Final
No Further Action Proposed Plan
for
RVAAP-050-R-01 Atlas Scrap Yard
Munitions Response Site

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract No. W912DR-15-D-0016
Delivery Order No. 0001

Prepared for:

US Army Corps of Engineers®

U.S. Army Corps of Engineers
Baltimore District
10 S. Howard Street, Room 7000
Baltimore, Maryland 21201

Prepared by:
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August 3, 2017

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REPORT DOCUMENTATION PAGE

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None

14. ABSTRACT
The U.S. Department of the Army (U.S. Army) is presenting this No Further Action (NFA) Proposed Plan to involve the public in the remedy selection process for the former Ravenna Army Ammunition Plant, RVAAP-050-R-01 Atlas Scrap Yard Munitions Response Site (MRS), in Portage and Trumbull Counties, Ohio. This NFA Proposed Plan presents the U.S. Army's preliminary recommendations for addressing the RVAAP-050-R-01 Atlas Scrap Yard MRS. Investigations have found no MPPEH or concentrated areas of munitions debris, and no potential source of munitions constituents exists at the MRS. Therefore, there is no source material or impacted environmental media resulting from historical U.S. munitions-related activities at the MRS.

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Ohio Environmental Protection Agency

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

August 24, 2017

Mark Leeper, P.G., MBA
Team Lead
Cleanup and Restoration Branch
ARNG Directorate
111 George Mason St.
Arlington, VA 22204

Re: US Army Ravenna Ammunition Plt RVAAP
Remediation Response
Plans
Remedial Response
Portage County
267000859240

Subject: "Final No Further Action Proposed Plan, RVAAP-050-R-01 Atlas Scrap Yard Munitions Response Site" Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio: Dated August 3, 2017

Dear Mr. Leeper:

The Ohio Environmental Protection Agency (Ohio EPA), Northeast District Office (NEDO), Division of Environmental Response and Revitalization (DERR) has received and reviewed the "Final No Further Action Proposed Plan (Final PP), RVAAP-050-R-01 Atlas Scrap Yard Munitions Response Site (MRS)" dated August 3, 2017. This document received by Ohio EPA's NEDO on August 4, 2017, was prepared by HydroGeoLogic, Inc., as a result of the investigation completed under the military munitions response program.

Based on the information contained in the Final PP, other investigation documents/reports, and Ohio EPA's oversight participation during the investigation, Ohio EPA approves the Final PP for the Atlas Scrap Yard MRS. As stated in the Final PP, the Army will offer a public comment period from November 3 until December 8, 2017 and hold an open house/public meeting on November 8, 2017.

If you have any questions or concerns, please do not hesitate to contact Nicholas Roope at (330) 963-1235.

Sincerely,

Michael Proffitt, Chief
Division of Environmental Response and Revitalization

NCR/nvr

cc: Craig Coombs, USACE, Louisville District
Katie Tait/Kevin Sedlak, Camp Ravenna Environmental Office
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29 AUG 2017

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CONTRACTOR'S STATEMENT OF INDEPENDENT TECHNICAL REVIEW

HydroGeoLogic, Inc., has completed the *Final No Further Action Proposed Plan for RVAAP-050-R-01 Atlas Scrap Yard Munitions Response Site,* 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 customer's needs consistent with law and existing United States Army Corps of Engineers policy.

Reviewed/Approved by: Janardan J Patel Digitally signed by Janardan J Patel DN: cn=Janardan J Patel, o=HGL, ou=ECD, email=jpatel@hgl.com, c=US Date: 2017.08.01 09:36:46 -04'00' Date: August 3, 2017

Janardan Patel, PMP
Program Manager

Prepared/Approved by: Kimberly Vaughn Date: August 3, 2017

Kimberly Vaughn
Project Manager

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Rodney Beals, Environmental Manager, Ohio Environmental Protection Agency	0	Email/Transmittal Letter
Tom Schneider, Ohio Environmental Protection Agency, Federal Facilities	0	1
Gail Harris, RVAAP Administrative Record Manager	2	2

ARNG – Army National Guard
COR – Contracting Officer's Representative
IED – Installation and Environment Division
OHARNG – Ohio Army National Guard
RVAAP – Former Ravenna Army Ammunition Plant
USACE – United States Army Corps of Engineers

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ACRONYMS AND ABBREVIATIONS

ARNG	Army National Guard
Camp Ravenna	Camp Ravenna Joint Military Training Center
CB&I	CB&I Federal Services, LLC
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
e^2m	Engineering-Environmental Management, Inc.
Final Historical Records Review	*Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio*
Final RI Report	*Final Remedial Investigation Report for RVAAP-050-R-01 Atlas Scrap Yard MRS, Version 2.0*
Final SI Report	*Final Site Inspection Report, Ravenna Army Ammunition Plant, Ohio, Military Munitions Response Sites*
HGL	HydroGeoLogic, Inc.
IRP	Installation Restoration Program
MC	munitions constituents
MD	munitions debris
MEC	munitions and explosives of concern
MMRP	Military Munitions Response Program
MPPEH	material potentially presenting an explosive hazard
MRS	munitions response site
NFA	No Further Action
Ohio EPA	Ohio Environmental Protection Agency
RI	Remedial Investigation
RVAAP	Former Ravenna Army Ammunitions Plant
SI	Site Inspection
TNT	trinitrotoluene
U.S.	United States
U.S. Army	Department of the Army
USACE	U.S. Army Corps of Engineers
UXO	unexploded ordnance

1.0 INTRODUCTION

The United States (U.S.) Department of the Army (U.S. Army) is presenting this No Further Action (NFA) **Proposed Plan*** to involve the public in the **remedy selection process** for the RVAAP-050-R-01 Atlas Scrap Yard **Munitions Response Site (MRS)**. The former Ravenna Army Ammunition Plant (RVAAP) is located in Portage and Trumbull Counties, Ohio, as shown on **Figure 1**. The location of the Atlas Scrap Yard MRS in relation to the former RVAAP is shown on **Figure 2**.

