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Project No. 796887

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Contract:       **Contract No. DACA21-96-D-0018/CK10**  
                      **Fort McClellan, Alabama**

Subject:         **Draft Site-Specific Field Sampling Plan Addendum II for the Remedial**  
                      **Investigation (Source Area) at Training Area T-38, Former Technical Escort**  
                      **Reaction Area, Parcel 186(6)**

Dear Mr. Coker:

This letter plan addendum serves to document our proposed source area investigation at Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6). The proposed field activities and rationale were discussed at the Base Realignment and Closure Cleanup Team (BCT) meeting in February 2002. Please review this plan and respond with either a letter of concurrence or written comments describing any recommendations.

**Background**

Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6) is located on the north-central portion of the Main Post of Fort McClellan and encompasses most of Reservoir Ridge. Included in Parcel 186(6) is a six-acre fenced area at the crest of Reservoir Ridge that was used for training in the 1960s and 1970s. The area of investigation for this Remedial Investigation will focus on the 6 acre fenced area at Training Area T-38 and an approximately 3 acre dump located east of the water tank, on the south flank of Parcel 186(6) (Figure 1).

Previous investigations at Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6) includes geophysical surveys, soil sampling, and groundwater sampling. The most recent geophysical survey was conducted within the fenced area at Training Area T-38 in 2001 by Parsons Engineering Science, Inc. as part of a chemical warfare material (CWM) Engineering Evaluation

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Cost Analysis (EE/CA). Numerous geophysical anomalies were observed and evaluated and investigative trenching was conducted at the location of a suspected disposal pit area. Eight CWM scrap items were encountered during the trenching activities. The CWM items did not contain chemical warfare agents nor were they explosively configured. Items recovered during the investigation included 55-gal CWM drums, 4.2-inch mortars, a glass vial, and numerous FS smoke balls. Nine soil samples were also collected and analyzed during the trenching activities. There was no detection of GB, HD, 1,4-thioxane, or 1,4-dithiane above reporting limits in the collected samples.

During the CWM EE/CA field activities, four rusted, empty drums were observed in the proximity of the water tank, near the southern boundary of Parcel 186(6) (approximate 3-acre dump area). Soil samples were collected around the drums and from within one of the drums. There was no detection of GB, HD, VX, or CWM-breakdown products.

Previous site and remedial investigations conducted at Training Area T-38 by IT and SAIC included the collection of eleven surface and subsurface soil samples and the installation and sampling of 32 groundwater monitoring wells (27 by IT and 5 by SAIC). The majority of the groundwater monitoring wells has been installed on the perimeter of the parcel. The groundwater analytical data from CWM-186-MW26 (located just east and downgradient of the fenced area), suggests that free phase decontaminants or dense non-aqueous phase liquid (DNAPL) may be present hydraulically upgradient in the subsurface beneath the fenced area. Based on the suspected disposal pit and available data, an investigation within the fenced area is needed to further evaluate the soil and further delineate the potential sources for groundwater contamination from volatile organic compounds. Additional sampling is also needed at the dump area near the southern boundary of Parcel 186(6), to evaluate soil and groundwater in the area.

### **Field Activities**

As presented at the February 2002 BCT meeting, IT proposes to conduct an investigation of the fenced area at Training Area T-38 and the approximate 3-acre dump located near the southern boundary of Parcel 186(6). The field activities include the collection of soil samples from 31 boring locations and the installation and sampling of groundwater monitoring wells at 16 of the 31 boring locations. The analytical data from the samples will provide information on soil and groundwater quality and will be used to delineate the potential sources for groundwater contamination.

The soil borings will be drilled and sampled utilizing hollow-stem auger drilling and split-spoon sampling techniques. The groundwater monitoring wells will be drilled and installed utilizing hollow-stem auger or air rotary drilling techniques. It is estimated that the monitoring wells will be installed to depths ranging from approximately 120 to 160 feet bgs; however actual depths may vary, based on ground elevation, and lithology observed from the borehole. Table 1 presents the sampling rationales and the anticipated completion depths for the soil borings and monitoring wells. Tables 2 and 3 present the soil sample and groundwater sample analytical parameters, respectively.

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The presence of unexploded ordnance (UXO) is possible within the vicinity of Training Area T-38; therefore, IT will conduct UXO avoidance activities as outlined in Appendix E of the SAP and as presented in the revised Site-Specific Unexploded Ordnance Safety Plan Addendum (presented with this SFSP) prior to initiating intrusive field activities associated with the investigations at Training Area T-38.

### **Surface Soil Samples**

Surface soil samples will be collected at 20 locations shown on Figures 2 and 3 from the upper 1 foot of soil using hollow-stem auger drilling and split-spoon sampling techniques as specified in Section 5.1.1.3 and Section 6.1.1.1 of the IT, February 2002, Draft Revision 3, Installation-Wide Sampling and Analysis Plan (SAP). In areas where site access does not permit the use of a hollow-stem auger rig, the samples will be collected using a stainless steel hand auger as specified in Section 5.1.1.2 and Section 6.1.1.1 of the SAP (IT, 2002). Collected soil samples will be screened using a photoionization detector (PID) in accordance with Section 6.8.3 of the SAP. Surface soil samples will be screened for information purposes only and not to select samples for analysis. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are discussed in Chapter 4.0 and listed in Table 4-1 of the quality assurance plan ([QAP] included in the SAP). Sample documentation and chain-of-custody (COC) will be recorded as specified in Chapter 6.0 of the SAP. The samples will be analyzed for the parameters listed in Table 2 of this SFSP, using the methods presented in Table 4.

### **Subsurface Soil Samples**

Subsurface soil samples will be collected at the locations shown on Figures 2 and 3. The samples will be collected from soil borings at a depth greater than 1 foot below ground surface in the unsaturated zone. The soil borings will be advanced using a hollow-stem auger drill rig equipped with 4.25-inch inside diameter (ID) hollow-stem augers. Soil samples will be collected using a 24-inch or longer 2-inch ID split-spoon sampler in accordance with sections 5.1.1.3 and 6.1.1.1 of the SAP. The rationales for the sampling locations are presented in Table 1.

Soil samples will be collected continuously to 12 feet bgs and thereafter at 5-foot intervals to a maximum depth of approximately 100 feet bgs. At least one subsurface soil sample will be selected from the 1 to 12-foot interval for analysis. A second subsurface soil sample may be collected for VOC analysis from a depth greater than 12-feet bgs in the unsaturated zone if field screening results indicate the presence of organic vapors or fluids. The soil borings will be logged in accordance with American Standard for Testing and Materials Method D 2488 using the Unified Soil Classification System. The on-site geologist will record a detailed lithologic log for each borehole.

The collected subsurface soil samples will be field-screened using a flame ionization detector (FID) and PID to measure samples exhibiting elevated readings of organic vapors exceeding background (readings in ambient air). The sample will then be visually inspected by the on-site geologist for the presence of dense non-aqueous phase liquid (DNAPL). If DNAPL presence is

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suspected based on FID readings and visual examination, a hydrophobic dye soil-water shake test will be performed utilizing Sudan IV solvent dye. Sudan IV is a reddish-brown powder that dyes organic fluids red upon contact. The procedure for the soil-water shake test is as follows:

- A portion of the soil sample (approximately 4 ounces) will be placed in a 9-ounce clear glass jar and an equal amount of de-ionized water will be added.
- A minute amount (the amount that would rest on the edge of a toothpick, approximately 2 mg) of Sudan IV will be added to the jar containing the soil and water.
- The jar will then be sealed and shaken manually for 10 to 30 seconds, then inspected for a red fluid indicating DNAPL.

