PROPOSED PLAN FOR FORMER CAMP BRECKINRIDGE RANGE INVESTIGATION AREA MRS

U.S. ARMY CORPS OF ENGINEERS – LOUISVILLE DISTRICT

JULY 8, 2021

US Army Corps of Engineers®

Contract W912DY-17-D-0004
Task Order: W912DY18F0933

WELCOME

Government Contracting and Project Management

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DEFINITIONS:

Military Munitions Response Program (MMRP) – A DoD program consisting of actions necessary to ensure protection of human health, welfare, and the environment from the hazards associated with DoD military munitions and MC-related contamination at locations impacted by historical military activities.	The Army Corps of Engineers manages this project under the **MMRP**.
Formerly Used Defense Site (FUDS) – A FUDS is defined as a facility of site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the United States at the time of actions leading to contamination by hazardous substances. By the Department of Defense Environmental Restoration (DERP) policy, the FUDS program is limited to those real properties that were transferred from DoD control prior to 17 October 1986. FUDS properties can be located within the 50 States, District of Columbia, Territories, Commonwealths, and possessions of the United States.	The Camp Breckinridge **FUDS** site is larger than the **MRS** and includes areas once used by the government outside munitions use areas.
Munitions Response Site (MRS) – A discrete location that is known to require a munitions response.	The subject of this project is the Range Investigation **MRS**.
Remedial Investigation (RI) – Process undertaken to determine the nature and extent of the problem presented by a release which emphasizes data collection and site characterization.	The recent fieldwork has been completed for the **RI** at the Range Investigation Area **MRS** at Camp Breckinridge **FUDS**.

DEFINITIONS (CONTINUED):

Feasibility Study (FS) -A study undertaken to develop and evaluate alternatives for remedial action.	Remedial alternatives to address MEC were developed and evaluated in the **FS.**
Munitions and Explosives of Concern (MEC) – A munition or explosive that may pose an explosive safety risk because it either did not function as designed, was discharged and/or abandoned, or is an explosive constituent.	**MEC** includes unexploded ordnance (UXO), discarded military munitions, and explosive constituents of munitions present in high enough concentrations to pose an explosive hazard.
Munitions Debris (MD) – Remnants of munitions (e.g., penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization or disposal. Munitions debris is confirmed inert and free of explosive hazards by technically qualified personnel.	Munitions and pieces of munitions that have been determined not to pose an explosive hazard are referred to as **MD**.
Geophysics – a method utilized for the detection and measurement of buried anomalies (e.g., ferromagnetic indicators and ground penetrating radar) to investigate the presence of munitions.	Electromagnetic detectors and advanced geophysical sensors were used during the **RI** to identify **anomalies** that may indicate the presence of munitions or other metallic objects.
Anomaly – An item seen as a subsurface irregularity (i.e., deviates from expected subsurface items such as pipes, utility lines, etc.) after geophysical investigations.	**Geophysical** anomalies may indicate the presence of munitions or other metallic objects. The mapping of **anomalies** and investigation of **anomalies** during the RI was used to confirm the presence and extent of munitions use.

ACRONYMS

AGC	advanced geophysical classification
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DGM	Digital geophysical mapping
DoD	Department of Defense
HUA	High Use Area
LUA	Low Use Area
MC	munitions constituents
MD	munitions debris
MEC	munitions and explosives of concern
MMRP	Military Munitions Response Program
MPPEH	material potentially presenting an explosive hazard
MRS	munitions response site
NEU	no evidence of use
NFA	no further action