The U.S. Army, in consultation with the Ohio Environmental Protection Agency (Ohio EPA), is the lead agency for investigating, reporting, making **remedial decisions**, and taking **remedial actions** at the former RVAAP. This NFA Proposed Plan presents the U.S. Army's preliminary recommendations for addressing the Atlas Scrap Yard MRS. Investigations indicate that **material potentially presenting an explosive hazard (MPPEH)**, **munitions and explosives of concern (MEC)**, or concentrated areas of **munitions debris (MD)** are not present at the MRS. As no MPPEH, MEC, or MD is present, there cannot be a source for **munitions constituents (MC)**. Therefore, no **explosive hazards** or MC risks to human or environmental **receptors** exist.

The U.S. Army is issuing this NFA Proposed Plan to address its public participation responsibilities under Section 117(a) of the ***Comprehensive Environmental Response, Compensation, and Liability Act of 1980*** **(CERCLA)**, 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). Implementation of the selected remedy at the MRS will comply with the requirements of the *Director's Final Findings and Orders for RVAAP* (Ohio EPA, 2004).

This NFA Proposed Plan summarizes information contained in the *Final Remedial Investigation Report for RVAAP-050-R-01 Atlas Scrap Yard MRS, Version 2.0* (Final **Remedial Investigation [RI]** Report) (CB&I Federal Services LLC [CB&I], 2014). The U.S. Army encourages the public to review this document to better understand the history of the MRS, activities that have been conducted there, and determinations that have been made for the MRS under the **Military Munitions Response Program (MMRP)**.

The U.S. Army, in consultation with the Ohio EPA, will review and consider all comments on this NFA Proposed Plan received during the 30-day public comment period. The public is encouraged to review and comment on all recommendations presented in this NFA Proposed Plan.

2.0 FACILITY AND MRS BACKGROUND

This section summarizes the history of the former RVAAP and of the Atlas Scrap Yard MRS.

2.1 Facility History

The former RVAAP (Federal Facility ID No. OH213820736), now known as the Camp Ravenna Joint Military Training Center (Camp Ravenna), is located in northeastern Ohio within Portage and Trumbull Counties and is approximately 3 miles east-northeast of the city of Ravenna. The federally owned facility, approximately 11 miles long and 3.5 miles wide, is bounded by a Norfolk Southern railroad line to the north; State Route 5, the Michael J. Kirwan Reservoir, and a CSX railroad line to the south; State Route 534 to the east; and Garret, McCormick, and Berry Roads to the west. The facility is surrounded by the communities of Windham, Garrettsville, Newton Falls, Charlestown, and Wayland.

Administrative control of the 21,683-acre facility was transferred to the U.S. Property and

* Terminology used in this Proposed Plan is defined in the Glossary found at the back of this document.

Fiscal Officer for Ohio, which subsequently licensed the facility to the Ohio Army National Guard for use as a training site, Camp Ravenna. The restoration program for the facility involves the remediation of areas affected by the activities of the former RVAAP.

The former RVAAP was constructed in 1940 and 1941 for assembly/loading and **depot storage** of ammunition. While being used as an ammunition plant, RVAAP was a U.S. Government-owned and contractor-operated industrial facility. The ammunition plant consisted of 12 munitions assembly facilities, referred to as "load lines." Load Lines 1 through 4 were used to melt and load 2,4,6-trinitrotoluene (TNT) and Composition B (a mixture of TNT and Research Department Explosive) into **large-caliber shells** and bombs. Operations on the load lines produced explosive dust, spills, and vapors that collected on the floors and walls of each building. Periodically, the floors and walls were cleaned with water and steam. After cleaning, the "pink water" wastewater, which contained TNT and Composition B, was collected in concrete holding tanks, filtered, and pumped into unlined ditches for transport to **earthen settling ponds**. Load Lines 5 through 11 manufactured **fuzes**, **primers**, and **boosters**. From 1946 to 1949, Load Line 12 produced ammonium nitrate for explosives and fertilizers; subsequently it was used as a **weapons demilitarization facility**.

In 1950, the facility was placed on standby status, and operations were limited to **renovation**, **demilitarization**, normal maintenance of equipment, and munitions storage. **Production** activities resumed from July 1954 to October 1957 and again from May 1968 to August 1972. Demilitarization and production activities were conducted at Load Lines 1, 2, 3, and 12. Demilitarization activities included disassembling munitions and melting out and recovering explosives using hot water and steam processes. These activities continued through 1992.

Public Comment Period:
November 3 to December 8, 2017

Public Meeting:
The U.S. Army will hold an open house/public meeting to explain the NFA Proposed Plan. Oral and written comments on the document will be accepted at the meeting. The open house/public meeting is scheduled for 6:00 p.m. on November 8, 2017, at the Charlestown Town Hall, 6368 Rock Spring Road, Ravenna, Ohio 44266.

Information Repositories:
Information used in selecting the preferred remedy is available online at **www.rvaap.org** and at the following locations:

Reed Memorial Library
167 East Main Street
Ravenna, Ohio 44266
(330) 296-2827
Hours of Operation:
9 a.m.–9 p.m., Monday–Thursday
9 a.m.–6 p.m., Friday
9 a.m.–5 p.m., Saturday
1 p.m.–5 p.m., Sunday

Newton Falls Public Library
204 South Canal Street
Newton Falls, Ohio 44444
(330) 872-1282
Hours of Operation:
10 a.m.–8 p.m., Monday–Thursday
9 a.m.–5 p.m., Friday and Saturday

The **Administrative Record** File, which includes the information used to select the preferred remedy, is available for review at the following location:

Camp Ravenna Joint Military Training Center (Camp Ravenna)
Environmental Office
1438 State Route 534
Newton Falls, Ohio 44444
(330) 872-8003

Note: Access to Camp Ravenna is restricted, but an appointment to review the Administrative Record File can be scheduled.

In addition to production and demilitarization activities at the load lines, other facilities at RVAAP included areas used for the burning, demolition, and testing of munitions. These burning and demolition grounds consisted of large, open areas and abandoned quarries. Other areas of concern at the former RVAAP include landfills, an aircraft fuel tank testing area, and various industrial support and maintenance facilities (CB&I, 2014).

