

March 6, 2002

IT-MC-CK05-0613
Project No. 774645

Mr. Ellis Pope
U.S. Army Corps of Engineers, Mobile District
Attn: CESAM-EN-GE (Pope)
109 St. Joseph Street
Mobile, AL 36602

**Contract: Contract No. DACA21-96-D-0018/CK05
Fort McClellan, Alabama**

**Subject: Site-Specific Work Plan for the Supplemental Remedial Investigation of Range
L - Lima Pond, Pelham Range, Parcel 204(7)**

Dear Mr. Pope:

This letter documents proposed field activities at Range L - Lima Pond, Parcel 204(7), as discussed in the December 2001 Base Realignment and Closure (BRAC) Cleanup Team (BCT) meeting.

Site Description and History

Range L - Lima Pond, Parcel 204(7), is located in training area 10B in the northwestern section of Pelham Range (Figure 1). Range L is approximately 0.5 acres in size and consists of a man-made pond (Lima Pond) secured by a 6-foot-high, chain-link fence with a single, locked access gate. Lima Pond is formed by a berm approximately 10-15 feet high. There are no streams that discharge into the pond. The pond water accumulates from rainfall; therefore, the water's depth depends on the frequency and quantity of precipitation and the rate of evaporation. The area surrounding Range L is wooded. There is an intermittent stream located approximately 400 feet west of Range L. The site was reportedly used for the disposal of unknown chemical munitions.

The date the berm was constructed around Lima Pond is unknown. A map from a 1955 U.S. Army Chemical School Lesson Plan shows a Chemical Obstacle Course located in training area 10B. One of the stations of the obstacle course appears as a large crater, meant to represent an atomic bomb crater. The mapped location of this crater coincides with the location of Range L. The Lesson Plan required five or six radioactive sources to be placed in or around this crater. The type and disposition of these sources is not known.

The direction of groundwater flow in the vicinity of Lima Pond is influenced by the surface topography and the subsurface materials encountered. The depth to groundwater at the site is approximately 25 feet bgs. The aquifer in the vicinity of the pond is formed predominantly from clayey sand residuum overlying fractured limestone.

Previous Investigations

Previous investigations conducted at Range L include a field survey performed by the Army and a limited site investigation (SI) and Remedial Investigation (RI) conducted by Science Applications International Corporation (SAIC).

The Army conducted a field survey of Range L to verify the presence or absence of traces of nerve, mustard, or cobalt substances using the Chemical Kit-M18AT, Radiac Set AN/PDR 27R, and Radiac Set-AN/PDR60. All results were negative. The field tests were completed at the water's edge, on the pond embankment, in a drainage ditch west of the pond, and at a number of presumed training sites north of the pond. In 1980 and 1982, the army collected surface soil and water samples at Range L for distilled mustard (HD), sarin (GB), and O-ethyl-S-[diisopropylaminoethyl]-[methylphosphonothiolate] (VX). All analytical results were reported below laboratory detection limits. Details of the sampling were not recorded.

SAIC conducted an SI in 1993 that consisted solely of reconnaissance geophysics. The purpose of the SI was to determine if materials were disposed of beneath the pond floor, and if present, to estimate the depth of the buried materials.

Pursuant to the recommendations of the SI report by SAIC, an RI was initiated that included additional geophysical surveying to detect metallic material; field screening of chemical warfare agents (CWA) (HD, GB, and VX) using a miniature continuous air monitoring system (MINICAMS); the installation of seven monitoring wells; and the collection and analysis of 11 surface and subsurface soil samples, four surface water/sediment samples, and seven groundwater samples for chemical analysis. The sediment, soil, surface water, and groundwater samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), explosive compounds, metals, and HD-, GB-, and VX-breakdown products. In addition, the surface water samples were analyzed for biological oxygen demand.

MINICAMS soil screening for HD, GB and VX was conducted on surface soil samples and on samples collected from drilled boreholes surrounding the site. CWAs were not detected above the instrumental baseline.

