Final
REMOVAL ACTION REPORT
AREA B WEST AND AREA J4
FORMER CAMP GORDON JOHNSTON
FRANKLIN COUNTY, FLORIDA

Contract No. DACA87 - 00 - D - 0038
Delivery Order 0023
FUDS Project Number 104FL011004

Prepared by

PARSONS
100 West Walnut Street
Pasadena, CA 91124

Don Silkebakken, P.E.
Project Manager

November 2003
742305

"The views, opinions, and/or findings contained in the report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documentation"

November 17, 2003

U.S. Army Engineering & Support Center
ATTN: CEHNC-OE-DC (Roland Belew)
4820 University Square
Huntsville, AL 35816-1822
256-895-1553

Subject: Contract DACA87-00-D-0038, Delivery Order 0003
Final Remedial Action Report – Areas B West and J4
Former Camp Gordon Johnston, Franklin County, Florida

Dear Mr. Belew:

Enclosed please find eight (8) copies of the Final Remedial Action Report for the Former Camp Gordon Johnston Project, in accordance with the Scope of Work (SOW), dated May 31, 2002. Twenty-Five (25) copies have simultaneously been forwarded to Mr. Robert Bridgers, USACE Jacksonville District. The comments on the Draft document have been addressed and and the Form 7 responses are included with this submittal.

If you have any questions regarding this letter or need additional information, please contact me at (678) 969-2384 or (404) 606-0346 (cell).

Sincerely,

Parsons Infrastructure & Technology Group, Inc.

Don Silkebakken, P.E.
Project Manager

cc: Robert Bridgers (CESAJ – 25 copies)
Ken Stockwell, (Parsons)
Project File (742305)

U. S. ARMY ENGINEER DIVISION HUNTSVILLE

CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT OE Removal Action Area B West and Area J4, Former Cp Gordon Johnston, FL

☐ SITE DEV & GEO	☐ MECHANICAL	☒ OE SAFETY	☐ SYSTEMS ENG	REVIEW Draft Final Report S: 11-06-03
☐ ENVIR PROT& UTIL	☐ MFG TECHNOLOGY	☐ ADV TECH	☐ VALUE ENG	DATE 10-28-03 Cont# 10-140-03
☐ ARCHITECTURAL	☐ ELECTRICAL	☐ ESTIMATING	☐ OTHER	NAME Robert S. Bohannon/OES/426-3411
☐ STRUCTURAL	☐ INST & CONTROLS	☐ SPECIFICATIONS		

ITEM	DRAWING NO OR REFERENCE	COMMENT	ACTION
1.	General	The Draft Final Removal Report for Area B West and Area J4 of the Former Camp Gordon Johnston, FL was reviewed for accuracy and completeness. Base on this review, the following comments are provided:	A – Comment Noted.
2.	General	Copies of the receipts for explosives from the vendor are not included in the report. Please correct.	A – Explosives vendor receipts have been added to Appendix F.
3.	Pg 2-17, par 2.5.3.5, line all	Throughout this paragraph and in Photo 2.7, the rifle grenade shown and accompanying text miss-identifies this item. If HE loaded, it is an M9A1 (not an M9). If it is practice, it is an M11A1, M11A2, M11A3 or M11A4 (not an M11). The M9A1 (M11A1 series) is over two inches longer than the M9 (M11).	A – Changes made as requested.
4.	Pg 6-2, par 6.8, line 3	In this paragraph, and in others, it is stated that 5504 pounds of NOES was recovered; yet only 235 pounds were shipped. Please give the disposition of the remaining 5262 pounds.	A – All OES and some of the remaining NOES (total of 235 pounds) was shipped to FACT for smelting. The balance was all NOES and was delivered to a local scrap dealer periodically throughout the field effort. The text was revised for clarity.
5.	General	With the above exceptions, this report seems to be complete, accurate and easy to understand.	A – Comment noted.

ACTION CODES
A - ACCEPTED/CONCUR
D - ACTION DEFERRED
W - WITHDRAWN
N - NON-CONCUR
VE - VE POTENTIAL/VEP ATTACHED

Final
REMOVAL ACTION REPORT
AREA B WEST AND AREA J4
FORMER CAMP GORDON JOHNSTON, FLORIDA

Prepared for

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

Contract No. DACA87 - 00 - D - 0038
Delivery Order 0023
FUDS Project Number 104FL011004

Prepared by

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John Chulick and Greg Van, Geophysics

November 2003

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Project Manager
Don Silkebakken, P.E.

QC Reviewer
Laura kelley

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LIST OF ACRONYMS AND ABBREVIATIONS

ASR	Archives Search Report
ATC	Amphibious Training Center
BATF	Bureau of Alcohol, Tobacco, and Firearms
bgs	below ground surface
BIP	blown in place
the Camp	Camp Gordon Johnston
CESAJ	Corps of Engineers, Jacksonville District
CWM	chemical warfare material
DDESB	Department of Defense Explosives Safety Board
DERP	Defense Environmental Restoration Program
DID	data item description
DoD	U.S. Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
ESS	Explosives Safety Submission
FAA	Federal Aviation Administration
FDEP	Florida Department of Environmental Protection
FFP	Firm Fixed Price
FSU	Florida State University
FUDS	Formerly Used Defense Site
GIS	geographic information system
HE	high explosive
IC	institutional controls
mm	millimeter
MPM	most probable munition
MSD	minimum separation distance
NOES	non-OE scrap
NTP	notice to proceed

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

OE	ordnance and explosives
OES	ordnance and explosives scrap
Parsons	Parsons Corporation (formerly Parsons Engineering Science, Inc.)
QA	quality assurance
QC	quality control
QCS	quality control specialist
RA	removal action
SM	Site Manager
SOW	Statement of Work
SUXOS	Senior UXO Supervisor
TNT	trinitrotoluene
TPP	Technical Project Planning
TSD	Team Separation Distance
USA	USA Environmental, Inc.
USACE	U.S. Army Corps of Engineers
USAESCH	U.S. Army Corps of Engineers, Engineering and Support Center, Huntsville
UXO	unexploded ordnance
UXOSO	UXO Safety Officer
WP	Work Plan

CHAPTER 1
INTRODUCTION

1.1 PROJECT AUTHORIZATION

1.1.1 Parsons Corporation (Parsons) received Contract No. DACA87-00-D-0038, Delivery Order No. 0023, from the United States Army Corps of Engineers, Engineering and Support Center, Huntsville (USAESCH) to perform a Removal Action (RA) on seven subareas within the former Camp Gordon Johnston (the Camp), in Franklin County, Florida (Appendix A). The approved project RA Work Plan (WP, Parsons, 2002) includes details of Ordnance and Explosives (OE) response actions for all seven subareas; however, this RA report documents the two initially funded sites (Area B West – Grenade Court and Area J4 – Special Training Area). Additional OE response actions, in accordance with the approved Action Memorandum (USACE, 2002), Statement of Work (SOW), and project WP will be conducted as funds become available.

1.1.2 Parsons performed an RA on two subareas as part of the initial Task Order Award. A subsurface removal action was conducted for Area B West (Grenade Court) and a surface removal action was conducted for Area J4 (Special Training Area). Both sites are located along U.S. Highway 98 on the southern/coastal perimeter of the former Camp Gordon Johnston (Figures 1.1 and 1.2). The RA was conducted at these sites as a result of the OE findings during the Engineering Evaluation/Cost Analysis (EE/CA) and impending development of adjacent properties (Parsons, 2001). All work adhered to the Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS) and relevant U.S. Army regulations and guidance for OE programs.

1.1.3 As specified in the delivery order, this report is prepared to summarize the work performed during the RA and present an accounting of the OE recovered. This report is prepared in accordance with the Data Item Description (DID) OE-030, as required by the SOW, dated May 31, 2002 (Appendix A). All tasks for this project were awarded as Firm Fixed Price tasks; therefore, details regarding the costs incurred to perform the RA are not required in this report, per DID OE-030.

1.2 REASONS FOR REMOVAL ACTION

1.2.1 The former Camp Gordon Johnston, consisting of approximately 159,348 acres, is located approximately 60 miles southwest of Tallahassee, in Franklin County, Florida (Figure 1.1). The site is bordered to the north by the Apalachicola National Forest, to the south and east by the Gulf of Mexico, and to the west by Tate's Hell Swamp (excluding the City of Carrabelle). The former Camp includes Dog Island, part of the Gulf Barrier Chain, located approximately 3 miles south of Carrabelle (Figure 1.2).

1.2.2 The former Grenade Court – Area B (one of the two areas of concern for this RA) encompasses approximately 98 acres of moderate to dense forest in the southeastern portion of the former Camp Gordon Johnston (Figure 1.3). During the EE/CA evaluation, Area B was subdivided into Area B West and Area B East. Area B West is owned by St. Joe Timber Land Company/Arvida and is undergoing final planning for adjacent residential development and onsite parking and storage area and facilities associated with a potable water distribution network. This development is referred to as "Summer Camp." Area B East (not included in the initial Task Order Award) is owned by Florida State University (FSU) and is scheduled for a later subsurface OE response subject to availability of funds. Area B West is located just east of the intersection of State Highway 319/377 and U.S. Highway 98. There is no current on-site or adjacent residential component present; however, the FSU Marine Laboratory is located within 0.25 mile to the immediate south. Historical records indicate that this area was used as a grenade practice range and as a parade ground.

1.2.3 The Special Training Area – Area J4 (the second area of concern for this RA) comprises approximately 125 acres in the south-central portion of the former Camp near the coast and along U.S. Highway 98 (Figure 1.4). Documented former use of this area includes grenade and demolition training. The majority of Area J4 is privately owned by two individuals with a third small portion owned by a Catholic Church. The only permanent structure present at the time of the RA was the church; however, approximately 20 acres of the northwestern portion of the site are to be included in an ongoing mixed-use development known as St. James Bay. St. James Bay Development Company is actively developing a golf course/residential community with Phase One to include 161 residential lots. The portion of the development overlapping Area J4 has been designated for golf course use only. There are no specific plans currently on file for future land use for the majority of the undeveloped J4 Area (the area southwest of the St. James Bay Development); however, the property is listed for sale and representatives from St. James Bay Development Company have confirmed they are interested in acquiring the parcel.

1.2.4 In April of 1942, Franklin County, Florida was selected by the War Department as the site of an Army amphibious training center. Site clearing began on July 8, 1942 and construction of the facility, originally known as Camp Carrabelle, commenced two weeks later. The mission of this Amphibious Training Center (ATC) was to teach, by academic and practical means, all phases of amphibious operations involving a shore-to-shore movement, and to outline the basic principles of ship-to-shore movements by lectures and conferences. The objective to be attained by each student division was the formation of a highly efficient, well-coordinated, hard-hitting, and fast-moving amphibious force, thoroughly qualified to act independently or in conjunction with other army troops and naval forces in a combined operation. The objective also included the mental and physical hardening of all officers and enlisted men for arduous field service and battle.

1.2.5 The instruction provided by the new training program emphasized loading and unloading landing craft quickly and quietly by day and night. This training consisted of boat discipline, including boat formations and control of landing craft, organization and control of troops during loading and unloading operations, and organization, tactical operation, and supply of combat teams. Seizure of the beachhead and the inland advance to the division objective included training in crossing beach obstacles and defensive works, clearing the beach of obstacles, demolitions, and the subsequent beach organization to support the operation. Other training activities included the use of smoke for screening, the use of chemicals for contamination purposes, air-ground support, anti-aircraft defense, battle firing, automatic weapons firing from landing craft, and combat in cities.

1.2.6 In addition to the amphibious training conducted at the Camp, the site also contained special training areas containing obstacle courses, grenade and bayonet courses, areas for judo, knife and bayonet fighting, hand-to-hand fighting, and demolitions training sites. Other training sites involved the use of live ammunition including the street fighting course, the infiltration course, battle firing, and firing from simulated landing craft.

1.2.7 The 38th Infantry Division was the first unit scheduled for training, arriving in late November 1942 and completing their training on December 30, 1942. In November 1942, tests were also conducted using the 4.2" chemical mortars mounted in landing craft firing high explosive (HE) and white phosphorus projectiles onto the shore. This work was done under the direction of the Chemical Warfare Amphibious Project. Companies of the 2nd and 3rd Chemical Battalions were rotated through the center from November 1942 to March 1943. On January 13, 1943, the post was officially renamed Camp Gordon Johnston to honor a distinguished cavalry officer. Also in January 1943, the 28th Infantry Division arrived to begin amphibious training. Other smaller units also received amphibious training at the Camp in early 1943. These units consisted of the 6th Communications Squadron, the 79th Smoke Generator Company, and the 377th Coast Artillery Battalion.