2.2 MRS History

The Atlas Scrap Yard MRS comprises 66.04 acres and is located in the south-central portion of the former RVAAP as shown on **Figure 2**. The MRS was originally used as a camp to house workers during the construction of the installation starting in 1940. After World War II the buildings associated with the camp were demolished. After 1969, the MRS was used as a storage area and scrap yard for nonexplosive scrap material. Debris piles of construction materials remain within the MRS as shown on **Figure 3**. Historical aerial photographs indicate that these debris piles and possible munitions stockpiles may have existed alongside the roads within the MRS.

The MRS overlaps with the RVAAP-50 area of concern being investigated under the **Installation Restoration Program (IRP)**. IRP area of concern RVAAP-50 extends slightly east and slightly south of the MRS (**Figure 3**). Soil, sediment, and groundwater contamination was identified within the IRP area of concern during a 2006 sampling event. During the sampling event, a potential MEC item was discovered in the southwest corner of the MRS; however, the type and condition of the item could not be verified. The discovery and removal of the item was documented in a removal report funded by the Joint Munitions Command, but the documentation was not provided to the U.S. Army and the reported information cannot be verified (Engineering-Environmental Management, Inc. [e^{2}M], 2007). The RVAAP-50 boundary is shown on **Figure 3.**

Reports associated with previous investigations state that MEC and MD were sorted and removed from the Atlas Scrap Yard MRS; however, documentation verifying these removals has not been located (e^{2}M, 2007). The munitions potentially present within the MRS include small arms, explosives, pyrotechnics, propellants, mortars, medium- and large-caliber munitions, landmines, hand grenades, flares, bombs detonators, and fuzes.

2.3 MRS Historical Investigations

The following investigations and reports have been completed under the MMRP for the Atlas Scrap Yard MRS:

- *Final Military Munitions Response Program Historical Records Review* (Final Historical Records Review) (e^{2}M, 2007);
- *Final Site Inspection Report* (Final Site Inspection [SI] Report) (e^{2}M, 2008); and
- Final RI Report (CB&I, 2014).

2.3.1 Historical Records Review

The 2007 Final Historical Records Review was completed to document historical and other known information on select MRSs identified at the former RVAAP, including the Atlas Scrap Yard MRS. The Historical Records Review activities included interviews with installation personnel. Some of the interviewees stated that munitions produced or used at the former RVAAP might have been disposed of within the Atlas Scrap Yard MRS.

The Historical Records Review includes the findings of an IRP characterization study performed at the Atlas Scrap Yard in 2005. This study focused on investigating the debris stockpiles and areas associated with munitions operations. Field activities included collecting soil, sediment, surface water, and groundwater samples and excavating eight test trenches. During these activities, no MEC or MC items were identified.

The Historical Records Review describes the discovery of an unidentified MEC item in the southwest corner of the MRS during a 2006 sampling event. No supporting information

describing the type or condition of the item or its removal were provided thus the removal cannot be verified (e2M, 2007).

2.3.2 Site Inspection Summary

In 2007, SI field activities conducted under the MMRP at the former RVAAP included the Atlas Scrap Yard MRS. Recommendations were made in the Final SI Report to further investigate the MRS with respect to MPPEH contamination under the MMRP.

Investigation activities at the MRS consisted of an **instrument-assisted visual survey** along meandering paths. The surveys were conducted in the south-central section of the MRS where MEC had been reported. Additional surveys were conducted around the remaining debris piles in the northern and eastern portions of the MRS as shown on **Figure 4**.

No surface MPPEH or MD was identified during SI field activities. The presence of demolition debris limited where data could be collected. **Subsurface anomalies** were detected throughout the accessible survey area and were concentrated around the piles of debris. Instrument interference from the metal scrap in the debris piles could have been significant. Very few subsurface anomalies were recorded in the east-central portion of the MRS (e^2M, 2008). After completing the fieldwork portion of the SI, the contractor performing the work, e^2M, received information about a suspected 40-mm burial area located within the MRS (**Figure 4**).

2.4 Remedial Investigation Results

An RI was conducted at the Atlas Scrap Yard MRS to characterize the nature and extent of any munitions contamination potentially present within the MRS. The RI fieldwork addressed the findings of the Final Historical Records Review, the results of the SI, and the information about the suspected 40-mm burial area. Field activities included the following (**Figure 5**):

- **Digital geophysical mapping** was performed over 16.7 miles, or 6.1 acres, located throughout the project area.
- A total of 3,185 anomalies were identified for intrusive investigation. Sixty single-point anomalies were determined to have a source on the surface and did not require excavation. Additionally, 34 anomalies could not be reacquired. A total of 3,090 items were intrusively investigated by hand digging.
- The high-density areas were investigated by trenching. Six trenches were excavated at the suspected 40-mm burial area, and 27 trenches were dug at the 14 other high density areas. A total of 12,851 pounds of other debris (not munitions related) was removed from the trenches.
- No MPPEH or MD items were found during these activities; therefore, MC sampling was not warranted.

Based on the results of the RI fieldwork, the project team concluded that the nature and extent of MPPEH and MC at the Atlas Scrap Yard MRS (**Figure 5**) has been adequately characterized. No explosive safety hazards, potential sources of MPPEH, or sources for MC were identified within the MRS. The MRS was recommended for NFA under the MMRP (CB&I, 2014).

3.0 SCOPE AND ROLE OF RESPONSE ACTION

The results of the RI fieldwork conducted at the Atlas Scrap Yard MRS support the selection of NFA as the preferred remedy for the MRS. The remedy must be protective of the receptors associated with future land use. The future land use of the MRS is military training. The likely **human receptors** for the future land use are facility personnel, contractors, occasional trespassers, and National Guard trainees. **Environmental receptors** for the future land use include terrestrial invertebrates (earthworms), voles, shrews, rabbits, robins, foxes, hawks, muskrats, ducks, minks, and benthic invertebrates (insect larvae) (CB&I, 2014).

No MPPEH or concentrated areas of MD are present, and no potential source of MC exists at the MRS. Therefore, no source material or impacted environmental media has resulted from historical U.S. munitions-related activities at the MRS.

MC was not identified under the MMRP. Soil, sediment, surface water, and groundwater are being investigated under the IRP. Although not anticipated, if any additional hazards are identified at the MRS, they would be addressed under the MMRP as a separate response action. No other investigations are ongoing at the MRS under the MMRP.

