Concrete Monument Installation
Work Plan

Stump Dump, Parcel 82(7)
Fort McClellan, Calhoun County, Alabama

Prepared for:

U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama

Prepared by:

Shaw Environmental, Inc.
312 Directors Drive
Knoxville, Tennessee 37923

Task Order CK09
Contract No. DACA21-96-D-0018
Project No. 796886

April 2004

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1.0 Introduction

As requested by the U.S. Army Corps of Engineers (USACE), Mobile District, the Army will install concrete monuments designating the fill area boundary at the Stump Dump, Parcel 82(7), located at Fort McClellan (FTMC), Alabama. The USACE contracted Shaw Environmental, Inc. (Shaw) (formerly IT Corporation [IT]) to perform this work, under Contract Number DACA21-96-D-0018, Task Order CK09. This work plan provides technical guidance for the installation of the monuments at the fill area. The objectives of this effort are as follows:

- Perform unexploded ordnance (UXO) avoidance prior to any intrusive activities by conducting surface, near-surface, and downhole UXO surveys
- Survey locations of proposed concrete monuments
- Install 27 concrete monuments along the perimeter of the fill area to clearly delineate its boundary.

This plan will be used in conjunction with the *Installation-Wide Sampling and Analysis Plan* which includes the *Installation-Wide Safety and Health Plan* (IT, 2002).

Site Description and History. The Stump Dump, Parcel 82(7) is an approximately 10-acre fill area located in the central portion of the Main Post (Figure 1). The fill area was used as a disposal site between 1985 and 1988 and is currently inactive. The site primarily received storm debris (e.g., trees, branches, and flood-washed soil). Some unauthorized dumping of items such as construction debris (sheet rock and concrete), batteries, tires, paint cans, refrigerators, landscaping trash, and other materials also occurred (Environmental Science and Engineering, Inc. [ESE], 1998).

After its closure the site was covered with soil and vegetation and detention ponds were installed. The fill area surface was engineered with terraced decks and drainage slope. Stormwater runoff is controlled by drainage structures that divert the water from the fill area. Several detention ponds were constructed around the covered fill area to control the rate of surface water runoff.

This parcel was the subject of a Shaw site investigation (SI) that included fill area definition activities and the installation of borings in fill material. The average depth of the fill was estimated to be approximately 8 feet below ground surface and the fill area was estimated at approximately 10 acres in size. The SI concluded that the Stump Dump presents no

unacceptable human health or ecological risks under Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Shaw, 2003a).

2.0 UXO Anomaly Avoidance

The Stump Dump, Parcel 82(7) falls within the "Possible Artillery Impact Area" shown on Plate 10 of the September 2001 Archives Search Report (USACE, 2001). Therefore, UXO surface sweeps and downhole surveys will be performed to support field activities at this site. The surface sweeps will be conducted to identify anomalies for the purposes of UXO avoidance. Shaw will conduct UXO avoidance activities as outlined in Appendix E of the sampling and analysis plan (SAP) (IT, 2002) and in the *Site-Specific UXO Safety Plan for the Landfill Gas Investigation, Landfills and Fill Areas* (Shaw, 2003b). A hazard evaluation for ordnance and explosives is located in Attachment 1 of this plan.

UXO Surface Sweep. A surface sweep will be conducted over the proposed concrete monument locations prior to intrusive activities to identify UXO. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface and identified subsurface anomalies will be conspicuously marked for avoidance. UXO personnel requirements, procedures, and detailed descriptions of the geophysical equipment to be used are provided in Chapter 4.0 and Appendix E of the SAP (IT, 2002). Utility clearance will not be required because utilities do not exist in the vicinity of the Stump Dump. This was previously demonstrated during SI field activities at the fill area.

Downhole UXO Survey. Downhole UXO surveys will be performed during borehole installation to determine if buried metallic objects are present. UXO monitoring as described in Appendix E of the SAP (IT, 2002) and in the UXO Safety Plan for the Landfill Gas Investigation (Shaw, 2003b) will continue to the completed depth of the auger hole (approximately 38 inches).

Monument Location Survey. Concrete monuments will be installed at the proposed locations shown on Figure 2 and described in Table 1. The monument locations will be marked using wooden stakes and surveyed using conventional civil survey techniques to obtain the horizontal and vertical coordinates. Horizontal coordinates will be referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum 1983. Elevations will be referenced to the North American Datum of 1988.

