Final Proposed Plan, TS345 and SR347 Remedial Action

Joint Base Andrews Naval Air Facility Washington, Maryland

July 2023

Joint Base Andrews Naval Air Facility Washington
Air Force Civil Engineer Center

Final Proposed Plan

TS345 and SR347 Remedial Action

U.S. Air Force Announces Proposed Remedial Action Plan for MMRP Sites TS345 and SR347

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Introduction

The United States (U.S.) Air Force (USAF) is proposing "Alternative 4: **Excavation** of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling" as its **preferred alternative** at Military Munitions Response Program (MMRP) Site 34 (Skeet and Trap Club, TS345) and Site 36 (Old Skeet Range, SR347) located at Joint Base Andrews (JBA) Naval Air Facility Washington in Camp Springs, Prince George's County, Maryland. The USAF has prepared this Proposed Plan to highlight key information used to support the selection of preferred alternative and to inform the public so that they may be involved in the decision-making process. To assist the reader, key technical or administrative terms are in bold type. A glossary of these specialized terms is included at the end of this plan.

The USAF, the **lead agency** for cleanup activities at JBA, in consultation with the U.S. Environmental Protection Agency Region 3 (EPA), the lead regulatory agency, and the **Maryland Department of the Environment** (MDE), issues this document as part of the public participation requirements under Section 117(a) of the **Comprehensive Environmental Response, Compensation and Liability Act** of 1980 (CERCLA) and **Title 40 of the Code of Federal Regulations** (CFR), Section 300.430(f)(2). Title 40 CFR 300 is known as the **National Oil and Hazardous Substances Pollution Contingency Plan** (NCP), and it is the CERCLA regulation. JBA was proposed for the **National Priorities List (NPL)** on July 28, 1998 and was formally placed on the NPL on May 10, 1999. The CERCLA Information System ID number for JBA is MD0570024000. This Proposed Plan describes TS345 and SR347 and summarizes detailed technical information from the **remedial investigation** (RI) and **feasibility study** (FS) reports, the various cleanup alternatives considered, and opportunities for the public to review and comment regarding the proposed remedial action at the site.

Mark Your Calendar for the Public Comment Period

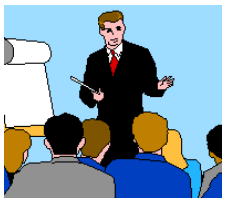
Public Comment Period

August 7, 2023 to September 6, 2023

Submit Written Comments

Questions and comments on all four of the alternatives presented in the sites' feasibility study report are welcomed in writing during the **public comment period** or at the public meeting, if one is held. New information provided during the public comment period could result in the selection of a final **remedial alternative** that differs from the preferred alternative.

The USAF, in consultation with the EPA, MDE, and **Prince George's County Health Department,** will review public comments on the Proposed Plan submitted during the public comment period. Information on how to submit public comments is provided on page 33.



Opportunity for Public Meeting

The public is encouraged to contact the USAF within 15 days of the start of the public comment period (no later than August 22, 2023) if they have an interest in attending a public meeting where the USAF will explain this Proposed Plan and respond to questions.

The USAF will issue additional public notices to announce the date, time, and location of any public meeting, if one is requested. Additional oral and written comments will also be accepted at a public meeting. See page 33 for more information.

If interested in attending a public meeting, please contact the 316th Wing Public Affairs Office e-mail at 316WG.PA.COMMUNITYENGAGEMENT@us.af.mil.

To remediate contaminated sites at JBA, the Department of Defense and EPA entered into a **Federal Facilities Agreement** (FFA) that became effective January 11, 2012. The FFA establishes a procedural framework for developing and implementing response actions as required by CERCLA. The agreement is also designed to facilitate cooperation and communication between the USAF and EPA regarding the response actions.

This Proposed Plan is required by Section 117(a) of CERCLA and Section 300.430(f)(2) of the NCP. CERCLA and the NCP require public participation in the process of selecting a cleanup remedy. The USAF and EPA, in consultation with MDE, Prince George's County Health Department, and the public, will select the remedial action for MMRP sites TS345 and SR347. The preferred alternative will be announced in a local newspaper notice and a document called the **Record of Decision** (ROD). The USAF and EPA encourage the public to review the following documents (which are located in the **Administrative Record** as referenced below) to gain a better understanding of the sites and the environmental investigation activities that led to selection of the preferred remedy:

- Phase I and Phase II Comprehensive Site Evaluation (CSE; Sky, 2011).
- Non-Time-Critical Removal Action (NTCRA) Report (EA Engineering, Science, and Technology, Inc. [EA], 2015).
- Remedial Investigation Report (HydroGeoLogic, Inc. [HGL], 2020).
- Feasibility Study (HGL, 2021).

Information on how to participate in the decision-making process is presented on pages 33 and 34 of this Proposed Plan.

Location of Administrative Record

A copy of this Proposed Plan is also available for public review in the Administrative Record, a collection of technical documents that forms the basis of the selection of a cleanup remedy. A copy of the Administrative Record is available as part of the site's information repository, which is located at the Prince George's County Memorial Library, Oxon Hill-Clinton Branch and online at https://ar.afcec-cloud.af.mil/. The address and hours for the library are listed in the "Community Participation" section on page 33.

Site Background

Site Location

The former ranges addressed in this Proposed Plan are located within JBA in Prince George's County, Maryland, near the community of Camp Springs (**Figure 1**). Washington, DC is approximately 5 miles northwest of JBA. The MMRP sites are located south of the western runway, within the airfield security area, east of Wisconsin Road and north of Perimeter Road (**Figure 1**). Given their proximity to the end of the runway and the **flightline**, the MMRP sites are located in a restricted area of the base, behind the secure airfield fence.

JBA Description and History

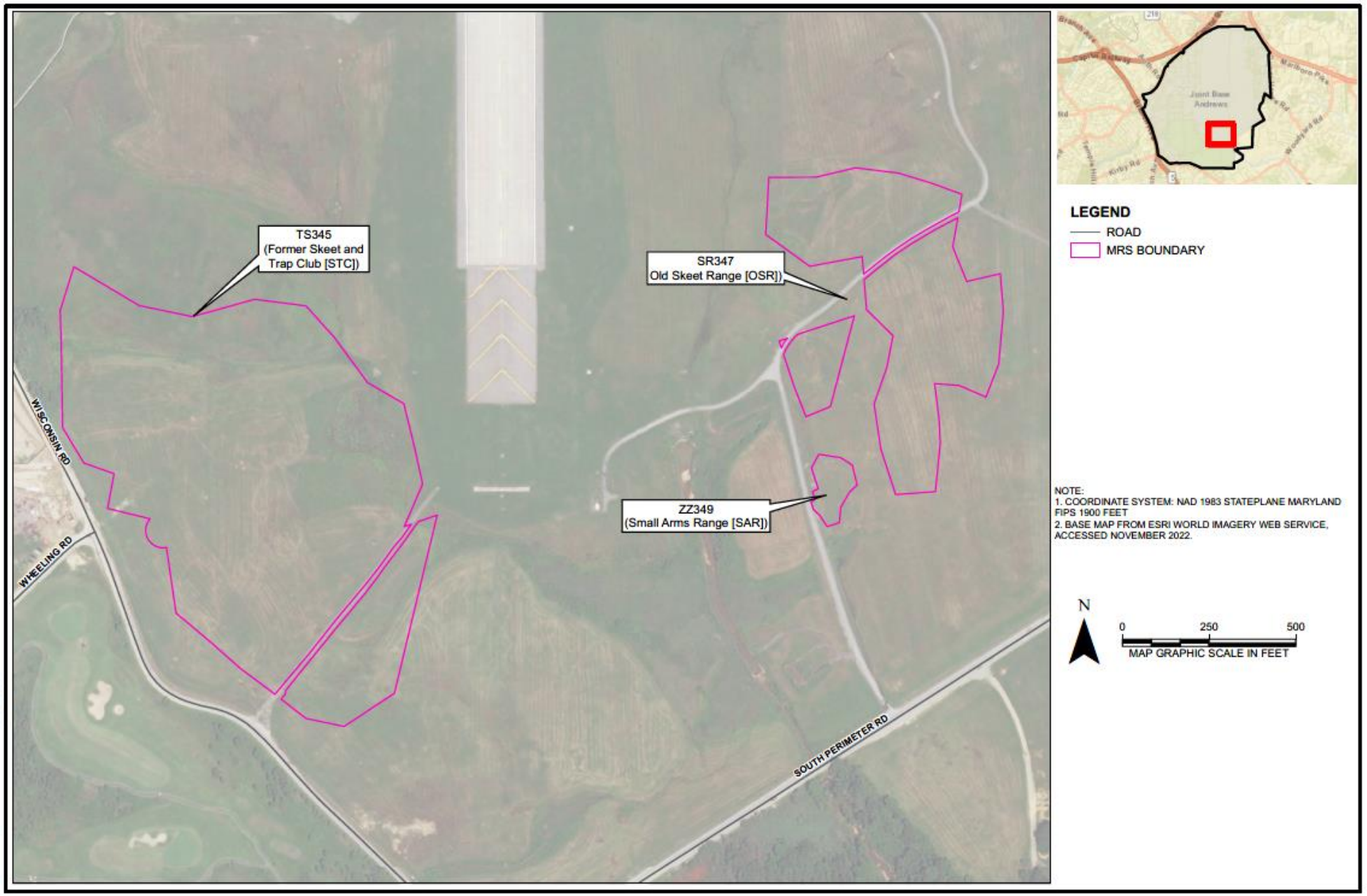
JBA covers approximately 4,360 acres, which include runways, airfields, industrial areas, and housing and recreational facilities. Residential housing is the second largest land use area on JBA after the airfield. The majority of the housing is located on the west side of JBA. Outdoor recreation land use includes golf courses, ball fields, a tennis court, a running track, a swimming pool, and picnic areas. The majority of the outdoor recreation facilities are concentrated west of the airfield in the southwest corner of JBA.

More than 12,000 active military personnel are stationed at JBA, which also employs more than 4,000 civilians. Currently, JBA is home to a variety of mission partners that include the following: 316th Wing – the JBA host wing, Air Force District of Washington, 79th Medical Wing, 89th Airlift Wing, Air National Guard Readiness Center, 113th Wing, District of Columbia Air National Guard, 459th Air Refueling Wing, and Naval Air Facility Washington.

The history of JBA, formerly Andrews Air Force Base, began during the Civil War (1861-1865) when the Union Army used the area as an encampment (JBA, 2012). In 1942, President Franklin D. Roosevelt ordered a military airfield to be built in the area. The airfield was named Camp Springs Army Air Field, and it became operational in 1943. In 1945, the name of the airfield was changed to Andrews Field in honor of Lt. Gen. Frank M. Andrews, a USAF founding father. In 1947, when the USAF became a separate service, the name was changed to Andrews Air Force Base. In 2009, Andrews Air Force Base and the Naval Air Facility Washington became a joint base named Joint Base Andrews Naval Air Facility Washington or Joint Base Andrews.

JBA is best known for its special air missions – the transportation of senior government and military leaders. In March 1962, JBA officially became the "Home of Air Force One," the airplane for the President of the U.S.

Figure 1 - Site Location Map



Environmental Restoration Program

Past operational activities at JBA have resulted in releases of hazardous substances, pollutants, and **contaminants** to soil, **sediment**, surface water, and/or **groundwater** at sites across the base. Environmental investigations began in 1985 and are being pursued under the Environmental Restoration Program (ERP). The ERP, formerly called the Installation Restoration Program, was developed by the Department of Defense (DoD) in 1981. The purpose of the USAF's ERP is to identify, investigate, and cleanup site releases of hazardous substances, pollutants, or contaminants on installations and former properties resulting from past practices that pose a risk to human health and the environment. The USAF's ERP is operated in compliance with all applicable legal requirements governing cleanup, including the Defense Environmental Response Program (DERP) statute (10 United States Code [USC] Section 2700-2711) and the CERCLA and its implementing regulations and is guided by policy issued by DoD. The USAF's ERP addresses two categories of cleanup sites under DERP (i.e., IRP and MMRP) at active Air Force Reserve, Air National Guard, Base Realignment and Closure, and now U.S. Space Force installations in the United States and United States Territories. The JBA ERP has issued 17 Proposed Plans and 16 decision documents, six of which required No Action. Eleven selected remedies have been implemented at JBA. This Proposed Plan is the nineteenth plan to be presented to the public for comment.

Military Munitions Response Program

The DERP was established by Section 211 of the Superfund Amendments and Reauthorization Act (SARA) of 1986. SARA Section 211 was codified in Title 10 of the USC Section 2701, et seq. Related sections in Title 10 of the USC, 10 USC Sections 2701(b)(2), 2703(b) and 2710, further define the program. Three program categories were established under DERP: Installation Restoration Program; MMRP; and the Building Demolition/Debris Removal Program.

The MMRP was established by the DoD in September 2001 under the authority of 10 USC Section 2710 to identify and respond to environmental and explosive safety hazards posed by **Munitions and Explosives of Concern (MEC)** and **Munitions Constituents (MC)** at closed, transferred, or transferring ranges.

Pursuant to 10 USC Section 2710(e)(3), MCs means any materials 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 [MCs typically include metals (e.g., lead, arsenic, antimony, zinc) and explosive constituents). The Munitions Response Site Prioritization Protocol (MRSPP) was published in the Federal Register in October 2005 (32 CFR Section 179). The MRSPP was designed to meet the provisions of 10 USC Section 2710(b), which require the DoD assign, to each defense site in the inventory required by 10 USC Section 2710(a), a relative priority for response activities based on the overall conditions at each location and taking into consideration various factors related to safety and environmental hazards. The MRSPP designates sites as:

- **Munitions Response Area (MRA)**: Any area on a defense site that is known or suspected to contain unexploded ordnance, discarded military munitions, or MC. As defined in 10 U.S.C. Section 2710(e)(3), MC refers to any materials 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 Response Site (MRS)**: A discrete location within an MRA that is known to require a munition response.

TS345 and SR347 were identified as MRAs in the MMRP based on their former use for small arms gunner practice (i.e., trap and skeet ranges) and information from environmental investigations, **risk assessments**, and cleanup activities completed at the two sites under DERP through the USAF's ERP.

Site Description and History

SR347 was in operation from an unknown date to approximately 1964. TS345 replaced SR347 and operated from 1964 until sometime prior to 2000. Historical documentation suggests only small arms were used at both ranges, and there is no history of explosives use at any of the sites addressed in this Proposed Plan. Prior to closure, spent shotgun shells were collected from these ranges, but clay target materials, plastic wads, and lead shot were left on the ground. Lead shot was not reclaimed from the ranges while they were active.

An NTCRA was completed in 2014 and was successful in removing the lead- and polycyclic aromatic hydrocarbons (PAH)-impacted soil at TS345 and SR347and **Remedial Action Objectives** (RAOs), protective of human health, were achieved. Following completion of the NTCRA, areas outside of the excavation boundaries were delineated to identify locations with lead shot pellets occurring at densities greater than 10 pellets per square foot, which could present an ecological risk to grit-eating birds. Additional action is required to address the remaining ecological risk posed by lead shot at the sites. The ranges are closed, and current site activity is limited to grounds maintenance. Two non-tidal wetland areas were identified at TS345. The current and reasonably

anticipated land use at the sites can generally be considered open/maintained grass field areas to support air and flightline operations at JBA. According to the **Installation Development Plan**, the location is designated as airfield pavement. There are no development plans identified for the sites and the current land use will remain unchanged.

Previous Investigations

The following subsections summarize previous site investigations including the CSE Phase I and CSE Phase II, NTCRA (i.e., Removal Action), RI, and FS.

Phase I and II Comprehensive Site Evaluations

Under the MMRP, a Phase I CSE was conducted in 2007, and a Phase II CSE was conducted in 2009 (U.S. Army Corps of Engineers [USACE], 2009; Sky, 2011). The Phase I and II CSEs included visual surveys to identify any features related to MC and MEC. Items classified as potential MEC are defined as military munitions that are deemed **unexploded ordnance**, abandoned or discarded, or where MC are present in soil, facilities, equipment, or other materials in high enough concentrations as to pose an explosive hazard. Items classified as munitions debris are defined as remnants of munitions (e.g., fragments, projectiles, shell casings, etc.). As expected, given its history as a small arms range, no MEC were found at TS345 or SR347 during the site reconnaissance. However, visual surveys identified lead shot from fired shotgun shells and clay target debris at both ranges. MRA boundaries were adjusted based on the results of these surveys.

The Phase I CSE summarized the technical data, including chemical makeup, for the munitions associated with the site. During scoping for the Phase II CSE, the compounds identified in the chemical makeup of each munition were evaluated to determine the technical feasibility of analysis based on available laboratory methods. Based on this analysis, lead was the only MC selected for analysis during the Phase II CSE field investigation at TS345 and SR347. As such, source **sampling** included collection of soil samples on an established grid for **X-ray fluorescence** (XRF) analysis for lead. In general, soil sampling was conducted at the surface (0 to 6 inches below ground surface [bgs]) and continued vertically down at each point until detected concentrations of lead in soil were below the then MDE residential soil action level of 400 **milligrams per kilogram** (mg/kg). If the lead concentration was greater than 400 mg/kg, additional soil samples were collected horizontally in four directions. The sampling process continued horizontally and vertically until the apparent extent of lead contamination (greater than 400 mg/kg) in soil was identified. It should be noted that MDE reevaluated the soil screening levels to incorporate lower blood lead reference levels, codified in the State of Maryland in 2019, and subsequently updated their residential soil screening concentration to 200 mg/kg, effective July 1, 2020. **Figures 2** through **9** present the XRF sampling results from the Phase II CSE.

