



**US Army Corps  
of Engineers**

HUNTSVILLE ENGINEERING  
SUPPORT CENTER

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DEFENSE ENVIRONMENTAL RESTORATION PROGRAM  
FOR  
FORMERLY USED DEFENSE SITES

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS

**ARCHIVES SEARCH REPORT**

**BOSTWICK BOMB TARGET**

BOSTWICK, FLORIDA  
PUTNAM COUNTY

PROJECT NUMBER -.I04FL091401

**FINAL – 16 MAY 1997**

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PREPARED BY  
U.S. ARMY CORPS OF ENGINEERS  
ST. LOUIS DISTRICT



DEPARTMENT OF THE ARMY  
HUNTSVILLE CENTER, CORPS OF ENGINEERS  
P.O. BOX 1600  
HUNTSVILLE, ALABAMA 35807-4301

REPLY TO  
ATTENTION OF:

CEHNC-OE-DC-D

16 May 1997

MEMORANDUM FOR Commander, U.S. Army Engineer District, St. Louis  
ATTN: CELMS-PM-M (Mr. Mike Dace), 1222 Spruce  
Street, St. Louis, MO 63103-2833

SUBJECT: Results of Technical Advisory Group (TAG) Review of  
Archives Search Reports (ASR) and Fact Sheets for Defense  
Environmental Restoration Program-Formerly Used Defense Sites.  
The following ASRs and Fact Sheets have been finalized:

| <u>Project Number</u> | <u>Site</u>                               |
|-----------------------|---|
| C03DE006304           | Fort Miles Military Reservation           |
| B08CO071501           | Pueblo Precision Bombing Range #2         |
| C02NJ094701           | Greenwich Bombing Range                   |
| J09AZ101501           | Yuma Proving Ground (Yuma Test Branch)    |
| B08CO067701           | Craig Army National Guard Training Sites  |
| B07IA011300           | Polk County National Guard Target Range   |
| B07IA000401           | Camp Dodge                                |
| G05OH099004           | Cleveland Plant                           |
| J09CA026001           | Cadiz Lake Sonic Target #6                |
| I04FL091401           | Bostwick Bomb Target (Putnam Bomb Target) |
| J09CA017001           | Holtville Target (BT) No. 2 (#95)         |
| C03PA045903           | Reading Army Air Field                    |
| J09AZ071201           | Williams Field Bomb Target Range #10      |
| B07NE005102           | Harvard Army Air Field                    |
| I04AL004101           | Alabama Army Ammunition Plant             |
| F10WA005000           | Tulalip Backup Ammunition Storage Depot   |
| B08SD081901           | Armstrong County Air-To-Air Gunnery Range |
| B08SD086601           | Rapid City Precision Bombing Range No. 2  |
| B07NE003801           | Broken Bow Air-To-Ground Gunnery Range    |
| J09CA045001           | Long Beach Municipal Airport              |

1. Strategy for future actions to be taken by the Project Manager are included in attached fact sheets. Supporting data for TAG decisions are also included with the fact sheets.
2. Fact sheets and supporting data are to be distributed with the subject ASRs.
3. Subject projects are considered to be final when attached fact sheets and supporting data are included as a part of the project package.

CEHNC-OE-DC-D

16 May 1997

SUBJECT: Results of Technical Advisory Group (TAG) Review of Archives Search Reports (ASR) and Fact Sheets for Defense Environmental Restoration Program-Formerly Used Defense Sites.

4. The POC is Mr. Danny Mardis at 205-895-1797, DSN 760-1797, and FAX 205-895-1737.

FOR THE DIRECTOR, ORDNANCE  
AND EXPLOSIVES TEAM:

Encls



DANNY R MARDIS

Archives Search Report Manager  
for Ordnance and Explosives Team

## DISCLAIMER

The purpose of this archives search report is to present the findings of research undertaken for this specific Formerly Used Defense Site (FUDS) property. All of the factual information found during the research is included in this "Findings" volume. Reference may be made in this volume to a separate "Conclusions and Recommendations" volume. In some instances, the Conclusions and Recommendations volume contained recommendations of individuals performing the analysis that may contain inferences or conjecture not supported in subsequent reviews. Because these statements are not always factual in nature, the U.S. Army Corps of Engineers has determined the Conclusions and Recommendations volumes, where they exist, do not necessarily represent the opinion of the USACE and are not available for public release.

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| <b>N</b> | <b>REPORT DISTRIBUTION LIST</b>             |

## **1.0 Introduction**

### **1.1 Authority**

In 1986, Congress established the Defense Environmental Restoration Program at 10 U.S.C. 2701 et seq. This program directed the Secretary of Defense to "carry out a program of environmental restoration at facilities under the jurisdiction of the Secretary."

In March, 1990, the EPA issued a revised National Contingency Plan. Under 40 C.F.R. 300.120, EPA designated DOD to be the removal response authority for incidents involving DoD military weapons and munitions under the jurisdiction, custody and control of DoD.

Since the beginning of this program, the U.S. Army Corps of Engineers has been the agency responsible for environmental restoration at Formerly-Used Defense Sites (FUDS). Since 1990, the U.S. Army Engineering and Support Center, Huntsville, has been the Mandatory Center of Expertise and Design Center for Ordnance and Explosives.

### **1.2 Subject**

The site, known as the **Bostwick Bomb Target** or the Putnam Bomb Target, is located near the city of Bostwick in Putnam County, Florida. The site was a U.S. Navy bomb target between 1940 and 1977.

### **1.3 Purpose**

This Archives Search Report (ASR) compiles information obtained through historical research at various archives and records holding facilities, interviews with individuals associated with the site or its operations, and personal visits to the site. All efforts were directed towards determining possible use or disposal of ordnance or chemical warfare materials on the site. Particular emphasis was placed on establishing the types, quantities, and area of disposal. Information obtained during this process was used in developing recommendations for further actions at the site.

### **1.4 Scope**

The entire area of the former bomb target, approximately 640 acres, was considered in assessing the potential for ordnance or chemical warfare material contamination.

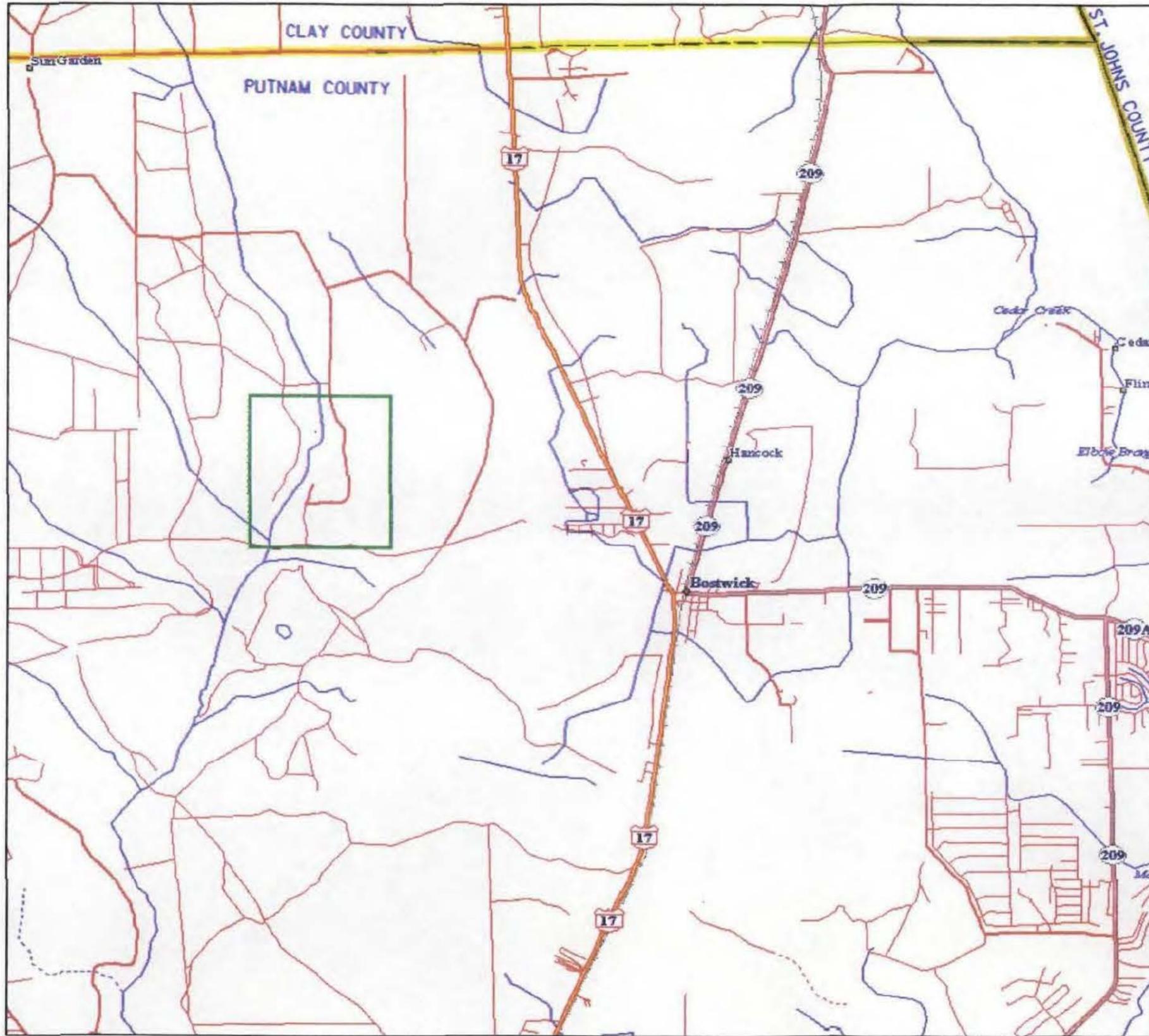
## **2.0 Previous Investigations**

### **2.1 Corps of Engineers Documents**

An Inventory Project Report (INPR), dated 14 July 1994 was prepared by the U.S. Army Corps of Engineers, Jacksonville District, to establish this site as a Formerly Used Defense Site (FUDS) under the Defense Environmental Restoration Program (DERP). A copy of the INPR is included in Appendix D. An Ordnance and Explosives (OE) project investigation was approved for this site on 09 January 1995.

### **2.2 Other Reports**

No other engineering or environmental study reports were found for this site.



LEGEND:

SITE LOCATION



NOT TO SCALE

FIGURE 3-1

BOSTWICK BOMB TARGET  
 PUTNAM COUNTY  
 FLORIDA  
 PROJECT #104FL0914101  
 VICINITY MAP

PROJ. DATE: OCT 1995

DATE OF MAP: 1993

20-MAR-1996 09:17

/N/0EW96A/F21/MAP/BOSTVIC.DGNEXT

## **3.0 Site Description**

### **3.1 Land Usage**

#### **3.1.1 Location**

The former **Bostwick Bomb Target** is located in Section 22, Township 8 South, Range 26 East, approximately 25 miles southwest of the city of St. Augustine and three miles west-northwest of the town of Bostwick in Putnam County, Florida. The site location and vicinity are shown on Figure 3.1.

#### **3.1.2 Past Use**

Prior to acquisition by the military, the tract was unimproved, agricultural land.

#### **3.1.3 Present Use**

The former bomb target tract is now part of a larger area that is used in the cultivation of pine trees for wood and pulp production.

### **3.2 Climatic Data**

The area is characterized by long, warm and relative humid summers and mild and relatively dry winters with occasionally cool/cold air from the north. The maritime influence that modifies the heat of summer and the cold of winter. The summertime temperature is in the upper 80s and rarely exceeds 90 degrees. The wintertime temperature is in the 50s. The climatic data collected for the St. Augustine (1973-1994) shows an average precipitation of 46.89 inches. About 57 percent falls in June through October.

The prevailing winds are from the northeasterly in the fall and winter and southeasterly in the spring and summer. Tropical disturbance or hurricanes are not considered a great threat in this area.

Climatological data for the area are summarized in TABLE 3-1. Temperature and precipitation data were collected at St. Augustine, and wind data collected at Daytona Beach, Florida. The site is located about twenty-five miles southwest of St. Augustine and fifty miles northwest of Daytona Beach.

**TABLE 3-1  
CLIMATOLOGICAL DATA FOR SAINT AUGUSTINE/WIND DATA FOR DAYTONA BEACH, FL**

| Month         | Temperature (F) |     |                 | Precipitation    | Wind Velocity | Wind Direction |
|---------------|-----------------|-----|-----------------|------------------|---------------|----------------|
|               | Average Daily   |     | Average Monthly |                  |               |                |
|               | Min             | Max | Mean            | Average (Inches) | (mph)         |                |
| January       | 46              | 67  | 57              | 3.24             | 8.9           | NW             |
| February      | 48              | 69  | 58              | 2.98             | 9.6           | NNW            |
| March         | 53              | 74  | 64              | 3.65             | 9.8           | SSW            |
| April         | 58              | 79  | 68              | 2.37             | 9.6           | E              |
| May           | 65              | 84  | 74              | 3.46             | 8.9           | E              |
| June          | 70              | 88  | 79              | 5.24             | 8.1           | SW             |
| July          | 72              | 91  | 82              | 4.94             | 7.4           | SSW            |
| August        | 72              | 89  | 81              | 5.52             | 7.1           | E              |
| September     | 71              | 87  | 79              | 6.52             | 8.3           | E              |
| October       | 63              | 81  | 72              | 4.51             | 9.2           | NE             |
| November      | 56              | 75  | 65              | 2.06             | 8.6           | NW             |
| December      | 48              | 69  | 58              | 2.70             | 8.5           | NW             |
| <b>Annual</b> | 60              | 80  | 70              | 46.89            | 8.7           | E              |

### 3.3 Geology and Soils

#### 3.3.1 Geology

The Bostwick Bombing Target site lies in the Northeast part of Putnam county which is in the Floridan Section of the Coastal Plain physiographic province (Thornbury, 1965). The area is relatively flat with elevations ranging from 40 to 75 feet above sea level. Most of the study area is low lying with several marshy areas present.

Putnam county is underlain by sedimentary rock with an average thickness of 4,000 feet ranging in age from early Paleozoic Era to the Recent. Sediments consist of soft to hard, fossiliferous limestone and dolomite with variable amounts of gypsum and anhydrite. Many formations are considered unconformable, however, because of similar formation composition, most unconformities are hard to recognize. Some

missing time intervals may span millions of years.