3.0 Concrete Monument Installation

The concrete monuments will be pre-cast using Type III Portland cement. Each monument will be 7 feet long and 8 inches square, as shown on Figure 3. Four pieces of reinforcing steel (rebar) will be centered vertically in the concrete posts to strengthen the monument (shown on Section A-A' of Figure 3). The 6-foot-long No. 4 rebar will conform to American Society for Testing and Materials A 615, grade 60 rebar and will be connected using 16 gauge (or heavier) steel wire ties. The borehole at each monument location will be 18 inches in diameter and will be drilled using an auger attachment mounted on a skid-steer Bobcat® loader or suitable alternative. The holes will be augered to a depth of approximately 38 inches below ground surface. The pre-cast concrete monuments will be off-loaded from a flat-bed truck using a fork-lift device mounted on the loader and placed into the borehole on an approximate 2-inch gravel base. The monuments will be oriented such that the sloped top portion of the monument faces away from the fill area. The monuments will be leveled during installation using a post leveler and grouted in place using Type I Portland cement. The grout will be placed into the annular space of the borehole to a point approximately 1 inch above the ground surface and radially sloped away from the monument. In addition, the monuments must be secured and adequately supported during grout curing.

Bronze Markers. Prior to final casting of the concrete monuments, circular bronze flat-head markers, 3½ inches in diameter with a 2-inch shank, will be set into the sloped top face of the monument (Figure 3, Detail 1). The markers will be inscribed with the words: "FILL AREA BOUNDARY" as shown on Detail 1 of Figure 3.

4.0 Site-Specific Health and Safety Plan Amendment

Health and safety plan requirements for the concrete monument installation at the fill area are provided in Appendix A of the SAP, *Installation-Wide Safety and Health Plan* (IT, 2002). Activity hazard analyses for this effort are described in Appendix A of the SAP. Additional activity hazard analysis is not required because the proposed activities and equipment associated with this task have been adequately addressed in Appendix A of the SAP. Documentation is provided in Attachment 2 of this plan.

5.0 Schedule

Anticipated schedule for this task is as follows:

- Concrete monument casting will occur over a 10-day period between April 19 and May 14.
- Delivery of monuments to FTMC anticipated prior to May 21.
- Installation of monuments at Stump Dump will occur over a 2-week period following delivery.
- Therefore, estimated completion of all field activities is June 4, 2004.

6.0 Submittals

Shaw will prepare a summary of the work performed which will include the final surveyed monument locations, as-built drawings, and photographs.

7.0 References

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

IT Corporation (IT), 2002, ***Draft Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, Revision 3, February.

Shaw, 2003a, ***Draft Site Investigation Report, Stump Dump, Parcel 82(7), Fort McClellan, Calhoun County, Alabama***, November.

Shaw, 2003b, ***Final Landfill Gas Investigation, Field Sampling Plan, Health and Safety Plan, and Unexploded Ordnance Safety Plan, Landfills and Fill Areas, Parcels 78(6), 79(6), 80(6), 227(7), 126(7), 229(7), and 82(7), Fort McClellan, Calhoun County, Alabama***, May.

U.S. Army Corps of Engineers (USACE), 2001, ***Archives Search Report, Maps, Fort McClellan, Anniston, Alabama***, Revision 1, September.

