

**Final**  
**Site-Specific Work Plan**  
**Ordnance and Explosives (OE) Removal Action**  
**for the**  
**Water Tank Construction Sites**  
**in the Bravo Area**  
**of**  
**Fort McClellan, Alabama**

Task Order 0022

Contract Number DACA87-99-D-0010



U.S. Army Corps of Engineers  
Engineering and Support Center  
Huntsville, Alabama

Geographical Corps District:

US Army Corps of Engineers, Mobile District

Prepared by:

Foster Wheeler Environmental Corporation

Fort McClellan, Alabama

December 2003

Adds  
Dog Kennels

# Final Revision 2

of the

## Final Site-Specific Work Plan

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Prepared by:

Tetra Tech FW, Inc.

Fort McClellan, Alabama

May 2004

## 1.0 INTRODUCTION

1.1.3 Revision 2 to this SSWP adds an additional 2 acres of area to be surface cleared. The 2 acres of property is located within the Bravo Area and was previously used as a dog kennel by the Army. The area to be surface cleared is shown in Figure 12-5.

## 1.2 OBJECTIVE

1.2.1 The objective of Revision 2 to this SSWP is to conduct a surface clearance on 2 acres of property shown on Figure 12-5. The surface clearance operation will be carried out in accordance with section 2.3.4 of this work plan.

## 1.3 SITE LOCATION

1.3.0 Fort McClellan is located northeast of the City of Anniston, Calhoun County, Alabama. To the west are the areas known as Weaver and Blue Mountain. To the North is the City of Jacksonville. The Talladega National Forest is to the east of the post. Figure 12-1 shows the location of the Water Tank Construction Sites within the Bravo Area. Figure 12-5 shows the location of the dog kennel surface clearance area.

## 1.4 SITE HISTORY

1.4.2 The dog kennel area was used by the Army as a kennel area for the military police on post. Auburn University has requested to use the existing kennel as a temporary facility while their new facility is being built.

## 2.3.4 TASK 6 – PERFORM SURFACE CLEARANCE, BRUSH CLEARING, AND VEGETATION REMOVAL

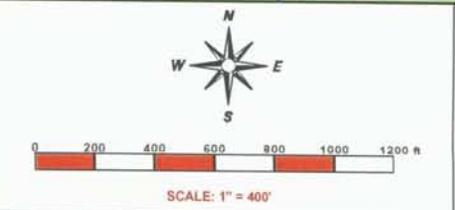
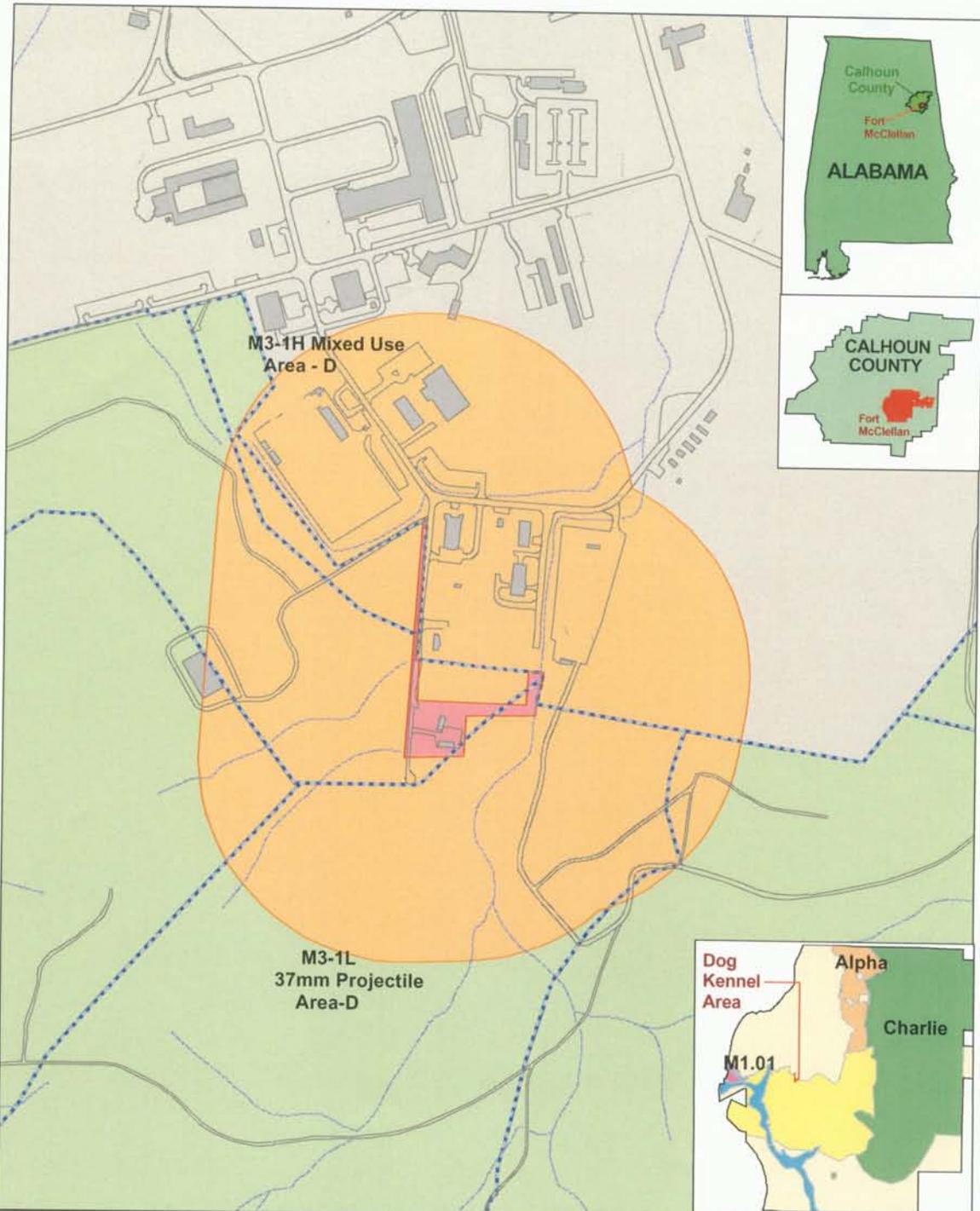
2.3.4.1 The surface clearance operation within the 2 acre dog kennel area will be carried out by UXO personnel using Schondstedt hand held metal detectors. No intrusive activities will be conducted during this surface clearance. The three phase QC process will be carried out in accordance with Section 11 of this SSWP.

11.4 ACCEPTANCE INSPECTION

11.4.4 Criteria for accepting parcels within the dog kennel area that have completed surface clearance are: No OE, No OE Scrap, and no other ferrous items larger than 3 inches in any dimension.

12.0 MAPS

12.5 Figure 12-5 shows the dog kennel area.



**LEGEND**

- EZ (809') for MPM 2.36" Rocket
- Dog Kennel Clearance Area
- Bravo EE/CA Area Sectors
- Roads
- Buildings
- Lakes
- Streams
- Fort McClellan

**Figure 12-5**  
**Dog Kennel Clearance Area**

Fort McClellan,  
 Anniston,  
 Calhoun County,  
 Alabama

May 2004



**TABLE OF CONTENTS**

1.0	INTRODUCTION .....	1.1
1.1	General.....	1.1
1.2	Objective.....	1.1
1.3	Site Location .....	1.1
1.4	Site History .....	1.1
1.5	Topography.....	1.2
1.6	Climate.....	1.2
2.0	TECHNICAL MANAGEMENT PLAN.....	2.1
2.1	General.....	2.1
2.2	Technical Scope .....	2.1
2.3	Approach.....	2.1
2.3.1	Task 3 – Geophysical Prove-Out (GPO) .....	2.1
2.3.2	Task 4 – Prepare ESS and SSWP .....	2.1
2.3.3	Task 5 – Geographical Information System (GIS) .....	2.2
2.3.4	Task 6 – Perform Surface Clearance, Brush Clearing, and Vegetation Removal . .....	2.2
2.3.5	Task 7 – Perform Location Surveys.....	2.2
2.3.6	Task 8 – Geophysical Investigation and Evaluation.....	2.2
2.3.7	Task 9- Anomaly Reacquisition and Marking.....	2.3
2.3.8	Task 10 – Perform UXO/OE Clearance.....	2.3
2.3.9	Task 11 – Not Used.....	2.4
2.3.10	Task 12 – Not Used .....	2.4
2.3.11	Task 13 – Prepare Site-Specific Removal Report (SSRR).....	2.4
2.3.12	Task 14 – Meetings .....	2.4
2.3.13	Task 15 – Provide Quality Assurance (QA) Support (Time and Materials Task) .....	2.4
2.4	Personnel.....	2.4
2.4.1	UXO Qualified Personnel and Qualifications.....	2.4
2.4.2	Key Personnel Responsibilities.....	2.4
2.4.3	Composition of Teams .....	2.5
2.5	Mobilization Plan.....	2.6
2.6	Site Preparation Activities .....	2.6
2.6.1	Brush Clearance .....	2.6
2.6.2	Survey .....	2.6
2.7	OE Operations.....	2.6
3.0	EXPLOSIVES MANAGEMENT PLAN .....	3.1
3.1	General.....	3.1
4.0	EXPLOSIVES SITING PLAN .....	4.1
4.1	General.....	4.1
4.1.1	Foot Print Areas .....	4.1
4.1.2	Explosive Storage Magazines .....	4.1
4.1.3	Site Map.....	4.1
5.0	GEOPHYSICAL MANAGEMENT PLAN .....	5.1
5.1	General.....	5.1
5.2	Geophysical Investigation Program Objectives.....	5.1

---

5.2.1	Area of Investigation.....	5.1
5.2.2	Anticipated Depth of UXO .....	5.2
5.2.3	Geologic Conditions .....	5.2
5.2.4	Soil Conditions.....	5.2
5.2.5	Shallow Groundwater Conditions.....	5.2
5.2.6	Site Utilities .....	5.3
5.2.7	Site-Specific Dynamic Events .....	5.3
5.2.8	Overall Site Accessibility and Impediments.....	5.3
5.2.9	Potential Worker Hazards.....	5.3
5.2.10	Geophysical Investigation Methods .....	5.3
5.2.11	Personnel .....	5.4
5.2.12	Data Processing.....	5.4
6.0	SITE SAFETY AND HEALTH PLAN.....	6.1
6.1	General.....	6.1
6.2	Scope and Applicability.....	6.1
6.3	Staff Organization, Qualifications, and Responsibilities.....	6.2
6.3.1	Program Manager.....	6.2
6.3.2	Project Manager.....	6.2
6.3.3	Project Environmental and Safety Manager .....	6.3
6.3.4	Senior UXO Supervisor .....	6.3
6.3.5	UXO Safety Officer .....	6.3
6.3.6	Field Crew Personnel.....	6.3
6.4	Source and Nature of Contamination.....	6.3
6.4.1	Hazard Analysis and Risk Assessment.....	6.4
6.4.2	Chemical Hazards .....	6.4
6.4.3	Physical Hazards.....	6.5
6.4.4	Tree Felling.....	6.6
6.4.5	Brush Removal and Chipping.....	6.7
6.4.6	Biological Hazards.....	6.7
6.4.7	Personal Protective Equipment.....	6.8
6.4.8	Medical Surveillance .....	6.8
6.4.9	Environmental and Personnel Monitoring.....	6.8
6.4.10	Site Control.....	6.8
6.4.11	Personnel and Equipment Decontamination .....	6.8
6.4.12	Emergency Response and Contingency Procedures (On-Site and Off-Site) ..	6.8
6.4.13	Confined Space Entry .....	6.9
6.4.14	Spill Containment .....	6.9
6.4.15	Heat/ Cold Stress Monitoring.....	6.9
6.4.16	Standard Operating Procedures, Engineering Controls and Work Practices..	6.9
6.4.17	Logs, Reports, and Record Keeping.....	6.9
7.0	LOCATION SURVEY AND MANAGEMENT PLAN .....	7.1
8.0	PROJECT AND COST MANAGEMENT PLAN.....	8.1
9.0	PROPERTY MANAGEMENT PLAN.....	9.1
9.1	General.....	9.1
10.0	ENVIRONMENTAL PROTECTION PLAN.....	10.1
11.0	QUALITY CONTROL PLAN .....	11.1

---

11.1	General.....	11.1
11.2	Duties and responsibilities .....	11.1
11.3	Audit Procedures.....	11.1
11.3.1	Quality Control.....	11.1
11.3.2	Preparatory Phase.....	11.1
11.3.3	Initial Phase Inspection .....	11.2
11.3.4	Follow-up Phase Inspection (Surveillance) .....	11.3
11.4	Acceptance Inspection .....	11.3
11.5	Deficiencies and Nonconformance .....	11.3
11.6	Root Cause Analysis.....	11.4
11.7	Corrective Action.....	11.4
12.0	...MAPS .....	12.1

**LIST OF TABLES**

Table 2-1	MPM & MSD.....	2.8
Table 5-1	Types of OE/UXO and OE Scrap Found in the Affected Areas .....	5.1
Table 6-1	Emergency Telephone Numbers .....	6.4

**List of Figures**

12-1	Water Tank Construction Sites Removal Overview.....	12.2
12-2	Water Tank Construction Sites Removal Area.....	12.3
12-3	Water Tank Construction Sites Q-D Arc Overview .....	12.4
12-4	Q-D Arcs of Magazine Storage Area.....	12.5

**List of Appendices**

Appendix A	Statement of Work
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LIST OF ACRONYMS

AHA	Activity Hazard Analysis
AR	Army Regulation
BRAC	Base Realignment and Closure
CD-ROM	Compact Disc – Read Only Memory
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CO	Contracting Officer
CWM	Chemical Warfare Materiel
DERP	Defense Environmental Restoration Program
DGPS	Differential Global Positioning System
DID	Data Item Description
DoD	Department of Defense
DOT	Department of Transportation
EHS	Environmental Health and Safety
EM	Engineering Manual
EOD	Explosive Ordnance Disposal
ESS	Explosive Safety Submission
EZ	Exclusion Zone
°F	Degrees Fahrenheit
FAR	Federal Acquisition Regulation
ft	feet
FWENC	Foster Wheeler Environmental Corporation
FMC	Ft. McClellan
FWS	U.S. Fish and Wildlife Service
GIS	Geographical Information System
GPO	Geophysical Prove-Out
HTRW	Hazardous, Toxic, and Radioactive Waste
mm	Millimeter
MOFB	Miniature Open Front Barricade
MPM	Most Probable Munition
MSD	Minimum Separation Distance
msl	Mean Sea Level
NCP	National Contingency Plan
NCR	Nonconformance Report
NTCRA	Non-Time Critical Removal Action
OE	Ordnance and Explosives
OEW	Ordnance and Explosive Waste
OFB	Open Front Barricade
PESM	Project Environmental and Safety Manager
PE	Professional Engineer
PM	Project Manager
PPE	Personal Protective Equipment

**LIST OF ACRONYMS**

QA	Quality Assurance
QC	Quality Control
Q-D	Quantity-Distance
RLS	Registered Land Surveyor
SOP	Standard Operating Procedure
SOW	Statement of Work
SSHP	Site-Specific Safety and Health Plan
SSRR	Site-Specific Removal Report
SSWP	Site-Specific Work Plan
SWWP	Site Wide Work Plan
SUXOS	Senior UXO Supervisor
TDEM	Time, Domain, Electromagnetic
TO	Task Order
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Engineering & Support Center, Huntsville
USRADS	Ultrasonic Ranging and Detection System
UXO	Unexploded Ordnance
UXOQCS	UXO Quality Control Specialist
UXOSO	UXO Site Safety and Health Officer
WP	Work Plan

## **1.0 INTRODUCTION**

### **1.1 GENERAL**

1.1.0 This is a Site-Specific Work Plan (SSWP) prepared for the execution of Task Order (TO) 0022, Ordnance and Explosives (OE) Removal Action on the areas within the Bravo Area known as the Water Tank Construction Sites. This work is being carried out as a component of contract DACA87-99-D-0010, Ordnance and Explosives Response at Fort McClellan, Alabama.