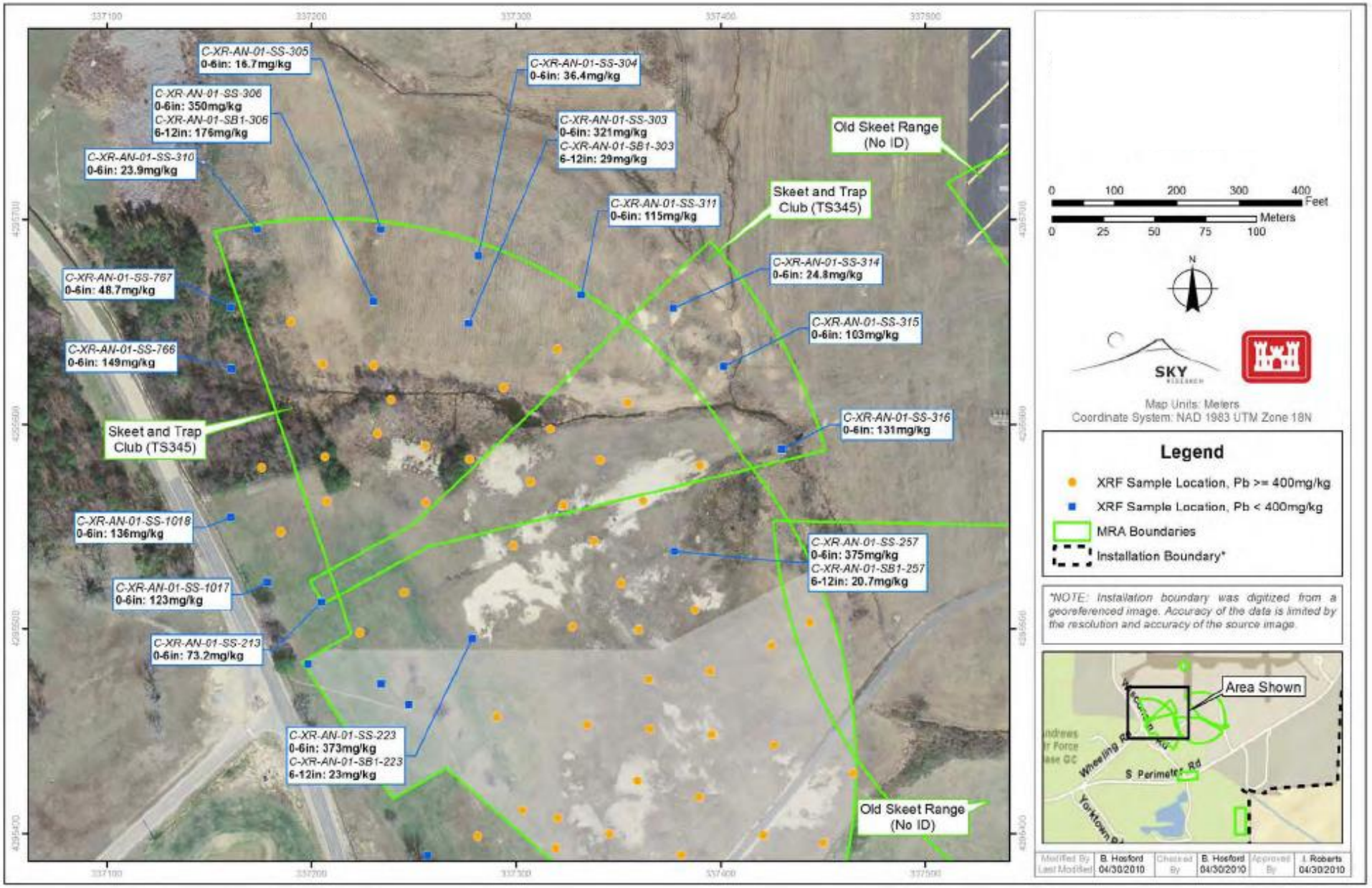
A total of 12 soil samples were collected for analysis of PAHs from areas at TS345 and SR347 with observed clay pigeon debris. Both surface (0 to 6 inches bgs) and subsurface (6 to 18 inches bgs) soil samples were collected. Of the eight soil samples analyzed for PAHs at TS345, three samples had PAH concentrations exceeding both residential human health and ecological **risk-based screening levels** for PAHs. All four of the soil samples analyzed from SR347 contained levels of PAHs exceeding the residential human health and/or ecological risk-based screening levels.

Based on the investigation results, the Phase II CSE recommended the subdivision of TS345 and SR347 into separate MRSs (**Figure 10**), as follows, to facilitate further munitions actions:

- TS345 MRS – (Contaminated) – Approximately 20.37 acres;
- TS345A MRS – (Uncontaminated) – Approximately 2.51 acres;
- SR347 MRS – (Contaminated) – Approximately 7.66 acres; and
- SR347A MRS – (Uncontaminated) – Approximately 32.28 acres

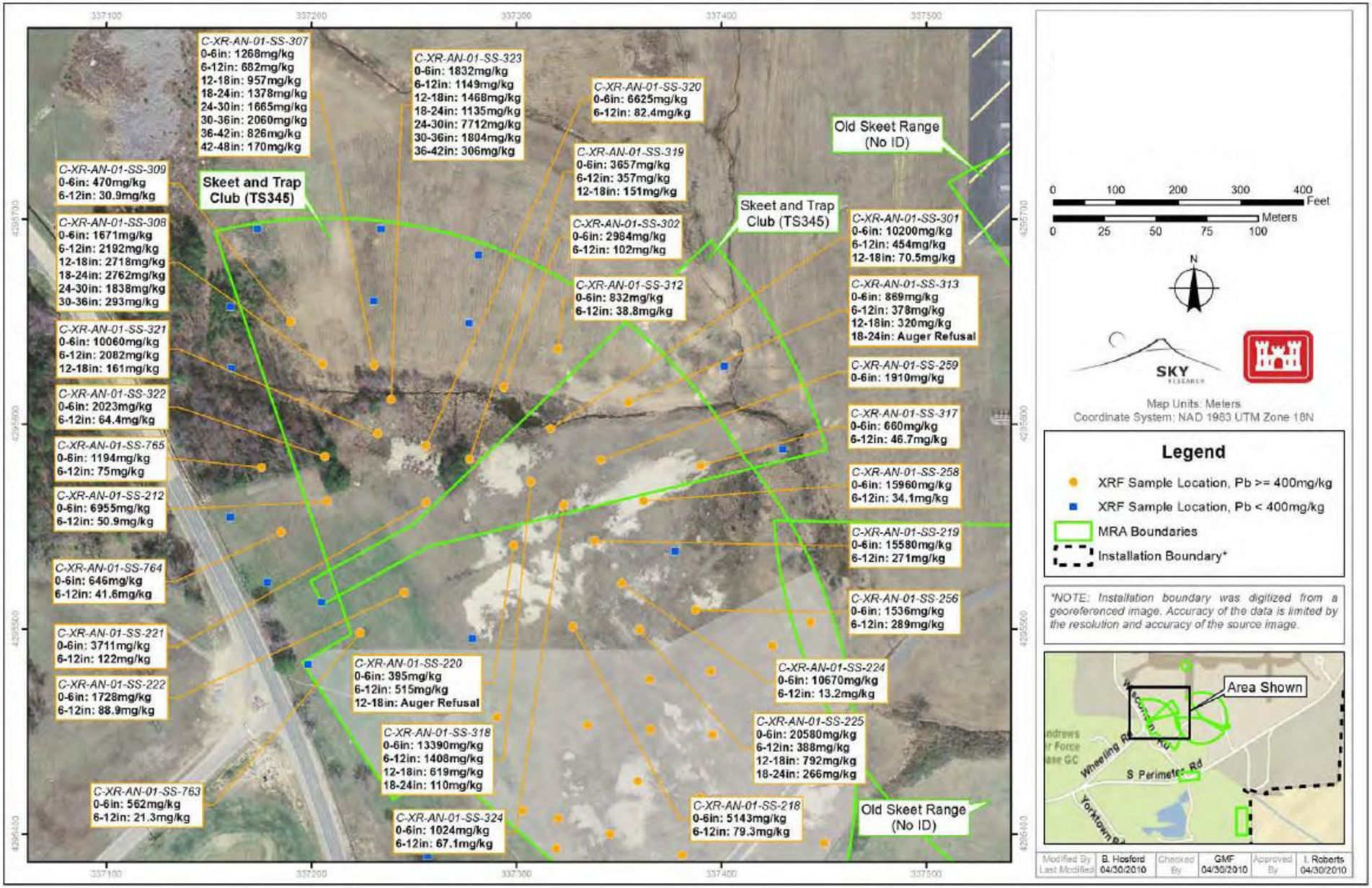
The results of the screening-level human health risk assessment conducted during the Phase II CSE indicated removal action activities were warranted for MRSs TS345 and SR347. It should be noted that the Phase II CSE also indicated removal action activities were warranted for a third MRS, ZZ349 (Small Arms Range [SAR], Building 2355), located southwest of SR347 (**Figure 1**). As discussed in the following subsection, an NTCRA was conducted at all three MRSs (TS345, SR347, and ZZ349). The Phase II CSE recommended No Further Action for the uncontaminated portions of the three MRSs: TS345A, SR347A, and ZZ349A.

Figure 2 – Phase II CSE Northern XRF Sampling Results below 400 mg/kg (TS345)



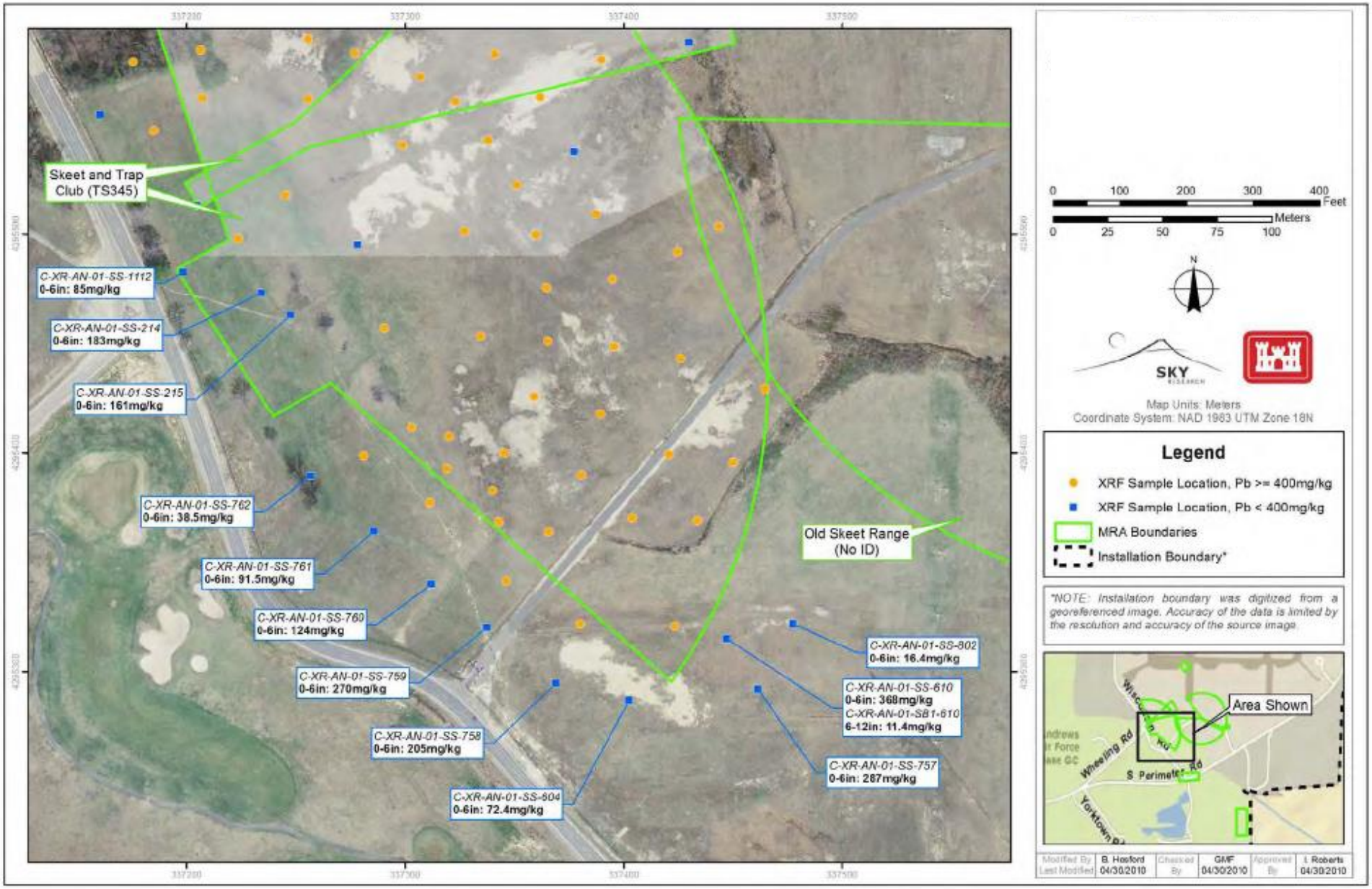
Reference: Figure 5-2 from the Phase II CSE (Sky, 2011).

Figure 3 – Phase II CSE Northern XRF Sampling Results above 400 mg/kg (TS345)



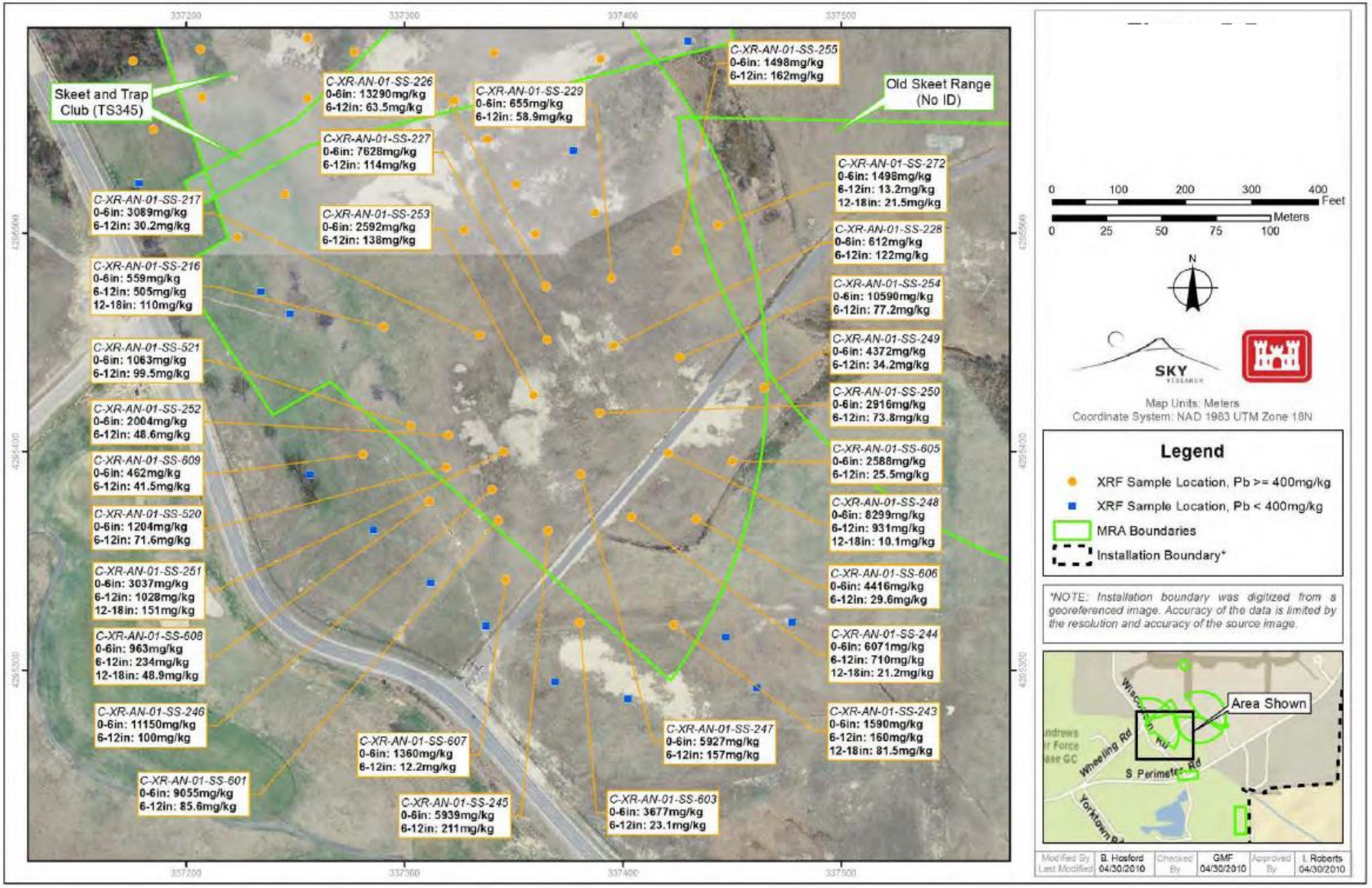
Reference: Figure 5-3 from the Phase II CSE (Sky, 2011).