All sediments overlying the Hawthorn Group (100-150 feet deep) of the middle Miocene age are considered post-Hawthorn Undifferentiated because formations cannot be recognized individually. These sediments consist of shelly sands and clays.

The Hawthorn Group acts as a thin confining layer for the Floridan aquifer which includes the Avon Park and Ocala Group Limestones. Because the confining layer is thin, rainwater which has formed a weak carbonic acid while percolating through the soil, eventually reaches the carbonate rock. Thus, dissolution occurs, allowing karst topography to form in the bedrock.

### 3.3.2 Soils

The site area consists of two different types of soils. Most of the soil present is found in flat to slightly depressional areas. This soil is a poorly drained, fine sand. The surface soil is a black to dark grey fine sand 8-12 inches deep. Below this is a subsurface layer of grey fine sand reaching down to 28 inches. The subsoil is a black fine sand down to 60 inches. These sands are prone to flooding, have a low to medium high water capacity, moderate to rapid permeability, and a high water table of 1 to 2 feet for six or more months of the year.

The other soil type is found much less frequently. It occurs on slightly sloped areas which are found in the most northwest corner of the site area. Here the soil is again fine sands, but is different in that it is moderately drained, and has a high water table of 40-60 inches for 2-6 months of the year. These sands also tend to be slightly lighter in color than those found in the low lying areas.

The engineering property profile for the soil found in the low lying areas of the study area is given below:

| Soil Profile  |                     |                                    |       |      |                 |                          |
|---------------|---------------------|------------------------------------|-------|------|-----------------|--------------------------|
| DEPTH<br>(in) | SOIL<br>DESCRIPTION | PERCENTAGE PASSING<br>SIEVE NUMBER |       |      | LIQUID<br>LIMIT | PLAS-<br>TICITY<br>INDEX |
|               |                     | #4                                 | #40   | #200 |                 |                          |
| 0-12          | fine sand           | 100                                | 75-95 | 3-10 | ---             | NP                       |
| 12-28         | fine sand           | 100                                | 85-95 | 3-10 | ---             | NP                       |
| 28-60         | fine sand           | 100                                | 85-95 | 5-20 | ---             | NP                       |

### **3.4 Hydrology**

#### **3.4.1 Ground Water**

The Floridan Aquifer is the main source of water for the area. Normally found 150-200 feet deep, it has a transmissivity of 50,000 or more square feet per day, is highly permeable, and provides large quantities of water for domestic, industrial, and agricultural uses.

The Hawthorn Group acts as an aquitard for the Floridan Aquifer. However, the upper part of the group consists of unconsolidated sands, shells, and clay. This acts a shallow aquifer and does provide water to individual wells for residents outside of larger cities.

Regional ground water flow in the area is to the southeast. Surface drainage in the uplands is indistinct, with major runoff streams nonexistent. Drainage here, as in some low lying areas, is eventually into karst features allowing recharge directly to the aquifer.

#### **3.4.2 Surface Water**

The Bostwick Bomb Target is located in eastern Putnam County, Florida. The Simms Creek flows from north to south through the center of the site. Simms Creek is a tributary of the Rice Creek. All the surface runoff drains into the Simms Creek.

### **3.5 Ecology**

The information on the endangered and threatened species for this site has been provided by the U.S. Fish and Wildlife Service (USFWS), the Florida Game and Fresh Water Fish Commission, and the Florida Natural Areas Inventory.

The USFWS and the Florida Natural Areas Inventory reported that *hartwrightia* (*Hartwrightia floridana*), candidate species, is located in the vicinity of the Bostwick Bomb Target Site. The following federally-listed species may occur in Putnam County, Florida: Florida scrub jay (*Aphelocoma coerulescens coerulescens*), threatened; and bald eagle (*Haliaeetus leucocephalus*), endangered.

The Florida Game and Fresh Water Fish Commission also reported that *hartwrightia*, threatened, occurs in the vicinity of the Bostwick Bomb Target Site.

No additional information on the occurrence of rare or endangered species or

natural communities is known at this time. This does not mean that other state or federally-listed species may not be present within the areas of interest. An on site inspection by appropriate state and federal personnel may be necessary to verify the presence, absence, or location of listed species, or natural communities if remedial action is recommended as part of the final ASR.

### **3.6 Demographics**

#### 3.6.1 Center of Activity

Bostwick Bomb Target is located near the town of Bostwick, Putnam County, Florida. The site is approximately 10 miles north of the town of Palatka, Florida. Detailed Census information for the town of Bostwick was not available.

#### 3.6.2 Population Density:

|                    |                    |
|--------------------|--------------------|
| City: Palatka      | County: Putnam     |
| Area: N/A          | Area: N/A          |
| Population: 10,201 | Population: 65,070 |
| Density: N/A       | Density: N/A       |

N/A - references data which was not available at the time of this study.

#### 3.6.3 Type of Businesses

The number of business establishments in Putnam County can be broken down by type as follows: manufacturing 5.9%; agriculture 1.9%; services 32.1%; trade and financial 44.8%; and other 15%. Of the people in the county employed by businesses, about 21.9% are employed by service businesses. Also prominent are retail trade businesses at about 33.7% and manufacturing at about 27.7%. Foregoing percentages are at mid March 1991.

#### 3.6.4 Type of Housing

Housing in Palatka is composed of both single and multi-family dwellings. The median value of specified owner-occupied units is \$49,900.

#### 3.6.5 New Development in the Area

Recent new development in the area is limited to a Crystal fast food restaurant and housing starts.

### 3.6.6 Typical Cross-Section of Population

The part of the population which is under 18 years is 25.4%, and the part over 65 is 18.0%. The median age is 37.3 years.

### 3.6.7 Information Sources

U.S. Census reports as listed below:

- 1990 Census of Population and Housing
- 1990 Census of Population and Housing
- COUNTY BUSINESS PATTERNS - 1992,
- City County Data Book, 1991

Telephone interviews with local Chambers of Commerce

## **4.0 Historical Ordnance Usage**

### **4.1 Historical Site Summary**

#### **4.1.1. Dates of Operation**

In 1940, the United States acquired Bostwick Bomb Target, also known as Putnam Bomb Target, by lease and condemnation for leasehold from Union Bag and Paper Company. The range area, located in Section 22, Township 8 South, Range 26 East, included 650 acres of unimproved land in Putnam County, Florida. The Navy established a 40 acre circular target in the center of the range. The Naval improvement to this range included outlining the target on the ground, a fence and warning signs (U.S. Army Corps of Engineers, Jacksonville District 1994).

The Naval Air Advanced Training Command stationed at Jacksonville Naval Air Station (NAS), used Bostwick Bomb Target for operational training and conducted practice dive bombing (Jacksonville NAS 1955).

The Navy declared Bostwick Bomb Target excess to their needs in 1977 and terminated the lease on 15 December 1977 (USACE-SAJ 1994).

Union Camp Paper Corporation owned the former Bostwick Bomb Target until recently. Mr. George Nab, the current owner, uses the property to grow pine trees for pulp production.

#### **4.1.2 Use of Chemical Warfare Materials**

No documentation was reviewed substantiating the use or storage of chemical warfare materials at Bostwick Bomb Target.

#### **4.1.3 Use of Conventional Munitions**

On May 1977, the Weapons Department, U.S. Naval Air Station-Weapons Department conducted a visual inspection of the Bostwick Bomb Target area. The following types of "duds" or ordnance were observed in part or whole. Some of the items could not be certified as "inert" by visual inspection (U.S. NAS Weapons Department 1977).

- 2.75 Rocket Heads
- 2.75 Rocket Motors
- 2.25 Rockets SCAR
- MK-76 Practice Bombs
- MK-106 Practice Bombs

MK-23 Practice Bombs  
MK-89 Bomb Practice - 56 lb Size Low Drag Sub-Caliber  
MK-82 Low Drag Bomb 500 lb.  
LAU 69 Rocket Rods  
30 MM Projectiles  
MK-15 Lb Water Sand Fill  
MK-81 Bomb 256 Lb. Low Drag  
LAU-68 Rocket Pods, 7 Round 2.75 Rockets  
MK-5-3 Miniature Bomb Practice - MK-5 MC 3 Lbs

#### 4.1.4 Certificate of Decontamination

A certificate of decontamination was not found during the archives research.

#### **4.2 Review of Historical Records**

Records relating to the history of Bostwick Bomb Target were reviewed at the following locations between September and December 1995. The research team consisted of Ms. Shelia Thomas and Ms. Nancy Gerth, CELMS-PD-R. The POC for this research is Ms. Gerth, (314) 331-8842. Under each location is a list of the Record Groups (RG) or accessions that were reviewed, also listed is a description of each relevant document copied.

**National Archives  
8th & Pennsylvania  
Washington, D.C. 20408  
POC: Mr. Richard Peuser  
(202) 501-5671**

RG 72 Records of the Bureau of Aeronautics

Entry 15A General Correspondence, 1943-1945  
Box 3390

RG 153 Records of the Office of the Judge Advocate General

Entry 56 Reservation File, 1809-1948  
Boxes 18-24

**National Archives at College Park  
8601 Adelphi Road  
College Park, MD 20740  
POC: Mr. Ken Schlessinger  
(301) 713-7250**

**RG 18 Records of the Army Air Forces**

**Entry 2 (NM-6) Air Adjutant General, 1944  
Boxes 2313, 2315 and 2260**

**RG 71 Records of the Bureau of Yards and Docks**

**Entry CP  
Box 38**

**RG 72 Records of the Bureau of Aeronautics**

**Entry 15A General Correspondence, 1943-1945  
Box 3390, NA28-NA29  
Box 3391, NA29-NA30**

**Entry 17A Confidential Correspondence, 1943-1945  
Box 1179 and 1164**

**Entry 75 Secret Correspondence, 1939-1977  
Box 346**

**RG 107 Records of the Secretary of War**

**Entry 102 Project Decimal File, 1943 January to 1946 January**

**RG 269 General Records of the General Services Administration**

**Entry NN3-269-84-24 Real Property Disposal Case Files  
Box 6**

**RG 270 Records of the War Assets Administration**

**Entry UD/12  
Box 17**

**National Archives-Suitland Reference Branch  
4205 Suitland Road  
Suitland, MD 20409  
POC: Mr. Rich Boylan  
(301) 457-7182**

RG 72 Records of the Bureau of Aeronautics

Entry 69A2454, Records relating to inactive air stations, 1943-1959  
Boxes 5-7  
Box 6

1. Letter from Wilfred P. Tienecken to the War Assets Administration regarding Bostwick, 2 September 1947.
2. Declaration of Surplus Real Property, 25 August 1947.

RG 175 Records of the Chemical Warfare Service

Entry 2 Index Briefs, 1918-1942  
Boxes 53 and 353

:

**Washington National Records Center  
4205 Suitland Road  
Suitland, MD 20409  
POC: Ms. Velecia Chance  
(301) 457-7010**

RG 77 Records of the Office of the Chief of Engineers

Accession A53-325  
Box 63

Accession A52-259  
Boxes 86-87

**Naval Historical Center  
Washington Navy Yard  
901 M Street SE  
Washington, D.C. 20374  
POC: Mr. John Hodges  
(202) 433-3170**

Aviation History Files and Administrative History records were reviewed but contained no information on Bostwick Bomb Target.

**U.S. Naval Facility  
Naval Construction Battalion Center  
Civil Engineering Support Office  
Port Hueneme, CA 93043-4301  
POC: Mr. Robert Brickey  
(805) 982-5593**

The Civil Engineering Support Office maintains microfilm copies of maps, drawings and specification for navy installations. At this repository we reviewed the card catalog for Florida naval sites and several rolls of micro film and found no information concerning Bostwick Bomb Target.

**U. S. Naval Facility  
Naval Construction Battalion Center  
History Office  
1000 23rd Avenue  
POC: Ms. Carol Marsh  
Port Hueneme, CA 93043-4301  
(805) 982-5913**

Jones, GySgt Mel  
1965 Post of the Corps Jacksonville. *Leatherneck*. 37-41.

Author unknown  
1944 Postgraduate School of Naval Aviation. Jacksonville Naval Air Station, Historical Office. 15 September.

**U.S. Army Chemical-Biological Defense Command  
Building E5183  
Aberdeen Proving Ground, MD 21010-5423  
POC: Mr. Jeff Smart  
(410) 671-4430**

The research team reviewed the finding aids at this command and found no documents concerning Bostwick Bomb Target.

**National Archives-Southeast Region  
1557 St. Joseph Avenue  
East Point, GA 30344  
POC: Mr. David Hilkert  
(404) 763-7477**

Finding aids for the following record groups were reviewed while conducting research for Bostwick Bomb Target. The research team found no records relating to the bomb target.

RG 103 Records of the Farm Credit Administration

RG 121 Records of the Public Building Service

RG 175 Records of the Chemical Warfare Service

RG 181 Records of the Naval Districts and Shore Establishments

Accession 61A1670  
Box 9 of 9

Accession 59A0750  
Box 1 of 3

RG 270 Records of the War Assets Administration

Accession 51A1  
Boxes 122, 123, 219 and 220

Accession 58A-542  
Box 110  
Box 123

Accession 58A542  
Box 15

**Jacksonville Naval Air Station  
Historical Office  
Jacksonville, Florida**

Department of the U.S. Navy

1955 Letter from H. A. Johnson, Commanding Officer, NAS Jacksonville, Florida to Commandant, Sixth Naval District, subject: Renewal of Leases and Permits under Cognisance of NAS, Jacksonville, Florida for Fiscal Year 1957, dated 23 December 1955.

Department of the U.S. Navy

1946 Letter from Rear Admiral, Ralph Davison to Chief of Naval Operations, subject: NAADTraCom Operational Facility Requirements for Postwar Training, dated 19 January 1946.

Department of the U.S. Navy

1947 Letter from Rear Admiral, Ralph Davison to Chief of Naval Operations, subject: Naval Air Advanced Training Command - Revised Operational Facility Requirements for Post-War Training, dated 14 January 1947.

Department of the U.S. Navy

1949 Report: History and Present Status of Real Property Under Cognizance of Commanding Officer, NAS, dated 1 May 1949.

Department of the U.S. Navy

1946 Report: Status of and Action on Real Estate Naval Air Station, Jacksonville, Florida Month of November - 1946.

Department of the U.S. Navy

1947 Report: Status of and Action on Real Estate, Naval Air Station, Jacksonville, Florida as of 1 May 1947.

Department of the U.S. Navy

1945 Letter from Captain F.T. Ward, Naval Air Advanced Training Command to Commanding Officer, Naval Air Station, Jacksonville, Florida, dated 17 December 1945.