4.0 SUMMARY OF HUMAN AND ECOLOGICAL RISKS

Under the MMRP, a recommendation of NFA must be protective of the human and environmental receptors at the MRS. The likely human receptors identified for future land use at the Atlas Scrap Yard MRS are facility personnel, contractors, trespassers, and National Guard trainees. The likely environmental receptors include terrestrial invertebrates (earthworms), voles, shrews, rabbits, robins, foxes, hawks, muskrats, ducks, minks, and benthic invertebrates (insect larvae) (CB&I 2014).

No MPPEH is present on the MRS. Therefore, no explosive safety hazard or risks associated with MC exist for the likely receptors at the Atlas Scrap Yard MRS.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the RI fieldwork for the Atlas Scrap Yard MRS support the determination that no hazards associated with exposure to MPPEH and no potential for MC risks to human or environmental receptors exist at the Atlas Scrap Yard MRS. The U.S. Army, in consultation with the Ohio EPA, is recommending NFA as the preferred remedy under the MMRP for the Atlas Scrap Yard MRS.

As no risks have been identified at the MRS, the overall recommendation of NFA under the MMRP is protective of receptors that may be present at the MRS. This recommendation is not a final decision. The U.S. Army, in consultation with the Ohio EPA, will select the remedy for the MRS after reviewing and considering all comments submitted during the 30-day public comment period.

6.0 COMMUNITY PARTICIPATION

Public participation is an important component of the remedy selection process. The U.S. Army, in coordination with the Ohio EPA, is soliciting input from the community on the preferred remedy. The comment period extends from November 3 to December 8, 2017. This period includes a public meeting at which the U.S. Army will present this NFA Proposed Plan. The U.S. Army will accept oral and written comments at this meeting.

6.1 Public Comment Period

The 30-day comment period extends from November 3 to December 8, 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 NFA Proposed Plan. The U.S. Army and Ohio EPA will consider all public comments before selecting a remedy. During the comment period, the public is also encouraged to review documents pertinent to the Atlas Scrap Yard MRS. This information is available at the Information Repositories and online at www.rvaap.org. To obtain further information, contact the Camp Ravenna Environmental Office.

6.2 Public Meeting

The U.S. Army will hold an open house/public meeting on this NFA Proposed Plan on November 8, 2017, at 6:00 p.m. at the Charlestown Town Hall, 6368 Rock Spring Road, Ravenna, Ohio 44266. This meeting will provide an opportunity for the public to comment on the preferred remedy. Comments made at the meeting will be transcribed.

6.3 Written Comments

If the public would like to provide comments, questions, or suggestions on this NFA Proposed Plan or other relevant issues in writing, they should be delivered to the U.S. Army at the public meeting or mailed (postmarked no later than

December 8, 2017). The public can also submit comments, questions, or suggestions before the end of the comment period to the Camp Ravenna Environmental Office using the following email address: kathryn.s.tait.nfg@mail.mil.

POINT OF CONTACT FOR WRITTEN COMMENTS

Camp Ravenna Environmental Office
1438 State Route 534 SW
Newton Falls, Ohio 44444

6.4 U.S. Army Review of Public Comments

The U.S. Army will review all public comments before selecting the most appropriate action for the MRS. A **Responsiveness Summary**, a document that summarizes the U.S. Army's responses to comments received during the public comment period, will be included in the **Record of Decision**. The U.S. Army's final choice of action will be documented in the Record of Decision. The Record of Decision will be added to the RVAAP Administrative Record and Information Repositories.

GLOSSARY OF TERMS

Administrative Control: Direction or exercise of authority over subordinate or other organizations in respect to administration and support, including organization of Service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations.

Administrative Record: A collection of documents, typically reports and correspondence, generated during site investigation and remedial activities. Information in the Administrative Record is used to select the preferred remedy. It is available for public review at the Camp Ravenna Environmental Office; call (330) 872-8003 for an appointment.

Booster: A sensitive explosive charge that acts as a bridge between a (relatively weak) conventional detonator and a low-sensitivity (but typically high-energy) explosive such as TNT. By itself, the initiating detonator would not deliver sufficient energy to set off the low-sensitivity charge. However, it detonates the primary charge (the booster), which then delivers an explosive shockwave sufficient to detonate the secondary, main, high-energy charge.

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

Demilitarization: The reduction of one or more types of weapons or weapons systems.

Depot Storage: A designated location for the storage of military supplies.

Digital Geophysical Mapping: The process by which geological features are observed, analyzed, and recorded in the field and displayed in real-time on a computer or personal digital assistant.

Discarded Military Munitions: Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include **unexploded ordnance**, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of in a manner consistent with applicable environmental laws and regulations.

Earthen Settling Pond: An earthen structure that uses sedimentation to remove settleable matter and turbidity from wastewater.

Environmental Receptor: Any living organisms other than humans, the habitat that supports such organisms, or natural resources that could be adversely affected by environmental contaminations resulting from a release at or migration from a site.

Explosive Hazard: Any hazard containing an explosive component. Explosive hazards include unexploded explosive ordnance (including landmines), booby traps, improvised explosive devices, and bulk explosives.

Fuze: A device that detonates a munition's explosive material under specified conditions. In addition, a fuze has safety and arming mechanisms that protect users from premature or accidental detonation.

Human Receptor: Any human individual or population that is presently or will potentially be exposed to, and adversely affected by, the release or migration of contaminants.

Information Repository: A collection of documents relating to a facility with investigations and response actions under CERCLA and/or a site's permitting activity or corrective action. It includes documents and information about site activities as well as general information about environmental regulations and CERCLA. The purpose of an Information Repository is to (1) ensure open and convenient public access to site-related

documents and (2) better inform the public of the restoration process.

Installation Restoration Program (IRP): A comprehensive program to identify, investigate, and clean up contamination at active/operating U.S. Army installations. Eligible sites include those contaminated by past defense activities that require response under CERCLA, as amended by the Superfund Amendments and Reauthorization Act, and certain corrective actions required by the Resource Conservation and Recovery Act. The objective of the IRP is to clean up contaminated environmental impacts from past U.S. Army activities with the following goals: (1) reduce risk to acceptable levels to protect the health and safety of installation personnel and the public and (2) restore the quality of the environment. The IRP also complies with state, regional, and local requirements applicable to the cleanup of hazardous materials contamination, as well as related site safety. Community involvement activities are an integral part of the U.S. Army's IRP. Installation commanders seek community involvement early and throughout the cleanup process.