1.1.1 This work plan (WP) is being prepared under the Defense Environmental Restoration Program (DERP) for Base Realignment and Closure (BRAC), which was established as part of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), more widely known as “Superfund”. Public law requires that government facilities subject to closure and subsequent reuse be subject to remediation under CERCLA for Non-Time Critical Removal Actions (NTCRA). Activities conducted in support of this project will be conducted in a manner consistent with CERCLA and the National Contingency Plan (NCP).

1.1.2 The proposed Water Tank Construction Sites are located within the boundaries of the Bravo Area of the Fort McClellan Redevelopment Area. The Water Tank Construction Sites were identified by the Anniston Water Works and Sewer Board as location for future water tanks. Figure 12-1 shows the three sites that encompass the Water Tank Construction Sites and their location within the Bravo Area. Sites A and C have within them small areas which will not be cleared as part of this task order. Site A contains an existing water tank that will not be removed; the clearance will be done around the tank. Site C contains the magazine for storage of explosives for use at Ft. McClellan. This area was cleared during the explosive siting process that took place in 2001.

### **1.2 OBJECTIVE**

1.2.0 The objective of this Task Order is to perform a clearance to depth on the Water Tank Construction Sites within the Bravo Area.

### **1.3 SITE LOCATION**

1.3.0 Fort McClellan is located northeast of the City of Anniston, Calhoun County, Alabama. To the west are the areas known as Weaver and Blue Mountain. To the North is the City of Jacksonville. The Talladega National Forest is to the east of the post. Figure 12-1 shows the location of the Water Tank Construction Sites within the Bravo Area.

### **1.4 SITE HISTORY**

1.4.0 Fort McClellan has been used for artillery training of troops and the National Guard as early as 1912 to early WW II. In 1951, Fort McClellan became the site of the Chemical Corps Training Command. In 1962, the U.S. Army Combat Developments Command Chemical Biological-Radiological Agency moved to Fort McClellan. In 1973, the Chemical Corps School along with the U.S. Army Combat Developments Command Chemical Biological-Radiological Agency was moved to Edgewood Arsenal. In 1979,

the U.S. Army Chemical Corps School was re-established along with a training Brigade for Basic Training. In September of 1999 Fort McClellan was closed under the BRAC Act.

1.4.1 The Anniston Water Works and Sewer Board surveyed Fort McClellan for locations to place water tanks that would serve the areas future use requirements. They requested several sites, three of which are in known Unexploded Ordnance (UXO) contaminated areas. These three sites are being covered under this work plan. The three sites, designated sites A, B and C, are displayed in detail on Figure 12-2.

## **1.5 TOPOGRAPHY**

1.5.0 The topographic gradient at Fort McClellan generally increases toward the south and east of the main installation, with local relief in excess of 1,320 feet. The lower elevations (~700 feet above mean sea level [msl]) occur along Cane Creek, near Baltzell Gate Road, while the maximum elevation (2,063 feet above msl) occurs in the Choccolocco Mountains, which traverse the area in a north/south direction. The Choccolocco Mountains have very steep easterly slopes grading abruptly into Choccolocco Valley. The western slopes are more continuous, with the southern extension maintaining elevations up to 900 feet above msl near the western reservation boundary. The northern extension decreases in elevation in the vicinity of Reilly Airfield. The central portion of Fort McClellan, in the vicinity of the Main Cantonment Area, is characterized by flat to gently sloping land. Topography within the Bravo Area consists of gently to steeply sloped rolling hills in the western portion of the area and rugged steep terrain in the Choccolocco Mountains to the east. The Choccolocco Corridor east of the mountains is predominated by gently rolling hills. Elevations range from approximately 800 feet above msl in places along the western edge of the Bravo area to over 2,000 feet above msl at the highest point along the crest of the Choccolocco Mountains. Surface drainage is predominantly to the west on the western side of the mountains and predominantly to the east on the eastern side of the Choccolocco Mountains.

## **1.6 CLIMATE**

1.6.0 Fort McClellan is situated in a temperate, humid climate. Summers are hot and long, and winters are usually short and mild to moderately cold. The climate is influenced by frontal systems moving from northwest to southeast, and temperatures change rapidly from warm to cool due to the inflow of northern air. The average annual temperature is 63 degrees Fahrenheit (°F). Summer temperatures usually reach 90°F or higher about 70 days per year, but temperatures above 100°F are rare. Freezing temperatures are common but are usually of short duration. The first frost may arrive by late October. At Anniston, the average date of the first 32°F temperature is November 6, and the last is March 30. This provides a growing season of 221 days. Snowfall averages 0.5 to 1 inch. On rare occasions, several inches of snow accumulate from a single storm (ESE, 1997).

1.6.1 The average annual rainfall is approximately 53 inches and is well distributed throughout the year. The more intense rains usually occur during the warmer months, and some flooding occurs nearly every year. Approximately 80 percent of the flood-

producing storms are of the frontal type and occur in the winter and spring, lasting from 2 to 4 days each. Summer storms are usually thunderstorms with intense precipitation over small areas, and these sometimes result in serious local floods. Occasionally, several wet years or dry years occur in series. Annual rainfall records indicate no characteristic order or pattern (ESE, 1997).

1.6.2 Winds in the Fort McClellan area are seldom strong and frequently blow down the valley from the northeast. However, there is no truly persistent wind direction. Normally, only light breezes or calm prevail, except during passages of cyclonic disturbances, when destructive local wind storms develop, some into tornadoes, with winds of 100 miles per hour or more (ESE, 1997).

## **2.0 TECHNICAL MANAGEMENT PLAN**

### **2.1 GENERAL**

2.1.0 This OE removal action will be performed in a manner consistent with CERCLA Section 104, and the NCP Sections 300.120(c) and 300.400(e). No Federal, State, or Local permits will be required for any access or remedial action taken on this site for the activities within this Statement of Work (SOW). The applicable provisions of 29 Code of Federal Regulations (CFR) 1910.120 shall apply.

### **2.2 TECHNICAL SCOPE**

2.2.0 The SOW supplied for this Task Order consists of:

Task 1 – Not Used

Task 2 – Not Used

Task 3 – Geophysical Prove-Out

Task 4 – Prepare Explosive Safety Submission (ESS) and Site-Specific Work Plan (SSWP)

Task 5 – Geographical Information System

Task 6 – Perform Surface Clearance, Brush Clearing and Vegetation Removal

Task 7 – Perform Location Surveys

Task 8 – Geophysical Investigation and Evaluation

Task 9 – Anomaly Reacquisition and Marking

Task 10 – Perform UXO/OE Clearance

Task 11 – Not Used

Task 12 – Not Used

Task 13 – Prepare Site Specific Removal Report (SSRR)

Task 14 – Meetings

Task 15 – Provide Quality Assurance Support (Time and Materials Task)

### **2.3 APPROACH**

2.3.0 The following approach is proposed in order to satisfy the intent of the SOW (included as Appendix A):

#### **2.3.1 Task 3 – Geophysical Prove-Out (GPO)**

2.3.2.0 A GPO will be completed and a report written in accordance with Data Item Description (DID) OE-005-05A.01. This prove-out will occur at Foster Wheeler Environmental Corporation (FWENC) existing geophysical test grid and will occur prior to starting actual collection of geophysical data under this task.

#### **2.3.2 Task 4 – Prepare ESS and SSWP**

2.3.2.0 This SSWP for the Water Tank Construction Sites shall include site-specific details that are not covered by the Site Wide Work Plan (SWWP) for Fort McClellan. No site work will commence until approval of this SSWP.

2.3.2.1 The ESS is a separate document that is being prepared in accordance with U.S. Army Engineering and Support Center, Huntsville (USAESCH) DID OE-060.01, Conventional Explosives Safety Submission. OE removal operations under Task 10 will not begin until the ESS has received final approval.

### **2.3.3 Task 5 – Geographical Information System (GIS)**

2.3.3.0 The GIS task will include both geospatial data and OE data management personnel. All OE data collected through the use of Personal Data Assistants or paper will be converted for use in the GIS for graphical display and historical documentation of work completed on this project.

### **2.3.4 Task 6 – Perform Surface Clearance, Brush Clearing, and Vegetation Removal**

2.3.4.0 A separate surface clearance is planned due to the area being recommended for a removal action. The surface clearance will take place prior to any mechanical brush clearing. Brush removal will be done with a UXO escort performing UXO avoidance. FWENC or sub-contractor personnel shall carry out vegetation clearance by mechanical and/or manual means. If required, trees up to 4 inches in diameter will be removed. Lateral branches and other impediments to ordnance clearance operations shall be removed to approximately 8 feet above grade to allow unimpeded access to all areas

### **2.3.5 Task 7 – Perform Location Surveys**

2.3.5.0 Grid Setout. After the water tank construction sites are progressively cleared of brush and debris, a Registered Land Surveyor shall setout the grid corners utilizing precision-surveying methods to closer than one foot. The boundary survey for these three sites will be provided by the government.

### **2.3.6 Task 8 – Geophysical Investigation and Evaluation**

2.3.6.0 **Geophysical Mapping.** FWENC shall provide the necessary personnel and equipment to carry out geophysical mapping of the investigation area. The primary tool utilized will be the EM-61 one-meter coil, with positional data provided by the Ultrasonic Ranging and Detection System (USRADS), Differential Global Positioning System (DGPS), Constellation, Robotic Total Station, or using other suitable method as appropriate. Note that due to excessive slope or other factors, some areas may not be able to be effectively geophysically mapped. These areas will be identified and addressed on an individual basis by other conventional UXO investigation.

2.3.6.1 The data collected during the Geophysical Mapping process will be utilized to select targets for excavation in Task 10. A combination of on-site geophysicists and off-site geophysicists will conduct the necessary analysis of the data in order to enable the production of dig-sheets.

2.3.6.2 Quality Control (QC) processes to be carried out in this task are explained in further detail in Chapter 11 – Quality Control Plan.

### **2.3.7 Task 9- Anomaly Reacquisition and Marking**

2.3.7.0 FWENC will provide equipment and personnel to reacquire the targets selected during Task 8. Suspected subsurface UXO locations (geophysical anomalies) will be presented as co-ordinate locations in the packages provided to the Target Reacquisition Teams. DGPS, USRADS, Robotic or Conventional Total Station, Vulcan Spatial Measurement System, measuring tapes or appropriate surveying techniques will be used to locate the X, Y co-ordinates of each anomaly. Each anomaly will be flagged with a numbered pin flag corresponding to the anomaly ID located at that position.

### **2.3.8 Task 10 – Perform UXO/OE Clearance**

2.3.8.0 FWENC or its approved sub-contractor will provide the necessary personnel and equipment in order to carry out the intrusive investigation of the Water Tank Construction Sites. The Intrusive Teams shall be equipped with hand tools or mechanical excavation equipment to excavate all target anomalies previously marked. The team leader shall directly supervise all team members and shall maintain a detailed log.

2.3.8.1 In the instance where anomalies are located underneath tree stumps, excavation methods will be utilized to dig down beside the anomaly and then access will be gained from the side. Although not expected, in instances where target sized anomalies are found to be grown within a tree stump, consultation with the on-site USAESCH Safety Specialist will be carried out to ascertain the most appropriate access method.

2.3.8.2 All recovered OE shall be disposed of weekly in accordance with Technical Manual (TM) 60A-1-1-31, General Information for Explosive Ordnance Disposal (EOD) Procedures unless an exception is approved by the on-site USAESCH Safety Specialist. All explosives for disposal operations will be stored in the approved Foster Wheeler Environmental storage location.

2.3.8.3 FWENC shall maintain, as part of its database, a standardized account of all OE/UXO, Inert Ordnance, and OE Scrap items/components encountered on the project site. This information will be provided to the GIS for inclusion in status tracking and the final report prepared under Task 13.

2.3.8.4 FWENC shall furnish all necessary personnel to inspect and turn in all recovered scrap metal/range residue to the Fort McClellan Scrap Holding Area. The metal scrap will be processed, at a later date and under a separate Task Order for recycling, in accordance with Department of Defense (DoD) 4160.21-M, Defense Demilitarization Manual.

**2.3.9 Task 11 – Not Used**

**2.3.10 Task 12 – Not Used**

**2.3.11 Task 13 – Prepare Site-Specific Removal Report (SSRR)**

2.3.11.0 In accordance with the SOW, thirty days after completion of all fieldwork, a Draft SSRR will be submitted to USAESCH. One week after the receipt of USAESCH comments on this document, the Draft Final SSRR will be submitted. The Final SSRR shall be submitted one week after comments on the Draft Final have been received.

2.3.11.1 USAESCH has requested that FWENC provide all Appendices on Compact Disc – Read Only Memory (CD-ROM) for the Draft, Draft Final and Final SSRRs. One hard copy of the Final SSRR will be provided.

**2.3.12 Task 14 – Meetings**

2.3.12.0 The FWENC Task Order Manager will participate in two on-site meetings. More meetings will constitute a change to this WP and a Field Change Request will be submitted to USAESCH.

**2.3.13 Task 15 – Provide Quality Assurance (QA) Support (Time and Materials Task)**

2.3.13.0 This task requires FWENC to provide a UXO qualified person to assist the on-site USAESCH Safety Specialist while he/she accomplishes the QA inspection.

**2.4 PERSONNEL**

**2.4.1 UXO Qualified Personnel and Qualifications**

2.4.1.0 All individuals executing OE procedures will be qualified. UXO qualified personnel will be U.S. citizens who have graduated from the U.S. Army Bomb Disposal School, Aberdeen, Maryland, or the U.S. Naval EOD School, Indian Head, Maryland or Eglin Air Force Base, Florida or a DoD approved UXO training facility. UXO qualified personnel resumes and appropriate training certificates will be provided to USAESCH for approval prior to field tasks commencing.

**2.4.2 Key Personnel Responsibilities**

2.4.2.0 All field teams shall follow the procedures outlined within this WP. The UXO teams will consist of a minimum of (1) UXO Supervisor (UXO III) and (1) UXO qualified person (UXO III or II) approved by USAESCH, with no more than seven people making up one team. Qualification certificates are maintained on file at the corporate office and will also be maintained on-site. The key personnel in this Task Order are:

2.4.2.1 Program Manager. The site wide Program Manager is Mr. Arthur Holcomb, Professional Engineer (PE). His responsibilities are detailed in Section 2.2.1 – SWWP.

2.4.2.2 Project Manager (PM). The PM is Mr. Todd Biggs. His responsibilities include: co-ordination with the Foster Wheeler Environmental Program Manager in developing project scope and costs, detailed work order specifications, and schedules and identification of project personnel to be utilized in accomplishing the SOW. Procurement and management of subcontractors is also the responsibility of the PM. The PM is responsible for the completion of all major deliverables. The PM will also approve charges by field and office personnel, compare ongoing project cost and schedule performance to the baseline cost/schedule, and bring any significant variance to the attention of the Foster Wheeler Environmental Program Manager, who will communicate impacts to the USAESCH PM as necessary. The PM will identify if a change in scope is necessary to meet technical requirements, and will discuss potential changes in scope with the Foster Wheeler Environmental Program Manager, and with the USAESCH PM as necessary.

2.4.2.3 Senior UXO Supervisor (SUXOS). The Water Tank Construction Sites SUXOS shall report to the Foster Wheeler Environmental PM in the function of his responsibilities relating to this Task Order. Responsibilities are detailed in Section 2.2.1.2 – SWWP.

2.4.2.4 UXO Site Safety and Health Officer (UXOSO). The UXOSO for this Task Order will be a USAESCH and Foster Wheeler Environmental approved UXOSO. Responsibilities are documented in section 2.2.1.2 of the SWWP.

### **2.4.3 Composition of Teams**

2.4.3.0 The following is the composition of the teams involved in the Task Order. All UXO Technician IIIs will report directly to the Water Tank Construction Sites SUXOS.

2.4.3.1 Brush Escort. This team will monitor and provide escort for brush removal operations. The team will be a UXO Technician III or II, as required, to monitor and provide a UXO escort to brush removal personnel and machinery from FWENC or sub-contractor(s) depending on the final composition of the brush removal work force.

