Buildings:	
Building AP-1*	Black Powder Service Magazine
Building AP-2*	Motor House
Building AP-3*	Black Powder Screening Facility
Building AP-4*	Black Powder Rest House
Building AP-5*	Black Powder Dry House
Building AP-6*	Fan House
Building AP-7*	Black Powder Rest House
Building AP-8*	Primer Loading and Administrative Office
Building AP-9	1941-1945: Shipping 1951-1957: Primer Rest House 1969-1971: Percussion Element Storage and Staging
Building AP-10*	Percussion Element Service Magazine
Building AP-11	1941-1945, 1951-1957: Black Powder Charging Operations 1969-1971: Primer Assembly
Building AP-17*	Solvent Storage
Building AP-18*	Percussion Elements Storage
Building AP-20*	Quality Assurance Primer Testing
Non-production Buildings:	
Building 11-51*	Gate House/Time Clock
Building AP-13* and AP-14*	Change Houses
Building AP-15*	Inert Storage Magazine
Building AP-16*	Shipping
Building AP-19*	Dining Hall
Building SD-22	Sewer Ejector Station

*= 1941-1945, 1951-1957, and 1969-1971

LEGEND:

- EXISTING BUILDING
- DEMOLISHED BUILDING
- ASPHALT ROAD
- RAILROAD TRACKS
- FENCE LINE
- SURFACE WATER
- VEGETATION
- GROUND CONTOUR (10–FT)
- GROUND CONTOUR (2–FT)
- FORMER UTILITY POLE
- DEMOLISHED STEAM LINE
- FORMER SUMP
- GROUNDWATER MONITORING WELL
- AOC BOUNDARY
- JURISDICTIONAL WETLAND
- PLANNING LEVEL WETLANDS
- EXCAVATION HOT SPOT

OHIO STATE PLANE (NAD 83)

0 125 250 500

SCALE: 1" = 250'

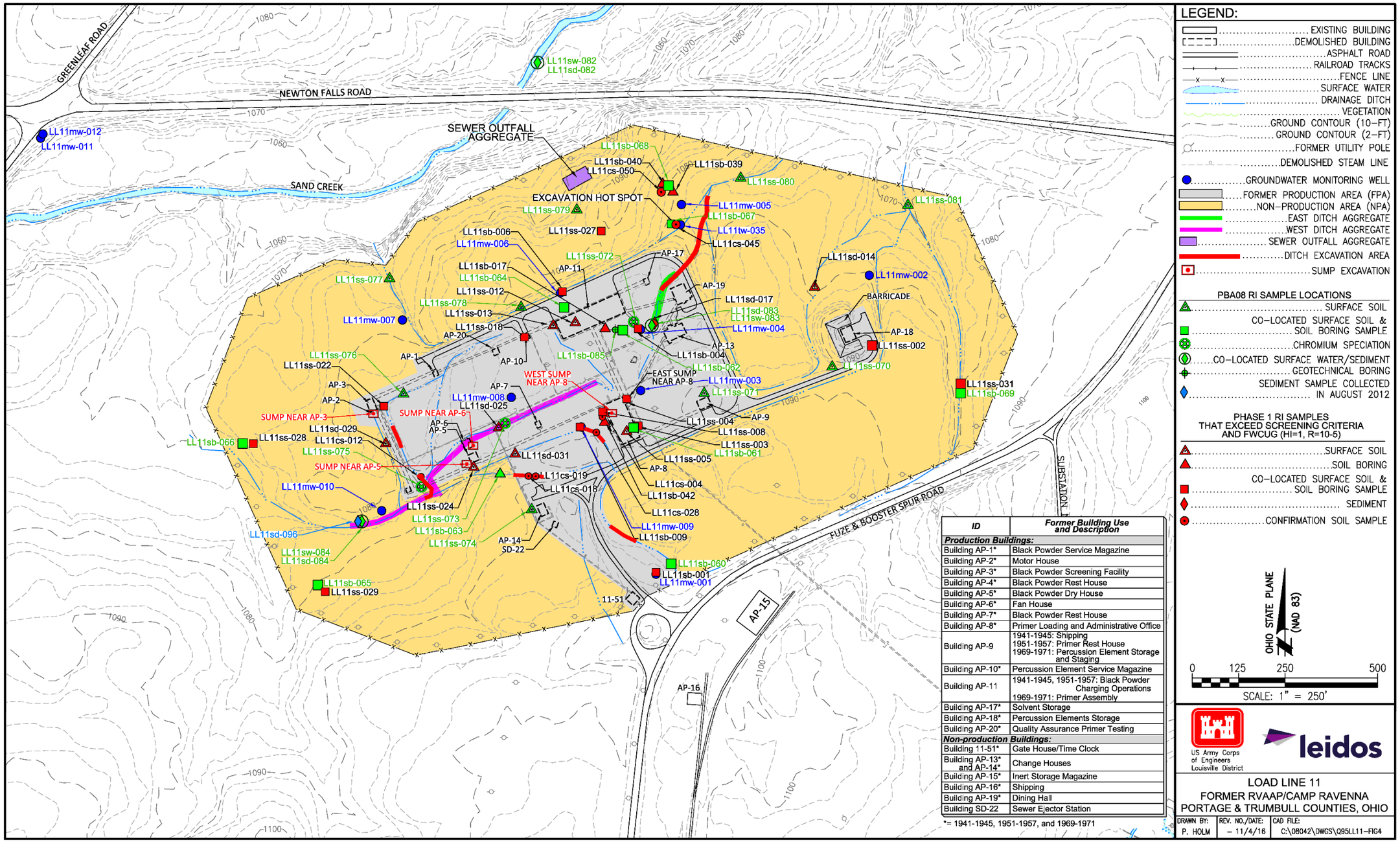
US Army Corps of Engineers Louisville District