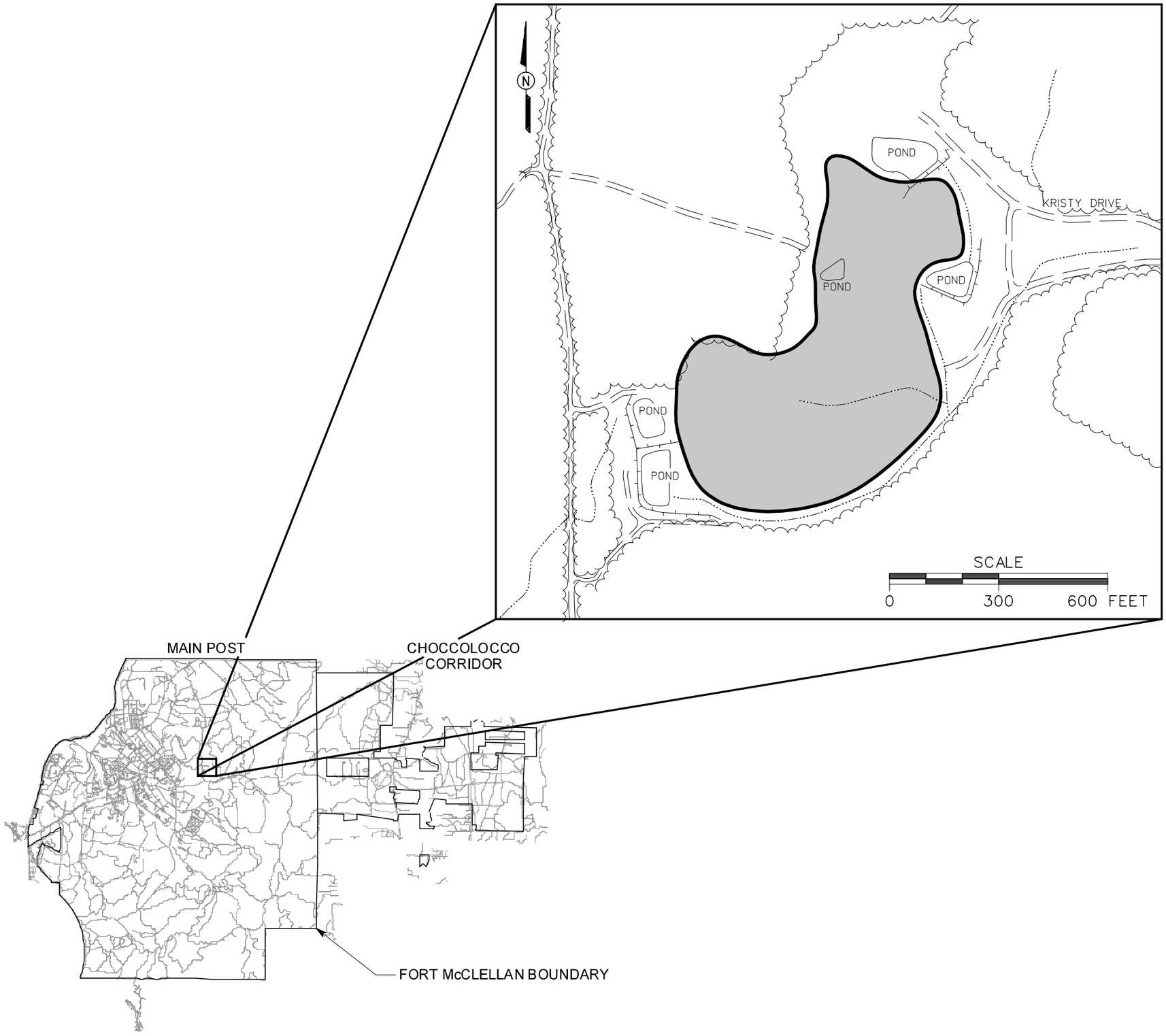
Table 1

Proposed Concrete Monument Locations
Stump Dump, Parcel 82(7)
Fort McClellan, Calhoun County, Alabama

Monument Location	Northing	Easting	Ground Elevation (ft amsl)
FTA-82-MON01	1170650.60	677434.57	TBD
FTA-82-MON02	1170723.03	677503.08	TBD
FTA-82-MON03	1170715.20	677575.51	TBD
FTA-82-MON04	1170676.05	677669.47	TBD
FTA-82-MON05	1170695.62	677743.85	TBD
FTA-82-MON06	1170760.22	677804.53	TBD
FTA-82-MON07	1170908.98	677794.74	TBD
FTA-82-MON08	1171041.97	677818.59	TBD
FTA-82-MON09	1171183.03	677826.06	TBD
FTA-82-MON10	1171224.13	677855.42	TBD
FTA-82-MON11	1171208.47	677904.36	TBD
FTA-82-MON12	1171155.62	678006.15	TBD
FTA-82-MON13	1171159.54	678125.55	TBD
FTA-82-MON14	1171128.22	678174.49	TBD
FTA-82-MON15	1170969.66	678205.80	TBD
FTA-82-MON16	1170938.35	678166.66	TBD
FTA-82-MON17	1170897.24	678090.32	TBD
FTA-82-MON18	1170848.30	678072.70	TBD
FTA-82-MON19	1170725.08	678107.31	TBD
FTA-82-MON20	1170601.67	678139.25	TBD
FTA-82-MON21	1170521.41	678135.34	TBD
FTA-82-MON22	1170398.09	678027.68	TBD
FTA-82-MON23	1170296.30	677890.66	TBD
FTA-82-MON24	1170257.16	677765.38	TBD
FTA-82-MON25	1170253.24	677587.25	TBD
FTA-82-MON26	1170327.62	677471.76	TBD
FTA-82-MON27	1170488.13	677416.96	TBD

Horizontal coordinates are proposed locations only.
Actual locations are subject to site suitability and may be placed a few feet away from the proposed location.

ft amsl - feet above mean sea level.
TBD - To be determined.