2.4.3.2 Survey Escort. A UXO Technician III or II will supervise the setout of the grids.

2.4.3.3 Intrusive Teams/Surface Clearance Teams. These teams will intrusively investigate the Water Tank Construction Sites. UXO teams shall have a minimum of two UXO qualified personnel, one of which shall be the UXO Technician III. The other five members can be UXO Tech III, II or I or UXO Sweep Personnel as needed.

2.4.3.4 Quality Control. The Quality Control Team will consist of one USAESCH approved UXO Quality Control Specialist (UXOQCS), and up to three other UXO Technicians to assist in the implementation of the QC plan.

## **2.5 MOBILIZATION PLAN**

2.5.0 Foster Wheeler Environmental is already established on the site with field office and storage facilities. Further project specific personnel and equipment will be mobilized as needed.

## **2.6 SITE PREPARATION ACTIVITIES**

2.6.0 Upon completion of mobilization activities, Foster Wheeler Environmental will commence site preparation. Site preparation activities will be performed as described below.

### **2.6.1 Brush Clearance**

2.6.1.0 The Water Tank Construction Sites are vegetated with trees, bushes, vines, and kudzu plants. Lateral branches and other vegetation will be removed to 8 feet above grade where required for personnel access. All brush clearance will be completed after surface clearance has been accomplished.

2.6.1.1 Vegetation removal will not include any tree greater than 4 inches in diameter, and when possible no trees will be removed, regardless of size.

2.6.1.2 It is proposed to use two different methods to accomplish the brush clearance task in this Task Order. These two methods include the use of approved mechanical equipment and the more traditional manual method. A single UXO Technician II or III will provide UXO escort for the sub-contract brush clearance crews.

2.6.1.3 The UXO personnel accompanying the brush crew will report directly to the SUXOS for the Water Tank Construction Sites. If any OE/UXO is encountered during the brush clearing activity it will be marked with red pin flags, a preliminary assessment will be made, and the item reported to the SUXOS for the Water Tank Construction Sites. The SUXOS will verify the identity of the item and determine if operations can continue or if the site will be evacuated until the item is disposed of.

### **2.6.2 Survey**

2.6.2.0 All survey work will be completed using approved UXO avoidance procedures. Each survey team in the field will have a UXO qualified person assigned to ensure all marker locations are free of metallic material prior to the surveyor placing that marker into the ground.

## **2.7 OE Operations**

2.7.1 OE operations will consist of digging anomalies which were located by the reacquire team. In areas where geophysical mapping could not be completed due to terrain features, the OE teams will use standard mag and dig techniques to complete these areas.

2.7.2 Because of the size, separation and terrain of the three sites covered by this WP, all OE are scheduled to be disposed of once per week. All items will be sandbagged and left in place until demolition is carried out. The area is secured by locked gates, is not accessible to the public and is patrolled by security. As a result, there will be no requirement for guards or other protective measures. Demolition operations will begin when all personnel are out of the Minimum Separation Distance (MSD) of the ordnance being detonated. An MSD sheet has been prepared by the U.S. Army Corps of Engineers (USACE) for all OE/UXO discovered on Fort McClellan to date and are available on site. If an item is discovered for which the MSD has not been calculated, the contractor will work with the onsite safety representative to acquire the MSD for the item. While awaiting approval, the distances from Rewrite Department of Defense (DoD) 6055.9-STD Revision 3, 1 September 2003, Table C9.T35. Default Maximum Case Fragment Distances for Intentional Detonations or C9.T36. Maximum Case Fragment Distances for Selected Single Item Detonations will be used for the item in question. The Demolition Team Leader (UXO Technician III) will be responsible for all demolition operations as directed by the SUXOS. Along with the demolition team members, only the UXOSO is required to be on-site during disposal operations, the SUXOS will be in the local area, but is not required to be present at the location of the demolition operation.

2.7.3 The operation will be performed under the direction and supervision of the Demolition Team Leader, who is charged with the responsibility of ensuring that procedures contained in the work plan and referenced documents are followed. The UXOSO will monitor compliance with the safety measures contained in the work plan and associated documents. In the event of noncompliance the UXOSO is vested with the authority to stop or suspend operations.

2.7.4 For intrusive operations the MSD for an 81mm HE mortar (1395 feet) will be used. Since the entire Alpha, Bravo and Charlie Areas are securely gated, there should be only occasional instances where the MSD for the intrusive operations will have an exclusion zone (EZ) that extends outside the secured area. This could occur at Site A of the Water Tank Construction Sites. If for any reason the EZ should extend into an area that is not secured or is inhabited, FWENC will request approval from USACE Huntsville OE Safety to use the Range to No More Than 1 Hazardous Fragment per 600 square feet (1/600) distance to reduce the EZ to this lessened, but approved distance. This approval will be based on intrusive information gathered up to that point. This decision will be based on there being a sufficient distance between the beginning of the EZ (the point at which it will extend off post) and the last piece of OE/UXO discovered. If for any reason the 1/600 rule is requested and not granted a Miniature Open Front Barricade (MOFB) or Open Front Barricade (OFB), as appropriate, will be used for all excavations made as part of intrusive operations where the Quantity-Distance (Q-D) Arc extends beyond secure areas. For buildings on Fort McClellan which are still within the 1/600 distance or the EZ for the selected engineering control, we will schedule our intrusive operations to occur on days when the facility is not occupied. This scheduling will occur with assistance from both USAESCH and the Ft. McClellan Transition Force.

2.7.5 Upon completion of disposal operations, the Team Leader and one UXO personnel will inspect each disposal shot. Upon completion of this inspection and

providing that there are no residual hazards, the SUXOS will authorize the resumption of site operations.

2.7.6 The MPMs for the sectors within this WP are listed below in Table 2-1.

1

<b>Table 2-1: MPM &amp; MSD</b>		
<b>Sector</b>	<b>MPM</b>	<b>MSD</b>
Site A, B & C	81mm HE M43	1395ft

### **3.0 EXPLOSIVES MANAGEMENT PLAN**

#### **3.1 GENERAL**

3.1.0 An Explosives Management Plan was prepared in accordance with USAESCH DID OE-005-03, Explosives Management Plan, Federal Acquisition Regulation (FAR) 45.5, ATPF 5400.7, DoD 6055.9-STD, Army Regulation (AR) 190-11, Department of Transportation (DOT) Regulations, and Alabama Explosive Safety Act of 1993. The local Explosive Management Plan has been developed and will be used for storage and management of explosives at the Foster Wheeler Environmental approved storage location. The Explosive Management Plan is located in the SWWP.

## **4.0 EXPLOSIVES SITING PLAN**

### **4.1 GENERAL**

4.1.0 OE Areas. The MSD for these three sites is based on the Mortar, 81mm, HE, as discussed in Section 2.7.4. Table 2-1 in this document shows the MSD for this site. Section 2.7.2 of this document discusses the procedures for reducing or expanding the MSD, if needed.

4.1.0.1 Planned or Established Demolition Areas. The entire area of the three sites could conceivably be used to conduct demolition operations. For this reason the Q-D Arc is established around the perimeter of the entire site. Procedures for establishing the MSD are discussed on Section 2.7.2 of this document.

#### **4.1.1 Foot Print Areas**

4.1.1.0 The foot print areas are discussed and will be carried out in accordance with SWWP section 4.3.

#### **4.1.2 Explosive Storage Magazines**

4.1.2.0 A separate Explosive Siting Plan was prepared and approved by DDESB which covers the storage and siting of explosive magazines on Fort McClellan.

#### **4.1.3 Site Map**

4.1.3.0 Figure 12-3 shows the location of planned OE operations and the associated Q-D Arcs of the three sites covered under this task order.

**5.0 GEOPHYSICAL MANAGEMENT PLAN**

**5.1 GENERAL**

5.1.0 All geophysical investigations shall be supervised by a qualified geophysicist.

**5.2 GEOPHYSICAL INVESTIGATION PROGRAM OBJECTIVES**

5.2.0 A geophysical mapping survey is to be performed over an agreed and budgeted 18.2 acres within the Water Tank Construction Sites. The objective of the geophysical investigation is to detect metallic objects and features (anomalies) to the following criteria: “No ferrous objects with a “width” (diameter) between a 37mm projectile and a 3.8 in projectile, at a depth of less than 11 diameters of the object.” These anomalies may represent a hazard for future activities planned for the site.

5.2.0.1 The geophysical mapping methodology that will be employed is 100% mapping over all possible grids. The geophysical mapping will be accomplished using the EM-61 coupled with a suitable positioning system.

**5.2.1 Area of Investigation**

5.2.1.0 The area of investigation is within the Bravo area of Ft. McClellan. The terrain ranges from mild slopes to moderately sloped terrain. Geophysical mapping will be completed in all areas where possible. Where the terrain is too severe to allow for mapping to occur, traditional mag and dig protocols will be used.

5.2.1.1 Anticipated OE/UXO and OE Scrap are detailed in Table 5-1 – Types of OE/UXO and OE Scrap Found in the Affected Areas. This information was pulled from the Draft-Final Bravo EE/CA report .

Table 5-1  
**Types of OE/UXO and OE Scrap Found in the Affected Areas**

Item Description	Max Depth Found (in Inches)	Target Type
<b>OE/UXO Items</b>		
MORTAR, 81mm HE, M43	21	UXO
PROJECTILE, 75mm SHRAPNEL	20	UXO
MORTAR, 3in STOKES, MKI, PRACTICE	18	UXO
PROJECTILE, 37mm HE	0	UXO
ROCKET, HEAT, 2.36in, M6	13	UXO
GRENADE, RIFLE, SMOKE	0	UXO
GRENADE, HAND, PRACTICE, M69, w/LIVE FUZE	6	UXO
<b>OE Scrap</b>		
PROJECTILE FRAG, 37mm	6	OE Scrap
PROJECTILE, 3.8in SHRAPNEL, MKI	30	OE Scrap
FUZE, POWDER TRAIN TIME, M1907	30	OE Scrap

Item Description	Max Depth Found (in Inches)	Target Type
PROJECTILE, 75mm SHRAPNEL	20	OE Scrap
MORTAR, 3in STOKES, MKI, PRACTICE	18	OE Scrap
GRENADE FRAG, HAND, MKII	6	OE Scrap
MINE, AT, M5, PRACTICE	3	OE Scrap

## **5.2.2 Anticipated Depth of UXO**

5.2.2.0 The limit of the initial depth of investigation for this SOW is four feet, though it is anticipated that most of the ordnance items found will be significantly shallower than four feet. Note that although not expected, if there is an apparent anomaly at greater than four feet, this location will be marked and further consultation will be carried out with USAESCH before it is investigated. Further personnel and specialized equipment may be mobilized in order to cover any shoring or benching operations required to exploit these anomalies.

5.2.2.1 FWENC's methodology was developed for this task based on the U.S. Army Corps of Engineers' Publication EM 1110-1-4009, Ordnance and Explosives Response Engineer Manual, which covers typical detection depths of ordnance items using various geophysical instruments. The GPO will also demonstrate that the geophysical system proposed will meet the requirements of the publication cited above.

## **5.2.3 Geologic Conditions**

5.2.3.0 Fort McClellan is situated near the southern terminus of the Appalachian Mountain chain. All but the easternmost portion of the Main Post lie within the Valley and Ridge Province of the Appalachian Highlands. The portion of Fort McClellan west of Choccolocco Creek lies within the Piedmont Province. The age of the consolidated sedimentary and metamorphic rocks range from Precambrian to Pennsylvanian. On a large scale, most of the rocks have been intensely folded into an aggregate of northeast-southwest trending anticlines and synclines with associated thrust faults. The shallow geology in the area is characterized by colluvial deposits. Table 5-1 in the approved SWWP summarizes the major stratigraphic units underlying Fort McClellan. The presence of metamorphic rocks increases the potential for minerals such as magnetite and other associated magnetic minerals; it is important to utilize this information when planning and selecting sensors for geophysical surveys at Fort McClellan.

## **5.2.4 Soil Conditions**

5.2.4.0 This information is reviewed in Section 5.3.9 of the SWWP.

## **5.2.5 Shallow Groundwater Conditions**

5.2.5.0 This information is discussed in Section 5.3.11 of the SWWP.

## **5.2.6 Site Utilities**

5.2.6.0 There are no known existing subsurface utilities in the areas that will be geophysically surveyed based on current information. If utilities are identified during the geophysical data interpretation, they will be documented and annotated on color-coded maps and intrusive dig sheets. The rigorous nature of intrusive excavation for UXO further ensures that any utilities will not be inadvertently damaged.

## **5.2.7 Site-Specific Dynamic Events**

5.2.7.0 This information is discussed in Section 5.3.14 of the SWWP.

## **5.2.8 Overall Site Accessibility and Impediments**

5.2.8.0 The Bravo Area of Fort McClellan contains paved, unpaved improved and dirt roads, as well as fire breaks and trails that will be used to access areas to collect data. Mapping Teams will be equipped with Kawasaki Mules or similar vehicles to transport their equipment.

## **5.2.9 Potential Worker Hazards**

5.2.9.0 This information is reviewed in Chapter 6 – Site Safety and Health Plan.

## **5.2.10 Geophysical Investigation Methods**

5.2.10.0 The EM-61 utilizes two coaxial receiver coils to measure the residual magnetic field generated by conductive and/or magnetic materials (i.e., non-ferrous and ferrous objects and features). The EM-61's proposed by Foster Wheeler Environmental are designed to measure the residual magnetic field at a time when the response from conductive and/or magnetic objects is maximized compared to the response from most earth materials. The use of two receiver coils also makes it possible to differentiate, in a simplistic fashion, shallow versus deeper objects. An additional benefit of the specific design of the EM-61 system is that it permits a more focused observation of the subsurface in areas of cultural interference, as well as areas characterized by a high spatial density of medium to large-size (e.g., 81mm, 155mm) subsurface objects. This is due to both the mechanical design and operational parameters of the instrument, as well as the inherent nature of active EM fields, which diminish in magnitude at a much higher rate than other sensor technologies such as magnetometry.

5.2.10.1 The primary factors that affect the ability to detect objects or features with time, domain, and electromagnetic (TDEM) methods include volumetric size and orientation, distance from the sensor, the material properties contrast between the object or feature and the surrounding materials, and the magnitude of natural and manmade sources of "noise".

5.2.10.2 The EM-61 is relatively insensitive to nearby surface cultural interference such as buildings, power lines, and fences, and has the ability to record digital data at up

to 18 hertz, which translates to a spatial sample density of approximately 0.15 feet along the ground surface.

5.2.10.3 Each segment/grid will be cleared of vegetation and other natural materials that may impede the data acquisition process, or significantly alter the resultant quality of data from the geophysical survey. A surface clearance will be performed prior to geophysical mapping which should remove all metal from the surface. After these activities are completed, the area will be surveyed with the EM-61 coupled to a DGPS, USRADS, Constellation or Robotic Total Station. Geophysical and position measurements will be digitally recorded and the raw data acquired in the field for each survey grid will be prepared for processing by the Site Geophysicist. This data will be processed, analyzed, and interpreted to prepare dig sheets for intrusive activities.

### **5.2.11 Personnel**

5.2.11.1 The Site Geophysicist will work with the Mapping Team to ensure the production rates are met and the data quality, especially during field data acquisition activities, is adequate to meet the program objectives. The Home Office Geophysicist will be responsible for the overall quality of the geophysical program, and will provide guidance to the Site Geophysicists in the processing and interpretation of the data. All Geophysicists involved will process and interpret the geophysical data as well as provide field QC oversight for the data acquisition and specific intrusive investigation processes, including target reacquisition and comparison of excavation results with the interpreted geophysical characteristics.

5.2.11.2 The Mapping Team will be responsible for collecting data and providing this data to the Site Database Manager on a daily basis. The Site Geophysicist is responsible for the field component of the geophysical investigation including planning data acquisition, ensuring data quality, resolution of instrumentation problems, and assisting with the review of intrusive investigation data. The Site Geophysicist is responsible for data processing, transfer of the raw and positionally corrected data to USAESCH geophysical representative and technical review of geophysical and intrusive investigation data.