Surface and subsurface soil sample results indicated that SVOCs and metals were detected. The analytical results of sediment samples indicated the presence of non-target SVOCs, VOCs, metals, and dieldrin (a pesticide). The analytical results of surface water samples collected from both Lima Pond and a nearby stream indicated the presence of non-target SVOCs and one VOC (1,1,1-trichloroethane). In addition, pesticides, explosive compounds, and metals were detected in the surface water samples collected from Lima Pond. The results of the groundwater samples indicated the presence of pesticides, VOCs, SVOCs, PCBs, explosive compounds, and metals exceeding background concentrations. SAIC concluded that the groundwater underlying Range L contained very low levels of contaminants of concern and that remediation was unnecessary.

Proposed Reuse

The proposed future land reuse for the property is a training area for the Alabama National Guard (ANG). The investigative activities proposed in this work plan are necessary to meet the requirements of the memorandum of agreement (MOA) between the Department of the Army and the ANG.

Field Activities

IT proposes that six surface water and six sediment samples be collected at Range L. The samples will be collected by the Army Corps of Engineers-Huntsville during a concurrent investigation to determine if CWA-containing munitions are present at this site. The samples will be screened and analyzed for CWA by the USACE-Huntsville. Once the samples have been screened and determined free of CWA, IT will take custody of the samples and send them to the contracted laboratory for the analyses listed in Table 1.

The sediment samples will be collected at the same locations as the surface water samples. The proposed locations of these samples are shown on Figure 2. The final sampling locations will be determined in the field by the sampler(s), based on actual field observations and conditions.

Prior to collecting each surface water sample, field measurements of pH, temperature, dissolved oxygen, oxidation-reduction potential, conductivity, and turbidity will be collected. The field measurements will be recorded on each sample collection sheet. The surface water samples will be collected prior to collecting the sediment samples to ensure that sediment is not introduced into the surface water samples. The sampling program will be conducted prior to any intrusive work conducted for the CWA investigation.

IT will provide USACE-Huntsville with clean, decontaminated sampling equipment and all sample containers prior to sampling activities. Sample documentation and chain-of-custody must be recorded. The sediment sample designations and QA/QC sample requirements are listed in Table 1. The samples will be analyzed for the parameters listed in Tables 1 and 2.

Decontamination will be performed on sampling and non-sampling equipment before each use to prevent cross-contamination between sampling locations. Decontamination of sampling equipment and non-sampling equipment will be performed on shore.

At the completion of the field and analytical activities, a report will be prepared to evaluate whether potential site-specific chemicals are present at the site at concentrations that pose an unacceptable risk to human health or the environment. To evaluate the potential threat to human health and the environment, the analytical data will be compared to human health site-specific screening levels, ecological screening values, and background screening values established for Fort McClellan. The report will be prepared in accordance with current U.S. Environmental Protection Agency, Region IV, and Alabama Department of Environmental Management guidelines.

Mr. Ellis Pope
March 6, 2002
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Schedule

The project schedule for the supplemental RI activities will be provided by the IT Project Manager to the BCT.

I have distributed copies of this document according to the distribution list below. If you have any questions, or need further information, please contact me at (770) 663-1429 or contact Steve Moran at (865) 694-7361.

Sincerely,

Jeanne A. Yacoub, P.E.
Project Manager

Attachments

Distribution:

Lisa Kingsbury, Fort McClellan (7 copies, 1 CD)
Philip Stroud, ADEM (2 copies, 1 CD)
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Table 1