The subsurface soil sample indicating the presence of organic fluids or vapors will be selected and sent to the laboratory for analysis. If none of the samples indicate the presence of organic fluids, only the deepest sample from the 1 to 12-foot interval will be selected and submitted to the laboratory for analysis. If DNAPL is suspected, the suspected interval will be submitted for analysis and the boring may be advanced to determine the vertical extent of DNAPL. Sample documentation and COC will be recorded as specified in Chapter 6.0 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are discussed in Chapter 4.0 and listed in Table 4-1 of the QAP. The samples will be analyzed for the parameters listed in Table 2 of this SFSP, using the methods presented in Table 4. Following sample collection, the boreholes not completed as monitoring wells will be abandoned in accordance with Section 5.1.2 of the SAP.

#### **Angled Boring Procedure**

If UXO avoidance procedures prohibit soil-boring advancement at CWM-186-GP22 or CWM-186-GP23 and subsurface soil samples cannot be collected, the soil boring locations will be abandoned and relocated downslope (north) of the inferred disposal pit area and installed at an angle beneath the inferred disposal pit area shown on Figure 2. The angled borings for the subsurface soil samples will be drilled utilizing hollow-stem auger drilling methods and split spoon sampling. The drill rig shall be equipped with bracing to ensure the drill rig mast is secure and the drill angle is maintained. Furthermore, an auger guard shall be affixed to the drill rig to minimize the auger exposure above ground surface (Figure 4). The subsurface soil samples will be collected from an angled boring, drilled to approximately 15 feet below the estimated bottom of the inferred disposal pit (Figure 2).

Geophysical surveys conducted during the CWM EE/CA by Parsons Engineering Science, Inc. in 2001 identified two anomalies (inferred disposal pits) inside the fenced area at Training Area T-38. The maximum depth excavated during subsequent exploratory trenching in the inferred disposal pit area was 9.5 feet bgs. Based on this information, the target depth of each boring will be approximately 25 feet bgs beneath the ground surface of the approximate center of each inferred disposal pit.

The anomalies identified in the CWM EE/CA will be re-located in the field during UXO surface sweeps prior to staking the boring locations. The perimeter of the anomalies will be

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identified and marked by IT UXO personnel. The auger entry point will be established approximately 10 feet downslope of the perimeter of each anomaly and the mast on the drill rig will be positioned at an angle to advance the boring to the target depth (the estimated angle at which the mast shall be positioned is 45 degrees but may vary in the field for each boring location). The borings will be advanced at the estimated 45-degree angle to extend from approximately 35 to 40 feet beyond the auger entry point to meet the target depth of approximately 25 feet below the inferred disposal pit surface (Figure 4).

The angled boreholes will be drilled utilizing 4.25-inch inside diameter hollow-stem augers. A 24-inch long, 2-inch or larger diameter, split-spoon sampler will be used to collect soil samples. The purpose of the angled borings is to acquire soil samples beneath the inferred disposal pit area. Therefore, the auger will be advanced to within 10 feet of the estimated extent of the boring. Split-spoon samples will only be collected from the last 10 feet of the entire length of the angled boring. The on-site geologist will record a detailed lithologic log for each borehole. At least one subsurface soil sample from each borehole will be selected for analysis.

Because the boring will be advanced near an area of geophysical anomalies, down-hole UXO avoidance activities will be conducted the entire length of each angled boring. However, because of the angle, the down-hole UXO equipment may not freely extend to the end of the boring without pushing the tool to the end. Therefore, after the auger is advanced at two-foot intervals, the auger will be retracted a sufficient distance to minimize equipment interference, and 3-inch inner diameter (ID), threaded, flush-joint, PVC pipe or equivalent will be inserted into the boring to the length of the borehole. The down-hole surveying equipment will be inserted into the 3-inch ID PVC and gently pushed to the end of the borehole with a section of 1-inch ID, threaded, flush-joint, PVC pipe.

The soil samples will be field-screened using the procedure given above for subsurface soil sampling. The subsurface soil sample indicating the presence of organic fluids will be selected and sent to the laboratory for analysis. If none of the samples indicate the presence of organic fluids, the sample from directly beneath the inferred disposal pit area will be selected and submitted to the laboratory for analysis. Sample documentation and COC will be recorded as specified in Chapter 6.0 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are discussed in Chapter 4.0 and listed in Table 4-1 of the QAP. The samples will be analyzed for the parameters listed in Table 2 of this SFSP, using the methods presented in Table 4. Following sample collection, the boreholes will be abandoned in accordance with Section 5.1.2 of the SAP.

#### **Proposed Deep Residuum/Bedrock Monitoring Wells**

Five soil borings will be advanced and completed as deep residuum/bedrock monitoring wells. The proposed monitoring wells CWM-186-MW39, CWM-186-MW45, CWM-186-MW49, CWM-186-MW50, and CWM-186-MW51 will be drilled to approximately 160 feet bgs (Table 1). The monitoring wells will be drilled and installed using an air rotary drill rig equipped with a 7-7/8-inch air rotary or percussion bit. The compressor on the drill rig will be equipped with

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an air filter between the compressor and the drill bit. Air and water will be the only lubricants allowed during drilling operations.

During air rotary drilling activities, discrete groundwater samples will be collected at monitoring well locations utilizing a single- or double-packer system that allows 20-foot intervals to be isolated for sampling. Groundwater sample collection will begin 20 feet below the water table and continue at 20-foot intervals thereafter (e.g., 100 to 120 feet bgs, 120 to 140 feet bgs, etc.). The samples will be collected through a properly decontaminated submersible pump made of stainless steel and Teflon® such as Grundfos Rediflo-2™ or equivalent, affixed with a Teflon-coated polyethylene discharge line, and an inflatable packer located above the pump (to effectively seal off upper intervals). Prior to collecting a discrete groundwater sample, five volumes of water from the isolated sampling zone will be removed. The isolated sampling zone will be allowed to recharge for a maximum time period of one hour. If there is an insufficient volume of water to sample after one hour, the borehole will be advanced 20 feet and the discrete sampling procedure will be repeated. However, the one-hour recharge period may be extended at the discretion of the IT site manager. Groundwater samples will be collected from the sampling zone, screened for field parameters (pH, temperature, specific conductivity, dissolved oxygen, and oxidation-reduction potential), and a representative sample sent to an off-site laboratory for 24-hour turn-around for VOC analysis. Discrete groundwater sampling at 20-foot intervals will provide information on groundwater quality and will aid in determining the well screen placement. The discrete groundwater sampling data will be used for screening only, and will not be considered definitive; it will not be reported with data packages nor will it be validated. Instead, only laboratory certificate of analysis deliverables will be required. Discrete groundwater sampling methodology, outlined in Attachment 5, Procedure No. FTMC-GW-002 of the SAP, will be followed when collecting groundwater samples in competent bedrock.