Figure 4 – Phase II CSE Southern XRF Sampling Results below 400 mg/kg (TS345)



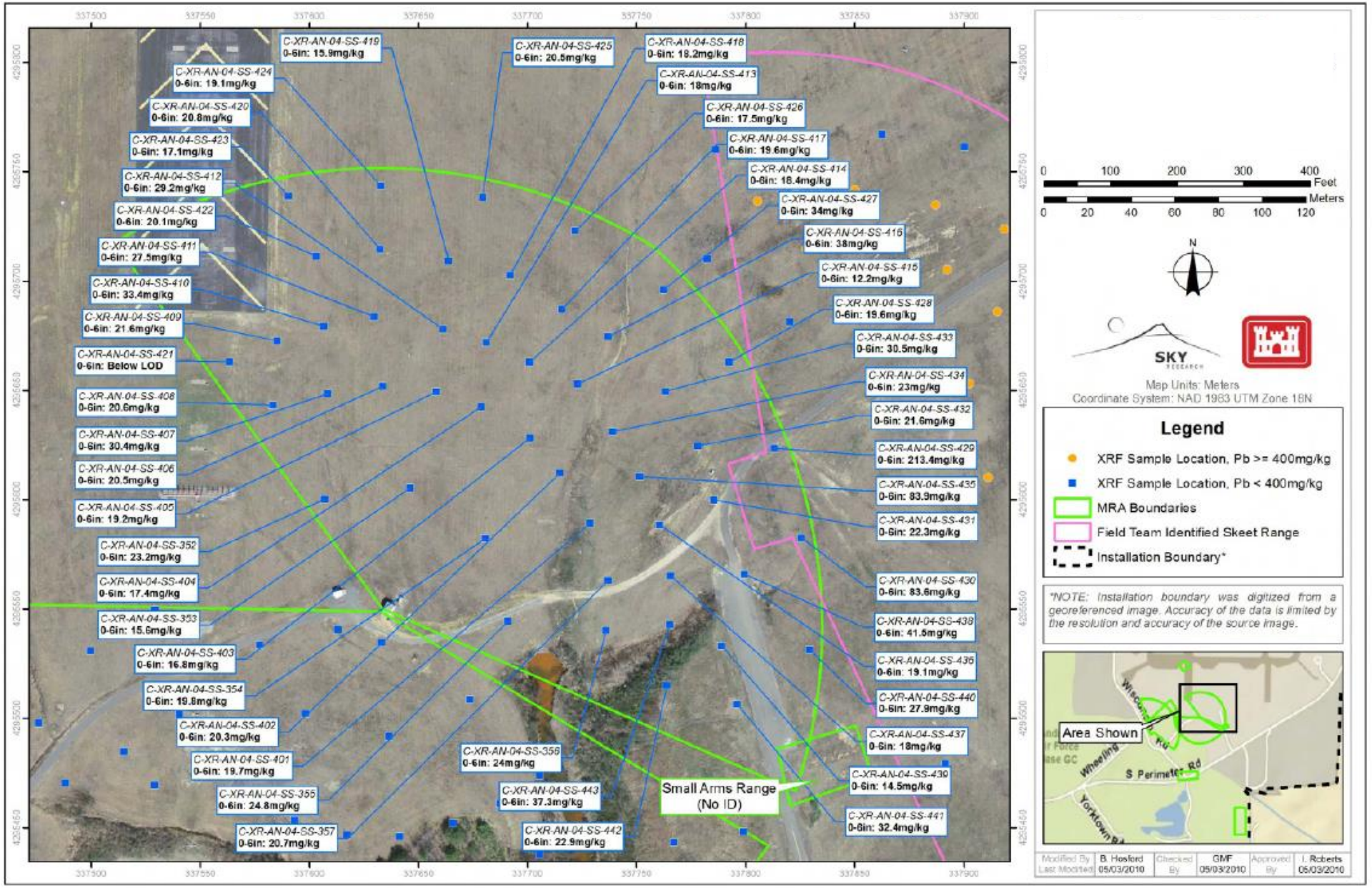
Reference: Figure 5-4 from the Phase II CSE (Sky, 2011).

Figure 5 – Phase II CSE Southern XRF Sampling Results above 400 mg/kg (TS345)



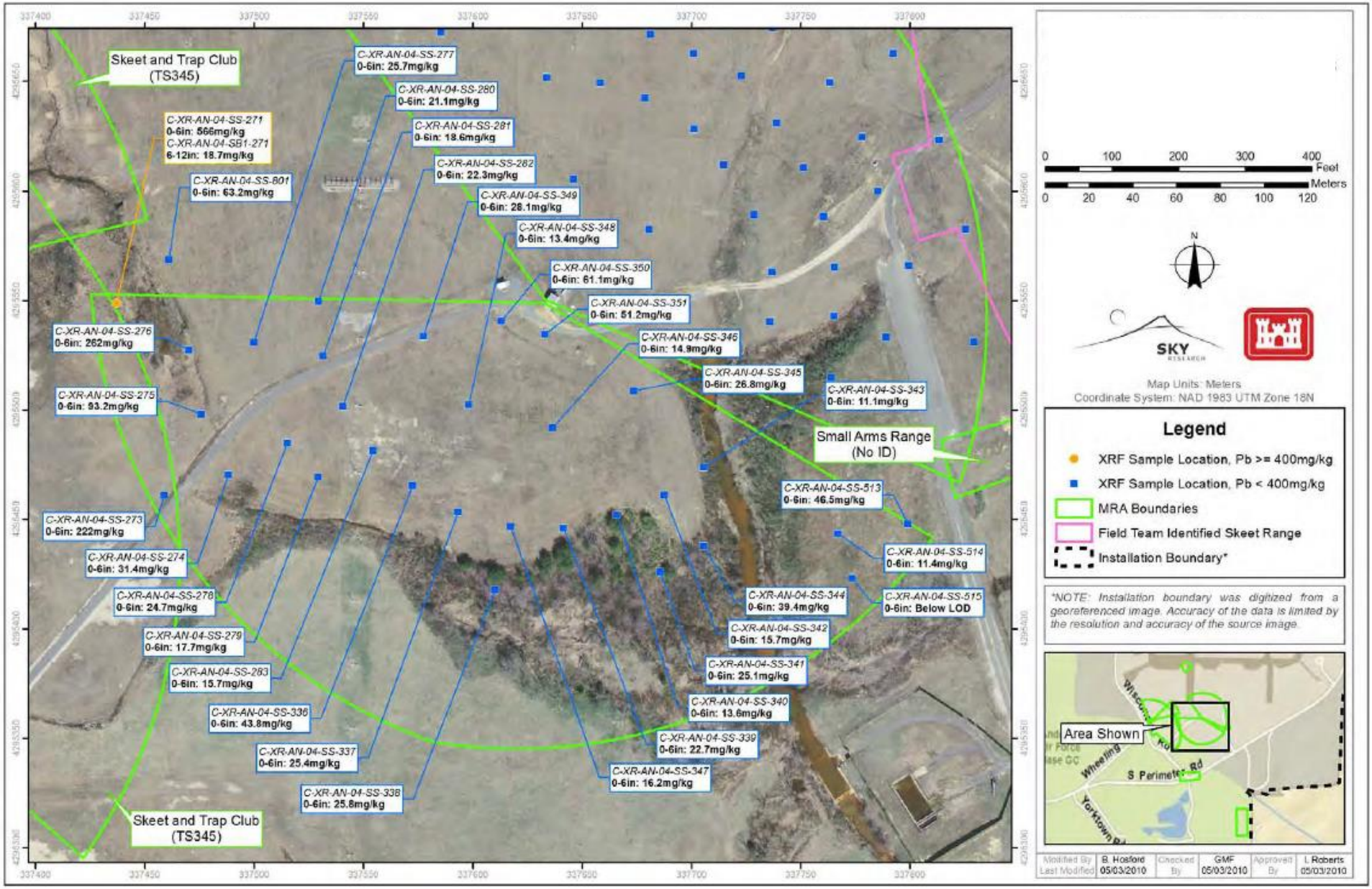
Reference: Figure 5-5 from the Phase II CSE (Sky, 2011).

Figure 6 - Phase II CSE Northern XRF Sampling Results (SR347)



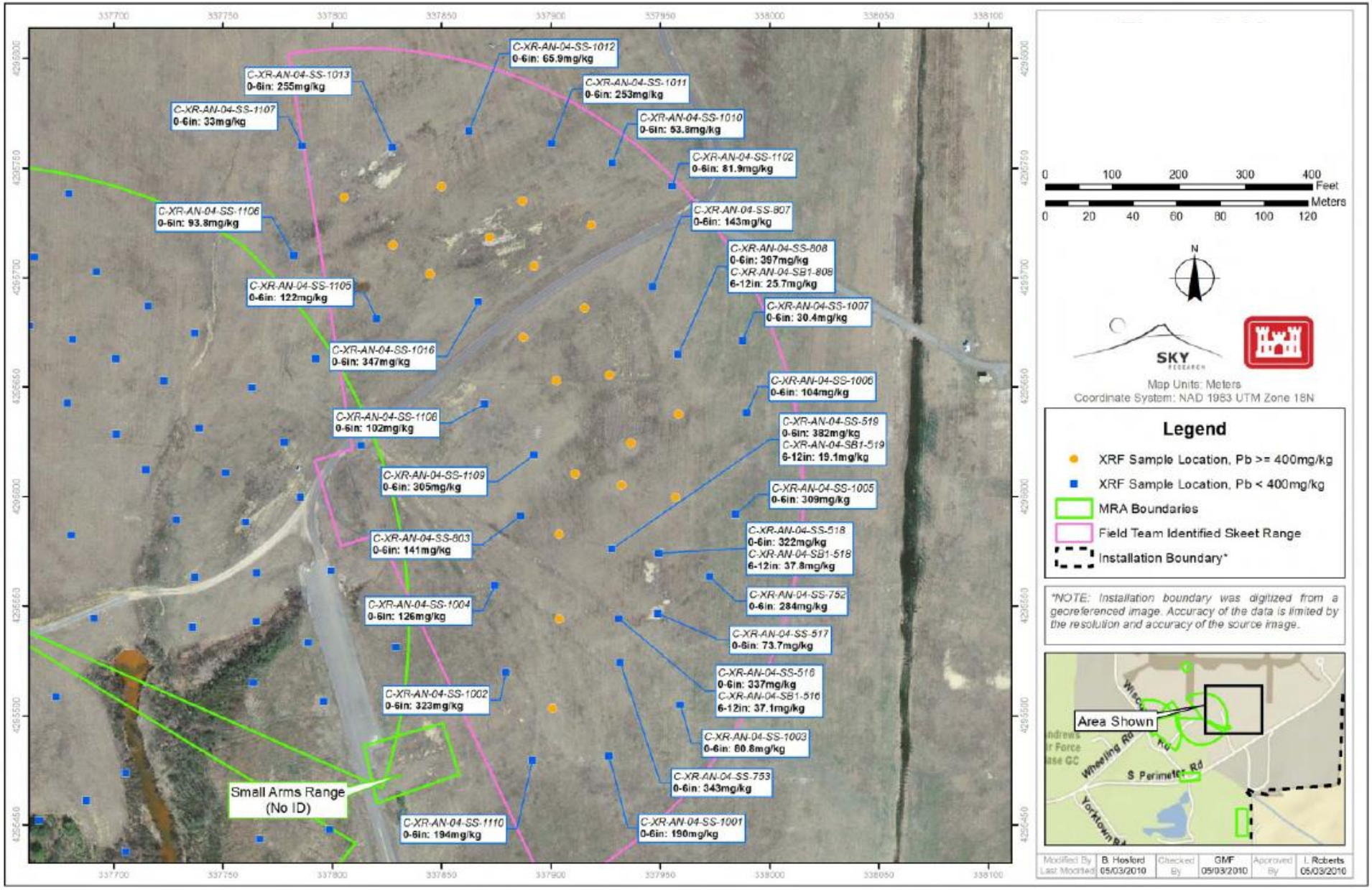
Reference: Figure 5-10 from the Phase II CSE (Sky, 2011).

Figure 7 - Phase II CSE Southern XRF Sampling Results (SR347)



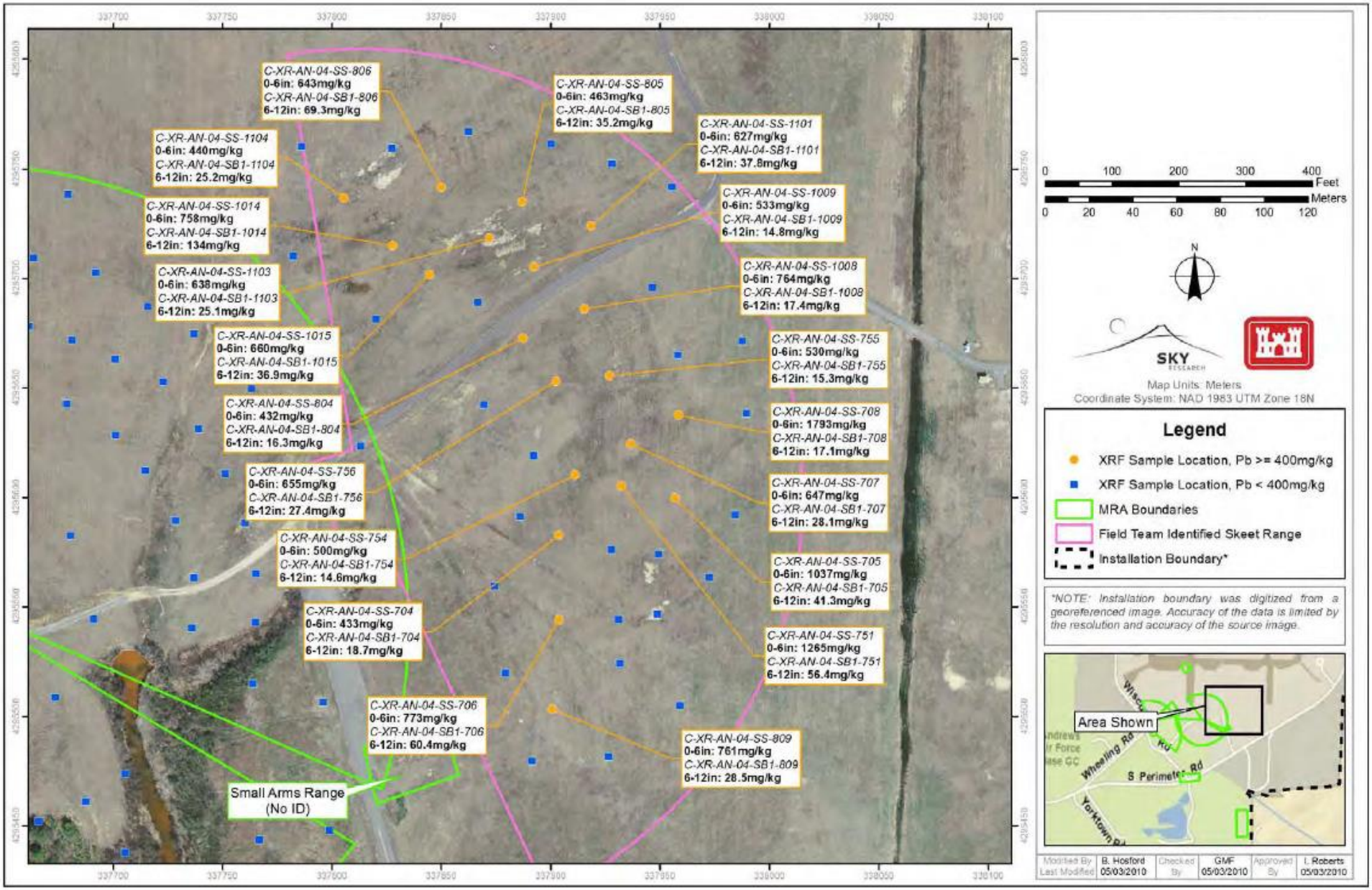
Reference: Figure 5-11 from the Phase II CSE (Sky, 2011).