### **5.2.12 Data Processing**

5.2.12.0 The FWENC Site Geophysicist will perform preliminary geophysical and navigation data processing and QC checks. Processing, QC, and analysis and interpretation of the data are performed with internally developed software that has been specifically produced to integrate and interpret digital geophysical data acquired with the applicable positioning systems. The specific parameters used to process the EM-61 and positional data may vary, however, the processing parameters and results are documented in digital computer files so that the sequence of events can be reconstructed and analyzed at a later date, if necessary. This level of documentation helps to ensure that the overall process is repeatable.

5.2.12.1 Digital processing/interpretation folders will be maintained for the survey so that the processing/interpretation sequence can be reproduced at a future date, if necessary. The format of the digital geophysical data, as well as the graphics produced, will be compatible with the existing project database protocols (USAESCH ASCII ADF space delimited xyz file format, with appropriate header information). Foster Wheeler Environmental shall preserve the integrity of the raw, positionally corrected data and ensure that these data are provided to a USAESCH representative.

5.2.12.2 The geophysical and position data supplied to USAESCH will allow for corrections such as navigation, and instrument bias shift but there will be no filtering or normalization of this data. Each grid of data shall be logically and sequentially named so that the file name can be easily correlated with the grid name used by other project personnel.

5.2.12.3 It is anticipated that Vulcan System will be the primary method used to provide navigation assistance to relocate the x-y grid coordinates of interpreted targets. Anomaly co-ordinates will be provided to the Reacquisition Teams who will place numbered surveyor's pin flags at the anomaly location. Where it is appropriate, other methods such as USRADS, Robotic Total Station, Constellation, measuring tape or other surveying methods may be used.

5.2.12.3 An excavation team will excavate each flagged location. The excavation information will be digitally logged on a field data collector and transferred to the site database.

5.2.12.4 Should intrusive results diverge significantly from interpretation data, a Root Cause Analysis shall be implemented to identify the processes that require refinement. Geophysical investigation components will be evaluated including data acquisition (coverage, density, quality, noise levels, positioning), data processing (merging of electromagnetic data and position data, filtering if necessary, background shifts), and data interpretation (anomaly analysis, computer calculations for locations, sizes, and depths). The procedures for target reacquisition will also be evaluated. Corrective measures will be implemented, as necessary, to ensure that subsequent interpretive data and/or reacquisition procedures are modified to more accurately reflect ground-truth results.

**6.0 SITE SAFETY AND HEALTH PLAN**

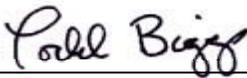
**6.1 GENERAL**

6.1.0 Safety and health guidelines are discussed in Section 6.0 of the SWWP. This plan contains information that is specific to the Water Tank Construction Sites and supplements the SWWP referenced above.

6.1.1 This Site-Specific Safety and Health Plan (SSHP) has been prepared to address the hazards associated with characterization activities within this Task Order at Fort McClellan in Anniston, Alabama. This SSHP will be used in combination with the Site-Wide SSHP, and both plans will be available to workers during activities in the Water Tank Construction Sites. By their signatures, the undersigned certify that this SSHP will be utilized for the protection of the health and safety of workers during work tasks.

APPROVALS:

 _____	10/23/03 _____
Arthur B. Holcomb, PE, Program Manager	Date

 _____	10/23/03 _____
Todd Biggs, Project Manager	Date

 _____	10/23/03 _____
Phil Bartley Project Environmental and Safety Manager (PESM)	Date

 _____	10/23/03 _____
Cecil Taylor UXO Safety Officer	Date

**6.2 SCOPE AND APPLICABILITY**

6.2.0 This SSHP has been prepared in conformance with the Foster Wheeler Environmental, Health and Safety programs, policies and procedures; the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1; and the U.S. Army Corps of Engineers Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities, ER 385-1-92.

6.2.1 The content of this SSHP may change or undergo revisions based upon additional information made available to safety and health personnel, monitoring results, or changes in the technical statement of work. Any changes proposed must be reviewed by the FWENC UXOSO and are subject to the approval of the FWENC PESM. Changes

are also subject to the approval of the USAESCH. The Field Change Request Form, provided in Attachment 6-1 of the SWWP, will be used to initiate such changes.

6.2.2 The protection of site workers and environmental safety and health are major concerns during site operations. The purpose of this plan is to ensure safe and healthful working conditions within this Task Order. The safety and health organization and procedures contained in this SSHP have been established based upon an analysis of the potential hazards, and personnel protection measures have been chosen based on these risks.

6.2.3 Compliance with this SSHP is required for all Foster Wheeler Environmental employees and their contractors, subcontractors, and visitors who may participate in activities within this Task Order. Refusal or failure to comply with the SSHP or violation of any safety procedures by field personnel and/or subcontractors may result in their immediate removal from the site following consultation with the Foster Wheeler Environmental PESH and the PM.

6.2.4 This SSHP addresses the following activities:

- Mobilization/demobilization;
- OE surface survey;
- Brush clearance;
- Survey study areas, establish corners and boundaries;
- Establish geophysical test lines and grids;
- Conduct geophysical surveys; and
- Manual and mechanical excavation of anomalies.

### **6.3 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES**

6.3.0 The responsibilities of the project staff are described in the following paragraphs:

#### **6.3.1 Program Manager**

6.3.1.0 The Program Manager is Arthur B. Holcomb. It is the responsibility of the Program Manager to:

Ensure that full corporate resources are made available to the program, as needed;  
Serve, as necessary, as an intermediary between the USAESCH contract officer (CO) and Foster Wheeler's corporate management; and assist the PM in problem resolution/corrective action implementation.

#### **6.3.2 Project Manager**

6.3.2.0 The PM is Todd Biggs; it is the responsibility of the PM to:

- Provide the major point of control to ensure that the program's technical, financial and scheduling objectives are achieved;
- Ensure implementation of this program through coordination with the responsible PESM;
- Conducts and documents monthly Health and Safety Inspections. The monthly inspection forms will be maintained by the site UXOSO;
- Participate in incident investigations;
- Ensure the SSHP has all of the required approvals before any site work is conducted;
- Ensure that the PESM or UXOSO is informed of project changes which require modifications of the site safety plan; and
- Assume overall project responsibility for Project Health and Safety.

### **6.3.3 Project Environmental and Safety Manager**

6.3.3.0 PESM is Phil Bartley. The responsibilities of the PESM are outlined and described in Section 6.2.2 of the SWWP.

### **6.3.4 Senior UXO Supervisor**

6.3.4.0 The responsibilities of the SUXOS are outlined and described in Section 6.2.3 of the SWWP.

### **6.3.5 UXO Safety Officer**

6.3.5.0 The responsibilities of the UXOSO are outlined and described in Section 6.2.4 of the SWWP.

### **6.3.6 Field Crew Personnel**

6.3.6.0 Field crew personnel include all other persons entering the site for the purpose of assisting in the completion of the project. This includes, but is not limited to geophysicists, client representatives, subcontractors, regulatory personnel, and site workers. The responsibility of all field crew personnel are outlined and described in Section 6.2.5 of the SWWP.

## **6.4 SOURCE AND NATURE OF CONTAMINATION**

6.4.0 The data presented were obtained during previous archival research, response investigations, and remedial designs. The suspected types of OE associated with Water Tank Construction Sites are presented in Table 5-1. The previous investigations conducted indicate that it was used both as an impact and training area.

**6.4.1 Hazard Analysis and Risk Assessment**

6.4.1.0 This section presents an assessment of the potential hazards associated with the site activities including chemical hazards (Chemical Warfare Materiel (CWM) and OE), physical hazards, and biological hazards.

**6.4.2 Chemical Hazards**

6.4.2.0 It is not anticipated that CWM will be encountered. It is possible that lead could be encountered since there has been small arms and ammunition use at the base. It is not likely to present any significant occupational exposure as a result of any planned activities.

6.4.2.1 In the event of CWM material discovery all personnel will evacuate the area immediately in an upwind direction. The SUXOS will notify Foster Wheeler Environmental Site Office and the USAESCH Safety Representative. Foster Wheeler Environmental UXO personnel will standby the area until response elements arrive on scene or until directed by the USAESCH safety representative. The Foster Wheeler Environmental Site Office will notify the Fort McClellan Transition Force Operations and other personnel listed on Table 6-1 as needed.

**Table 6-1  
Emergency Telephone Numbers**

Contact	Firm or Agency	Telephone Number
Emergencies	Calhoun County Emergency Services	911
Police	Anniston Police Dept.	(256) 238-1800
Fire	Anniston Fire Dept.	(256) 231-7644
Ambulance	Anniston EMS	(256) 237-8572
Hospital	Stringfellow Memorial	(256) 235-8900
HAZMAT Response	Anniston Police Dept.	(256) 237-3541
BRAC Environmental Coordinator, Mr. Ronald Levy	Fort McClellan	(256) 848-6853
Program Manager, Mr. Arthur B. Holcomb	Foster Wheeler Environmental Corporation	(256) 430-3701
Project Manager, Mr. Todd Biggs	Foster Wheeler Environmental Corporation	(256) 820-7904
PESM, Mr. Mark Fletcher	Foster Wheeler Environmental Corporation	(256) 430-3622
Project Manager, Mr. Daniel Copeland	USAESCH	(256) 895-1567
Poison Control Center		(800) 462-0800
Chemtrec		(800) 424-9300
National Response Center		(800) 424-8802
Fort McClellan Transition Force Operations		(256) 848-5680

### 6.4.3 Physical Hazards

6.4.3.0 The principal safety hazards, including physical hazards, are discussed in the Activity Hazard Analysis (AHA) for the different phases of the project. In addition to the AHAs, standing work rules and other safety procedures are described in Section 6.15 of the SWWP.

6.4.3.1 **Heat Stress.** Potential hazards posed by heat stress and the recommended and/or required measures to control these hazards are described in Section 6.14.1.1 of the SWWP.

6.4.3.2 **UXO/Explosives.** The Water Tank Construction Sites may contain OE and OEW. Only UXO trained personnel are authorized to handle OE and OEW material. The recommended and/or required measures to control these hazards are described in Section 6.4.2.2 of the SWWP.

6.4.3.3 **Cold Stress.** Potential hazards posed by cold stress and the recommended and/or required measures to control these hazards are described in Section 6.14.1.2 of the SWWP.

6.4.3.4 **Equipment Safety.** Potential hazards posed by heavy equipment operations and the recommended and/or required measures to control these hazards are described in Section 6.15.2 of the SWWP.

- Operators of any equipment or vehicle shall be able to read and understand the signs, signals, and operating instructions in use.
- Operators of mobile construction equipment shall not be permitted to exceed 10 hours of duty time in any 24-hour period, including time worked at another occupation, without an interval of eight consecutive hours of rest.
- Equipment shall be inspected daily prior to beginning work.

6.4.3.5 **Hand and Power Tools.** Potential hazards posed by the use of hand and portable power tools and the recommended and/or required measures to control these hazards are described in Section 6.15.9 of the SWWP. Safety measures for the use of these tools used for clearing and grubbing are as follows:

#### 6.4.3.5.1 Chain Saws

- The engine shall be started and operated only when all co-workers are clear of the saw;
- The operator will shut off the saw when carrying it over slippery surfaces, through heavy brush, and when adjacent to personnel; the saw may be carried running

(idle speed) for short distances (less than 50 feet) as long as it is carried to prevent contact with the chain or muffler;

- The engine shall be stopped for all cleaning, refueling, adjustments and repairs to the saw or motor, except where manufacturer's procedures require otherwise;
- All chain saws shall have an automatic chain brake or kick back device;
- The idle speed shall be adjusted so that the chain does not move when the engine is idling;
- The operator will hold the saw with both hands during all cutting operations;
- Face shields, safety glasses, long-sleeved shirts, safety chaps, steel toe safety boots, gloves, and hearing protection will be worn by operators during use; and
- A chain saw must never be used to cut above the shoulder height.

#### 6.4.3.5.2 Chopping Tools

- Chopping tools that have loose or cracked heads or splintered handles shall not be used;
- Chopping tools shall be swung away from the feet, legs, and body, using the minimum power practical for control; and
- Chopping tools shall not be driven as wedges or used to drive metal wedges.

#### 6.4.3.6 Brush Clearing and Grubbing Operations

6.4.3.6.0 Clearing and grubbing operations pose many potential hazards. These hazards include, but are not limited to being struck by falling debris, damaging equipment, tools, personnel and supplies as a result of improper tree felling and brush clearing activities. All clearing and grubbing activities shall be conducted in accordance with EM 385-1-1, Section 31, Tree Maintenance and Removal and ANSI Z133.1-1994, Pruning, Trimming, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements. These requirements include, but are not limited to, the following:

#### **6.4.4 Tree Felling**

- Ensure footing before starting to cut, clear away brush and other materials that might interfere with cutting operation;
- The employee shall work from the up hill side when ever possible;
- The work area shall be cleared to permit safe working conditions;
- Just before the tree or limb is ready to fall an audible warning shall be given to all those in the area: all persons shall be safely out of range when the tree or limb falls; and
- Persons shall be kept back from the butt of a tree that is starting to fall.

#### 6.4.5 Brush Removal and Chipping

- Rotary drum and disk-type tree or brush chippers not equipped with a mechanical in-feed system shall be equipped with an in-feed hopper not less than 85 in. (the sum of the horizontal distance from the chipper blade out along the center of the chute to the end of the chute and the vertical distance from the chute down to the ground) and shall have sufficient height on its side members to prevent personnel from contacting the blades or knives of the machine during normal operations.
- Rotary drum and disk-type tree or brush chippers not equipped with a mechanical in-feed system shall have a flexible anti-kickback device installed in the in-feed hopper for the purpose of protecting the operator and other persons in the machine area from the hazards of flying chips and debris.
- Disk-type tree or brush chippers equipped with a mechanical in-feed system shall have a quick stop and reversing device on the in-feed: the activating mechanism for the quick stop and reversing device shall be located across from the top, along each side of, and as close as possible to the feed end of the in-feed hopper and within easy reach of the operator.
- The feed chute or feed table of a chipper shall have sufficient height on its side members to prevent operator contact with the blades or knives during normal operation. Brush chippers shall be equipped with an exhaust chute of sufficient length or design to prevent contact with the blade.
- All workers feeding brush into chippers shall wear eye protection. Workers feeding the chipper shall not wear loose hair or clothing, gauntlet-type gloves, rings and watches.
- Employees shall never place hands, arms, feet, legs or any other part of the body on the feed table when the chipper is in operation or the rotor is turning; push sticks – of material which can be consumed by the chipper – shall be used.
- Brush chippers should be fed from the side of the feed table centerline, and the operator shall immediately turn away from the feed table when the brush is taken into the rotor or feed rollers.

#### 6.4.6 Biological Hazards

6.4.6.0 The principal safety hazards, including biological hazards, are discussed in the AHA in SWWP for the different phases of the project. In addition to the AHAs, standing work rules and other safety procedures associated with biological hazards are described in Section 6.4.3 of the SWWP.

#### **6.4.7 Personal Protective Equipment**

6.4.7.0 All personnel entering the work area designated as a construction zone will wear Level D protection as it applies to the work they are performing. The following Personal Protective Equipment (PPE) will be utilized as follows:

- Long Pants
- Coveralls can be worn in place of pants and shirt
- Work Boots that comply with ANSI Standard Z41
- Safety Glasses that comply with ANSI Standard Z87
- Hard Hat that complies with ANSI Standard Z89 when around operating machinery requiring overhead protection
- Hearing protection that provides a noise reduction rating of less than 85dB in a high noise environment
- Leather Work Gloves when handling trees, metal or other debris
- Face Shield that complies with ANSI Standard Z89 (for use with powered cutting equipment during vegetation removal phase)
- Chainsaw Chaps (Kevlar) (for use with powered cutting equipment during vegetation removal phase)

#### **6.4.8 Medical Surveillance**

6.4.8.0 This information is reviewed in the SWWP - Section 6.7.

#### **6.4.9 Environmental and Personnel Monitoring**

6.4.9.0 It is not anticipated that field activities will encounter situations that would require air monitoring. If air monitoring is required, the work will be conducted in accordance with 29 CFR 1910.146, the SWWP - Section 6.8, and the Foster Wheeler Environmental Health and Safety (EHS) References.