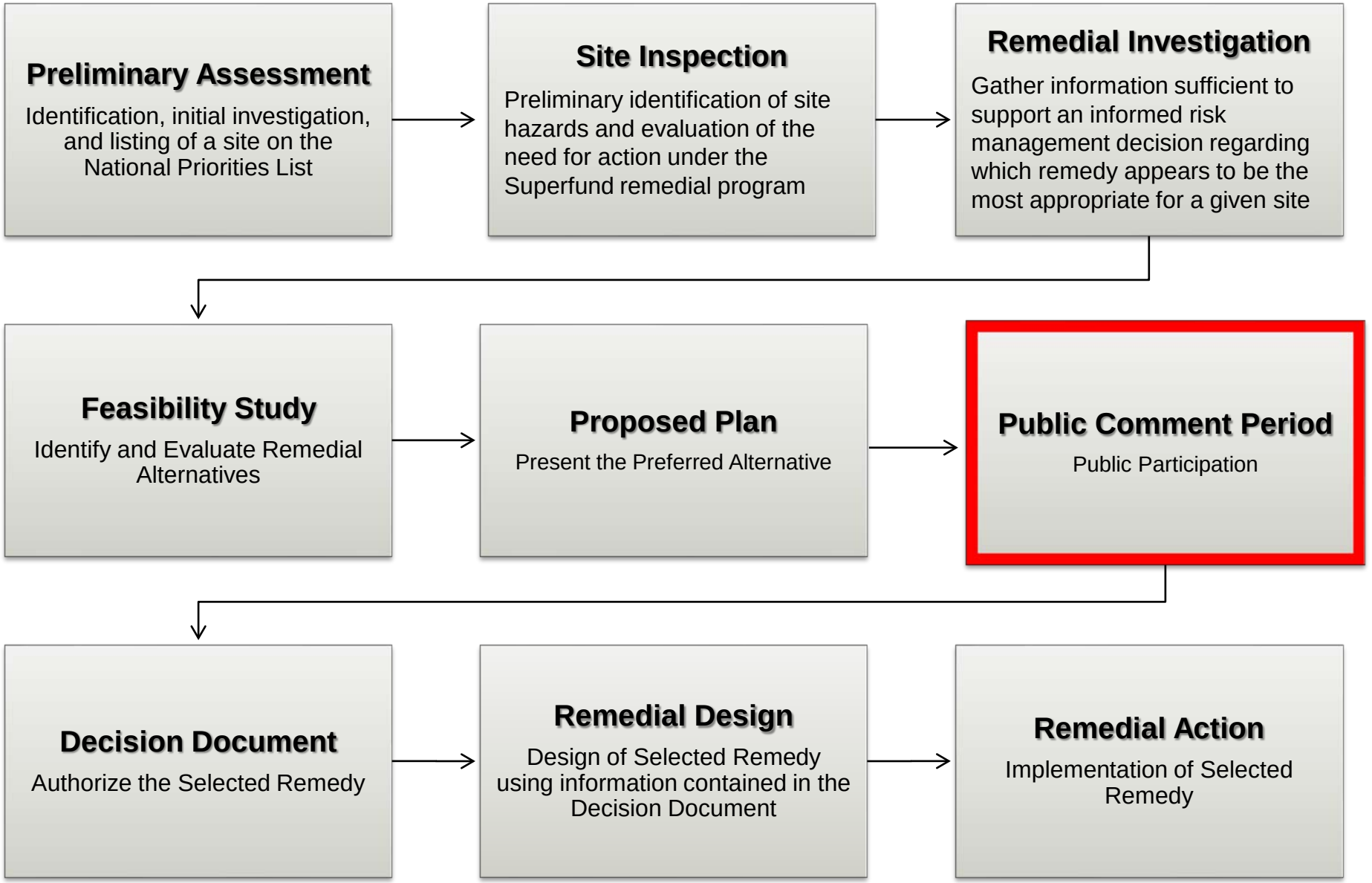
PRESENTATION AGENDA

- Summary of Military Munitions Response Program
- Presentation of the Range Investigation Munitions Response Site (MRS) Proposed Plans, including the following:
  - Historical Operations and Investigations
  - Current Conditions
  - Remedial Investigation and Feasibility Study Results
  - Recommendations and Rationale
- Questions

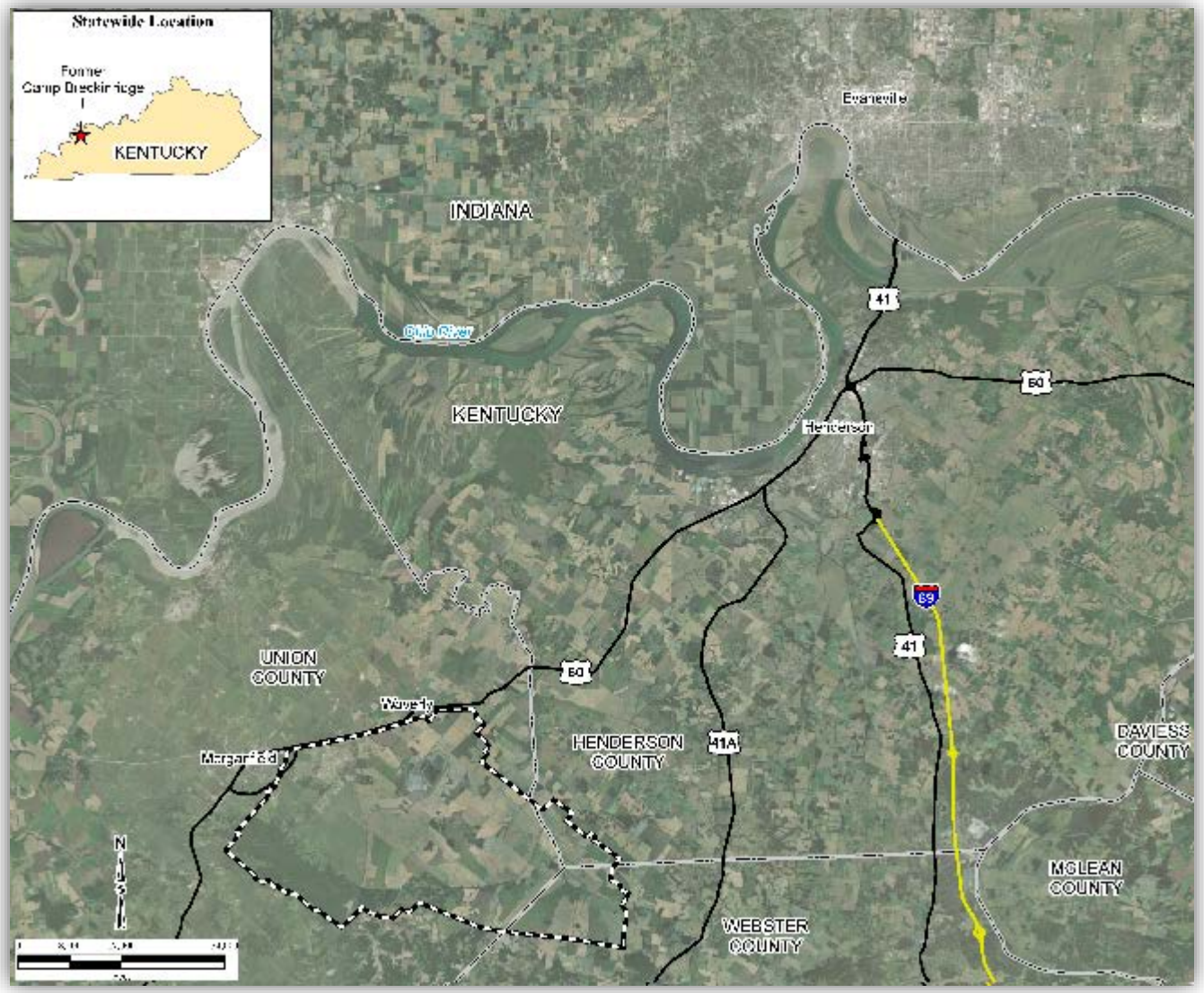
INTRODUCTION TO THE MMRP

- The Military Munitions Response Program (MMRP) is a Department of Defense program
- Follows the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or Superfund process to address sites
- MEC may remain on an MRS due to former munitions-related activities
- MC may be left in soil and other environmental media within the MRS
- The MMRP includes response actions to address MEC and MC