1.2.8 In June 1943, as a result of an agreement between the U.S. Army and the U.S. Navy that transferred the amphibious training mission to the Navy, the Amphibious Training Center was officially disbanded. In November of 1943, the 4th Infantry Division received amphibious training at the Camp under the supervision of the Navy. In late 1944 and early 1945, 50,000 acres west of the New River were released as activities at the Camp diminished. The post officially closed on May 1, 1946 with the 100,000 remaining acres of leased land returned to the original owners and sale of the purchased land and approximately 1,000 buildings located throughout the Camp by the War Assets Administration. In 1948 the last property was transferred and the Army's role ended.

1.2.9 Ordnance used at the former Camp Gordon Johnston included rockets, grenades, artillery rounds, mortars, and various initiating and priming material used as obstacles and mine field clearing devices. Unexploded ordnance (UXO)/OE that may be

encountered at the former Camp includes: 2.36" rockets (HE and practice), 4.5" rockets, HE grenades, 105-155mm HE artillery rounds, 4.2" HE mortars, 4.2" smoke and white phosphorous mortars, 81mm mortars (HE and practice), 60mm mortars (HE, white phosphorus, smoke, illuminating, practice), 37mm HE projectiles, practice antipersonnel mines, and practice antitank mines. Demolition materials used as obstacles and mine field clearing devices may include: various shape charges and trinitrotoluene (TNT) Blocks, cratering charges (40 lb), dynamite sticks, Block M3 explosive, Block M5A1 explosive, detonating cord, blasting caps, various firing devices, and bangalore torpedoes.

1.2.10 An expanded discussion of the history of the Camp is presented in the Final EE/CA Report (Parsons, 2001) and the Archives Search Report [(ASR) USACE, 1995a,b]. Additional details on both the EE/CA investigation and this RA are available on the project website at *www.projecthost.com.*

1.2.11 The RA was identified for Area B West and Area J4 based on the EE/CA findings and the impending development described above. In addition, regulatory concerns stemming from the non-specific use of Area J4 for "special training" was a driving factor in the surface removal recommendation. For Area B West, various OE scrap was recovered from the majority of the anomalies identified during the EE/CA investigation to include grenade fragments indicative of training with HE grenades and practice grenades (both hand and rifle). In addition, seven M1 practice landmines with live fuzes and spotting charge (UXO) were recovered. For Area J4, no UXO items were identified; however, the presence of practice hand grenades and an inert landmine coupled with the overlapping St. James Bay residential development and Florida Department of Environmental Protection (FDEP) concerns led to the OE response recommendation.

1.2.12 Parsons supported a 3-day onsite Technical Project Planning (TPP) meeting session and RA project fieldwork kickoff with USAESCH and U.S. Army Corps of Engineers (USACE), Jacksonville District (CESAJ) between March 3 and 5, 2003. Meetings/coordination was conducted with members of the local government and community to include the County Planner's Office, Camp Gordon Johnston Association, Franklin County Property Appraiser's Office, emergency response officials, St. Joe Timberland Company/Arvida, and St. James Bay Development representatives/BaysideRealty.

1.2.13 A project team meeting was held on March 3, 2003 at the FDEP offices in Tallahassee, Florida in order to reacquaint the regulators with the Final EE/CA recommendations (Parsons, 2001) with respect to impending RA implementation at selected/funded sites. In addition, the selected institutional controls (IC) components were reviewed to include final wording for warning signage and public distribution brochures. The minutes for this meeting are presented in Appendix B.

1.2.14 A project update and status was also presented to the Franklin County Board of County Commissioners at their regular meeting on March 4, 2003 in advance of

commencement of the initial RA field activities at the request of Commissioner Cheryl Sanders. The minutes of this meeting are presented in Appendix B.

1.3 PURPOSE AND SCOPE

The purpose of the RA was to remove all UXO and inert OE scrap (OES) from the ground surface to the recommended clearance depth (Area B = subsurface, Area J4 = surface only) within the two subareas identified for OE response action. The scope of the RA included the following:

- preparation of RA WP (finalized November 2002);
- locate, gain access, identify, recover, store, and apply final disposition of all metallic anomalies within the project area equal to or larger than the most probable ordnance anticipated for the subarea;
- collect and dispose of all OE scrap via an offsite smelter; and
- preparation of a Removal Report (this document) to summarize the findings of the RA.

1.4 PROJECT TEAM

The RA project team included Parsons and USA Environmental, Inc (USA). Parsons was the prime contractor to USAESCH and provided overall engineering support and coordinated all RA activities. Parsons' responsibilities included: providing UXO avoidance escort services for subcontractor brush cutting and land surveying activities, providing the UXO Safety and Quality Control personnel, conducting the intrusive investigation, interface and coordination of work process notifications, and control of project schedule and budget. USA was the UXO Subcontractor for Parsons. Services provided by USA included assisting Parsons in conducting the intrusive investigation, collection and storage of OE scrap, securing the minimum separation distance (MSD), and detonation of UXO items. Figure 1.5 is a project team chart showing key personnel and project team details.

1.5 TECHNICAL APPROACH

1.5.1 The approved RA WP (Parsons, 2002) included the plans listed below as required by DID OE-005-02.

- Technical Management Plan
- Explosives Management Plan
- Explosives Siting Plan
- Geophysical Investigation Plan
- Site Safety and Health Plan
- Location Surveys and Mapping Plan

- Work, Data, and Cost Management Plan
- Property Management Plan
- Quality Control Plan
- Environmental Protection Plan
- Investigation Derived Waste Plan
- Geographic Information System (GIS) Management Plan

1.5.2 Each of these plans discussed in detail the aims and objectives; technical procedures; and facilities and equipment needed for implementation of various work elements of the removal action. Detailed field operating procedures for surveys, UXO identification, removal, transport and storage, and general operating procedures for OE/UXO areas were presented in the Geophysical Investigation Plan, Explosives Management and Explosive Siting Plans, and Site Safety & Health Plan.

1.6 PROBABILITY OF SOLUTION/ACCOMPLISHMENT

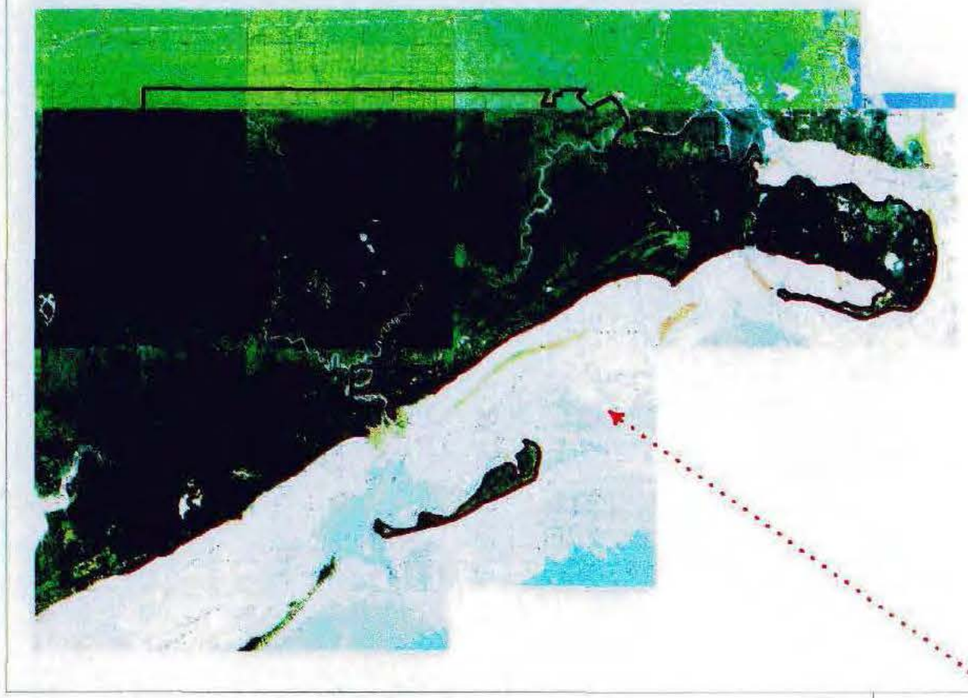
1.6.1 The anomalies identified at Area B West as part of the subsurface RA were excavated "real-time" using audible signal (non-recording) Schonstedt's model instruments. Therefore, geophysical identification of anomalies and intrusive investigation were coincident. A 100-foot by 100-foot contiguous grid network (each grid with unique identifier) was established by a State of Florida certified professional land surveyor. All field activities were implemented using the procedures presented in the RA WP. This RA provided OE subsurface clearance at Area B West with a high probability for successful removal of UXO/OE items utilizing proven techniques and reliable equipment.

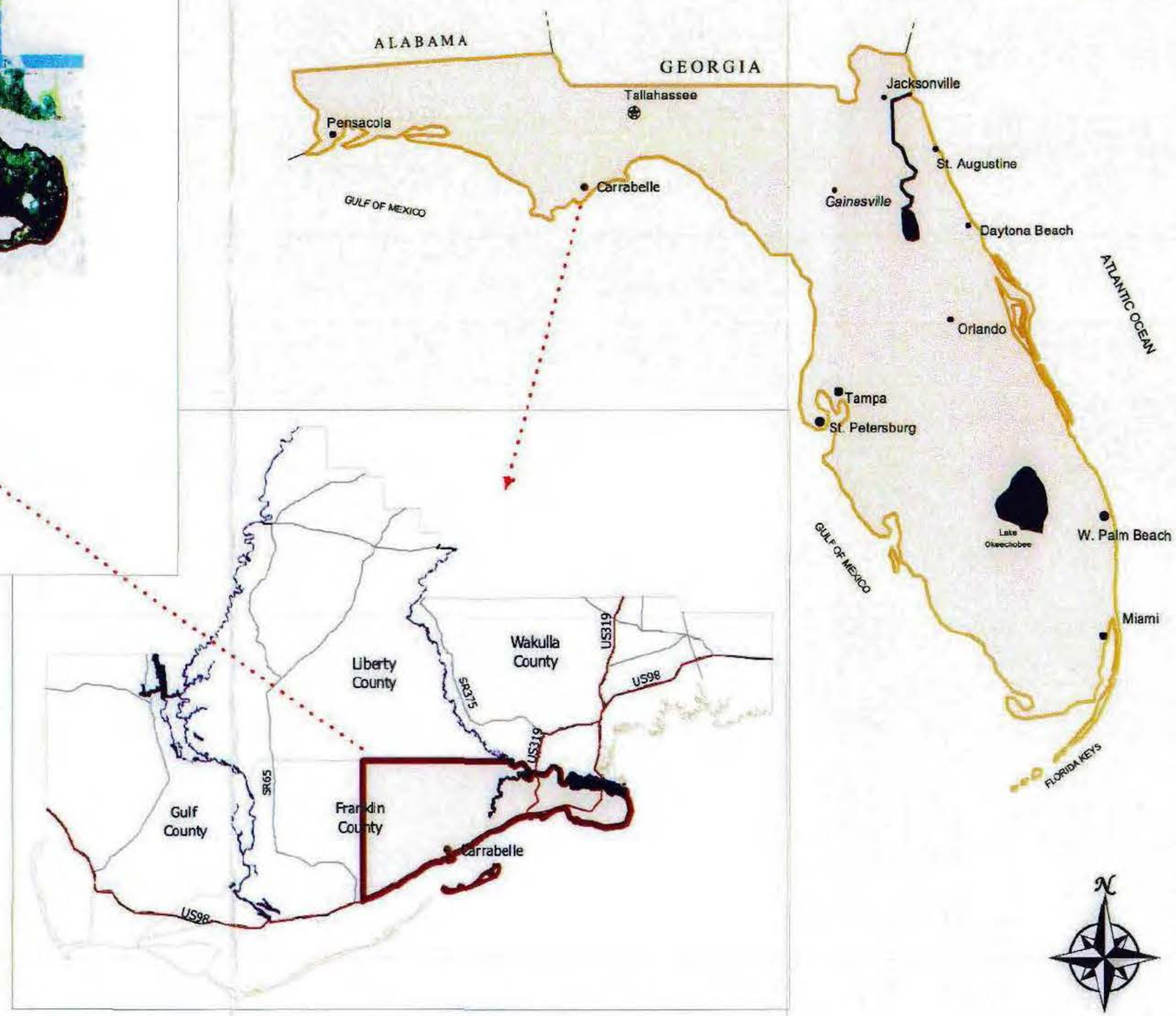
1.6.2 For Area J4 a magnetometer assisted visual surface clearance RA was conducted with the Schonstedt used to assist in identifying anomalies below the leaf litter but on the ground surface. A 500-foot by 500-foot contiguous grid network (each grid with unique identifier) was established by a State of Florida certified professional land surveyor. This RA provided OE surface clearance at Area J4 with a high probability for successful removal of UXO/OE items utilizing proven techniques and reliable equipment.