#### **6.4.10 Site Control**

6.4.10.0 This information is reviewed in the SWWP - Section 6.9.

#### **6.4.11 Personnel and Equipment Decontamination**

6.4.11.0 This information is reviewed in the SWWP - Section 6.10.

#### **6.4.12 Emergency Response and Contingency Procedures (On-Site and Off-Site)**

6.4.12.0 This information is reviewed in the Final General Site-Wide Plan, Section 6.12

**6.4.13 Confined Space Entry**

6.4.13.0 It is not anticipated that field activities will encounter situations that would require confined space entry. If confined space entry is required, the work will be conducted in accordance with 29 CFR 1910.146 and the Foster Wheeler EHS References.

**6.4.14 Spill Containment**

6.4.14.0 If spill containment is required, the work will be conducted in accordance with 29 CFR 1910.146, SWWP - Sections 6.12.14 and 6.12.15, and the Foster Wheeler EHS References.

**6.4.15 Heat/ Cold Stress Monitoring**

6.4.15.0 This information is reviewed in the SWWP - Section 6.14.

**6.4.16 Standard Operating Procedures, Engineering Controls and Work Practices**

6.4.16.0 Information and equipment specific to this project are discussed in the AHAs. Further information is also available in the SWWP- Section 6.15.

**6.4.17 Logs, Reports, and Record Keeping**

6.4.17.0 This information is reviewed in the SWWP - Section 6.16.

**7.0 LOCATION SURVEY AND MANAGEMENT PLAN**

7.0.1 This section is not required for this Task Order. All survey work will be completed in accordance with the SWWP.

**8.0 PROJECT AND COST MANAGEMENT PLAN**

8.0.1 This section is not required for this Task Order.

**9.0 PROPERTY MANAGEMENT PLAN**

**9.1 GENERAL**

9.1.0 A Property Management Plan was prepared in accordance with USAESCH DID OE-005-9, Property Management Plan. See Section 9 - Property Management Plan in the SWWP.

**10.0 ENVIRONMENTAL PROTECTION PLAN**

10.0.1 This section is not required for this Task Order. The Environmental Protection Plan, located within the SWWP, will be followed

## **11.0 QUALITY CONTROL PLAN**

### **11.1 GENERAL**

11.1.1 This Quality Control Plan has been prepared in accordance with the SOW and contract specifications. All QC documentation will be submitted as part of or as supporting documentation for the final report. All QC records and documentation will be kept on site and made available for government inspection upon request.

### **11.2 DUTIES AND RESPONSIBILITIES**

11.2.1 UXO Quality Control Specialist. The UXO Quality Control Specialist is responsible for:

1. Conducting audit and surveillance activity;
2. Completing forms and other documentation;
3. Conducting preparatory, initial, and follow-up inspections;
4. Maintaining log of activities.

### **11.3 AUDIT PROCEDURES**

#### **11.3.1 Quality Control**

11.3.2 QC is conducted using a three-phase control process; preparatory, initial, and follow-up inspection/audits to ensure processes are in control and opportunities for improving processes are captured and implemented. Personnel conducting QC have stop-work authority and are organizationally independent from the processes.

#### **11.3.2 Preparatory Phase**

11.3.2.1 A preparatory phase inspection will be performed prior to beginning each definable feature of work. The purpose of this inspection will be to review applicable specifications and verify that the necessary resources, conditions, and controls are in place and compliant before the start of work activities. The personnel responsible for the work activity are responsible for ensuring that:

1. Appropriate plans and procedures are developed and approved;
2. Personnel required for the activity are identified and positions filled;
3. Training requirements are identified and training complete;
4. Preliminary work and coordination has been completed; and
5. Equipment and materials required to perform the work has been identified and is available.

11.3.2.2 The following QC actions are performed by the QC Staff for each preparatory phase inspection:

1. Verify that appropriate plans and procedures are developed, approved and are available;

2. Verify personnel identified are available and meet the requirements/qualifications for the position or waivers obtained from the client;
3. Verify that the required training has been performed;
4. Verify identified equipment is available, functional, and appropriate for the job;
5. Verify that the preliminary work and coordination have been accomplished;
6. Verify that level of quality expected is understood;
7. Verify Work Plan and applicable Standard Operating Procedures (SOPs) have been reviewed and understood by the workers; and
8. Brief process improvement program.

11.3.2.3 The specific QC activities performed during the preparatory phase, and results of those activities, will be documented on the QC Surveillance Report, which will be attached to the Daily Quality Control Report.

11.3.2.4 Discrepancies between existing conditions and approved plans/ procedures will be resolved and corrective actions taken for unsatisfactory and nonconforming conditions identified during a preparatory phase inspection.

11.3.2.5 The UXOSO will discuss job hazards with site personnel and verify that the necessary safety measures are in place and ready for use.

### **11.3.3 Initial Phase Inspection**

11.3.3.1 An initial phase inspection will be performed the first time a definable feature of work is performed. The purpose of the inspection will be to check the preliminary work for compliance with procedures and contract specifications. Another aim is to establish the acceptable level of workmanship, check safety compliance, review the preparatory phase inspection, and check for omissions and resolve differences of interpretation.

11.3.3.2 The following will be performed for each definable feature of work:

1. Deficiencies identified during the preparatory phase have been corrected;
2. Requirements of quality of workmanship will be established;
3. Completion of readiness review actions verified;
4. Differences of interpretation will be resolved;
5. Work Plan and applicable documents reviewed to ensure that the requirements are being met; and
6. Performance of work will be observed and adequacy of work verified.

11.3.3.3 Discrepancies between site practices and approved plans/procedures will be resolved. The UXOQC or his designee, prior to granting approval to proceed will verify corrective actions for unsatisfactory conditions or practices.

11.3.3.4 The specific QC activities performed during the initial phase, and results of those activities, will be documented on a QC Surveillance Report and attached to the Daily Quality Control Report.

#### **11.3.4 Follow-up Phase Inspection (Surveillance)**

11.3.4.1 The follow-up phase inspection is performed on a scheduled and unscheduled basis. The purpose of the inspection is to ensure a level of continuous compliance and workmanship. The UXOQC is responsible for on-site monitoring of the practices and operations taking place and verification of continued compliance with the specifications and requirements of the statement of work and approved SOPs. The following will be performed for each definable feature of work:

1. Inspections/surveillance to ensure that the work is in compliance with the statement of work and work plans;
2. Inspections/surveillance to ensure the required level of workmanship is maintained;
3. Inspections/surveillance to ensure each project log book is properly filled out and maintained; and
4. Inspections/surveillance to ensure data management system is properly tracked and backed up.

11.3.4.2 Follow-up results either negative or positive will be documented on a Surveillance Report and attached to the Daily Quality Control Report.

#### **11.4 ACCEPTANCE INSPECTION**

11.4.1 After work is complete, an acceptance inspection will be conducted. The sampling plans/procedures will be a 10% sample of any given grid. The method of conducting the inspection will be to apply the sampling plan to grids that are completed, collect data in those areas, process the data, identify anomalies, and excavate the anomalies to determine what the anomaly is.

11.4.2 Criteria for failing land parcels that have completed sub-surface clearance are “No ferrous objects with a “width” (diameter) between a 37mm projectile and a 3.8 in projectile, at a depth of less than 11 diameters of the object.”

11.4.3 All conditions observed during the acceptance inspection will be documented. Conditions that are identified as questionable will be evaluated by project management and the UXOQC to determine the acceptability. When a withhold condition is identified a deficiency or nonconformance report will be issued and corrective action must be taken to correct the condition prior to offering the product to the client. Inspections will be documented on the Inspection Report.

#### **11.5 DEFICIENCIES AND NONCONFORMANCE**

11.5.1 All deficiencies or nonconforming conditions discovered during inspection or other QC functions will be noted on either a Deficiency or Nonconformance Report (NCR) as appropriate. All deficiencies and nonconformance conditions will be resolved prior to completion of the project and in the best manner possible. The Daily QC Report will include a report on each Deficiency/NCR that was completed and closed out for the day.

11.5.2 It is the responsibility of all personnel on the project to identify deficiencies and nonconforming conditions to their supervisor or manager as soon as they are identified. Deficiencies and nonconforming conditions should be considered opportunities to improve the process.

## **11.6 ROOT CAUSE ANALYSIS**

11.6.1 Both the deficiency and nonconformance report forms contain an area for the entry of information regarding the cause of the problem and proposed resolution. The determination of the root cause of a deficiency or nonconformance is an integral part of the QC process. The depth and extent of the root cause analysis depends on the situation. It may be as simple (minor) as an overlooked step or procedure or be a complicated process. Root cause analysis is the responsibility of the functional manager or his/her designee with the assistance of Quality Control Representatives. Criteria considered in the analysis will include:

1. Staff qualifications and training;
2. Adequacy of procedures;
3. Adequacy of equipment; and
4. Adequacy of QC measures.

11.6.2 Input will be obtained as necessary from field personnel and technical advisors in order to identify the factors, which led to the problem. The root cause is always “upstream” from where the problem was detected. Two strategies that will be employed for determining the root cause of a deficiency or NCR for this project are: 1) tracing the problem back to the source, and 2) evaluation of the cause using basic questions such as who, what, when, where, why, and how. ‘Why?’ is probably the most beneficial question when attempting to arrive at a root cause. This question may need to be asked multiple times before the cause is identified. For example “Why did A happen?” Answer: “Because of B,” “Why did B happen?” Answer: “Because of C.” This process is carried on until the real cause is identified.

## **11.7 CORRECTIVE ACTION**

11.7.1 Following the root cause analysis, the UXOQC will perform analysis of potential solutions (corrective actions) to determine which remedy is most effective in correcting the problem. The process will include all appropriate personnel and will be documented via meeting notes and information listed in the proper sections on the deficiency report or NCR report. Potential remedies considered may include:

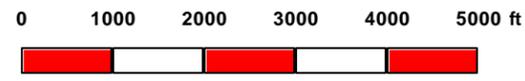
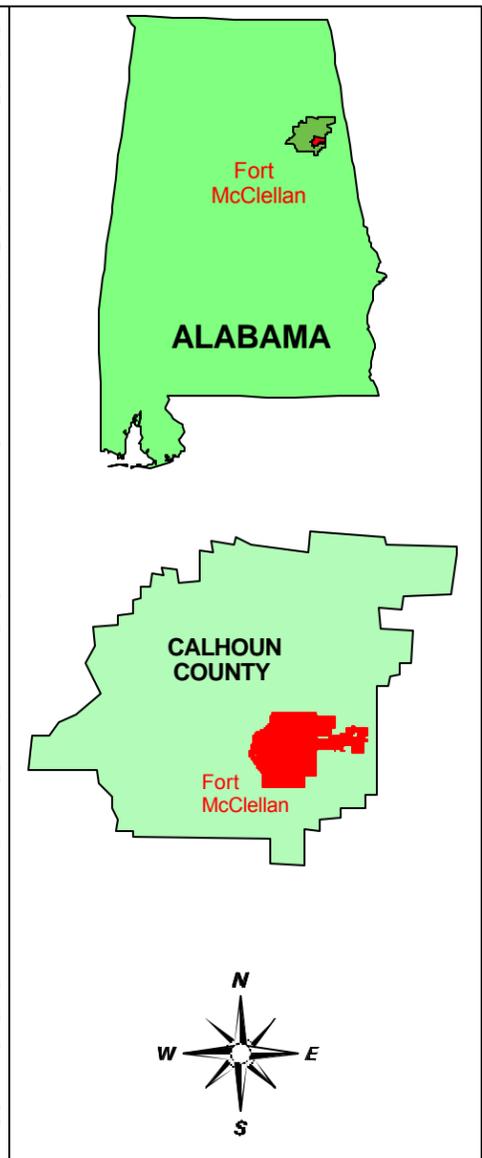
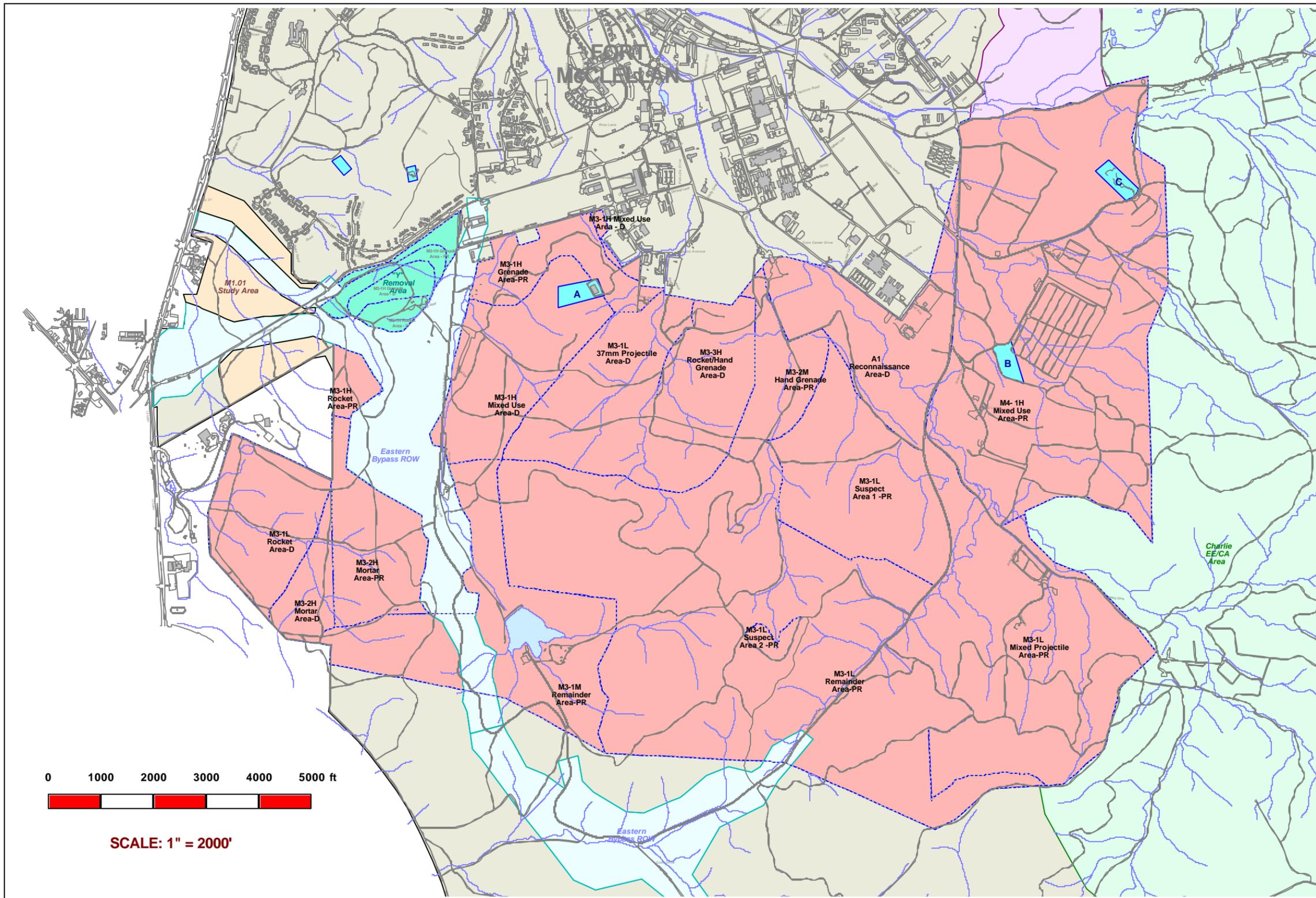
1. Supplemental personnel training;
2. Changes of equipment or modification of equipment currently in use;
3. Acquisition of supplemental equipment;
4. Implementation of new procedures or modification of existing procedures;  
and
5. Changes in QC procedures.

11.7.2 The decision for appropriate corrective action to implement is the responsibility of the PM, however, all parties involved prior to implementation should agree upon this decision.

