Final

Remedial Work Plan
Former Washrack, Building 1740,
Soldier's Chapel, Parcel 127(7)
Fort McClellan
Calhoun County, Alabama

Prepared for:

U.S. Army Corps of Engineers, Mobile District
109 Saint Joseph Street
Mobile, Alabama 36602

Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923

Task Order CK10
Contract No. DACA21-96-D-0018
IT Project No. 774645

October 2001

Table of Contents

Page

List of Figures ii
List of Acronyms iii
1.0 Introduction 1
2.0 Soil Sampling 1
3.0 Delineation 1
4.0 Excavation Plan 1
4.1 Excavation 2
4.2 Confirmation Sampling 2
4.3 Stockpiling 3
4.4 Loadout 3
4.5 Backfill 4
5.0 Health and Safety 5
Attachment 1 - Acronym List
Attachment 2 – Standard Operating Procedures
Attachment 3 - Site-Specific Safety and Health Plan

List of Figures

Figure	Title	Follows Page
1	Site Location Map	1
2	Sample Location Map, Supplemental Site Investigation	1
3	Copper Contamination in Surface and Depositional Soils	1
4	Lead Contamination in Surface and Depositional Soils	1
5	Mercury Concentration in Surface Soil	1
6	Summary of Metal Concentrations Exceeding SSSLs in Surface and Depositional Soils	1

List of Acronyms

Please see Attachment 1, List of Abbreviations and Acronyms.

1.0 Introduction

This work plan describes the activities required to remove lead, mercury and copper contaminated soil at the Former Washrack, Building 1740 Soldier's Chapel Parcel 127(7), Fort McClellan (Figure 1). The parcel consists of Soldier's Chapel, a concrete paved area and grassy area. IT Corporation (IT) has previously conducted a site investigation (SI) of the property and identified the vertical and horizontal extent of metals contaminated soil.

2.0 Soil Sampling

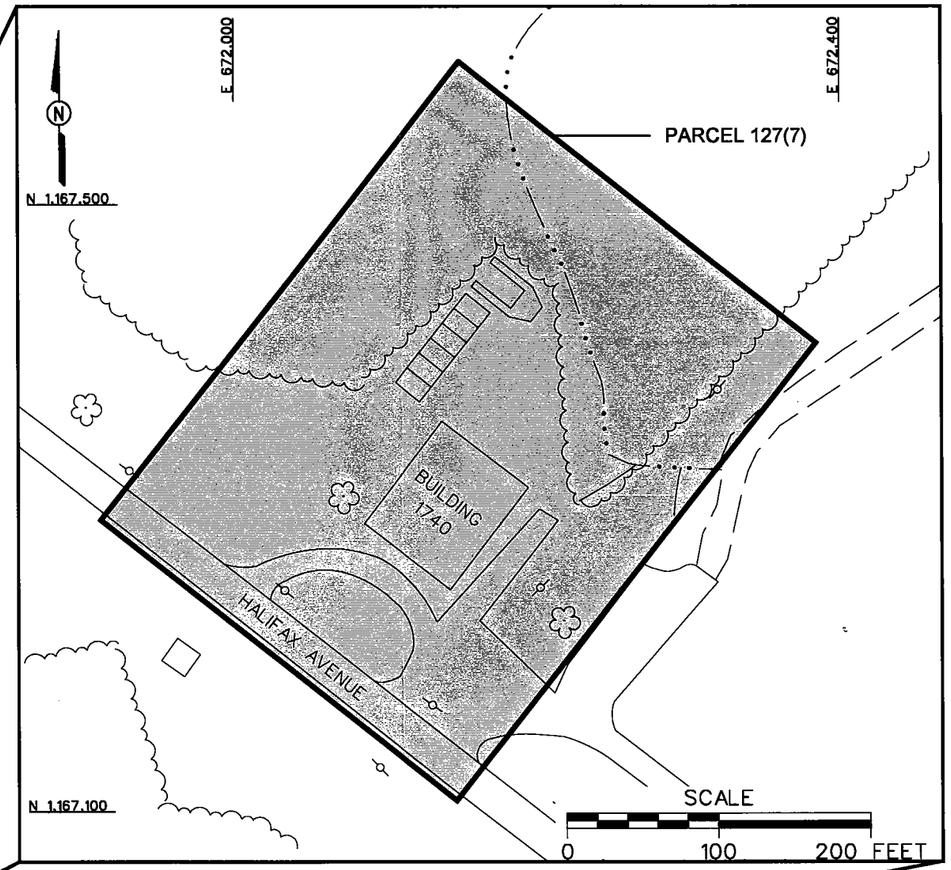
The soil sampling performed during the SI at the Soldier's Chapel included the collection of surface, depositional, and subsurface soil samples for chemical analysis from 25 sample locations. Sample locations are shown on Figure 2.

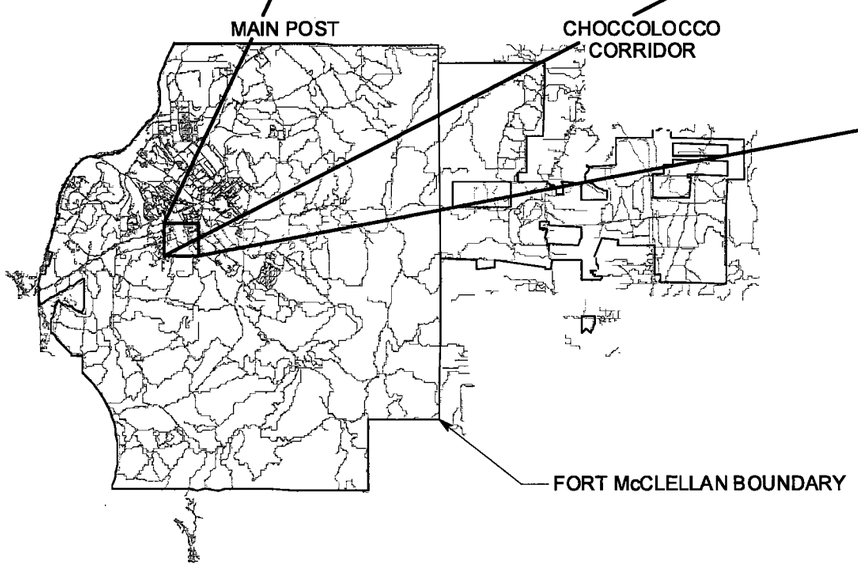
3.0 Delineation

The results of the chemical analysis of samples collected at the Soldier's Chapel indicated that mercury, lead and copper were detected in elevated levels above the Human Health Site-Specific Screening Levels (SSSL) in the soils. The SSSLs are 400 parts per million (ppm) for lead, 312 ppm for copper, and 2.33 ppm for mercury. Figures 3, 4, and 5 provide contamination concentration contours for each contaminant of concern. Figure 6 identifies horizontal extent of soils to be removed; vertical removal will be 2 feet below ground surface.

4.0 Excavation Plan

IT has evaluated the sequence and methods of excavation to determine the most efficient completion of the project requirements. IT personnel will implement Standard Operating Procedures HS307, *Excavation and Trenching* and HS308, *Underground/Overhead Utility Contact Prevention* (Attachment 2), which identifies pre-excavation activities such as utility locates and site access. Prior to removal of contaminated soil the concrete structures (grease pit and portions of the washrack) will be broken into manageable pieces with a hydraulic hoe ram and transported to a demolition landfill for disposal.





LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- TREES / TREELINE
- PARCEL BOUNDARY
- SURFACE DRAINAGE / CREEK
- UTILITY POLE

FIGURE 1
SITE LOCATION MAP
FORMER WASHRACK
BUILDING 1740, SOLDIER'S CHAPEL
PARCEL 127(7)

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: 09/12/01	DATE LAST REV.:	DRAFT. CHCK. BY:	INITIATOR: L. O'HARE
DRAWN BY: D. BOMAR	DRAWN BY:	ENGR. CHCK. BY: J. JENKINS	PROJ. MGR.: J. YACOUB
			DWG. NO.: ...\796887es.139
			PROJ. NO.: 796887

09/12/01 03:34:01 PM DBILLING c:\cadd\design\796887es.139

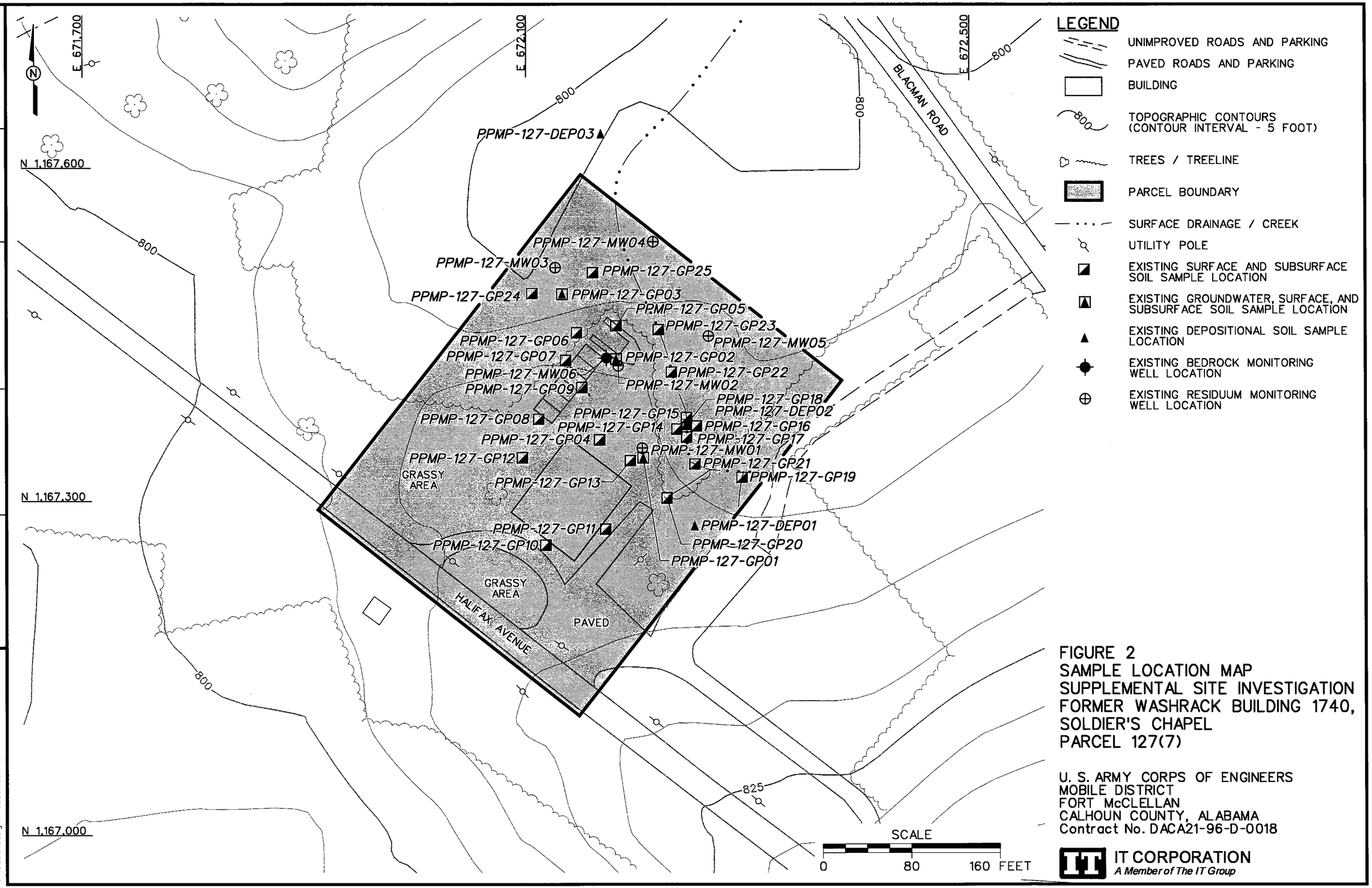


FIGURE 2
SAMPLE LOCATION MAP
SUPPLEMENTAL SITE INVESTIGATION
FORMER WASHRACK BUILDING 1740,
SOLDIER'S CHAPEL
PARCEL 127(7)

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

DWG. NO.: ...\796887es.140
PROJ. NO.: 796887
INITIATOR: L. O'HARE
PROJ. MGR.: J. YACOUB
DRAFT. CHCK. BY:
ENGR. CHCK. BY: S. MORAN
DATE LAST REV.:
DRAWN BY:
STARTING DATE: 09/14/01
DRAWN BY: D. BOMAR
09/14/01 04:08:47 PM
DBILLNG
c:\cadd\design\796887es.140