Instrument-Assisted Visual Survey: An investigation process whereby a line of unexploded ordnance technicians walks across the property in a systematic manner to identify items on the ground surface by sight or metallic items on or just below the ground surface using a magnetometer or other instrument. This approach is necessary in areas where there is vegetation that cannot be removed.

Large-Caliber Shell: A projectile or shell is a missile fired from the muzzle of a gun; it is always the projectile, whether issuing from the muzzle of a breech-loading rifle, using separate ammunition, or from the muzzle of a rapid-fire gun, using fixed, cartridge-case ammunition. Projectiles for guns of and above 7 inches in caliber are considered large-caliber.

Material Potentially Presenting an Explosive Hazard (MPPEH): Material that, prior to determination of its explosives safety status, potentially contains explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris); or potentially contains a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization, or disposal operations).

Military Munitions Response Program (MMRP): A U.S. Department of Defense program consisting of actions necessary to ensure protection of human health, welfare, and the environment from the hazards associated with MEC and MC at locations impacted by historical military activities.

Munitions Constituents (MC): Any material originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Munitions Debris (MD): Remnants of military munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal.

Munitions and Explosives of Concern (MEC): A munition or explosive that may pose an explosive safety risk because it either did not function as designed, was discharged and/or abandoned, or is an explosive constituent. MEC includes unexploded ordnance, discarded military munitions, and explosive constituents of munitions present in high enough concentrations to pose an explosive hazard.

Munitions Response Site (MRS): Any area on a defense site that is known or suspected to contain MEC or MC.

National Oil and Hazardous Substances Pollution Contingency Plan: The National Oil and Hazardous Substances Pollution Contingency Plan is a collection of CERCLA regulations that provide the U.S. Government

the authority to respond to the problems of abandoned or uncontrolled hazardous waste disposal sites as well as to certain incidents involving hazardous wastes (e.g., spills).

Primer: A primer, also known as a blasting cap, is a small, sensitive, primary explosive device generally used to detonate a larger, more powerful and less-sensitive secondary explosive such as TNT, dynamite, or plastic explosive. Primers come in a variety of types, including nonelectric caps, electric caps, and fuse caps.

Production: The action of making or manufacturing from components or raw materials, or the process of being so manufactured.

Proposed Plan: This CERCLA document provides the public with information necessary to participate in the selection of a remedy. It is designed to solicit public comment on a preferred remedy before a Record of Decision is established.

Receptor: See human or ecological receptor.

Record of Decision: A legal record signed by the U.S. Army following coordination and concurrence with the Ohio EPA as per a June 10, 2004, agreement between the two parties. It describes the cleanup action or remedy selected for a site, the basis for selecting that remedy, public comments, responses to comments, and the estimated cost of the remedy.

Remedial Action: The actual construction or implementation phase of a CERCLA site cleanup that follows Remedial Design.

Remedial Decision: A formal, written communication from the regulating authority, that approves a site investigation, identifies the preferred remedy, and approves the remedial action, if any, at a site.

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.

Remedy Selection Process: A part of the CERCLA process, typically from the Proposed Plan through the Record of Decision, that involves public participation in identifying the preferred remedy. The final selection of the preferred remedy is made in the Record of Decision after taking into consideration the recommendations in the Proposed Plan and any comments received from the public during the 30-day comment period.

Renovation: The process of improving a broken, damaged, or outdated structure or piece of equipment.

Responsiveness Summary: A section of the Record of Decision where the U.S. Army documents and responds to written and oral comments received from the public about the Proposed Plan.

Subsurface Anomaly: An item seen as a subsurface irregularity (i.e., deviates from expected subsurface items such as pipes, utility lines, etc.) after geophysical investigation.

Unexploded Ordnance (UXO): Military munitions that have been primed, fuzed, armed, or otherwise prepared for action; have been fired, dropped, launched, projected, or placed in such a manner as to constituent a hazard to operations, installations, personnel, or material; and remain unexploded either by malfunction, design, or any other cause.

Weapons Demilitarization Facility: A facility or installation involved in the reduction of a nation's army, weapons, weapons systems, or military vehicles to an agreed upon minimum.

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Engineering-Environmental Management, Inc. (e^2M), 2007. *Final Military Munitions Response Program Historical Records Review, Ravenna Army Ammunition Plant, Ohio*, January.

e^2M, 2008. *Final Site Inspection Report, Ravenna Army Ammunition Plant, Ohio, Military Munitions Response Sites*, May.

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FIGURES

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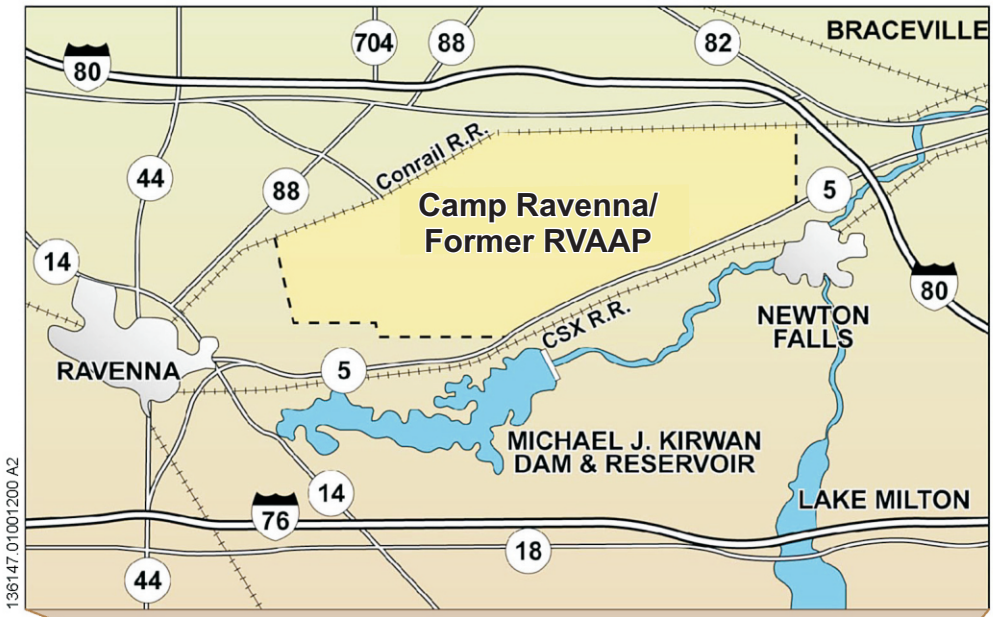