Figure 8 - Phase II CSE Eastern XRF Sampling Results below 400 mg/kg (SR347)



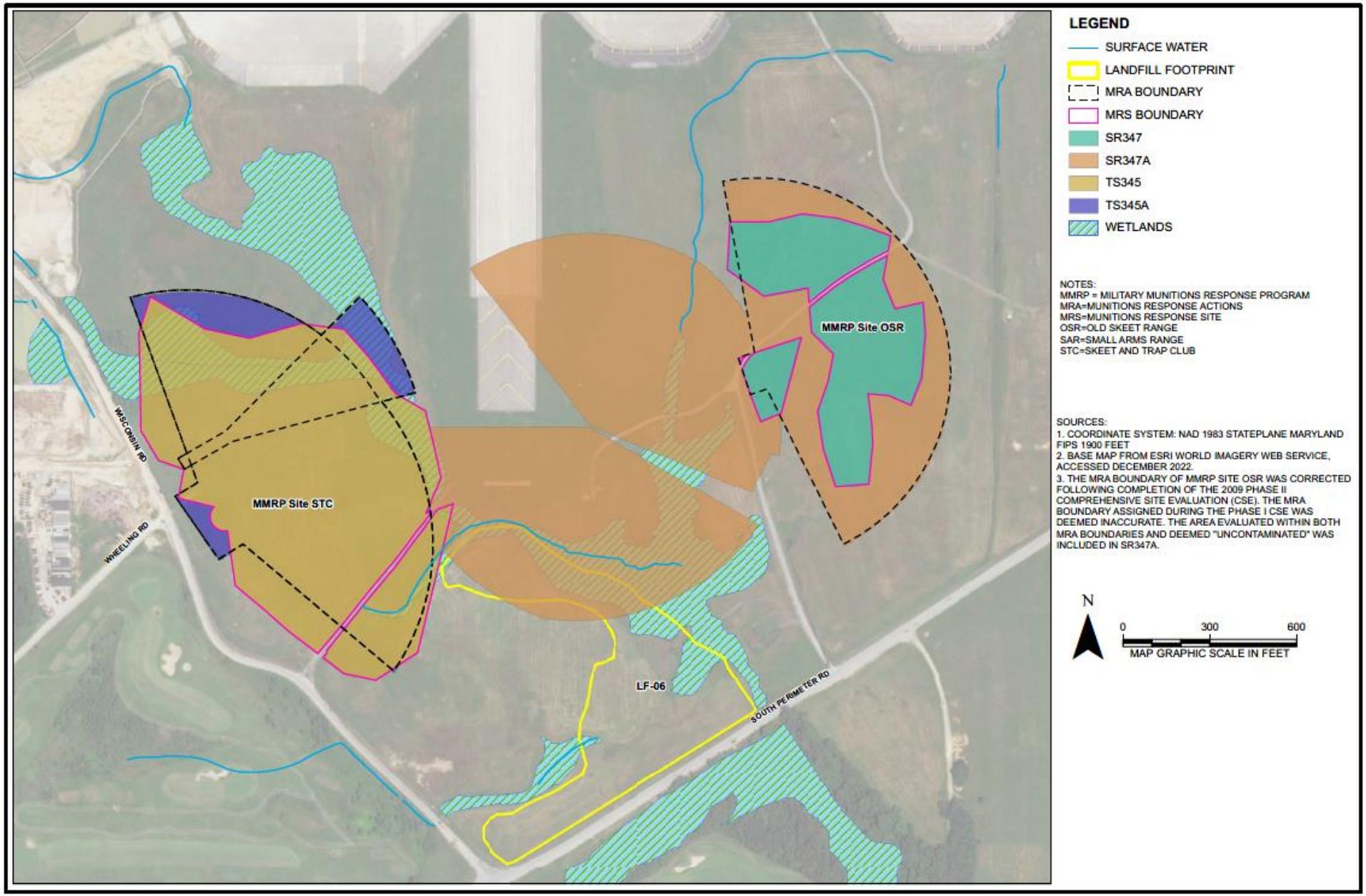
Reference: Figure 5-12 from the Phase II CSE (Sky, 2011)

Figure 9 - Phase II CSE Eastern XRF Sampling Results above 400 mg/kg (SR347)



Reference: Figure 5-13 from the Phase II CSE (Sky, 2011)

Figure 10 – Delineation of MRSs at TS345 and SR347



Non-Time-Critical Removal Action

In 2012, EA prepared an Engineering Evaluation/Cost Analysis for the contaminated portions of TS345, SR347, and ZZ349 (EA, 2012a). The Engineering Evaluation/Cost Analysis determined excavation, stabilization, and non-hazardous off-site disposal of treated soil could meet the removal action goal for these MMRP sites (i.e., the contaminated portions of the MRAs requiring further action). An Action Memorandum prepared in 2012 in support of the MMRP at JBA approved a NTCRA for TS345, SR347, and ZZ349 (EA, 2012b). Streamlined risk evaluations conducted as a component of the Phase II CSE indicated potential risk to maintenance and construction workers at the contaminated portions of TS345, SR347, and ZZ349 from exposure to lead and PAHs from surface and subsurface soil, primarily through inhalation of dust, ingestion, and dermal contact. The RAOs were to remove lead and PAH soil contamination to achieve residential human health screening levels, or background levels (**Table 1**). RAOs were conservatively selected to achieve contaminant concentrations that allow for **unlimited use and unrestricted exposure** [UU/UE]). Current EPA RSLs dated May 2023 are also provided on **Table 1** for comparison purposes and discussed again in the Summary of Site Risks.

A work plan was prepared to document the work activities required to execute the NTCRA (EA, 2014), which included modeling of the Phase II CSE lead data to determine the anticipated limits of lead concentrations exceeding the then MDE residential screening level of 400 mg/kg that would require excavation to achieve RAOs.

The NTCRA was completed in September 2014 (EA, 2015). The RAO for lead was considered to be achieved if the **arithmetic average** concentration for lead was less than 400 mg/kg. The RAO for PAHs was considered to have been achieved if the **95% Upper Confidence Limit of the Mean** concentration for each individual PAH was less than the corresponding regional screening level/background value. The numeric RAOs are summarized in **Table 1**.

Approximately 24,298 and 6,335 cubic yards of contaminated soil was excavated from TS345 and SR347, respectively, as illustrated on **Figures 11** and **12**. Prior to disposal excavated soil was stabilized using a phosphate-based agent to render the material as non-hazardous. A total of approximately 43,110 and 11,240 tons of non-hazardous soil was transported from TS345 and SR347, respectively, and disposed of at a solid waste landfill off site. No hazardous soil was generated at or disposed of from the site.

Confirmation samples were collected following excavation, including bottom and sidewall sampling. At TS345, 1,109 samples were collected for XRF analysis of lead, and 247 samples were collected and submitted for laboratory analysis of PAHs. At SR347, 2,059 samples were collected for XRF analysis of lead, and 33 samples were collected and submitted for laboratory analysis of PAHs. Analytical results were utilized to demonstrate attainment of the NTCRA RAOs. The resultant project average for lead in soil at TS345 and SR347 was 41.9 and 70.9 mg/kg, respectively, which was less than the NTCRA RAO concentration of 400 mg/kg and is less than the current MDE lead soil screening value of 200 mg/kg. Approximately 2.80 acres of wetlands were impacted at TS345 and were restored by constructing a drainage swale and planting wetland vegetation.

The limits of excavation, excavation depths, and sampling grid are presented on **Figures 11** and **12**.

Table 1 – Summary of NTCRA RAOs

Chemical of Concern	NTCRA RAO (mg/kg)	May 2023 EPA RSLs
Metals		
Lead	400	400
PAHs		
2-Methylnaphthalene	230	240
Acenaphthene	3,400	3,600
Acenaphthylene	3.6*	-*
Anthracene	17,000	18,000
Benzo(a)anthracene	0.15	1.1
Benzo(a)pyrene	0.12**	0.12**
Benzo(b)fluoranthene	0.15	1.1
Benzo(g,h,i)perylene	1,700*	-*
Benzo(k)fluoranthene	1.5	11
Chrysene	15	110
Dibenz(a,h)anthracene	0.066**	0.066**
Fluoranthene	2,300	2,400
Fluorene	2,300	2,400
Indeno(1,2,3-d)pyrene	0.15	1.1
Naphthalene	3.6	2.0
Phenanthrene	17,000*	-*
Pyrene	1,700	1,800

The NTCRA RAOs reflect the values presented in the EPA Regional Screening Levels (RSLs) Resident Soil Table dated May 2013 with a Hazard Quotient of 1.0 (EPA, 2013), with minor exceptions as noted below.
* Acenaphthylene, benzo(g,h,i)perylene, and phenanthrene do not have screening values listed in the EPA RSL table. Therefore, compounds with similar chemical structures were used as surrogates. The following surrogates were determined: anthracene for phenanthrene, naphthalene for acenaphthylene, and pyrene for benzo(g,h,i)perylene.
** RAO based on background concentration (95% upper confidence level) presented in the Basewide Background Study (USAF, 2004).

Figure 11 - NTCRA Removal Boundaries (TS345)

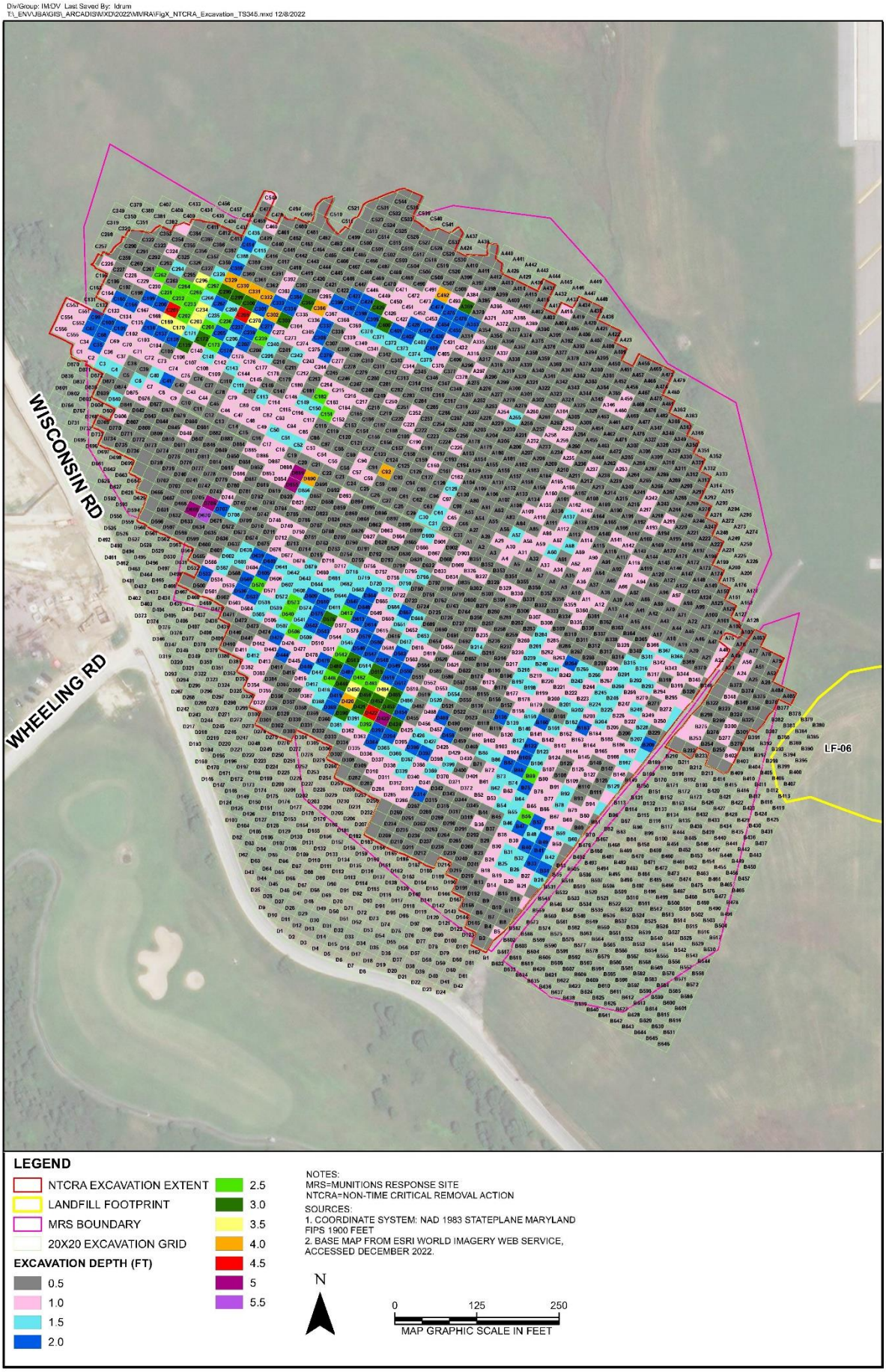


Figure 12 - NTCRA Removal Boundaries (SR347)

Screening-Level Ecological Risk Assessment

A Screening-Level Ecological Risk Assessment (SLERA) was performed in 2015 to characterize and quantify residual potential environmental impacts from contaminants in soil following the NTCRA. As requested by the EPA Region 3 Biological Technical Assistance Group (BTAG), surface soil samples (0 to 6 inches bgs) were collected from just outside the NTCRA excavation boundaries. A total of 28 soil samples were collected from 22 locations, 12 of the 22 locations were in the immediate vicinity of TS345 and 8 of the 22 locations were in the immediate vicinity of SR347. The soil samples were submitted for laboratory analysis of lead, antimony, arsenic, and PAHs. Although arsenic and antimony are two metals that can also be present at former shooting ranges, when evaluating and addressing human health, lead is the most prevalent MC and was used as the risk driver. Since ecological risk criteria for arsenic and antimony are different than for human health, analysis of arsenic and antimony was also included in the post-NTCRA sampling conducted in support of the SLERA, at the request of the BTAG, and to evaluate residual ecological risk. The SLERA concluded these analytes were determined not to pose an unacceptable risk to ecological receptors in surface soil (EA, 2015a).

Lead pellet densities in surface soil were also assessed in 2015, as lead shot pellets can present an ecological risk, specifically in avian populations (i.e., grit eating birds through ingestion of lead shot). A lead pellet density evaluation was conducted at ten locations along the NTCRA excavation boundary. Sample locations were selected based on a visual survey of the ground surface. At each of the locations where the lead pellet density evaluation was conducted, soil was removed from a 1-foot by 1-foot square area to a depth of 1 inch and the lead shot sifted from the soil were counted to determine its density, presented as lead pellets per square foot. Six (Sample 1 through 6) and four (Sample 7 through 10) lead shot pellet density sample locations were immediately adjacent to TS345 and SR347, respectively. At Samples 3, 4, 6, 8 and 10, the results were above the surface soil lead pellet screening value of 10 pellets per square foot (ranging between 30 and 169 pellets per square foot), which was the lead pellet screening level approved by EPA BTAG as being protective of ecological receptors. As a result, a supplemental lead pellet density evaluation was conducted in 2018 during completion of the RI, as outlined in the following subsection. Lead pellet density sample locations and lead pellet counts are presented on **Figures 13** and **14** for TS345 and SR347, respectively.

The results of the SLERA are described in greater detail below under Summary of Site Risks.

Remedial Investigation

A RI was conducted in 2018 and 2019. A copy of the RI Report, *Final Remedial Investigation Report MMRP Sites: Skeet and Trap Club (TS345), Old Skeet Range (SR347), and SAR (ZZ349) Joint Base Andrews, Maryland* (HGL, 2020), is available in the Administrative Record. A copy of the Administrative Record is maintained in an information repository located at the Prince George's County Memorial Library, Oxon Hill-Clinton Branch.

The purposes of the RI were to:

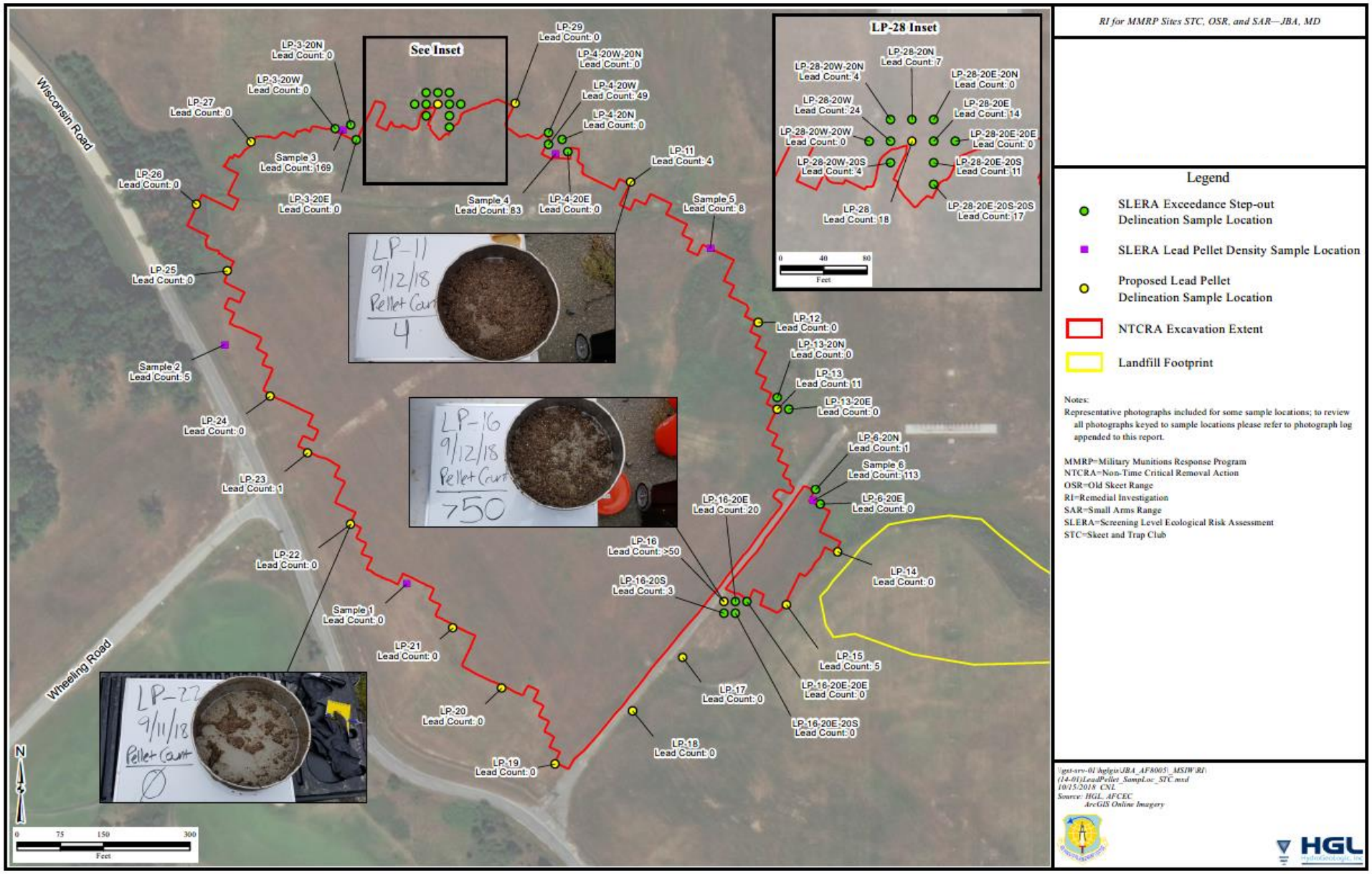
- Support supplemental lead pellet (shot) delineation in surface soil outside of the NTCRA excavation boundaries.
- Summarize previous investigations and response actions.
- Characterize the nature and extent of contamination.
- Determine and evaluate risks to human health and the environment.