**U.S. Army Corps of Engineers  
Jacksonville District  
Post Office Box 4970  
Jacksonville, FL 32232-0019  
(904) 232-1693**

Weapons Department, U.S. Naval Air Station, Jacksonville, Florida

1977 Letter from W. G. Squires, Jr. to Commanding Officer, subject: Visual Inspection of Putnam Bombing Range Target Area Conducted 9 May 1977, dated 10 May 1977.

### **4.3 Summary of Interviews**

**4.3.1 Mr. Jim Harrell**  
Weapons Department  
U.S. Naval Air Station  
Jacksonville, FL  
904-772-3337  
DSN 942-3337

Spoke with Mr. Jim Harrell, an explosives safety technician in the Weapons Department, about additional information on ordnance used at Bostwick Target. He has been at Jacksonville NAS since the mid 1970's, but had never been on the range. He did know of a retired individual who assisted in the clearance of that range. He would call him and provide information to us. Mr. Harrell contacted Mr. Martin Lawrence (904) 284-5062, who told him that the Navy EOD team at Little Creek had cleared the range down to two feet. This work was done by maybe 30 men over a six-month period. Mr. Lawrence acted as the liaison between Jacksonville NAS and the EOD team. He was part of the crew that removed the perimeter fencing from the range. Mr. Lawrence did not mind if we contacted him, but did not think he could find his way around the range any longer.

**4.3.2 Mr. Martin Lawrence**  
Jacksonville, Florida  
904-284-5062

Mr. Lawrence is an ex-EOD, who was working in the at NAS-Jacksonville (NAS-Jax) during 1977-1978. He was directly involved in the ordnance remediation at the Bostwick Bomb Target. He recalled that 16 or so EOD personnel from Little Creek under Ensign Barlow had cleared the entire area of the bomb target using heavy equipment to turn up the soil as deep as 2 feet. He kept a daily log of the operations and turned it over to the Resident Officer in Charge of Construction (ROICC) at NAS-Jax. Some sort controversy had developed between the EOD unit and NAS-Jax and his daily log was used to resolve the matter.

Mr. Lawrence's primary function was as Equipment Custodian. He was responsible for providing necessary equipment to carry out the operation. He remembers the rental of the equipment costing several hundred thousand dollars; the operation took close to 6 months. He also recalled that there was close to 700 gallons of diesel fuel hauled to site every week.

The scrap that was generated on the site was hauled to another location, called Rodman Target. Mr. Lawrence was also personally involved in the removal of the

fence around the target. The fence fabric was removed and rolled into bundles. The post were pulled from the ground. He recalled that there were 3 buildings there, a Quonset hut, a generator building, and a head.

A subsequent conversation with Mr. Jim Harrell, 904-772-3337, of the Weapons Department at NAS-Jax revealed that the Rodman Target may actually be the Pinecastle Target.

4.3.3 Mr. Bobby Hall  
Jacksonville, Florida

Comments from the interview with Mr. Hall are included in Section 6.0, the Site Inspection portion, of this report. Mr. Hall confirmed the details of the clearance operations that Mr. Lawrence had reported.

4.3.4 Chief Smith  
COM EOD Group 2  
Little Creek Naval Amphibious Base  
Norfolk, VA  
804-464-8453  
DSN 680-8453/8455 \*234 (Ops)

Chief Smith (Gunner's Mate) explained that because of a reorganization, the EOD team that would have done the clearance in 1977 can only be surmised. He did state that probably no record of it exists. He promised to make a call to the most likely avenue of solid information (one of his headquarters), but said they were involved in a fleet exercise. He also said that he thought a two-foot clearance effort was suspect. He said their standard operating procedure (as in all military EOD units) is to make a surface clearance to the best of their ability.

4.3.5 Lt. Ryan  
Putnam County Sheriffs Office  
904-329-0800

Lt. Ryan is responsible for coordinating any activities involving discoveries of ordnance or bombs in the Putnam County area. He could not recall any recent incidents in the entire county area. His county works in conjunction with the bomb squad in the adjacent St. Johns County. He suggested contacting them also.

**4.3.6 Lt. Tanner**  
St. Johns County Sheriffs Office  
904-824-8304

Lt. Tanner is a lifelong resident of the area and was stationed at Jacksonville NAS during the 1950's. He is a former Marine EOD sergeant and is presently in charge of the bomb disposal group for St. Johns County. He related discoveries of ordnance in St. Johns County, but could not recall any finds in Putnam County.

**4.4 Air Photo Interpretation and Map Analysis**

**4.4.1 Interpretation of Aerial Photography**

Photoanalysis and land use interpretation were done using the following listed photography:

| <b>Photography</b> |              |               | <b>Identifier(s)</b>       |
|--------------------|--------------|---------------|----------------------------|
| <b>Date</b>        | <b>Scale</b> | <b>Source</b> | <b>Frame(s)</b>            |
| 18 Feb 1953        | 1:20,000     | ASCS          | 149 thru 151; 212 thru 215 |
| 29 Jan 1964        | 1:20,000     | ASCS          | 213 thru 216               |
| 20 Nov 1979        | 1:40,000     | ASCS          | 100 thru 102               |
| 13 Feb 1987        | 1:15,000     | EROS          | 82 thru 86; 146 thru 150   |

The maps cited at paragraph 4.4.2, below were used as references for the photography.

Photography listed above covering the **Bostwick Bomb Target** site was examined. Features visible on the photography and considered to be significant are shown and described at Figures 4-1 thru 4-4. The features can be categorized and summarized as follows: One target consisting of three circles concentric around a bullseye. The circles appear to have been constructed by lining the ground with gravel. Two areas of possible disturbed soil, possible scarred soil, two pits, two arrows showing direction to the target, a circular low area, a trail leading to a possible area of disturbed soil, an area containing possible structures and a utility pole or tower, a possible trench or drainage ditch, and mounded material are visible on imagery from some or all of the above-noted dates.

| <b>Figure</b> | <b>Year of Photo</b> | <b>Title</b>        |
|---------------|----------------------|---------------------|
| 4-1           | 1953                 | Aerial Photo (1953) |
| 4-2           | 1964                 | Aerial Photo (1964) |
| 4-3           | 1979                 | Aerial Photo (1979) |
| 4-4           | 1987                 | Aerial Photo (1987) |

Terrain around the site is slightly hilly; relief varies in the area up to 85 feet. The bomb target area itself is relatively flat with about 10 foot difference in elevation from one end to the other. The swampy lowlands adjacent to the site are fed by Simms Creek. Three branches feed into this creek immediately south of the study area. The land cover is mainly forest, with small lakes and swamps visible throughout the area. A two-lane highway cuts through east of the site from the north. Secondary paved roads are visible throughout the area. A rail line parallels the highway. The town of Bostwick is approximately two miles east of the site. Small housing subdivisions are shown on the quadrangle both east and west of the site.

#### 4.4.2 Map Analysis

The site was analyzed using the following maps:

USGS 7.5 minute quadrangle maps:  
    Bostwick, FLA (1991);  
Base Layout Plans: none;  
Real Estate Maps: none.

Review of the above-cited map sheet confirms general descriptions found in paragraph 4.4.1 above. The map was also useful in locating boundaries and identifying features on the photography.

2-18-53

CYZ-3H-213



1953 --(A, B, C) TARGET IS VISIBLE AS THREE RINGS CONCENTRIC AROUND A BULLSEYE. SCARRING OF THE GROUND IS VISIBLE IN NUMEROUS PLACES IN AND AROUND THE BULLSEYE.

(D) A SMALL FOOT BRIDGE SPANS A CREEK NEAR THE CENTER OF THE TARGET.

(E) A SMALL STRUCTURE OR MOUND OF LIGHT-TONED MATERIAL IS VISIBLE TO THE SOUTHEAST (SIZE APPROX. 50'x50').

(F) A SMALL TRAIL LEADS TO THE STRUCTURE/MOUND FROM THE TARGET. MANY JEEP TRAILS ARE VISIBLE IN THE AREA. TWO SMALL RECTANGULAR MARKS SOUTH OF THE TARGET MAY HAVE BEEN USED TO SHOW INGRESS/EGRESS DIRECTIONS TO THE TARGET.

(G) A POSSIBLE PIT IS VISIBLE SOUTHWEST OF THE TARGET.

(H) IT CANNOT BE DETERMINED WHETHER OR NOT THE PIT IS NATURAL. ANOTHER POSSIBLE SMALL PIT IS VISIBLE AMONGST JEEP TRAILS IMMEDIATELY NORTHWEST OF THE TARGET. THE INTERPRETER COULD NOT FIND EVIDENCE OF ANY FENCING TO SECURE THE AREA.

LEGEND:

SITE LOCATION —  
 TARGET AREA —



NOT TO SCALE

FIGURE 4-1

BOSTWICK BOMB TARGET  
 PUTNAM COUNTY  
 FLORIDA  
 PROJECT #104FLO914101  
 1953 AERIAL PHOTO

PROJ. DATE: JAN 1996

DATE OF PHOTO: 1953

19-MAR-1996 12:49

N:\OEWS6A\F21\PHOTO\BSTWK53.DGN, .EXT



LEGEND:

SITE LOCATION —  
 TARGET AREA —

1964 -- (A) BY 1964 THE CREEK RUNNING THROUGH THE MIDDLE OF THE TARGET HAS BEEN FILLED-IN. THE AREA IMMEDIATELY SURROUNDING THE TARGET HAS BEEN PLOWED. TWO SMALL ARROWS (NORTH OF THE TARGET POINTING SOUTH) SHOW THE INGRESS DIRECTION TO THE TARGET.

(B) A SMALL CIRCULAR LOW AREA IS BEGINNING TO REVEGETATE ON THE EAST SIDE OF THE TARGET.

(C) DISTURBED SOIL (LIGHT IN TONE) IS EVIDENT IMMEDIATELY SOUTHWEST OF THE (POSSIBLE SPOIL AREA FOR THE LIMESTONE USED TO MARK THE TARGET ?).

(D) JEEP TRAILS FORM A SQUARE ROUGHLY CENTERED ABOUT THE TARGET. OUTSIDE OF THE TARGET AREA, TO THE SOUTHEAST, IS A SET OF SMALL OBJECTS ABOUT THE SIZE OF A VEHICLE.

(E) A SMALL TOWER OR UTILITY POLE IS VISIBLE IN THE COMPOUND. A TRAIL LEADS OUT OF THE COMPOUND TOWARDS THE NORTHEAST, TO A CUL-DE-SAC IN THE ROAD.

(F) EXCAVATION IS NOT EVIDENT NEAR THIS TURNAROUND, UNLESS A SMALL OBJECT NEAR THE END IS A MOUND OF MATERIAL, OR THE NEARBY TRENCHES THOUGHT TO BE FOR DRAINAGE HAVE ANOTHER USE. USE OF THIS ROADWAY CANNOT BE DETERMINED FROM PHOTOGRAPHS. PITS VISIBLE IN 1953 CANNOT BE SEEN ON IMAGERY FROM THIS PHOTO DATE. A SMALL MOUND OF MATERIAL VISIBLE IN 1953 (SOUTHEAST OF THE TARGET) IS DARKER IN TONE AND SMALLER BY 1964.

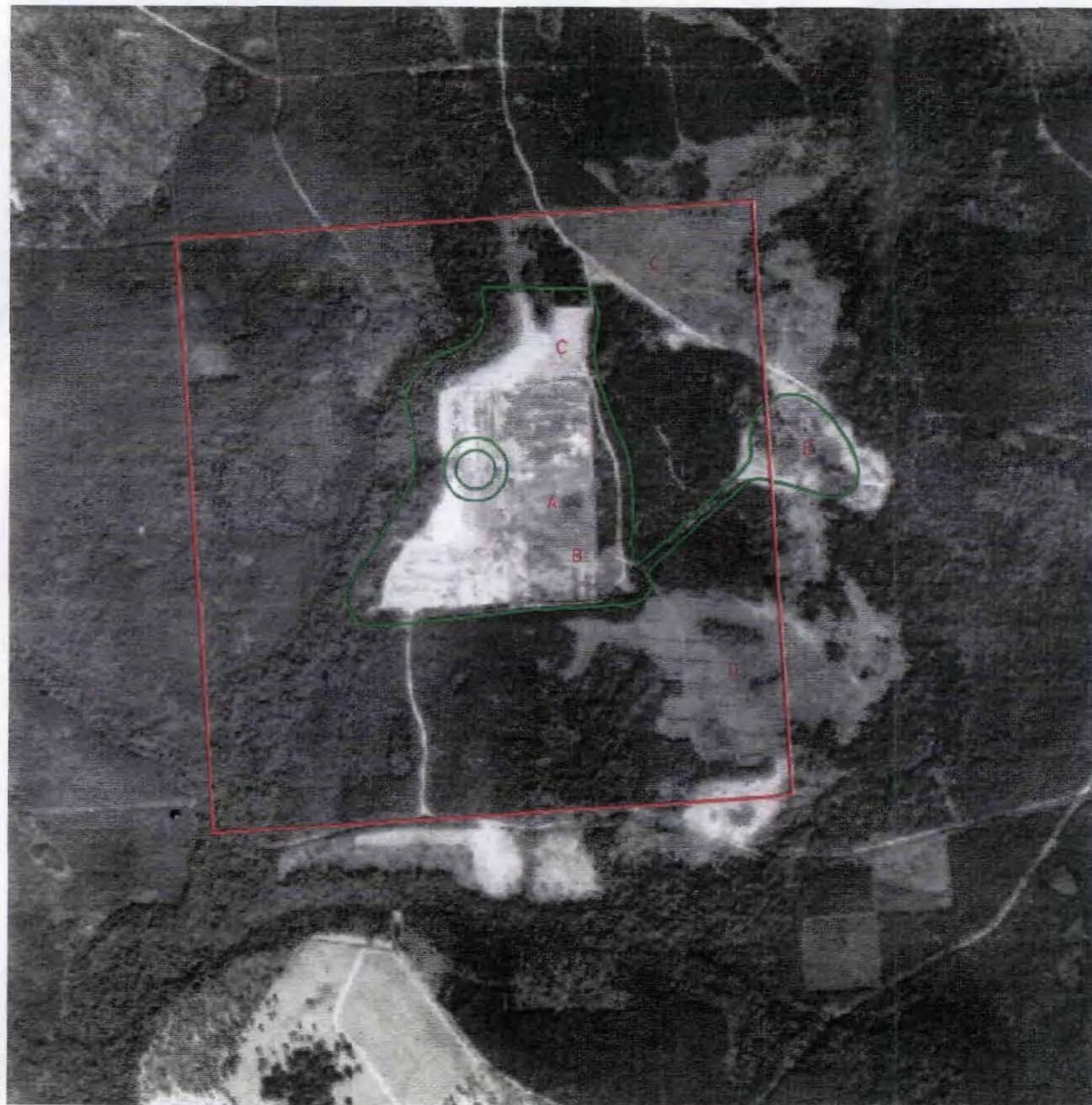


NOT TO SCALE

**FIGURE 4-2**

**BOSTWICK BOMB TARGET  
 PUTNAM COUNTY  
 FLORIDA  
 PROJECT #104FL0914101  
 1964 AERIAL PHOTO**

|                      |                                       |
|----------------------|---------------------------------------|
| PROJ. DATE: JAN 1996 | DATE OF PHOTO: 1964                   |
| 19-MAR-1996 13:08    | N:\0EW96A\F21\PHOTO\BSTWK64.DGN, .EXT |



**LEGEND:**  
SITE LOCATION BOUNDARY ———  
TARGET AREA ———

1979 -- (A) AREA HAS BEEN GRADED. NO EVIDENCE OF THE TARGET IS VISIBLE. SMALL LOW AREA NEAR CENTER OF FORMER TARGET NOW SUPPORTS SMALL TREES.