**Surface Water and Sediment Sample Designations and QA/QC Sample Quantities
Range L - Lima Pond, Pelham Range, Parcel 204(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Matrix	Sample Depth (ft)	QA/QC Samples		Analytical Suite	Quantity	Size	Units	Type	Preservative
				Field Duplicates	MS/MSD						
RLR-204-SW/SD01	RLR-204-SW/SD01-SW-MJ2001-REG	Surface Water	NA		RLR-204-SW/SD01-SW-MJ2001-MS/MSD	TCL VOCs	9	40	ml	VOA Vial	HCl, pH 2
						TCL SVOCs	6	1	L	Amber glass	NA
						TAL Metals	3	1	L	poly	HNO3, pH 2
						Nitroexplosives	6	1	L	Amber glass	NA
						CWM breakdown products	12	1	L	Amber glass	NA
	RLR-204-SW/SD01-SD-MJ1001-REG	Sediment	0-0.5		RLR-204-SW/SD01-SD-MJ1001-MS/MSD	Nitrate/Nitrite, Sulfate/Sulfite, TDS/TSS, Hardness	3	1	L	poly	NA
						TCL VOCs	9	5	g	EnCore	NA
						TCL SVOCs, Nitroexplosives, TCL Metals, TOC	3	8	oz	CW-Jar	NA
RLR-204-SW/SD02	RLR-204-SW/SD02-SW-MJ2002-REG	Surface Water	NA	RLR-204-SW/SD02-SW-MJ2003-FD		Grain Size	1	8	oz	CW-Jar	NA
						CWM breakdown products	3	8	oz	CW-Jar	NA
						TCL VOCs	6	40	ml	VOA Vial	HCl
						TCL SVOCs	4	1	L	Amber glass	HCl, pH 2
						TAL Metals	2	1	L	poly	NA
	RLR-204-SW/SD02-SD-MJ1002-REG	Sediment	0-0.5	RLR-204-SW/SD02-SD-MJ1003-FD		Nitroexplosives	4	1	L	Amber glass	HNO3, pH 2
						CWM breakdown products	8	1	L	Amber glass	NA
						Nitrate/Nitrite, Sulfate/Sulfite, TDS/TSS, Hardness	2	1	L	poly	NA
RLR-204-SW/SD03	RLR-204-SW/SD03-SW-MJ2004-REG	Surface Water	NA			TCL VOCs	6	5	g	EnCore	NA
						TCL SVOCs, Nitroexplosives, TCL Metals, TOC	2	8	oz	CW-Jar	NA
						Grain Size	2	8	oz	CW-Jar	NA
						CWM breakdown products	2	8	oz	CW-Jar	NA
						TCL VOCs	3	40	ml	VOA Vial	HCl, pH 2
	RLR-204-SW/SD03-SD-MJ1004-REG	Sediment	0-0.5			TCL SVOCs	2	1	L	Amber glass	NA
						TAL Metals	1	1	L	poly	HNO3, pH 2
						Nitroexplosives	2	1	L	Amber glass	NA
RLR-204-SW/SD04	RLR-204-SW/SD04-SW-MJ2005-REG	Surface Water	NA			CWM breakdown products	4	1	L	Amber glass	NA
						Nitrate/Nitrite, Sulfate/Sulfite, TDS/TSS, Hardness	1	1	L	poly	NA
						TCL VOCs	3	40	ml	VOA Vial	HCl, pH 2
						TCL SVOCs	2	1	L	Amber glass	NA
						TAL Metals	1	1	L	poly	HNO3, pH 2
	RLR-204-SW/SD04-SD-MJ1005-REG	Sediment	0-0.5			Nitroexplosives	2	1	L	Amber glass	NA
						CWM breakdown products	4	1	L	Amber glass	NA
						Nitrate/Nitrite, Sulfate/Sulfite, TDS/TSS, Hardness	1	1	L	poly	NA