Figure 1.1

General Location Map

Former Camp Gordon Johnston
Franklin County, Florida

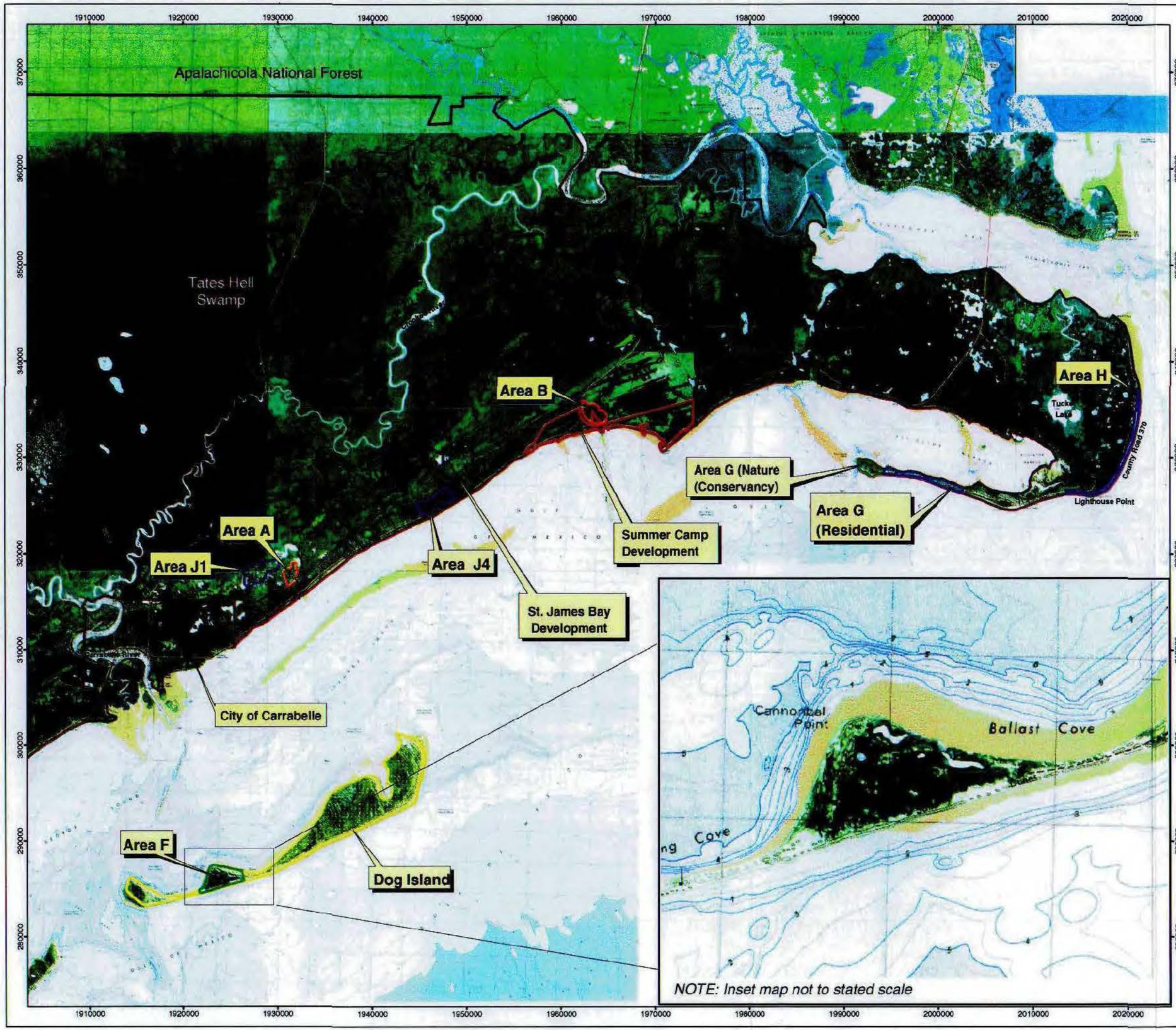




Source: Topo - Horizon Technologies
State and County Maps -
ESRI Data & Maps CD, 1998

J:\GIS\736121\GENERAL LOCATION MAP\Figure1.1.DSF

Figure 1.2



LEGEND:

Area of Interest by Recommended Action:

- No Department of Defense Action Indicated (NDAI)
- Surface Clearance and Institutional Controls (IC)
- Modified Surface Clearance* and IC
- Clearance to Depth (4 feet) and IC
- St. James Bay Development
- Summer Camp Development
- Camp Boundary

* NOTE: Modified Surface Clearance is defined as a one-time 100% geophysical mapping and surface removal.

N

Map Units: NAD 1983 Florida State Plane North (Feet)

10,000 5,000 0 10,000 Feet

PARSONS

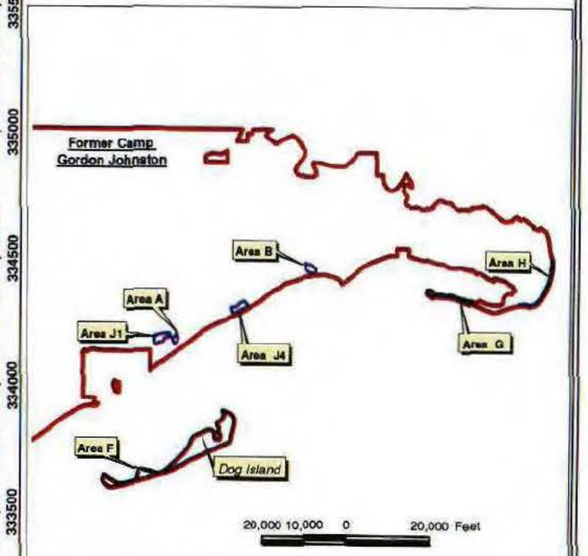
U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER

DESIGNED BY: BT	**Site Locations and OE Response Action Summary**
DRAWN BY: BT	**Former Camp Gordon Johnston**
CHECKED BY: LK	**Franklin County, Florida**
SUBMITTED BY: DS	SCALE: 1 inch equals 10,000 feet
	DATE: September 2003
	FILE: X:/Gordon_Johnston_GIS/742305/GIS/Maps/PA/Fig1_2_AOI.mxd
	PROJECT NUMBER: 742305
	PAGE NUMBER: 1-8

Figure 1.3

LEGEND

- Area of Interest
- Proposed Summer Camp Development Area



N

Image Source: USGS 1995 orthophoto.

Map Units: NAD 1983 Florida State Plane North (Feet)

600 300 0 600 Feet

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	**Area B** **Grenade Court** **Former Camp Gordon Johnston** **Franklin County, Florida**
DRAWN BY: BT	
CHECKED BY: DS	SCALE: 1 inch equals 600 feet PROJECT NUMBER: 742305
SUBMITTED BY: DS	DATE: September 2003 PAGE NUMBER: 1-9
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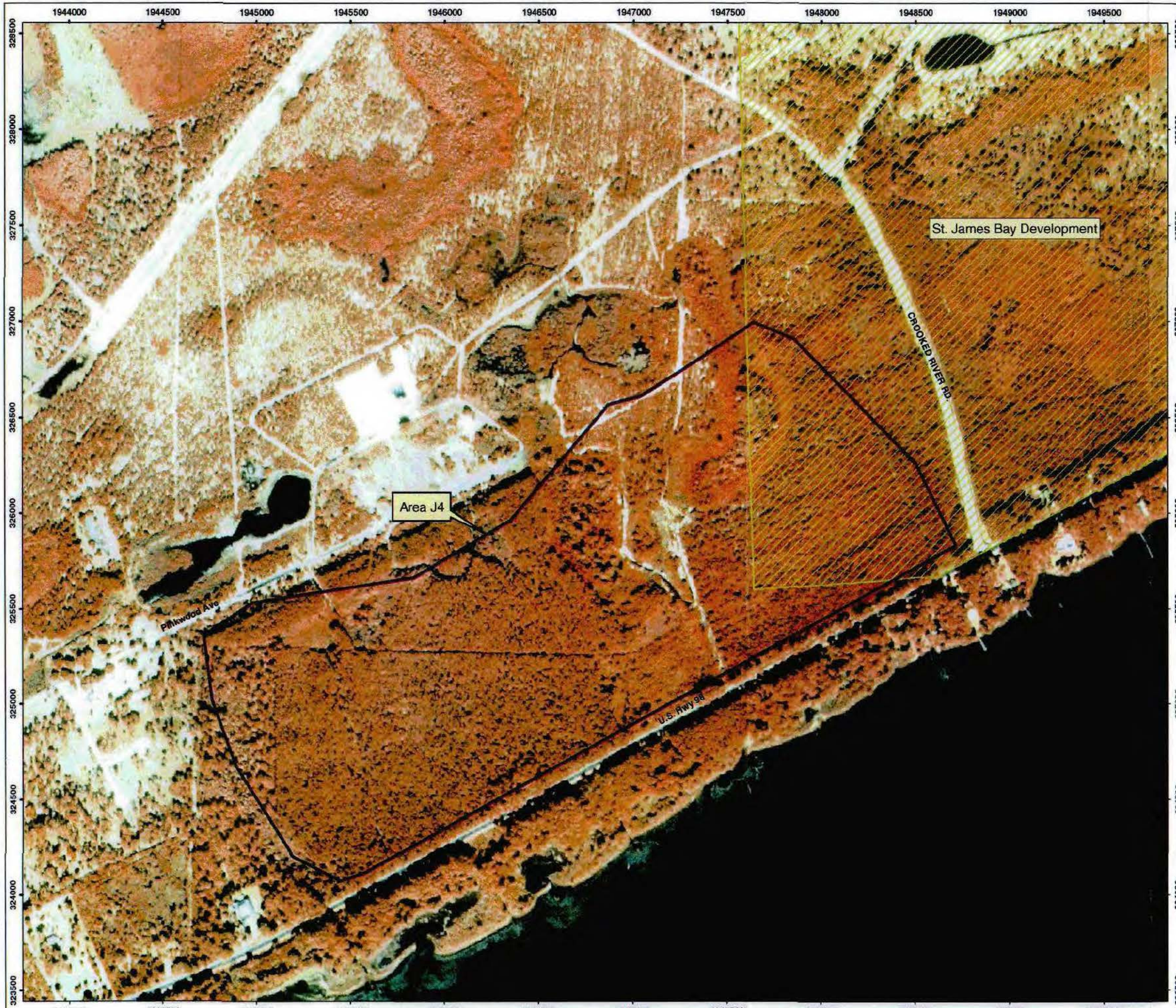
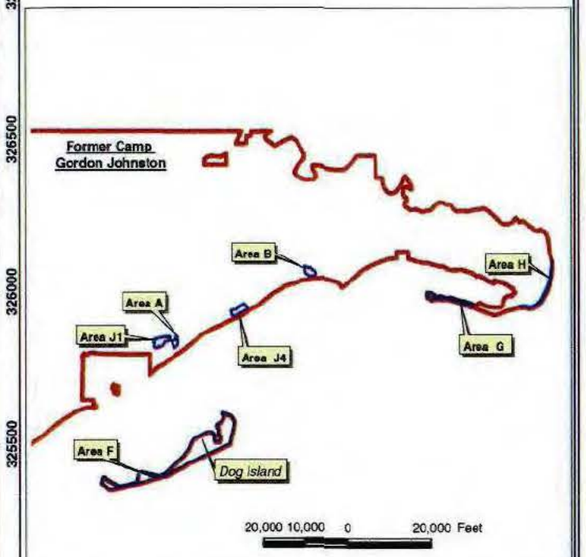
Figure 1.4