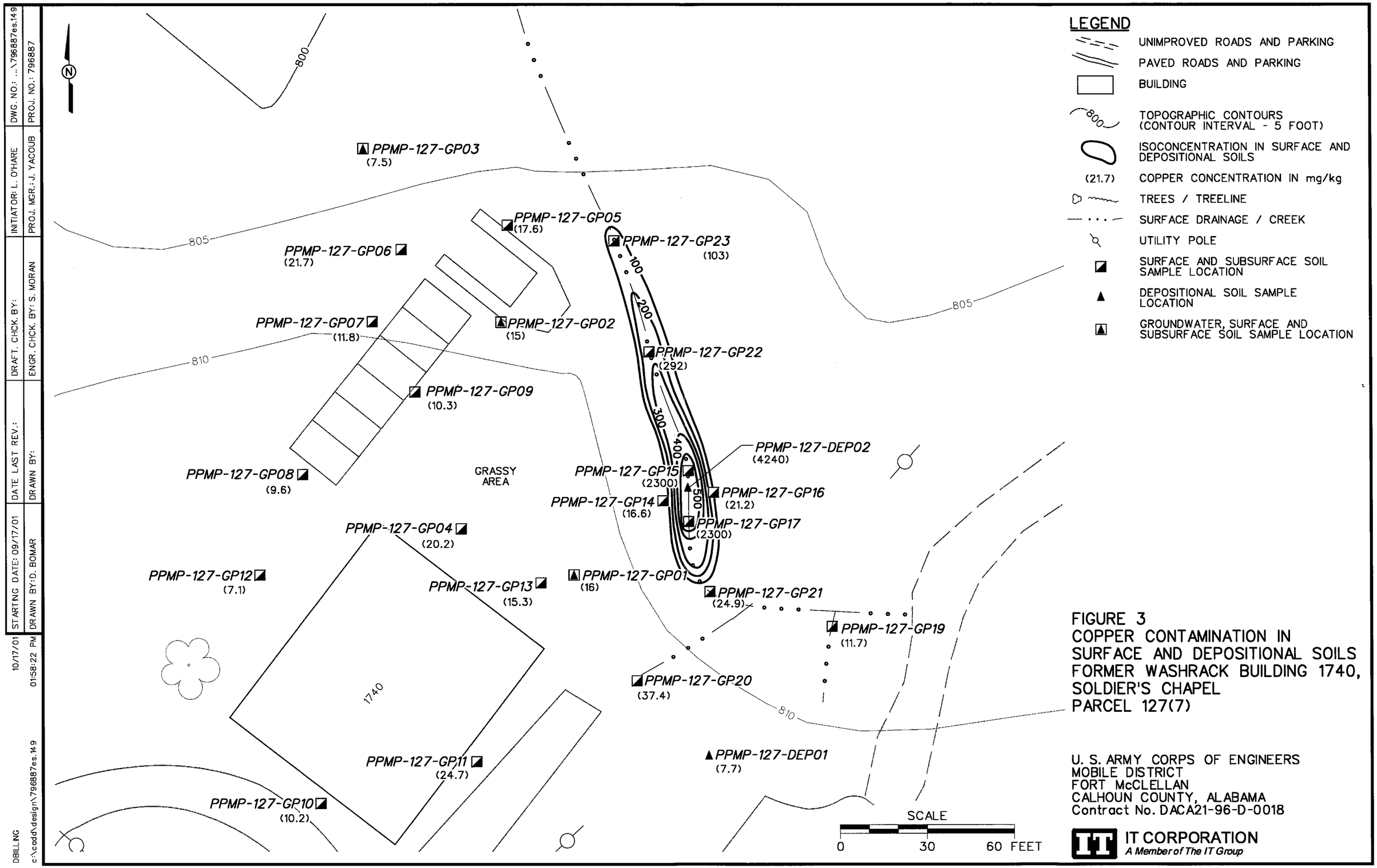
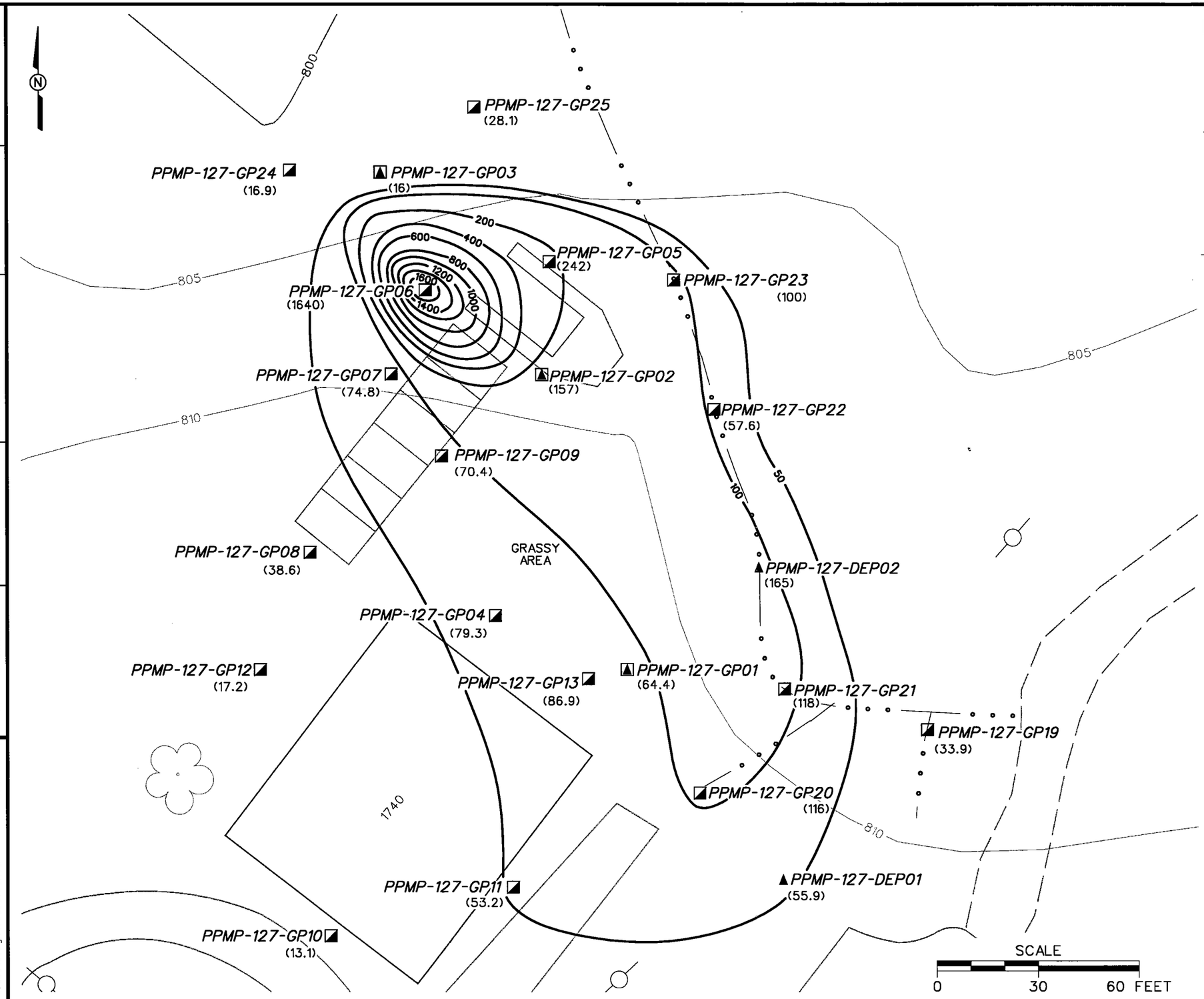


FIGURE 3
COPPER CONTAMINATION IN SURFACE AND DEPOSITIONAL SOILS
FORMER WASHRACK BUILDING 1740,
SOLDIER'S CHAPEL
PARCEL 127(7)

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

DWG. NO.: ...\796887es.14.9 | PROJ. NO.: 796887
INITIATOR: L. O'HARE | PROJ. MGR.: J. YACOUB
DRAFT. CHCK. BY: | ENGR. CHCK. BY: S. MORAN
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 09/17/01 | DRAWN BY: D. BOMAR
10/17/01 01:58:22 PM
DBILLING c:\cadd\design\796887es.14.9



LEGEND

- UNIMPROVED ROADS AND PARKING
- PAVED ROADS AND PARKING
- BUILDING
- 800 — TOPOGRAPHIC CONTOURS (CONTOUR INTERVAL - 5 FOOT)
- ISOCONCENTRATION IN SURFACE AND DEPOSITIONAL SOILS
- (28.1) — LEAD CONCENTRATION IN mg/kg
- TREES / TREELINE
- SURFACE DRAINAGE / CREEK
- UTILITY POLE
- SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION
- DEPOSITIONAL SOIL SAMPLE LOCATION
- GROUNDWATER, SURFACE AND SUBSURFACE SOIL SAMPLE LOCATION

FIGURE 4
LEAD CONTAMINATION IN SURFACE AND DEPOSITIONAL SOILS
FORMER WASHRACK BUILDING 1740, SOLDIER'S CHAPEL
PARCEL 127(7)

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

DWG. NO.: ...\796887es.14.8 | PROJ. NO.: 796887
INITIATOR: L. O'HARE | PROJ. MGR.: J. YACOUB
DRAFT. CHCK. BY: | ENGR. CHCK. BY: S. MORAN
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 09/17/01 | DRAWN BY: D. BOMAR
10/17/01 01:59:30 PM
DBILLING c:\cadd\design\796887es.14.8

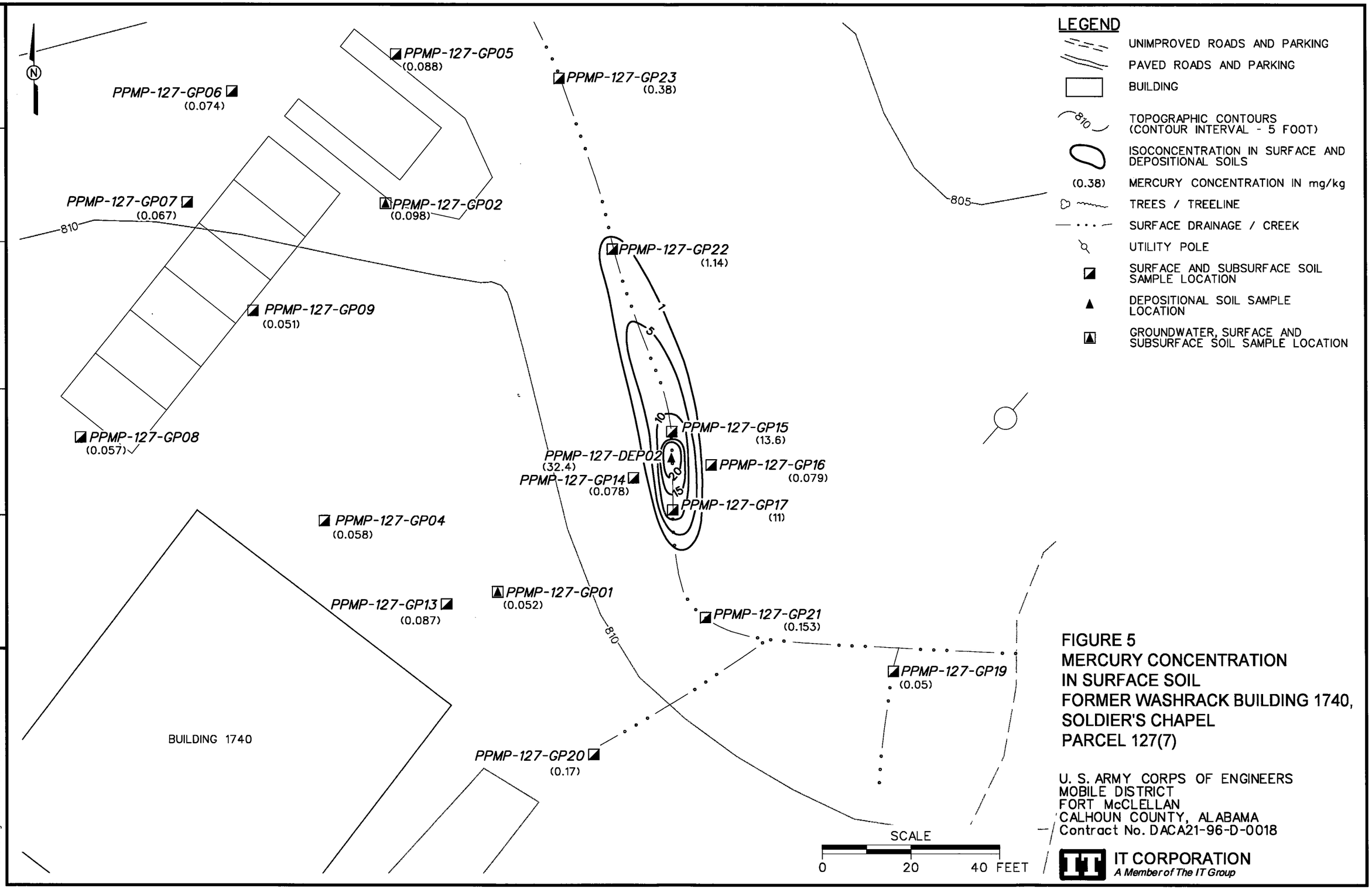


FIGURE 5
MERCURY CONCENTRATION
IN SURFACE SOIL
FORMER WASHRACK BUILDING 1740,
SOLDIER'S CHAPEL
PARCEL 127(7)