Table 1

**Surface Water and Sediment Sample Designations and QA/QC Sample Quantities
Range L - Lima Pond, Pelham Range, Parcel 204(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Matrix	Sample Depth (ft)	QA/QC Samples		Analytical Suite	Quantity	Size	Units	Type	Preservative	
				Field Duplicates	MS/MSD							
	RLR-204-SW/SD04-SD-MJ1005-REG	Sediment	0-0.5			TCL VOCs	3	5	g	EnCore	NA	
						TCL SVOCs, Nitroexplosives, TCL Metals, TOC	1	8	oz	CW-Jar	NA	
						Grain Size	1	8	oz	CW-Jar	NA	
						CWM breakdown products	1	8	oz	CW-Jar	NA	
RLR-204-SW/SD05	RLR-204-SW/SD01-SW-MJ2006-REG	Surface Water	NA			TCL VOCs	3	40	ml	VOA Vial	HCl, pH 2	
						TCL SVOCs	2	1	L	Amber glass	NA	
						TAL Metals	1	1	L	poly	HNO3, pH 2	
						Nitroexplosives	2	1	L	Amber glass	NA	
	RLR-204-SW/SD01-SD-MJ1006-REG	Sediment	0-0.5				CWM breakdown products	4	1	L	Amber glass	NA
							Nitrate/Nitrite, Sulfate/Sulfite, TDS/TSS, Hardness	1	1	L	poly	NA
							TCL VOCs	3	5	g	EnCore	NA
							TCL SVOCs, Nitroexplosives, TCL Metals, TOC	1	8	oz	CW-Jar	NA
RLR-204-SW/SD06	RLR-204-SW/SD01-SW-MJ2007-REG	Surface Water	NA			Grain Size	1	8	oz	CW-Jar	NA	
						CWM breakdown products	1	8	oz	CW-Jar	NA	
						TCL VOCs	3	40	ml	VOA Vial	HCl, pH 2	
						TCL SVOCs	2	1	L	Amber glass	NA	
						TAL Metals	1	1	L	poly	HNO3, pH 2	
						Nitroexplosives	2	1	L	Amber glass	NA	
	RLR-204-SW/SD01-SD-MJ1007-REG	Sediment	0-0.5				CWM breakdown products	4	1	L	Amber glass	NA
							Nitrate/Nitrite, Sulfate/Sulfite, TDS/TSS, Hardness	1	1	L	poly	NA
							TCL VOCs	3	5	g	EnCore	NA
							TCL SVOCs, Nitroexplosives, TCL Metals, TOC	1	8	oz	CW-Jar	NA
						Grain Size	1	8	oz	CW-Jar	NA	
						CWM breakdown products	1	8	oz	CW-Jar	NA	

CWM - chemical warfare agent.
 CW-Jar - clear widemouth jar.
 FD - Field duplicate.
 ft - feet.
 HCl - hydrochloric acid.
 HNO3 - Nitric acid.

L - Liter.
 MS/MSD - Matrix spike/matrix spike duplicate.
 oz - ounce.
 NA - Not applicable.
 QA/QC - Quality assurance/quality control.
 REG - Field sample.

TAL - Target analyte list.
 TCL - Target compound list.
 TDS/TSS- Total dissolved solids/Total suspended solids.
 TOC - Total organic carbon.
 VOC - Volatile organic compound.

Table 2

**Analytical Sampling Plan
Site Investigation
Range L - Lima Pond, Pelham Range, Parcel 204(7)
Fort McClellan, Calhoun County, Alabama**