leidos

LOAD LINE 11
FORMER RVAAP/CAMP RAVENNA
PORTAGE & TRUMBULL COUNTIES, OHIO

DRAWN BY:	REV. NO./DATE:	CAD FILE:
P. HOLM	REV. 2/3-24-16	/08042/DWGS/K33LL11FIG2-1

Figure 3. Load Line 11 Site Features



LEGEND:

- EXISTING BUILDING
- DEMOLISHED BUILDING
- ASPHALT ROAD
- RAILROAD TRACKS
- FENCE LINE
- SURFACE WATER
- DRAINAGE DITCH
- VEGETATION
- GROUND CONTOUR (10–FT)
- GROUND CONTOUR (2–FT)
- FORMER UTILITY POLE
- DEMOLISHED STEAM LINE
- GROUNDWATER MONITORING WELL
- FORMER PRODUCTION AREA (FPA)
- NON–PRODUCTION AREA (NPA)
- EAST DITCH AGGREGATE
- WEST DITCH AGGREGATE
- SEWER OUTFALL AGGREGATE
- DITCH EXCAVATION AREA
- SUMP EXCAVATION

PBA08 RI SAMPLE LOCATIONS

- SURFACE SOIL
- CO–LOCATED SURFACE SOIL & SOIL BORING SAMPLE
- CHROMIUM SPECIATION
- CO–LOCATED SURFACE WATER/SEDIMENT
- GEOTECHNICAL BORING
- SEDIMENT SAMPLE COLLECTED IN AUGUST 2012

PHASE 1 RI SAMPLES THAT EXCEED SCREENING CRITERIA AND FWCUG (HI=1, R=10-5)

- SURFACE SOIL
- SOIL BORING
- CO–LOCATED SURFACE SOIL & SOIL BORING SAMPLE
- SEDIMENT
- CONFIRMATION SOIL SAMPLE

OHIO STATE PLANE (NAD 83)

0 125 250 500

SCALE: 1" = 250'

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LOAD LINE 11
FORMER RVAAP/CAMP RAVENNA
PORTAGE & TRUMBULL COUNTIES, OHIO

DRAWN BY:	REV. NO./DATE:	CAD FILE:
P. HOLM	– 11/4/16	C:\08042\DWGS\Q95LL11–FIG4

Figure 4. Load Line 11 Contaminant Removal Areas and Sample Locations