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

DWG. NO.: ...\796887es.14.7 | PROJ. NO.: 796887
INITIATOR: L. O'HARE | PROJ. MGR.: J. YACOUB
DRAFT. CHCK. BY: | ENGR. CHCK. BY: S. MORAN
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 09/17/01 | DRAWN BY: A.W. SMITH
10/17/01 02:00:43 PM
DBILLING
c:\cadd\design\796887es.14.7

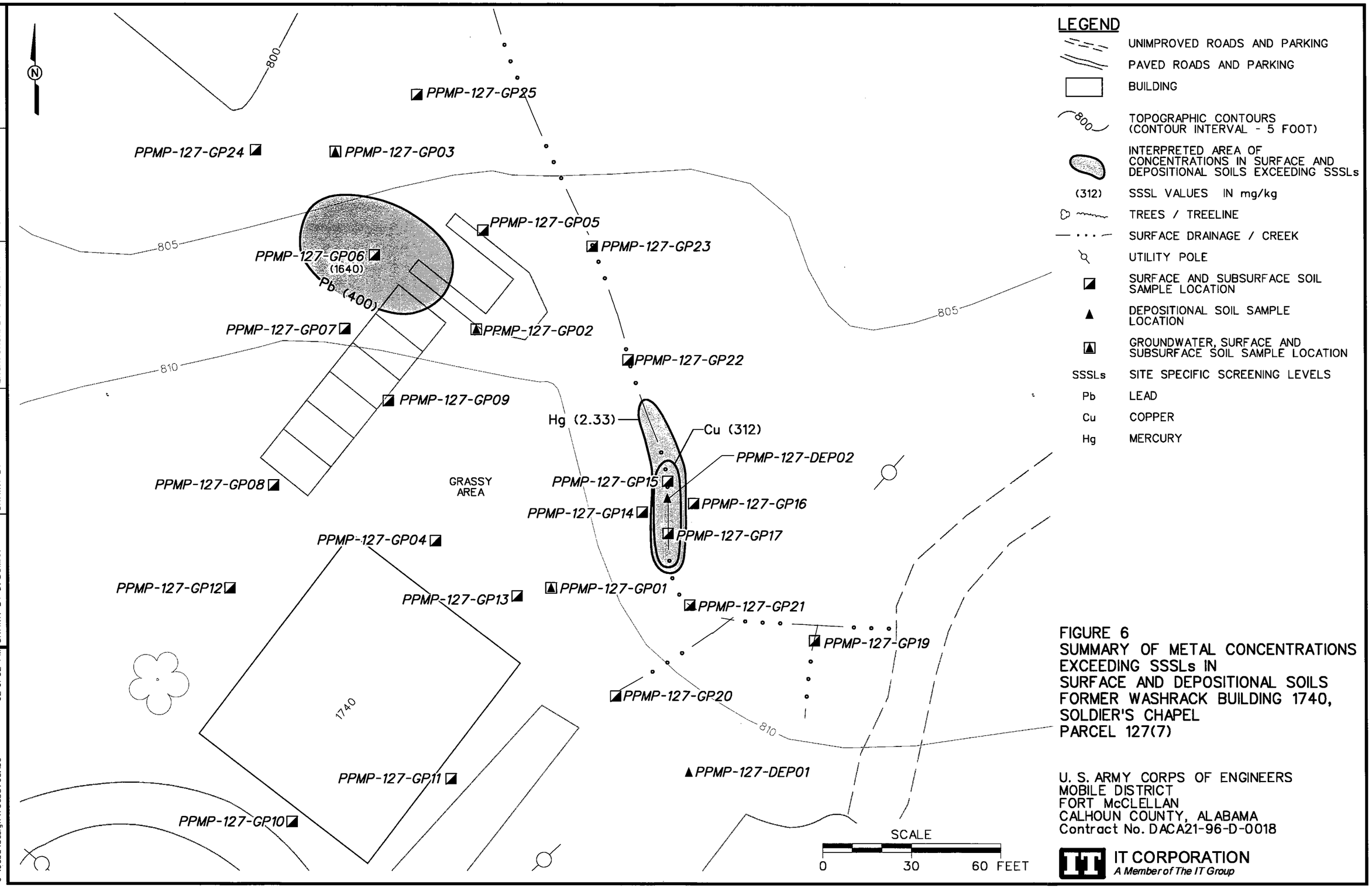


FIGURE 6
SUMMARY OF METAL CONCENTRATIONS EXCEEDING SSSLs IN SURFACE AND DEPOSITIONAL SOILS
FORMER WASHRACK BUILDING 1740, SOLDIER'S CHAPEL
PARCEL 127(7)

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

DRAFT. CHCK. BY: | ENGR. CHCK. BY: S. MORAN | INITIATOR: L. O'HARE | PROJ. MGR.: J. YACOUB | DWG. NO.: ...\796887es.150 | PROJ. NO.: 796887
DATE LAST REV.: | DRAWN BY: | STARTING DATE: 09/17/01 | DRAWN BY: D. BOMAR | 10/17/01 02:01:52 PM
DRILLING | c:\cadd\design\796887es.150

4.1 Excavation

Soil will be excavated in a two-foot lift from both of the areas identified (on Figure 6), with a track excavator (Caterpillar 312 or equivalent) and loaded into a 4-wheel drive loader or dump truck for transportation to a temporary stockpile located adjacent to the site. After excavation, IT will collect surface soil samples to be analyzed for copper, lead and/or mercury to confirm achievement of remedial goals. If the confirmatory samples indicate copper, lead, or mercury above SSSLs, IT will perform another 1-foot lift and repeat the sampling collection. IT will repeat the lift/sample procedure until sample results indicate levels at or below SSSLs.

The IT superintendent will be responsible for maintaining the most efficient excavation operation during the project. This will include day-to-day decisions on equipment usage, excavation rates, traffic routes, limited stockpiling, and loading operations.

A temporary roadway may be constructed to provide transport trucks access for loading in the work zone to facilitate the removal of material. This material may be constructed from on-site soil or clean backfill depending on excavation location. IT will establish site traffic patterns to minimize impact to the surrounding area while providing the most efficient transport vehicle access to the stockpiling/loading operation.

4.2 Confirmation Sampling

The excavation confirmation samples will be collected from the excavation floor and sidewalls. For this size of excavation, samples will be collected for every 500 square feet of excavation floor and every 45 linear feet of sidewall. A minimum of four sidewall and two floor samples will be collected on either of the excavations. The samples will be analyzed for lead, mercury, and copper in accordance with U.S. Environmental Protection Agency (EPA) Method 6010B/7000. Approximately six floor samples and eight sidewall samples will be collected. One duplicate sample will be collected for every ten samples.

Samples will be collected, when possible, using stainless steel auger buckets. At a few locations where the excavation is deepest, the sample will be collected from the excavator bucket to avoid placing a person in a deep excavation. The site geologist will record sample locations and sample identifications on the site excavation drawings. If confirmation samples are above the action levels, then an additional one foot of soil will be excavated and the soil resampled. The excavation areas will not be backfilled until the site chemist has reviewed the data and approved the action.

4.3 Stockpiling

Soils designated for stockpiling will be placed on 6- to 8-mil polyethylene sheeting. The stockpile will be lined and bermed to control/prevent run-on from storm water events and will be constructed on the blacktop parking lot adjacent to Soldier's Chapel. The pile will be covered with the same material and secured nightly or during the threat of inclement weather. At project completion the liner will be disposed in the same manner as the soil that it contained.

The stockpile will be sampled to determine waste characterization and to conduct waste profiling. One composite sample per every 200 cubic yards will be collected from the stockpile. Each sample will be submitted to an independent laboratory for reactivity, corrosivity, and ignitablity; toxicity characteristic leaching procedure (TCLP); and polychlorinated biphenyl analysis.

Based on the analytical results, IT's Transportation and Disposal coordinator will complete all necessary documentation required for the shipment of waste off site for appropriate Base personnel approval and signature. These may include waste profiles, bills-of-lading, hazardous and nonhazardous waste manifests, and land disposal restrictions. Fort McClellan has identified Debbie Berry, Base Realignment and Closure Environmental Office, 256-848-6873 to sign waste shipment documentation.

4.4 Loadout

Based on review of project information, IT has identified the following probable waste streams for transportation from the project.

- Hazardous Waste, containing either or both, TCLP lead exceeding 5 milligrams per liter and TCLP mercury exceeding 0.2 milligrams per liter (Subtitle C Landfill)
- Lead or mercury (or both) contaminated material less than hazardous waste characteristic (40 Code of Federal Regulations 261.20) (Subtitle D Landfill)
- Used site personal protective equipment, liner and trash for Subtitle D landfill.

IT will ensure that the project wastestreams are properly characterized from a physical standpoint to allow proper transportation and disposal under the state and federal regulations.

Loading of the transport vehicles will also occur using a track excavator or rubber tire loader after completing the excavation of all designated grids. Trailers will be positioned as close to the pile as practical to reduce equipment movement and the potential for migration of contaminated soil.

All exit and entry onto the site will be through established gates. All exiting soil transporters will exit at the site control. IT will maintain a traffic pattern around the site that will minimize impact to the area. Traffic speeds will be in accordance with county, local, and state and federal regulations and will generally be at least 5 miles per hour below posted speed limits within a 1-mile radius of the site on public roads. Speeds will not exceed 15 miles per hour on all site access roads; haul routes, and exposed surfaces to minimize dust generation.

Dust control measures will be employed if needed throughout the work site to minimize the creation of dust during the work and prevent the formation of fugitive particulate emissions, especially during excavation, demolition, stockpiling, and load-out activities.

IT will select only qualified transporters based on the project waste types and past performance. IT will ensure compliance with State, EPA, Resource Conservation and Recovery Act, and U.S. Department of Transportation regulations including verification of the haulers insurance and permits for the waste type. The IT superintendent on-site will execute and maintain all transport paperwork.

4.5 Backfill

After contaminated soil has been removed to the designated limits for each excavation areas, and confirmation results are below SSSLs, IT will initiate the import and placement of backfill soil. IT will request certification that the backfill is "clean" and review the supporting analytical data for the fill dirt. In the event there is no analytical data or it is out date, IT personnel will collect a representable sample of the proposed fill and submit it to an independent laboratory for the following analysis: target compound list volatile organic compounds, target compound list semivolatile organic compounds, pesticides, herbicides, and target analyte list metals.

Backfill will be placed in each excavation area and compacted. Compaction will be accomplished using heavy equipment on site; no density testing is anticipated. Backfill will continue throughout the site until final grade has been achieved. Final site grades will ensure proper drainage from the project site. After final grading, the project site and disturbed areas will be seeded with rye grass.

5.0 Health and Safety

IT has prepared an addendum to the existing site-specific health and safety plan for Parcel 127, Soldiers Chapel (Attachment 3). The site specific health and safety plan addendum identifies responsibilities for safety on this project, establishes personnel protection standards, establish mandatory safety operating procedures, and provides for contingencies that may arise while conducting the site remediation (i.e., upgrade/downgrade level of personnel protection based on actual site conditions). All field activities will be performed in accordance with 29 Code of Federal Regulations 1910.120.

To avoid personnel contamination and the subsequent transfer of hazardous substance to clean areas, a thorough decontamination process is required for personnel and equipment involved in field activities. To prevent migration of contamination from personnel and equipment, work areas will be clearly specified as designated to begin operations. Each work area will be classified in accordance with National Institute for Occupational Safety and Health/Occupational Safety and Health Administration/U.S. Coast Guard/EPA's document *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*. Each work area will be clearly identified using signs or physical barriers and will have suitable decontamination facilities. Specific decontamination procedures will be described in the site-specific plan.

To prevent migration of contamination IT will designate work areas or zones. Each work area will be divided into three zones: an exclusion or "hot" zone, a contamination reduction zone (CRZ), and a support zone.

The exclusion zone will consist of areas where inhalation, oral contact, or dermal contact with contaminants will be possible. The boundaries of the site exclusion may be marked with flagging, tape, and/or fencing before site operations commence. The CRZ, or transition zone, will be established between the exclusion zone and support zone. In this area, personnel will begin the sequential decontamination process required to exit the exclusion zone. To prevent off-site migration of contamination and for personnel accountability, all personnel will enter and exit the exclusion zone through the CRZ. Personnel and equipment decontamination facilities will be located in the CRZ. The support zone will consist of a clearly marked area. Smoking and drinking will be allowed only in designated areas.