At the completion of each boring, two-inch diameter monitoring wells will be installed. The well casing will consist of new 4-inch ID, Schedule 80, threaded, flush-joint, PVC pipe. Attached to the bottom of the well casing will be a section of new, threaded, flush-joint 0.010-inch continuous wrap PVC well screen, approximately 15 feet long. At the discretion of the IT Site Manager, an approximately 3- to 5-foot long sump, composed of new, 4-inch ID, Schedule 80, threaded, flush-joint PVC pipe may be attached to the bottom of the well screen. Stainless steel materials may be substituted for the PVC materials if the soil sample results indicate the presence of DNAPL. After the casing and screen materials are lowered into the boring, a filter pack will be installed around the well screen. The filter pack will be tremied into place from the bottom of the sump to approximately 5 feet above the top of the screen. The filter pack will consist of 20/40 silica sand. A fine sand layer (30/70 silica sand), approximately 5 feet thick, will be placed above the filter pack. A bentonite seal approximately 5 feet thick, will then be placed above the fine sand layer. The remaining annular space will be grouted with a bentonite-cement mixture, using approximately 7 to 8 gallons of water and approximately 5 pounds of bentonite per 94-pound bag of Type I or Type II Portland cement. The grout will be tremied into place with a side discharge tremie pipe from the top of the bentonite seal to ground surface. The deep residuum/bedrock monitoring wells will be completed and developed as specified in

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Appendix C of the SAP. Groundwater samples will not be collected from wells for a period of at least 14 days after well development.

### **Proposed Residuum Monitoring Wells**

Eleven of the soil borings will be advanced and completed as residuum monitoring wells. The proposed residuum monitoring well locations for Training Area T-38 are shown on Figures 2 and 3 and the rationale for each location is listed in Table 1. The monitoring well boreholes will be drilled to approximately 120 feet bgs (Table 1). The monitoring wells will be installed using a hollow-stem auger or air rotary drill rig mounted on a truck or all-terrain vehicle. The monitoring well casing will consist of new 4-inch inside diameter, Schedule 80, threaded, flush-joint, polyvinyl chloride pipe (PVC). Attached to the bottom of the well casing will be a section of new threaded, flush-joint, 0.010-inch continuous wrap polyvinyl chloride well screen, approximately 15 feet long. At the discretion of the IT site manager, a sump (composed of new, 4-inch ID, schedule 80, threaded, flush-joint PVC) may be attached to the bottom of the well screen. Stainless steel materials may be substituted for the PVC materials if the soil sample results indicate the presence of DNAPL. After the casing and screen materials are lowered into the boring, a filter pack will be installed around the well screen. The filter pack will be tremied into place from the bottom of the well to approximately five feet above the top of the well screen. The filter pack will consist of 20/40 silica sand. A fine sand layer (30/70 silica sand), approximately five feet thick, will be placed above the filter pack. A bentonite seal, approximately five feet thick, will be placed above the fine sand. The remaining annular space will be grouted with a bentonite-cement mixture, using approximately 7 to 8 gallons of potable water and approximately 5 pounds of bentonite per 94-pound bag of Type I or Type II Portland cement. The grout will be tremied into place from the top of the bentonite seal to ground surface.

The monitoring well will be drilled, installed, and developed as specified in Section 5.1 and Appendix C of the SAP. The exact monitoring well locations will be determined in the field by the on-site geologist, based on actual field conditions. After well development the monitoring well will be allowed to equilibrate for 14 days prior to sample collection.

### **Groundwater Sampling**

Following the completion of well installation and development activities, groundwater samples will be collected. The groundwater data collected from the wells will be considered definitive. The groundwater sampling rationale is provided in Table 1. The groundwater sample designations and required quality assurance/quality control (QA/QC) sample quantities are listed in Table 3. Groundwater samples will be collected in accordance with Section 5.2.6.2 of the Site-Specific Field Sampling Plan for the Supplemental Remedial Investigation, Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6), August 2000, and Section 6.1.1.5 of the SAP. Low-flow groundwater sampling methodology, outlined in Attachment 5, Procedure No. FTMC-GW-001 of the SAP, may be used as deemed necessary by the IT Site Manager. The groundwater samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, for the parameters listed in Table 4. Equipment decontamination procedures will follow the methodology presented in Section 6.5.1.1 of the SAP.

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The monitoring well locations and elevations will be surveyed following the methodology outlined in Section 5.4 of the Site-Specific Field Sampling Plan for the Supplemental Remedial Investigation, Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6), August 2000, and Section 4.17 of the SAP.

Investigative-derived waste generated during well installation and sampling will be managed in accordance with the procedures outlined in Appendix D of the SAP.

All work conducted during the Remedial Investigation at Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6), will be conducted in accordance with this Site-Specific Field Sampling Plan (SFSP), the revised UXO Safety Plan Addendum (presented with this SFSP) and the revised Site-Specific Safety and Health Plan (presented with this SFSP).

**Schedule**

The project schedule for the field activities will be provided by the IT project manager to the Base Realignment and Closure Cleanup Team.

I have distributed copies of this document according to the distribution list indicated below. If you have any questions, or need further information, please contact me at (770) 663-1429 or Josh Jenkins at (770) 667-7795.

Sincerely,



Jeanne A. Yacoub, P.E.  
Project Manager

Attachments

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Table 1

**Sample Locations and Rationale**  
**Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location	Sample Media	Sample Location Rationale
CWM-186-GP01	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the northwestern portion of the fenced area at Training Area T-38, between the two concrete pads located near the northern boundary of the fenced area. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP02	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the northern portion of the fenced area at Training Area T-38, approximately 85 feet northwest of concrete pad 4455. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP03	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the northern portion of the fenced area at Training Area T-38, approximately 10 feet southeast of concrete pad 4455 in an area of geophysical anomalies. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP04	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the central portion of the fenced area at Training Area T-38, approximately 40 feet northwest of the exploratory trenches and inferred disposal pit area. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the boring is approximately 100 feet below ground surface.
CWM-186-GP05	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the central portion of the fenced area at Training Area T-38, approximately 10 feet north of building number 4450. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP06	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the southern portion of the fenced area at Training Area T-38, approximately 130 feet east of building number 4456. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP07	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the southern portion of the fenced area at Training Area T-38, downslope (approximately 110 feet southeast) of storage area 4452. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP08	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the southern portion of the fenced area at Training Area T-38, approximately 10 feet east of grandstand/bleacher number 4468. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP09	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the central portion of the area of investigation at the suspected dumping area on the south flank of Parcel 186(6). Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.

Table 1

**Sample Locations and Rationale**  
**Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location	Sample Media	Sample Location Rationale
CWM-186-GP10	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the central portion of the fenced area at Training Area T-38. Surface and subsurface soil samples will be collected from the northernmost suspected disposal pit. Collection of subsurface soil samples at this location will be contingent upon UXO avoidance procedures. If location cannot be accessed due to UXO anomaly avoidance requirements, the boring location will be offset (downslope of the suspected disposal pit) and advanced at an angle beneath the suspected disposal pit. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP11	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the central portion of the fenced area at Training Area T-38. Surface and subsurface soil samples will be collected from the southernmost suspected disposal pit. Collection of subsurface soil samples at this location will be contingent upon UXO avoidance procedures. If location cannot be accessed due to UXO anomaly avoidance requirements, the boring location will be offset (downslope of the suspected disposal pit) and advanced at an angle beneath the suspected disposal pit. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP12	Subsurface soil	Soil boring for subsurface soil samples to be located in the northern portion of the fenced area at Training Area T-38, approximately 20 feet north of concrete pad 4455. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP13	Subsurface soil	Soil boring for subsurface soil samples to be located in the northern portion of the fenced area at Training Area T-38, near the northwestern corner of concrete pad 4455. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP14	Subsurface soil	Soil boring for subsurface soil samples to be located in the northern portion of the fenced area at Training Area T-38, downslope (approximately 50 feet east) of concrete pad 4455, in an area of geophysical anomalies. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-GP15	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples to be located in the northern portion of the fenced area at Training Area T-38, downslope (approximately 10 feet east, equidistant between CWM-186-GP03 and CWM-186-MW40) of concrete pad 4455, in an area of geophysical anomalies. Sample data will indicate if contaminant releases into the environment have occurred from the use of this area and if contaminated media exist at this site. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The target depth of the soil boring is approximately 100 feet below ground surface.
CWM-186-MW39	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the northeastern portion of the fenced area at Training Area T-38, approximately 25 feet southwest of the northeastern corner of the fenced area. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. Discrete groundwater samples will be collected at 20-foot intervals to aid in the placement of the well screen. The anticipated completion depth of the well is 160 feet below ground surface.

