



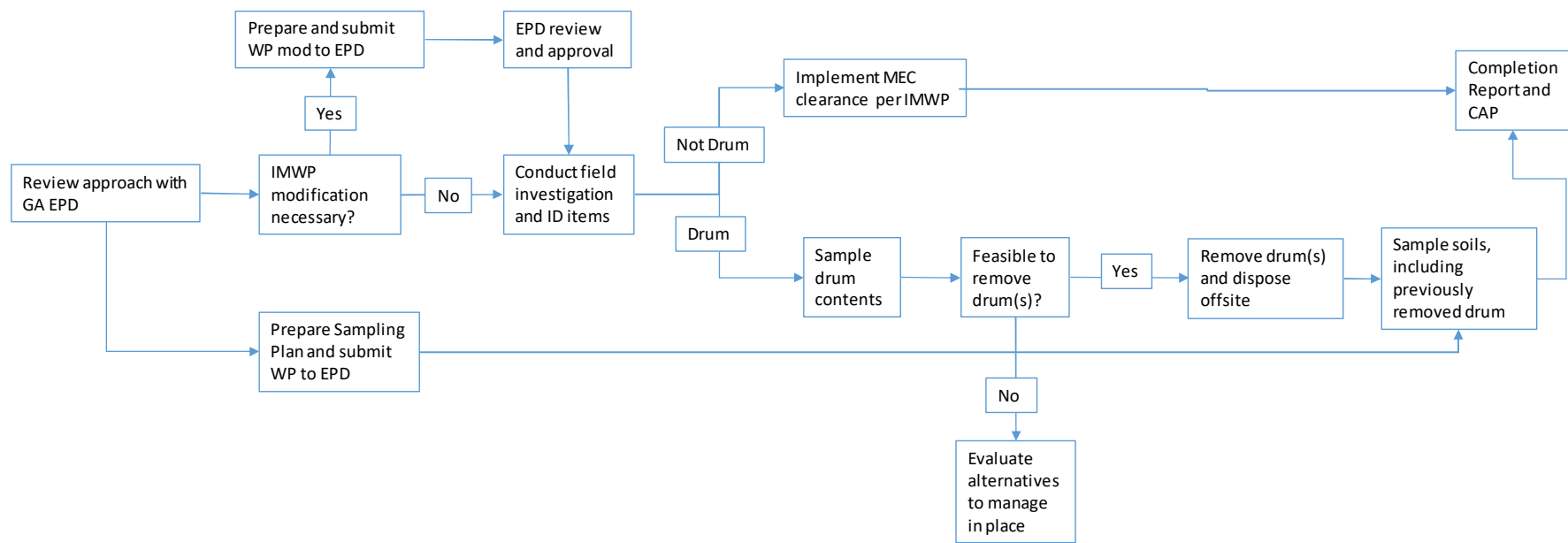
# UCC Woodbine SWMU 8 Interim Measure Update

Camden County, Georgia

10 January 2020

**JACOBS**<sup>®</sup>

# Approach – Investigation of Potential Drums



## Approach – Investigation of Potential Drums

- Interim Measures Work Plan (IMWP)
  - IMWP will continue to be followed for investigation and removal of munitions items
  - Drums are similar to cultural debris that is presently being identified and removed except that sampling and special handling is required due to the potential presence of hazardous substances
  - Modification of the IMWP is not necessary

# Identifying Potential Drums

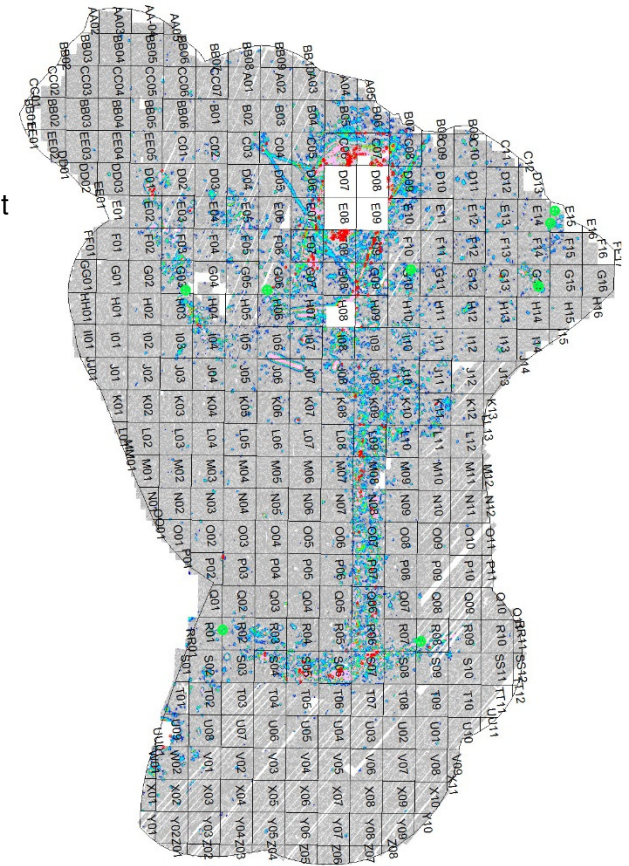
## • Background

- Use DGM data from EM61 survey and evaluate the observed responses of recovered MEC and non-MEC items. Use this information to re-evaluate DGM results and determine which single point anomalies and saturated response areas could represent potential drums. Use EM31 to further assess EM61 anomalies that may represent potential drums.

## • EM61 Processing

- The locations of MEC/non-MEC items that were recovered across the site are known.
- EM61 responses for the recovered items is also known. These are voltage measurements at 4 distinctive time gates (CH1, CH2, ...,CH4).
- Magnitude and rate of decay of EM61 measurements depend on the size, shape and electrical properties of buried metallic objects.
- 1. Take subset of dig results -> evaluate the rate of decay of EM61 data associated with each dig result -> obtain a rate of decay 'range' for all those "known" buried metallic objects.
- 2. Estimate rate of decay of EM61 data associated with SRAs & single point anomalies -> find locations where the estimated rate of decay is fallen outside the rate of decay range obtained from previous step "1".

- **Results:** Found **246** potential drum locations within SRAs (red on Figure) and found 8 potential drum locations at single point anomalies (shown in green).



# Identifying Potential Drums

- **EM31 Approach**

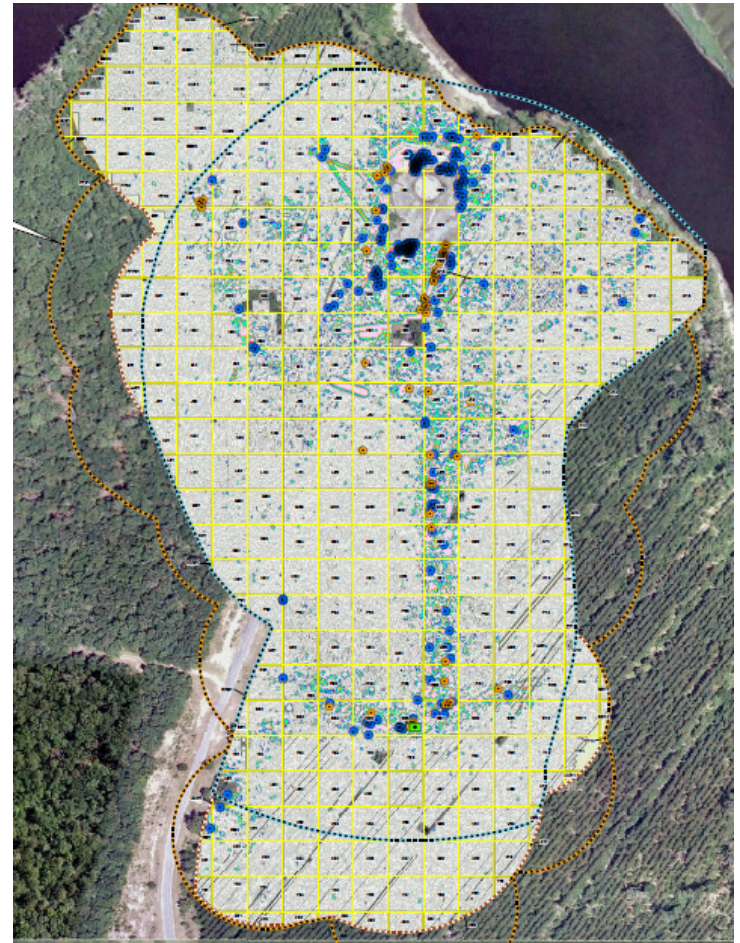
- Bury drum at known location and determine EM31 response.
- Establish threshold EM31 response to differentiate between potential drums and anomalies that do not represent potential drums.

- **EM31 Processing**

- Use EM31 to take field measurement of 254 potential drum locations.

- **Results:**

- **48** of the **254** locations evaluated were determined to represent potential drums requiring further assessment. (Figure provided to EPD.)



# Objective – Investigation of Potential Drums

State the Problem	Identify the Decisions	Identify Inputs to the Decisions	Define the Boundaries to the Study	Develop a Decision Rule	Specify Tolerable Limits on Decision Errors
EM31 results indicate the potential for buried drums associated with some single point anomalies and within some of the Saturated Response Areas of SWMU 8.	Determine whether the identified magnetic anomalies are buried drums or other objects.	Previously collected EM61 and EM31 data; Information from previously discovered drum; Historical documents; Visual inspection of buried items	48 locations identified by EM 31 that indicate the potential for buried drums associated with magnetic anomalies.	If visual inspection of buried items associated with EM31 magnetic anomalies identified as potential drums indicates a drum or drums are present, then additional steps are needed to determine management of drums; If visual inspection indicates the buried object is not a drum, then address per IMWP.	Excavation safely conducted to maximum depth of 3 feet or until buried item is encountered.

## Evaluating Targets Identified as “Potential Drums”

- Use EM61 and/or EM31 to reacquire magnetic anomaly (aka targets)
- Use a mini-excavator to carefully remove soil from above buried item; hand dig as needed to avoid disturbing item
- Uncover item to sufficiently identify it; manage as follows:
  - **Drum**; cordon off area and move to next target
  - **Other nonhazardous cultural debris**: remove and clear area per IMWP
  - **MEC/MPPEH**: clear area and manage per IMWP
  - **Other**: stop work, cordon off, and reassess and move to next target

## Approach for Identified Drums

- Collect representative sample for characterization from drum
- Analyze for COCs based on site knowledge and inspection of drum and contents (if visible)
- Determine feasibility of removing drum(s) for offsite disposal
- Excavate and remove drum(s), place in overpack container for offsite disposal
- Verify that targets have been removed per IMWP (e.g. ensure no remaining potential MEC present)



## Soil Sampling for Identified Drums

- Collect soil samples based on plan approved by GA EPD
- General sampling approach in plan
  - Sample excavation sidewalls in cardinal directions from buried drum locations
  - Sample base of excavation beneath former drum locations; collect one bottom sample(s) based on size of excavation
  - Analyze soils based on contents of drum. May include: Volatile Organic Compounds, Semi-volatile Organic Compounds + CS Constituent specific list as semi-quantitative TICs, and Pesticides