STAGES OF A MMRP PROJECT



FORMER CAMP BRECKINRIDGE LOCATION



East of Morganfield KY, in Henderson, Webster and Union Counties

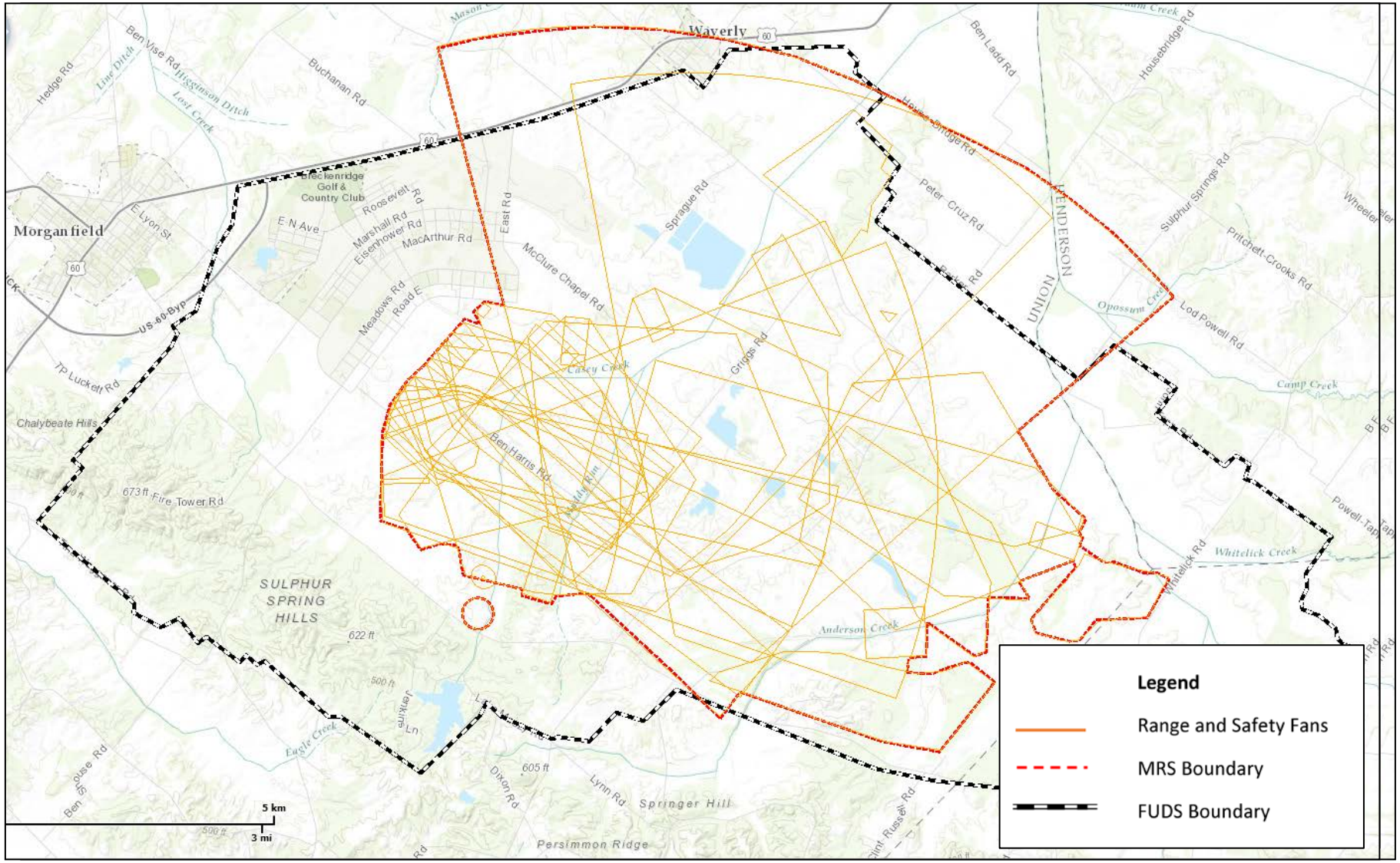
Legend

- U.S. Highway
- Interstate
- County Boundary
- Former Camp Breckinridge

Notes:
Coordinates shown in Universal Transverse Mercator (UTM) Zone 16 North, North American Datum (NAD) 83, meters.

MRS=munitions response site

RANGE INVESTIGATION AREA MRS



- 20,766 acres within the 36,000 acre former Camp Breckinridge
- Multi-purpose range complex and training camp for WWII and Korean War, and National Guard and Army Reserves training (1942 – 1962).
- Included 33 former ranges (small arms ranges, tank sub-caliber range, grenade ranges, rocket ranges, demolition ranges, close combat ranges, and attack and assault courses).
- Firing was generally toward the center.