(B) A SMALL TRAIL OR DRAINAGE DITCH LEADS TOWARD THE ROAD SURROUNDING THE SITE.

(C's & D) NO STRUCTURES ARE VISIBLE. OPEN AREAS TO THE NORTH AND EAST OF THE TARGET HAVE BEEN PLOWED.

(E) THE CUL-DE-SAC IS NOT VISIBLE, BUT THE ROAD DOES LEAD TO A FRESHLY PLOWED AREA.



NOT TO SCALE

**FIGURE 4-3**

**BOSTWICK BOMB TARGET  
PUTNAM COUNTY  
FLORIDA  
PROJECT #104FLO914101  
1979 AERIAL PHOTO**

|                   |  |
|-------------------|--|
| PROJ. DATE:       | DATE OF PHOTO: 1979                    |
| 08-MAR-1996 12:37 | N:\OE\96A\F21\PHOTO\BOSTWK79.DGN, .EXT |



LEGEND:  
 SITE LOCATION ————  
 TARGET AREA ————

1987 -- (A) TARGET AREA IS REVEGETATING WITH A STAND OF SMALL TREES, PLANTED IN ROWS. THE LOW AREA PREVIOUSLY MENTIONED SUPPORTS TALLER TREES HAVING A DIFFERENT TONE.

(B) EVIDENCE OF EROSION IS VISIBLE IN THE FORMER TARGET AREA. THE FORMER CUL-DE-SAC AREA HAS BEEN PARTIALLY REPLANTED. NO EVIDENCE OF MAN-MADE EXCAVATIONS ARE VISIBLE.



NOT TO SCALE

FIGURE 4-4

|  |                                      |
|--|--------------------------------------|
| BOSTWICK BOMB TARGET<br>PUTNAM COUNTY<br>FLORIDA<br>PROJECT #104FLO914101<br>1987 AERIAL PHOTO |                                      |
| PROJ. DATE: JAN 1996   | DATE OF PHOTO: 1987                  |
| 20-MAR-1996 07:56  | №:0EW96A#F2I#PHOTO#BSTWR87.DGN, .EXT |

## **5.0 Real Estate**

### **5.1 Confirmed DoD Ownership**

The United States acquired a total of 640 acres by lease and condemnation for leasehold (actual dates unknown) from eight different owners for a Naval bomb target. The site was located in Section 22, Township 8 South, Range 26 East, about two to three miles northwest of the town of Bostwick in Putnam County, Florida. The site was developed and sequentially known as the Bostwick bomb Target and the Putnam Bomb Target. Naval improvements at the site consisted of clearing about 40 acres in the middle of the site for a target in the shape of a circle (outlined on the surface of the ground) , fencing, and warning signs. The site remained active until 1977 when its functions were no longer required by the Navy for training purposes.

This real estate information was obtained from the Corps of Engineers, Inventory Project Report (INPR), included in Appendix D of this report.

An undated General Development Map, obtained from Mr. Jim Harrell in December 1995 at the Range Weapons Office of Jacksonville NAS, shows three concentric circles at 100', 200' and 300' radiuses as the main target area, boundary fencing, a fire break, two observation towers, a glide angle observation point, control building and dirt access roads.

### **5.2 Potential DoD Ownership**

No additional information found.

### **5.3 Significant Past Ownership other than DoD**

No information was obtained during the archives research stating any significant ownership which could have left ordnance at the site.

### **5.4 Present Ownership**

By 1977, only one lease was in effect as one of the original lessors had acquired fee title to the entire 640 acre site. The Navy determined the site was surplus to their needs and terminated the lease on 15 December 1977. Extensive restorations were required on about 70 acres in the center of the site. The site was owned by a corporation and utilized to grow timber for harvest. It has recently been purchased by Mr. Gorge Nab (904-259-6771), who still uses it for wood production.

## 6.0 Site Inspection

Personnel from the St. Louis District, Corps of Engineers, listed below, travelled to the Jacksonville/St. Augustine, Florida area to inspect the subject site as part of the DERP-FUDS archives search report process.

Mr. Tom Freeman, Project Manager  
Mr. Randy Fraser, Site Safety Specialist  
Mr. Gregg Kocher, Site Safety Specialist

### 5 December 1995

The St. Louis District team had made arrangements to meet with personnel from Jacksonville Naval Air Station, who had been in charge of this bomb target. Prior to the St. Louis trip to Jacksonville, Mr. Jim Harrell of the Weapons Department (904-772-3337) had provided the St. Louis District with the name of Mr. Martin Lawrence (retired Naval employee), who had participated in the ordnance removal activities on this target during 1977. Mr. Lawrence had recalled the operation in great detail. Mr. Harrell reviewed the files in his office but could find no records of clearance activities at the site. Mr. Harrell indicated, however, that he thought that Mr. Bobby Hall, who had formerly worked in the Weapons Department, was also familiar with the site and its cleanup. He made arrangements with Mr. Hall for the two of them to accompany the St. Louis District team on the inspection.

The team next contacted Mrs. Janet Elliott (904-772-5571), Contracts Specialist, in the Naval Facilities Engineering Command, Resident Officer in Charge of Construction (ROICC) office. Mrs. Elliott reviewed the files in her office but could not find any documents relating to this cleanup.

### 6 December 1995

Although the property had been sold since the time of the inventory project report, the St. Louis District team was able to locate the new owner, Mr. George Nab (904-259-6771) prior to the site visit trip. Mr. Nab indicated that he was using the property for timber production and that he had crews currently working on the site. He stated that he did not see a need for him to accompany the inspection team. He would let his employees know about the inspection.

The site visit team met with Mr. Harrell and Mr. Hall at 0730 at the site. Mr. Hall, a former munitions inspector, had helped conduct the Navy inspection of the bombing target in May 1977, which established the need for site remediation at that time. He indicated that numerous "dud" and expended bombs and rockets were found during that inspection. The findings are detailed in a memorandum

which is included in the inventory project report. Mr. Hall stated that as a result of that inspection, a multi-million dollar clearance was carried out in 1977-1978. The entire area around the bomb target center was systematically excavated by Navy EOD personnel from Fort Story. As the soil was turned over, items were either removed or detonated in-place. The scrap was collected and hauled to the Navy Rodman Bomb Target, which is located in an adjacent county. The operation took several months to complete. Mr. Hall's recollection of the clearance operations was the same as that of Mr. Martin Lawrence, whom we had interviewed before the site visit trip.

Their explanation of how the ordnance was excavated was verified by the 1979 airphoto of the site which showed long, linear ground scars across the entire bomb target area.

The St. Louis District had identified 4 specific areas on aerial photography that indicated significant ground disturbances or had been the location of the bomb target center. After discussions with Mr. Hall and Mr. Harrell, it was determined that one of the disturbed areas was probably just the remains of one of the spotting towers before it was removed from the site. The other three locations were within the bomb target area.

After the appropriate site safety and procedural briefing, the St. Louis team accompanied by Mr. Harrell, walked from the roadway into the target area. The majority of the target area is presently planted with pine trees for timber production. The remainder is open fields or roadways. The course followed by the inspection team and the locations of the site photographs are shown on Figure 6-1. The site photographs are included in Appendix I.

The first location inspected was the bomb target center and the vicinity around it. This site is planted with rows of pine trees. There is very little underbrush and the ground surface was easy to observe. Photographs #2 through #13 show details of the site. Photo #16 is an overall view of the woods around the target center viewed from the former administration area road. Near the target center the soil composition changed from just a fine, brown, silty, sand to a fine, silty, sand mixed with white sea shell fragments. Sea shells were often used to mark the bomb target rings on sites in the Florida area. The location of the target center was verified through global positioning readings. Ordnance debris was found and photographed throughout the target area. Fragments found were from 3-4 pound practice bombs, one spent fuze (possibly from a 2.25" subcaliber aircraft rocket), and aluminum pieces possibly from the skin of a rocket pod. Other metal items were found, but were too corroded to make positive identification. No live ordnance or explosives were discovered.

The second location of interest was an area of debris, identified on 1964 aerial photography, approximately 400 feet southeast of the target center. Through the use of global positioning system instruments the team was able to identify the actual location of the former debris pile. The pile has been replaced by an excavation. There were no ordnance found in this area. Photograph #14 shows the current site conditions.

The third location inspected was the former site operations area. The only remaining evidence of previous activities at this location was a well pipe protruding from the ground, as shown in Photo #1.

All personnel left the site and returned to the Jacksonville, Florida area.

1-29-64

CYZ-1EE-215

NUMBERS REFER TO SITE  
VISIT PHOTOGRAPHS

BASIC 1964 ROAD CONFIGURATION  
STILL CURRENTLY EXISTS

PHOTOS 10 - 14 ARE ALL  
NEAR TARGET CENTER

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

**BOSTWICK BOMB TARGET  
PROJECT #I04FL091401**

**ARCHIVES SEARCH REPORT  
SITE VISIT ITINERARY**

**FIGURE 6-1**

## **7.0 Evaluation of Ordnance Presence**

Historical research from various sources indicates that the U. S. Navy used this site as a bombing target from 1940 through 1977. An undated layout of the site during the time of military use is shown on Plate M-1 in Report Plates Section.

Documented references from 1977 indicated that the target area contained a significant number of "dud" munitions of various types. A complete listing is included in Section 4.0 of this report. Plate M-2 provides a comparison of site conditions as depicted on 1964 and 1987 air photos.

Interviews with two men, who were familiar with the site during the late 1970's, indicated that a significant clearance operation was carried out by the Navy during 1978-1979. These two interviews, which were obtained independently of each other, detailed an ordnance operation carried out by Navy EOD personnel from the Norfolk, Virginia area. The operation involved grubbing the earth with heavy equipment, as deep as 2 feet in some areas, to reveal remaining explosive items. Live ordnance items were detonated in-place and the bulk of the scrap was removed to the Navy Rodman Bomb Target.

Aerial photography from 1953 and 1964 show the bomb target rings and a few ground disturbances in the vicinity of the site. The 1964 air photo also shows the observation towers and operations area. By the time of the 1979 aerial photography none of the bomb target features are evident. The target circles have been removed and the entire target area appears to be covered with trenches or striations on the ground. The 1987 photo shows ground patterns that are typical of planted forest area.

The St. Louis District, Corps of Engineers, made an inspection of the site in December 1995 and located the bomb target area from the surrounding ground features and with a global positioning system unit. The soil with the bomb target center differed with any of the adjacent soil deposits. There was a large amount of sea shell fragments present. Sea shells were used in various areas of Florida, in place of limestone rock, to construct the bomb target rings.

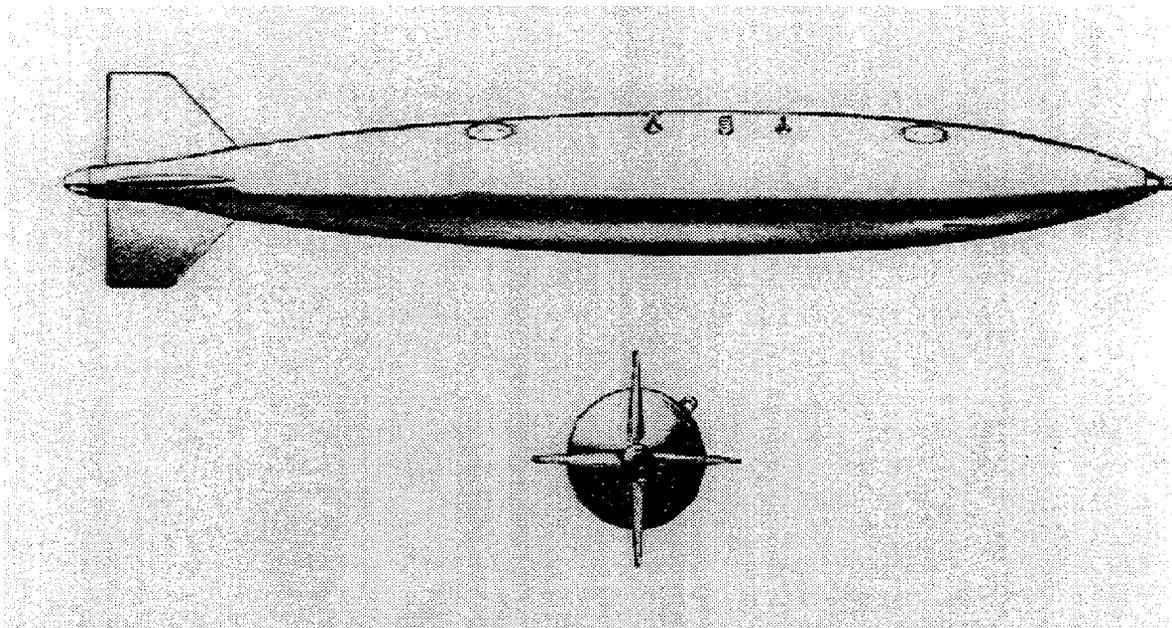
The site inspection team also discovered ordnance debris in the target center area. Fragments found were from 3 to 4 pound practice bombs, one spent fuze (possibly from a 2.25" subcaliber aircraft rocket), and aluminum pieces possibly from the skin of a rocket pod. Other metal items were found, but were too corroded to make positive identification. No live ordnance or explosives were discovered.