LEGEND

- Area of Interest
- St. James Bay Development Area



N

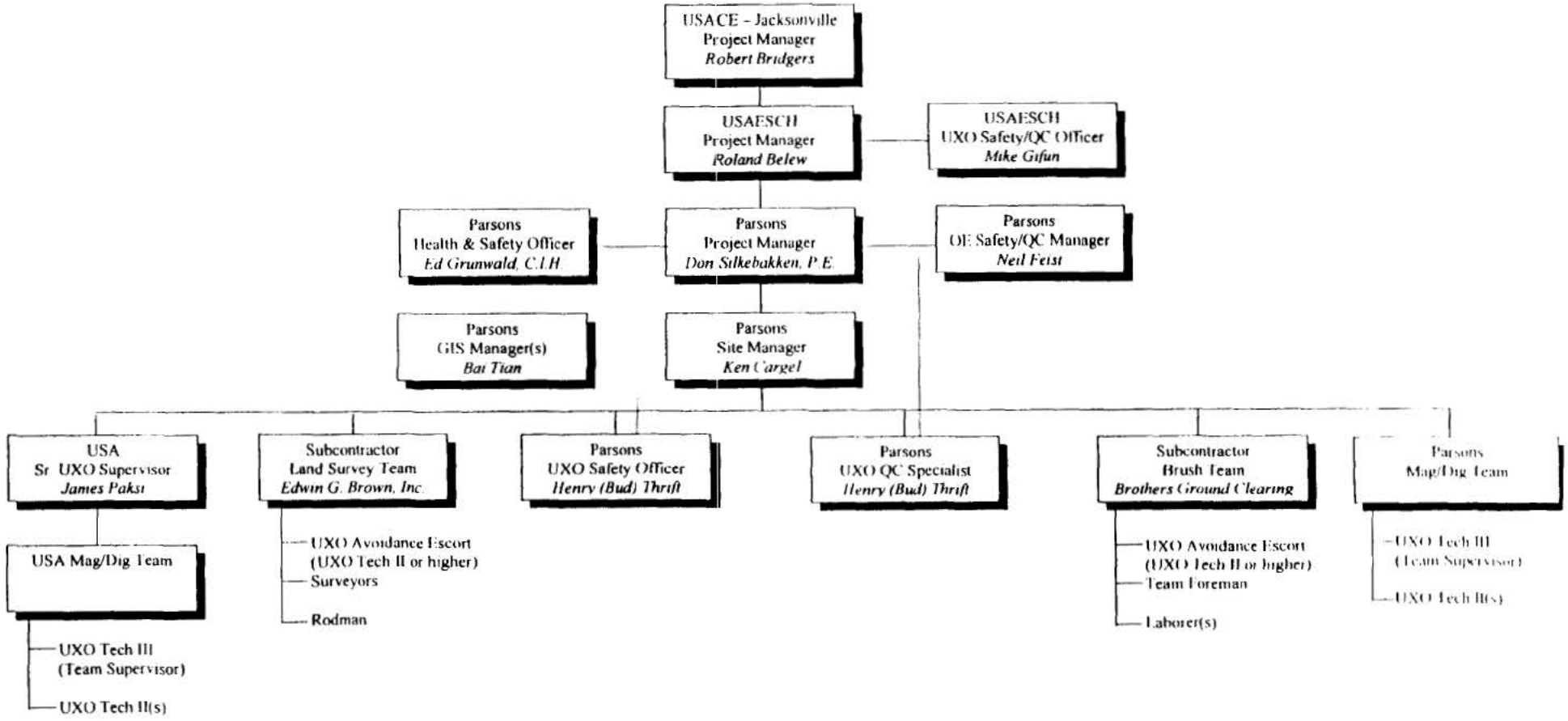
Image Source: USGS 1995 orthophoto.

Map Units: NAD 1983 Florida State Plane North (Feet)

500 250 0 500 Feet

PARSONS		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	**Area J4** **Special Training Area** **Former Camp Gordon Johnston** **Franklin County, Florida**	
DRAWN BY: BT		
CHECKED BY: DS	SCALE: 1 inch equals 500 feet	PROJECT NUMBER: 742305
SUBMITTED BY: DS	DATE: September 2003	PAGE NUMBER: 1-10
	FILE: X:/Gordon_Johnston_GIS/742305/GIS/Maps/RA/Fig1_4_J4.mxd	

Figure 1.5
RA Organizational Structure



CHAPTER 2
DISCUSSION

2.1 INTRODUCTION

The first phase of the RA began on April 28, 2003 with arrival of Parson's personnel onsite following limited Notice to Proceed (NTP) granted by USAESCH to commence brush cut and land survey activities (Appendix C). Commencement of the intrusive investigation in support of the RA began on May 12, 2003 following submittal and subsequent approval of the Final RA WP by the USAESCH (Parsons, 2002). The Explosives Safety Submission (ESS) was prepared by Parsons and approved by the Department of Defense Explosives Safety Board (DDESB) prior to commencement of intrusive work at the site (Parsons, 2003).

2.2 WORK PERFORMED

2.2.1 The RA field effort commenced on April 28, 2003 with the land survey and mechanized brush removal of Area B West. Land survey of Area B West consisted of marking the Site's perimeter boundary and establishing a contiguous grid network throughout the site comprised of 100 foot by 100 foot grids. Two modified tractors, known as Kershaws, were subsequently used by the brush cut subcontractor to remove the small trees (less than 3 inches in diameter) and significant vegetation to the extent necessary to conduct the OE response action. After completion of the preparatory OE response activities at Area B West, land survey and brush cut efforts were initiated at the second site (Area J4) beginning May 9, 2003 as intrusive activities were conducted at Area B West. For Area J4, the contiguous grid network utilized larger grids (500 feet by 500 feet) and the brush clearance activities were less extensive. Figures 2.1 and 2.2 depict the grid layout for Area B West and Area J4, respectively. Parsons' subcontracted the land survey activities to a local professional land survey firm certified in the State of Florida, Edwin Brown and Associates, Inc. Brothers Land Clearing, Inc. was retained for the brush clearance work. Parsons provided direct UXO avoidance support and oversight of both the land survey and brush clearance efforts, conducted in accordance with DID OE-005-07 and the approved project WP (Parsons, 2002). Each subcontractor was provided a daily site safety briefing conducted by Parsons' UXO Safety Officer (UXOSO), with input from the Parsons' Site Manager (SM) and onsite USAESCH UXO Safety Specialist, as appropriate. The entire perimeter of each of the two sites was marked every 100 feet using blue flags and stakes.

2.2.2 Brush cut and land survey activities were simultaneously in progress during the preparatory activites. By overlapping these tasks and working both sites,

Parsons was able to compress the project schedule and minimize the inconvenience to vehicular traffic during the peak beach season. Parsons coordinated with the local community regarding all phases of the project status to include the St. James Development Company actively working near Area J4. The property owners were individually contacted by Parsons prior to commencement of brush clearance activities for consent of all necessary brush removal. Special consideration and attention was given to the trees planted for harvest by the St. Joe Timberland Company in Area B West to minimize damage yet maintain the integrity of the RA activities. Brush cut activities were completed for both sites on May 16, 2003.

2.2.3 Intrusive operations were initiated at Area B West on May 19, 2003 and continued through July 3, 2003. The OE response action selected for this site included subsurface OE removal to depth using "mag and dig" investigation techniques. Parsons subcontracted USA to assist in conduct of the intrusive removal action. In addition, Parsons provided direct oversight and quality control (QC) of the intrusive effort, conducted in accordance with the approved project WP (Parsons, 2002). USA personnel were provided a daily site safety briefing conducted by Parsons' UXOSO, with input from the Parsons' SM and onsite USAESCH UXO Safety Specialist, as appropriate.

2.2.4 During intrusive activities, each intrusive teams' UXO personnel lined up to form individual search lanes approximately 3 to 5 feet wide to systematically cover the grids from one base line to the opposing base line. Each team utilized Schonstedt magnetometers to locate suspect metallic items along the search lanes based on audible instrument signals. All located surface and subsurface metallic items were removed from the grid, UXO and OE scrap items were documented, and all UXO items (or suspect UXO items) were appropriately destroyed in place following notification procedures. Subsurface excavation of buried items was accomplished manually with shovels and trowels.

2.2.5 Parsons secured the perimeter of the MSD and employed traffic control procedures when intrusive activities were in progress. All digging activities ceased during times when vehicles entered the MSD (initially 655 feet but later reduced to 351 feet), as reported via radio by road guards stationed around the site perimeter. Only after the "all clear" sign was given did intrusive activities recommence. The findings from the subsurface clearance of OE from Area B West are discussed in later sections of this chapter.

2.2.6 Intrusive operations were initiated at Area J4 on July 6, 2003 and continued through July 10, 2003. The OE response action selected for this site included magnetometer-assisted visual surface clearance of OE. The Parsons and USA intrusive teams moved to Area J4 upon completion of the work at Area B West. Parsons provided direct oversight and QC of the surface clearance effort, conducted in accordance with the approved project WP (Parsons, 2002). USA personnel were provided a daily site safety briefing conducted by Parsons' UXOSO, with input from the Parsons' SM and onsite USAESCH UXO Safety Specialist, as appropriate. During surface clearance activities,

Parsons secured the perimeter of the MSD and employed traffic control procedures, as appropriate. All digging activities ceased during times when vehicles entered the MSD (200 feet), as reported via radio by road guards stationed around the site perimeter. Only after the "all clear" sign was given did surface clearance activities recommence. The findings from the surface clearance of OE from Area J4 are discussed in later sections of this chapter.

2.3 FIELD PROCEDURES

2.3.1 Intrusive Removal Action

2.3.1.1 Intrusive work began on May 12, 2003 following completion of the brush clearance and land survey tasks. Area B West was intrusively investigated first (subsurface) followed by Area J4 (surface). Search operations consisted of those activities required to thoroughly investigate each operating grid to locate and/or identify both surface and subsurface (excluding Area J4) UXO present.

2.3.1.2 UXO teams were composed of a UXO Technician III and up to five UXO Technician IIs. UXO teams performed all search operations and operated under the direct supervision of the Senior UXO Supervisor (SUXOS) and in accordance with the approved WP (Parsons, 2002). A Parsons UXOSO monitored the safety of the two UXO Teams. The following subparagraphs describe the equipment and procedures the individual UXO Teams used to search the individual grids and to excavate subsurface anomalies.

2.3.1.1 Equipment

The equipment requirements for this activity included:

- Schonstedt (Model GA-52Cx)
- Pre-marked baselines were used to subdivide the land-surveyed grid into individual search lanes;
- Rope reels containing nylon rope/twine (used to mark individual search lanes);
- Assorted colored pin flags were used to mark UXO items;
- Miscellaneous common hand tools (i.e. shovels, garden trowels etc.);
- Forms and logbooks were used to record activities and UXO encountered; and
- OES and non-OES collection containers.

2.3.1.1.1 Schonstedt GA-52CX Magnetometer (Schonstedt)

The Schonstedt was used during the intrusive investigation for "mag and dig" operations (performed at Area B West), to assist in visual surface clearance activities (Area J4), and for QC surveys. This instrument was also used to aid in screening areas for brush cut and land survey as well as for UXO avoidance for advancement of survey

stakes. The Shonstedt is a handheld magnetometer that detects subsurface ferrous metal items. The system utilizes fluxgate sensors organized in a gradiometer format. The two fluxgate sensors are aligned and mounted a fixed distance apart to detect changes in the earth's ambient magnetic field caused by ferrous metal. The Schonstedt responds with an audio output when either of the two sensors is exposed to a disturbance of the earth's ambient field associated with a ferrous target or the presence of a permanent field associated with a ferrous target.

2.3.1.2 Visual Surface Sweep Team Procedures

Surface sweep operations conducted for Area J4 were performed under the direct supervision of a UXO Technician III (or higher). The UXO Technician III assembled the sweep personnel into a sweep line and directed their movement across the survey grid.

- The Sweep Team personnel were spaced approximately five feet apart and, at the direction of the UXO Technician III, moved through the grid approximately on line and abreast;
- Each team was equipped with Schonstedt Model GA-52 Cx magnetic locators. Team equipment included marking and flagging supplies and miscellaneous hand-tools. Magnetic locators were used during the surface clearance to assist in locating surface items under brush, leaves, and debris.
- Whenever a suspect item was encountered, the individual who spotted the item called out "hold the line" and held up their hand. The line stoped while the object was inspected to determine if it was UXO or scrap. The item was marked with the appropriate colored pin flag (red for UXO or yellow for ordnance scrap). The line did not move again until directed by the UXO Technician III;
- As the team moved forward using the grid stakes as the sweep lane boundary, the person on the opposite end of the line marked the limit of the sweep lane with white pin flags. These flags became the guide for the return sweep and defined the limits of the previously cleared lane. This procedure was continued until the grid was completely swept.
- The UXO Technician III systematically maneuvered his team back and forth across the grid until 100% of the area was inspected. As the team advanced, the last survey operator on line placed pin flags periodically, based on the site terrain and conditions, to mark the edge of the area cleared and to guide them on the return. Upon reaching the boundary, the team turned around and returned on the opposite side of the inner pin flags. The two outside survey operators then picked up the pin flags being used as the return guide to indicate the boundary of the new area cleared. When the team took a break for any reason, their furthest line of advance was temporarily marked across their front using the white pin flags. Upon return to the field, the team lined up behind the white pin flags and proceeded as before, picking up the temporary flags.

- The UXO Technician III followed behind the sweep line inspecting and verifying the identification of the suspect items (red or yellow flags) and recording data on the type, nomenclature and location of the UXO;
- Upon completion of the grid sweep the sweep team, under the direct supervision of the UXO Technician III, recovered and stockpiled OE scrap at a designated location. No UXO items were encountered within Area J4,; therefore, demolition activities were not conducted.

2.3.1.3 Analog Magnetometer Searches

2.3.1.3.1 Magnetometer sweeps (i.e., mag & dig) were used for subsurface clearance of Area B West, as identified in the SOW and the approved project WP (Parsons, 2002).