Table 1

**Sample Locations and Rationale  
Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Media	Sample Location Rationale
CWM-186-MW40	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the northern portion of the fenced area at Training Area T-38, approximately 10 feet east of concrete pad 4455, in an area of geophysical anomalies. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW41	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the northern portion of the fenced area at Training Area T-38, approximately 45 feet southwest of concrete pad 4455. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW42	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the northern portion of the fenced area at Training Area T-38, approximately 20 feet north of storage area 4454. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW43	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located in the central portion of the fenced area at Training Area T-38, downgradient (approximately 10 feet north) of the inferred disposal pit area and exploratory trenches. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW44	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located in the central portion of the fenced area at Training Area T-38, just outside of the boundary of the southern inferred disposal pit area and exploratory trenches (approximately 50 west of mess shelter 4461). Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW45	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the central portion of the fenced area at Training Area T-38, approximately 20 feet east of storage area 4453. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. Discrete groundwater samples will be collected at 20-foot intervals to aid in the placement of the well screen. The anticipated completion depth of the well is 160 feet below ground surface.
CWM-186-MW46	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the central portion of the fenced area at Training Area T-38, approximately 10 feet northeast of grandstand/bleacher 4462. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.

Table 1

**Sample Locations and Rationale  
Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location	Sample Media	Sample Location Rationale
CWM-186-MW47	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the southern portion of the fenced area at Training Area T-38, approximately 30 feet southeast of storage area 4452. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW48	Surface soil Subsurface soil and Groundwater	Soil boring for surface soil, subsurface soil, and groundwater samples to be located in the southern portion of the fenced area at Training Area T-38, approximately 20 feet southwest of grandstand/bleacher 4467. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW49	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located downgradient of the fenced area and geophysical anomalies at Training Area T-38, approximately 170 feet northeast of concrete pad 4455. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. Discrete groundwater samples will be collected at 20-foot intervals to aid in the placement of the well screen. The anticipated completion depth of the well is 160 feet below ground surface.
CWM-186-MW50	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located downgradient of the fenced area and geophysical anomalies at Training Area T-38, approximately 90 feet east of the inferred disposal pit area and exploratory trenches. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. Discrete groundwater samples will be collected at 20-foot intervals to aid in the placement of the well screen. The anticipated completion depth of the well is 160 feet below ground surface.
CWM-186-MW51	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located downgradient of the fenced area at Training Area T-38, approximately 185 feet east of storage area 4452. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. Discrete groundwater samples will be collected at 20-foot intervals to aid in the placement of the well screen. The anticipated completion depth of the well is 160 feet below ground surface.
CWM-186-MW52	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located downgradient of the fenced area and geophysical anomalies at Training Area T-38, approximately 20 feet east of the southeastern corner of the fenced area. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.
CWM-186-MW53	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located downgradient of the fenced area and geophysical anomalies at Training Area T-38, approximately 70 feet southwest of grandstand/bleacher 4468. Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.

Table 1

**Sample Locations and Rationale**  
**Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)**  
**Fort McClellan, Calhoun County, Alabama**

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Sample Location	Sample Media	Sample Location Rationale
CWM-186-MW54	Subsurface soil and Groundwater	Soil boring for subsurface soil and groundwater samples to be located in the southern portion of the area of investigation at the suspected dumping area located on the south flank of Parcel 186(6). Sample data will indicate if contaminant releases into the environment have occurred from former activities at this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes. The monitoring well location will be used to establish a local groundwater flow direction and site-specific geology, and provide information on groundwater quality in the residuum aquifer. The anticipated completion depth of the well is 120 feet below ground surface.

Table 2

**Soil Sample Designations and Analytical Parameters  
Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples		Analytical Suite
			Field Duplicates	MS/MSD	
CWM-186-GP01	CWM-186-GP01-SS-TA0042-REG CWM-186-GP01-DS-TA0043-REG CWM-186-GP01-DS-TA0044-REG	0-1 1-12 12-a*		CWM-186-GP01-SS-TA0042-MS/MSD	TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP02	CWM-186-GP02-SS-TA0045-REG CWM-186-GP02-DS-TA0046-REG CWM-186-GP02-DS-TA0048-REG	0-1 1-12 12-a*	CWM-186-GP02-DS-TA0047-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP03	CWM-186-GP03-SS-TA0049-REG CWM-186-GP03-DS-TA0050-REG CWM-186-GP03-DS-TA0051-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP04	CWM-186-GP04-SS-TA0052-REG CWM-186-GP04-DS-TA0053-REG CWM-186-GP04-DS-TA0054-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP05	CWM-186-GP05-SS-TA0055-REG CWM-186-GP05-DS-TA0056-REG CWM-186-GP05-DS-TA0057-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP06	CWM-186-GP06-SS-TA0058-REG CWM-186-GP06-DS-TA0059-REG CWM-186-GP06-DS-TA0060-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP07	CWM-186-GP07-SS-TA0061-REG CWM-186-GP07-DS-TA0062-REG CWM-186-GP07-DS-TA0063-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, Explosives, and CWM BD Products (contingency deep soil - TCL VOCs only)
CWM-186-GP08	CWM-186-GP08-SS-TA0064-REG CWM-186-GP08-DS-TA0066-REG CWM-186-GP08-DS-TA0067-REG	0-1 1-12 12-a*	CWM-186-GP08-SS-TA0065-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP09	CWM-186-GP09-SS-TA0068-REG CWM-186-GP09-DS-TA0069-REG CWM-186-GP09-DS-TA0070-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP10	CWM-186-GP10-SS-TA0071-REG CWM-186-GP10-DS-TA0072-REG CWM-186-GP10-DS-TA0073-REG	0-1 1-12 12-a*		CWM-186-GP10-DS-TA0072-MS/MSD	TCL VOCs, TCL SVOCs, TAL Metals, Explosives, CWM BD Products, and Dioxin (contingency deep soil - TCL VOCs only)
CWM-186-GP11	CWM-186-GP11-SS-TA0074-REG CWM-186-GP11-DS-TA0075-REG CWM-186-GP11-DS-TA0077-REG	0-1 1-12 12-a*	CWM-186-GP11-DS-TA0076-FD		TCL VOCs, TCL SVOCs, TAL Metals, Explosives, CWM BD Products, and Dioxin (contingency deep soil - TCL VOCs only)