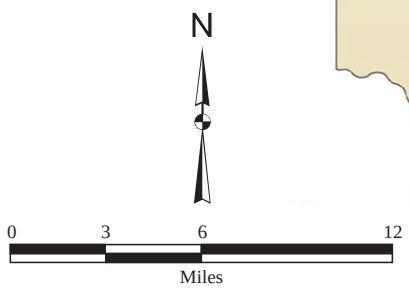

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Source: CB&I

Legend

Camp Ravenna/Former RVAAP

Figure 1
Location Map
Camp Ravenna/
Former RVAAP
Portage and Trumbull Counties, Ohio

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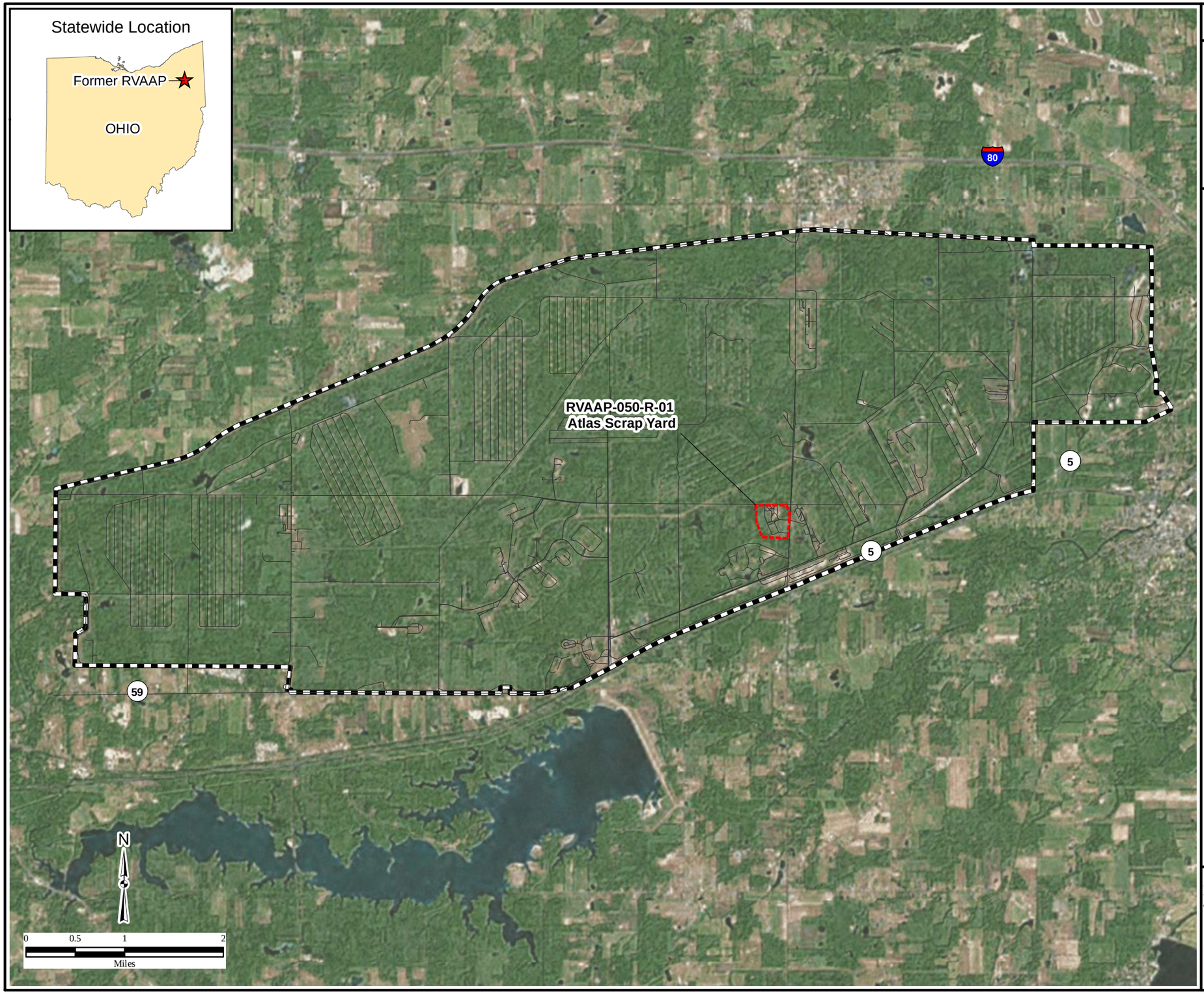
Figure 2
MRS Location
Camp Ravenna/Former RVAAP
Portage and Trumbull Counties, Ohio



Legend

- Road
- MRS
- Installation Boundary

Notes:
MRS=munitions response site
RVAAP=Ravenna Army Ammuntion Plant

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Source: HGL,CB&I, USACE, e²M
ArcGIS Online Imagery