Subsequent to the NTRCA, levels of PAHs were less than RAOs and the remaining lead levels were below 200 mg/kg. As such, a human health assessment was not needed.

As a component of the RI, a lead pellet density evaluation was conducted in 2018 to supplement the SLERA completed in 2015. Specifically, lead pellet densities were counted at 44 and 28 locations from outside the TS345 and SR347 NTCRA excavation boundaries, respectively, which included step-out locations surrounding the 2015 sample locations (Samples 3, 4, 6, 8 and 10). Lead pellet densities were evaluated in a manner consistent with the sampling conducted during the SLERA and as outlined in the section above. Lead pellet density sample locations and lead pellet counts are presented on **Figures 13** and **14** for TS345 and SR347, respectively. Lead pellet densities above 10 pellets per square foot (the lead pellet screening level approved by the EPA Biological Technical Assistance Group) were identified in eight discrete areas. Unacceptable ecological risk therefore will drive remediation at the sites.

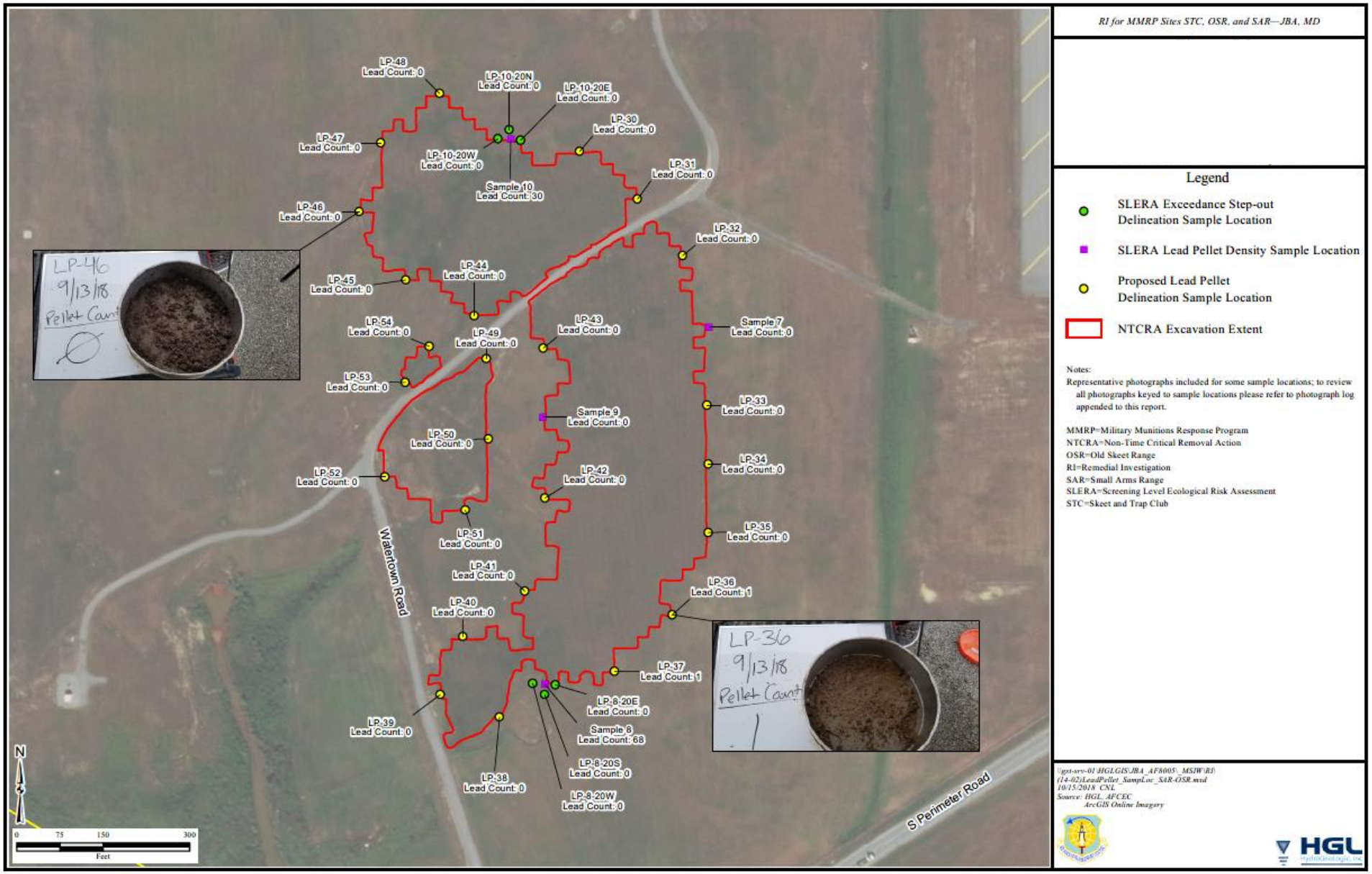
The RI concluded a streamlined/focused FS was warranted to evaluate remedial alternatives to address the ecological risk posed by lead pellet densities greater than 10 pellets per square foot.

Figure 13 – Lead Pellet Delineation Sample Results MMRP Site STC TS345



Reference: Figure 5-1 from the Final RI Report (HGL, 2020)

Figure 14 – Lead Pellet Delineation Sample Results MMRP Site OSR SR347



Reference: Figure 5-3 from the Final RI Report (HGL, 2020)

Feasibility Study

An FS report, *Feasibility Study MMRP Munition Response Areas (MRAS) TS345 (Site 34, Former Skeet and Trap Club [STC], Buildings 2350 and 2351), SR347 (Old Skeet Range [OSR], Building 2364), and ZZ349 (Site 36, Small Arms Range [SAR], building 2355) located at Joint Base Andrews (JBA), Maryland* (HGL, 2021), was completed in May 2021. A copy of the FS report is available in the Administrative Record. A copy of the Administrative Record is maintained in an information repository for the MMRP sites, which is located at the Prince George's County Memorial Library, Oxon Hill-Clinton Branch.

A RAO to reduce concentrations of lead pellets in the surface soil to 10 or less per square foot was established in the FS to address the ecological risk posed by the remaining lead shot and based on the nature and extent of contamination at the TS345 and SR347 following completion of the NTCRA. Based on the screening of applicable technology types and **process options**, the following four remedial alternatives were developed for the MMRP sites:

- Alternative 1: No Action.
- Alternative 2: Excavation of Contaminated Soil and Off-Site Disposal.
- Alternative 3: Excavation of Contaminated Soil for On-Site Disposal in a Lined and Capped Containment Cell, and **Land Use Controls**.
- Alternative 4: Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling.

Each alternative was evaluated against the nine criteria required by CERCLA to determine the most favorable remedial alternative. The four alternatives are described in the "Summary of Remedial Alternatives" section on page 25 of this Proposed Plan. The nine criteria are described on page 30 in the box titled, "NCP Criteria for Evaluation of Remedial Alternatives."

Site Characteristics

This section summarizes the site characteristics (i.e., wildlife habitat, geology, hydrogeology, and surface water hydrology) as summarized in technical documents prepared for the TS345 and SR347. Additional details can be obtained from the *Final RI Report* (HGL, 2020). Copies of pertinent technical documents are available in an information repository located at the Prince George's County Memorial Library, Oxon Hill-Clinton Branch.

Wildlife Habitat

The MMRP sites addressed in this Proposed Plan are characterized by open and maintained (mowed) grass fields. The sites are currently used as part of the southern approach to the runways at JBA. While the runways at the southern approach are flat, the surrounding topography contains slopes and various navigational and security features. The area is an unattractive location for wildlife because of aircraft noise, disruption from aircraft operations, and a lack of trees within the site boundaries. The sites also include features to dissuade birds from inhabiting the area. No rare, threatened, or endangered species were identified in the vicinity of the sites.

A wetlands delineation of the non-tidal wetlands and non-tidal portions of streams at MMRP sites was conducted in 2011 (EA, 2011; **Figure 10**). The delineation defined those non-tidal portions of lands that may be subject to USACE's regulatory jurisdiction under the Clean Water Act. Based on a field analysis of the vegetation, soils, and hydrology, the delineation identified two non-tidal wetland areas at TS345 (EA, 2011).

Geology

The shallowest portion of the subsurface consists of fill material that includes sand, **silt**, gravel, and recycled concrete. This fill mixture ranges from 3 to 7 feet in thickness. Below the fill, the subsurface comprises the **Upland Deposits** (50 feet thick) overlying the **Calvert Formation** (70 to 100 feet thick). The Upland Deposits consist of grayish-orange sand with silt and gravel. The Calvert Formation consists of greenish-gray silt and clay and serves as an **aquitard**.

Hydrogeology

The **groundwater table** at the site is first encountered in the Upland Deposits at depths between 4 and 22 feet bgs, depending on surface topography and season. Generally, groundwater flows in an easterly to southeasterly direction and eventually discharges into Piscataway Creek, which originates just south of the west runway. The groundwater flows an average of 49 feet per year through the Upland Deposits. The Calvert Formation aquitard restricts the vertical (downward) flow of shallow groundwater in the Upland Deposits at the site.

Groundwater is not utilized for drinking water purposes on JBA, and the average depth to groundwater is less than 20 feet at the sites. A potentially complete exposure pathway was identified during the Phase I CSE for current and future site workers partaking in intrusive activities that may expose workers to possible MC-impacted groundwater at the site. However, the physical properties of the MC (i.e., lead) associated with the munition items used at the site indicate that MC transport to groundwater is unlikely. Specifically, lead generally has limited mobility in soil, due to its tendency to bind to organic matter. As a result, the groundwater pathway is considered only marginally viable. During scoping for the Phase II CSE, the probability of appreciable groundwater impacts from past munitions-related activities was

determined to be low and a groundwater assessment was not deemed necessary, unless the Phase II CSE soil investigation identified significant soil contamination (Sky, 2009). Based on the nature and extent of soil impacts at the site, it was determined that groundwater sampling was not required.

Surface Water Hydrology

JBA straddles the drainage divide separating the Potomac River Basin to the west and the Patuxent River Basin to the east. The surface water drainage divide extends north to south through the base in the vicinity of the runways. Piscataway Creek is the major surface water drainage feature at JBA, and its headwaters originates in the southeast corner of JBA north of Landfill-06 (Tetra Tech, Inc., 2007; **Figure 10**) and flows through primarily forested and agricultural lands before it discharges to the Potomac River. Piscataway Creek is located within the lower Potomac River Area Sub-Basin and is classified in accordance with Code of Maryland Regulations 26.08.02.07 as Class I waters, meaning that the creek "shall be protected for water contact recreation, fishing, and protection of aquatic life and wildlife." The Piscataway Creek drainage area has a high percentage of impervious surfaces due to the airfield and other base structures. Approximately 90% of the runoff in this drainage area is collected in an extensive storm sewer network that discharges through two 108-inch-diameter concrete pipes (culverts) into an open channel at the southern edge of the airfield (USACE, 2007). The MRSs discussed in this Proposed Plan fall within the Piscataway Creek **watershed** (USACE, 2009).

A Base-wide Ecological Risk Assessment conducted in March 2005 by CH2M Hill found lead exceeded TRVs in sediment and surface water in the headwaters of Piscataway Creek. The suspected potential source of the lead contamination at the time the Ecological Risk Assessment was prepared included TS345, LF-06, and LF-05 (CH2M Hill, 2005). Further assessment of these media occurred as a component of the investigations conducted at LF-06. RI activities at Piscataway Creek included the sampling and analysis of surface sediments for chemistry and aquatic toxicity. The Ecological Risk Assessment, conducted for the creek, concluded risks south of Perimeter Road were low to negligible, and lead and PAHs in sediment pose potential risks to ecological receptors north of Perimeter Road (Tetra Tech, 2007). All sediment risks at LF-06 were addressed under a NTCRA, which was completed in summer 2013. Details regarding the surface soil and sediment remedial action were summarized in a Removal Action Report (ECC, 2014).

Site Contamination

Available historical information indicates only small arms were used at JBA's MMRP sites including TS345 and SR347. The MMRP sites operated from 1959 to 1986. Prior to closure, spent shotgun shells were collected in these ranges, but clay target materials, plastic wads, and lead shot were left on the ground. Lead shot was not reclaimed from the ranges while they were active. As a result of these previous activities, **source areas** of lead (from lead shot) and PAHs (from clay pigeons) were identified during the Phase II CSE sampling at TS345 and SR347.

The NTCRA was successful in removing the lead- and PAH-impacted soil at the TS345 and SR347and RAOs, protective of human health, were achieved. Following completion of the NTCRA, areas outside of the excavation boundaries were delineated to identify the locations with lead shot pellets occurring at densities greater than 10 pellets per square foot, which present an ecological risk to grit-eating birds.

Scope and Role of Remedial Action

The USAF's overall strategy for completing site remediation at TS345 and SR347 is to address remaining **unacceptable risks** to ecological receptors following completion of the NTCRA. The risks are posed by the presence of lead shot densities greater than 10 pellets per square foot in certain locations of TS345 and SR347. The

This Proposed Plan summarizes remedial alternatives evaluated for the cleanup of the remaining lead shot pellets in surface soil. The presence of lead pellets poses an unacceptable ecological risk to grit-eating birds (see the next section, "Summary of Site Risks").

The USAF and EPA, in consultation with MDE and Prince George's County, will choose the final remedial alternative after considering information submitted during the 30-day public comment period for this Proposed Plan. The remedy for TS345 and SR347 will be performed in accordance with the ROD signed by the USAF and EPA.

Excavations at TS345 during the NTCRA uncovered sporadic buried waste, including drums, drum lids, wires, vehicle parts, used oil filters, and aircraft cylinders/parts. Petroleum or **solvent** odors were noted; however, **photoionization detector** readings were low. The USAF is addressing this area as Site LF-034, which is an open ERP site. Response actions for MMRP sites are separate and distinct, as mandated by the Defense Environmental Restoration Program statute, 10 US Code Chapter 160.

Summary of Site Risks

Human Health Risk Assessment

A screening-level human health **risk assessment** was conducted as part of the Phase II CSE for TS345 and SR347 (Sky, 2011). In general, a human health risk assessment is conducted to determine potential risks to humans who come into contact with environmental media (in this instance, soil) through inhalation of dust, ingestion, dermal contact, or other **exposure pathways**.

To determine the current and future health risks, the risk assessment answers the following questions:

- Are toxic substances present?
- Who is exposed? How often?
- How toxic are the substances?
- Are there potential health risks?

The current land use for the MMRP sites is an open/maintained grass field used to support the flightline at JBA and is not projected to change. However, unforeseen future land use designations at JBA may conceivably include residential, commercial, and light industrial. Based on the exposure pathway analyses conducted in the Phase II CSE, the following **receptors** may come in contact with impacted soil at the site: current and future authorized site personnel, future authorized recreational visitors and contractors, current and future trespassers, and future residents.

To conservatively evaluate potential human health risks at the sites, the measured concentrations in surface and subsurface soil samples were compared to residential human health **risked-based screening criteria** (i.e., EPA's **Regional Screening Levels** [RSLs] dated May 2010) (Sky, 2011). The RSLs are calculated using information about the health effects of the individual chemicals, along with specific assumptions of how people could be exposed. The EPA's RSLs are based on a target excess lifetime cancer risk of 1×10^{-6} and a noncancer hazard index of 1. Risk from lead is evaluated using a model where an exposed child or group of children should not exceed the set target blood lead level goal of 10 micrograms per deciliter by no more than 5 percent. For acenaphthylene, benzo(g,h,i)perylene, and phenanthrene no screening values are listed in the EPA RSL table; therefore, chemicals with similar structures were used as surrogates for these three congeners to determine screening values. Surrogates were assigned as follows: anthracene for phenanthrene, naphthalene for acenaphthylene, and pyrene for benzo(g,h,i)perylene (**Table 1**).