Table 2

**Soil Sample Designations and Analytical Parameters  
Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

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Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples		Analytical Suite
			Field Duplicates	MS/MSD	
CWM-186-GP12	CWM-186-GP12-DS-TA0078-REG CWM-186-GP12-DS-TA0079-REG	1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP13	CWM-186-GP13-DS-TA0080-REG CWM-186-GP13-DS-TA0082-REG	1-12 12-a*	CWM-186-GP13-DS-TA0081-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP14	CWM-186-GP14-DS-TA0083-REG CWM-186-GP14-DS-TA0084-REG	1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-GP15	CWM-186-GP15-SS-TA0085-REG CWM-186-GP15-DS-TA0086-REG CWM-186-GP15-DS-TA0087-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, Explosives, and CWM BD Products (contingency deep soil - TCL VOCs only)
CWM-186-MW39	CWM-186-MW39-SS-TA0088-REG CWM-186-MW39-DS-TA0089-REG CWM-186-MW39-DS-TA0090-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW40	CWM-186-MW40-SS-TA0091-REG CWM-186-MW40-DS-TA0093-REG CWM-186-MW40-DS-TA0094-REG	0-1 1-12 12-a*	CWM-186-MW40-SS-TA0092-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW41	CWM-186-MW41-SS-TA0095-REG CWM-186-MW41-DS-TA0096-REG CWM-186-MW41-DS-TA0097-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW42	CWM-186-MW42-SS-TA0098-REG CWM-186-MW42-DS-TA0099-REG CWM-186-MW42-DS-TA0100-REG	0-1 1-12 12-a*		CWM-186-MW42-DS-TA0099-MS/MSD	TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW43	CWM-186-MW43-DS-TA0101-REG CWM-186-MW43-DS-TA0102-REG	1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW44	CWM-186-MW44-DS-TA0103-REG CWM-186-MW44-DS-TA0105-REG	1-12 12-a*	CWM-186-MW44-DS-TA0104-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW45	CWM-186-MW45-SS-TA0106-REG CWM-186-MW45-DS-TA0107-REG CWM-186-MW45-DS-TA0108-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)

Table 2

**Soil Sample Designations and Analytical Parameters  
Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

Page 3 of 3

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples		Analytical Suite
			Field Duplicates	MS/MSD	
CWM-186-MW46	CWM-186-MW46-SS-TA0109-REG CWM-186-MW46-DS-TA0110-REG CWM-186-MW46-DS-TA0111-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, Explosives, and CWM BD Products (contingency deep soil - TCL VOCs only)
CWM-186-MW47	CWM-186-MW47-SS-TA0112-REG CWM-186-MW47-DS-TA0113-REG CWM-186-MW47-DS-TA0114-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW48	CWM-186-MW48-SS-TA0115-REG CWM-186-MW48-DS-TA0116-REG CWM-186-MW48-DS-TA0117-REG	0-1 1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, Explosives, and CWM BD Products (contingency deep soil - TCL VOCs only)
CWM-186-MW49	CWM-186-MW49-DS-TA0118-REG CWM-186-MW49-DS-TA0120-REG	1-12 12-a*	CWM-186-MW49-DS-TA0119-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW50	CWM-186-MW50-DS-TA0121-REG CWM-186-MW50-DS-TA0122-REG	1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW51	CWM-186-MW51-DS-TA0123-REG CWM-186-MW51-DS-TA0124-REG	1-12 12-a*		CWM-186-MW51-DS-TA0123-MS/MSD	TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW52	CWM-186-MW52-DS-TA0125-REG CWM-186-MW52-DS-TA0127-REG	1-12 12-a*	CWM-186-MW52-DS-TA0126-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW53	CWM-186-MW53-DS-TA0128-REG CWM-186-MW53-DS-TA0129-REG	1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)
CWM-186-MW54	CWM-186-MW53-DS-TA0130-REG CWM-186-MW54-DS-TA0131-REG	1-12 12-a*			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives (contingency deep soil - TCL VOCs only)

<sup>a</sup> Actual sample depth selected for analysis will be at the discretion of the site geologist and will be based on field observation.

\* Contingency sample may be collected based on field screening results.

CWM BD - Chemical warfare material break down.

Explosives - Nitroaromatic and Nitramine.

FD - Field duplicate.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

REG - Field sample.

SVOCs - Semivolatile organic compounds.

TAL - Target analyte list.

TCL - Target compound list.

VOCs - Volatile organic compounds.

**Table 3**

**Ground Water Sample Designation and Analytical Parameters  
Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

Page 1 of 2

Sample Location	Sample Designation	Sample Matrix	QA/QC Samples		Analytical Suite
			Field Duplicates	MS/MSD	
CWM-186-MW39	CWM-186-MW39-GW-TA3052-REG	Groundwater		CWM-186-MW39-GW-TA3052-MS/MSD	TCL VOCs, TCL SVOCs, TAL Metals, Explosives, CWM BD products, and Dioxin
CWM-186-MW40	CWM-186-MW40-GW-TA3053-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW41	CWM-186-MW41-GW-TA3054-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW42	CWM-186-MW42-GW-TA3055-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW43	CWM-186-MW43-GW-TA3056-REG	Groundwater	CWM-186-MW43-GW-TA3057-FD		TCL VOCs, TCL SVOCs, TAL Metals, Explosives, CWM BD products, and Dioxin
CWM-186-MW44	CWM-186-MW44-GW-TA3058-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW45	CWM-186-MW45-GW-TA3059-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW46	CWM-186-MW46-GW-TA3060-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW47	CWM-186-MW47-GW-TA3061-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, Explosives, CWM BD products, and Dioxin
CWM-186-MW48	CWM-186-MW48-GW-TA3062-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives

**Table 3**

**Ground Water Sample Designation and Analytical Parameters  
Remedial Investigation (Source Area), Training Area T-38, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

Page 2 of 2

Sample Location	Sample Designation	Sample Matrix	QA/QC Samples		Analytical Suite
			Field Duplicates	MS/MSD	
CWM-186-MW49	CWM-186-MW49-GW-TA3063-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW50	CWM-186-MW50-GW-TA3064-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW51	CWM-186-MW51-GW-TA3065-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW52	CWM-186-MW52-GW-TA3066-REG	Groundwater	CWM-186-MW52-GW-TA3067-FD		TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW53	CWM-186-MW53-GW-TA3068-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives
CWM-186-MW54	CWM-186-MW54-GW-TA3069-REG	Groundwater			TCL VOCs, TCL SVOCs, TAL Metals, and Explosives

CWM BD - Chemical warfare material break down.  
Explosives - Nitroaromatic and Nitramine.  
FD - Field duplicate.  
MS/MSD - Matrix spike/matrix spike duplicate.  
QA/QC - Quality assurance/quality control.  
REG - Field sample.

SVOCs - Semivolatile organic compounds.  
TAL - Target analyte list.  
TCL - Target compound list.  
VOCs - Volatile organic compounds.