The site safety officer (SSO) will establish the physical boundaries of each zone and shall instruct all workers and visitors on the limits of the restricted areas. No one shall be allowed to enter the restricted area without the required protective equipment for that area. The SSO will

ensure compliance with all restricted area entry and exit procedures. The SSO will also designate a decontamination point for personnel to exit from the contaminated area and enter into the clean area where personnel may rest and drink.

ATTACHMENT 1

LIST OF ABBREVIATIONS AND ACRONYMS

List of Abbreviations and Acronyms

2,4-D	2,4-dichlorophenoxyacetic acid
2,4,5-T	2,4,5-trichlorophenoxyacetic acid
2,4,5-TP	silvex
3D	3D International Environmental Group
Abs	skin absorption
Amsl	above mean sea level
AC	hydrogen cyanide
AcB2	Anniston and Allen gravelly loams, 2 to 6 percent slopes, eroded
AcC2	Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded
AcD2	Anniston and Allen gravelly loams, 10 to 15 percent slopes, eroded
AcE2	Anniston and Allen gravelly loams, 15 to 25 percent slopes, eroded
ACGIH	American Conference of Governmental Industrial Hygienists
ADEM	Alabama Department of Environmental Management
ADPH	Alabama Department of Public Health
AEC	U.S. Army Environmental Center
AEL	airborne exposure limit
AHA	ammunition holding area
AL	Alabama
amb.	amber
ANAD	Anniston Army Depot
AOC	area of concern
APT	armor-piercing tracer
ARAR	applicable or relevant and appropriate requirement
AREE	area requiring environmental evaluation
ASP	Ammunition Supply Point
ASR	Archives Search Report
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATV	all-terrain vehicle
AWWSB	Anniston Water Works and Sewer Board
'B'	Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero)
BCF	blank correction factor
BCT	BRAC Cleanup Team
BEHP	bis(2-ethylhexyl)phthalate
BFB	bromofluorobenzene
BFE	base flood elevation
BG	Bacillus globigii
bgs	below ground surface
BHC	betahexachlorocyclohexane
bkg	background
bls	below land surface
BOD	biological oxygen demand
BRAC	Base Realignment and Closure
Braun	Braun Intertec Corporation
BSC	background screening criterion
BTAG	Biological Technical Assistance Group
BTEX	benzene, toluene, ethyl benzene, and xylenes
BTOC	below top of casing
BTV	background threshold value
BW	biological warfare
BZ	breathing zone; 3-quinuclidinyl benzilate
C	ceiling limit value
Ca	carcinogen
CAB	chemical warfare agent breakdown products
CAMU	corrective action management unit
CCAL	continuing calibration
CCB	continuing calibration blank
CD	compact disc
CEHNC	U.S. Army Engineering and Support Center, Huntsville
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
CG	carbonyl chloride (phosgene)
CFC	chlorofluorocarbon
ch	inorganic clays of high plasticity
CHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
CK	cyanogen chloride
cl	inorganic clays of low to medium plasticity
Cl.	chlorinated
CLP	Contract Laboratory Program
CN	chloroacetophenone
CNB	chloroacetophenone, benzene, and carbon tetrachloride
CNS	chloroacetophenone, chloropicrin, and chloroform
Co-60	cobalt-60
COC	chain of custody; contaminant of concern
COE	Corps of Engineers
Con	skin or eye contact
COPC	contaminant of potential concern
COPEC	contaminant of potential environmental concern
CQCSM	Contract Quality Control System Manager
CRL	certified reporting limit
CRZ	contamination reduction zone
Cs-137	cesium-137
CS	ortho-chlorobenzylidene-malononitrile
CSEM	conceptual site exposure model
ctr.	container
CWA	chemical warfare agent
CWM	chemical warfare material; clear, wide mouth
CX	dichloroformoxime
'D'	duplicate; dilution
DAF	dilution-attenuation factor
DANC	decontamination agent, non-corrosive
°C	degrees Celsius
°F	degrees Fahrenheit
DCE	dichloroethene
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DEH	Directorate of Engineering and Housing
DEP	depositional soil
DI	deionized
DID	data item description
DIMP	di-isopropylmethylphosphonate
DMMP	dimethylmethylphosphonate
DOD	U.S. Department of Defense
DOJ	U.S. Department of Justice
DOT	U.S. Department of Transportation
DP	direct-push
DPDO	Defense Property Disposal Office
DPT	direct-push technology
DQO	data quality objective
DRMO	Defense Reutilization and Marketing Office
DRO	diesel range organics
DS	deep (subsurface) soil
DS2	Decontamination Solution Number 2
DWEL	drinking water equivalent level
E&E	Ecology and Environment, Inc.
EBS	environmental baseline survey
EE/CA	engineering evaluation and cost analysis
Elev.	elevation
EM	electromagnetic
EMI	Environmental Management Inc.
EM31	Geonics Limited EM31 Terrain Conductivity Meter
EM61	Geonics Limited EM61 High-Resolution Metal Detector
EOD	explosive ordnance disposal
EODT	explosive ordnance disposal team
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
EPIC	Environmental Photographic Interpretation Center
ER	equipment rinsate
ESE	Environmental Science and Engineering, Inc.
ESN	Environmental Services Network, Inc.
ESV	ecological screening value
Exp.	explosives
E-W	east to west
EZ	exclusion zone
FAR	Federal Acquisition Regulations
FB	field blank
FD	field duplicate
FedEx	Federal Express, Inc.
FEMA	Federal Emergency Management Agency
FFE	field flame expedient
Fil	filtered

Flt	filtered
FML	flexible membrane liner
FMP 1300	Former Motor Pool 1300
FOMRA	Former Ordnance Motor Repair Area
Foster Wheeler	Foster Wheeler Environmental Corporation
Frtn	fraction
FS	field split; feasibility study
FSP	field sampling plan
ft	feet
ft/ft	feet per foot
FTA	Fire Training Area
FTMC	Fort McClellan
FTRRA	FTMC Reuse & Redevelopment Authority
g	gram
G-856	Geometrics, Inc. G-856 magnetometer
G-858G	Geometrics, Inc. G-858G magnetic gradiometer
gal	gallon
gal/min	gallons per minute
GB	sarin
gc	clay gravels; gravel-sand-clay mixtures
GC	gas chromatograph
GC/MS	gas chromatograph/mass spectrometer
GCR	geosynthetic clay liner
GFAA	graphite furnace atomic absorption
GIS	Geographic Information System
gm	silty gravels; gravel-sand-silt mixtures
gp	poorly graded gravels; gravel-sand mixtures
gpm	gallons per minute
GPR	ground-penetrating radar
GPS	global positioning system
GS	ground scar
GSA	General Services Administration; Geologic Survey of Alabama
GSBP	Ground Scar Boiler Plant
GSSI	Geophysical Survey Systems, Inc.
GST	ground stain
GW	groundwater
gw	well-graded gravels; gravel-sand mixtures
HA	hand auger
HCl	hydrochloric acid
HD	distilled mustard
HDPE	high-density polyethylene
Herb.	herbicides
HNO_3	nitric acid
hr	hour
H&S	health and safety
HSA	hollow-stem auger
HTRW	hazardous, toxic, and radioactive waste
'I'	out of control, data rejected due to low recovery
ICAL	initial calibration
ICB	initial calibration blank
ICP	inductively-coupled plasma
ICRP	International Commission on Radiological Protection
ICS	interference check sample
ID	inside diameter
IDL	instrument detection limit
IDLH	immediately dangerous to life or health
IDM	investigative-derived media
IDW	investigation-derived waste
ILCR	incremental lifetime cancer risk
IMPA	isopropylmethyl phosphonic acid
IMR	Iron Mountain Road
in.	inch
Ing	ingestion
Inh	inhalation
IP	ionization potential
IPS	International Pipe Standard
IRDMIS	Installation Restoration Data Management Information System
IRP	Installation Restoration Program
ISCP	Installation Spill Contingency Plan
IT	IT Corporation
ITEMS	IT Environmental Management System ™
'J'	estimated concentration
JeB2	Jefferson gravelly fine sandy loam, 2 to 6 percent slopes, eroded
JeC2	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, eroded
JfB	Jefferson stony fine sandy loam, 0 to 10 percent slopes have strong slopes
JPA	Joint Powers Authority
K	conductivity
L	lewisite; liter
LC_{50}	lethal concentration for 50 percent of population tested
LD_{50}	lethal dose for 50 percent of population tested
l	liter
LBP	lead-based paint
LCS	laboratory control sample
LEL	lower explosive limit
LOAEL	lowest-observed-advserse-effects-level
LT	less than the certified reporting limit
LUC	land-use control
LUCAP	land-use control assurance plan
LUCIP	land-use control implementation plan
max	maximum
MCL	maximum contaminant level
MDC	maximum detected concentration
MDL	method detection limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
mh	inorganic silts, micaceous or diatomaceous fine, sandy or silt soils
MHz	megahertz
µg/g	micrograms per gram
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µmhos/cm	micromhos per centimeter
min	minimum
MINICAMS	miniature continuous air monitoring system
ml	inorganic silts and very fine sands
mL	milliliter
mm	millimeter
MM	mounded material
MMBtu/hr	million Btu per hour
MOGAS	motor vehicle gasoline
MPA	methyl phosphonic acid
MPM	most probable munition
MR	molasses residue
MS	matrix spike
mS/cm	millisiemens per centimeter
MSD	matrix spike duplicate
MTBE	methyl tertiary butyl ether
msl	mean sea level
MtD3	Montevallo shaly, silty clay loam, 10 to 40 percent slopes , severely eroded
mV	millivolts
MW	monitoring well
NA	not applicable; not available
NAD	North American Datum
NAD83	North American Datum of 1983
NAVD88	North American Vertical Datum of 1988
NCP	National Contingency Plan
ND	not detected
NE	no evidence; northeast
ne	not evaluated
NEW	net explosive weight
NFA	No Further Action
ng/L	nanograms per liter
NGVD	National Geodetic Vertical Datum
NIC	notice of intended change
NIOSH	National Institute for Occupational Safety and Health
NPDES	National Pollutant Discharge Elimination System
No.	number
NOAA	National Oceanic and Atmospheric Administration
NOAEL	no-observed-adverse-effects-level
NR	not requested; not recorded
ns	nanosecond
N-S	north to south
NS	not surveyed
nT	nanotesla