## **8.0 Technical Data of Ordnance and Explosives**

Data sheets are provided in this section for ordnance items which could be encountered on this site. Possible existence has been identified through review of historical documents, air photo interpretation, or a personal site visit by the ASR inspection team.

| <b>Identification</b> | <b>Description</b>               | <b>Page</b> |
|-----------------------|----------------------------------|-------------|
| MK87                  | Bomb, Practice, 500-pounds       | 8-2         |
| 2.25 Inch Rocket      | Practice Rocket for the 5.0 inch | 8-3         |
| MK76                  | Bomb, Practice, 25-pounds        | 8-4         |
| MK106                 | Bomb, Practice, 5-pounds         | 8-5         |
| AN-MK23               | Bomb, Practice, 3-pounds         | 8-6         |
| MK89                  | Bomb, Practice, 56-pounds        | 8-7         |
| MK82                  | General Purpose Bomb 500-pounds  | 8-8         |
| MK15                  | Bomb, Practice, 100-pounds       | 8-9         |
| MK81                  | General Purpose Bomb 250-pounds  | 8-10        |
| AN-MK5                | Bomb, Practice, 3-pounds         | 8-11        |
| 30 mm                 | Ammunition, 30mm for Aircraft    | 8-12        |
| Rocket                | Rockets, 2.75 inch (general)     | 8-13        |

## BOMB, PRACTICE, 500-POUND, MK87

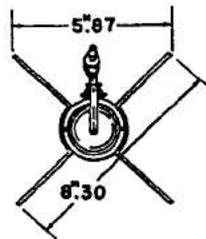
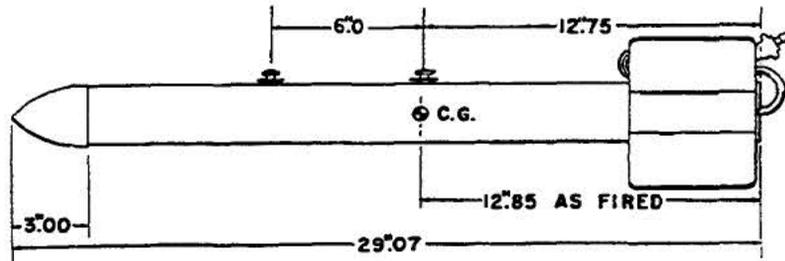


**Description:** The MK87 practice bomb is a low-drag practice bomb, similar in size and shape to the MK82 general purpose bomb. It has a long, pointed nose and a conically-tapered aft end. One filler hole is located on the side, aft of the rear suspension lug. The four tail fins are canted 1 1/2 degrees to impart spin to the bomb and to insure good flight stability. The MK87 is of thin-cased construction with internal reinforcement for the sway brace and ejection areas. Firing pin MK1 Mod 0 and practice bomb signal MK4 Mod 3 are installed in the forward end of the bomb, secured by a cotter pin. The bomb is filled with 235 pounds of wet sand or 123 pounds of water. Two suspension lugs are spaced 14 inches apart on the body. A hoisting lug is located midway between the suspension lugs.

|  |              |
|--|--------------|
| <b>Over-all length of assembled bomb</b> ..... | 91.0 inches  |
| <b>Body Diameter</b> .....                     | 10.75 inches |
| <b>Fin Span</b> .....                          | 15.06 inches |
| <b>Weight of assembled bomb</b>                |              |
| <b>Empty</b> .....                             | 98.0 pounds  |
| <b>Loaded with wet sand</b> .....              | 333.0 pounds |
| <b>Loaded with water</b> .....                 | 221.0 pounds |

**Reference:** ..... T.O. 11-1-28

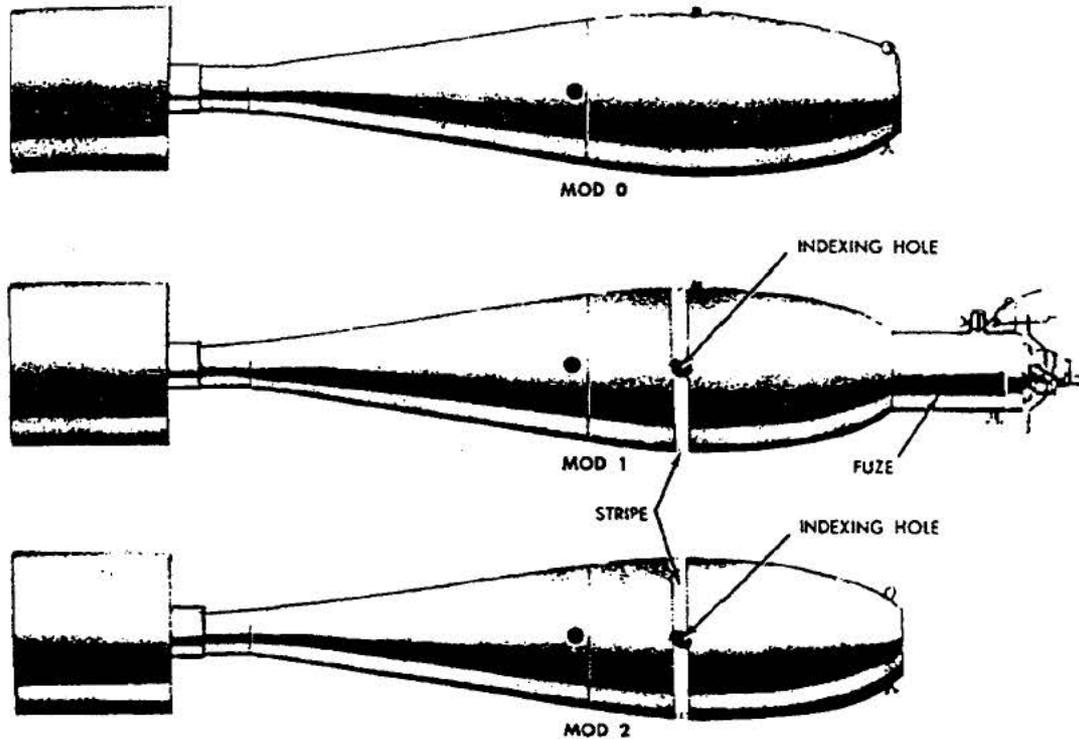
## Rocket, Practice, 2.25-Inch



**Description:** The 2.25-inch, fin-stabilized, subcaliber aircraft rocket is a Navy type used by the United States Air Force for forward-firing from an aircraft rocket launcher. The rocket is used as practice ammunition in place of the 5.0-inch rocket HVAR which it simulates ballistically. The 2.25-inch rocket is fired from the 5.0-inch rocket launcher Mk 5 adapted for this use by adapter Mk 6. Two lug buttons attached to the motor body of the rocket engage the adapter. Electrical energy to fire the rocket is derived from the electrical system of the aircraft. The rocket consists of an inert head and a motor. Generally speaking, the heads Mk 3 Mod 2 and other Mods are hollow and threaded externally at the rear to receive the motor. The motors vary from the Mk 11 Mod 0 or 1, Mk 15 Mod 0 or Mk 16 Mod 5.

|                              |                                  |
|------------------------------|----------------------------------|
| <b>Over-all Length</b> ..... | 29.07 inches                     |
| <b>Fin Diameter</b> .....    | 8.30 inches                      |
| <b>Total Weight</b> .....    | 10.90 lbs                        |
| <b>Igniters</b> .....        | Mk 112 Mod 0,1,or 2              |
| <b>Reference</b> .....       | OP.1415 2nd Rev. andAGO<br>3897B |

# BOMB, PRACTICE, 25-POUND, MK76

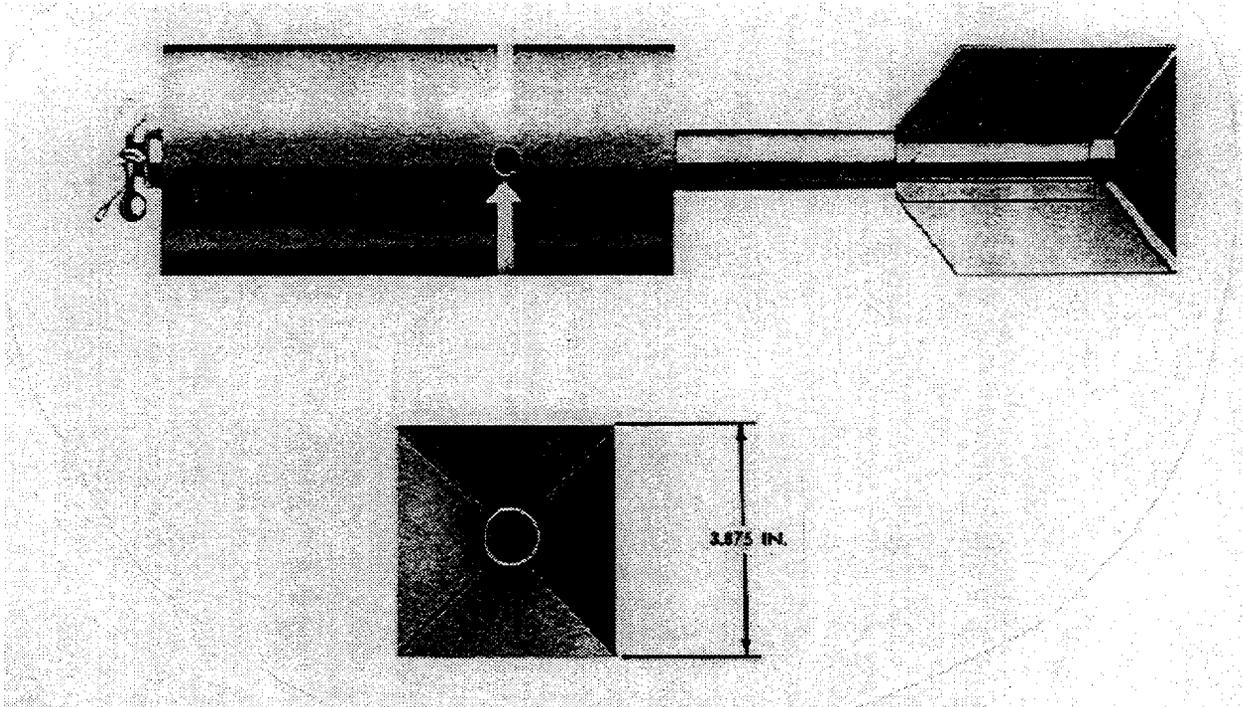


**Description:** The MK 76 Practice bomb is a tear shaped cast metal body which is centrally bored. The tail-tube assembly fits into the end of the bore. The conical afterbody covers the tail-tube assembly and is threaded to the body. The two sections are staked together to prevent unscrewing. The fin assembly is welded to the tail-tube. The firing pin assembly MK 1 Mod 0 and signal are assembled into the bore of the body and secured in place by a safety (cotter) pin. The firing pin assembly fires the signal, discharging smoke reward through the central tube.

|                              |                            |
|------------------------------|----------------------------|
| <b>Over-all length</b> ..... | 8.25 inches                |
| <b>Body Diameter</b> .....   | 2.18 inches                |
| <b>Fin Dimension</b> .....   | 2.5 inches                 |
| <b>Weight</b> .....          | AN-MK 5 Mod 1 - 2 lb 11 oz |
| .....                        | AN-MK 23 - 3 lb            |
| .....                        | AN-MK 43 - 4 lb 7 oz       |

**Reference** ..... TM 9-1325-200, Apr 66

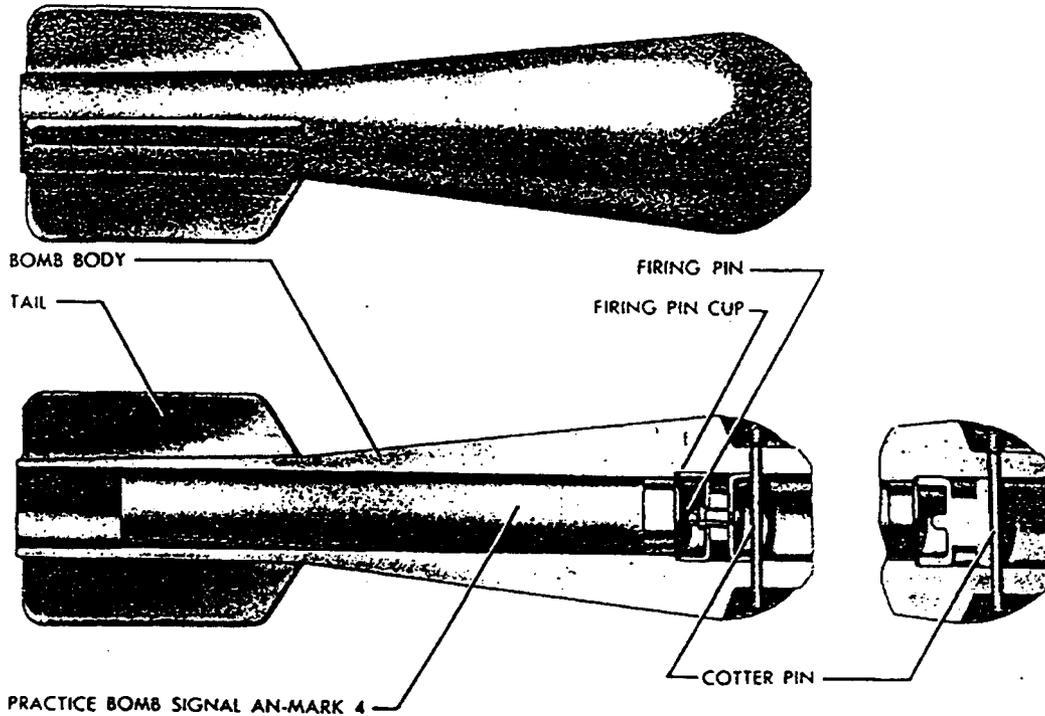
# BOMB, PRACTICE, 5-POUND, MK 106 MOD 0



**Description:** Practice bomb MK 106 Mod 0 is a thin-cased, cylindrical bomb. It is composed of a bomb body assembly, a practice bomb signal MK 4 Mod 3, and a modified fuze assembly M173. The bomb is composed of an inner cylinder, outer cylinder, and a fin assembly. The bomb is designed for low altitude drops. Modified fuze assembly M173, consisting of an adapter and the fuze M173 less booster, is installed in the nose of the bomb. The fuze is armed by anemometer vanes after completing 220 feet of air travel. When the bomb impacts with the target, the fuze functions and causes instantaneous detonation of the signal, MK 4 Mod 3. Smoke produced from the detonated signal is discharged rearward through an inner cylinder in the bomb body.