Table 4

**Analytical Samples  
Remedial Investigation (Source Area),  
Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6)  
Fort McClellan, Calhoun County, Alabama**

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples <sup>a</sup>				EMAX Total No. Analysis	
				No. of Sample Points	No. of Events	No. of Field Samples	Field Dups (10%)	MS/MSD (5%)	Trip Blank (1/ship)	Eq. Rinse (1/wk/matrix)		
<b>Parcel 186(6): 16 water matrix sample (16 groundwater samples) and 82 soil matrix samples (20 surface and 31 subsurface soil, 31 contingency samples)</b>												
<b>All samples will be analyzed for the following parameters:</b>												
TCL VOCs	8260B	soil	normal	82	1	82	8	4	0	1	99	
TCL SVOCs	8270C	soil	normal	51	1	51	5	3	0	1	63	
Explosives	8330	soil	normal	51	1	51	5	3	0	1	63	
TAL Metals	6010B/7000	soil	normal	51	1	51	5	3	0	1	63	
CWM Breakdown	8270M/8321	soil	normal	12	1	12	1	1	0	1	16	
Dioxin	8290	soil	normal	4	1	4	1	1	0	1	8	
Explosives	8330	water	normal	16	1	16	2	1	1	1	22	
TAL Metals	6010B/7000	water	normal	16	1	16	2	1	1	1	22	
TCL VOCs	8260B	water	normal	16	1	16	2	1	1	1	22	
TCL SVOCs	8270C	water	normal	16	1	16	2	1	1	1	22	
CWM Breakdown	8270M/8321	water	normal	3	1	3	1	1	1	1	8	
Dioxin	8290	water	normal	3	1	3	1	1	1	1	8	
<b>Parcel 186(6) Subtotal:</b>				<b>182</b>	<b>20</b>	<b>12</b>	<b>4</b>	<b>8</b>	<b>4</b>	<b>8</b>	<b>238</b>	

<sup>a</sup>Field duplicate, QA split, and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded to the nearest whole number. Trip blank samples will be collected with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that last more than 1 week.

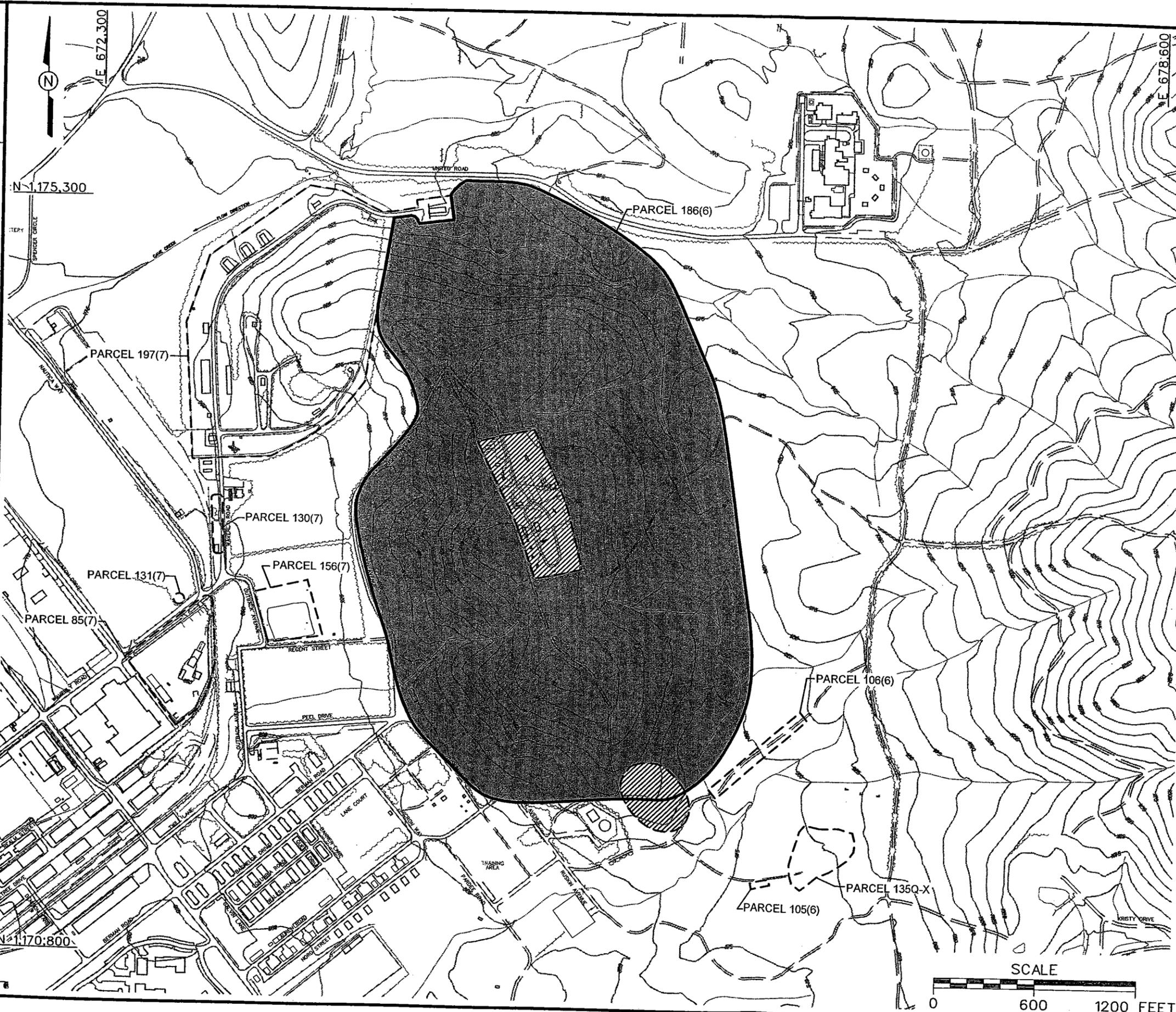
MS/MSD - Matrix spike/matrix spike duplicate.  
Explosives - Nitroaromatic and Nitramine.  
QA/QC - Quality assurance/quality control.  
SVOCs - Semivolatile organic compounds.  
CWM - Chemical warfare material breakdown products.

TAL - Target analyte list.  
TAT - Turn-around time  
TCL - Target compound list.  
VOCs - Volatile organic compounds.

Ship samples to: EMAX Laboratories, Inc.  
1835 205th Street  
Torrance, CA 90501  
Attn: Elizabeth McIntyre  
Tel: 310-618-8889  
Fax: 310-618-0818

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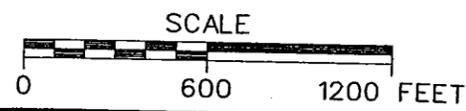
STARTING DATE: 08/22/02	DATE: 08/22/02	REV.: L	DRAFT. CHCK. BY: S. MORAN	INITIATOR: N. BADON	DWG. NO.: \796887.es.519
DRAWN BY: D. BOMAR	DRAWN BY: D. BOMAR		ENGR. CHCK. BY: J. YACOUB	PROJ. MGR.: J. YACOUB	PROJ. NO.: 796887



- LEGEND**
- UNIMPROVED ROADS AND PARKING
  - PAVED ROADS AND PARKING
  - BUILDING
  - TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 25 FOOT)
  - TREES / TREELINE
  - PARCEL BOUNDARY
  - AREA OF INVESTIGATION
  - SURFACE DRAINAGE / CREEK
  - MANMADE SURFACE DRAINAGE FEATURE
  - FENCE
  - RAILROAD
  - UTILITY POLE
  - TRENCH