HISTORICAL INVESTIGATIONS

The following investigations and reports have been completed for the Range Investigation MRS under the MMRP:

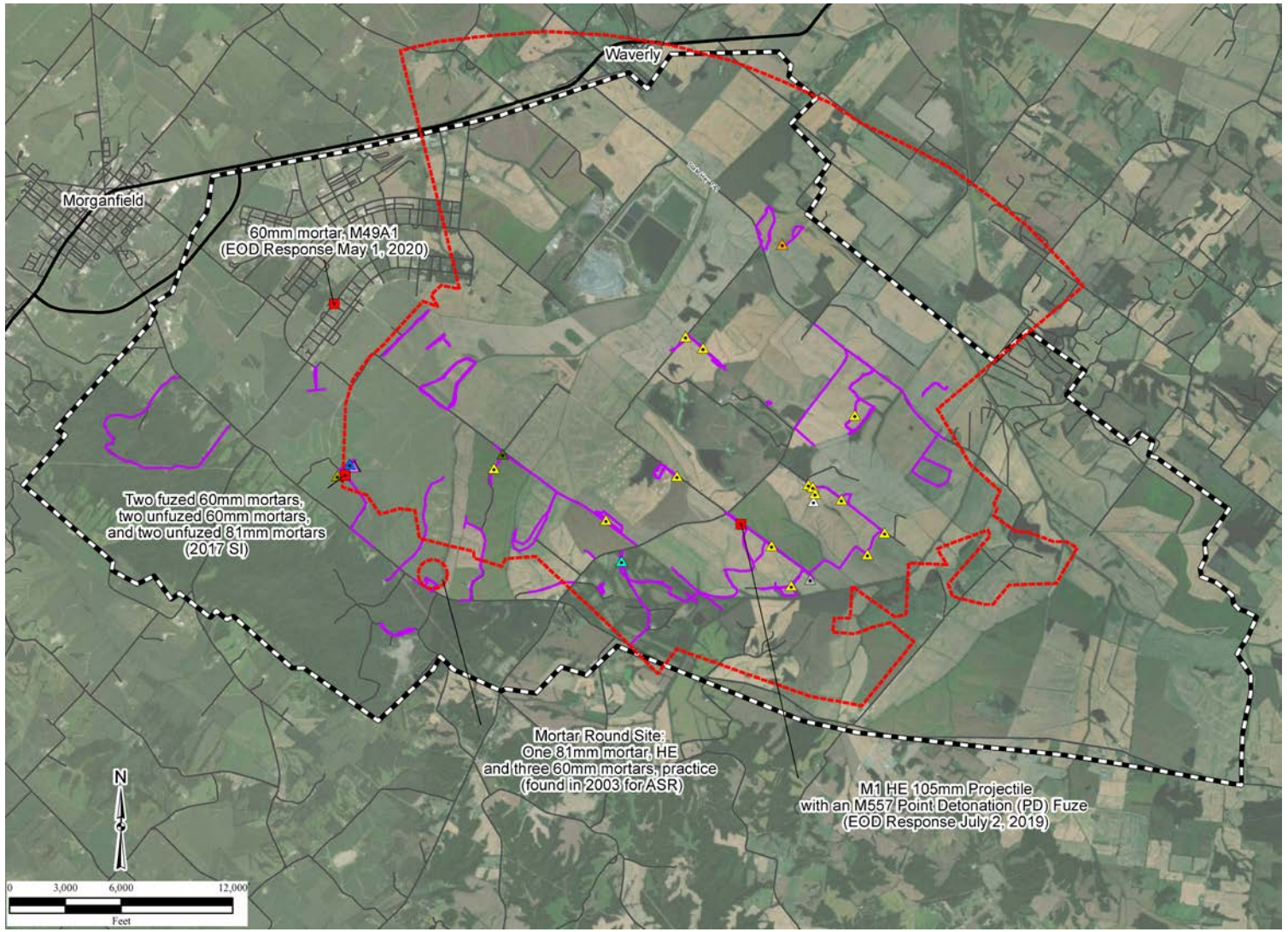
Inventory Project Report (1992) established the former Camp Breckinridge property as a FUDS and authorized Project No. 06 at the former Camp Breckinridge (Property Number G04KY0028)(USACE Louisville District [CELRL], 1992).

Archive Search Report (1994) included a historical records review and a site visit. The report documented that 136 munitions items, including many HE projectiles, were discovered in and around the Former Camp Breckinridge between 1989 and 1993 (USACE, 1994). MD indicative of live-fire training was observed during the site visit. The Mortar Round Site was identified.

ASR Supplement (2004) concluded that the use of the former camp ranges was suspected (for artillery firing points), and the entire site should be considered to have potential MEC presence.

Site Inspection (2007) evaluated the potential for explosive hazards and the presence of MC. MEC discovered in the Range Investigation MRS included: two fuzed 60mm mortars, two unfuzed 60mm mortars, and two unfuzed 81mm mortars), and various MD. Lead and zinc in surface soil exceeded background and ecological screening values. There were no surface water exceedances. Further MEC characterization and additional MC sampling under an RI was recommended.

SITE INSPECTION RESULTS



Legend

- Munitions and Explosives of Concern Location

Munition Debris Location (2007 Site Inspection)

- .30 Caliber Ammunition
- 2.36-inch Rocket (warhead)
- 3.5-inch Rocket (tail shroud)
- 4.2-inch Mortar (illum., tail boom)
- 60mm Mortar, Target Practice
- 81mm Mortar
- Fragmentation
- Fuze, 60/81mm Mortar
- Fuze Adapter
- Qualitative Reconnaissance Track (2007 Site Inspection)
- U.S. Highway
- State Road
- Range Investigation MRS
- Former Camp Breckinridge

CURRENT CONDITIONS

The site is currently used for farming and grazing. Agricultural buildings and a few residences are located within the investigation area. There is no expected change in future land use.