|                              |   |
|------------------------------|---|
| <b>Over-all length</b> ..... | 18.75 inches                                  |
| <b>Body Diameter</b> .....   | 3.875 inches                                  |
| <b>Weight</b> .....          | 4.56 pounds                                   |
| <b>Signal</b> .....          | MK 4 Mod 3                                    |
| <b>Filler</b> .....          | Smokeless powder/stabilized<br>red phosphorus |
| <b>Fuze</b> .....            | M173 modified                                 |
| <b>Reference</b> .....       | TM 9-1325-200, Apr 66                         |

# BOMB, PRACTICE, AN-MK23

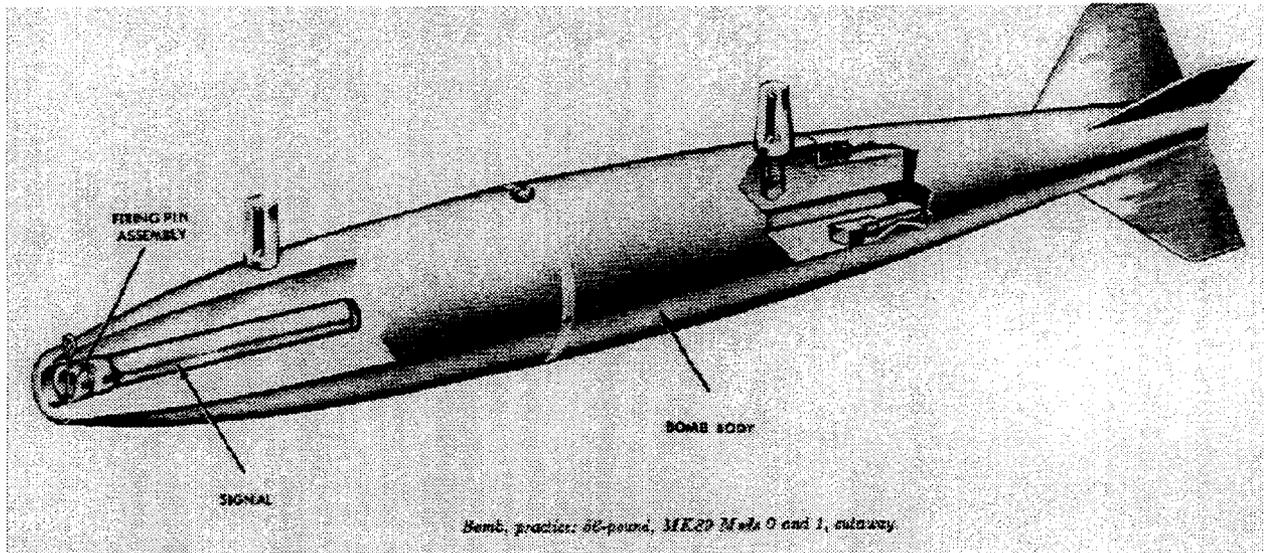


**Description:** The bomb body is constructed of cast iron. Along the longitudinal axis, a tube is machined into the bomb body to accept either the AN-MK4 or the AN-MK5 signal cartridge. The AN-MK4 is a pyrotechnic charge which upon impact produces a large puff of white smoke. The AN-MK5 contains fluorescein dye and is actuated by impact on water. When the AN-MK5 signal cartridge is installed in the bomb body, the firing pin assembly is not used. This bomb is used for low-altitude horizontal, or dive bombing practice. It may not be used against-deck target boats.

|                              |             |
|------------------------------|-------------|
| <b>Over-all length</b> ..... | 8.25 inches |
| <b>Body diameter</b> .....   | 2.18 inches |
| <b>Fin dimension</b> .....   | 2.5 inches  |
| <b>Weight</b> .....          | 3.0 pounds  |

**Reference** ..... OP 1280, 17 Feb 45

# BOMB, PRACTICE, 56-POUND, MK89 MODS 0 AND 1

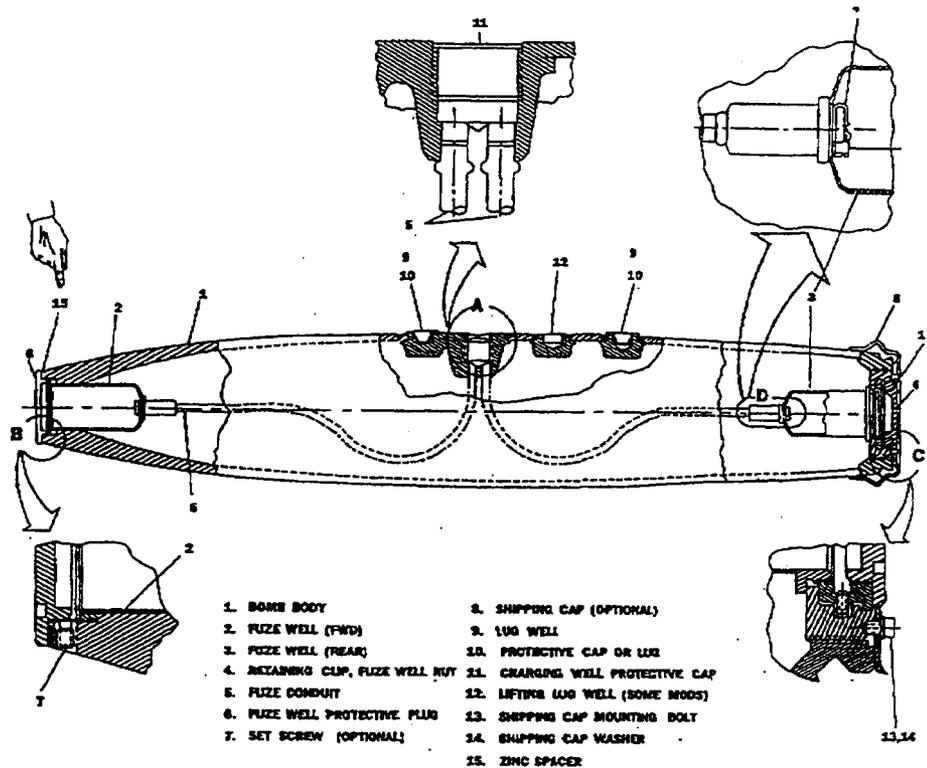


**Description:** The MK89 Mod 0 is a low-drag (sub-caliber) practice bomb, similar in shape to the low-drag series of general purpose service bombs. The cast iron body is slender with a long, pointed nose. The conical fin assembly is of welded sheet metal or cast aluminum-magnesium construction. The tail fins are canted 2 degrees to impart spin to the bomb for the purpose of obtaining repeated consistent trajectories. Practice bomb signal MK4 Mod 3 is installed in the forward end of the bomb. The smoke produced by the detonation signal is discharged rearward through the tail fin. The MK1 Mod 0 firing pin detonates the signal on impact with land or water. This bomb is adapted for air burst as well. Both Mods have three threaded holes equally spaced over a 14-inch span on the bomb body. These holes receive suspension lugs or shipping plugs.

|                                       | Mod 0       | Mod 1       |
|---------------------------------------|-------------|-------------|
| <b>Length of assembled bomb</b> ..... | 31.3 inches | 31.3 inches |
| <b>assembled with fuze</b> .....      | None        | 32.9 inches |
| <b>Diameter of body</b> .....         | 4.0 inches  | 4.0 inches  |
| <b>Fin Span</b> .....                 | 6.63 inches | 6.63 inches |
| <b>Weight of assembled bomb</b> ..... | 56.6 pounds | 56.6 pounds |
| <b>assembled with fuze</b> .....      | None        | 57.3 pounds |
| <b>Practice bomb signal</b> .....     | MK4 Mod 3   | MK4 Mod 3   |
| <b>Fuze</b> .....                     | None        | AN-M146A1   |

**Reference:** ..... TM 9-1325-200 NAVWEPS OP 3530

# BOMB, GENERAL PURPOSE, 500-POUND, MK82

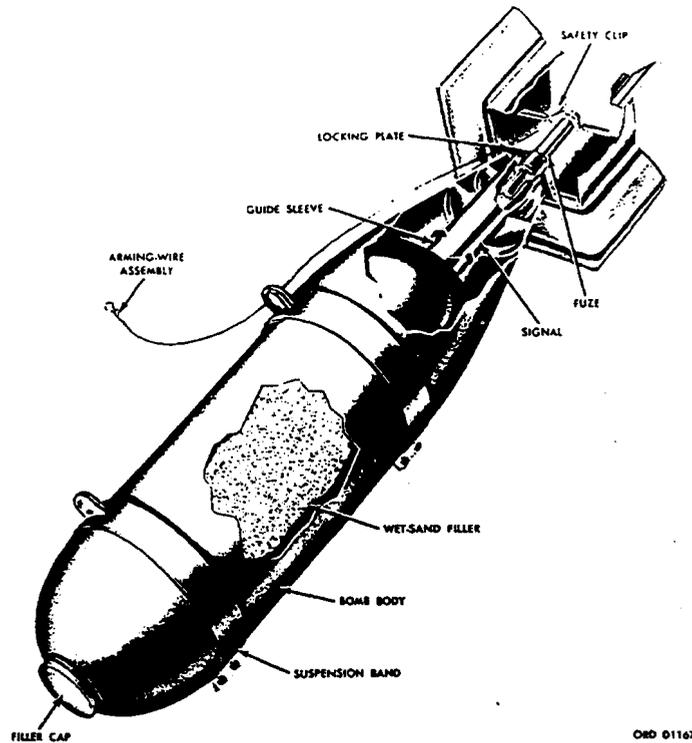


**Description:** The MK82 is relatively thin cased with a slender body design for improved ballistics. Two conduits for FMU type fuze lanyards connect nose and tail fuze wells to the charging well. All wells, except lug wells, are closed with metal or plastic shipping plugs when not in use. The bomb base plug (plate) is fastened to bomb body by locking pins embedded in solidified filler of bomb. Approximately 36% of assembled weight of bomb is an explosive charge. This item can be fitted with a variety of FMU series fuzes. M904, M905, 26 series, 72/B, 54/B, etc. The conical fin assembly is bolted to the rear. They are designed for either mechanical or electrical fuzing. The MK82 is equipped for double suspension lugs. They are also equipped with adapter boosters capable of receiving tail fuzes with a 2-inch thread instead of the usual 1 1/2-inch thread.

|  |                |
|--|----------------|
| <b>Over-all length assembled</b> ..... | 86.90 inches   |
| <b>Body diameter</b> .....             | 10.75 inches   |
| <b>Fin Span</b> .....                  | 15.1 inches    |
| <b>Net Explosive Weight</b> .....      | 192 pounds     |
| <b>Type of filler</b> .....            | tritonol or H6 |
| <b>Weight of assembled bomb</b> .....  | 531.0 pounds   |

**Reference:** ..... T.O. 11A1-5-7, T.O. 11-1-28

# BOMB, PRACTICE, 100-POUND, MK 15 MOD 3



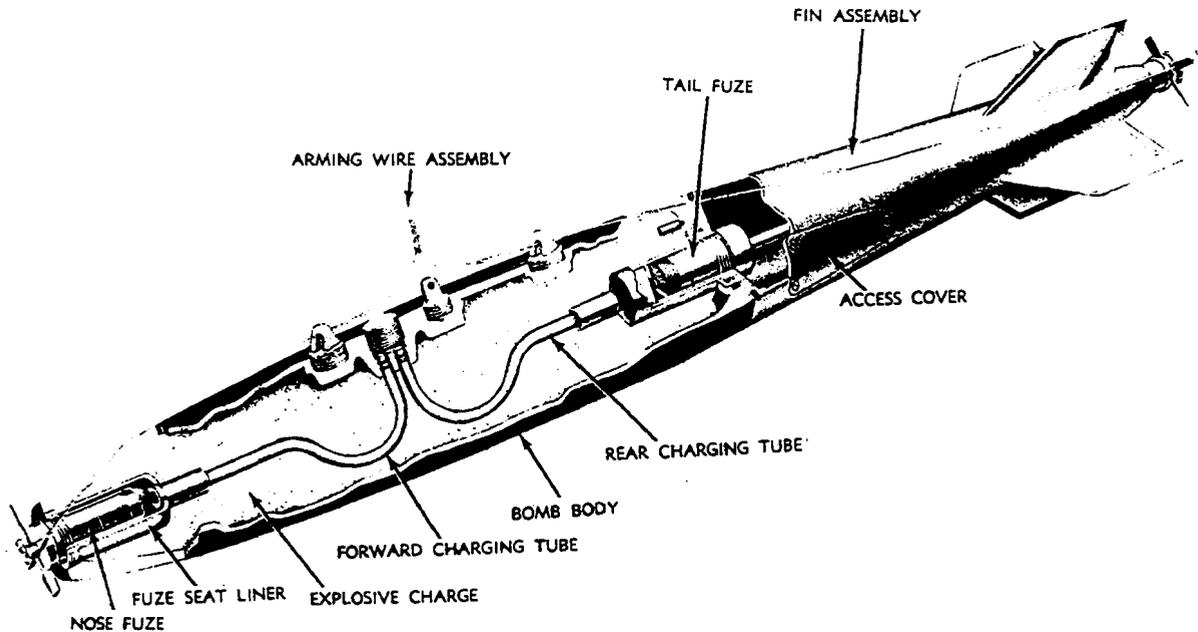
*Bomb, practice: 100-pound, MK15, Mods 2, 3 and 4, culstony.*

**Description:** The Mk-15 Mod-3 Practice Bomb is a light-cased, cylindrical body with a threaded filling hole in its rounded nose. A box fin assembly consisting of four metal vanes attached to a cone is welded to the aft end of the body. The bomb has two metal suspension band assemblies (each consisting of a circular clamp, a suspension lug, and two cap screws) for tightening the band to the bomb. The bomb is used with practice bomb signal, Mk-7 Mod-0 and inert fuze Mk-247 Mod-0 both of which are secured to the aft of the bomb. Upon impact of the bomb with the target, the signal is detonated, producing a flash and a large puff of smoke. The bomb is filled with wet sand and when fully assembled weighs approximately 100 pounds.