At TS345, 82 of 150 XRF samples exhibited lead concentrations exceeding the RSL of 400 mg/kg. All PAH samples contained detections for at least one PAH exceeding its RSL.

At SR347, 20 of 41 XRF samples exhibited lead concentrations exceeding the RSL of 400 mg/kg. Four PAH samples were collected, all of which contained detections for at least one PAH exceeding its RSL.

In response to this initial screening-level risk assessment, a NTCRA was conducted to remove lead- and PAH-impacted soil. The specific RAOs were the EPA residential RSLs (EPA, 2013). The RSLs for carcinogenic PAHs are based on a target risk of 1×10^{-6}. There are no RSLs for acenaphthylene, benzo(g,h,i)perylene, or phenanthrene; therefore, their RAOs are based on RSLs for compounds with similar chemical structures. RAOs for benzo(a)pyrene and dibenzo(a,h)anthracene were based on basewide background concentrations (USAF, 2014).

Following completion of the NTCRA, residual risk was evaluated in the RI using post-excavation confirmation soil sampling results. Confirmation samples were collected following excavation, including bottom and sidewall sampling. At TS345, 1,109 XRF samples and 247 PAH analytical samples, were utilized to demonstrate attainment of the RAOs. At SR347, 2,059 XRF samples and 33 PAH analytical samples were utilized to demonstrate attainment of the RAOs. The RAO for lead was considered achieved if the arithmetic average concentration for lead remaining in soil following the NTCRA was less than the MDE residential soil action level at the time of 400 mg/kg.

The RAOs for PAHs were considered achieved if the **95% Upper Confidence Limit of the Mean** concentration for each individual PAH remaining in soil following the NTCRA was less than the corresponding RSL/background value. The RAOs were based on the 2013 EPA RSLs, which have been updated over time, most recently in May 2023. Of the 18 contaminants listed, one RSL decreased between 2013 to 2023 (all others increased or remained the same). The naphthalene RSL decreased from 3.6 mg/kg to 2.0 mg/kg. Naphthalene was also used as the surrogate for acenaphthylene to establish a RAO in the NTCRA (see **Table 1**). After completion of the NTCRA, the 95% UCLs for acenaphthylene and naphthalene were 0.011 mg/kg, and 0.011 mg/kg respectively, below the current naphthalene RSL. The average post-excavation lead concentration in soil at TS345 and SR347 was 41.9 and 70.9 mg/kg, respectively (less than the RAO concentration of 400 mg/kg and the current MDE lead soil screening value of 200 mg/kg). As presented in Appendix B of the Final NTCRA Report, the 95% Upper Confidence Limit of the Mean concentration in soil within at TS345, SR347, and ZZ349 for each PAH compound was less than the corresponding RAO concentration (EA, 2015). The RAOs for the removal action were met and the remaining lead levels are below 200 mg/kg; therefore, no actionable human health risk

remains at the sites and a human health risk assessment was not needed.

Ecological Risk Assessment

A SLERA was performed in 2015 to characterize and quantify residual potential environmental impacts from contaminants in soil following the NTCRA. The SLERA is included as Appendix B of the RI Report (HGL, 2020). TS345 and SR347 are located south of the west runway at JBA. Wetlands are located on the northern portion of TS345. The ranges are located in a restricted area of JBA within an active bird/wildlife aircraft strike hazard zone. As requested by the EPA Region 3 BTAG, surface soil samples (0 to 6 inches bgs) were collected from just outside the NTCRA excavation boundaries. A total of 28 surface soil samples were collected from TS345 excavation perimeter, SR347, ZZ349, and backfill material. The soil samples were submitted for laboratory analysis of lead, antimony, arsenic, and PAHs and maximum detected concentrations were compared to ecological screening levels to identify contaminants of potential concern (COPCs). Ecological screening levels for antimony, arsenic, and lead were 0.27 mg/kg, 18 mg/kg, and 400 mg/kg, respectively, which were approved by the BTAG during the response to comment process completed for the Draft NTCRA Removal Action Work Plan (dated 17 May 2013). Based on this screening process, antimony, lead, and high-molecular weight PAHs were retained as COPCs. The SLERA further refined the ecological assessment by determining exposure risk estimates of the COPCs with a comparison of the 95% Upper Confidence Limit of the Mean concentrations to TRV for each representative species believed to inhabit the site. The results of this refined ecological assessment concluded only lead is a potential risk driver at the site, but as discussed in the Final FS, the risk from lead is likely overstated in the SLERA given the low magnitude of exceedances and the extremely conservative assumptions. However, unacceptable risk to grit-eating birds is present due to the presence of lead pellets in surface soil outside of the NTCRA excavation boundaries and at densities greater than 10 pellets per square foot, which is the lead pellets screening level approved by the EPA BTAG as being protective of ecological receptors. Unacceptable ecological risks associated with lead pellets is the basis for action at these sites.

Remedial Action Objectives

RAOs are site-specific and are determined by the nature and extent of chemical contamination, current and potentially threatened resources, and the potential for human and environmental exposure. The extent of contamination at the MMRP sites includes surface soil at six locations at TS345 and two locations at SR347.

What is Risk?

What is Human Health Risk and How is it Calculated?

A human health risk assessment estimates "baseline risk." This is an estimate of the likelihood of health problems occurring to people exposed to a site if no cleanup action were taken. The USAF established a four-step process based on EPA guidance to estimate baseline risk at a site. The four-step process includes:

Step 1: Analyze Contamination
Step 2: Estimate Exposure
Step 3: Assess Potential Health Impacts
Step 4: Characterize Site Risk

In **Step 1**, the USAF looks at the concentrations of contaminants found at a site as well as scientific studies on the effects these contaminants have on people (or on animals, when human studies are unavailable). Comparisons between site-specific concentrations and concentrations established by the EPA as generic screening levels protective of residential exposure help the USAF to determine which site-related contaminants are most likely to pose the greatest threat to human health. Contaminants detected at the site at a level greater than the EPA screening levels are evaluated further in the risk assessment.

In **Step 2**, the USAF considers the different ways people might be exposed to the contaminant**s** identified in Step 1, the concentrations people might be exposed to, and the potential frequency and duration of exposure. Using this information, a "**reasonable maximum exposure**" scenario is evaluated to represent the highest level of human exposure reasonably expected to occur. A central tendency **exposure scenario** may also be considered to describe median, rather than upper limit, exposures.

In **Step 3**, the USAF uses the information from Step 2, combined with information on the **toxicity** of each contaminant, to assess potential health risks from exposure. The USAF considers two types of risk: cancer risk and non-cancer hazard. The likelihood of any kind of cancer resulting from exposure to a site is generally expressed as an upper-bound probability, for example, a "1 in 10,000 probability." In other words, for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure to site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected to from all other non-site-related causes. For non-cancer health effects, the USAF calculates a "**hazard index**." The key concept here is a "threshold level" or dose (measured usually as a hazard index of less than or equal to 1) exists below which non-cancer health effects are not expected to occur, even in sensitive receptors.

In **Step 4**, the USAF determines whether exposure to site-related contaminants results in an unacceptable risk. The results of the three previous steps are combined, evaluated, and summarized. The USAF adds the potential risks from the individual contaminants to determine the total risk resulting from exposure to site-related contaminants.

Based on the results of previous assessments, the proposed RAO is to reduce the density of lead pellets (shot) in surface soil to 10 pellets or less per square foot.

Summary of Remedial Alternatives

The following four remedial alternatives were developed in the FS to address soil contamination (HGL, 2021):

- Alternative 1 – No Action.
- Alternative 2 – Excavation of Contaminated Soil and Off-Site Disposal.
- Alternative 3 – Excavation of Contaminated Soil for On-Site Disposal in a Lined and Capped Containment Cell, and Land Use Controls (LUCs).
- Alternative 4 – Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling.

The USAF's preferred alternative is Alternative 4 – Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling. The four alternatives are briefly summarized in the following subsections. Each alternative was evaluated against the nine criteria required by CERCLA (see "NCP Criteria for Evaluation of Remedial Alternatives" in the box on page 30).

The USAF and EPA also evaluate remedial alternatives to ensure green and **sustainable** practices are incorporated when appropriate and any potential negative environmental impacts related to the remedy are reduced or eliminated (see "Green and Sustainable Practices" section on page 32).

Additional details of each alternative are available in the FS report (HGL, 2021).

Alternative 1 – No Action

The no-action alternative is required by the NCP and serves as the baseline alternative. All remedial action alternatives are compared to the no-action alternative.

Under this alternative, no further efforts, active remediation, or resources will be expended to remediate the soils contaminated with lead pellets. No technical or administrative issues are associated with this alternative. The estimated cleanup costs, as developed in detail in the FS, were rounded to the nearest thousand dollars and are presented below.

Alternative 1 – No Action Estimated Cleanup Costs	
Total Construction Costs	$0
Operation and Maintenance	$0
Total Present Worth	**$0**
Total Project Lifetime	30+ years

Alternative 2 – Excavation of Contaminated Soil and Off-Site Disposal

Alternative 2 involves excavation of the eight contaminated areas (six at TS345 and two at SR347), and **disposal** of the contaminated soil in an **off-site landfill**. The excavation areas are depicted on **Figure 15** and **Figure 16** for Sites TS345 and SR347, respectively. Excavation is a well-proven and effective method for removing contaminated material from a site.

Implementation of Alternative 2 includes excavation and off-site disposal of contaminated soils using standard construction practices. Impact to site workers is expected to be minimal due to the short duration required for this work. Appropriate personal protective equipment will be donned to minimize health and safety risks associated with potential exposure to lead-impacted soil, as necessary. Excavated material will be placed in covered and lined roll-off containers and transported to an appropriate off-site landfill for disposal based on waste characterization results.

An Erosion and Sediment Control Plan would be required prior to site work to avoid runoff of sediments into nearby wetlands. The total excavation area for this alternative is 9,657 square feet. Prior to excavation, a utility survey would be required. Soil will be excavated to approximately 6 inches bgs, resulting in a total of approximately 180 cubic yards of soil removed. Prior to disposal, soils will be sampled for laboratory analysis. Soils characterized as hazardous for Resource Conservation and Recovery Act metals will be treated with stabilization. It is anticipated the same phosphate-based stabilization agent used during the NTCRA (i.e., Enviroblend) will be effective at reducing metal leachability. Stabilized soils will be resampled. The soil will then be transported off site for disposal at a waste landfill. Excavated areas will be backfilled with clean fill from an off-site source and seeded.

Alternative 2 protects human health and the environment through removal of soils contaminated with lead pellets to prevent unacceptable exposures to ecological receptors.

The estimated cleanup costs, as developed in detail in the FS, are presented below.

Alternative 2 – Excavation of Contaminated Soil and Off-Site Disposal Estimated Cleanup Costs	
Total Construction Costs	$152,603
Operation and Maintenance	$0
Total Present Worth	$152,603
Total Project Lifetime	<1 year

Alternative 3 – Excavation of Contaminated Soil for On-Site Disposal in a Lined and Capped Containment Cell, and Land Use Controls

Alternative 3 involves excavation of the eight contaminated areas (six at TS345 and two at SR347), and disposal of the contaminated soil in an on-site lined and capped **containment cell**. The excavation areas are depicted on **Figure 15** and **Figure 16** for sites TS345 and SR347, respectively. Alternative 3 is the same as Alternative 2 except that the excavated soil would be disposed of in an on-site containment cell.

Implementation of Alternative 3 involves containment cell construction by combining contaminated soil into one area, installing a relatively **impermeable liner** under the cell, and installing a cover system over the contaminated soil to prevent direct exposure to ecological receptors. Containment cell development is a well-established and proven technology that could be effective in preventing direct exposure of ecological receptors to contaminated soil. Construction of a containment cell is typically easy to implement. Like off-site disposal, on-site disposal in a containment cell does not permanently or irreversibly eliminate contaminants.

Alternative 3 protects human health and the environment through removal of contaminated soil. Alternative 3 also would restore the soil at the sites to cleanup standards. Contaminated soil would be excavated for disposal within an on-site lined and capped containment cell. LUCs would prevent ecological exposure to the lead pellets in soils (e.g., administrative controls to prevent unrestricted digging on the containment cells). **Five-year reviews** would be conducted.

Excavation and on-site disposal activities would likely be accomplished within one month. The reliability of excavation is considered high because of the delineation efforts of sampling activities. The magnitude of risk from the remaining untreated contaminants would be controlled using LUCs and capping systems.

The estimated cleanup costs, as developed in detail in the FS, are presented below.

Alternative 3 – Excavation of Contaminated Soil for On-Site Disposal in a Lined and Capped Containment Cell, and LUCs Estimated Cleanup Costs	
Total Construction Costs	$171, 024
Operation and Maintenance	$58,396
Total Present Worth	$229,420
Total Project Lifetime	30+ years

Alternative 4 – Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling

Alternative 4 is USAF's preferred alternative to address the lead shot in surface soil at TS345 and SR347. This alternative involves excavation of the eight contaminated areas (six at TS345 and two at SR347). The excavation areas are depicted on **Figure 15** and **Figure 16** for sites TS345 and SR347, respectively. Alternative 4 is the same as Alternative 2 except that the excavated soils will be treated by physical separation to remove the lead shot pellets from the soil.

Prior to excavation, the soil will be tilled to remove the vegetation and break up the soil. The excavated soil will be transported for treatment by physical separation at a central location within the boundaries of TS345 or SR347. Site layout including but not limited to the limits of disturbance, anticipated ingress/egress routes, staging areas, and locations for the physical treatment of soil will be determined in consultation with JBA and documented in the Remedial Design / Remedial Action Work Plan. Although not anticipated, in the event physical separation cannot be conducted on-site due to the proximity of the site to the airfield, physical separation will be completed off-site (e.g., along Wisconsin Road), with approval from JBA. Oversize debris such as rock will be removed and cleaned by wet or dry screening. Metal fragments that may be suitable for off-site recycling will be separated from the bulk soil based on particle size and density. Treatability testing using site soils will be performed before mobilization to optimize and evaluate implementability at the JBA MMRP sites.

The tilled and excavated soil first will be sifted through a series of shaking screens of decreasing mesh (hole) size, with the topmost screen having the largest mesh. Any soil/debris automatically screened out as being too big or too small will be rescreened to ensure no lead is caught in the debris. The moist, clay soils can bind together into pellet-sized particles, producing more product for the second part of the reclamation. After screening, the resulting lead pellets, soil, and other pellet-sized particles enter a blowing system where they are easily separated from the soil and other debris by the blowing air. Separation activities will be conducted only during periods of minimal wind to reduce dust.

Recovered lead pellets will be transported off site for recycling. The treated soil will be reused and returned as backfill in the excavation areas. Any residual debris or process water will be characterized for off-site disposal. Process water, if necessary, will be used in a closed loop system to minimize the production of wastewater. Based on process knowledge by those in the industry, the wastewater from lead pellet separation activities is not likely to be characterized as hazardous waste. Implementation of Alternative 4 involves excavation and physical separation of lead pellets. This alternative would be easily implemented using industry standard

physical separation equipment operated by specialty contractors. It is anticipated the response action would occur within two years of selection, and excavation activities would remove approximately 180 cubic yards of contaminated soils within a period of one month. Impact to site workers is expected to be minimal due to this short duration. An Erosion and Sediment Control Plan would be required prior to site work to avoid runoff of sediments into nearby wetlands. Other than minor dust production, there would be no detrimental effect to the community.