View of bean field during DGM

Southwest end of a former small arms target backstop

REMEDIAL INVESTIGATION

- Field work conducted from November - December 2017, October 2018-May 2019, March-April 2020, and October-November 2020.
- Characterization completed in areas eligible for investigation and by the rights-of-entry (ROEs) granted by current landowners - 8,795 acres within the 20,766-acre MRS, and an added 838.8 acres outside the MRS
- DGM to identify subsurface anomalies on 410-ft spaced transects (covering 209.6 miles total). The 410-ft transect spacing was based on the fragmentation radius of the smallest known or suspected munitions (37mm projectiles or MKII hand grenades) and was designed to detect a target area with at least a 90% confidence.

Equipment used to complete DGM (Geonics EM61-MK2)

REMEDIAL INVESTIGATION (CONTINUED)

- 42 grids ranging from 100 ft by 100 ft to 200 ft by 200 ft (covering 35.1 acres total) were placed in high- and low-density areas and surveyed using DGM. Select anomalies in high-density grids were cued using the MetalMapper2x2 Advanced Geophysical Classification (AGC) sensor. Targets were intrusively investigated.
- Time Critical Removal Action (TCRA) was conducted over a 35-acre area near Grids 08 and 09. Analog clearance was conducted in this area to remove MEC and reduce anomalies over the area. A dynamic AGC survey was completed over the area with a MetalMapper2x2 to evaluate the sensor's performance.

Cueing with the MetalMapper2x2

REMEDIAL INVESTIGATION RESULTS

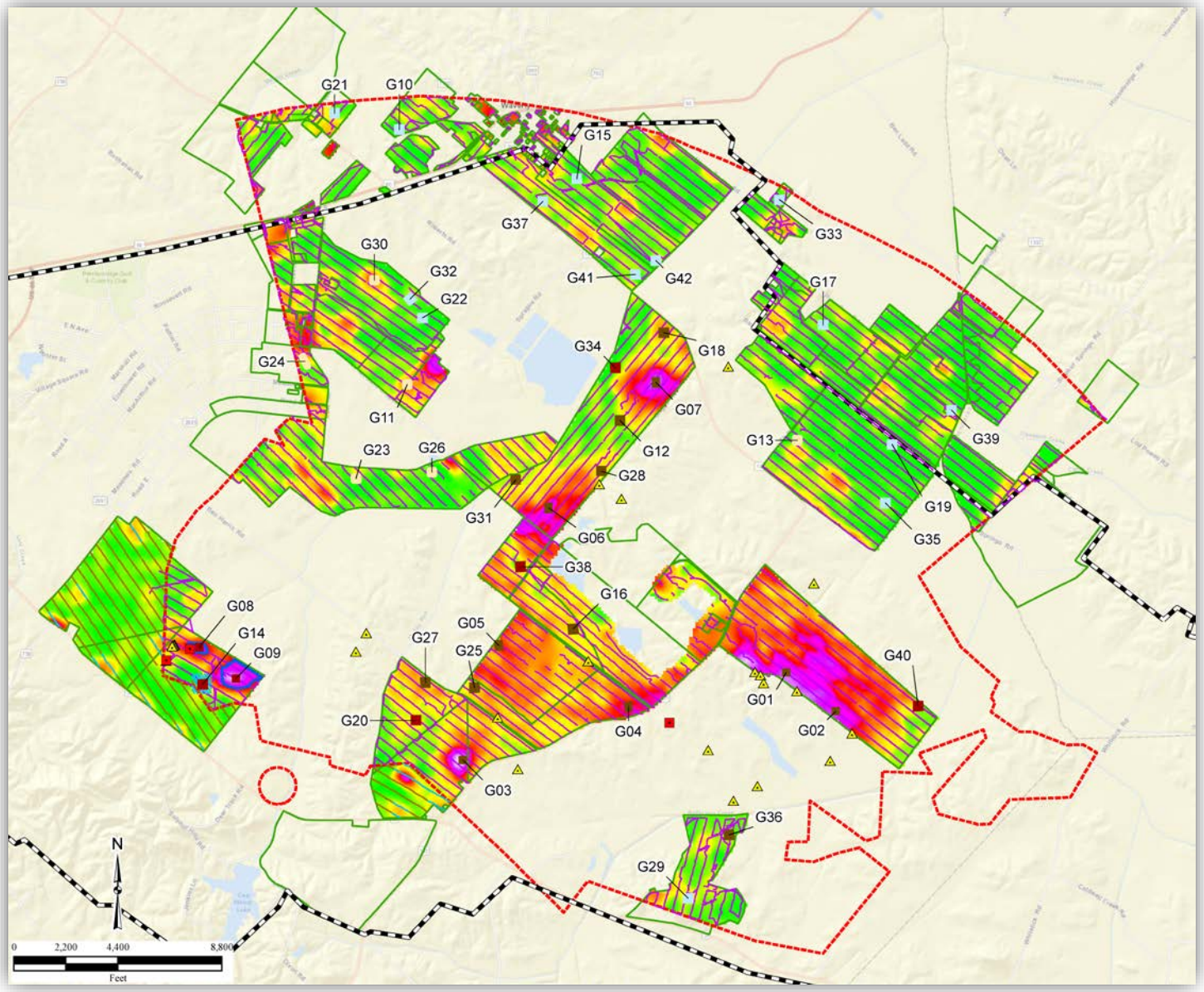
- Recovery and demolition of 30 MEC items (all unexploded ordnance):60mm and 81mm mortars, a 37mm projectile, a 75mm projectile, and a MK2 hand grenade.
- 1,261 pounds (lbs) of MD and small-arms ammunition, and 1,581 lbs of non-munitions-related debris (NMRD) removed in transects and grids.
- In the TCRA, 1,534 MEC items (all UXO) and 33,789 lbs of MD were disposed. An additional 60mm mortar that was dropped off was disposed. Types of MEC identified: 37mm, 75mm and 105mm projectiles and 60mm, 81mm ad 4.2-inch mortars.
- Maximum depth of MEC/MD: 38 inches below ground surface