|                                       |              |
|---------------------------------------|--------------|
| <b>Length of assembled bomb</b> ..... | 41.2 inches  |
| <b>Diameter</b> .....                 | 8.0 inches   |
| <b>Fin Span</b> .....                 | 11.24 inches |
| <b>Weight assembled</b> .....         | 100 pounds   |
| <b>Filling</b> .....                  | Wet Sand     |
| <b>Signal</b> .....                   | Mk-7 Mod-0   |
| <b>Color</b> .....                    | Black        |

**Reference** ..... TM 9-1904 2 Mar 44, OP 1664 May 47

# BOMB, GENERAL PURPOSE, 250-POUND, MK81

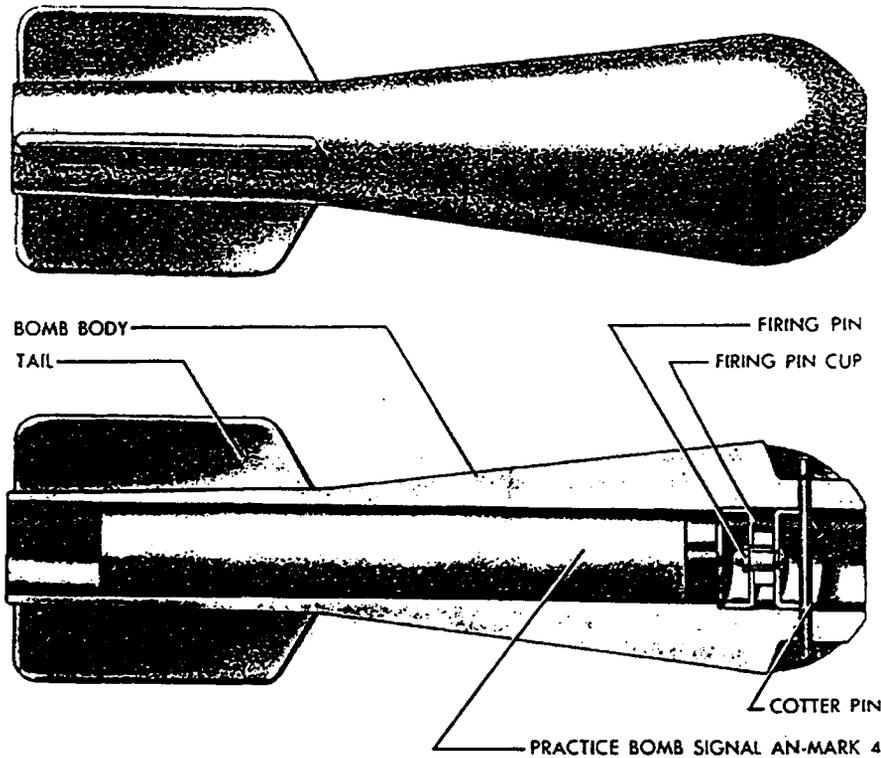


**Description:** The MK81 is relatively thin cased with a slender body design for improved ballistics. Two conduits for FMU type fuze lanyards connect nose and tail fuze wells to the charging well. All wells, except lug wells, are closed with metal or plastic shipping plugs when not in use. The bomb base plug (plate) is fastened to bomb body by locking pins embedded in solidified filler of bomb. Approximately 40% of assembled weight of bomb is an explosive charge. The conical fin assembly is bolted to the rear. They are designed for either mechanical or electrical fuzing. The MK81 is equipped for double suspension lugs. They are also equipped with adapter boosters capable of receiving tail fuzes with a 2-inch thread instead of the usual 1 1/2-inch thread.

|  |                |
|--|----------------|
| <b>Over-all length assembled</b> ..... | 74.1 inches    |
| <b>Body Diameter</b> .....             | 9.0 inches     |
| <b>Fin Span</b> .....                  | 12.62 inches   |
| <b>Weight of filler</b> .....          | 100.0 pounds   |
| <b>type of filler</b> .....            | tritonol or H6 |
| <b>Weight of assembled bomb</b> .....  | 260.0 pounds   |

**Reference:** ..... T.O. 11A1-4-7, T.O. 11-1-28

# BOMB, PRACTICE, AN-MK5 MOD 1



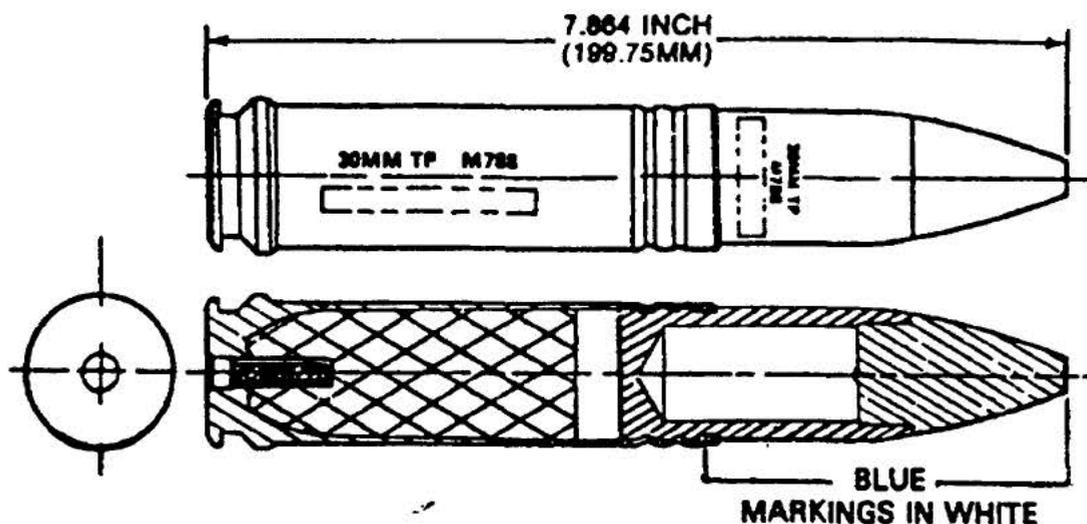
**Description:** The bomb body is made of zinc alloy. Along the longitudinal axis, a tube is machined into the bomb body to accept either the AN-MK 4 or the AN-MK 5 signal cartridge. The AN-MK 4 is a pyrotechnic charge which upon impact produces a large puff of white smoke. The AN-MK 5 contains a fluorescein dye and is actuated by impact on water. When the AN-MK 5 signal cartridge is installed in the bomb body, the firing pin assembly is not used. This bomb is used for low-altitude horizontal, or dive bombing practice and may also be used against armored-deck target boats.

|                              |             |
|------------------------------|-------------|
| <b>Over-all length</b> ..... | 8.25 inches |
| <b>Body diameter</b> .....   | 2.18 inches |
| <b>Fin Dimension</b> .....   | 2.5 inches  |
| <b>Weight</b> .....          | 3.0 pounds  |

**Reference:** ..... OP 1280, 17 Feb 45

# AMMUNITION, 30 MM, FOR AIRCRAFT CANNON

## CARTRIDGE, 30MM: TP, M788

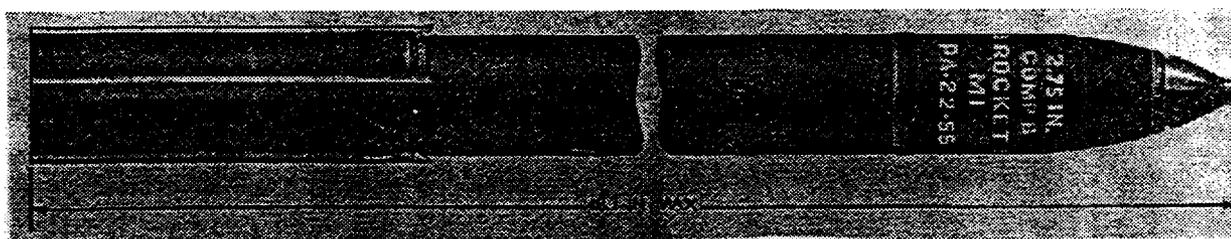


**Description:** There are three main types of 30 MM Nudelman-Richter NR-30 ammunition, HEI-T, API-T, and TP. All of these rounds are fixed with projectiles rigidly secured to their brass cartridge case by two 360 degree crimping rings fitting into cannelures in the projectile body. A raised belt is located just in front of the wide extraction groove at the base of the cartridge case. The projectile body is forged steel and is fitted with a copper or gliding metal drive band. On the HEI-T an fuze is fitted into the nose. The explosive filler is approximately 37g of A-IX-2 desensitized RDX/Aluminium. The API-T uses a base detonating fuze, while the TP projectile is completely inert and has a plug in place of the nose fuze. At one point separate TP rounds were produced for air-to-ground targets, apparently with different types of target strike indication elements.

|                              |                        |
|------------------------------|------------------------|
| <b>Over-all length</b> ..... | 7.864 inches           |
| <b>Primer</b> .....          | Electric or percussion |
| <b>Fuze</b> .....            | Nose or base           |
| <b>Propellant</b> .....      | varies with mfg.       |

**Reference:** ..... TM 43-0001-27, each item has varying components and should be referred to the particular item for details. Manufacturer will also change type of components used in these particular items.

## ROCKETS, 2.75 INCH



*Rocket, high-explosive, 2.75-inch: FFAR, AT, M1.*

**Description:** The 2.75 inch fin-stabilized aircraft rocket is a Navy type used by the United States Air Force for forward-firing from a aircraft rocket launcher. A 2.75-inch HE, AT head has been provided by the Department of the Army for use with the Navy motor. Stabilization in flight is accomplished by four pivoted fins folded within the cross section of the rocket during packing and shipping. The pressure of the propellant gases actuates a piston and crosshead which pushes against the heels of the fins extending them at a 45 degree angle during flight. The rockets are fired from a launcher consisting of multiple nested tubes arranged in various configurations. Electrical energy to fire the rocket is derived from the electrical system of the aircraft. A rocket consists of a nose fuze, warhead, and rocket motor.

**Warheads:** Dependent upon the warhead, the rockets are high-explosive; high-explosive anti-tank (AT); smoke; illumination; flechette; or practice.

**Rocket Motors:** The motors consist of the MK 1 and Mods, MK 2 and Mods, or MK 3 and Mods which are internally threaded to receive a warhead. They consist essentially of an aluminum alloy motor tube containing propellant and an igniter and having a nozzle-fin assembly attached to the aft end.

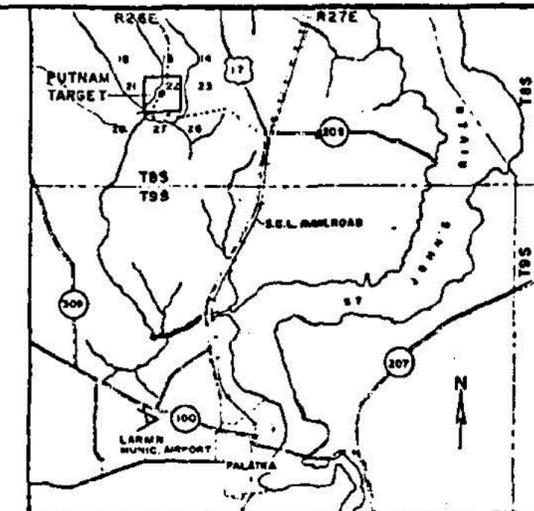
**Fuzes:** The fuzes utilized with the 2.75-inch rocket warheads Mk1 and Mods are point detonating (PD) type Mk 176 with a delay element and the Mk 178 instantaneous. Warheads Mk 5 use point detonating (PD) type Mk 181 fuzes and the point initiating (PI) type M406. Practice and inert warheads are fuzed with inert fuzes.

**Reference:** TM 9-1950, NAVSEA OP 1415

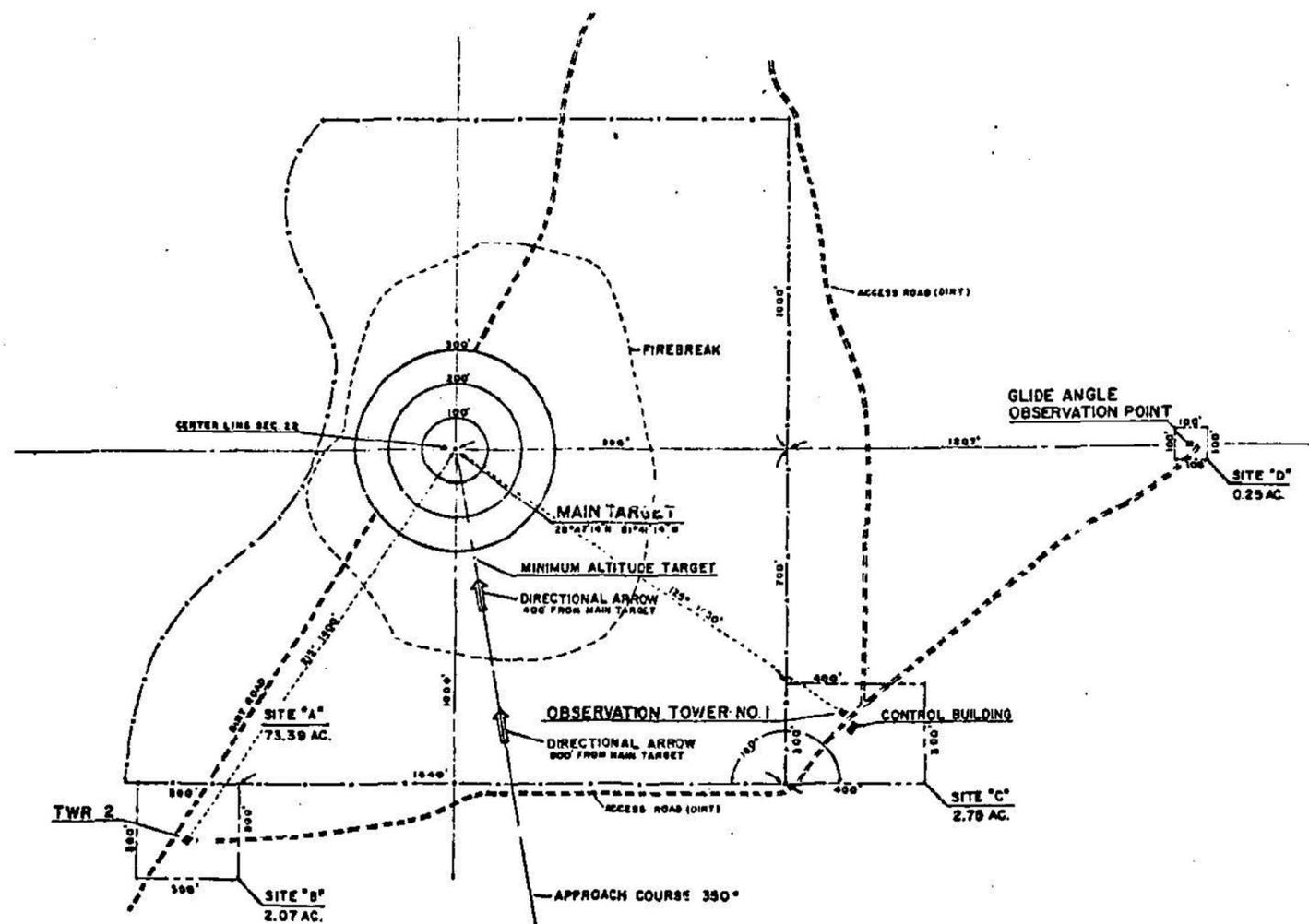
## **9.0 Evaluation of Other Site Information**

No information regarding any areas of potential environmental concern for this site were found during the archives search process.