**FIGURE 1**  
**SITE MAP**  
 TRAINING AREA T-38  
 FORMER TECHNICAL ESCORT  
 REACTION AREA  
 PARCEL 186(6)

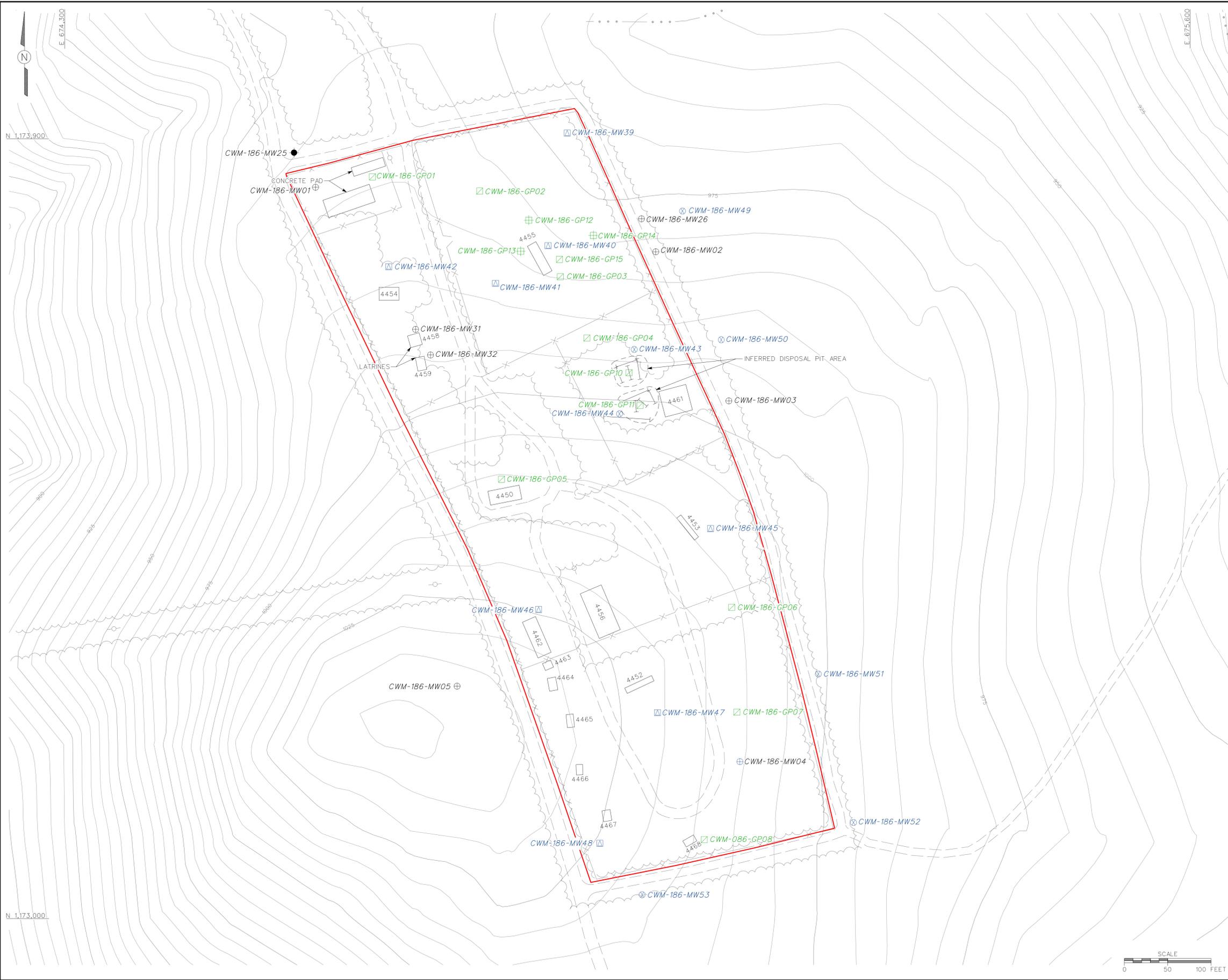
U. S. ARMY CORPS OF ENGINEERS  
 MOBILE DISTRICT  
 FORT McCLELLAN  
 CALHOUN COUNTY, ALABAMA  
 Contract No. DACA21-96-D-0018



**IT CORPORATION**  
*A Member of The IT Group*

STARTING DATE: 01/09/02 DATE LAST REV.: DRAFT, CHECK BY: J. JENKINS DWG. NO.: 796887.es.297  
 DRAWN BY: D. BOMAR ENGR. CHECK BY: S. MORAN PROJ. MGR.: J. YACUBU PROJ. NO.: 796887

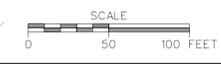
10/19/02 08:27:18 AM  
 c:\cadd\design\view\796887.es.297



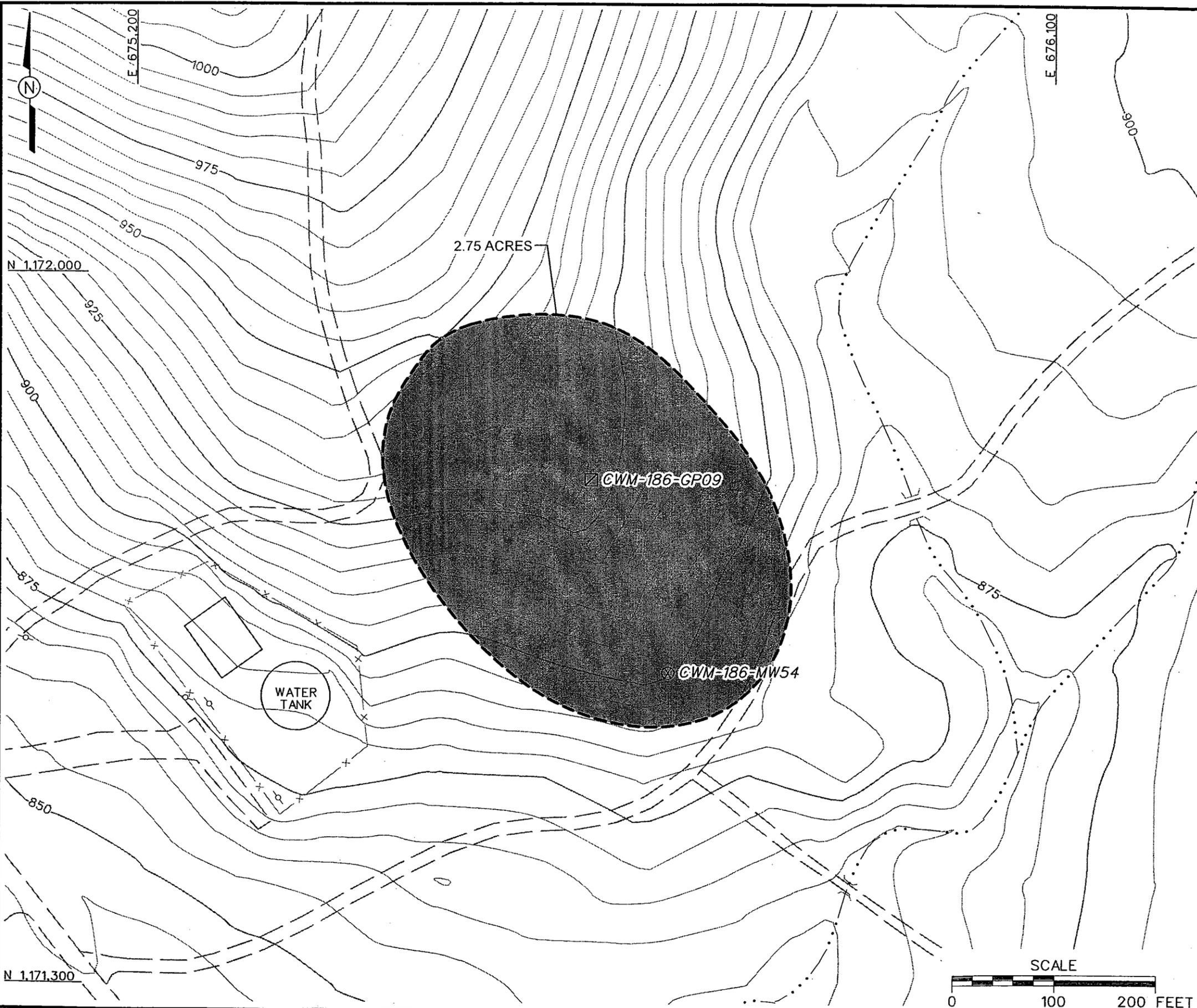
- LEGEND:**
- UNIMPROVED ROADS AND PARKING
  - BUILDING
  - TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
  - TREES / TREELINE
  - AREA OF INVESTIGATION
  - FENCE
  - UTILITY POLE
  - EXPLORATORY TRENCH (PARSONS ENGINEERING SCIENCE, INC., OCT 25, 2001, DRAFT EE/CA)
  - EXISTING BEDROCK MONITORING WELL LOCATION
  - EXISTING RESIDUUM MONITORING WELL LOCATION
  - PROPOSED SUBSURFACE SOIL SAMPLE LOCATION
  - PROPOSED SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION
  - PROPOSED GROUNDWATER AND SUBSURFACE SOIL SAMPLE LOCATION
  - PROPOSED GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION

**FIGURE 2**  
 PROPOSED SOURCE AREA  
 SAMPLE LOCATIONS  
 TRAINING AREA T-38, FORMER  
 TECHNICAL ESCORT REACTION AREA  
 PARCEL 186(6)

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



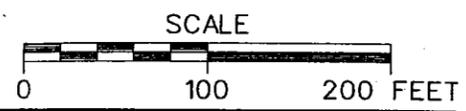
DWG. NO.: J887es.520  
 PROJ. NO.: 796887  
 INITIATOR: N. BADON  
 PROJ. MGR.: J. YACOUB  
 DRAFT. CHCK. BY: S. MORAN  
 ENGR. CHCK. BY: S. MORAN  
 STARTING DATE: 08/22/02 DATE LAST  
 DRAWN BY: D. BOMAR  
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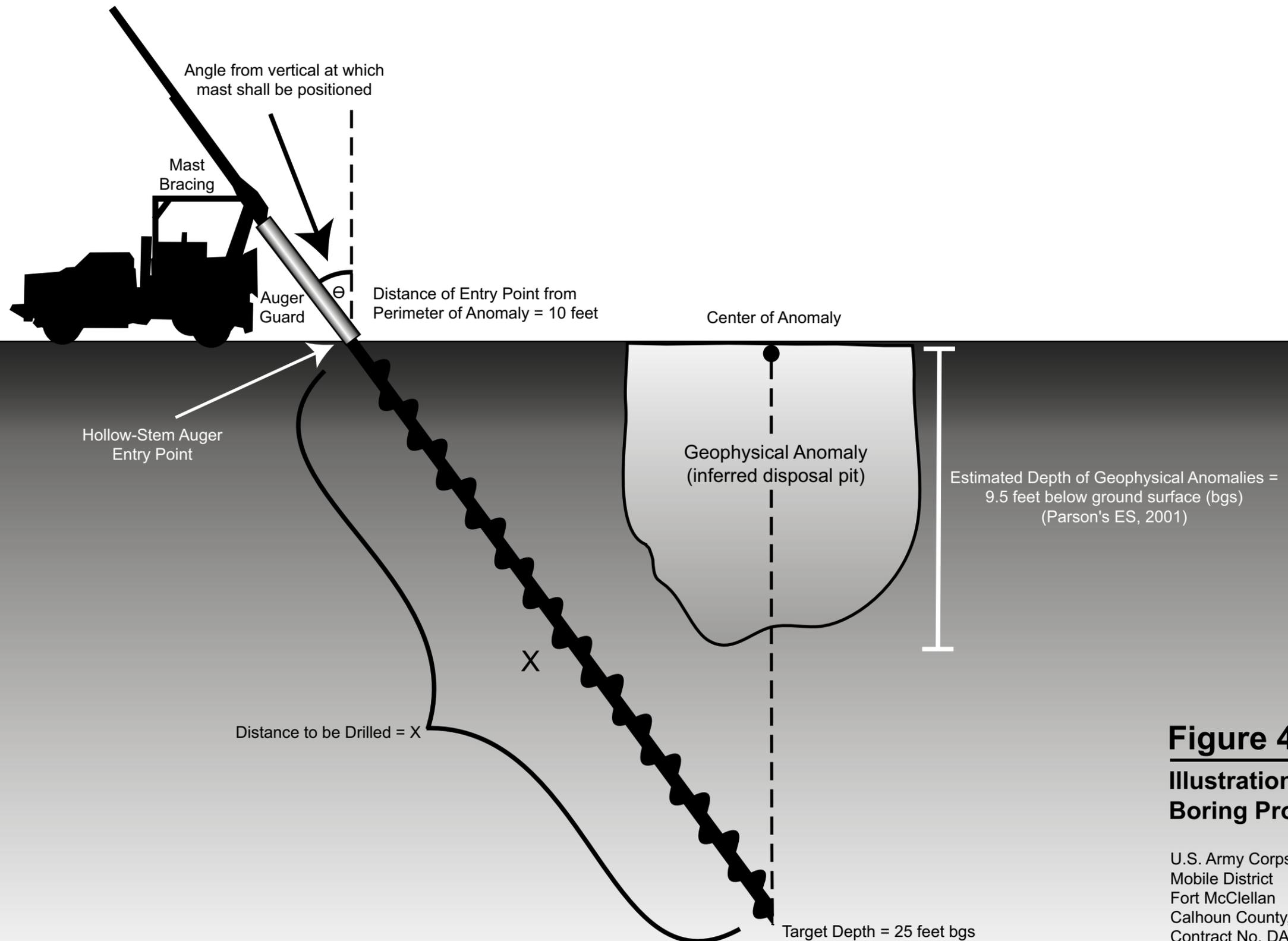


- LEGEND**
- UNIMPROVED ROADS AND PARKING
  - PAVED ROADS AND PARKING
  - BUILDING
  - TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
  - TREES / TREELINE
  - AREA OF INVESTIGATION
  - SURFACE DRAINAGE / CREEK
  - FENCE
  - UTILITY POLE
  - PROPOSED GROUNDWATER AND SUBSURFACE SOIL SAMPLE LOCATION
  - PROPOSED SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION

**FIGURE 3**  
 PROPOSED SAMPLE LOCATION MAP  
 DUMP ON SOUTH FLANK OF  
 TRAINING AREA T-38, FORMER  
 TECHNICAL ESCORT REACTION AREA  
 PARCEL 186(6)

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





**Figure 4**  
**Illustration of Angled Boring Procedure**

U.S. Army Corps of Engineers  
 Mobile District  
 Fort McClellan  
 Calhoun County, Alabama  
 Contract No. DACA21-96-D-0018



**Figure Not To Scale**

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