2.3.1.3.2 The UXO Technician III (or higher) directed personnel within the team to establish individual search lanes approximately 3 to 5 feet wide and to begin searching each lane using a Schonstedt Model GA-52Cx magnetic locator. The intrusive team personnel started at one end of each lane and moved forward toward the opposing base line. During the forward movement each team member moved the magnetometer back and forth from one side of the lane to the other. Both forward movement and the swing of the magnetometer was performed at a pace, which ensured the entire lane was searched and that the instrument was able to appropriately respond to anomalies. Whenever a metallic surface object was encountered the technician halted and investigated the anomaly real-time. Throughout this operation the UXO Technician III (or higher) closely monitored individual performance to ensure these procedures were being performed with due diligence and attention to detail. The maximum depth for subsurface removal was four feet for Area B West; however, the deepest item encountered was an M1 practice landmine (Grid L10) with live fuze and spotting charge (UXO) at 42 inches below ground surface (bgs). All other OES and UXO items were recovered from depths of less than 24 inches bgs.

2.3.1.4 Excavation of Anomalies

2.3.1.4.1 The intrusive investigation teams excavated all metallic anomalies identified during the analog magnetometer searches of Area B West. No investigation was terminated as a result of reaching the four foot maximum removal depth. For UXO items, description, location (grid ID), photographic documentation, weight, depth, orientation and other pertinent data was recorded. For OES items, description (if possible), depth, approximate size and weight was recorded. Excavation of anomalies utilized a trowel and shovel for all targets. Non-UXO items recovered were removed to the staging/processing area. Suspect UXO items were destroyed in-place.

2.3.1.4.2 The most probable munition (MPM), based on items encountered during the EE/CA, was a Mk II HE hand grenade for Area B West. An exclusion zone equivalent to the MSD for unintentional detonations (650 feet) was initially observed around all excavations within the Area B West site (to include U.S. Highway 98 and State Route 319) during intrusive operations. Based on the RA findings, the MPM was revised

to an M-9 Rifle Grenade with equivalent MSD of 351 feet (Appendix C). For Area J4 a default MSD of 200 feet was employed as the appropriate MPM was determined to be inert OE scrap until such time as UXO was encountered. No UXO was recovered during the surface clearance effort at Area J4; therefore, the 200 foot MSD was not revised.

2.3.1.4.3 For both Area B West and Area J4 the team separation distance (TSD) between UXO teams was 200 feet (the minimum TSD in accordance with EP 385-1-95a, Basic Safety Concepts and Considerations for Ordnance and Explosives Operations). The MSD for intentional detonations was reevaluated based on each actual UXO item recovered (applicable to Area B West only) but was at no time less than 351 feet. No munitions with a larger MSD than that for which the MPM was determined for either site were discovered.

2.3.1.4.4 The MSD was carefully monitored to ensure non-UXO/nonessential personnel were kept out of the work area. The moderate to heavy seasonal use of U.S. Highway 98 and State Route 317 mildly impacted the intrusive team's ability to perform intrusive operations at both sites. During the RA, temporary closure of this road was determined to be impractical; therefore road guards were hired to monitor traffic flow. When vehicles approached the active MSD, intrusive work was halted until such time as the exclusion zone was again secured. Since the MSD was at no time greater than 650 feet, intrusive investigation of the majority of the sites was conducted without traffic control issues.

2.3.1.4.5 During the brush clearance and land survey efforts at Area B West numerous "mounds" were identified that were previously obscured by vegetation. These mounds typically ranged in diameter from 4-6 feet with heights up to 4 feet. The nature of the mounds suggests they were likely artifacts from the last timber harvest and replant by St. Joe Timberland Company, estimated in excess of 10 years previous. During the intrusive investigation Parsons decided to grade out the mounds to ensure no UXO remained beneath or within the mound at depths beyond the instrument detection depth. This activity was conducted during the final work days (July 2 and 3, 2003) on Area B West. No additional UXO was recovered although significant inert landmine pieces and other OE scrap was present.

2.3.1.5 Reacquisition of Anomalies

The intrusive effort employed at Area B West utilized real-time "mag and dig" techniques, thus reacquisition of anomalies was not required. Visual identification of surface anomalies within Area J4 was also conducted real-time.

2.3.2 UXO Disposal Procedures

2.3.2.1 Demolition

All UXO and OE-related material containing explosives were blown in place by detonation in accordance with the approved WP procedures (Parsons, 2002). Before each demolition operation the local police department, fire department, hospital, Federal

Aviation Administration (FAA), and other pertinent agencies were notified of the operation. Then, all potential entry points at the applicable MSD were secured. No residential or commercial buildings required evacuation as part of the RA process for either Area B West or Area J4. Appendix D includes photographs of various activities involved in demolition operations. Appendix E provides a summary of the UXO and OES items identified during the RA at Area B West.

2.3.2.2 Demolition Materials

2.3.2.2.1 During demolition of the thirty-three UXO items identified during the RA at Area B West (Table 2.1), different explosives were used based on the most effective way to destroy the items. No UXO items were recovered from Area J4. The explosives and related demolition materials used included the following:

- Detonation Cord (50 and 80 Grain);
- Boosters, 1/3 pound;
- Jet Perforators; and
- Electric Detonators (blasting caps).

2.3.2.2.2 An explosives usage summary for the RA effort is provided in Table 2.2. The Daily Explosive Usage Record and Magazine Data Cards are included in Appendix F.

Table 2.1
Types and Amount of UXO Items Discovered*

UXO Item	Grid ID	Date	Status
1. Landmine, Practice, M1 – Fuzed w/spotting charge	M-13	5/22/03	**BIP**
2. Landmine, Practice, M1 – Fuzed w/spotting charge	M-13	5/22/03	**BIP**
3. Landmine, Practice, M1 – Fuzed w/spotting charge	M-13	5/22/03	**BIP**
4. Hand Grenade, Practice, M21	G-7	5/27/03	**BIP**
5. Rifle Grenade, Practice, M11A1 Series	G-7	5/27/03	**BIP**
6. Rifle Grenade, Practice, M11A1 Series	G-7	5/27/03	**BIP**
7. Rifle Grenade, Practice, M11A1 Series	G-7	5/27/03	**BIP**
8. Rifle Grenade, Practice, M11A1 Series	G-7	5/28/03	**BIP**

Table 2.1 (Continued)
Types and Amount of UXO Items Discovered*

UXO Item	Grid ID	Date	Status
9. Landmine, Practice, M1 – Fuzed w/spotting charge	M-8	5/28/03	BIP
10. Fuze Only, Landmine, Practice, M1	M-9	5/28/03	BIP
11. Landmine, Practice, M1 – Fuzed w/spotting charge	M-10	5/28/03	BIP
12. Fuze Only, Landmine, Practice, M1	N-9	5/28/03	BIP
13. Landmine, Practice, M1 – Fuzed w/spotting charge	N-10	5/30/03	BIP
14. Landmine, Practice, M1 – Fuzed w/spotting charge	O-8	6/2/03	BIP
15. Landmine, Practice, M1 – Fuzed w/spotting charge	O-8	6/2/03	BIP
16. Fuze Only, Landmine, Practice, M1	L-8	6/2/03	BIP
17. Fuze Only, Landmine, Practice, M1	L-9	6/3/03	BIP
18. Landmine, Practice, M1 – Fuzed w/spotting charge	L-9	6/3/03	BIP
19. Landmine, Practice, M1 – Fuzed w/spotting charge	L-10	6/3/03	BIP
20. Landmine, Practice, M1 – Fuzed w/spotting charge	L-10	6/4/03	BIP
21. Landmine, Practice, M1 – Fuzed w/spotting charge	L-11	6/4/03	BIP
22. Landmine, Practice, M1 – Fuzed w/spotting charge	L-12	6/4/03	BIP
23. Landmine, Practice, M1 – Fuzed w/spotting charge	P-14	6/4/03	BIP
24. Landmine, Practice, M1 – Fuzed w/spotting charge	L-13	6/5/03	BIP
25. Landmine, Practice, M1 – No fuze w/spotting charge	L-14	6/5/03	BIP
26. Landmine, Practice, M3 APERS – No fuze w/spotting	R-20	6/10/03	BIP
27. Landmine, Practice, M1 – Fuzed w/spotting charge	K-9	6/10/03	BIP
28. Landmine, Practice, M1 – Fuzed w/spotting charge	K-2	6/18/03	BIP
29. Landmine, Practice, M1 – Fuzed w/spotting charge	O-6	6/23/03	BIP
30. Landmine, Practice, M1 – Fuzed w/spotting charge	P-6	6/23/03	BIP
31. Landmine, Practice, M1 – Fuzed w/spotting charge	S-19	6/24/03	BIP
32. Landmine, Practice, M1 – No fuze w/spotting charge	F-3	6/25/03	BIP
33. 2.36-inch Rocket, M6/M7 Series	E-1	7/2/03	BIP

*All UXO items were located in grids within Area B West. No UXO was identified during the surface clearance of Area J4
NOTE: All items designated as "practice" were intact and contained a live fuze and/or spotting charge.
See Also Appendix E for additional details.

Table 2.2
Explosives Usage (Demolition Operation) Summary

Explosive Type/Materials	Unit	Total	Items 1-3	Items 4-7	Items 8-12	Item 13	Items 14-16
			5/22/03	5/27/03	5/28/03	5/30/03	6/2/03
Electric Blasting Cap	Each	100	2	4	8	2	6
Primer (Detonation) Cord, 80 Grain	Feet	2500					
Primer (Detonation) Cord, 50 Grain	Feet	1000	20		30		
Booster, 1/3 pound	Feet	150	3	3	4	1	3
Jet Perforators (Shaped Charge)	Each	50					

Explosive Type/Materials	Unit	Total	Items 17-19	Items 20-23	Items 24/25	Items 26/27	Item 28
			6/3/03	6/4/03	6/5/03	6/10/03	6/18/03
Electric Blasting Cap	Each	100	2	6	2	4	2
Primer (Detonation) Cord, 80 Grain	Feet	2500					
Primer (Detonation) Cord, 50 Grain	Feet	1000	130	80			
Booster, 1/3 pound	Feet	150	2	4	1	2	1
Jet Perforators (Shaped Charge)	Each	50					

Explosive Type/Materials	Unit	Total	Items 29/30	Item 31	Item 32	Item 33	Residual Materials Demolition
			6/23/03	6/24/03	6/25/03	7/2/03	7/14/03
Electric Blasting Cap	Each	100	4	4	2	2	52
Primer (Detonation) Cord, 80 Grain	Feet	2500			15	205	2280
Primer (Detonation) Cord, 50 Grain	Feet	1000	20	10			710
Booster, 1/3 pound	Feet	150	2	1	1		122
Jet Perforators (Shaped Charge)	Each	50			1	2	47

2.3.2.3 Scrap Management

2.3.2.3.1 Temporary scrap metal and non-hazardous OE-related scrap collection points were established during the intrusive operation for each grid. The collection points were inspected and brought to a stockpile for a second inspection by the SUXOS and UXOSO to confirm that no explosives or other hazardous materials existed in the scrap.

Segregation of OE scrap from non-OE scrap (NOES) was performed. Due to the large quantities of NOES accumulated during the field effort at Area B West, several loads were taken to a local scrap metal recycler. For Area B West approximately 315 pounds of OES and 5504 pounds of NOES were recovered. For Area J4 no OES was recovered and only 6 pounds of NOES. A total of approximately 550 pounds (315 pounds OES plus 235 pounds of NOES) were shipped offsite. Both OES and NOES, as well as demolition debris, was shipped offsite to Fact International, Inc. in Los Angeles, California for smelting on July 15, 2003 (see Appendix F).

2.3.2.3.2 Management of potentially hazardous OE scrap was performed by storing the items in secured 55-gallon drums (kept in the magazine storage area), conducting daily inspections, and subsequent shipment to the appropriate disposal facility. Scrap disposal records are provided in Appendix F.

2.3.3 Quality Control and Quality Assurance Surveys

2.3.3.1 As a QC measure on the "mag and dig" survey (conducted at Area B West) and the magnetometer assisted surface clearance (Area J4), at least 10% of each grid was searched with a handheld magnetometer by the UXO Quality Control Specialist (QCS). One grid within Area B West did not pass the QC process (Grid L11) due to the presence of nails. For this grid, additional "mag and dig" was conducted and the grid rechecked. Appendix F includes a summary of the QC logs.

2.3.3.2 The USAESCH on-site representative performed quality assurance (QA) checks at both sites of all grids that passed the Parsons UXOQCS QC check. The Form 948 was used to document pass or failure of grids inspected by the USAESCH. The forms are provided in Appendix F. All grids passed the USAESCH QA check; therefore, no additional rechecks were required. Grids that passed government QA meant no additional UXO clearance work was required for those grids.