11.7.3 Successful implementation of corrective action will be documented on the deficiency or nonconformance report. The project QC representative will verify through a follow-up phase surveillance that the corrective action implemented has corrected the deficiency or nonconforming condition and is sufficient to prevent recurrence.

**12.0      MAPS**

- 12.1      Figure 12-1 shows the location of the sites within FMC.
- 12.2      Figure 12-2 shows the Water Tank Construction Sites within the Bravo area.
- 12.3      Figure 12-3 shows the Q-D Arc for each site.
- 12.4      Figure 12-4 Shows the Q-D Arc for the Explosive Storage Magazine.



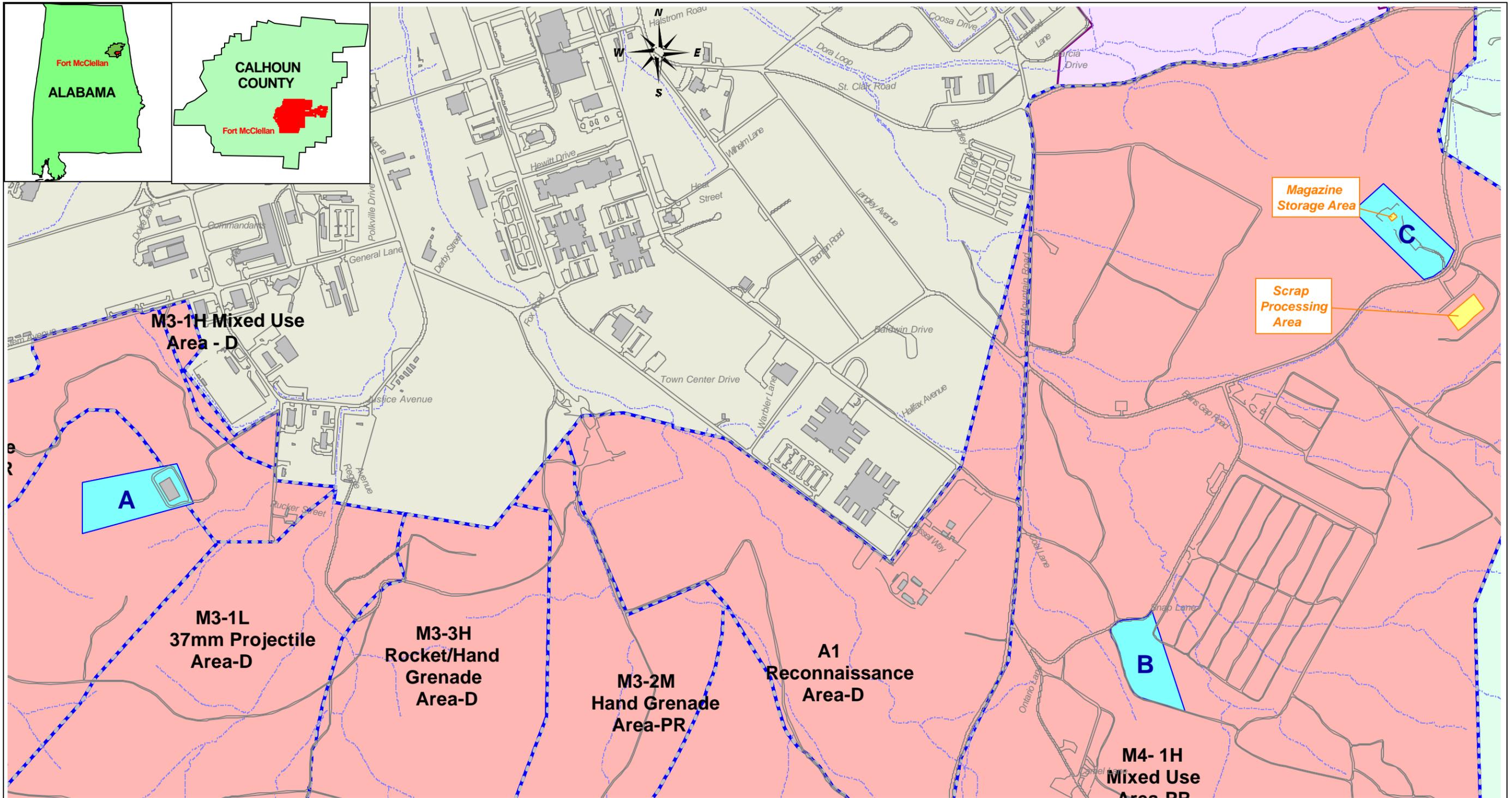
SCALE: 1" = 2000'

  
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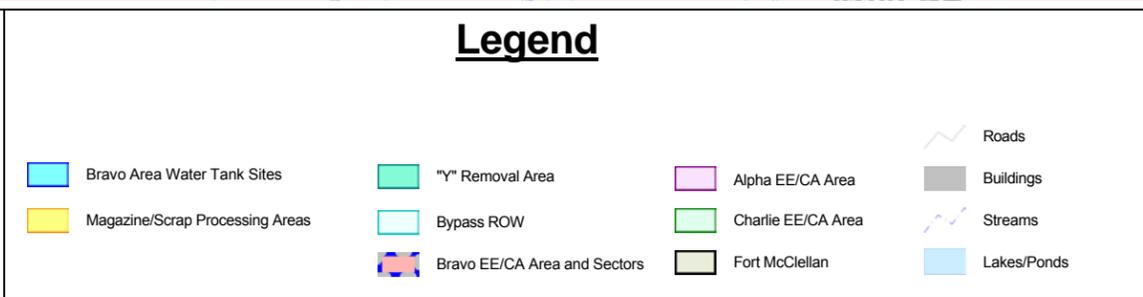
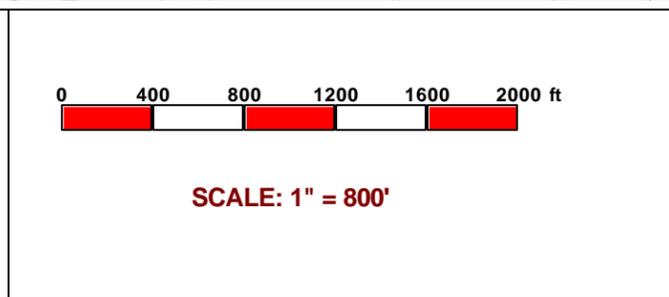
**Legend**

 Water Tank Sites	 Bypass ROW	 Charlie EE/CA Area	 Buildings
 "Y" Removal Area	 Bravo EE/CA Area and Sectors	 Fort McClellan	 Streams
 M1.01 Study Area	 Alpha EE/CA Area	 Roads	 Lakes

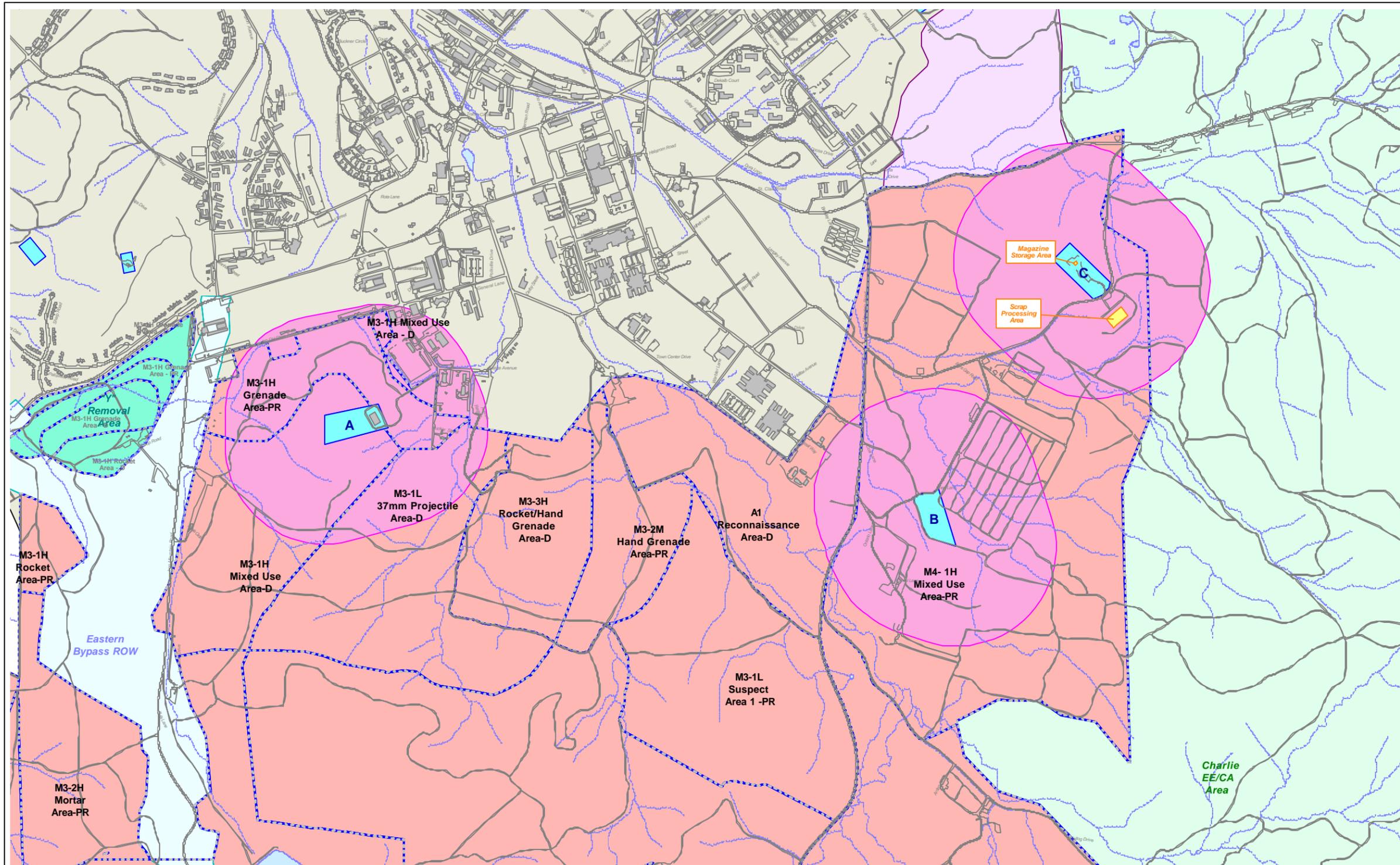
**Figure 12- 1**  
**Water Tank Construction Sites Removal Overview**  
 Fort McClellan  
 Calhoun County  
 Alabama  
 December 2003



  
**FOSTER WHEELER ENVIRONMENTAL CORPORATION**  
 FM:WWM

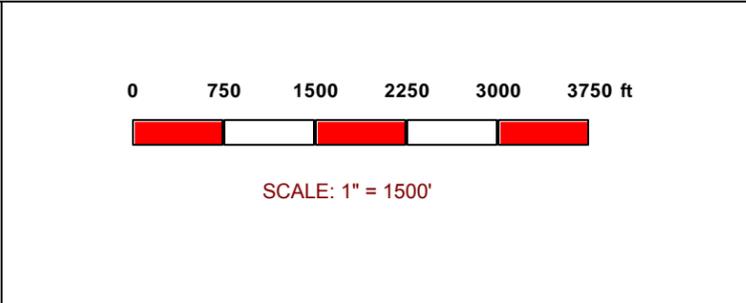


**Figure 12-2**  
**Water Tank Construction Sites Removal Area**  
 Fort McClellan, Calhoun County  
 Anniston, Alabama  
 December 2003



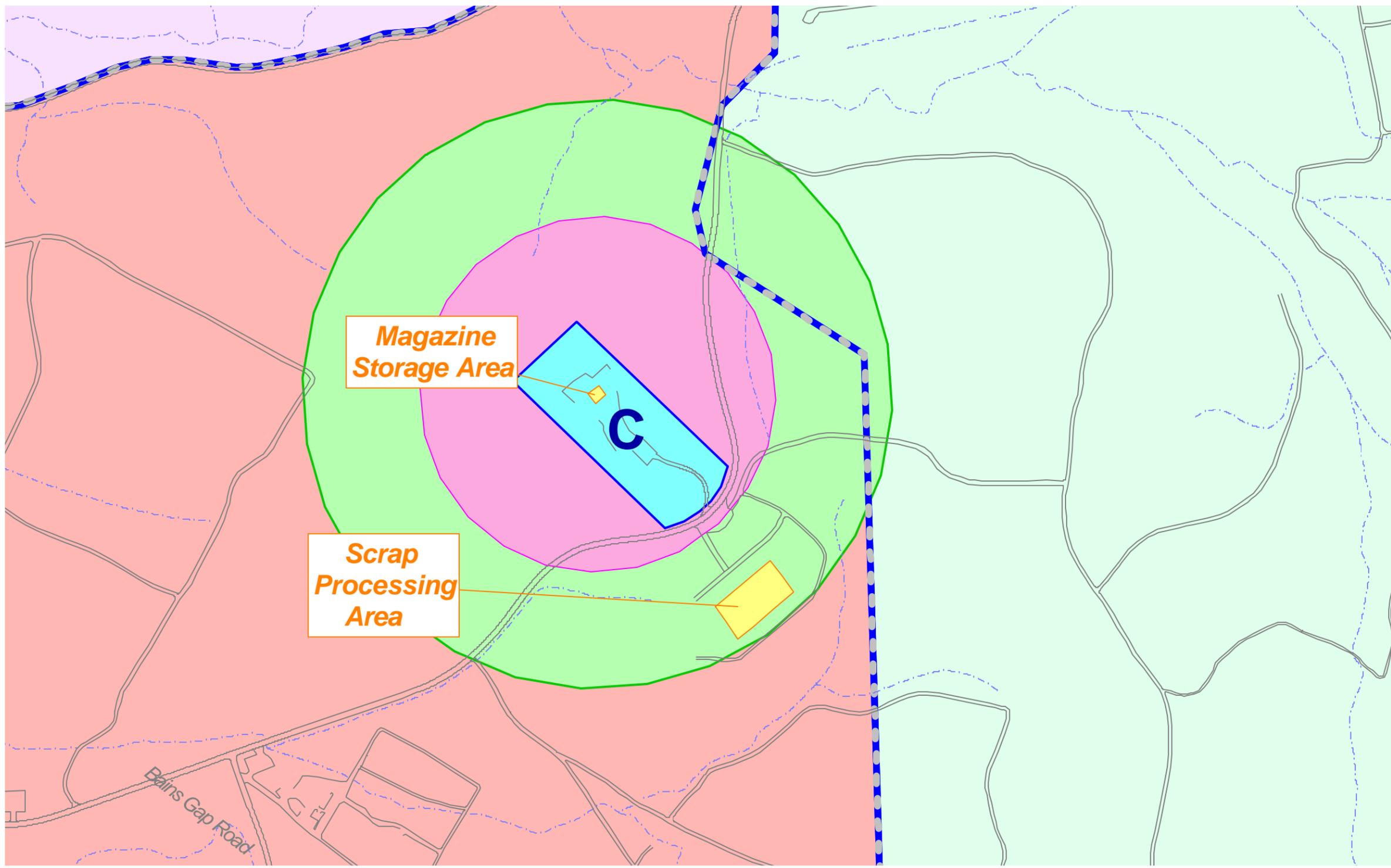
**Figure 12-3**  
**Water Tank**  
**Construction Sites**  
**Q-D Arcs Overview**  
 Fort McClellan  
 Calhoun County  
 Alabama  
 December 2003

  
**FOSTER WHEELER ENVIRONMENTAL CORPORATION**  
 FM: WWM



**LEGEND**

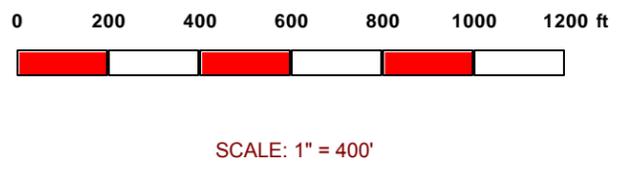
 EZ (1395') for MPM 81mm Mortar	 "Y" Removal Area	 Fort McClellan
 Magazine Storage / Scrap Processing Areas	 Bypass ROW	 Roads
 Bravo Area Watertank Sites	 Alpha EE/CA Area	 Buildings
 Bravo EE/CA Area and Sectors	 Charlie EE/CA Area	 Streams
		 Lakes