LEGEND

- UNIMPROVED ROADS
- TREES / TREELINE
- PARCEL BOUNDARY
- SURFACE DRAINAGE / CREEK
- BERM

FIGURE 1
SITE LOCATION MAP
STUMP DUMP
PARCEL 82(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

Shaw™ Shaw Environmental, Inc.

DATE LAST REV.: 4/7/2004
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STARTING DATE: 04/06/04 6:20:13 PM
DRAWN BY: D. BOMAR
PROJ. MGR.: J. YACOUB
ENGR. CHCK. BY: S. MORAN
DRAFT. CHCK. BY:
INITIATOR: G. SISCO
PROJ. NO.: 796886
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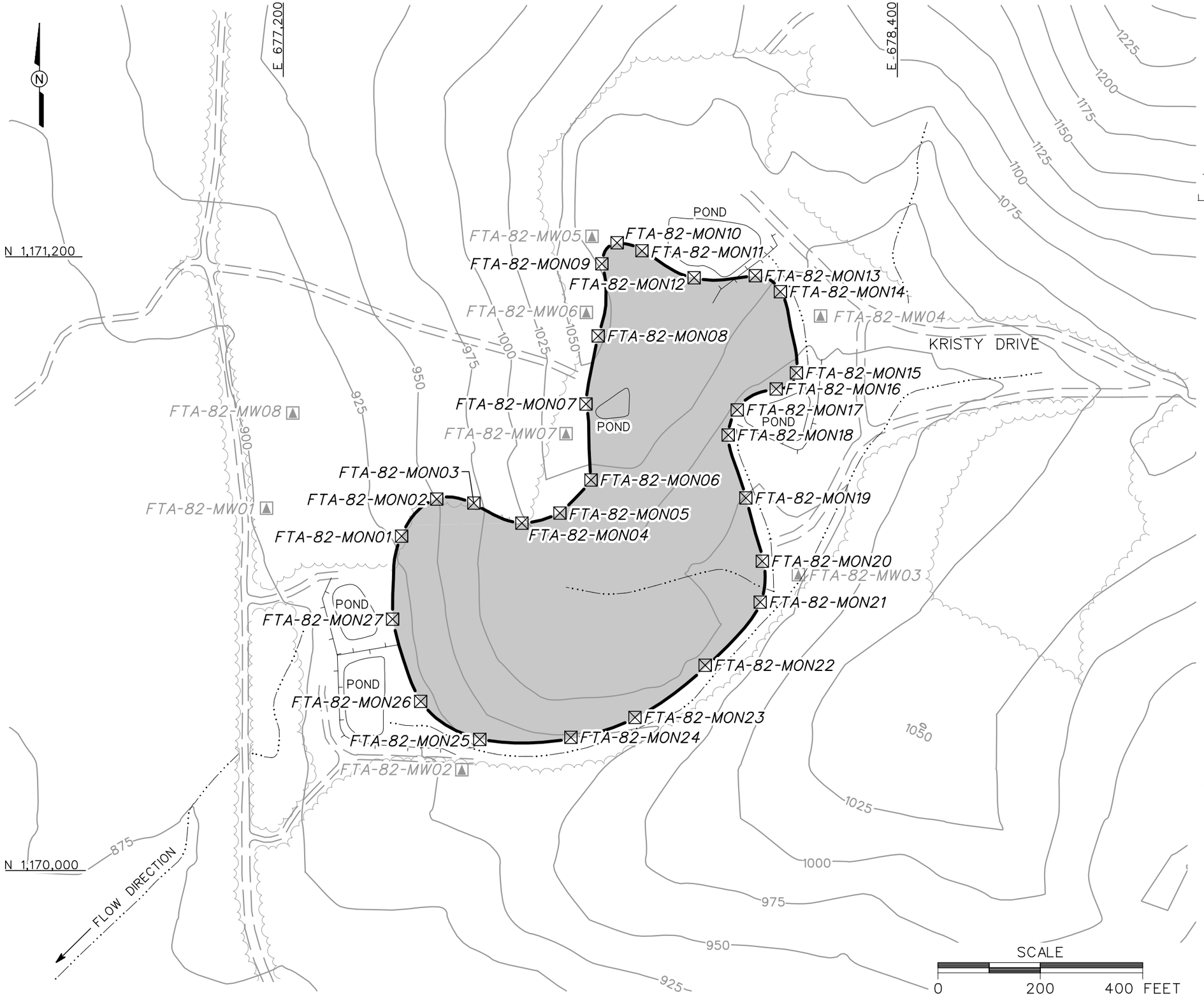