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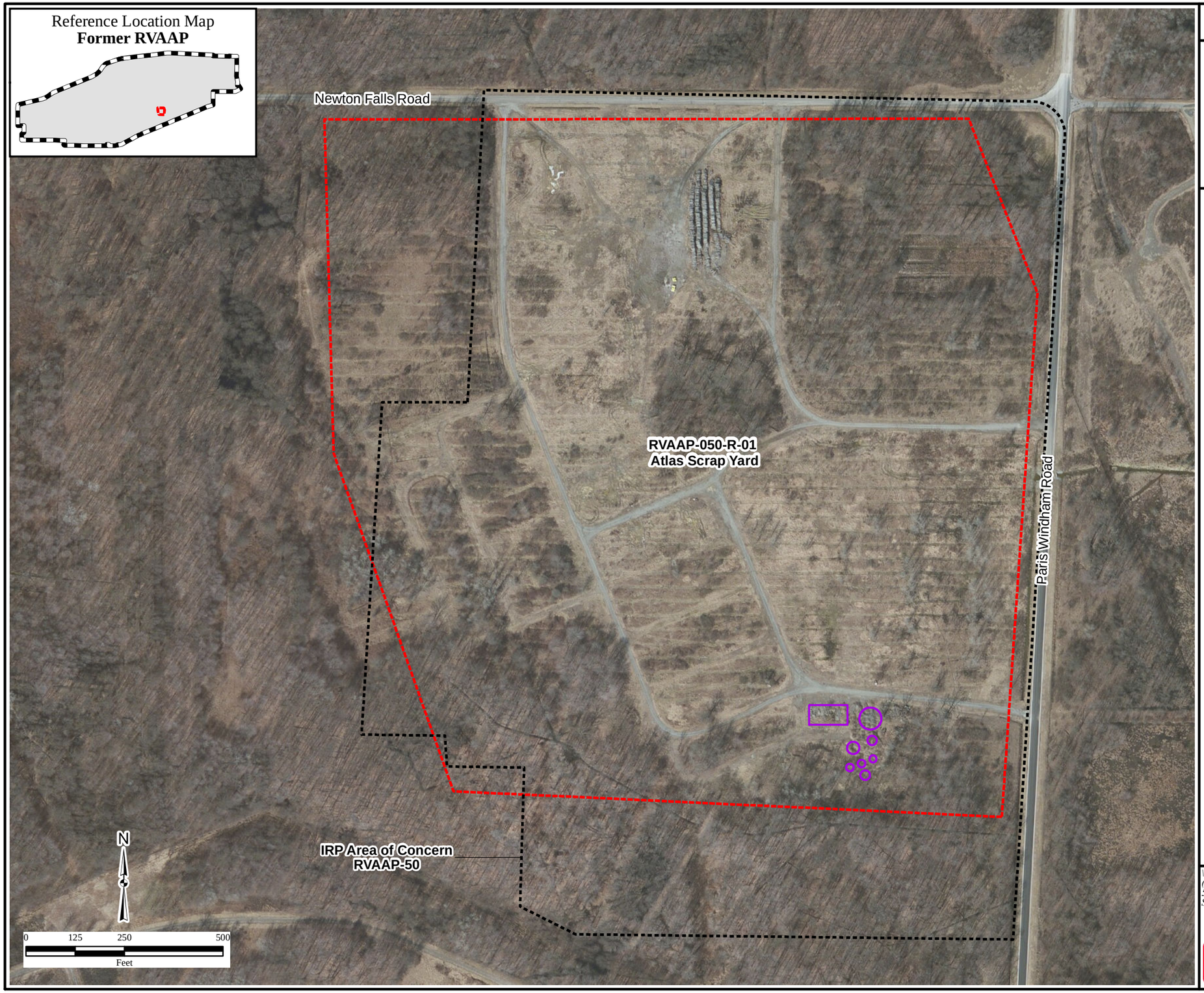
Figure 3
Atlas Scrap Yard MRS Boundary
Camp Ravenna/Former RVAAP
Portage and Trumbull Counties, Ohio



Legend

- Former Debris Area
- IRP Area of Concern
- MRS
- Installation Boundary

Notes:
IRP=Installation Restoration Program
MRS=munitions response site
RVAAP=Ravenna Army Ammuntion Plant

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Source: HGL,CB&I, USACE, e²M
ArcGIS Online Imagery

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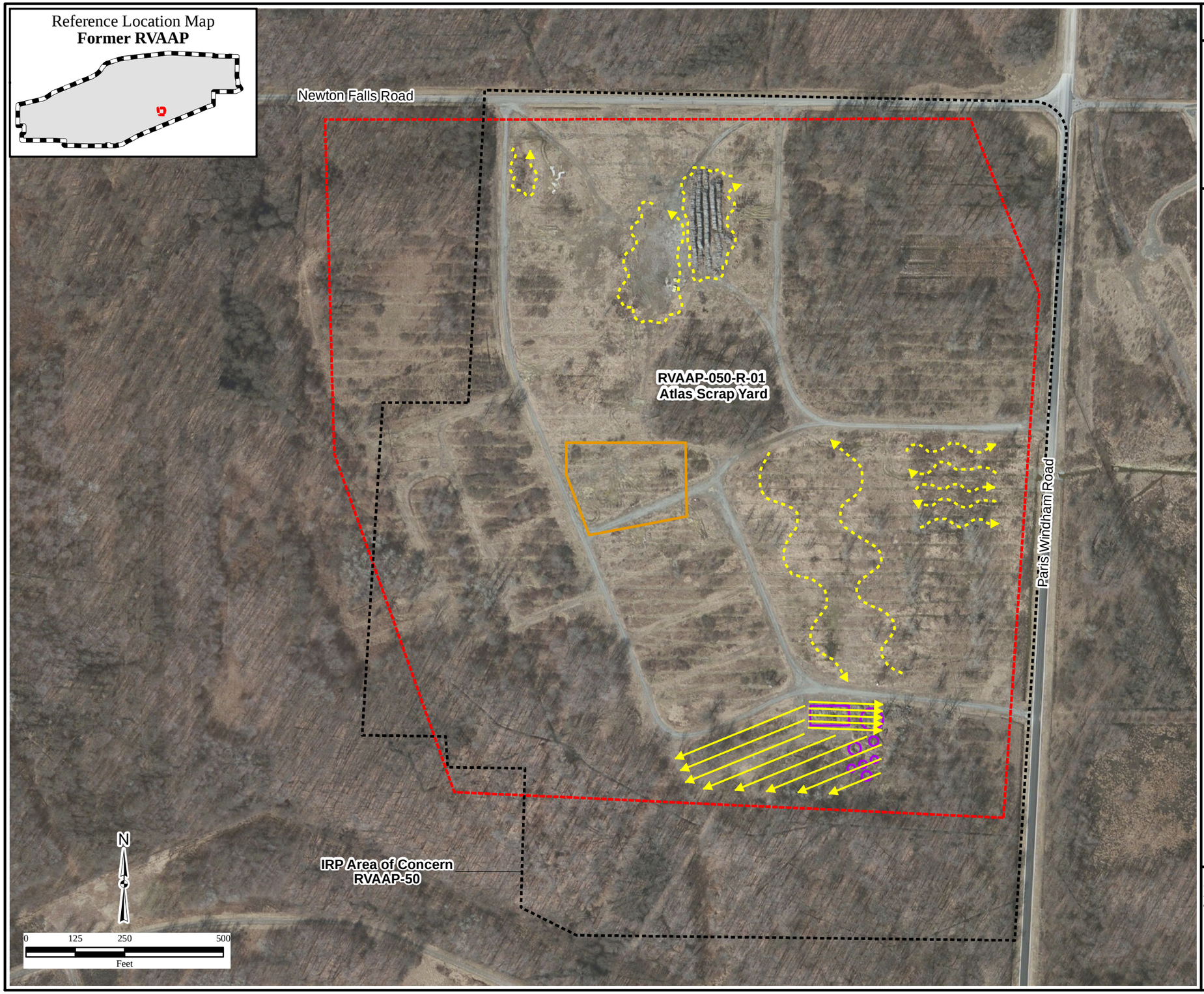
Figure 4
Atlas Scrap Yard MRS
2008 Site Inspection Results
Camp Ravenna/Former RVAAP
Portage and Trumbull Counties, Ohio