NTU	nephelometric turbidity unit
nv	not validated
O&G	oil and grease
O&M	operating and maintenance
OB/OD	open burning/open detonation
OD	outside diameter
OE	ordnance and explosives
oh	organic clays of medium to high plasticity
ol	organic silts and organic silty clays of low plasticity
OP	organophosphorus
ORP	oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OWS	oil/water separator
oz	ounce
PA	preliminary assessment
PAH	polynuclear aromatic hydrocarbon
Parsons	Parsons Engineering Science, Inc.
Pb	lead
PCB	polychlorinated biphenyl
PCE	perchloroethene
PCP	pentachlorophenol
PDS	Personnel Decontamination Station
PEL	permissible exposure limit
PES	potential explosive site
Pest.	pesticides
PETN	pentarey thritol tetranitrate
PFT	portable flamethrower
PG	professional geologist
PID	photoionization detector
PkA	Philo and Stendal soils local alluvium, 0 to 2 percent slopes
POL	petroleum, oils, and lubricants
PP	peristaltic pump
ppb	parts per billion
PPE	personal protective equipment
ppm	parts per million
PPMP	Print Plant Motor Pool
ppt	parts per thousand
PRG	preliminary remediation goal
PSSC	potential site-specific chemical
pt	peat or other highly organic silts
PVC	polyvinyl chloride
QA	quality assurance
QA/QC	quality assurance/quality control
QAP	installation-wide quality assurance plan
QC	quality control
QST	QST Environmental, Inc.
qty	quantity
Qual	qualifier
'R'	rejected data; resample
RAO	removal action objective
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RDX	cyclonite
RfD	reference dose
ReB3	Rarden silty clay loams
REG	regular field sample
REL	recommended exposure limit
RFA	request for analysis
RGO	remedial goal option
RI	remedial investigation
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
RTK	real-time kinematic
SAD	South Atlantic Division
SAE	Society of Automotive Engineers
SAIC	Science Applications International Corporation
SAP	installation-wide sampling and analysis plan
sc	clayey sands; sand-clay mixtures
Sch.	schedule
SD	sediment
SDG	sample delivery group
SDZ	safe distance zone; surface danger zone
SEMS	Southern Environmental Management & Specialties, Inc.
SFSP	site-specific field sampling plan
SGF	standard grade fuels
SHP	installation-wide safety and health plan
SI	site investigation
SL	standing liquid
SLERA	screening-level ecological risk assessment
sm	silty sands; sand-silt mixtures
SM	Serratia marcescens
SOP	standard operating procedure
sp	poorly graded sands; gravelly sands
SP	submersible pump
Sr-90	strontium-90
SRA	streamlined human health risk assessment
Ss	stony rough land, sandstone series
SS	surface soil
SSC	site-specific chemical
SSHO	site safety and health officer
SSHP	site-specific safety and health plan
SSL	soil screening level
SSSL	site-specific screening level
SSSSL	site-specific soil screening level
STB	supertropical bleach
STC	source term concentrations
STEL	short-term exposure limit
STOLS	Surface Towed Ordnance Locator System®
Std. units	standard units
SU	standard unit
SUXOS	senior UXO supervisor
SVOC	semivolatile organic compound
SW	surface water
SW-846	U.S. EPA's *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*
SWPP	storm water pollution prevention plan
SZ	support zone
TAL	target analyte list
TAT	turn around time
TB	trip blank
TCA	trichloroethane
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TCDF	tetrachlorodibenzofurans
TCE	trichloroethene
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TDGCL	thiodiglycol
TDGCLA	thiodiglycol chloroacetic acid
TERC	Total Environmental Restoration Contract
TIC	tentatively identified compound
TLV	threshold limit value
TN	Tennessee
TNT	trinitrotoluene
TOC	top of casing; total organic carbon
TPH	total petroleum hydrocarbons
TRADOC	U.S. Army Training and Doctrine Command
TRPH	total recoverable petroleum hydrocarbons
TSCA	Toxic Substances Control Act
TWA	time-weighted average
UCL	upper confidence limit
UCR	upper certified range
'U'	not detected above reporting limit
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAEC	U.S. Army Environmental Center
USAEHA	U.S. Army Environmental Hygiene Agency
USACMLS	U.S. Army Chemical School
USAMPS	U.S. Army Military Police School
USATCES	U.S. Army Technical Center for Explosive Safety
USATEU	U.S. Army Technical Escort Unit
USATHAMA	U.S. Army Toxic and Hazardous Material Agency
USCS	Unified Soil Classification System

USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UST	underground storage tank
UTL	upper tolerance level
UXO	unexploded ordnance
UXOQCS	UXO Quality Control Supervisor
UXOSO	UXO safety officer
VOA	volatile organic analyte
VOC	volatile organic compound
VOH	volatile organic hydrocarbon
VQlfr	validation qualifier
VQual	validation qualifier
VX	nerve agent (O-ethyl-S-[diisopropylaminoethyl]-methylphosphonothiolate)
Weston	Roy F. Weston, Inc.
WP	installation-wide work plan
WS	watershed
WSA	Watershed Screening Assessment
WWI	World War I
WWII	World War II
XRF	x-ray fluorescence
yd^3	cubic yards

SAIC – Data Qualifiers, Codes and Footnotes, 1995 Remedial Investigation

N/A – Not analyzed

ND – Not detected

Boolean Codes

- LT – Less than the certified reporting limit

Flagging Codes

- 9 – Non-demonstrated/validated method performed for USAEC
- B – Analyte found in the method blank or QC blank
- C – Analysis was confirmed
- D – Duplicate analysis
- I – Interfaces in sample make quantitation and/or identification to be suspicious
- J – Value is estimated
- K – Reported results are affected by interfaces or high background
- N – Tentatively identified compound (match greater than 70%)
- Q – Sample interference obscured peak of interest
- R – Non-target compound analyzed for but not detected (GC/MS methods)
- S – Non-target compound analyzed for and detected (GC/MS methods)
- T – Non-target compound analyzed for but not detected (non GC/MS methods)
- U – Analysis in unconfirmed
- Z – Non-target compound analyzed for and detected (non-GC/MS methods)

Qualifiers

- J – The low-spike recovery is low
- N – The high-spike recovery is low
- R – Data is rejected

ATTACHMENT 2

STANDARD OPERATING PROCEDURES

PROCEDURE

Subject: EXCAVATION AND TRENCHING

1.0 PURPOSE AND SUMMARY

The purpose of this procedure is to describe the company requirements for excavation and trenching safety. These requirements are based on the federal Occupational Safety and Health Administration (OSHA) excavation standard found in 29 Code of Federal Regulations (CFR) 1926, Subpart P.

Some company activities are likely to occur in states or localities that either currently have or will have requirements that differ from those contained within the federal standard. In such circumstances, the local health and safety representative will be responsible for ensuring that these requirements are included in either a site health and safety plan or a similar document and conveyed to all affected employees. If federal, state, or local regulations vary or conflict, the more protective requirements and practices will be followed.

2.0 TABLE OF CONTENTS

1.0 Purpose and Summary
2.0 Table of Contents
3.0 Responsibility Matrix
- 3.1 Procedure Responsibility
- 3.2 Action/Approval Responsibilities

4.0 Definitions
5.0 Text
- 5.1 Pre-Excavation Requirements
  - 5.1.1 Underground Utilities
  - 5.1.2 Surface Encumbrances
  - 5.1.3 Vehicular Traffic
  - 5.1.4 Training
- 5.2 Excavation Work Practices
  - 5.2.1 General
  - 5.2.2 Supervision
  - 5.2.3 Soil Classification
  - 5.2.4 Access and Egress
  - 5.2.5 Protective Systems
  - 5.2.6 Exposure to Falling Loads
  - 5.2.7 Warning System for Mobil Equipment
  - 5.2.8 Hazardous Atmospheres
  - 5.2.9 Water Accumulation Hazards
  - 5.2.10 Stability of Adjacent Structures
  - 5.2.11 Protection from Loose Rock or Soil

5.2.12 Inspections
5.2.13 Fall Protection
6.0 Exception Provisions
7.0 Cross Reference
8.0 Attachments

3.0 RESPONSIBILITY MATRIX

3.1 Procedure Responsibility

The Vice President of Health & Safety is responsible for the issuance, revision, and maintenance of this procedure.

3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment 1.

4.0 DEFINITIONS

Accepted Engineering Practices
Those requirements or practices which are compatible with standards required by a registered professional engineer.

Angle of Repose
The greatest angle above the horizontal plane at which a material will lie without sliding.

Benching
A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels of steps, usually with vertical or near-vertical surfaces between levels.

Competent Person
An employee who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has the authority to take prompt corrective measures to eliminate them.

Company
All wholly-owned subsidiaries of the IT Group, Inc.

Excavation
Any man-made cut, cavity, trench or depression in an earth surface, including its sides, walls, or faces, formed by earth removal.

Registered Professional Engineer
An individual currently registered as a professional engineer (preferably civil) in the state where work is to be performed.

Sheeting

Members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

Shield
A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Shields may be pre-manufactured or job-built in accordance with 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields".

Shoring
Structure such as a metal hydraulic, mechanical, or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Sloping
A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

Support System
A structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

Tabulated Data
Tables and charts approved by a registered professional engineer and used to design and construct a protective system.

Trench
A narrow (in relation to its length) excavation made below the surface of the ground. In general, the depth is greater than the width at the bottom, but the width of a trench at the bottom is not greater than 15 feet.

Type A Soil
Cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, soil is <u>NOT</u> Type A if:

- The soil is fissured;
- The soil is subject to vibration from heavy traffic, pile driving, or similar effects;
- The soil has been previously disturbed;
- The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or

- The material is subjected to other factors that would require it to be classified as a less stable material.

Type B Soil
This classification refers to:

- Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa)
- Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam, and, in some cases, silty clay loam and sandy clay loam.
- Previously disturbed soils except those which would otherwise be classified Type C soil;
- Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subjected to vibration;
- Dry rock that is not stable; or
- Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

Type C Soil
This classification refers to:

- Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less;
- Granular soils including gravel, sand, and loamy sand;
- Submerged soil or soil from which water is freely seeping;
- Submerged rock that is not stable; or
- Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

5.0 TEXT

5.1 Pre-Excavation Requirements

5.1.1 Underground Utilities. Prior to opening an excavation, the estimated location of underground utilities such as sewer, telephone, fuel, electric, water, or any other underground installation that may be reasonably expected to be encountered during the excavation work shall be determined.

Utility companies or a utility location service shall be contacted within the established pre-notification time, advised of the proposed work, and asked to deliniate the location of all underground utilities. Employees should be careful to protect and preserve the utility markings until they are no longer required for safe excavation. At least 3 feet of clearance between any underground utility and the cutting edge or point of powered excavation equipment will be maintained until the precise location of the utility is determined. Initial excavation within this 3 foot area will be conducted manually.

5.1.2 **Surface Encumbrances.** All surface encumbrances (trees, poles, boulders, etc.) that may create a hazard to employees shall be removed or supported.

5.1.3 **Vehicular Traffic.** Employees exposed to vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material. Traffic control devices (i.e., barricades, signs, cones, flagpersons, etc.) shall be specified and used in accordance with regulations applicable to the roadway or area in which excavation activities are occurring.

5.1.4 **Training.** Those who supervise the entry of personnel into an excavation must have completed a training course that included instruction in:

- Types of hazards associated with excavation operations;
- Safe work practices and techniques;
- A review of applicable Federal, state and local regulations; and
- A review of this procedure.

Employees who enter excavations are required to complete a site-specific training session to enable them to recognize unsafe conditions in and around the excavation. This training can be conducted during a tailgate safety meeting that emphasizes the specific excavation hazards that may be encountered.

Training documentation shall be maintained in the project file with a copy forwarded to the Knoxville Training Department.

As part of standard employee supervision process, training shall be complemented with on-the-job instruction and reinforcement of accepted practices to the extent necessary to assure compliance with this procedure and all other applicable regulations.

5.2 Excavation Work Practices

5.2.1 General. Each employee working within an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with 29 CFR 1926 Subpart P, except when the excavation is made entirely in stable rock or when the excavation is less that 5 feet deep and examination of the ground by a competent person provides no indication of a potential cave-in. A competent person shall ensure that protective systems, when required, are installed and maintained per the design specifications.

No employees shall be permitted to enter an excavation unless it is absolutely essential to do so and all requirements of this procedure are met.

5.2.2 Supervision. Work in an excavation shall at all times be supervised by a competent person. This individual will remain outside of the excavation at all times, and will be responsible for identifying any unusual developments above ground which may warn of impending earth movement.

5.2.3 Soil Classification. Based on the results of tests described in Attachment 3, the competent person will classify each soil/rock deposit as stable rock, Type A, Type B, or Type C. When layers of soil/rock exist, the weakest layer will be classified; however, each layer may be classified individually when a more stable layer lies under a less stable layer. If the properties or conditions of a soil/rock deposit change in any way, re-evaluation will be required.

5.2.4 Access and Egress. Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.

A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 or more feet in depth so as to require no more than 25 feet of lateral travel for employees.

5.2.5 Protective Systems. Protective systems shall be designed in accordance with 29 CFR 1926.652(b) or (c) and shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

5.2.6 Exposure to Falling Loads. No employees shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or

unloaded provided the vehicles are equipped with a cab shield and/or canopy adequate to protect the operator from shifting or falling materials.

5.2.7 **Warning System for Mobil Equipment.** When mobile equipment is operated adjacent to an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs.

5.2.8 **Hazardous Atmospheres.** Where an oxygen deficient (less that 19.5% O_2) or hazardous atmosphere exists, or could reasonably be expected to exist, the excavation shall be tested before employees enter. Testing shall be conducted as often as necessary to ensure that the atmosphere remains safe. Some excavations may be considered confined spaces which require compliance with IT Procedure HS300.

Adequate precautions shall be taken to prevent employee exposure to oxygen deficient or hazardous atmospheres. As appropriate, ventilation and/or respiratory protective devices shall be used.

5.2.9 **Water Accumulation Hazards.** Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. If water is controlled or prevented from accumulating by the use of water removal equipment, the process shall be monitored by a competent person to ensure proper operation.

If the excavation work interrupts the natural drainage of surface water (streams, run-off channels), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to run-off from heavy rains shall be regularly inspected by a competent person.

5.2.10 **Stability of Adjacent Structures.** Structures adjoining an excavation shall be evaluated to assess their stability. Excavation below the level of the base or footing of any foundation or retaining wall that could reasonably be expected to pose a hazard to employees shall only be permitted when:

- A support system (underpinning) is provided to ensure the safety of employees and the stability of the structure;
- The excavation is in stable rock;
- A registered professional engineer has determined that the structure will be unaffected by the excavation; or
- A registered professional engineer has determined that such excavation will not pose a hazard to employees.

Sidewalks, pavements and other surface structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

5.2.11 **Protection from Loose Rock or Soil.** Employees shall be protected from loose rock or soil which could fall or roll from the excavation face or edge. Such protection could consist of scaling to remove loose materials, or the installation of protective barriers. All spoil shall be placed at least 2 feet from the edge of the excavation. It is strongly recommended that spoil be placed 4 or more feet from the excavation edge so as not to cover surface indicators of subsidence (such as fissures or cracks).

5.2.12 **Inspections.** The competent person shall make daily inspections of excavations, adjacent areas, and protective systems for evidence of conditions that could result in a cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. The inspection shall be made prior to start of work, and as needed throughout the shift. Inspections shall be made after each rainstorm or other hazard-increasing event and will be documented using Attachment (2).

Where the inspection finds evidence of any hazardous condition, exposed employees shall be immediately removed from the hazardous area until necessary precautions have been taken.

5.2.13 **Fall Protection.** Where employees or equipment are permitted to cross over excavations, walkways or bridges shall be provided. Standard guardrails shall be provided where walkways are 6 feet or more above lower levels.

Adequate barriers or other types of physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc., shall be barricaded or covered and shall be backfilled as soon as possible.

6.0 EXCEPTION PROVISIONS

Variances and exceptions may be requested pursuant to the provisions of procedure HS013, Health and Safety Procedure Variances.

7.0 CROSS REFERENCES

HS013 Health and Safety Procedure Variances
HS050 Training Requirements
HS051 Tailgate Safety Meetings
HS300 Confined Spaces
29 CFR 1926 Subpart P - Excavations

8.0 ATTACHMENTS

1. Responsibility Matrix
2. Excavation Inspection
3. Soil Classification Worksheet
4. Selection of Protective Systems for Excavations 20 Feet or Less in Depth
5. Sloping Options
6. Shoring or Shielding Options

ATTACHMENT 1
EXCAVATION AND TRENCHING

Responsibility Matrix

Action	Procedure Section	*Responsible Party*					
		Employee	Supervisor	Registered Professional Engineer	VP Health and Safety	Local H&S Representative	Competent Person
Incorporate state, local, or client-specific excavation requirements into project plans.	1.0					X	
Issue, revise, and maintain procedure	3.1				X		
Coordinate identification of underground utilities.	5.1.1		X				
Determine need for traffic control devices.	5.1.3		X				
Participate in excavation training.	5.1.4	X	X			X	X
Ensure that protective systems are installed and maintained.	5.2.1						X
Classify Soil Type	5.2.3						X
Design Structural Ramps	5.2.4						X
Selection and design of protective system(s)	5.2.5			X			
Determine stability of adjacent structures.	5.2.10			X			
Inspecting excavation for hazardous conditions	5.2.12	X	X				X

ATTACHMENT 2
EXCAVATION INSPECTION

THIS INSPECTION IS TO BE COMPLETED BY THE COMPETENT PERSON EACH DAY THAT EMPLOYEES WILL BE ENTERING AN EXCAVATION.

Project Name: _____ Project No.: _____

Date: _____ Time: _____ Competent Person: _____

Soil Classification (see Soil Classification Worksheet): _____

Excavation Depth: _____ Excavation Width: _____

Type of Protective System Used: _____

	✓		
	YES	NO	N/A
1. GENERAL:			
Surface encumbrances removed or supported			
Employees protected from loose rock or soil that could pose a hazard by falling or rolling into the excavation.			
Hard hats, steel-toed boots, and safety glasses worn by all employees.			
Spoils, materials, and equipment set back at least 2 feet from the edge of the excavation.			
Walkways over excavations 6 feet or more above lower levels are equipped with standard guardrails.			
Warning vest or other highly visible clothing provided and worn by all employees exposed to public vehicular traffic.			
Employees required to stand away from vehicles being loaded or unloaded.			
Warning system established and utilized when mobile equipment is operating near excavation edge.			
Employees prohibited from going under suspended loads.			
2. UTILITIES:			
Utility companies contacted and/or utility locations delineated.			
Underground installations protected, supported, or removed while excavation is open.			
3. MEANS OF ACCESS AND EGRESS:			
Lateral travel to means of egress no greater that 25 feet in trench excavations 4 feet or more in depth.			
Ladders used in excavations secured and extended 3 feet above the edge of the trench.			
Structural ramps used by employees designed by a competent person.			
Structural ramps used for equipment designed by a registered professional engineer.			

	YES	NO	N/A
4. WET CONDITIONS:			
Precautions taken to protect from the accumulation of water.			
Water removal equipment monitored by a competent person.			
Surface water or runoff diverted or controlled to prevent accumulation in the excavation.			
Inspections made after every rainstorm or other hazard-increasing occurrence.			
5. HAZARDOUS ATMOSPHERE:			
Atmosphere within the excavation tested where there is a reasonable possibility of an oxygen deficient, combustible, or otherwise hazardous atmosphere.			
Adequate precautions taken to protect employee from exposure to a hazardous atmosphere.			
Testing conducted to ensure that the atmosphere remains safe.			
Emergency equipment, such as breathing apparatus, safety harness and line, and basket stretcher readily available where hazardous atmosphere does exist.			
6. SUPPORT SYSTEMS:			
Materials and/or equipment for support systems selected based on soil analysis, trench depth, and expected loads.			
Materials and equipment used for protective systems inspected and in good condition.			
Damaged materials and equipment used for protective systems inspected by a Registered Professional Engineer after repairs and before being placed back into service.			
Protective systems installed without exposing employees to the hazards of cave-ins, collapses, or from being struck by materials or equipment.			
Members of support systems securely fastened to prevent failure.			
Support systems provided to insure stability of adjacent structures, buildings, roadways, sidewalks, walls, etc.			
Excavations below the level of the base or footings approved by a registered professional engineer.			
Removal of support systems progresses from the bottom, and members are released slowly as to note any indication of possible failure.			
Excavation of material to a level of greater that 2 feet below the bottom of the support system and only if the system is designed to support the loads calculated for the full depth.			
Shield system placed to prevent lateral movement.			
Employees are prohibited from remaining in shield system during vertical movement.			
7. REMARKS:			
_____			
_____			

ATTACHMENT 3
SOILS CLASSIFICATION WORKSHEET

The following worksheet outlines the visual and manual tests that the competent person must perform at least once, and each time soil conditions change. At least one visual and one manual test must be performed; however, performing several tests is recommended so that the condition of the excavation is thoroughly examined.

Project Name:..... Project Number: .....

Date: ..... Time: .....

Where was the sample taken from? .....

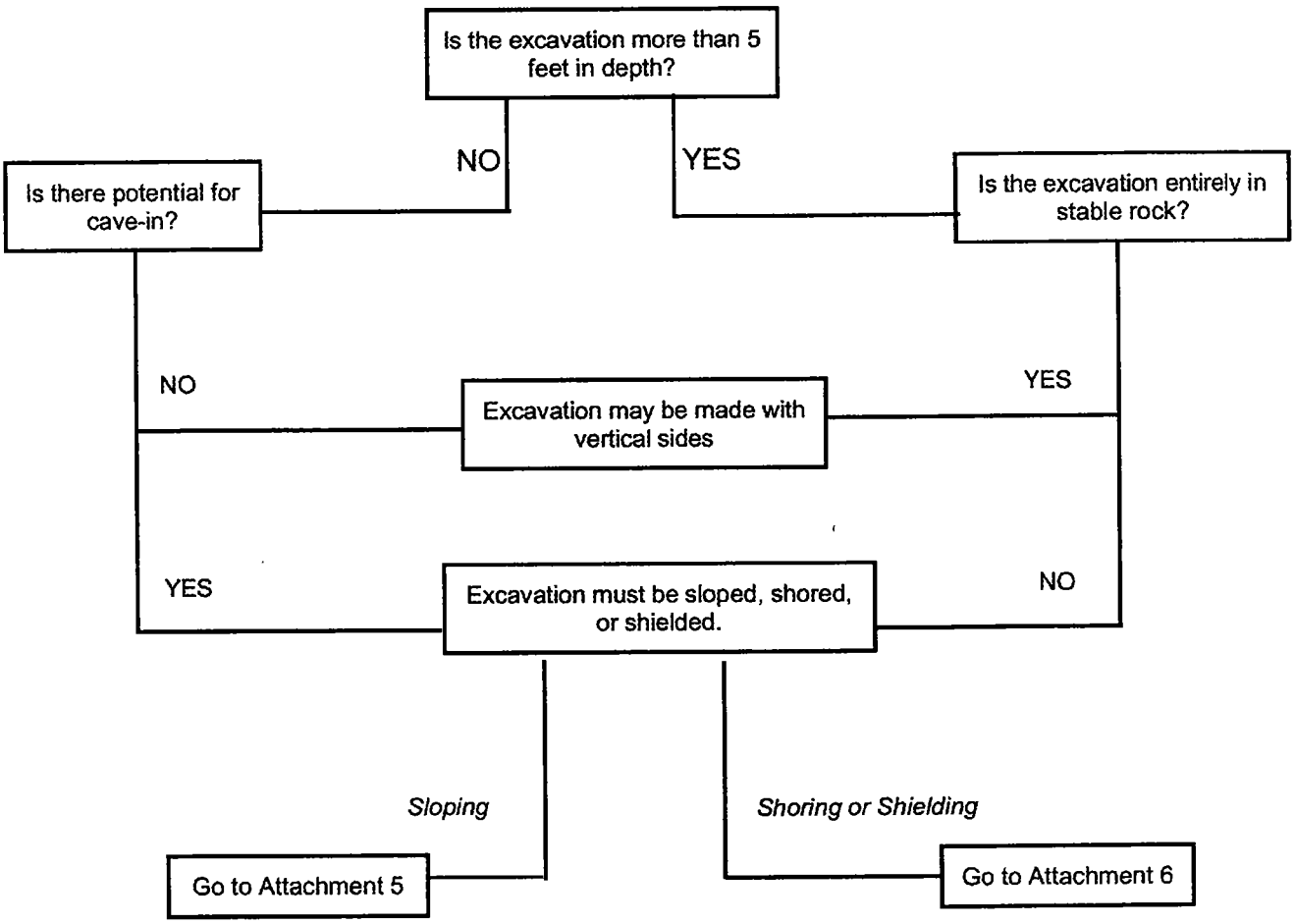
I.	**VISUAL TESTS:** *One or more visual tests are required for each classification and each time conditions change.*		
1.	Estimate range of particle sizes:	a. primarily fine-grained = cohesive material b. primarily coarse-grained = granular material	
2.	Observe excavated soil:	a. clumps = cohesive material b. breaks up easily = granular material	
3.	Observe sides and adjacent surface area of opened excavation:	a. crack like openings = fissured material b. soil spalls off vertical sides = possible fissured material	
4.	Previous excavation activities:	a. previously disturbed soil	b. not previously disturbed soil
5.	Observe opened side of excavation:	a. layered systems c. estimate degree of slope of layers:	b. layers sloped towards excavation _____
6.	Water condition:	a. evidence of surface water c. depth of water table :	b. water seeping from sides _____
7.	Vibration present:	a. area adjacent to excavation	b. area within excavation

II.	**MANUAL TESTS-** *One or more manual tests are required for classification and each time soil conditions change.*	
1.	Plastically- soil is cohesive if following is true:	a. mold soil samples into a small ball b. roll ball into thread ⅛" diameter c. pick up 2" length of ⅛" thread by one end without breaking
2.	Dry Soil Strength:	a. crumbles on its own or with moderate pressure = granular b. falls into clumps which break into smaller clumps that are only broken with difficulty = clay with gravel, sand, or silt. c. breaks into clumps which do not break into smaller clumps and can only be broken with difficulty with no visual indication of fissures = unfissured.
3.	Thumb penetration test: *(These tests are to be run on a large clump of material as soon as it is excavated.)*	a. can be easily indented by the thumb but penetrated by thumb only with great effort =Type A b. easily penetrated several inches by thumb and molded by light finger pressure = Type C
4.	Unconfined Compressive Strength: *(Saturated Soil Needed)*	a. Pocket Penetrometer reading (take 10 readings and average) 0 - 0.5 = Type C, 0.5 - 1.5 = Type B, 1.5 - 2.0 = Type A b. Shear Vane reading X2: 0 - 0.5 = Type C, 0.5 - 1.5 = Type B,1.5 - 2.0 = Type A
5.	Drying Test: *(A dry soil sample 1" thick X 6' diameter is needed)*	a. develops cracks = fissured material b. dries without cracks and breaks by hand with considerable force significant cohesive content = unfissured cohesive material. c. sample breaks easily by hand = fissured cohesive or granular material d. easily pulverize dry clumps by hand or by stepping on them = granular e. don't pulverize easily = fissured cohesive.

SOIL CLASSIFICATION: Type A Type B Type C Stable Rock Other _____

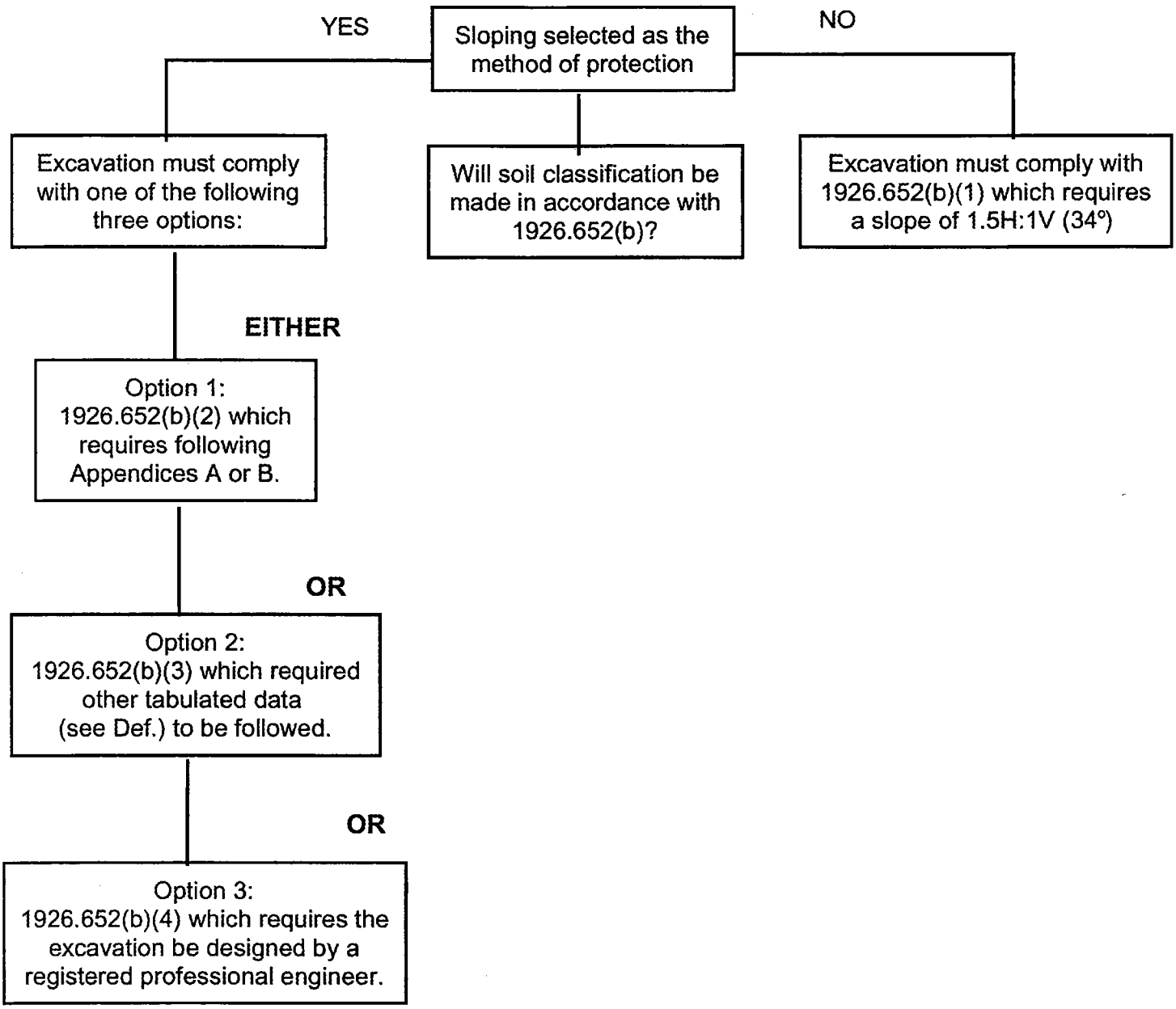
COMPETENT PERSON: _____ _____ _____
Print Name Signature Date

ATTACHMENT 4
SELECTION OF PROTECTIVE SYSTEMS FOR EXCAVATIONS 20 FEET OR LESS IN DEPTH



For excavations greater than 20 feet in depth, design by a registered professional engineer in compliance with 1926.652 (b) and (c) is required.

ATTACHMENT 5
SLOPING OPTIONS



ATTACHMENT 6
SHORING OR SHIELDING OPTIONS

Shoring or shielding selected as the method of protection.

Soil Classification is required. The excavation must comply with one of the four options below.

EITHER

Option 1:
1926.652(c)(1) which requires Appendices A and C to be followed (timber shoring).

OR

Option 2:
1926.652(c)(2) which requires manufacturer's data to be followed (trench jacks, etc.)

OR

Option 3:
1926.652(c)(3) which requires tabulated data (see Def.) to be followed.

OR

Option 4:
1926.652(c)(4) which requires the excavation be designed by a registered professional engineer.

PROCEDURE

Subject: UNDERGROUND/OVERHEAD UTILITY CONTACT PREVENTION

1.0 PURPOSE AND SUMMARY

This procedure prescribes the steps to be taken to prevent accidents involving the contact with or damage of underground/overhead utilities. The company provides the operational and training practices required to safely execute work where underground/overhead utility hazards may exist.

2.0 TABLE OF CONTENTS

1.0 Purpose and Summary
2.0 Table of Contents
3.0 Responsibility Matrix
  3.1 Procedure Responsibility
  3.2 Action/Approval Responsibilities
4.0 Definitions
5.0 Text
  5.1 Preliminary Requirements
  5.2 Operating Requirements
  5.3 Training Requirements
  5.4 Incident Reporting Requirements
  5.5 Local Jurisdiction Requirements
6.0 Exception Provisions
7.0 Cross References
8.0 Attachments

3.0 RESPONSIBILITY MATRIX

3.1 Procedure Responsibility

The Vice President, Health and Safety is responsible for the issuance, revision, and maintenance of this procedure.

3.2 Action/Approval Responsibilities

The Responsibility Matrix is Attachment 1.

4.0 DEFINITIONS

Company
All wholly-owned subsidiaries of the IT Group, Inc.

Competent Person - Excavation and Trenching
A person who is capable of identifying existing and predictable hazards in the excavation/trenching work area and who has the authority to take prompt corrective measures to eliminate them.

Excavation
Any manmade cut, cavity, trench or depression in an earth surface formed by earth removal.

Underground Utility
Any active or inactive subsurface or buried structure that is or was designed to service a public or private facility. These may include, but are not limited, to the following:

- Electric power lines
- Natural gas lines
- Telephone lines
- Telephone cables and fiber optic lines
- Water lines
- Steam and pneumatic lines
- Sewer lines
- Drain lines
- Underground storage tanks
- Septic tanks
- Process or product lines

Overhead Utility
Any active or inactive overhead structure that is or was designed to service a public or private facility. These may include, but are not limited, to the following:

- Overhead power lines
- Overhead telephone lines
- Overhead fiber optic lines
- Overhead cables
- Overhead supports
- Overhead piping

- Traffic lights

- Utility Bridges

One Call Center
Each state has a One Call, Dig Safe or Miss Dig dial-in number for requesting markout of buried public utilities, such as gas lines, electrical lines, telephone/cable lines, sewer lines, and water lines. This number is called 48 to 72 hours prior to subsurface activities depending on the particular state the work will be conducted. The One Call Center will notify the local public utilities for a line location markout for the particular location. The individual public utilities must locate and markout the utilities upon request. A confirmation number is established and confirmation report generated and submitted to the requester.

As-Built Drawings
As-built drawings are blueprints that are usually obtained from the facility owner or client. They show original buried utilities and any modifications which have been made.

Private Utility Locating Service
A private utility locating service is a firm established to locate underground utilities using specialized locating equipment, such as ground penetrating radar location devices or radio transmitter type utility locating equipment.

Fiber Optic Service Lines
Fiber optic service lines are communication lines that are buried underground. When damaged, these lines are very expensive to replace. Fiber optic companies routinely provide on-site supervision, if requested. The company encourages this practice.

Site Survey
A site survey is an inspection of the work site to examine for signs of other buried utilities that may not be indicated through as-built drawings nor through utility locating services. The survey typically involves inspection of overhead electrical services, inspection of basements, utility rooms, garages, etc., for signs of old electrical conduits or fuel/water/septic lines. The Site Supervisor should contact the appropriate site representative to provide any additional information that may be marked on the as-builts.

5.0 TEXT

Underground/overhead utilities may be encountered at any job site. The guidelines established in this procedure were developed to help mitigate the potential hazards associated with this condition.

Any subsurface activity is subject to the underground utility locating regulations for the state where the work will be conducted. In addition, the work may be subject to other state and local government agencies or private facilities for underground and overhead utilities. Thus, this procedure presents recommended practices, but authorizes use of state and locally required practices without a written variance.

5.1 Preliminary Requirements

The Project Manager or designee must contact the One Call Center for the state that the work will be performed to formally request a utility mark out at the particular work location (s). Attachment 2 of this procedure includes a One Call Center Directory that lists each state's underground utility location service and phone numbers. For example, the state of Florida is identified as "Sunshine State One-Call", 800-432-4770. Some states or localities may require each company that digs to call the One Call center.

5.2 Operating Requirements

Prior to conducting any project site activities, the Project Manager must ensure that all existing underground/overhead utilities in the work area are located per the state or local markout method. Documentation of utility markout methods must be completed using the Utility Markout Documentation form (Attachment 3). No excavation work is to be performed until all utility markouts are verified.

While on-site, the Site Supervisor and/or Site Health and Safety Representative must conduct a site survey to search for signs of other buried or overhead utilities. This will include areas such as garages, basements, etc. The results of such surveys must be documented on the Utility Markout Documentation form (Attachment 3) or equivalent form. The property owner or facility operator must be consulted on the issue of underground utilities. All knowledge of past and present utilities must be evaluated prior to conducting work.

As-built drawings must be reviewed when available to verify underground utility locations are consistent with the utility location markouts. As-built drawings may indicate other utilities that need to be identified and marked out. Also, the utility markouts should be drawn on a copy of the as-builts in case the marks are removed due to the excavation.

Because of the sensitivity and costs associated with damage to fiber optic cables, the Project Manager must have documented verbal contact and an agreement with the fiber optic company for all work within 50 feet of the fiber optic cables.

If on-site subsurface utility locations are in question, contract with a private locating service to verify locations.

Only hand digging is permitted within 3 feet of underground high voltage, product or gas lines. Once the line is exposed, heavy equipment can be used but must remain at least 3 feet from the exposed line.

Overhead utility locations must be marked (warning tape, flags, etc.) where heavy equipment, or other equipment, has the potential for contacting overhead utilities. Conduct a site inspection on a daily basis to determine where activities will take place and the location of overhead utilities and overhead obstructions. Once identified, place warning tape on poles and/or guy wires and attempt to plan the work so that no contact will be made with the overhead utilities or obstructions. Share the information with all site personnel during the tailgate safety meeting.

Maintain at least 10 feet from overhead power lines, up to 50 kV. For voltages over 50 kV, add 0.4 inches per kV to obtain the safe distance between equipment and power lines. If voltage is unknown, remain at least 20 feet from overhead power lines.

As a precaution, a spotter must be used at all times when it is possible to violate the minimum distance requirements for overhead utilities. If contact is deemed unavoidable, consult with the plant manager and health and safety representative to evaluate the area to determine if the particular overhead utility can be removed prior to engaging in the activity.

5.3 Training Requirements

Prior to assignment of work, the Site Supervisor will assure that all affected employees receive an overview of the hazards of encountering underground/overhead utilities. The Site Supervisor shall review, or have reviewed, with the employees this procedure, the work practices to control these hazards, and the roles and responsibilities of each worker. This procedure and other requirements as mandated by the site health and safety plan shall be reinforced in daily tailgate safety meetings.

Only experienced, demonstrably proficient equipment operators will be used to operate such heavy equipment as backhoes, front-end loaders, cranes, etc.

5.4 Incident Reporting Requirements

Employees are required to immediately report to their direct supervisor any underground utility contact incident, or near miss incidents having the potential for injury. Any supervisor (but preferably the supervisor directly responsible for the involved employees) with first-hand knowledge of an incident is required to investigate the incident. The Project Manager and respective Health and Safety Manager or Representative shall be informed of the incident immediately.

At a minimum, the incident investigation will require completion of the incident investigation report and General Liability Property Damage and Loss Report form (Attachment 4) per Procedure HS020.

In addition, Attachment 5 provides a "Tip Sheet" to help properly assess and investigate the incident causes and recommendations or requirements.

5.5 Local Jurisdiction Requirements

Where local jurisdictions have established requirements different from those in this procedure, the more protective practices shall be utilized. No variance is required under these circumstances but the project-specific Health and Safety Plan or work plan shall fully document the alternate procedures.

6.0 EXCEPTION PROVISIONS

Variances and exceptions may be required pursuant to the provisions of Procedure HS013, Health and Safety Procedure Variances.

7.0 CROSS REFERENCES

HS013	Health and Safety Procedure Variances
HS020	Accident Prevention Program: Reporting, Investigation, and Review
HS050	Training Requirements
HS307	Excavation and Trenching

8.0 ATTACHMENTS

1. Responsibility Matrix
2. One Call Center Directory
3. Utility Markout Documentation
4. General Liability, Property Damage and Loss Report
5. Underground Utility Hits – Tip Sheet for Incident Investigations

ATTACHMENT 1 - UNDERGROUND/OVERHEAD UTILITY CONTACT PREVENTION
Responsibility Matrix

Action	Procedure Section	Project Manager	Site Supervisor	HS Representative
Project-specific HASP or Work Plan shall document the practices to be used at a particular site.	1.0	X	X	X
Contact the One Call Center for mark out of utilities at the site.	5.1	X		
Complete Utility Markout Documentation Form	5.2	X	X	
A competent person shall conduct an area survey to locate visible signs of other utilities that are not marked out (e.g., garages, basements, sheds).	5.2		X	
As-built drawings shall be reviewed.	5.2	X		
Only experienced, demonstrably proficient equipment operators will be used to operate such heavy equipment as backhoes, front-end loaders, cranes, etc.	5.3		X	
Provide training.	5.3		X	
Incident Investigation and Reporting	5.4	X	X	X

ATTACHMENT 2 - ONE CALL CENTER DIRECTORY

AL	Alabama Line Location Center	800-292-8525		OR	Douglas Utilities Coordinating Council	503-673-6676	
AK	Locate Call Center of Alaska, Inc.	907-278-3121		OR	Josephine Utilities Coordinating		
AZ	Arizona Blue Stake, Inc.	602-263-1100	602-279-5342		Council	503-476-6676	503-476-4527
AZ	Arizona Blue Stake Center	800-782-2211	602-263-1100	OR	Rogue Basin Utility Coordinating		
CA	Underground Service Alert North	800-442-4133	510-798-1683	OR	Malheur Utility Coordinating Council	503-889-2468	
CA	Underground Service Alert South	800-442-4133	714-528-3423	OR	Utilities Notification Center	503-246-6699	503-293-0826
CO	Utility Notification Center of Colorado	800-922-1987	303-234-1712	PA	Pennsylvania One Call System, Inc.	800-242-1776	412-464-7104
CT	Call Before You Dig	800-922-4455	203-248-6448	RI	Dig Safe - Road Island	800-225-4977	617-273-2811
DE	Miss Utility of Delmarva	800-282-8555		SC	Palmetto Utility Protection Service, Inc.	800-922-0983	
FL	Call Sunshine	800-432-4770	305-720-5918	TN	Tennessee One-Call System	800-351-1111	615-366-5021
GA	Utilities Protection Center, Inc.	800-282-7411	404-623-4566	TX	Texas One-Call System	800-245-4545	214-323-7170
ID	Palouse Empire Underground			TX	Austin Area Utility Coordinating		
	Coordinating Council	800-822-1974	208-882-2031		Council	512-472-2822	512-499-7329
ID	Utilities Underground Protection Center	800-424-5555	206-451-2385	TX	Texas Excavation Safety System	800-344-8377	214-690-1291
ID	Dig Line	800-342-1585	208-342-8907	TX	Lone Star Notification Center	713-223-4567	713-432-0998
ID	One Call Concepts	800-626-4950	316-687-3753	UT	Blue Stakes Location Center	800-662-4111	801-487-7410
IL	Julie, Inc.	800-892-0123	815-741-5958	VT	Dig Safe – Vermont	800-225-4977	617-273-2811
IL	Digger	312-744-7000	312-744-4627	VA	Miss Utility of Virginia	800-552-7001	804-530-2179
IN	Indiana Underground Plant Protection			VA	Miss Utility	800-257-7777	
	Services	800-382-5544	317-849-2176	VA	Miss Utility of Delmarva	800-282-8555	
IA	Underground Plant Protection Service	800-292-8989		WA	Utilities Underground Location Center	800-454-5555	206-451-2385
KS	Kansas One-Call Center	800-DIG-SAFE	316-687-3753	WA	Grays Harbor & Pacific County Utility		
KY	Kentucky Underground Protection, Inc.	800-752-6007	502-266-5743		Coordinating Council	206-532-3550	206-533-7659
LA	Louisiana One Call System, Inc.	800-272-3020	504-769-9171	WA	Utilities Council of Cowlitz County	206-425-2506	206-636-0073
ME	Dig Safe-Maine	800-225-4977	617-273-2811	WA	Chelan-Douglas Utilities Coordinating		
MD	Miss Utility	800-257-7777			Council	509-663-6111	509-663-1719
MD	Miss Utility of Delmarva	800-282-8555		WA	Upper Yakima County Underground		
MA	Dig Safe-Massachusetts	888-344-7233	781-273-2811		Utilities Council	509-248-0202	
MI	Miss Dig Utility Communication			WA	Inland Empire Utility Coordinating		
	System	800-482-7171	810-332-7523		Council	509-456-8000	509-624-0220
MN	Gopher State One Call	800-252-1166	612-454-0170	WA	Palouse Empire Underground		
MS	Mississippi One Call System, Inc.	800-227-6477	601-362-7533		Coordinating Council	800-822-1974	509-883-8487
MO	Missouri One Call System, Inc.	800-344-7483	314-635-8402	WA	Utilities Notification Center	206-696-4848	503-293-0826
MT	Utilities Underground Protection Center	800-424-5555	206-451-2385	WV	Miss Utility of West Virginia, Inc.	800-245-4848	304-345-3959
NE	Nebraska Underground Hotline, Inc.	800-642-8434	402-331-3857	WI	Diggers Hotline, Inc.	800-982-0299	414-259-1453
NE	Diggers Hotline	800-331-5666		WY	Wyoming One-Call	800-348-1030	316-687-3753
NV	Underground Service Alert North	800-227-2600	510-798-1683	WY	West Park Utility Coordinating Council	307-587-4800	
NH	Dig Safe - New Hampshire	800-225-4977	617-273-2811	WY	Call-In Dig-In Safe Commission	307-682-9811	307-682-4396
NJ	Garden State Underground Plant			WY	Fremont County Utility Coordinating		
	Location Service	800-272-1000	908-232-1930		Council	307-856-7555	
NM	New Mexico One Call System, Inc.	505-260-1990	505-260-0968	WY	Central Wyoming Utilities		
NY	Underground Facilities Protective				Coordinating Council	307-265-5252	
	Organization	800-962-7962	315-437-2621	WY	Sweetwater County One-Call	307-362-8888	
NY	Utility Call Center c o Lilco Facilities	516-661-6000	516-677-4739	WY	Underground Utility Coordinating		
NY	NY City - Long Island One Call Center	800-272-4480	718-631-8395		Council	307-324-6666	
NC	The North Carolina One Call Center	800-632-4949	919-299-1914	WY	Albany County Utility Coordinating		
ND	Utilities Underground Location Center	800-454-5555	206-451-2385		Council	307-742-3615	
OH	Ohio Utilities Protection Service	800-362-2764	216-759-2745	WY	Southeast Wyoming Utilities		
OK	Call Okie	800-522-6543	405-848-9325		Coordinating Council	307-638-6666	
OR	Utilities Underground Location Center	800-454-5555	206-451-2385	WY	Utilities Underground Location Center	800-454-5555	206-451-2385
				DC	Miss Utility	800-257-7777	

ATTACHMENT 3 - UTILITY MARK-OUT DOCUMENTATION

Project Name:_____ Location:_____
Company Supervisor:_____ Date:_____
Utility Called:_____
Subcontractor:_____ Task/Activity:_____
County of work:_____ Municipality of work:_____

Before work is done on any site, contact the appropriate local utility locating service (Miss Dig, Uloco, etc.) or a local utility contractor to have subgrade utilities marked. Indicate to the utility locator the nearest intersecting street for the site: _____.
Confirmation #:_____.

List utility firms and the utility they will mark.

Utility Marker Emergency Telephone Numbers Major Utilities Marked by Color Code			
Name of Utility Company	**Utility**	**Color Code**	**Emergency Telephone Number**
	Water	Blue	
	Gas	Yellow	
	Electric	Red	
	Telephone/ Cable/ Communication	Orange	
	Sewer	Green	
List other known utilities in the area that the "One Call" service will not contact:			

Completed by:_____ _____ _____
Name Signature Date

"ALL UNDERGROUND UTILITIES MAY NOT BE LOCATED BY THE LOCAL UTILITY SERVICE"

ATTACHMENT 4 - GENERAL LIABILITY, PROPERTY DAMAGE, AND LOSS REPORT

This report is to be completed for all losses or damage to company property in excess of $1,000.00 and all third party damage, regardless of value, resulting from company activities.

PROJECT/LOCATION _____ PROJECT NO. _____ DATE _____

ADDRESS _____

HOW DID DAMAGE OR LOSS OCCUR: _____

_____

_____

DESCRIPTION AND VALUE ($) OF DAMAGED/LOST/STOLEN PROPERTY: _____

_____

LOCATION OF DAMAGED/LOST/STOLEN PROPERTY (Before Loss): _____

_____

DATE AND TIME OF DAMAGE, LOSS, OR THEFT: Date: _____ Time: _____ a.m./p.m.

OWNER OF DAMAGED/LOST/STOLEN PROPERTY:

Name _____ Phone No. ( ) _____

Address _____ City _____

Employer and Address _____

INJURED PARTIES (Also complete a Supervisor's Employee Injury Report if a Company Employee):

Name _____ Phone No. ( ) _____

Address _____ City _____

Employer and Address _____

Description of Injury _____

WITNESSES:

1. Name _____ Phone No. ( ) _____

   Address _____ City _____

   Employer and Address _____

2. Name _____ Phone No. ( ) _____

   Address _____ City _____

   Employer and Address _____

WERE PICTURES TAKEN? ☐ YES ☐ NO

WERE POLICE NOTIFIED? ☐ YES ☐ NO DEPT. _____ REPORT NO. _____

COMPLETED BY: _____ (Print) _____ (Signature) _____ (Date)

PROJECT/LOCATION MANAGER: : _____ (Print) _____ (Signature) _____ (Date)

REPORT MUST BE CALLED IN OR FAXED TO:
CORPORATE RISK MANAGEMENT (PHONE: 412-380-4097, FAX: 412-380-6218)
WITHIN 24 HOURS, OR NOT LATER THAN NEXT BUSINESS DAY

ATTACHMENT 5 – UNDERGROUND UTILITY HITS TIP SHEET FOR INCIDENT INVESTIGATIONS

1. Location of the incident.
2. The time of day the incident occurred.
3. What type of utility was hit?
4. How deep was the line hit (in feet)?
5. Who called Designated Locator Service?
6. Note the Dig Safe number on the Incident Investigation Follow-up report.
7. Attach the "One Call" record keeping documentation.
8. Were markouts completed by the utilities? If so, please identify.
9. Were markouts legible at the site?
10. Was the markout of the line that was hit accurate?
11. Was the markout misinterpreted?
12. Is there a utility damage sheet attached to the Incident Investigation Follow-up Report/
13. Have there been any faults or oversights by any 3rd party? If so, is it documented on the Incident Investigation Follow-up Report?
14. Did site supervisor interview the property owner/manager prior to the incident?
15. Was pre-screened by hand digging 3-5 feet?
16. Were any supplemental utility locator devices used? If so, did we obtain them? If so, were they used on site?
17. Were there blueprints/as built plans available? If so, did we obtain them? If so, were they used on site?
18. Who is paying for the repairs?
19. Please define the total hours and cost estimate/impact to address the utility damage incident:

    _____ Site time in hours (not billed to the job)
    _____ PM time hours (not billed to the job)
    _____ H&S time in hours (not billed to the job)
    _____ BLM Time in hours (not billed to the job)
    _____ Rework/non-billable time (estimate)
    _____ Subcontractor rework/non-billable costs (estimate)
    _____ Repair costs to company (estimate)
    _____ Repair cost to customer (estimate)

20. What is the training background for our Site Supervisor?
21. Is he/she current with the OSHA 40 hour and 8 hour refresher? If so, what are the dates of the training?
22. Who was the Site Safety Officer on the job site?
23. Does he/she have OSHA 8 hour supervisor training? If so, what are the dates of the training?
24. What was the name of the drilling subcontractor that was on site?
25. Have we researched the training background for this vendor?
26. Does this vendor have approved status?
27. Was there a tailgate safety meeting that took place?
28. Were utility markouts addressed at the tailgate safety meeting?
29. Were there any markings nearby the "hit" area?

ATTACHMENT 3

SITE-SPECIFIC SAFETY AND HEALTH PLAN