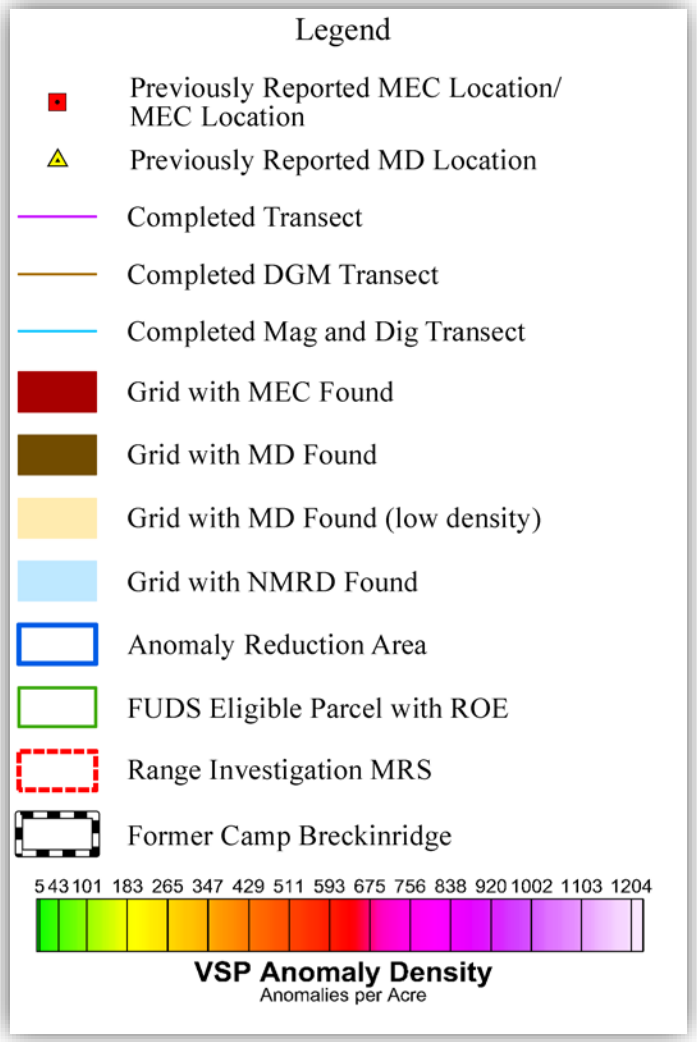

37mm M63


155mm Illumination M118


Demolition shot for 60mm mortars (2/5/19)

REMEDIAL INVESTIGATION RESULTS (CONTINUED)

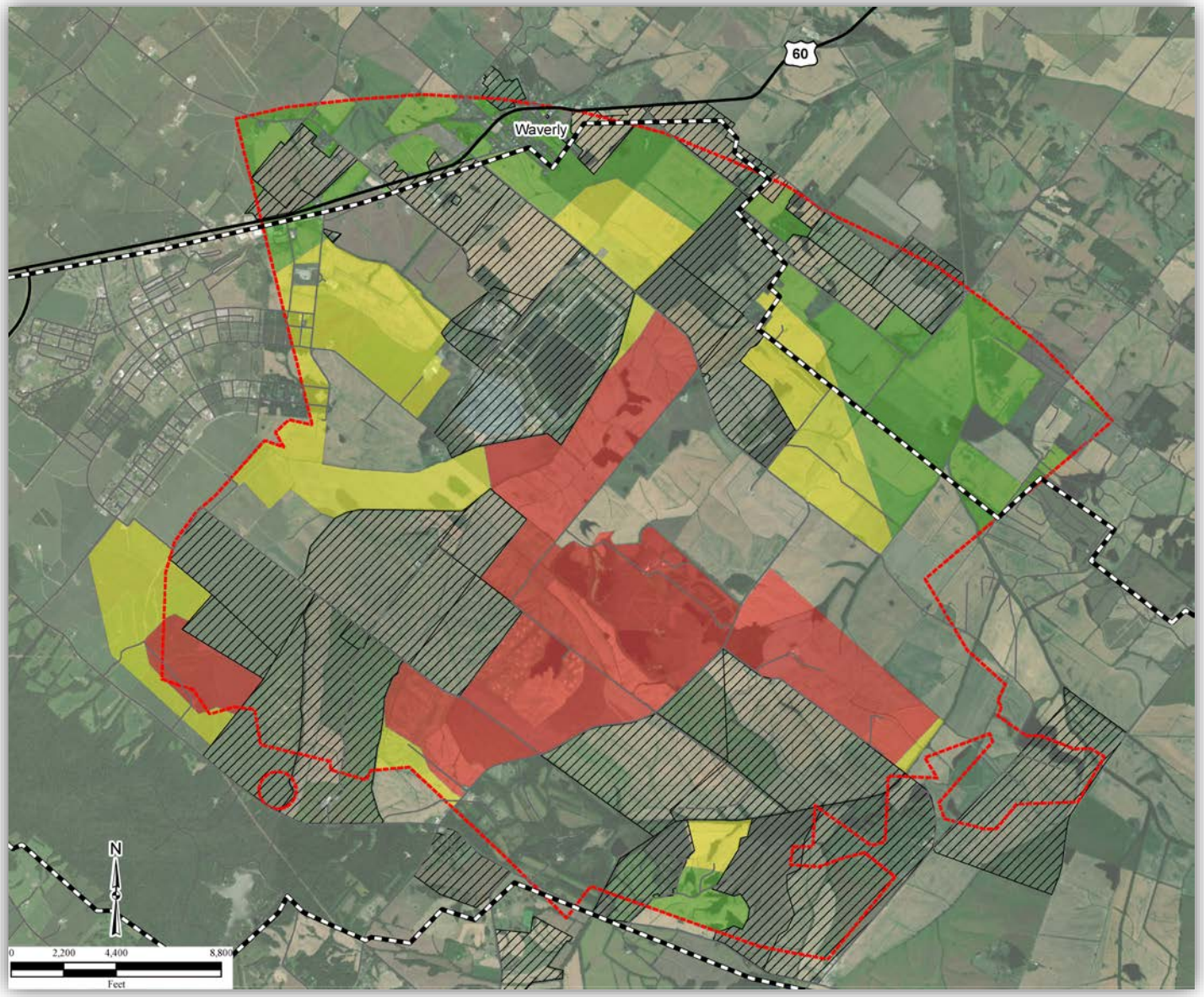




REMEDIAL INVESTIGATION RESULTS - MC

- Sampling was conducted in three phases:
  - A total of 41 surface and subsurface soil samples were collected; co-located surface water and sediment samples were collected at 3 locations.
  - Samples were analyzed for explosives, antimony, copper, lead, and zinc.
- No human health screening values were exceeded.
- Tetryl, antimony, copper and lead were detected above ecological screening values in surface and subsurface soil. A risk assessment, performed in accordance with EPA guidance, concluded there is no unacceptable risk to human health or ecological receptors in surface and subsurface soil, surface water, and sediment.

HIGH USE/LOW USE AREAS AND NO EVIDENCE OF USE AREAS



Recomendations

Determination	Acreage	Proposed Action
HUA and LUA MRS	3,669.5	FS
LUA	2,997.3	FS
NEU	2,600.4	No Further Action (NFA)

Legend

- U.S. Highway
- State Road

Investigation Area:

- High Use Area (3,669.5 acres)
- Low Use Area (2,997.3 acres)
- No Evidence of Use Area (2600.4 acres)
- FUDS Eligible Parcel - ROE Refused
- Range Investigation MRS
- Former Camp Breckinridge

FEASIBILITY STUDY

- Addresses the HUA and LUA only
- Presents and explains the developed remedial alternatives
- Section 300.430(e) of the National Oil and Hazardous Substances Pollution Contingency Plan lists nine CERCLA criteria for assessing the appropriateness of each alternative. The FS evaluated each alternative for the HUA and LUA against these criteria.

Threshold Criteria	Overall Protection of Human Health and the Environment
	Compliance with Applicable or Relevant and Appropriate Requirements
Balancing Criteria	Long-Term Effectiveness and Permanence
	Reduction of Toxicity, Mobility, or Volume Through Treatment
	Short-Term Effectiveness
	Implementability
	Cost
Modifying Criteria	State Acceptance
	Community Acceptance

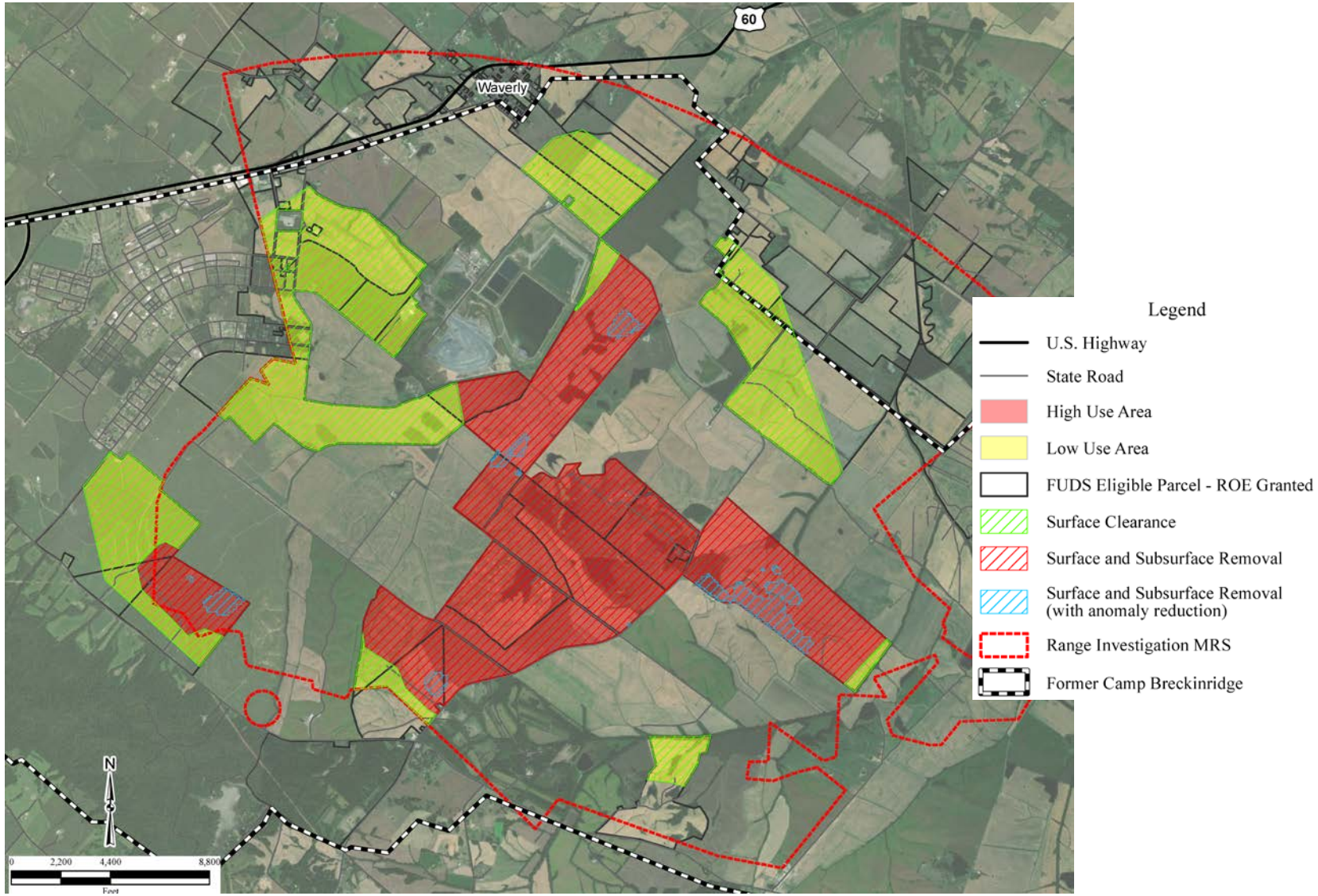
FEASIBILITY STUDY

- Remedial alternatives developed for the HUA and LUA in the Feasibility Study (FS) were:
  - **ALTERNATIVE 1 -** No action (required for baseline comparison)
  - **ALTERNATIVE 2a -** Focused Surface and Subsurface Removal (Analog Anomaly Reduction) and Land Use Controls (LUCs) - Surface clearance for MEC over the HUA and LUA. Anomaly reduction in high density areas of the HUA. Method for anomaly reduction is by analog geophysical methods. Perform AGC over the HUA and intrusively investigate selected targets, removing MEC and MD from 0-3 ft below ground surface. LUCs consisting of educational controls (pamphlets distributed to landowners) would mitigate the risk of MEC in these areas by educating agricultural workers and landowners that in the unlikely event a munition is found that they should follow the “3Rs”: recognizing an item as potential MEC, retreating, and reporting the item and location to local law enforcement.
  - **ALTERNATIVE 2b -** Focused Surface and Subsurface Removal (Sifting for Anomaly Reduction) and LUCs. Focused Surface and Subsurface Removal (Analog Anomaly Reduction) and Land Use Controls- Surface clearance for MEC over the HUA and LUA. Anomaly reduction in high density areas of the HUA. Method for anomaly reduction is by remote control excavator and mechanical screening soils and feeding through a magnet plant. Perform AGC over the HUA and intrusively investigate selected targets, removing MEC and MD from 0-3 ft below ground surface. LUCs would also apply.
  - **ALTERNATIVE 3 -** Complete Surface and Subsurface Removal (unlimited use/unrestricted exposure) - Surface clearance for MEC over the HUA and LUA; AGC over all areas, and intrusive investigation of targets of interest.

ALTERNATIVES 2A AND 2B

- Focused Surface and Subsurface Removal (Analog Anomaly Reduction) and Land Use Controls

- Focused Surface and Subsurface Removal (Sifting for Anomaly Reduction) and Land Use Controls



PROPOSED PLAN RECOMMENDATIONS

NEU: No further action is recommended.

HUA and LUA: USACE concluded that Alternative 2a (Focused Surface and Subsurface Removal [Analog Anomaly Reduction] and LUCs) is the Preferred Alternative for the Range Investigation MRS HUA and LUA.

Alternative 2a:

- Meets the remedial action objective by removing surface and subsurface MEC in the HUA, removing surface MEC in the LUA, and providing LUCs to manage the low potential for remaining risk. LUCs are limited to educating against direct contact with MEC because agricultural practices would continue in the MRS.
- Is protective of human health and the environment,
- Is compliant with Applicable or Relevant and Appropriate Requirements (ARARs)
- Provides the best combination of primary balancing attributes that allow for the anticipated current and future land use. Alternative 2a was selected over Alternative 2b because the remedy would be completed sooner and is less intrusive.

QUESTIONS AND COMMENTS

The public is invited to comment on the Proposed Plan. Questions and comments can be submitted several ways:

- In writing on the public comment forms provided (attached to the meeting invitation)
- By email: FUDSLRLPublicComments@usace.army.mil
- By mail:

  Charles Delano
  USACE Louisville District
  600 Dr. Martin Luther King Jr. Place
  Louisville, KY 40202
  (502)315-6769

- Asked during this public meeting

The Administrative Record file is available for public review at the Union County Public Library, 126 S. Morgan Street, Morganfield, KY 42437 (by appointment only: 270-389-1696) and the USACE Louisville District, 600 Dr. Martin Luther King, Jr. Place Louisville, Kentucky 40202 (by appointment only: 502-315-6769).

The public comment period began June 27, 2021 and ends July 31, 2021.

REMEMBER THE “3Rs”

HOW can I be safe? Follow the 3Rs of Explosives Safety.

- **R**ecognize - when you may have encountered a munition and that munitions are dangerous.
- **R**etreat - do not approach, touch, move or disturb it, but carefully leave the area.
- **R**eport - call 911 and advise the police of what you saw and where you saw it.