**LEGEND**

- EZ (1250') for Inhabited Buildings
- EZ (750') for Public Roadways
- Magazine Storage / Scrap Processing Areas
- Bravo Area Watertank Sites
- "Y" Removal Area
- Bypass ROW
- Alpha EE/CA Area
- Charlie EE/CA Area
- Fort McClellan
- Roads
- Buildings
- Streams
- Lakes

  
**FOSTER WHEELER ENVIRONMENTAL CORPORATION**  
 FM: WWM



**Figure 12-4**  
**Q-D Arcs of Magazine Storage Area**  
 Fort McClellan  
 Calhoun County  
 Alabama  
 December 2003

## **APPENDIX A**

### **STATEMENT OF WORK**

**STATEMENT OF WORK  
REMOVAL ACTION  
UNEXPLODED ORDNANCE CLEARANCE  
FOR THE WATER TANK CONSTRUCTION SITES,  
BRAVO AREA  
AT FORT MCCLELLAN, AL  
Contract No. DACA87-99-D-0010  
Modification 1, Rev 42  
~~24 November~~10 December 2003**

**1.0 OBJECTIVE.**

**This is a performance-based task order.** The objective of this task order is to provide a Clearance-To-Depth at the specified sites, i.e., to safely locate, identify, remove, and provide final disposition of UXO/OE and OE-related scrap at the site. This removal action (RA) is to be performed prior to finalizing the Bravo Area Engineering Evaluation & Cost Analysis (EE/CA), the Action Memorandum (AM), and the decisions related to final transfer of the property to the Joint Powers Authority (JPA) for use in accordance with the Fort McClellan Land Reuse Plan. **The work shall be accomplished in two separate phases: a) all non-intrusive tasks shall be completed in Phase I and, b) all intrusive tasks shall be completed in Phase II after receipt of an approved conventional Explosive Safety Submission (ESS).**

**2.0 BACKGROUND AND GENERAL STATEMENT OF WORK.**

The work required under this Scope of Work (SOW) falls under the Defense Environmental Restoration Program, Department of The Army, Base Realignment And Closure Office (DA BRACO). Ordnance and Explosives (OE) exists on property currently owned or leased by the Department of Army. This removal action is being performed in order to prevent delays and impacts to the proposed construction at the three water tank sites on the proposed Anniston Water Works and Sewer Board properties.

The Contractor shall perform an unexploded ordnance clearance of approximately 18.2 acres within Bravo Redevelopment Area sectors M3-1H-Mixed Use Area, M3-1H Grenade Area-PR, and M4-1H-Mixed Use Area. The removal work shall be performed in accordance with the provisions of this Statement of Work, the Fort McClellan Site-Wide OE Work Plan, and the approved site-specific plans and ESS.

2.1. Regulatory Guidance. Explosive ordnance (OE) is a safety hazard and may constitute an imminent and substantial endangerment to the local populace and site personnel. The work shall be performed in a manner consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104, and the NCP. All activities involving work in areas potentially containing unexploded hazards shall be conducted in full compliance with CEHNC, USACE, DA and DoD

requirements regarding personnel, equipment, and procedures. Federal regulations under 29 CFR 1910.120 shall apply to all actions taken at this site.

2.2. UXO Operational Hours. Due to the inherent risk in this type of operation, UXO personnel shall not be engaged in UXO field operations more than 40-hours a week or more than 10-hours a day. Forty-eight hours of rest must separate each 40-hour UXO field operation workweek.

2.3. Recovered Chemical Warfare Materiel (RCWM) and HTRW at OE Response Sites. During OE response, the Contractor may encounter HTRW material or non-stockpile Chemical Warfare Materiel (CWM). In such situations, the following procedures shall apply.

2.3.1. Hazardous Toxic or Radiological Waste (HTRW), unexploded ordnance constituents, or CWM may be in munitions, containers, landfills, Open Burning/Open Detonation (OB/OD) areas, ground spills, surface water or groundwater. If suspected HTRW of unknown origin and nature is encountered, the Contractor shall immediately withdraw upwind from the work area and notify the U. S. Army Engineering and Support Center, Huntsville (USAESCH) OE Design Center. The Contractor shall take necessary actions to protect the safety of his/her workforce, the public, and the environment.

2.3.2. During conventional OE field operations, if the Contractor identifies or suspects CWM, the Contractor shall immediately withdraw upwind from the work area and notify the appropriate personnel as identified in the Standing Operating Procedure for Notification of Incidents and Accidents at Fort McClellan, dated 7 May 2001. The Contractor shall secure the area and provide two personnel located upwind of the suspect CWM to secure the site until relieved by the Technical Escort Unit (TEU) or Explosive Ordnance Disposal (EOD) personnel.

2.4. Site Description. Fort McClellan is located northeast of the City of Anniston, Calhoun County, Alabama. To the west are the areas known as Weaver and Blue Mountain. To the North is the City of Jacksonville. The Talladega Forest is to the east of the post.

2.4.1. The removal action encompasses a 7.15-acre site within the M3-1H-Mixed Use Area and M3-1H Grenade Area-PR located near the northern border of Bravo Area and two sites, one 5.82-acre site and one 6.11-acre site within the M4-1H-Mixed Use Area located in the northern and eastern border of the Bravo Area. The area for UXO clearance consists of approximately 18.2 acres and is divided into three sites as stated above. See Appendix A for a location map of the proposed area of clearance. The access routes leading to the tank sites are not included in this removal action.

2.5. Site History. Fort McClellan has been used for artillery training of troops and the National Guard as early as 1912 to 1941. In 1941, McClellan became site of the Chemical Corps Training Command.

In 1962, the U.S. Army Combat Developments Command Chemical Biological-Radiological Agency moved to Fort McClellan. In 1973, the Chemical Corps School along with the U.S. Army Combat Developments Command Chemical Biological-Radiological Agency closed. In 1979, the U.S. Army Chemical Corps School was re-established, along with a training Brigade for Basic Training.

2.5.1. The area covered by the three sites associated with this RA were used in field training activities, maneuver training, and were also connected with several historical firing ranges (mortars, 2.36" & 3.5" rockets, 37 mm, 40 mm, & 75 mm projectiles, grenades, etc.).

2.6. Current Site Use. The site is currently being managed for timber and wildlife resources. All lands are within the boundary of Fort McClellan. The future use for a portion of site A in M3-1H-Mixed Use Area is designated as development reuse and the remaining portion in of site A in M3-1H Grenade Area-PR and two sites in M4-1H-Mixed Use Area are designated as passive recreation reuse.

2.7. Previous OE Clearances or Characterization. Limited removal actions have been completed at one of the designated sites. Limited sampling activities were conducted for the Bravo Area EE/CA associated with these sectors.

2.8. Potential Ordnance. Table 3-1 from the Bravo Area EE/CA describes UXO/OE items that have been encountered in the vicinity of this site.

2.9. Definitions. (See Section C of basic contract)

**3.0 DESCRIPTION OF SERVICES.** This is a firm fixed price task order, with one task (Task 15) being Time and Materials pricing.

#### **PHASE I TASKS:**

3.1. (TASK 1) TECHNICAL PROJECT PLANNING (TPP). Not Used.

3.2. (TASK 2) DOCUMENTATION REVIEW AND SITE VISIT. Not Used.

3.3. TASK 3) – GEOPHYSICAL PROVE-OUT. The Contractor shall perform a Geophysical Prove-Out (GPO) in accordance with DID OE-005-05a.01 using the existing prove-out grid as established for previous prove-outs. The Contractor shall submit a GPO Work Plan. The Contractor shall submit a GPO Letter Report upon completion of the GPO and shall also include the letter report in the Final Removal Report. The Government will also require 3 additional copies of the GPO Work Plan and Letter Report for submittal to the Alabama Dept. of Environmental Management.

3.4. (TASK 4) PREPARE SITE-SPECIFIC WORK PLAN AND EXPLOSIVE SAFETY SUBMISSION (ESS).

The Contractor shall prepare and submit, for Contracting Officer Approval, a **Site-Specific OE Removal Work Plan (WP)** describing how the required effort on this area will be accomplished. The SSWP shall describe the Contractor's proposed method of accomplishing the required work, in accordance with the Basic Contract, this Statement of Work (SOW), and the Site Wide OE Work Plan. **The Contractor may not begin physically working on the site until the site-specific WP has been approved.** The Contractor shall prepare an ESS in accordance with DID OE-060.01. Intrusive work may not begin until the ESS has been approved by DDESB.

### 3.5 (TASK 5) – Geographic Information System (GIS) Application.

The Contractor shall collect and input all survey, geophysical, spatial, and OE descriptive data into a GIS, which matches the Fort McClellan GIS. Further guidance can be found in DID OE-005-14.01. Use of the GIS shall provide a permanent record of all collected data and the logical and clear presentation of such data and records of the OE removal activities for this site for inclusion in the Final Removal Report. **Due to the short duration of this removal action, the Contractor will not submit a CD containing GIS data on a monthly basis. The CD will be included only as a submittal in each version of the Final Removal Report.**

### 3.6. (TASK 6) PERFORM OE SURFACE CLEARANCE, BRUSH CLEARING, & VEGETATION REMOVAL.

The Contractor shall provide the necessary personnel and equipment to remove all surface OE, OE scrap and other metallic scrap where these items would interfere with the brush clearing/vegetation removal, surveying, and/or the geophysical mapping or impede the progress, effectiveness, or safety of the survey and/or geophysical investigation team, or affect the data quality. The Contractor shall plan on 18.2 acres of brush clearing at a moderate density of brush and small trees (< 6-inch diameter).

### 3.7. (TASK 7) PERFORM LOCATION SURVEYS.

The Contractor shall perform location surveys as described in the approved Work Plan and in general accordance with guidance contained in DID OE-005-07.01, Location Survey and Mapping Plan. The coordinate system used for this task order shall be the Alabama State Plane coordinate system. A licensed Professional Land Surveyor in the State where the work is being performed shall certify all surveying products to include all control points, grid corners and boundaries as required by the project. The Contractor shall use the perimeter coordinates supplied by Fort McClellan to geolocate the required grid corners. All survey data shall be included in the Site Specific Removal Report and entered in the GIS database.

3.8 (TASK 8) - GEOPHYSICAL INVESTIGATION AND EVALUATION. The Contractor shall implement geophysical investigations as described in the approved Work Plan and DID OE-005-05.01.

For the specific areas under this task order, the Government estimates that the average total of target anomalies per acre are:

75 metallic items that fit the target objective acceptance box/acre

3.8.1. Geophysical Mapping. The contractor shall plan on mapping approximately 18.2 acres. The smallest targeted UXO/OE items for geophysical detection are as listed below:

Sector M3-1H Mixed Use Area-D - 37mm HE  
Sector M4-1H Mixed Use Area-PR - 37mm HE  
Sector M3-1H Grenade Area-PR - 37mm APC

3.8.2. Evaluation. The Contractor shall utilize a qualified geophysicist to analyze and evaluate the geophysical data collected. The geophysicist shall make a professional determination regarding the identification of all target anomalies at the site. Based on this determination, the Contractor shall provide to the Government and the OE Contractor, dig-sheets showing predicted location and characteristics of all target anomalies (See 3.8.3 below for target anomaly definition). The dig sheets shall include tables as well as graphical representations (geophysical maps). In addition, a project geophysicist shall continually compare predicted results with actual excavation results so that the Contractor's geophysical evaluation methodology is constantly refined over the life of the project.

3.8.3. Anomaly Selection. Anomalies that meet the established target anomaly selection criteria for OE in each sector will be identified for excavation. The equation: Estimated Detection Depth (meters) =  $11 * \text{Diameter (mm)} / 1000$  defines the target objectives that shall be removed under this task order. The range of items to be detected are:

Sector M3-1H Mixed Use Area-D - 37mm HE to 3.8 in shrapnel projectile  
Sector M4-1H Mixed Use Area-PR - 37mm HE to 3.8 in shrapnel projectile  
Sector M3-1H Grenade Area-PR - 37mm APC to 3.8 in shrapnel

projectile 81mm mortar

The site will be cleared of all UXO/OE, practice ordnance items, cultural scrap larger than the specified target items, range targets, etc. Geophysically identified underground utilities on, or immediately adjoining the site boundaries, will not be excavated. The Contractor's site geophysicist(s) and senior UXO technician will evaluate each such buried utility geophysical map to ensure no potential OE target items are distinguishable in or adjacent to the backfill of such utilities. If the Contractor identifies a potential OE target in such an area of a buried utility, the Contractor shall investigate the target.

Target anomalies shall also be identified and selected for excavation to satisfy QC requirements for the geophysical data analysis. The particular QC approach for this project shall be as described in the approved existing Site Specific Work Plan and/or the amendment to the Work Plan. The Government may also identify and select target anomalies for excavation to satisfy QA requirements. Government selected QA target

anomalies will be investigated as part of the Government's QA program after each grid or group of grids has been submitted for QA review.

3.9. (TASK 9) ANOMALY REACQUISITION AND MARKING. For the sectors where digital geophysical mapping is used under this removal action, the Contractor shall reacquire all selected geophysical target anomalies identified on the dig sheet. Dig sheets shall be provided to the Contracting Officer's QA representative and the OE Contractor on the day of the UXO/OE removal action for each grid. An example dig sheet is included as an attachment in DID OE-005.05.01. The Contractor shall flag the actual field location of each identified anomaly shown on the dig sheet and mark the location with a non-metallic pin flag or by some other method as specified in DID OE-005-05.01 or as approved by the Contracting Officer. The Contractor shall ensure that the reacquired location and the geophysical data location for each anomaly are within the range of accuracy given in DID OE-005-05.01. The Contractor shall record and report all discrepancies between original mapped locations (way-pointing) of anomalies as shown on the dig-sheet, and actual locations of the reacquired anomaly excavated. All such reporting shall include distance and orientation from grid north.

## PHASE II TASKS:

### 3.10. (TASK 10) PERFORM UXO/OE CLEARANCE -REMOVAL ACTION.

3.10.1. Perform UXO Clearance. The Contractor shall perform a Clearance-To-Depth. The Contractor shall provide the necessary personnel and equipment to locate, gain access, identify, recover, certify and temporarily store OE Scrap recovered from this site.

3.10.2. The procedures used under this task shall comply with those contained in Basic Safety Concepts and Considerations for Ordnance and Explosives Operations and the approved WP. If demolition operations cannot be safely conducted on-site, the Contractor shall submit a disposal feasibility letter for Contracting Officer approval, in accordance with DID OE-040.01. All transportation and demolition of UXO shall be in accordance with all applicable Federal, State, and local laws and regulations, including the disposal alternative approved by the Contracting Officer. The Contractor shall use engineering controls for intrusively investigating anomalies in areas where inadequate safety distance is available for the designated exclusion zone(s). **Any such requirement will be considered a change of scope and require modification to the statement of work.**

3.10.3. Intrusive Anomaly Investigation and Removal. The Contractor shall excavate all target anomalies identified and re-acquired during the geophysical investigation and as directed by the Contracting Officer.

3.10.4. OE Destruction. The Contractor shall be responsible for destroying all live or potentially live OE encountered during the site removal action. The Contractor shall use the method of destruction in the approved project Site-Specific Work Plan. If UXO is encountered that cannot be moved due to its condition and the location prevents disposal in place, then the on-site USACE OE Safety Specialist or the Transition Force shall be notified

3.10.5. Backfilling Excavations. All access/excavation/detonation holes shall be backfilled and restored to the surrounding ground level by the Contractor.

3.10.6. OE Accountability. The Contractor shall maintain a detailed accounting of all OE items encountered and enter such data into the GIS database. This accounting shall include the standard official nomenclature, condition of the item, depth located, orientation of item, location coordinates, and disposition of each item. A digital photograph of each UXO/OE item shall also be taken and entered into the GIS database.