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples ^a				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)		
Range L-Lima Pond, Parcel 204: 6 surface water and 6 sediment samples												
TCL VOCs	8260B	water	normal	6	1	6	1	1	2	1	12	
TCL SVOCs	8270C	water	normal	6	1	6	1	1		1	10	
TAL Metals	6010B/7000	water	normal	6	1	6	1	1		1	10	
Nitroexplosives	8330	water	normal	6	1	6	1	1		1	10	
CWM BD Products	8321/8270M	water	normal	6	1	6	1	1		1	10	
Dis. TAL Metals	6010B/7000	water	normal	6	1	6	1	1		1	10	
Nitrate/Nitrite	353.1	water	normal	6	1	6	1				7	
Sulfate/Sulfite	300/376.1	water	normal	6	1	6	1				7	
Hardness	130.2	water	normal	6	1	6	1				7	
TDS/TSS	160.1/160.2	water	normal	6	1	6	1				7	
TCL VOCs	8260B	sediment	normal	6	1	6	1	1		1	10	
TCL SVOCs	8270C	sediment	normal	6	1	6	1	1		1	10	
TAL Metals	6010B/7000	sediment	normal	6	1	6	1	1		1	10	
Nitroexplosives	8330	sediment	normal	6	1	6	1	1		1	10	
CWM BD Products	8321/8270M	sediment	normal	6	1	6	1	1		1	10	
TOC	9060	sediment	normal	6	1	6					6	
Grain Size	ASTM421/422	sediment	normal	6	1	6					6	
Range L-Lima Pond, Parcel 204							102	15	11	2	11	152

^aField duplicate 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 in association with water matrix samples for VOC analysis only. Equipment rinsate blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used.

ASTM- American Society for Testing and Materials.

BD - Breakdown.

CWM- chemical warfare material.

Dis. - dissolved.

Dups - duplicates.

Eq. Rinse - Equipment rinse blank.

MS/MSD - Matrix spike/matrix spike duplicate.

No. - number.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TAT- Turn-around time.

TCL - Target compound list.

TDS/TSS - Total dissolved solids/Total suspended solids.

TOC - Total organic carbon.

USACE- U.S. Army Corps of Engineers.

VOC - Volatile organic compound.

QA/QC - Quality assurance.