FIGURE 2
SITE MAP
STUMP DUMP
PARCEL 82(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

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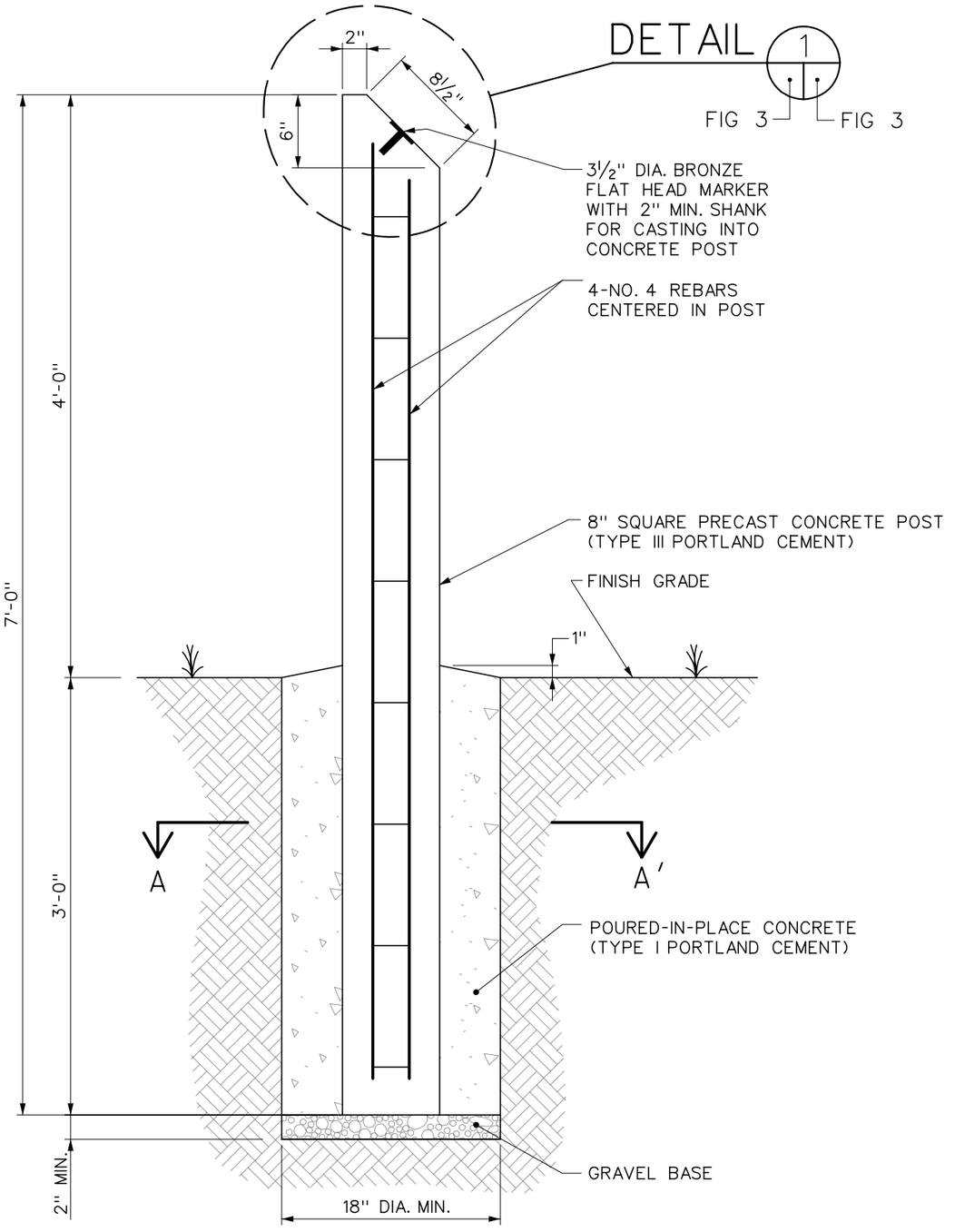
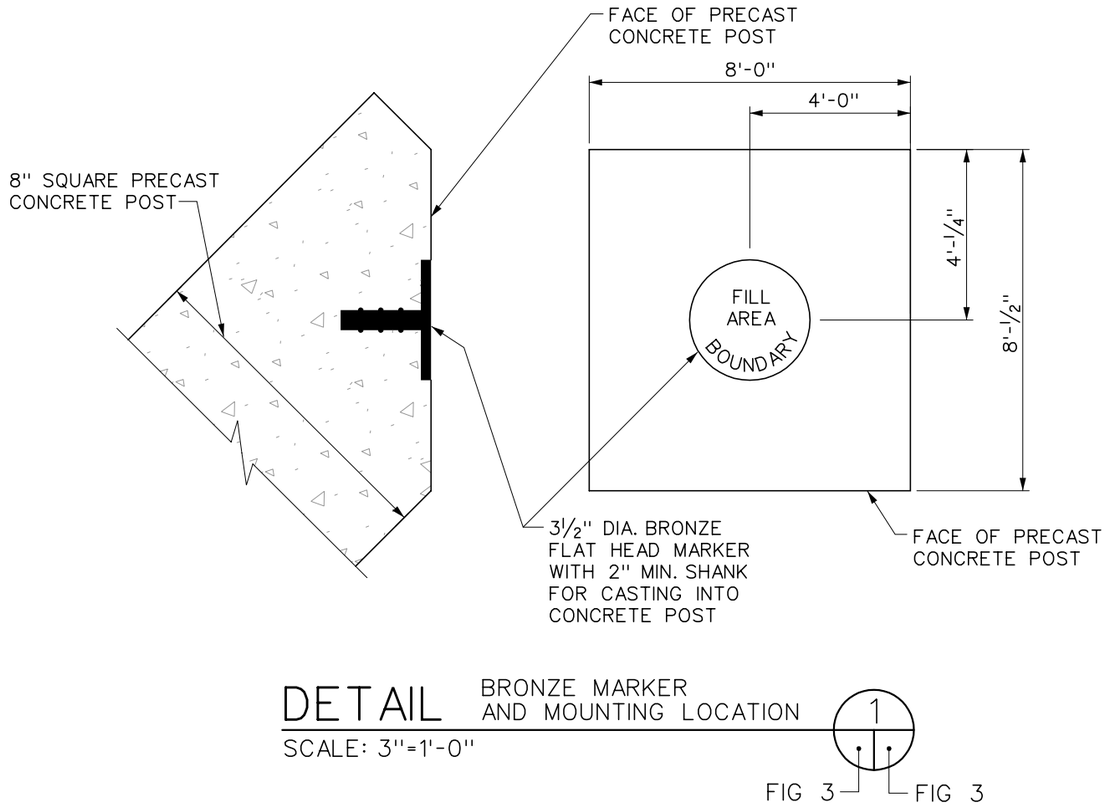