3.10.7. Disposition of OE and OE Scrap. The Contractor shall furnish all necessary personnel and equipment to collect and remove all recovered OE/OE Scrap to the Fort McClellan scrap storage area. All scrap will be handled in accordance with 3.10.9.

3.10.8. Perform Quality Control. The Contractor shall furnish the necessary personnel and equipment to administer a Quality Control (QC) Program to manage, control, and document Contractor and subcontractor activities to ensure compliance with contract requirements. Quality Control shall be performed in accordance with the existing Eastern Bypass QC plan. The QC activities shall be documented and included in the Site-Specific Final Removal Report.

**3.10.8.1. The criterion for accepting grids that have completed surface and subsurface clearance is:**

**a) No ferrous objects with a “width” (diameter ) between a 37 mm projectile and a 3.8 in projectile, at a depth of less than 11 diameters of the object.**

3.10.9. Inspection and Disposition of AEDA/Range Residue.

The Contractor shall furnish all necessary personnel and equipment to inspect and temporarily store all recovered OE scrap and Ammunition, Explosives, and Dangerous Articles (AEDA) and Range Residue. The methodology to accomplish this task shall be in accordance with the existing Site-Specific Work Plan and/or any addition as proposed in the Site-Specific WP. Final disposition will be handled under a separate task order.

3.11. (Task 11) QUALITY CONTROL PLAN. Not Used.

3.12. (Task 12) ENVIRONMENTAL SAMPLING AND CHEMICAL ANALYSIS. Not Used.

### 3.13. (TASK 13) PREPARE SITE-SPECIFIC REMOVAL REPORT.

3.13.1. The Contractor shall prepare a Site-Specific Removal Report that fully documents all activities performed under this Contract in accordance with DID OE-030.01, except that the appendices will have no headers and footers. The Contractor shall modify the report format to add, modify, or delete sections to the report, which may be required to completely and clearly present the removal information. In addition to the standard requirements for reporting, the Contractor shall furnish separate maps in the report showing the locations of specific items in each category/grouping/type of items located and removed from the site, to include: UXO, OE, OE scrap (only in areas geophysically mapped), and Non-OE Scrap (only in areas geophysically mapped). The Contractor shall also report any anomalies that could not be reacquired and false positives above 15%.

The Contractor should anticipate providing a preliminary Army only “draft”, Draft, Draft-Final, and Final versions of the report. All versions of the removal report text and maps shall be issued in hard copy, with all data, appendices, etc furnished on CD-ROM. The Final document will be issued upon resolution of all comments and acceptance of the document by the appropriate agencies.

3.13.2. OE Removal Data. The contractor shall assemble all the detailed project information and data for inclusion into the Site-Specific Removal Report as an appendix/appendices. Separate volumes for the appendices are acceptable. This data shall include all detailed sampling data, surveying data, mapping data, OE data, and any other supporting removal/clearance data. The data shall fully detail the OE removal action that was performed at the site. All data will be cross-referenced in the GIS. This data shall provide the detailed support documentation for the Site-Specific Removal Report.

3.14. (TASK 14) MEETINGS. The Contractor shall, as directed by the Contracting Officer, participate in two (2) on-site, on-board technical review meetings. Appropriate Contractor personnel shall be available to support these meetings.

3.15. (TASK 15 - Time & Materials). PROVIDE SUPPORT FOR GOVERNMENT QUALITY ASSURANCE EFFORT.

The Contractor shall provide personnel and equipment as necessary to support the Government QA effort. The Contractor should anticipate that the field QA review of Contractor submitted grids will begin after approximately 10% of the total number of grids have been submitted and will continue for up to 1 week after the Contractor has completed QC of all grids. The Contractor support will include UXO technician assistance to conduct intrusive investigation of anomalies identified during the QA process and demolition of any UXO items discovered as a result of the QA operations.

## 4.0 SUBMITTALS AND CORRESPONDENCE

4.1. Format and Content of Reports. The Contractor shall prepare a Site-Specific Work Plan, Explosive Safety Submission, and a separate Site-Specific Removal Report for this site.

The Contractor's OE Task Order Manager and the Project Manager/Engineer shall each sign all submittals (draft, draft-final, and final) indicating that all appropriate contractor technical reviews have been conducted. The Final version of each document shall be signed and sealed by a registered engineer in the State of Alabama.

4.2. Computer Files. All text files generated by the Contractor under this contract shall be furnished to the Contracting Officer in Word 6.0/95 or higher software, IBM PC compatible format. This format shall facilitate the development of hypertext markup language (HTML) or PDF deliverables required in the following paragraph. All final CADD/GIS data, design drawings and survey data generated by the Contractor under this delivery order shall be submitted in the proper format and media that will permit their loading, storage, and use without modification or additional software on the Huntsville Center and or the Fort McClellan GIS. CADD files will be in Micro Station version "J" or "8". The GIS will be in ArcView®.

4.3. HTML or PDF Deliverables. All submittals identified in this SOW including the final version of the removal report shall be submitted, uncompressed, on individual CD ROM in HTML or PDF along with a linked table of contents, linked tables, linked photographs, linked graphs and linked figures included and suitable for viewing on the Internet.

4.4. Review Comments. Various reviewers will have the opportunity to review submittals made by the Contractor under this contract. The Contractor shall review all comments received from the Contracting Officer and evaluate their appropriateness based upon their merit and the requirements of the SOW. The Contractor shall issue to the Contracting Officer a formal, annotated response to each comment in accordance with the schedule in paragraph 4.14.

4.5. Draft Reports. Each page of draft reports shall be stamped "DRAFT". All submittals after the "Draft" version shall include incorporation and notation of all previous review comments accepted by the Contractor. **Draft-Final submittals shall only show the "Draft-Final" status on the cover and title sheet of the submittal.** This process should allow for most corrections between the Draft-Final and the Final document to be made by page inserts/replacements.

4.6. Identification of Responsible Personnel. Each report shall identify the specific members and title of the Contractor's staff and subcontractors that had significant, specific input into the reports' preparation and review.

4.7. Minutes of Meetings. The Contractor shall prepare and submit minutes of all meetings attended to the Contracting Officer within 10 calendar days.

4.8. Correspondence. The Contractor shall keep a record of each phone conversation and written correspondence affecting decisions relating to the performance of this Task Order. A log of the phone conversations, e-mails, and written correspondence shall be submitted in conjunction with the Monthly Progress Report to the Contracting Officer.

4.9. Project Control and Reporting. The Contractor shall conform to the Site-Wide Work, Data, and Cost Management Plan.

4.10. Weekly Progress/Project Status Reports. A weekly progress report shall be submitted in accordance with DID OE-085.01 to the Contracting Officer. Failure to report issues to the Government in a timely manner that impact the project will result in corrective action from the Contracting Officer.

4.11. Monthly Progress Report and Data Submittals. The Contractor shall prepare and submit a Monthly Progress Report IAW DID OE-080.01 to the Contracting Officer describing the work performed since the previous report, work currently underway and work anticipated and any issues that will impact the project. Any weekly reports provided shall be incorporated into the Monthly Progress Reports. The report shall state whether current work is on schedule and within budget. If the work is not on schedule or within budget, the Contractor shall state what corrective actions are being taken in order to get back on-schedule and within budget. The report shall be submitted not later than the 10th day of the following month. Due to the short duration of this removal action, the Contractor will not submit a CD containing GIS data on a monthly basis. The CD will be included only as a submittal in the Final Removal Report.

4.12. Public Affairs. The Contractor shall not make available or publicly disclose any project data or reports generated or reviewed under this contract or any subcontract unless specifically authorized by the Contracting Officer, the Public Affairs Office (PAO) of the U. S. Army Engineer District, and/or the OE Design Center PAO. When approached by any person or entity requesting information about the subject of this contract, the Contractor shall defer to the PAO for response. Reports and data generated under this contract shall become the property of the Government and distribution to any other source by the Contractor is prohibited unless authorized by the Contracting Officer.

4.13. On-Site Coordination. The Contractor shall keep the Contracting Officer's on-site representative informed of day-to-day field activities occurring on site. Where Contractor activities are likely to require coordination with various other activities at the site, the Contractor shall notify the POC identified by the Contracting Officer sufficiently ahead of time to allow for coordination activities to take place.

4.14. Schedule and Submittals. The Contractor shall submit all deliverable data to the Contracting Officer and other reviewers shown in Section 4.14.1 IAW the following schedule. All submittals shall be delivered to all addressees no later than the close of business (COB) on the day indicated in Section 4.14.2. In addition, submittals to regulatory reviewers shall be shipped by registered mail or other method where a signed

receipt is obtained indicating the date received and the individual accepting the submittal.

4.14.1. The Contractor shall furnish copies of the plans and reports as indicated to each addressee listed and in the quantities indicated.

<b><u>ADDRESSEES For Reports/Work Plan</u></b>	Draft	Draft-Final	Final
Commander US Army Engineering and Support Center, Huntsville ATTN: CEHNC-OE-DC (Mr. Dan Copeland) 4820 University Square Huntsville, Alabama 35816-1822	6	6	6
Commander US Army Engineering and Support Center, Huntsville ATTN: CEHNC CT-E (Ms. Evelyn Kelley) 4820 University Square Huntsville, Alabama 35816-1822	1	1	1
Commander US Army Engineer District, Mobile ATTN: CESAM (Mr. Ellis Pope) P.O. Box 2288 Mobile, AL 36628-0001	0	0	0
Commander US Army Engineer Division, South Atlantic ATTN: CESAD-PM-H (Ms. S. Ernst) 77 Forsyth St., SW Atlanta, GA 30335-6801	0	0	0
ATTN: Mr. Doyle Brittain U.S. Environmental Protection Agency 61 Forsyth St, SW Atlanta, GA 30303-3104	0	0	0
Hugh Vick 171 North Broad St. Winder, GA 30680	0	0	0
Alabama Department of Environmental	3	3	3

Management  
 Government Facilities Section, Haz  
 Waste Branch, Land Division  
 ATTN: Mr. Phillip Stroud  
 P.O. Box 301463  
 Montgomery, AL 36130-1463  
 U.S. Army Garrison  
 ATTN: ATZN-ENV, Lisa Kingsbury  
 291 Jimmy Parks Blvd.  
 Fort McClellan, AL 36205-5000

Shaw Group 0 0 1

4.14.2. Contract Deliverables.

<b>Deliverables</b>	<b>Date</b>
Draft Site-Specific Work Plan/ESS	21 days after NTP
Draft-Final Specific Work Plan/ESS	10 workdays after receipt of com'ts
Final Site-specific Work Plan/ESS	10 workdays after receipt of com'ts
Draft Site-Specific Removal Report	30 days after completion of fieldwork
Draft-Final Site-Specific Removal Report to DDESB/FMC	10 days after receipt of com'ts
Final Site-Specific Removal Report	1 week after receipt of final com'ts
Report/Minutes, Record of Meeting IAW DID OE-045.01 to CO	5 days after event
Monthly GIS Update IAW Section 3.5 of this SOW To CO	Monthly
Monthly Status Report IAW DID OE-080.01 To CO	Monthly
Weekly Status Report IAW DID OE-085.01	Weekly

Cost/Schedule Status Report IAW  
DID OE-035.01 to Contracting Officer (CO)

Monthly

Telephone Conversation/Correspondence  
Report IAW DID OE-055.01 to CO

Monthly

Accident/Incident Report IAW  
the DID OE-015.01 to CO

Written report within 24 hours after  
incident occurrence

In addition to the hard copies required above, the final WP and the final Report shall be forwarded on a CD-ROM in Microsoft Word format to CEHNC-OE-DC only, 6 copies each.

**OVERALL COMPLETION DATE**  
(TBD)

4.15. Contract DIDs. The DIDs listed below at Section 7.0, References, and on the following web site have submission requirements that may be applicable to this SOW. The DIDs are available on the USAESCH Web Page at <http://www.hnd.usace.army.mil/oew/policy/dids/didindx>.

4.16. Quality Assurance. In addition to the QC process by the Contractor, the Government shall perform Quality Assurance (QA) on all phases and types of work done on the project to ensure safety, quality workmanship, proper procedures, and quality products.

In order to evaluate the effectiveness of the geophysical investigation and evaluation methods utilized by the Contractor, the Contracting Officer may direct an independent contractor provided by the Government or may provide Government personnel to independently map, evaluate, locate and access some detected subsurface anomalies as deemed necessary or map and flag portions of the contractor work areas that are intrusively investigated under this Task Order. All grids that fail the grid QA criteria will be evaluated and addressed IAW the Contracting Officer's determination. All QA failures will be documented with the corrective action taken reported in the Site-Specific Removal Report.

**6.0 SPECIAL INSTRUCTIONS.**

6.1. During field activities on ordnance projects, hardhats need not be worn unless a head injury threat is present.

6.2. Contractor UXO/OE sweep personnel shall have no metal parts in or on their footwear or wear large metal belt buckles while performing geophysical mapping or removal operations.

## 7.0 REFERENCES.

7.1. Engineering Evaluation/Cost Analysis, Bravo Area of the Redevelopment Area, Fort McClellan, Alabama, (Nov 2002 Draft)

7.2. National Contingency Plan, 40 CFR 300.

7.3 Federal Acquisition Regulation, F.A.R. Clause 52.236-13: Accident Prevention.

7.4. EM 385-1-1, *U.S. Army Corps of Engineers Safety and Health Requirements Manual*, 3 September 1996.

7.5. EM 1110-1-4009, *Ordnance and Explosives*, 23 Jun 2000.

7.6. ER 385-1-92, U.S. Army Corps of Engineers, Safety and Occupational Health Document Requirements for Hazardous, Toxic, and Radioactive Waste (HTRW) Activities, 01 Sep 2000.

7.7. Occupational Safety and Health Administration (OSHA) General Industry Standards, 29 CFR 1910 and Construction Industry Standards, 29 CFR 1926; especially 1910.120/29CFR1926.65-Hazardous Waste Site Operations and Emergency Response.

7.8. NIOSH/OSHA/USCG/EPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985. (DHHS (NIOSH) Publication No. 85-115).

### 7.9. OE DIDS

- DID OE-005-05.01 Geophysical Investigation Plan
- DID OE-005-06.01 Site Safety and Health Plan
- DID OE-005-07.01 Location Surveys and Mapping Plan
- DID OE-005-08.01 Work, Data, and Cost Management Plan
- DID OE-005-09 Property Management Plan (Not normally required for EECA)
- DID OE-005-11.01 Quality Control Plan
- DID OE-005-14.01 Geographic Information System
- DID OE-015.01 Accident reports
- DID OE-025.01 Personnel and Work Standards
- DID OE-030.01 Site Specific Final Report
- DID OE-040.01 Disposal Feasibility Letter Report
- DID OE-045.01 Report /Minutes, Record of Meetings
- DID OE-055.01 Telephone Conversations/Correspondence Records
- DID OE-080.01 Monthly Status Report

- DID OE-085.01 Weekly Status Report
- DID OE-005-05A.1 Geophysical Prove-out Plan

7.10. Archive Search Report

7.11. EM 200-1-2, *Technical Project Planning (TPP) Process*, 31 Aug 1998

7.12. EPA 540-R-92-021, *Guidance for Performing Site Inspections Under CERCLA*, September 1992

7.13. Code of Federal Regulations. [n.d.] *Hazardous Waste Operations and Emergency Response*. 29 CFR 1910.120, Final Rule.

7.14. *CERCLA Compliance With Other Laws Manual*. Parts I (August 1988) and II (August 1989) Parts I and II.

7.15. ER 1110-1-8153, *Ordnance and Explosives Response*, 14 May 1999.

7.16. EP 1110-1-24, *Establishing and Maintaining Institutional Controls for Ordnance and Explosives (OE) Projects*, 15 December 2000.

7.17. EP 385-1-95a, *Basic Safety Concepts and Considerations for Ordnance and Explosives Operations*, 29 June 2001.

7.18. EP 1110-1-18, *Ordnance and Explosives Response*, 24 April 2000.

7.19. ERDC TR-01-13, *Distribution and Fate of Energetics on DOD Test and Training Ranges: Report I*, September

**APPENDIX A**  
**LOCATION MAP**

# UXO at AWWWSB Tank Sites