Ship samples to: EMAX Laboratories, Inc

1835 205th Street

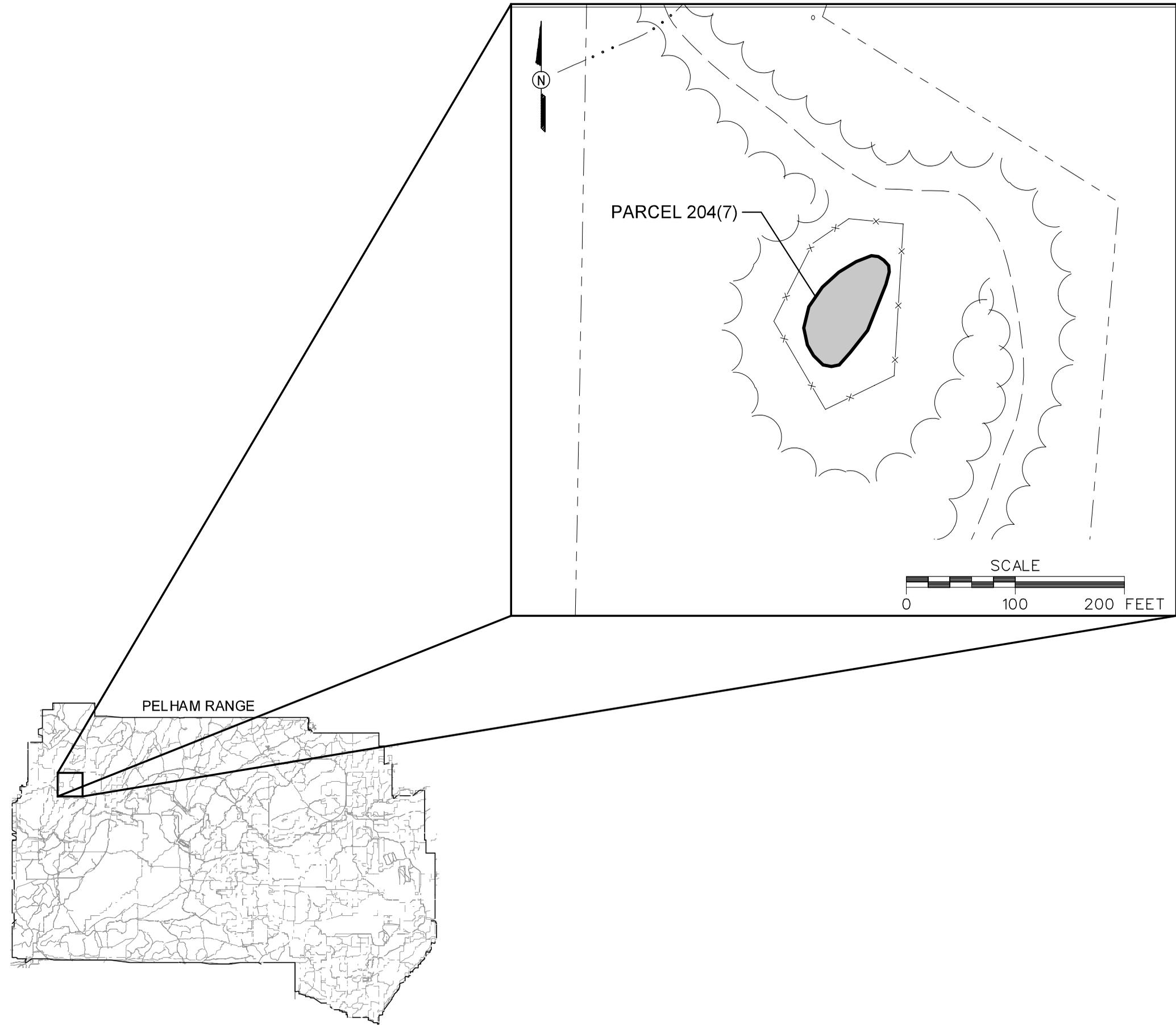
Torrance, CA 90501

Attn: Elizabeth McIntyre

Tel: 424-618-8889

Fax: 424-618-0818

DWG. NO.: ... \774645es.726
 PROJ. NO.: 774645
 INITIATOR: J. JENKINS
 PROJ. MGR.: J. YACOUB
 DRAFT. CHCK. BY:
 ENGR. CHCK. BY: J. JENKINS
 DATE LAST REV.:
 DRAWN BY:
 STARTING DATE: 02/06/01
 DRAWN BY: D. BOMAR
 03/06/02
 10:17:46 AM
 DBILLING
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LEGEND

- - - - UNIMPROVED ROADS
- PAVED ROADS
- BUILDING
- ⊖ TREES / TREELINE
- ▬ PARCEL BOUNDARY
- ⊗ FENCE

FIGURE 1
SITE LOCATION MAP
LIMA POND - RANGE L
PARCEL 204(7)

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



DWG. NO.: ... \774645es.727
 PROJ. NO.: 774645
 INITIATOR: J. BOND
 PROJ. MGR.: J. YACOUB
 DRAFT. CHCK. BY:
 ENGR. CHCK. BY: S. MORAN
 DATE LAST REV.:
 DRAWN BY:
 STARTING DATE: 09/24/01
 DRAWN BY: D. BOMAR
 10/23/01
 09:37:12 AM
 DBILLING
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N 1,177,000
 E 605,700
 N 1,176,600
 E 606,200

- LEGEND**
-  UNIMPROVED ROADS AND PARKING
 -  BUILDING
 -  TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
 -  TREES / TREELINE
 -  PARCEL BOUNDARY
 -  SURFACE DRAINAGE / CREEK
 -  FENCE
 -  PROPOSED SURFACE WATER/SEDIMENT SAMPLE LOCATION

PARCEL 204(7)

-  RLR-204-SW/SD01
-  RLR-204-SW/SD02
-  RLR-204-SW/SD03
-  RLR-204-SW/SD04
-  RLR-204-SW/SD05
-  RLR-204-SW/SD06

FIGURE 2
PROPOSED SAMPLE LOCATIONS
LIMA POND - RANGE L
PARCEL 204(7)

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