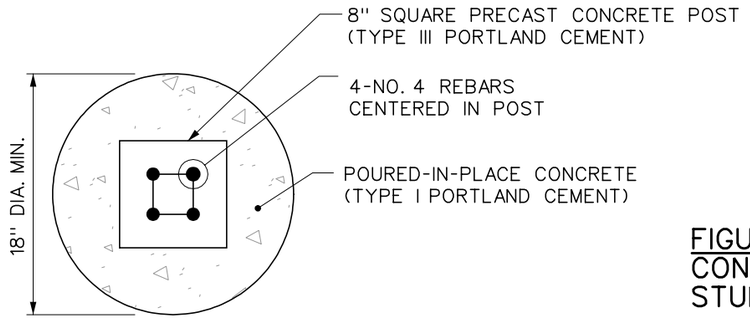
DETAIL TYPICAL CONCRETE MONUMENT

SCALE: 1"=1'-0"



DETAIL BRONZE MARKER AND MOUNTING LOCATION

SCALE: 3"=1'-0"



SECTION A–A'

SCALE: 1"=1'-0"

FIGURE 3
CONCRETE MONUMENT DETAIL
STUMP DUMP, PARCEL 82(7)

SCALE: 1"=1'-0"

0 1 2 FEET

U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

Shaw™ Shaw Environmental, Inc.