Legend

- Meandering Path Survey Transect
- Line Abreast Survey Area
- Former Debris Area
- Suspected Location of Buried 40 mm Fragmentation Shell
- IRP Area of Concern
- MRS
- Installation Boundary

Notes:
IRP=Installation Restoration Program
MRS=munitions response site
RVAAP=Ravenna Army Ammuntion Plant

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Source: HGL,CB&I, USACE, e²M
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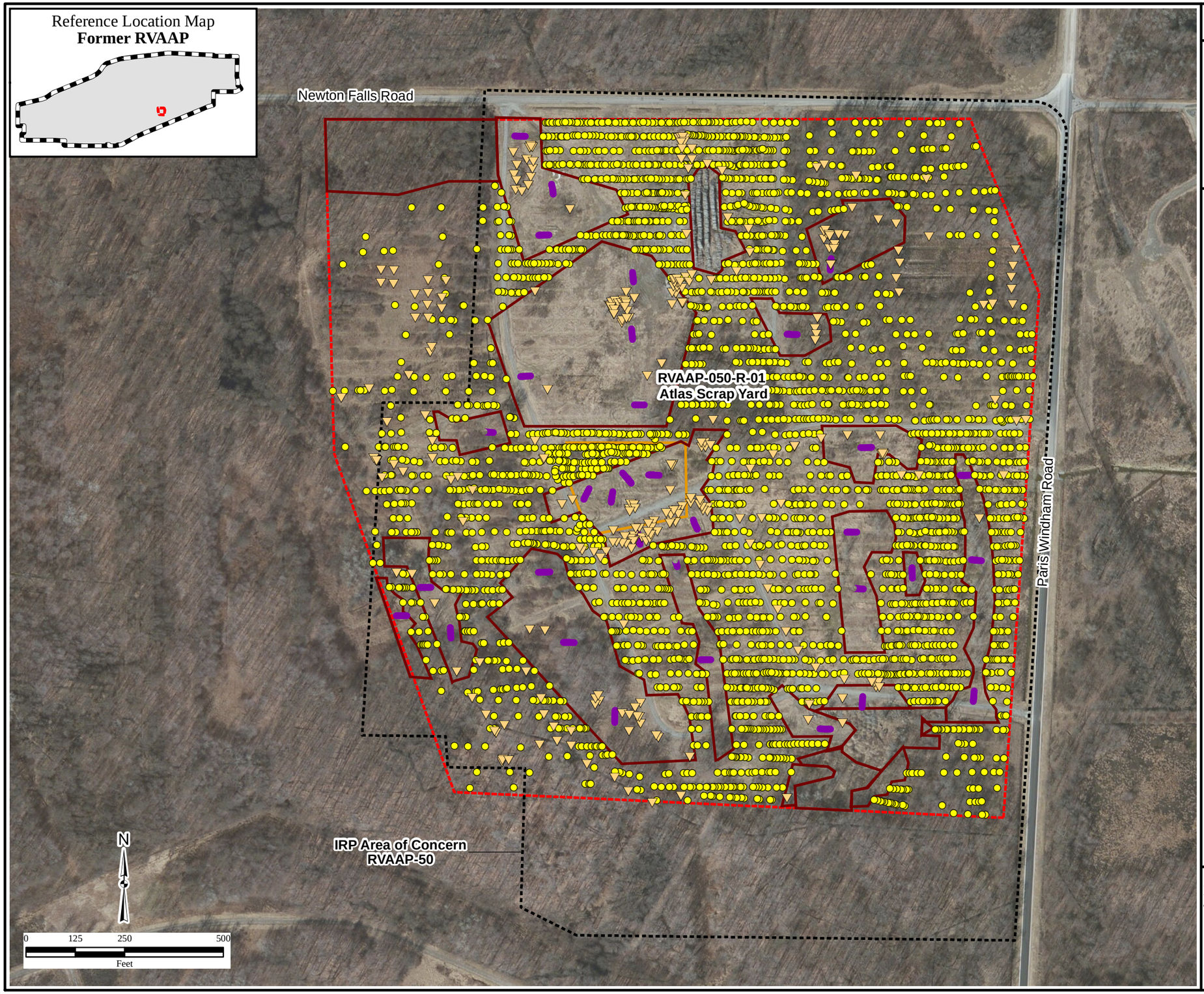
Figure 5
Atlas Scrap Yard MRS
2014 Remedial Investigation Results
Camp Ravenna/Former RVAAP
Portage and Trumbull Counties, Ohio



Legend

- Anomaly Location Investigated (No MEC or MD Items Identified)
- Cultural Feature/ Surface Metal/ Natural Site Feature
- Trench Ops Complete (33 Locations, No MEC or MD Items Identified)
- High Anomaly Density Area
- Suspected Location of Buried 40 mm Fragmentation Shell
- IRP Area of Concern
- MRS
- Installation Boundary

Notes:
IRP=Installation Restoration Program
MD=Munitions Debris
MEC=munitions and explosives of concern
mm=millimeter
MRS=munitions response site
RVAAP=Ravenna Army Ammuntion Plant

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