## REPORT PLATES



VICINITY MAP  
SCALE: 1" = 2 MI.



SITE PLAN  
SCALE: 1" = 200'

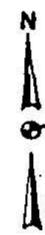
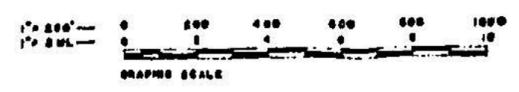
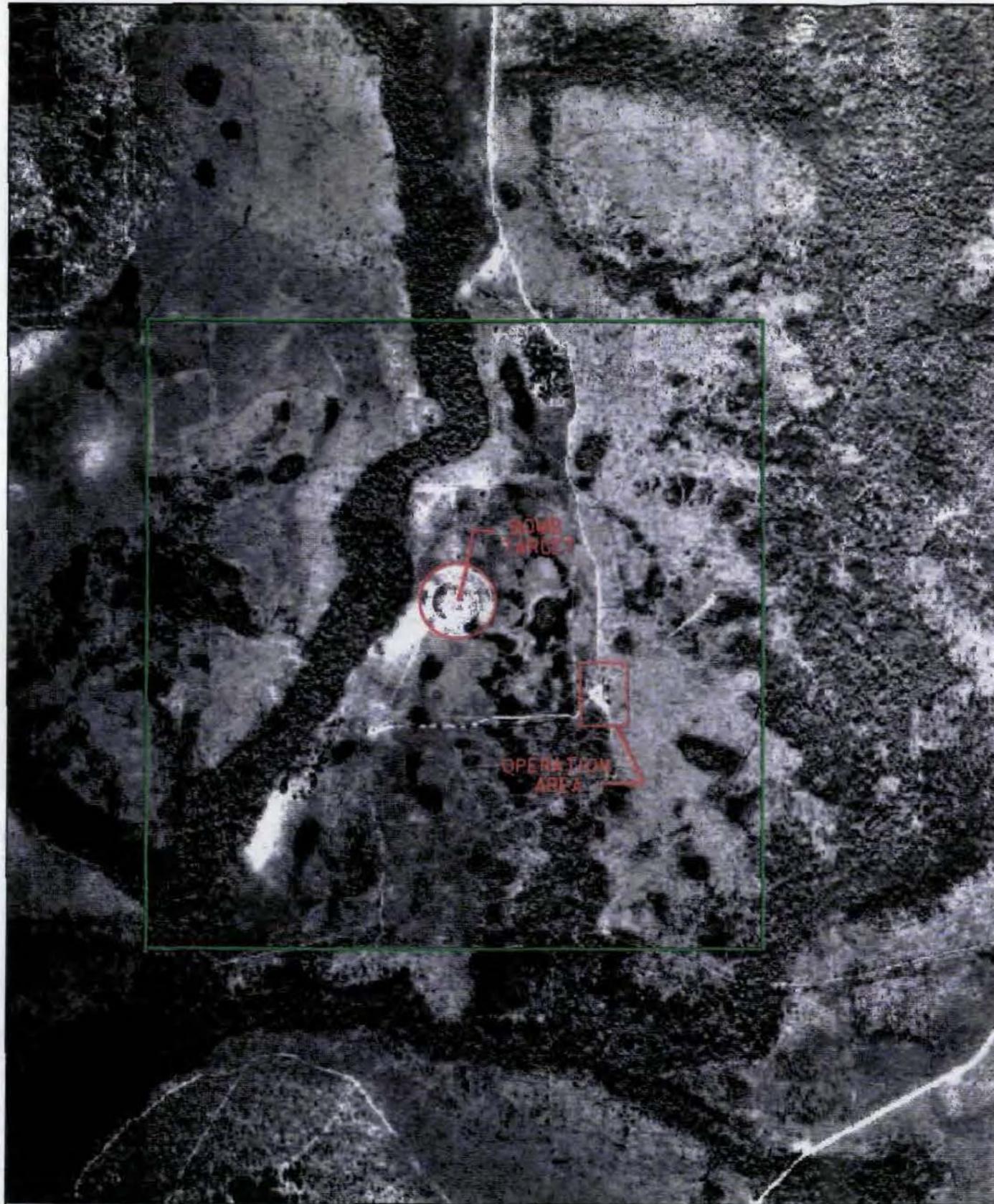


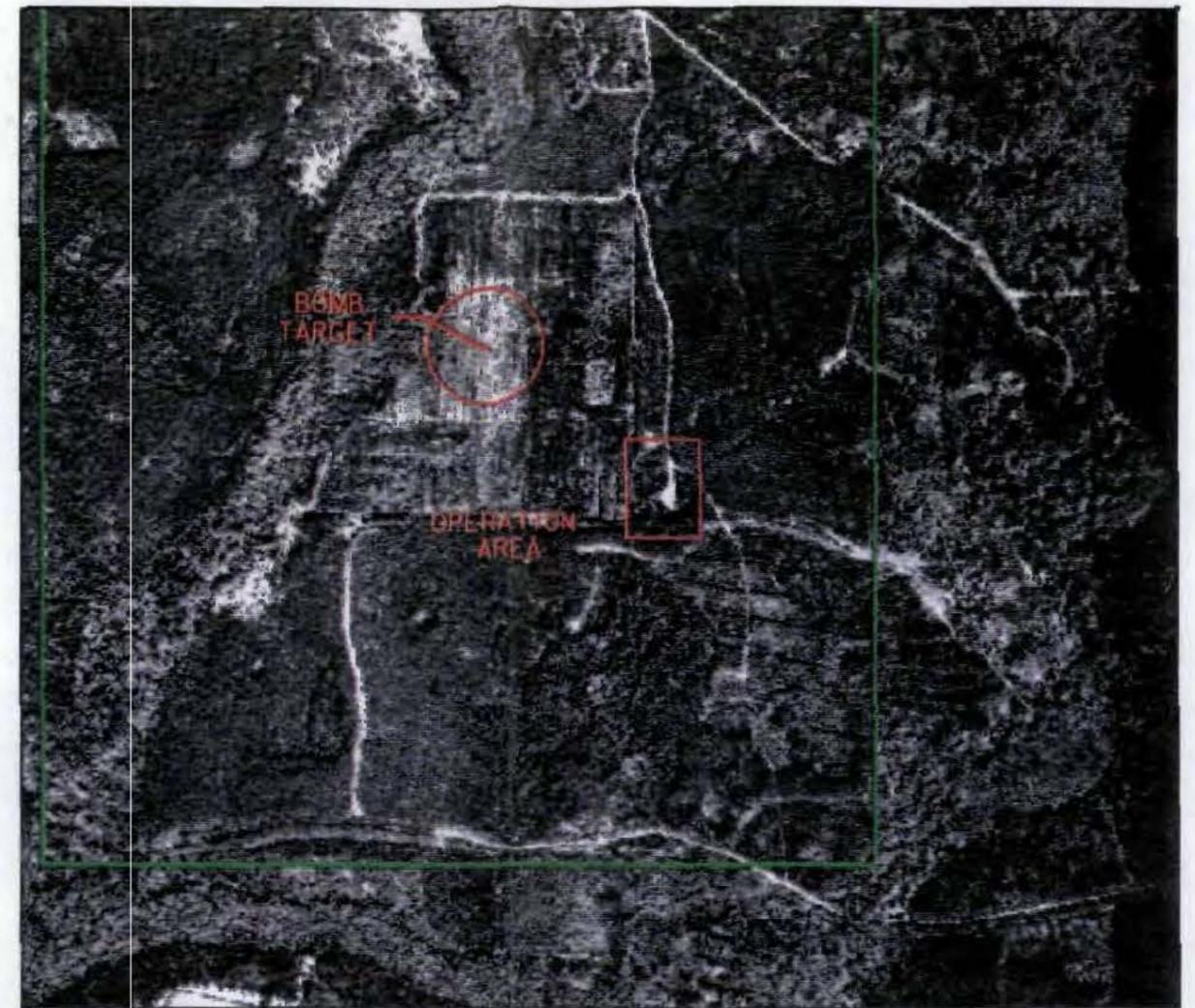
PLATE M-1



|                                      |       |                                      |                |
|--------------------------------------|-------|--------------------------------------|----------------|
| L. E. EDWARDS                        |       | DEPARTMENT OF THE NAVAL              |                |
| NAVAL AIR STATION                    |       | NAVAL AIR STATION                    |                |
| SOUTHERN DIVISION                    |       | SOUTHERN DIVISION                    |                |
| NAVAL AIR STATION JACKSONVILLE, FLA. |       | NAVAL AIR STATION JACKSONVILLE, FLA. |                |
| GENERAL DEVELOPMENT MAP              |       | GENERAL DEVELOPMENT MAP              |                |
| PUTNAM BOMBS TARGET                  |       | PUTNAM BOMBS TARGET                  |                |
| EXISTING AND PROPOSED CONDITIONS     |       | EXISTING AND PROPOSED CONDITIONS     |                |
| DATE                                 | SCALE | SIZE                                 | COORDINATE NO. |
|                                      |       | F                                    | 80091          |
| APPROVED                             |       | SCALE                                |                |



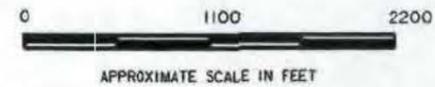
1964 PHOTO



1987 PHOTO

LEGEND

- SITE LOCATION
- FEATURE LOCATION



**PLATE M-2**

**BOSTWICK BOMB TARGET  
 PUTNAM COUNTY  
 FLORIDA  
 DERP-FUDS\* 104FL0914101  
 AERIAL PHOTO**

|                      |                                      |
|----------------------|--------------------------------------|
| PROJ. DATE: OCT 1995 | DATE OF PHOTOS: 1964, 1987           |
| 19-MAR-1996 08:22    | N:\OEWS6A\F21\PHOTO\COMPOSIT.DGN-SAY |

APPENDIX A

REFERENCES

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

APPENDIX A

REFERENCES

**REFERENCES FOR OE/CWM ACTIVITIES**

Department of the U.S. Navy

1955 Letter from H. A. Johnson to Commandant, Sixth Naval District, dated 23  
December 1955. Naval Air Station, Historical Office, Jacksonville, Florida.

U.S. Army Corps of Engineers, Jacksonville District

1995 Survey Summary Sheet for Defense Environmental Restoration Program-  
Formerly Used Defense Site No. IO4FL091400, Bostwick Bomb Target, Florida,  
dated 9 January 1995.

U.S. Navy Weapons Department

1977 Letter from W. G. Souires, Jr. to Commanding Officer, dated 10 May 1977. U.S.  
Army Corps of Engineers, Jacksonville District.

**REFERENCES FOR GEOLOGY AND SOILS**

Readle, Elmer L.

1985 *Soil Survey of Putnam County Area, Florida.* U.S. Department of  
Agriculture, Soil Conservation Service, in cooperation with University  
of Florida, Institute of Food and Agricultural Sciences, Agricultural  
Experiment Stations and Soil Science Department, and Florida  
Department of Agriculture and Consumer Services.

Miller, James A.

1990 *Ground Water Atlas of the United States, Segment 6.* U.S. Geological  
Survey, Hydrologic Investigations Atlas 730-G. Hyde, L.W.

## APPENDIX B

### GLOSSARY AND ACRONYMS

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

APPENDIX B

GLOSSARY AND ACRONYMS

|        |   |
|--------|---|
| AAF    | Army Air Field                          |
| AA     | Anti-Aircraft                           |
| AEC    | Army Environmental Center               |
| AGO    | Adjutant General's Office               |
| AP     | Armor Piercing                          |
| APDS   | Armor Piercing Discarding Sabot         |
| APERS  | Antipersonnel                           |
| APT    | Armor Piercing with Tracer              |
| ASR    | Archives Search Report                  |
| Aux    | Auxiliary                               |
| BAR    | Browning Automatic Rifle                |
| BD     | Base Detonating                         |
| BD/DR  | Building Demolition/Debris Removal      |
| BE     | Base Ejection                           |
| BGR    | Bombing and Gunnery Range               |
| BLM    | Bureau of Land Management               |
| BRAC   | Base Realignment And Closure            |
| CADD   | Computer-Aided Design/Drafting          |
| Cal    | Caliber                                 |
| CBDA   | Chemical and Biological Defense Agency  |
| CBDCOM | Chemical and Biological Defense Command |
| CE     | Corps of Engineers                      |
| CEHND  | Corps of Engineers, Huntsville Division |
| CELMS  | Corps of Engineers, St. Louis           |

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

|           |   |
|-----------|---|
| CERCLA    | Comprehensive Environmental Response, Compensation and Liability Act      |
| CERFA     | Community Environmental Response Facilitation Act                         |
| CFR       | Code of Federal Regulations   |
| cfs       | Cubic Feet Per Second   |
| COE       | Chief of Engineers  |
| COMP      | Composition   |
| CTG       | Cartridge   |
| CSM       | Chemical Surety Material  |
| CSM       | Command Sergeant Major  |
| CWM       | Chemical Warfare Material   |
| CWS       | Chemical Warfare Service  |
| DA        | Department of the Army  |
| DARCOM    | Development and Readiness Command   |
| DERA      | Defense Environmental Restoration Account                                 |
| DERP      | