

**DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
2 HOPKINS PLACE
BALTIMORE, MD 21201**

CENAB-HM-EI

22 January 2024

MEMORANDUM FOR RECORD

SUBJECT: Summary of Findings, Magnetometer-Assisted Survey of Sand Creek conducted on 8-12 January 2024, as related to the Time Critical Removal Action for Open Demolition Area #2 (ODA2) at Camp James A. Garfield Joint Military Training Center (CJAG), Ravenna, OH

1) References.

- a) US Army Corps of Engineers Baltimore District (CENAB), Final Action Memorandum, Time-Critical Removal Action (TCRA), RVAAP-004-R-01 Open Demolition Area #2, Former Ravenna Army Ammunition Plant, Ravenna, Ohio, 30 October 2015.
- b) Final Work Plan, Time Critical Removal Action (TCRA), RVAAP-004-R-01 Open Demolition Area #2 Former Ravenna Army Ammunition Plant, Revision 1. March 18, 2016.

2) Purpose.

- a) The purpose of this Memorandum for Record (MFR) is to document the results of the Magnetometer-Assisted Survey of Sand Creek conducted by USACE Ordnance and Explosive Safety Specialist (OESS) personnel at ODA2 at CJAG on 8-12 January 2024.
- b) The creek walk was conducted to assess the potential for Munitions and Explosives of Concern (MEC) and Material Potentially Presenting an Explosive Hazard (MPPEH) migration from the RVAAP-004-R-01 Open Demolition Area #2 Munitions Response Site (MRS), and the potential for migration of MEC/MPPEH off the installation at creek exit points during the TCRA.

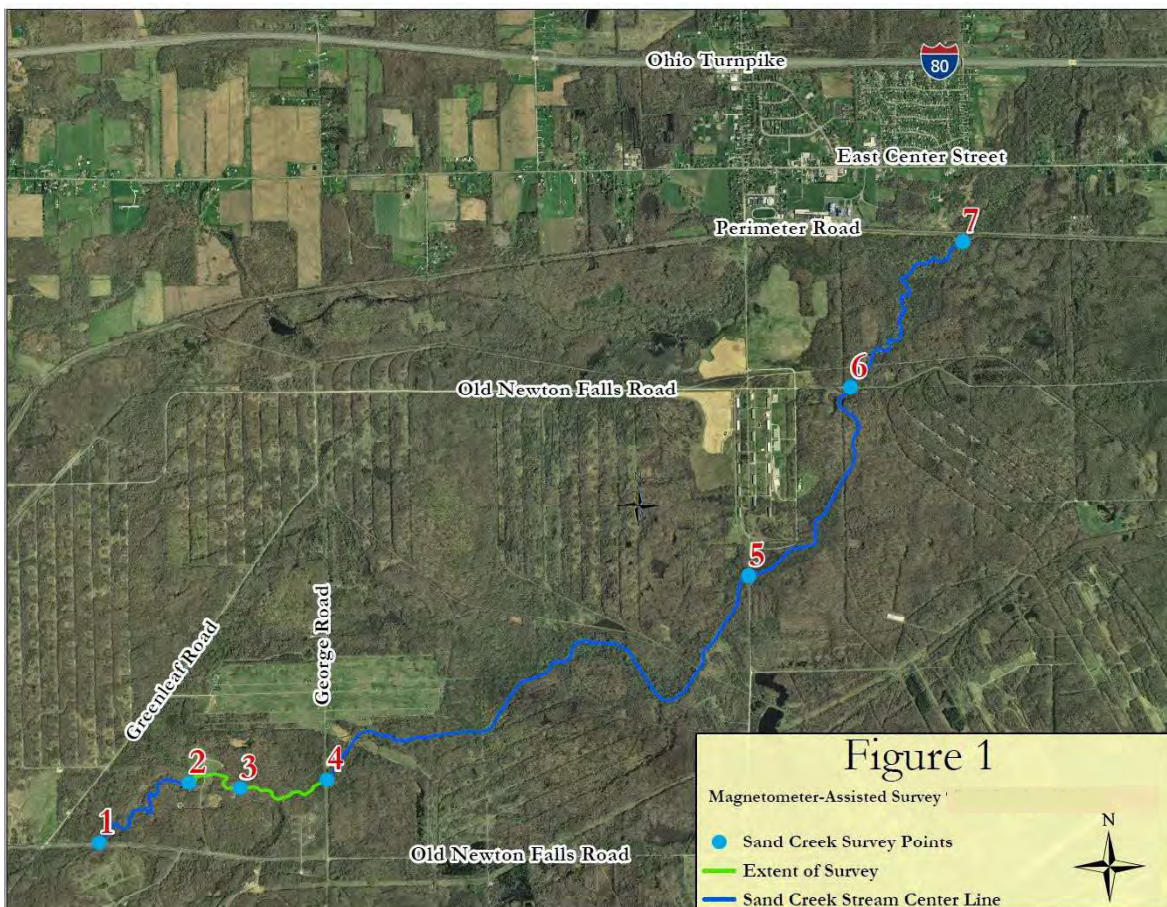
3) Background.

- a) The Open Demolition Area #2 (ODA2) MRS is a former open burning/open detonation (OB/OD) area, dumping ground, and burial site that was used from 1948 to 1991. Large caliber munitions and off-specification bulk explosives that could not be deactivated or demilitarized were detonated within the MRS. The principle sources of MEC/MPPEH at the ODA2 MRS are the result of intentional detonations and potential burial of MEC and bulk explosives. These activities resulted in the potential for MEC/MPPEH to be present in both the surface and subsurface soil at the MRS.

- b) Sand Creek flows through the ODA2 MRS and down-gradient areas of the installation. The potential exists for MEC/MPPEH migration within the ODA2 MRS and down-gradient areas during high-energy flood events.

4) Findings.

- a) *Dates and Extent of Survey.* The Sand Creek survey was conducted on 8-12 January 2024.
- b) *Personnel.* The survey was conducted by OESS Personnel (Mr. John Day and Mr. Daniel Dorrell).
- c) *Areas Surveyed.* Seven (7) way-points were established and evaluated during the initial survey (**Figure 1**) completed on 12-16 October 2016. These waypoints were used as markers/reference for the sweep conducted on 8-12 January 2024. For this event, approximately 1.5 line-miles were surveyed in and around the creek line between the ODA2 MRS western boundary (Waypoint 2) to George Road (Waypoint 4), as illustrated on **Figure 1**. The survey did not extend beyond Waypoint 4 based on field observations based on the absence of magnetic anomalies in the creek.



5) Observations.

- a) **Waypoints 2 to 3 observations:** MPPEH/Munitions debris (MD) was recovered between Waypoint 2 to Waypoint 3. Significant erosion was observed in the bends in Sand Creek (**Attachment A**). Ongoing erosion of the creek banks in these areas continues to release MPPEH/MD into the creek. This material appears to be accumulating in the creek bends located near the culvert in ODA2. Approximately forty (40) lbs of MPPEH/MD was recovered between Waypoints 2 to 3. All items were inspected and determined to be (Material Documented As Safe) MDAS.

In addition, a beaver dam was observed during the survey. The dam is blocking the creek to the west of the culvert (**Attachment B**). Water is ponding in this area and is too deep to safely survey with hand-held magnetometers. The deeper water area was not evaluated during this evaluation.



- b) **Waypoints 3 to 4:** Many small MPPEH/MD items were found and appear to have eroded out of the banks and the cliffs to the north and south of Sand Creek between the culvert and Waypoint 4. It is believed this material was eroded, transported, and deposited in this area during a high-energy storm event. Approximately five (5) lbs of MPPEH/MD was recovered between Waypoints 3 and 4 during the 8-12 January 2024 survey. All items were inspected and determined to be MDAS.
- c) No MEC was encountered during this survey. All recovered MPPEH/MD items were inspected and determined to be MDAS. All MDAS was transported to the earth covered magazine (Bldg 1501) at ODA2 and stored pending final disposition (recycling) at a future date.

6) Conclusions.

- a) Approximately forty-five (45) lbs of MDAS was recovered. Forty (40) lbs of MDAS was recovered from the creek between Waypoint 2 and Waypoint 3. This material does not appear to be migrating downstream, rather this material appears to be collecting near the culvert located near the center of the ODA2 MRS. Five (5) lbs of MDAS was recovered from the creek between Waypoint 3 and Waypoint 4. Based on these observations, it is concluded that the river banks are continuing to erode during high-energy storm events. Future surveys of this area are recommended.

Beavers have constructed a large dam in the creek west of the culvert (**Attachment B**). The water level in this area was too deep and unsafe for evaluation with hand-held magnetometers. The deep water area of the creek was not evaluated during this evaluation.

- b) Significant erosion of the creek banks continues between Waypoint 2 and Waypoint 4. The major bends in the creek, along with the cliffs to the north and south of sand creek are most likely the source area for the MPPEH/MD items recovered during this survey.
- c) There was no evidence that MEC, MPPEH, or MD is migrating beyond the ODA2 MRS boundary.

7) Attachments:

- a) Attachment A: Maps.
- b) Attachment B: Photographs.

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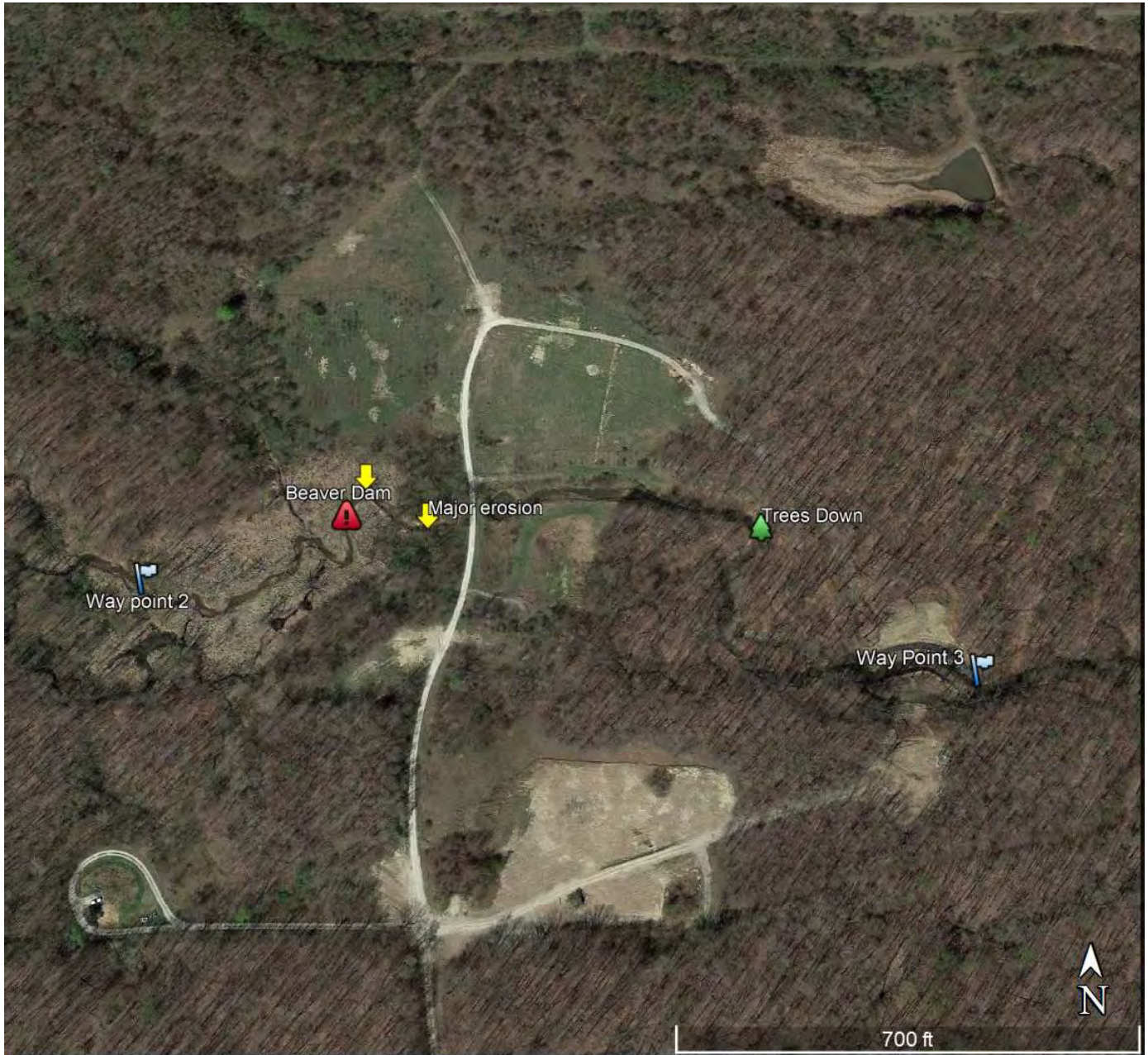
Marty A. Holmes
Chief, Ordnance & Explosive Safety
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Attachment A

Maps



Map of Waypoints 2 and 3



Map of Waypoints 2 and 3 with Areas of Interest



Map of Waypoints 3 and 4

Attachment B

Photographs



Performing Magnetometer Sweeps



Performing Magnetometer Sweeps



Performing Magnetometer Sweeps



Recovered Munitions Debris



Recovered Munitions Debris



MPPEH – Smaller Items Recovered Near Creek Bank



Beaver Dam



Beaver Dam



Area of Erosion Down Stream of Beaver Dam



Trees Fallen Across Creek Due to Erosion.