Figure 15 - TS345 Areas Subject to Removal

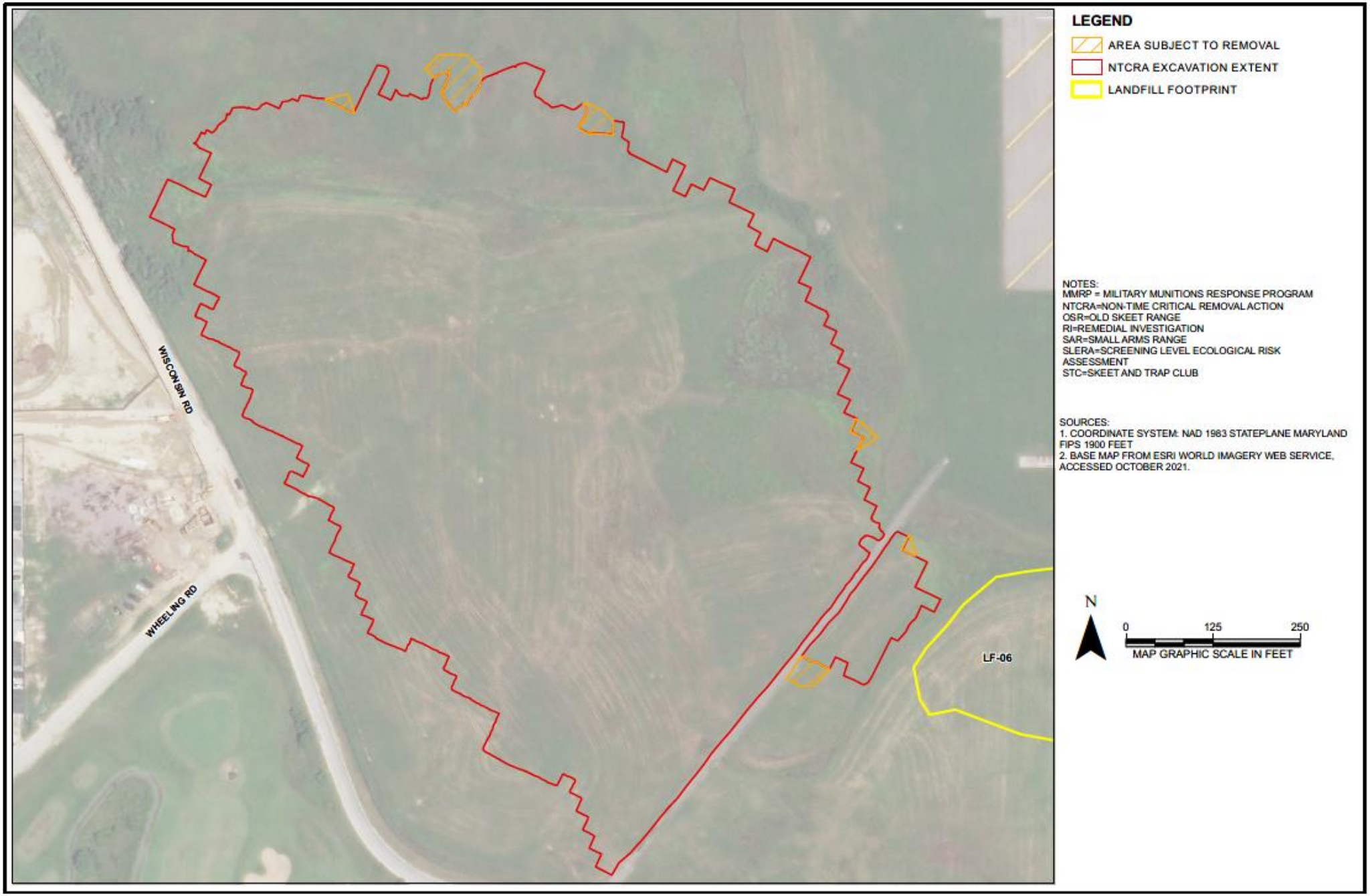
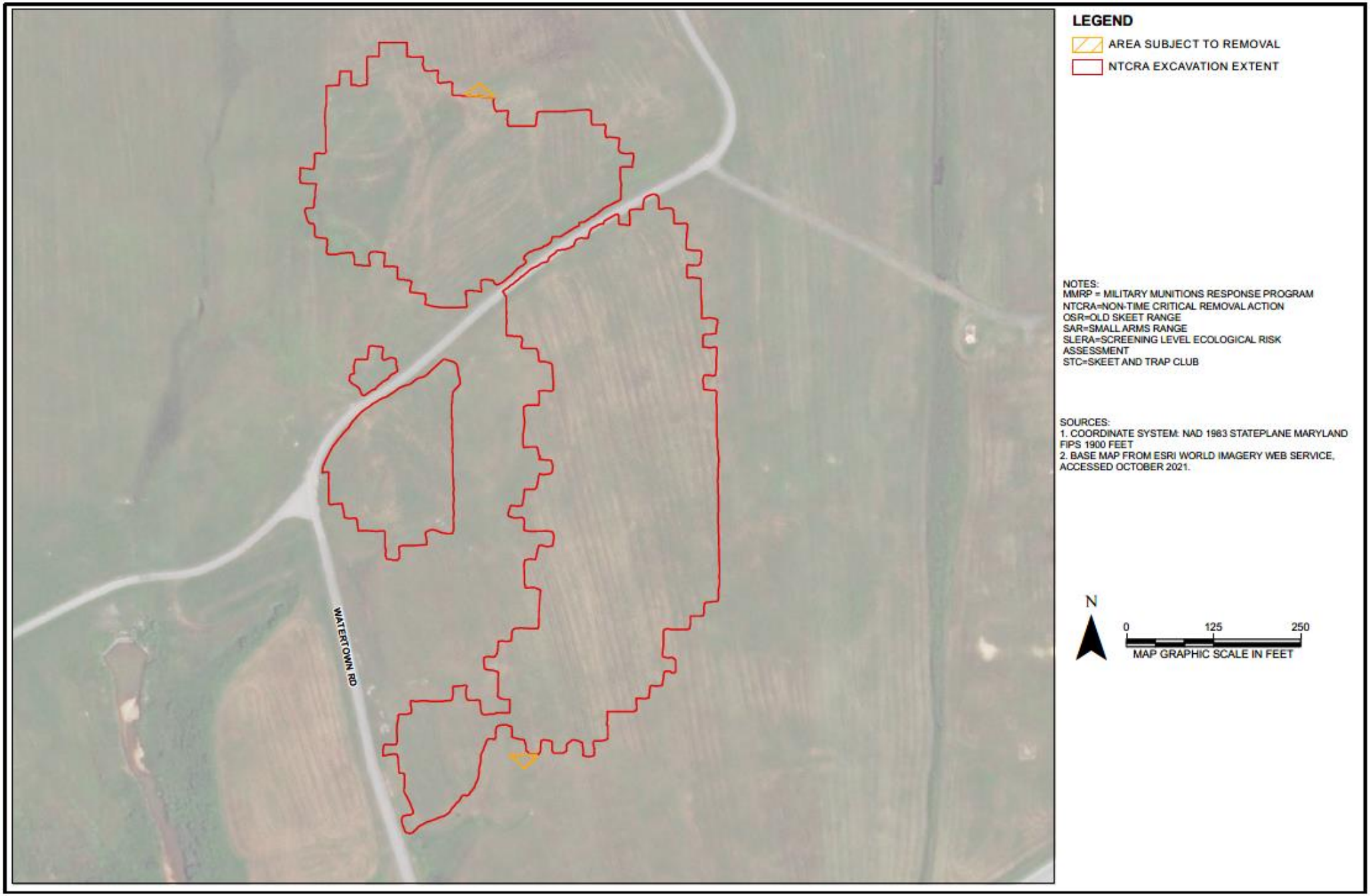


Figure 16 - SR347 Areas Subject to Removal



The estimated cleanup costs, as developed in the FS, are presented below.

Alternative 4 – Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling Estimated Cleanup Costs	
Total Construction Costs	$132,284
Operation and Maintenance	$0
Total Present Worth	$132,284
Total Project Lifetime	<1 year

Evaluation of Alternatives

The NCP requires the evaluation of remedial alternatives, both individually and against one another, using nine evaluation criteria to select a remedy (40 CFR 300.430(e)(9)(iii)). These criteria are summarized in the inset to the right. A table summarizing the evaluation of each alternative against seven of the nine criteria is presented on page 30. More information pertinent to the evaluation of each alternative can be found in Section 5.0, "Detailed Analysis of Remedial Alternatives," of the FS report (HGL, 2021).

The remedial alternatives are evaluated in relation to one another based on their ability to meet the two threshold criteria and each of the five NCP balancing criteria, with the purpose of identifying the relative advantages and disadvantages of each alternative. As a result of the comparative analysis, the three alternatives that met threshold criteria were evaluated as satisfying the individual balancing criteria to a high, moderate, or low degree.

Threshold Criteria

Because exposure to surface soil containing lead pellets at a density above the proposed cleanup goal presents an unacceptable risk to ecological receptors, Alternative 1 (no action) was not retained for consideration as a preferred alternative because of its inability to meet the basic threshold criteria of protectiveness. Alternatives 2, 3, and 4 are protective of human health and the environment and comply with **applicable or relevant and appropriate requirements** (ARARs).

Balancing Criteria

Long-Term Effectiveness and Permanence

Alternatives 2 and 3 provide a high level of long-term effectiveness because the contaminated soil would be removed and replaced with clean fill. Alternative 4 potentially offers the same long-term effectiveness as Alternatives 2 and 3, provided the separation equipment operates effectively. Because the treated soil in

NCP Criteria for Evaluation of Remedial Alternatives

The NCP specifies nine criteria for the evaluation and selection of **remedial actions**. The criteria are divided into three groups:

Threshold Criteria:

1. Overall protection of human health and the environment
2. Compliance with applicable or relevant and appropriate requirements or justification of a waiver

Primary Balancing Criteria:

3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short-term effectiveness
6. Implementability
7. Cost

Modifying Criteria:

8. State acceptance
9. Community acceptance

The assessment of overall protection of human health and the environment describes how the alternative, as a whole, achieves and maintains protection of human health and the environment.

The assessment of compliance with applicable or relevant and appropriate requirements or justification of a waiver describes how the alternative complies with the requirements; if a waiver (or a state variance) is required, how the waiver (or state variance) is justified; and addresses other information that lead and support agencies have agreed is to be considered.

The assessment of long-term effectiveness and permanence evaluates the effectiveness of the remedial alternative in maintaining protection of human health and the environment after response objectives have been met.

The assessment of reduction of toxicity, mobility, or volume through treatment evaluates the anticipated performance of specific treatment technologies employed in an alternative to reduce the toxicity or mobility of contaminants or reduce the volume of contaminated media.

The assessment of short-term effectiveness examines the effectiveness of the remedial alternative in protecting human health and the environment during the construction or implementation of the remedy until response objectives have been met. The criterion also addresses the time required to meet the response objectives.

The assessment of implementability evaluates the technical and administrative feasibility of the remedial alternative and the availability of goods and services.

The assessment of cost evaluates the capital, operation and maintenance, and long-term monitoring costs of each remedial alternative.

The assessment of state acceptance reflects the preferences or concerns of the state or support agency regarding the remedial alternative.

The assessment of community acceptance reflects the community's apparent preferences or concerns regarding the remedial alternative.

Alternative 4 would be reused and returned as backfill to the excavation pits, a small amount of lead pellets may still be present. Alternatives 2 and 4 would achieve UU/UE status, while Alternative 3 would require LUCs, post-closure monitoring, and cap maintenance.

Reduction of Toxicity, Mobility, and or Volume through Treatment

Only Alternative 4 (Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling) would reduce toxicity, mobility, and volume through treatment. Alternatives 2 and 3 would remove the lead pellets through off-site and on-site disposal, respectively.

Short-Term Effectiveness

Alternative 2 poses a short-term impact to the surrounding community from increased vehicle traffic associated with transportation of impacted soil to an off-installation disposal facility. Alternative 4 poses a modest short-term impact to the surrounding community due to potential dust production on-site and within the limits of the MRS. Alternatives 2, 3, and 4 would take approximately the same amount of time to implement.

Implementability

Alternatives 2 and 3 are readily implementable because the technologies used are well established and follow standard construction practices. Alternative 4 also is readily implementable using industry standard physical separation equipment operated by specialty contractors. All three alternatives require excavation, confirmation sampling, backfilling, regrading, and reseeding. Alternative 2 is the most readily implementable and would require the least amount of time. Alternative 3 would require the extra step of constructing an on-site containment cell. Alternative 4 would require the extra steps of tilling the soil prior to excavation and physically separating the lead pellets at a central location on site.

Costs

Alternative 4 (Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling) has the lowest cost of the three action alternatives with a cost of $132,300. Alternative 3 (Excavation of Contaminated Soil for On-Site Disposal in a Lined and Capped Containment Cell, and LUCs) has the highest cost at $229,420, followed by Alternative 2 (Excavation of Contaminated Soil and Off-Site Disposal) at $152,600. Alternative 3 would have similar costs to Alternatives 2 and 4, if not for the additional **operation and maintenance** costs incurred following implementation.

Modifying Criteria

This Proposed Plan has been developed by the USAF, with cooperation provided by EPA, MDE, and Prince George's County Health Department. EPA finds Alternative 4 acceptable. MDE and Prince George's County Health Department will provide input as to their

Evaluation of Cleanup Alternatives

Evaluation Criteria	Alternatives			
	1	2	3	4
	No Action	Excavation of Contaminated Soil and Off-Site Disposal	Excavation of Contaminated Soil for On-Site Disposal in a Lined and Capped Containment Cell, and LUCs	Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling
1. Overall protection of human health and the environment.	○	●	●	●
2. Compliance with applicable or relevant and appropriate requirements.	○	●	◉	●
3. Long-term effectiveness and permanence.	○	●	●	◉
4. Reduction of toxicity, mobility, or volume through treatment.	○	◉	◉	●
5. Short-term effectiveness.	○	◉	◉	◉
6. Implementability.	○	●	◉	◉
7. Cost.	**$0**	**$152,603**	**$229,420**	**$132,284**
8. State regulator acceptance.	**Will be evaluated after public comment period.**			
9. Community acceptance.	**Will be evaluated after public comment period.**			

● - satisfies criterion to high degree in timely manner.
◉ - satisfies criterion to moderate degree in a timely manner.
○ - satisfies criterion to low degree or does not satisfy criterion in a timely manner.

Alternative 4 is shaded to indicate the USAF's preferred alternative.

acceptance at the conclusion of the public comment period. Community acceptance will be determined by consideration of comments on this Proposed Plan submitted by the public during the comment period. The public comments and the USAF responses to the comments will be included in a **responsiveness summary** as part of a final ROD.

Green and Sustainable Practices

While not a remedy selection criterion under the NCP, it should be noted that the preferred alternative would use the greenest and most sustainable practices of the three action alternatives. Of the active remedial alternatives, the implementation of Alternative 4 would provide the most sustainable practices. Consistent with implementation of the NTCRA, the primary green and sustainable practice that would result in the greatest environmental footprint reduction is the stabilization effort to render the soil as non-hazardous. During the NTCRA, the stabilization effort resulted in reducing travel distance of disposal trucks from 230 miles one-way for hazardous disposal to 50 miles one-way for non-hazardous disposal. The footprint impacts associated with stabilization/non-hazardous disposal were evaluated in the NTCRA Report (EA, 2015). Based on the results of this evaluation, performing on-site stabilization with non-hazardous disposal resulted in a reduction of greenhouse gas emissions by approximately 89%, a reduction of total energy used by approximately 68%, and a cost savings of approximately 140%. Under Alternative 4, all stabilized soil would be reused as backfill and no trucking would be required to transport the soil for off-site disposal. Additionally, under Alternative 4, physical separation would be employed to recover and recycle lead shot pellets. This effort, in conjunction with reuse of stabilized soil for backfill material, is anticipated to further reduce stabilization efforts when compared to completion of the NTCRA.

Preferred Remedial Alternative

Based on the evaluation of the remedial alternatives in the FS (HGL, 2021), USAF proposes Alternative 4 – Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling – as the preferred alternative. Alternative 4 is recommended because it provides the best exchange of tradeoffs among the balancing criteria compared to the other alternatives and has the shortest remedial action timeframe, the lowest cost, and manageable implementation issues.

Implementation of the proposed excavation and physical separation of lead pellets is a readily used and proven technology. This alternative would be easily implemented using industry standard physical separation equipment operated by specialty contractors. Alternative 4 provides superior reduction of toxicity, mobility, and volume through treatment by physical separation of the lead pellets from the soil. Alternative 4 is the only alternative that recycles the lead pellets and reuses the excavated soil as backfill after treatment.

The USAF and EPA expect the preferred alternative to satisfy the following statutory requirements of CERCLA §121(b):

1. Be protective of human health and the environment.
2. Comply with ARARs.
3. Be cost effective.
4. Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.
5. Satisfy the preference for treatment as a principal element, or explain why the preference for treatment would not be met.

Five-Year Reviews

The NCP requires five-year reviews of remedial actions in which any hazardous substances or pollutants or contaminants remain at a site above concentrations that allow for UU/UE. Following implementation of the preferred alternative (Alternative 4), the MMRP sites will be suitable for UU/UE; therefore, no five-year reviews will be required.

Community Participation

Administrative Record Address and Hours

The USAF makes information regarding JBA's cleanup of TS345 and SR347 available to the public by maintaining an Administrative Record. The Administrative Record is maintained at the Air Force Civil Engineer Center offices at 1602 California Avenue, Joint Base Andrews, Maryland. For the convenience of the public, a copy of the Administrative Record is also maintained in an information repository located at Prince George's County Memorial Library, Surratts-Clinton Branch. However, due to ongoing construction at the Prince George's County Memorial Library, Surratts-Clinton Branch, the JBA information repository is currently housed in the Oxon Hill-Clinton Branch:

Prince George's County Memorial Library
Oxon Hill-Clinton Branch
6200 Oxon Hill Road
Oxon Hill, Maryland Telephone: (301) 839-2400

Library hours:
Monday, Thursday, Friday: 10:00 a.m. – 6:00 p.m.
Tuesday and Wednesday: 12:00 p.m. – 8:00 p.m.

Saturday: 10:00 a.m. – 5:00 p.m.
Sunday: Closed

The Administrative Record can also be accessed online at https://ar.afcec-cloud.af.mil/.

Public Notice

In addition, site information is made available to the public by publishing announcements in a local newspaper (*The Prince George's County Enquirer-Gazette*).

JBA hosts a public interest website (http://www.jba.af.mil/About-Us/Environmental-Mission/) informing the community about environmental activities at JBA**.**

The USAF encourages interested persons to use these resources to learn more about the sites and the CERCLA activities conducted at JBA.

Public Meeting

The USAF has not scheduled a public meeting for this Proposed Plan because of the historically low public interest regarding JBA sites (e.g., Spill Site 26, Fire Training Area No. 4, Solid Waste Management Units 75 and 76 – former Water Towers, and Historic Base Chapel). No members of the public attended the Proposed Plan public meeting (July 13, 2015) for these four sites. However, the USAF encourages the public to contact the USAF if they are interested in attending a public meeting regarding this Proposed Plan.

The public may request a meeting for the Proposed Plan within the first 15 days of the public comment period (no later than August 22, 2023) by contacting the JBA 316th Wing Public Affairs Office at the following e-mail address: 316WG.PA.COMMUNITYENGAGEMENT@us.af.mil.

Should a public meeting be scheduled, the USAF will issue additional public notices in local newspapers to announce the date, time, and location of any public meeting for MMRP sites. Members of the project team will be in attendance to explain the proposed remedy and respond to questions regarding the sites. Additional oral and written comments will be accepted at a public meeting.

Public Comment Period

The 30-day public comment period for this Proposed Plan begins on August 7, 2023, and ends at midnight on September 6, 2023. However, the comment period will be extended upon receipt of a timely request or a request to hold a public meeting. All comments received at the public meeting and during the public comment period will be summarized, and responses will be provided in the responsiveness summary section of the ROD. The ROD is the document that presents the selected remedy and is also included in the Administrative Record.

Written Comments

Written comments may be submitted up to midnight on September 6, 2023, via mail or e-mail and should be directed to:

316th Wing Public Affairs Office
William A. Jones III Building
1500 West Perimeter Road, Room 2330
Joint Base Andrews, MD 20762

316th Wing Public Affairs e-mail:

316WG.PA.COMMUNITYENGAGEMENT@us.af.mil

Although not required, a Comment Form is provided at the end of this Proposed Plan for your convenience. If you have any questions about the public comment process or to submit comments orally, contact the 316th Wing Public Affairs Office at (240) 612-4428.

The Next Step

The USAF, in consultation with EPA, MDE, and Prince George's County Health Department, will evaluate public comments on the preferred alternative (Alternative 4 – Excavation of Contaminated Soil, Physical Separation, and Off-Site Lead Pellet Recycling) for this Proposed Plan during the public comment period and the public meeting (if held) before deciding on the final remedy.

Based on new information or public comments, the USAF may modify its preferred remedial alternative. If there are significant changes to this Proposed Plan prior to finalization, it will be reissued for public comment.

The USAF's final choice of action will be documented in an ROD. A responsiveness summary, documenting and responding to written and oral comments received from the public, will be issued in the ROD. When the ROD is finalized, the USAF will announce the selected cleanup plan in a local newspaper advertisement and place a copy of the ROD in the information repository for the sites located at the Prince George's County Memorial Library, Oxon Hill-Clinton Branch Library.

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Glossary

95% Upper Confidence Limit of the Mean – The 95% confidence interval is a range of values that one can be 95% confident contains the true average of the population. In this instance, the population refers to the data set of soil concentrations.

Administrative record – A record or file made available to the public that includes all information considered and relied on in selecting a remedy for a site.

Applicable or relevant and appropriate requirements – Any state or federal statute or regulation pertaining to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site that is applicable or relevant and appropriate to specific conditions at a particular site.

Aquitard – Geological formation that may contain groundwater but is not capable of transmitting significant quantities of it under normal **hydraulic gradients**. May function as a confining bed, limiting the groundwater flow direction.

Arithmetic average – The sum of a collection of numbers divided by the count of numbers in the collection (in this context the sum of lead concentrations in mg/kg divided by the number of samples collected).

Calvert Formation – A geologic formation consisting of greenish-gray silt and sandy clay that underlies the Upland Deposits; top of formation found at 24 to 42 feet bgs within the site; serves as an aquitard.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – Passed in 1980 and amended in 1986, CERCLA is commonly referred to as the Superfund Law. It provides for liability, compensation, cleanup, and emergency response in connection with the cleanup of inactive hazardous substance disposal sites that endanger public health and safety of the environment. CERCLA is codified at 42 United States Code (U.S.C.) §§ 9601 to 9675.

Containment cell – An area designed for the disposal of contaminated materials (soil, waste, etc.). The containment cell is typically lined with a geosynthetic (impermeable liner) to prevent leaching of contaminants.

Contaminant – A compound or element that, upon exposure, will or may reasonably be anticipated to cause certain specified harmful health effects.

Disposal – Refers to the removal of contaminated soil and placement in a landfill.

Excavation – The act of digging to remove something.

Exposure pathway – The route a substance takes from its source (where it began) to its end point where people can come into contact with (or get exposed to) it. An exposure pathway has five parts: (1) a source of contamination (such as a leaking oil tank); (2) an environmental media and transport mechanism (such as movement through groundwater); (3) a point of exposure (such as a private well); (4) a route of exposure (eating, drinking, breathing, or touching); and (5) a receptor population (people potentially or actually exposed). When all five parts are present, the exposure pathway is termed a complete exposure pathway.

Exposure scenario – A set of facts, assumptions, and inferences about how exposure takes place that aids the risk assessor in evaluating, estimating, or quantifying exposure of a human to a hazardous substance.

Feasibility study – Based on data collected during the RI, options for cleanup actions or remediation are developed and evaluated in an FS. The criteria for evaluating remedial alternatives include their short-term and long-term effectiveness, cost, and acceptance by the surrounding community and state.

Federal Facilities Agreement – A document that establishes a procedural framework for developing and implementing response actions as required by CERCLA. The agreement, which is required at federal facilities on the NPL, is also designed to facilitate cooperation and communication between the Air Force and EPA.

Five-year review – A site evaluation required by CERCLA or program policy when hazardous substances remain on site above levels that permit unlimited use and unrestricted exposure. Five-year reviews provide an opportunity to evaluate the implementation and performance of a remedy to determine whether it remains protective of human health and the environment. Generally, reviews take place five years following the start of a CERCLA response action and are repeated every succeeding five years as long as future uses remain restricted. Five-year reviews can be performed by EPA or the lead agency for a site. EPA retains responsibility for determining the protectiveness of the remedy.

Flightline – The area of an airfield, specifically the parking area and the maintenance hangars, where aircraft taxi, land/take off, and are loaded, offloaded, and serviced.

Groundwater – Water beneath the ground surface that fills spaces between materials such as sand, soil, or gravel to the point of saturation. In aquifers, groundwater occurs in quantities sufficient for drinking water, irrigation, and other uses. Groundwater may transport substances that have percolated downward from the ground surface as it flows toward its point of discharge.

Groundwater table – The level below the ground surface where the soil or rock is completely saturated with water.

Hazard index – The ratio of the daily intake of chemicals from on-site exposure divided by the reference dose for those chemicals. The reference dose represents the daily intake of a chemical not expected to cause adverse health effects.

High-molecular weight PAH - Polycyclic aromatic hydrocarbons (PAHs) are a class of organic compounds that consist solely of carbon and **hydrogen** atoms in aromatic ring structures. PAHs can be divided into two categories: (1) low-molecular weight PAHs composed of less than four aromatic rings (e.g., naphthalene, acenaphthene, fluorene, phenanthrene), and (2) high-molecular weight PAHs composed of four or more rings (e.g., pyrene, chrysene, benzo[a]pyrene, dibenz[a,h]anthracene). High-molecular weight PAHs are generally less water soluble, have lower vapor pressures and Henry's constants, and partition more readily into organic matter than low-molecular weight PAHs.

Hydraulic gradient – The direction and slope of groundwater flow due to changes in the depth of the water table.

Hydrogen – An element that commonly exists in a compound that is colorless, a highly flammable gas, the lightest of all gases, and the most abundant element in the universe, used in the production of synthetic ammonia and methanol, in petroleum refining, in the hydrogenation of organic materials, and in rocket fuels.

Impermeable liner – Sheeting material often manufactured of polyvinylchloride (PVC) that does not let fluid pass through, commonly used to contain water, chemicals, and/or waste.

Information repository – A single reference source for information about environmental restoration activities at the installation. It shall, at a minimum, contain items made available to the public, including documentation that is in the Administrative Record and all public documents associated with a Restoration Advisory Board (RAB), if an RAB has been formed.

Installation Development Plan – The Installation Development Plan provides the commander and key decision-makers with a summary of JBA's current and future capability to support its assigned missions. The overall goal of the plan is to provide a framework for programming, design, and construction, and effective resource management. **Land use controls** – Any type of physical, legal, or administrative mechanism that restricts the use of or limits access to real property to

prevent or reduce risks to human health and the environment.

Lead agency – The agency that provides the on-scene coordinator/remedial project manager to plan and implement response actions under the NCP; the lead agency for remedial actions and removal actions other than emergencies (40 CFR 300.5).

Maryland Department of the Environment – The State of Maryland regulatory agency that assures activities conducted at Joint Base Andrews are compliant with the state's environmental regulations.

milligrams per kilogram (mg/kg) – A unit of measure expressing the weight of a substance (i.e., a contaminant) by the weight of the medium containing it (i.e., soil). A milligram per kilogram is the same as one part per million.

Munitions and explosives of concern (MEC) – Military munitions that are 1) unexploded ordnance, as defined in 10 U.S.C. 101(e)(5); 2) abandoned or discarded, as defined in 10 U.S.C. 2710(e)(2); and 3) munitions constituents (e.g., TNT, RDX) present in soil, facilities, equipment, or other materials in high enough concentrations so as to pose an explosive hazard.

Munitions constituents – Any materials that originate from unexploded ordnance (UXO), discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements or such ordnance or munitions (10 U.S.C. 2710 (e)(4)).

Munitions Response Area – Any area on a defense site that is known or suspected to contain MEC and/or munitions constituents (e.g., former ranges, or firing-in buttresses).

National Oil and Hazardous Substances Pollution Contingency Plan (NCP) – The NCP is located at 40 CFR Part 300. The purpose of the NCP is to provide the organizational structure and procedures for preparing and responding to discharges of oil and releases of hazardous substances, pollutants, or contaminants. The NCP is the CERCLA regulation.

National Priorities List – The list, compiled by EPA pursuant to CERCLA Section 105, identifies the uncontrolled or abandoned hazardous substance releases in the U.S. that are priorities for long-term remedial evaluation and response.

Off-site landfill – A place, off JBA property, used to dispose of refuse and other waste material by burying it and covering it with soil, especially as a method of filling in or extending usable land.

Operation and maintenance – Activities conducted after a hazardous waste site action is started to ensure that the cleanup action continues to be effective.

Organism – Any form of animal or plant life.

Photoionization detector – A portable gas detector used to measure many gas and vapor contaminants.

Preferred Alternative – The alternative presented in the Proposed Plan, which is based on the analysis presented in the Administrative Record and ongoing discussions among the lead and support agencies and the affected community.

Prince George's County Health Department – The county organization that assures that activities conducted by Joint Base Andrews within Prince George's County are compliant with the county's health and environmental ordinances.

Process options – Refers to specific remedial alternative processes within each technology family, such as ion exchange or use of a soil clay cap.

Proposed Plan – A public participation requirement of CERCLA and the NCP, in which the lead agency summarizes and presents to the public the preferred cleanup strategy and rationale. The Proposed Plan also summarizes the alternatives presented in the detailed analysis of the FS. The Proposed Plan may be prepared either as a fact sheet or as a separate document. In either case, it must actively solicit public review and comment on all alternatives under consideration.

Public comment period – A time for the public to review and comment on various documents and actions taken by Joint Base Andrews and regulatory agencies. A 30-day comment period is required by Title 40 CFR Section 300.430(f)(3)(C) to provide a sufficient opportunity for community members to review the administrative record file and comment on the Proposed Plan.

Reasonable maximum exposure – The highest level of human exposure to a contaminant that is reasonably expected to occur.

Record of Decision – An official public document that explains which cleanup alternative(s) will be implemented at National Priorities List sites. The ROD is based on information and technical analysis generated during the RI and FS and considers public comments and community concerns. The ROD explains the remedy selection process and is issued by Joint Base Andrews in consultation with EPA, the state, and local regulatory agencies, following the public comment period.

Remedial action – The response actions that stop or substantially reduce a release or threatened release of hazardous substances.

Remedial action objectives – Site-specific objectives developed based on an evaluation of the potential risks to public health and to the environment. The future protection of environmental resources and the means of

minimizing long-term disruption to existing facility operations also are considered.

Remedial alternative – An option to clean up a hazardous waste site.

Remedial investigation – An RI involves data collection and site characterization activities intended to identify the type and magnitude of contamination present at a site. The RI includes sampling, monitoring, and gathering sufficient information to evaluate potential risk to human health and the environment and determine the necessity for remedial action.

Responsiveness summary – A summary of oral and written public comments received by the lead agency during a comment period and its responses to these comments. The responsiveness summary is an important part of the ROD, highlighting community concerns for decision-makers.

Risk assessment – An evaluation and estimation of the current and future potential for adverse human health or environmental effects resulting from exposure to contaminants.

Risk-based screening levels – Concentration levels for contaminants determined by EPA to be protective for humans over a lifetime. These concentrations are determined using chemical toxicity data and information concerning exposure of the chemicals to humans.

Regional Screening Levels – Chemical-specific concentrations published by EPA for individual contaminants in air, drinking water, and soil that, if exceeded, may warrant further evaluation or site cleanup.

Sampling/samples – A sample is a portion, piece, or segment that is representative of a whole thing, group, or species. Sampling is the act of collecting a sample.

Sediment – Sediment is topsoil, sand, and minerals washed from the land into water, usually after rain or snow melt. Sediment collects in the bottom of creeks, rivers, reservoirs, and harbors.

Silt – Finely divided particles of soil or rock, often carried in cloudy suspension in water and eventually deposited as sediment. It is smaller than sand particles but larger than clay particles.

Solvent – A liquid capable of dissolving or dispersing another substance; a degreaser.

Source area – A specific area in which contaminants are released.

Superfund – The program operated under the authority of CERCLA, as amended, that funds and carries out EPA solid waste, emergency, and long-term removal and remedial activities. These activities include investigating sites for inclusion on the National Priorities List, determining their priority, and conducting and/or supervising the cleanup and other remedial actions. Environmental cleanup of Federal facilities, such as JBA, are not eligible for Superfund monies as they are funded with Environmental Restoration Account funds.

Sustainable – Capable of being continued with minimal long-term effect on the environment or future generations.

Title 40 Code of Federal Regulations – Title 40 is the U.S. law for protection of the environment. Part 300 of Title 40 is known as the National Oil and Hazardous Substances Pollution Contingency Plan.

Total present worth – The total present worth assumes that the amount of money required for an action is invested today and the money accumulates interest over the time required to implement the action. Because the total present worth takes into consideration the interest rate and timeframe of each action, alternatives with longer life spans can have lower present worth costs than alternatives with shorter life spans.

Toxicity – The quality or strength of a substance being poisonous or harmful to plant, animal, or human life.

Unacceptable risk – There is risk involved in many areas of life. Environmental risk means a potential for harm to human health and/or the environment. Unacceptable risk means that the potential for harm is too high.

Unexploded ordnance – Explosive weapons (bombs, bullets, shells, grenades, mines, etc.) that did not explode when they were employed and still pose a risk of detonation.

Unlimited use/unrestricted exposure – A site condition indicating that the property can be used for any purpose with no institutional or engineering controls.

Upland Deposits – A geologic formation, consisting of variable discontinuous layers of gravel, sand, silt, and clay, that underlie the site. The formation can be found from 1 foot to 41 feet bgs within the site boundaries. Groundwater can be found within this formation at depths ranging from 8 to 23 feet bgs.

Watershed – An area of land that drains into a particular river, lake, bay, or other body of water. We all live in a watershed: some are large (like the Chesapeake), while others are small (like a stream or creek).

X-ray fluorescence (XRF) – An analytical technique used to determine the elemental composition of materials in the field. A handheld XRF analyzer determines the chemistry of a sample by measuring the fluorescent X-ray emitted from a sample when it is excited by a primary X-ray source.

95% Upper Confidence Limit of the Mean – A 95% confidence interval is a range of values (upper and lower) that you can be 95% certain contains the true mean (average) of the population.

Proposed Remedial Action Plan for MMRP Sites TS345 and SR347

Joint Base Andrews Naval Air Facility Washington, Camp Springs, Maryland

Use This Space to Write Your Comments

Your input on the Proposed Plan is important to the United States Air Force. Comments provided by the public are valuable in helping us select a final remedy for the sites.

Although not required, you may use the space below to write your comments to mail. Use additional paper if needed. Comments must be postmarked, or e-mailed by midnight September 6, 2023. If you have any questions about the public comment process, contact the 316th Wing Public Affairs Office at 316WG.PA.COMMUNITYENGAGEMENT@us.af.mil.

Mail your comments to:

316th Wing Public Affairs Office
William A. Jones III Building
1500 West Perimeter Road, Room 2330
Joint Base Andrews, MD 20762

Or e-mail your comments to:

316WG.PA.COMMUNITYENGAGEMENT@us.af.mil

Comments can be submitted orally over the telephone at: (240) 612-4428

Name _____

Affiliation _____

Address _____

City, State, Zip _____

Fold on the lines, secure open bottom edge with clear tape, place first class stamp, and mail

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Stamp
Here

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