2.4 FACILITIES

2.4.1 Project Field Office

A dedicated project field office was established east of Area B West at Posey's Motel and was maintained throughout the RA. The office was equipped with electrical and phone service and outfitted with computers, printers, and other office equipment. Toilet facilities were present at the field office; however, portable toilet facilities were also located at each site. The office also provided storage space for their equipment and important office conveniences for the management team in the day-to-day reporting and documentation requirements.

2.4.2 Explosive Magazines

Two explosive storage magazines (Photo 2.1) were brought on site to store hazardous materials and explosive components for the demolition operations. The magazines complied with all U.S. Department of Defense (DoD) regulations and thorough inventory

checks were documented to ensure accountability for all explosives. The location of the magazine storage area is depicted on Figure 2.1.

Photo 2.1. Explosive Storage Magazine Fence Completion – Warning Signs had not yet been posted.

2.5 RESULTS (EXPECTED AND UNEXPECTED)

2.5.1 General

2.5.1.1 The intrusive removal action was conducted to depth at Area B West and as a surface clearance at Area J4. The objective of these actions was to remove any immediate safety threat to the public and at the same time ensure that ordnance was removed given the active development plans for both areas. Thirty-three UXO items were recovered and detonated during the RA; all from Area B West. In addition, hundreds of OES items were identified from this area (Appendix E). Conversely, no UXO or OES items were recovered from Area J4.

2.5.1.2 All eight practice 81mm mortars recovered (all inert) from Area B West were located in the north central portion of the site (Figure 2.3). Similarly, the majority of the rifle grenade debris was present in this area. Therefore, the evidence suggests that a firing range was located in this area, likely as an afterthought given the presence of

landmine debris. The RA findings also confirm the northern site extent of the site as no OES was located in any northern boundary grids. The only evidence not supporting this firing range theory is the presence of a 2.36-inch rocket in Grid E-1, located near the southern site boundary. This appears to be anomalous as no other 2.36-inch rocket debris was noted onsite and there was a range designated for rocket training.

2.5.1.3 The presence of landmines and landmine debris is ubiquitously distributed throughout Area B West although a higher concentration (especially of those requiring detonation) was present in the east-central portion of the site (Figure 2.3). The presence of hand grenades and hand grenade debris is almost exclusively located to the immediate south of the primary landmine area.

2.5.1.4 The original perimeter of Area B (later subdivided into Area B West and Area B East) was determined during the archive search activities based on historic records and photographs. State Route 319 and U.S. Highway 98 were both present at their current location and offered access to the site. The presence of OES in nine perimeter grids adjacent to the roads was not anticipated. The OES from these grids included an inert 81mm practice mortar, M1 landmines, rifle grenades, and practice hand grenades. The tract of land between the road and the site boundary may need to be further investigated. The eastern Area B West boundary, as expected, indicates residual UXO and OES are not confined to this site. The RA findings suggest similar ordnance is likely present in Area B East. At this time Area B East is recommended for a subsurface OE response action; however, funds have not yet been identified.

2.5.2 Intrusive Investigation Findings

2.5.2.1 No UXO or OES was recovered during the surface clearance at Area J4 (Figure 2.4). A total of thirty-three UXO items were recovered within Area B West from 24 different 100 foot by 100 foot grids during the RA. Most of the UXO the landmine UXO items were confined to the central portion of the site. UXO detonated at Area B West included landmines, grenades, and a 2.36-inch rocket.

2.5.2.2 Approximately 550 pounds of OES and NOES scrap were shipped offsite for disposal to a smelter in California (FACT, International). The diversity of UXO and OES types in Area B West suggests the site was used for multiple purposes. Area B West is designated in historical records as a grenade training range and, as expected, the RA findings confirmed the significant presence of grenade debris (both practice and HE). The dual use of grenade ranges for landmine training is not uncommon. The RA findings support this assertion for Area B West. However, the presence of 81mm mortars, rifle grenades, and a 2.36-inch bazooka rocket suggests the range was, at least on occasion, utilized as a firing range. Figure 2.3 depicts the types of UXO and OES by grid within Area B West.

2.5.3 Recovered OE Items

2.5.3.1 M1 Practice Landmine

2.5.3.1.1 The M1 Practice Landmines are designed for training of effect against tanks and are laid to perform a definite tactical mission. The body of the mine is similar to that of an HE mine, differing only in that it is empty (no bursting charge). Also, it is provided with a cast iron former as a support to prevent crushing of the body. It has no filling hole. Five, equally spaced, 1-inch diameter holes may be found in the side of the mine body. The diameter of the mine is 8.03 inches and is painted blue with white stenciling. The fuze has a red striker head.

2.5.3.1.2 The fuze (pictured below) is similar to the M1 HE fuze except that a .32cal blank cartridge replaces the detonator and a smoke-puff charge of black powder and red phosphorous replaces the booster. This mine can be used more than once by the provision of new fuzes and, when necessary, the replacement of bent or broken spiders.

Photo 2.2. M1 Practice Mine Fuze, Area B West
Grid M-9, May 28, 2003

Photo 2.3. Various M1 Practice Mines and Components (Inert), Area B West, Grid R-20, June 19, 2003

2.5.3.2 M3 Practice Landmine

2.5.3.2.1 The M3 Landmine is a high-explosive, fragmenting, antipersonnel landmine. It contains 454 grams of explosive TNT filler. The inert M3 counterpart is externally identical except for painting and markings (black with white markings). These mines employ either M3 or M7 series combination pull/pressure fuzes.

2.5.3.2.2 Photo 2.4 shows the single M3 practice landmine recovered during the removal action at Area B West.

Photo 2.4. M3 Antipersonnel (APERS) Practice Mine, Area B West, Grid R-20, June 10, 2003

2.5.3.3 2.36-inch Bazooka Rocket

2.5.3.3.1 The 2.36-inch M 6A1 antitank rocket is 21.6 inches long and has an average weight of 3.5 pounds. The components of the 2.36-inch M 6A1 consist of a hollow ogive crimped onto the body, a body union fitting into the base of the body with internal threads to receive the motor, the tail assembly consisting of nozzle and six fins, and a fuze located in the forward end of the motor tube. The bursting charge in this round consists of approximately 0.5 pounds of pentolite. Technical information concerning the 2.36-inch rocket states that high angles of impact with the ground will not ordinarily cause detonation. A low angle impact with the ground has a blast effect similar to that of a 75mm HE round.

2.5.3.3.2 The parts of the fuze are a spring restrained striker; a detonator of priming mixture, lead azide and tetryl; and a booster of tetryl. The striker is held in the unarmed position prior to loading into the launcher, by a safety pin which engages an annular groove in the striker as it passes through opposed holes in the fuze body. The safety pin clips to the stabilizer tube and must be removed prior to firing of the rocket. The fin assembly consists of three parts: the nozzle, which is a venturi tube; the trap, which is a spider ring closing the nozzle opening above the venturi and holding the propellant

powder in place; and finally, the fins themselves. The fins are six metal blades, each blade is notched at a point opposite the lower extremity of the nozzle. These notches are unpainted and one of them serves as a contact for the electric safety match, one ignition wire being soldered to it. The other contact is made by means of an insulated (with a fiber strip) brass contact ring encircling the ogive. A brass connector strip runs from the end of the body to this ring. To the end of the connector strip is soldered the other ignition wire from the electric safety match. This ignition wire is taped to the stabilizer tube midway between fins and body.

2.5.3.3.3 Photo 2.5 shows a 2.36-inch rocket motor and warhead, respectively recovered during the removal action at Area B West.

Photo 2.5. 2.36-inch Bazooka Rocket, Motor w/Fuze, Area B West, Grid E-1, July 1, 2003

2.5.3.4 Mk II HE Hand Grenade/M21 Practice/Mk 1A1 Practice

2.5.3.4.1 The Mk II is a fragmentation, antipersonnel, delay-detonating hand grenade which is commonly referred to as a "pineapple" because of its shape and external serration. The grenade is painted olive drab with a yellow band around the top of the fuze well. The Mk II grenade weighs approximately 590 grams, is 114mm in length, and 57mm in width at its largest diameter. The explosive filler consists of 56.7 grams of flaked TNT. The M21 is the practice version of the Mk II and contains a 1 gram black

powder spotting charge. The M21 is painted blue with a brown or blue band. The Mk 1A1 is also a practice version of the Mk II HE grenade.

2.5.3.4.2 Photo 2.6 shows a Mk II Hand Grenade recovered during the removal action at Area B West.

Photo 2.6. Mk II Hand Grenade, Area B West, Grid H-6, May 28, 2003

2.5.3.5 M9A1 Rifle Grenade/M11A1 Series Practice

2.5.3.5.1 The M9A1 Rifle Grenade is a rifle-projected grenade consisting of a body, a stabilizer assembly, and a fin. The body is cylindrical; approximately 284mm in length. The fuze is a simple impact type. The grenade is fired from a rifle by means of a special launcher attachment and uses a special cartridge for propulsion. The M9A1 contains approximately 113 grams of TNT. The M11A1 Series Rifle Grenade is the practice version of the M9A1. Both were painted blue or black with white markings.

2.5.3.5.2 Photo 2.7 shows a M11A1 Series Rifle Grenade (practice) recovered during the intrusive investigation of Area B West.

Photo 2.7. M11A1 Series Practice Rifle Grenade, Area B West, Grid K5, June 25, 2003

2.5.4 Scrap

During the intrusive investigation all scrap was thoroughly checked for explosive materials and stored in the magazine storage area. Upon completion of the intrusive investigation, all OES and NOES (totaling approximately 550 pounds for both Area B West and Area J4) was given a final inspection and sealed for shipment to the smelter (FACT International, Inc.).

2.6 PUBLIC RELATIONS

CESAJ Project Manager was the overall coordinator for public affairs on this project. The following protocol was followed during execution of the WP. All communications and contacts with the public were under the direction of CESAJ. All public information contacts made during the project were documented and forwarded immediately to CESAJ and USAESCH. Parsons supported, attended and participated in the USAESCH public meetings held during the EE/CA effort prior to start up of the RA and coordinated logistics activities with the local community leaders. The support included preparation and delivery of briefings, graphics, presentations, and participation in site visits.

2.7 SITE SECURITY

2.7.1 In general, security on site was maintained by limiting personnel in the work area to those necessary to conduct the work. Given the non-residential nature of both sites, no evacuations were required. During all project tasks the SM or UXOSO was present to monitor the field personnel. Due to the hazardous nature of the operations all personnel working on site were given a daily safety briefing to ensure awareness of the possible ordnance that might be encountered, as well as, any recent developments in the ongoing work.

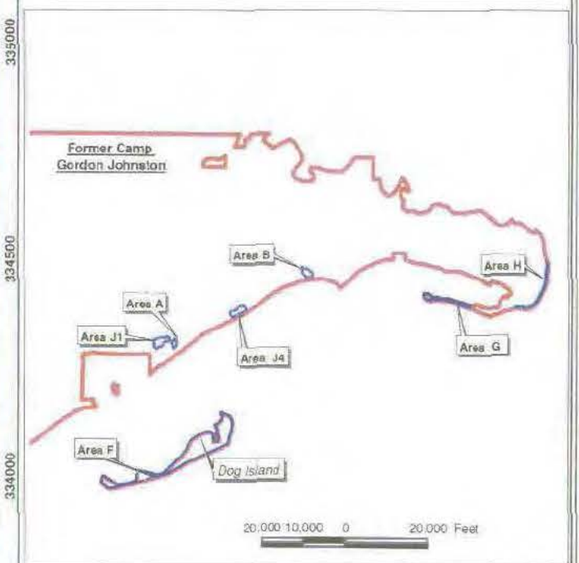
2.7.2 During intrusive activities at each site the MSD was established during work hours. Only essential UXO-qualified personnel remained in the work area. Guards were posted at the perimeter of the MSD (during intrusive operations) to keep the public away and monitor vehicular traffic. If the MSD was breached (such as to allow traffic to pass) all intrusive operations were temporarily stopped. The explosives storage magazines were located on St. Joe Timeberland property (west of Area B West, Figure 2. 1), checked regularly in accordance with the approved WP, and locked/sealed when not being accessed. Magazine Data Cards reflecting daily inventory of the magazines are included as Appendix F.

Figure 2.1

LEGEND

- Area of Interest
- Proposed Summer Camp Development Area
- Surveyed Grid

Note: Property surveyed by Edwin G Brown and Associated, Inc. on May 5, 2003.



N

Image Source: USGS 1995 orthophoto

Map Units: NAD 1983 Florida State Plane North (Feet)

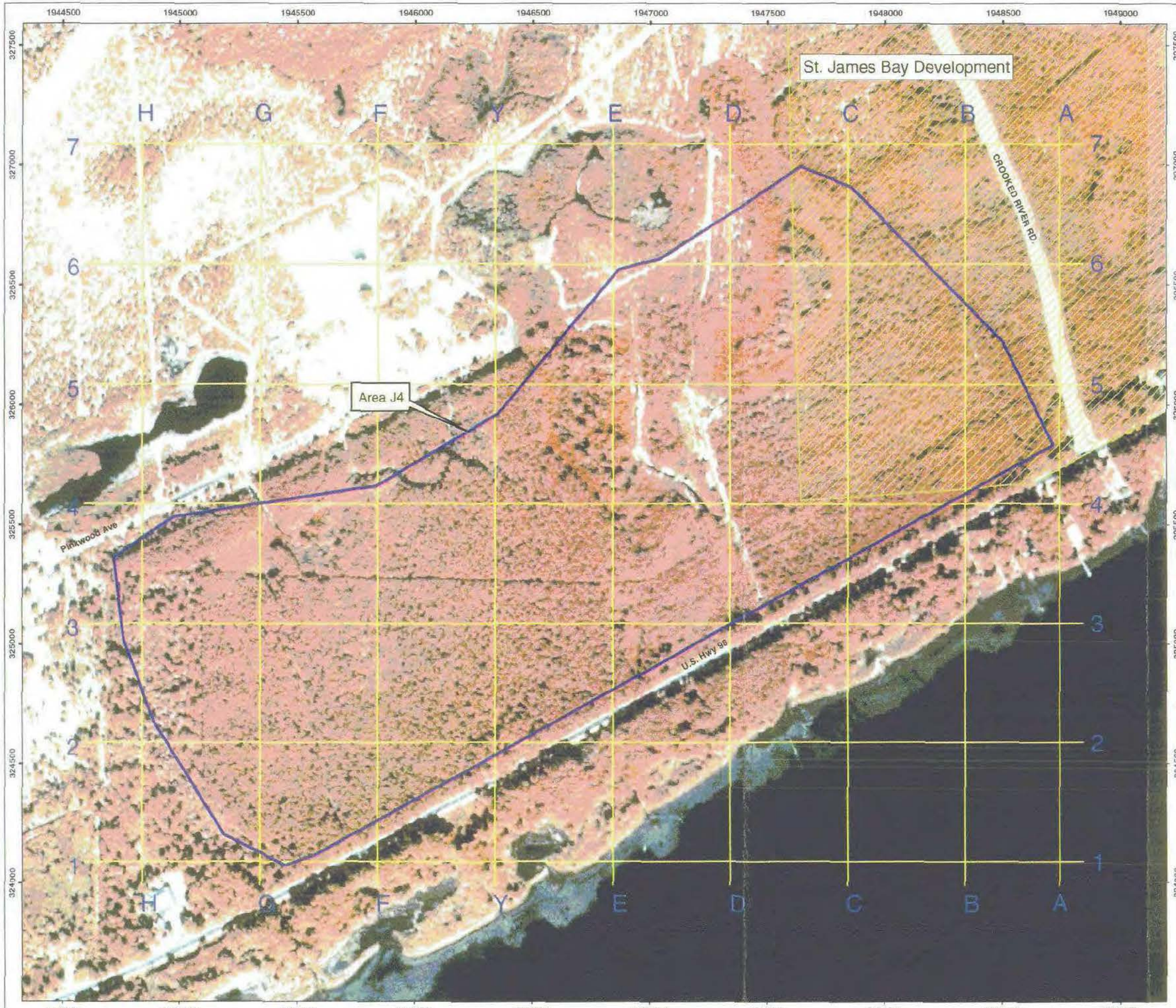
350 175 0 350 Feet

PARSONS

U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER

DESIGNED BY: BT	Area B Surveyed Grid Locations Former Camp Gordon Johnston Franklin County, Florida
DRAWN BY: BT	
CHECKED BY: DS	SCALE: 1 inch equals 350 feet PROJECT NUMBER: 742305
SUBMITTED BY: DS	DATE: September 2003 PAGE NUMBER: 2-20
	FILE: X:\Gordon_Johnston\GIS\742305\GIS\Maps\RA\Fig1_2_B.mxd

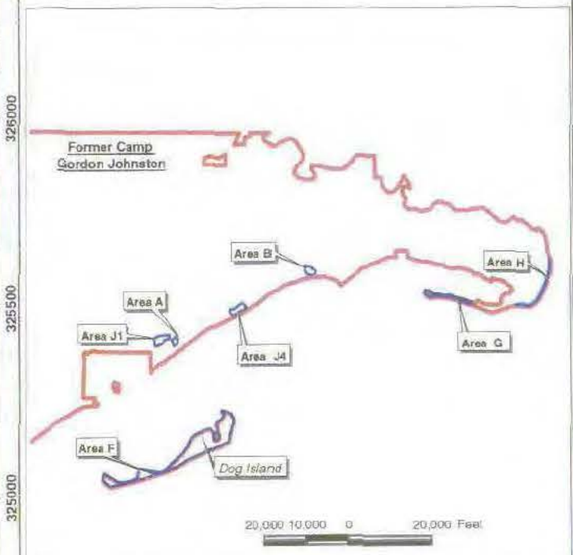
Figure 2.2



LEGEND

- Area of Interest
- St. James Bay Development Area
- Surveyed Grid

Note: Property surveyed by Edwin G Brown and Associated, Inc. on May 5, 2003.



N

Image Source: USGS 1995 orthophoto

Map Units: NAD 1983 Florida State Plane North (Feet)

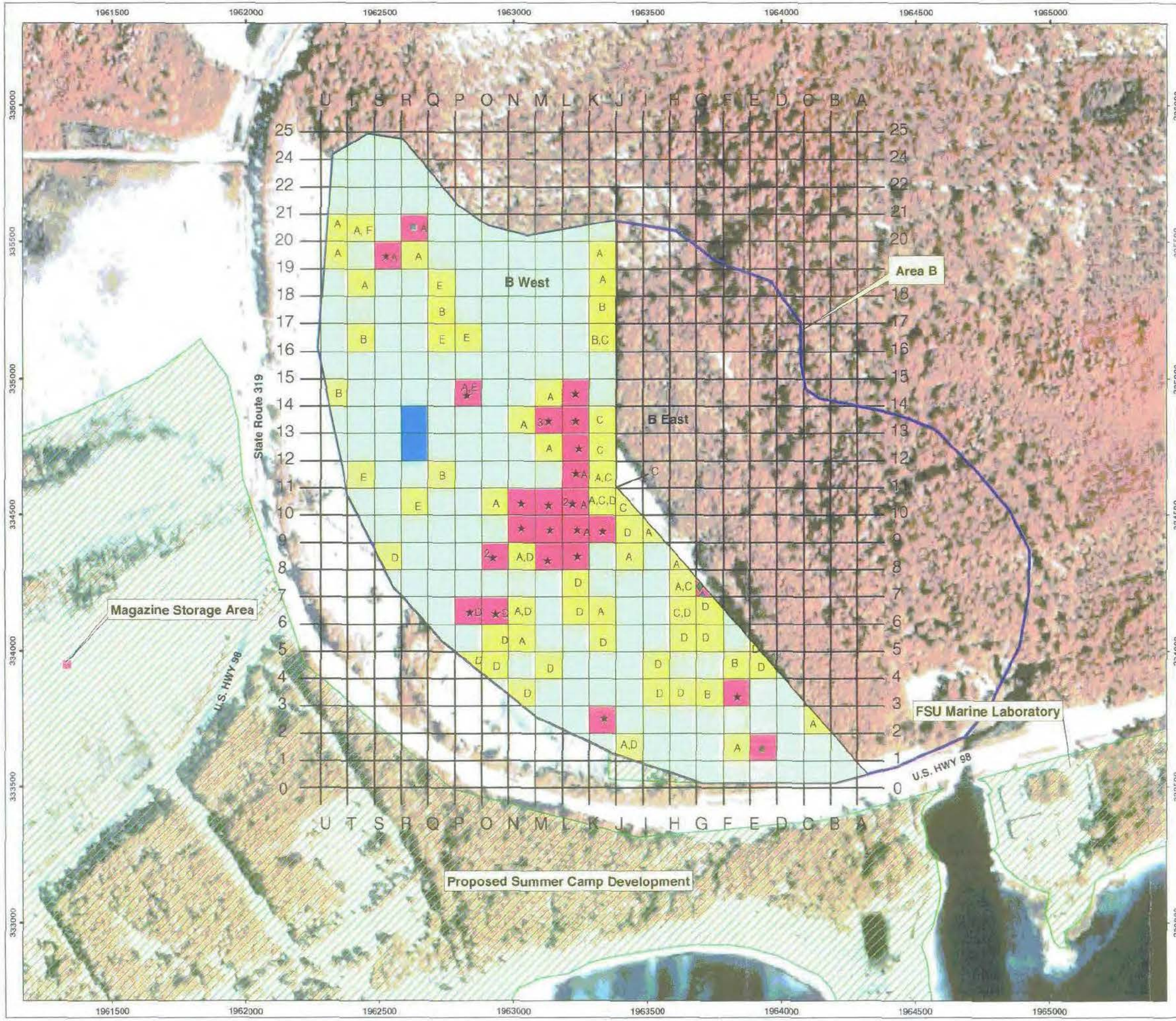
400 200 0 400 Feet

PARSONS

U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER

DESIGNED BY: BT	Area J4 Surveyed Grids Locations Former Camp Gordon Johnston Franklin County, Florida
DRAWN BY: BT	
CHECKED BY: DS	SCALE: 1 inch equals 400 feet — PROJECT NUMBER: 742305
SUBMITTED BY: DS	DATE: September 2003 — PAGE NUMBER: 2-21
	FILE: X:\Gordon_Johnston GIS\742305\GIS\Maps\PIA\Fig1_4_J4.mxd

Figure 2.3



LEGEND

Type and Number of UXO Present

- 2.36-inch Bazooka Rocket
- M-11 Rifle Grenade
- M1 Landmine, Practice
- M3 Landmine, Practice
- MKA1 Hand Grenade

Type of OES Present

- A M1 Landmine/related
- B M-11 Rifle Grenade/related
- C Mk II Hand Grenade HE Fragments
- D Practice Hand Grenade
- E 81 mm Mortar
- F M3 Landmine/related

- Area of Interest
- Proposed Summer Camp Development Area
- Surveyed Grid
- Intrusively Investigated - No OES
- Intrusively Investigated - OES Present / No UXO
- Intrusively Investigated - UXO Present
- Wetland / Water Body

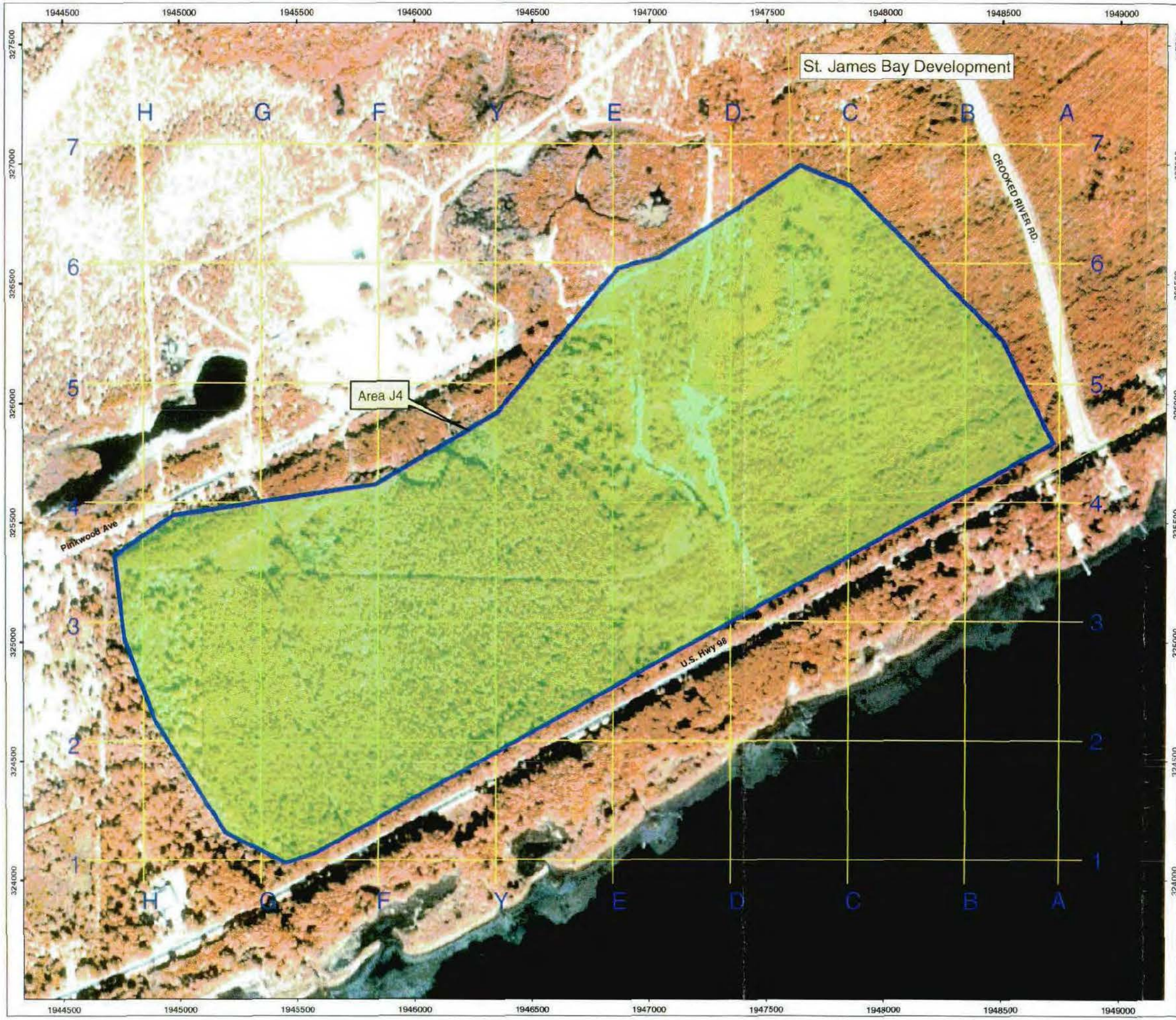
Image Source: USGS 1995 orthophoto

Map Units: NAD 1983 Florida State Plane North (Feet)

350 175 0 350 Feet

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	Area B Intrusively Investigated Results Former Camp Gordon Johnston Franklin County, Florida
DRAWN BY: BT	
CHECKED BY: DS	SCALE: 1 inch equals 350 feet
SUBMITTED BY: DS	DATE: September 2003
	FILE: X:\Gordon_Johnston\GIS\742305\GIS\Maps\RA\Fig1_2_B.mxd
	PROJECT NUMBER: 742305
	PAGE NUMBER: 2-22

Figure 2.4



LEGEND

- Area of Interest
- St. James Bay Development Area
- Intrusively Investigated - No OES

Note: Property surveyed by
Edwin G Brown and Associated, Inc. on May 5, 2003.

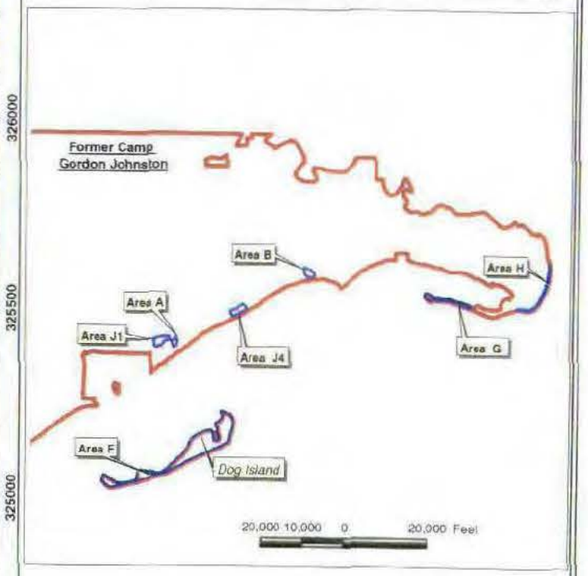


Image Source: USGS 1995 orthophoto

Map Units: NAD 1983 Florida State Plane North (Feet)

400 200 0 400 Feet

N

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	Area J4 Intrusively Investigated Results Former Camp Gordon Johnston Franklin County, Florida
DRAWN BY: BT	
CHECKED BY: DS	SCALE: 1 inch equals 400 feet
SUBMITTED BY: DS	PROJECT NUMBER: 742305
	DATE: September 2003
	FILE: X:/Gordon Johnston_GIS/742305/GIS/Maps/RIA/Fig1.4_J4.mxd
	PAGE NUMBER: 2-23

CHAPTER 3
DOCUMENTATION

3.1 INTRODUCTION

As part of the RA, extensive documentation was required for the day to day operations. For each site (Area B West and Area J4) all field operations and any correspondence related to the removal action were documented and a copy was kept at the site office. Only management had access to the documents which remained locked in the site office when unoccupied.

3.2 DAILY SAFETY BRIEFING AND DAILY FIELD REPORTS

3.2.1 Daily safety briefings were made by the Parsons UXOSO. Daily Field Reports were written by the Parsons SM and the USA SUXOS. These reports recorded, in summary form, the project progress and events that occured daily. The Daily Field Reports prepared by the USA SUXOS and Parsons SM and are provided in Appendix G and H, respectively.

3.2.2 The Parsons Daily Field Reports documented the weather, personnel on-site, and daily events. Detailed information was kept in the field SM log book. Some of the items documented on the Daily Field Reports included:

- health and safety briefing,
- team composition, equipment, and assignments,
- brush clearing events and locations,
- visitors encountered,
- intrusive investigation grids, UXO/OE scrap recovered, and detonation details,
- grids that failed QC, passed QC, and passed QA,
- instrument malfunctions and remedies, and
- work hours onsite.

3.2.3 The USA Daily Field Reports described the intrusive investigation activities and included:

- Work locations
- Weather

- Work summary
  - Work planned for the day,
  - Work accomplished,
  - Discrepancies, and
  - Inspection results.
- Instructions received from customer representatives (Parsons)
- UXO summary
  - Type, quantity, location, and disposition of UXO discovered,
  - Type and quantity of demolition supplies expended, and
  - Weight and type of scrap generated and disposed.
- Personnel/equipment utilization summary
  - Number of personnel per job description,
  - Number of hours worked,
  - Equipment on-site,
  - QC Effort, and
  - Other remarks.

3.3 DD FORM 1348-1

The DD Form 1348-1 was filled out for scrap removal. The form contained information such as the address from which the scrap was shipped, the address to which the scrap was shipped, the project name, the receiver's name and date, the inspector's name and date, the SUXOS' signature, etc. Other scrap information recorded was the type and total weight of scrap, the type and number of containers, the freight classification, and the date shipped. The DD Form 1348-1 and related documentation is included in Appendix F.

3.4 USAESCH FORM 948 (FORM 948)

The Form 948s were filled out by USACE and provided to Parsons' personnel to convey information about QC, safety, work plan, and other issues. Primarily, the forms were filled out to document which grids passed QA and address other QA/QC concerns for RA activities. The USAESCH Form 948s are located in Appendix F.

CHAPTER 4
TESTS

4.1 INTRODUCTION

No sampling of environmental media was included in Parsons' SOW for either site (Area B West or Area J4) for this RA project. As described in Chapter 2, 33 UXO items were identified and blown in place (BIP) during the subsurface removal action for Area B West. None of the UXO items contained Chemical Warfare Materiel (CWM) or White Phosphorous, only conventional explosive compounds. After each BIP, the post-detonation hole was cleared of all visible debris. Any unexpended filler was collected and detonated with subsequent BIPs. No UXO was recovered during the surface clearance for Area J4.

CHAPTER 5
FINANCIAL BREAKDOWN

5.1 INTRODUCTION

All field tasks associated with this RA (Area B West and Area J4) were negotiated as Firm Fixed Price. Therefore, the financial breakdown of the costs expended is not required in accordance with DID OE-030, paragraph 10.3.7.

CHAPTER 6
SUMMARY

6.1 Parsons was contracted by USAESCH to conduct a Removal Action at two sites (Area B West and Area J4) within the former Camp Gordon Johnston, Florida. The areas of concern encompassed approximately 54 (Area B West) and 105 (Area J4) contiguous acres within two generally undeveloped areas along U.S. Highway 98. Due to the extensive vegetation present, both sites were brush cleared using mechanized equipment.

6.2 Following completion of the brush removal effort, local land surveyors (certified in the State of Florida) established grid networks across the site to aid in tracking progress. For the subsurface clearance of Area B West 257 100-foot by 100-foot grids (or partial grids) were used. For the surface clearance of Area J4 22 500-foot by 500-foot grids (or partial grids) were used. The RA was conducted as a result of the EE/CA findings and recommendations (Parsons, 2002).

6.3 Parsons subcontracted USA Environmental to assist in the RA intrusive operations. Removal action activities began at Area B West on May 12, 2003 and were completed on July 7, 2003. Thirty-three UXO items were recovered and detonated onsite from 24 different grids. An additional 58 grids contained OES items. Therefore, 82 of the 257 grids (31.9%) contained either UXO or OES. The maximum depth for subsurface removal was four feet for Area B West; however, the deepest item encountered was an M1 practice landmine (Grid L10) with live fuze and spotting charge (UXO) at 42 inches bgs. All other OES and UXO items were recovered from depths of less than 24 inches bgs. The types of UXO present included numerous M1 practice landmines with live fuze and spotting charge, a 2.36-inch rocket, and a Mk II hand grenade. Other OES present included 81mm practice mortars, M11 rifle grenades, and M21 hand grenades.

6.4 All eight practice 81mm mortars recovered (all inert) from Area B West were located in the north central portion of the site (Figure 2.3). Similarly, the majority of the rifle grenade debris was present in this area. Therefore, the evidence suggests that a firing range was located in this area, likely as an afterthought given the presence of landmine debris. The RA findings also confirm the northern site extent of the site as no OES was located in any northern boundary grids. The only evidence not supporting this firing range theory is the presence of a 2.36-inch rocket in Grid E-1, located near the southern site boundary. This appears to be anomalous as no other 2.36-inch rocket debris was noted onsite and there was a range designated for rocket training.

6.5 The presence of landmines and landmine debris is ubiquitously distributed throughout Area B West although a higher concentration (especially of those requiring

detonation) was present in the east-central portion of the site (Figure 2.3). The presence of hand grenades and hand grenade debris is almost exclusively located to the immediate south of the primary landmine area.

6.6 The original perimeter of Area B (later subdivided into Area B West and Area B East) was determined during the archive search activities based on historic records and photographs. State Route 319 and U.S. Highway 98 were both present at their current location and offered access to the site. The presence of OES in nine perimeter grids adjacent to the roads was not anticipated. The OES from these grids included an inert 81mm practice mortar, M1 landmines, rifle grenades, and practice hand grenades. The tract of land between the road and the site boundary may need to be further investigated. The eastern Area B West boundary, as expected, indicates residual UXO and OES are not confined to this site. The RA findings suggest similar ordnance is likely present in Area B East. At this time Area B East is recommended for a subsurface OE response action; however, funds have not yet been identified.

6.7 Surface clearance was conducted for Area J4. No UXO or OES was recovered from any of the 22 grids. However, 263 audible subsurface contacts were documented that were not investigated, in accordance with the SOW and approved RA WP.

6.8 Due to the large quantities of NOES accumulated during the field effort at Area B West, several loads were taken to a local scrap metal recycler during the course of the field effort. For Area B West approximately 315 pounds of OES and 5504 pounds of NOES were recovered. For Area J4 no OES was recovered and only 6 pounds of NOES. A total of approximately 550 pounds (315 pounds OES plus 235 pounds of NOES) were shipped offsite. All OES and the last accumulation of NOES, as well as demolition debris, was shipped offsite to Fact International, Inc. in Los Angeles, California for smelting on July 15, 2003. The balance of the NOES (5262 pounds) was trailered to several local scrap dealers for recycle. No OES was distributed to local scrap dealers.

CHAPTER 7
REFERENCES

Parsons, 2003. *Final Explosives Safety Submission, Former Camp Gordon Johnston*, Prepared for U.S. Army Engineering and Support Center, Huntsville, March 2003.

Parsons, 2002. *Final Work Plan for Removal Action, Former Camp Gordon Johnston*, Prepared for U.S. Army Engineering and Support Center, Huntsville, November 2002.

Parsons Engineering Science, Inc. 2001. *Final Engineering Evaluation/Cost Analysis.* Former Camp Gordon Johnston, Franklin County, Florida. Prepared for U.S. Army Engineering and Support Center, Huntsville, June 2001.

U.S. Army Corps of Engineers (USACE), Rock Island District. 1995a. *Ordnance and Explosive Archives Search Report Findings for the Former Camp Gordon Johnston*, September 1995.

U.S. Army Corps of Engineers (USACE), Rock Island District. 1995b. *Ordnance and Explosive Archives Search Report Conclusions and Recommendations for the Former Camp Gordon Johnston*, September 1995.

U.S. Army Corps of Engineers (USACE), Jacksonville District. 2002. *Engineering Evaluation/Cost Analysis Action Memo and Responsiveness Summary.* Former Camp Gordon Johnston, Franklin County, Florida. July 2002.