DWG. NO.796886-sd-001.dgn | PROJ. NO.: 796886
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DRAFT. CHCK. BY: G. SISCO | ENGR. CHCK. BY: G. SWANSON
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ATTACHMENT 1

ORDNANCE AND EXPLOSIVES EVALUATION

Evaluating OE/UXO/CWM Hazards in Support of HTRW Activities

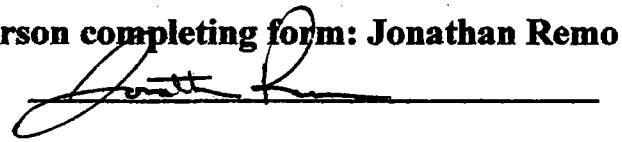
Site Name: Stump Dump, Parcel 82(7)

Job Number: 796886

Date: 17-Mar-03

Name of person completing form: Jonathan Remo

Title: Geologist

Signature: 

	Yes	No
1a. Have the historical records available for this HTRW site been reviewed?	☒	☐

If the answer to **1a.** is yes, proceed to **1b.**
If the answer to **1a.** is no, review site information prior to completing this form.

	Yes	No
1b. Is there recent information (site walk, worker interviews, etc.) that indicates a potential OE/CWM hazard at this site?	☐	☒

Proceed to **2.**

2. According to the records review, is this site known or suspected to have been used for:

	Yes	No
2a. Manufacturing, production, or shipping of conventional or chemical warfare materiel (CWM) OE:	☐	☒
Live fire testing of any ordnance:	☒	☐
Conventional or CWM OE training:	☒	☐
Storage of conventional or CWM OE:	☐	☒
Disposal or demilitarization of conventional or CWM OE:	☐	☒
Other (specify):		

	Yes	No
2b. Manufacturing, production, or shipping of chemical agent:	☐	☒
Research or testing of chemical agent:	☐	☒
Chemical agent related training:	☐	☒
Storage of chemical agent:	☐	☒
Disposal or demilitarization of chemical agent:	☐	☒
Other (specify):		

Any **2a** question answered "YES" indicates UXO support is required for all site activities. If all **2a** questions are answered "NO", UXO support may not be required. Refer to Installation-Wide Safety and Health Plan (SHP) for additional information concerning UXO support. Proceed to question **2b.**

Any **2b** question answered "YES" requires the remainder of this form to be completed. If all **2b** questions are answered "NO", real-time monitoring for chemical agent will not be required and completing the remainder of this form is not required. Refer to SHP for additional information concerning agent monitoring.

Additional space for notes and explanations on page 4.
Continue to page 2 of 4 –

Site Name: Stump Dump, Parcel 82(7)

Job Number: 796886 **Date: 17-Mar-03**

3. For sites where the manufacturing, testing, storage, or disposal of CWM is suspected:	**Yes**	**No**
Is there evidence that the CWM is/was containerized in potentially unexploded ordnance:	☐	☐
Is there evidence that the CWM is/was containerized in nonexplosive containers:	☐	☐
Is there evidence that the CWM is open to the environment (i.e., in an open container or free liquid/solid in the soil/water):	☐	☐
Is there evidence that the CWM hazard has been removed from the site or that the site has been decontaminated:	☐	☐
Has the site been previously monitored or sampled for chemical agent or agent breakdown products:	☐	☐
For any "YES" above, was the agent or breakdown product identified?	☐	☐

For any "Yes", list types of agent (mustard, lewisite, etc.) and the form (in ordnance, in drum, etc.) the CWM is expected to be found (or state "unknown"):

List agent breakdown products identified:

4. Defining the Potential for the Presence of CWM:	**Agent Monitoring Requirements for Site Activities:**
4a. High Presence Potential – Definition: CWM is known or highly suspected to be present at the site in a condition (within ordnance and/or nonexplosive container, or in an uncontainerized form in sufficient volume that weathering of the product has not rendered it harmless) that will cause potential harm to personnel if it is encountered.	Mandatory personal and perimeter air monitoring using the DAAMS, MINICAMS, and RTAP collection/analysis methods with off-site surety laboratory confirmation of all environmental samples. Specific monitoring criteria (equipment types and sampling station placement, percentage of personnel monitored, etc.) to be established in the Site Specific Safety and Health Plan (SSHP).
4b. Moderate Presence Potential - Definition: CWM is suspected to have been present at the site, but has been previously removed and/or decontaminated, or has been open to the environment such that it is expected to have degraded and been rendered harmless.	The need for personal and perimeter air monitoring using the DAAMS, MINICAMS, and RTAP collection/analysis methods with off-site surety laboratory confirmation of all environmental samples will be reviewed on a site-by-site basis. Specific monitoring criteria (equipment types and sampling station placement, percentage of personnel monitored, etc.) to be established in the Site Specific Safety and Health Plan (SSHP).
4c. Low Presence Potential – Definition: No indications that CWM will be present in quantity or reactivity (in munitions, projectiles, drums, etc.).	No specific personal or area monitoring for chemical agents required beyond what is specified in the SHP.

Continue to page 3 of 4 -

Site Name: Stump Dump, Parcel 82(7)

Job Number: 796886 **Date: 17-Mar-03**

Based on the information available for this site, including information gathered during completion of this form, the potential for CWM to be present at this site, as defined above, is expected to be: ***LOW***

Exceptions/Explanations: (additional space for notes and explanations on page 4)

5. Based on the information provided in questions 1 through 5, above, the following guidelines will be used for establishing PPE requirements for activities to be performed at this site; Specific details are provided in the SSHP:

5a. High Exposure Potential - High exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).	Subject to review by the IT CIH, PPE for all personnel in the exclusion zone at a site identified as having a "High Exposure Potential" will be Level B (supplied air) or Level C (full-face respirator with HEPA/Acid Gas/OV cartridges w/ emergency egress hood) and chemically resistant coveralls. Specific PPE requirements are in the SSHP for this site.
5b. Moderate Exposure Potential - Moderate exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).	Subject to review by the IT CIH, PPE for all personnel in the exclusion zone at a site identified as having a "Moderate Exposure Potential" will be Modified Level D (disposable coveralls and emergency egress hood) carried by all personnel. Specific PPE requirements are in the SSHP for this site.
5c. Low Exposure Potential - Low exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).	Subject to review by the IT CIH, no additional PPE requirements above those stated in the SSHP are needed for sites identified as having "Low Exposure Potential." Specific PPE requirements are in the SSHP for this site.

Based on all available information, the exposure potential at this site is considered to be: ***LOW***

Exceptions/Explanations:

Review Signatures:

IT UXO Technical Manager _____ Date: 20 Mar 03 IT H&S Specialist _____ Date: 4/10/03

Site Name: Stump Dump, Parcel 82(7)

Job Number: 796886 **Date: 17-Mar-03**

Additional Notes and Explanations:

The Stump Dump, Parcel 82(7), falls within "Possible Explosive Ordinance Impact Area" shown on Plate 10 of the FTMC *Archive Search Report, Maps* (USACE, 2001). The Stump Dump, Parcel 82(7), was used as a disposal site from sometime before 1985 until approximately 1988. The site originally was intended for the disposal of storm debris (anything that might wash up in a storm flow, i.e., vegetation, tree limbs, stumps, etc.). Uncontrolled and unauthorized dumping of items including construction debris (sheet rock and concrete), batteries, tires, paint cans, refrigerators, landscaping trash, and other materials also occurred at the site (ESE, 1998).

ATTACHMENT 2

SITE-SPECIFIC HEALTH AND SAFETY PLAN AMENDMENT DOCUMENTATION

Shaw The Shaw Group Inc.™

Site Specific Health & Safety Plan Amendment Documentation

Project No.: 796886 **Date:** 12 April 2004

Project Name: Fort McClellan, Calhoun County, Alabama

Amendment Revises: NONE

Reason for Amendment: Task not included in original scope of work

Amendment:

Amend Section 3.1 Scope of Work to include:

Installation of Permanent Markers Indicating Boundaries of Former Dump Site Known as the "Stump Dump"

Rationale for Amendment:

No additional AHAs are required as the equipment and activities associated with this task are similar to those already addressed in the Installation-Wide Safety and Health Plan in Section 3, Table 3-1. The applicable activities are: "Staging Equipment", "Surveying", and "Drilling And Installation Of Monitoring Wells". Particular attention should be paid to UXO safety during marker installation tasks.

Completed By: David H. Duncan, CIH, CSP, CHMM **Approved by:** Stephen D. Moran Jr. 4/13/04

David H. Duncan, CIH CSP CHMM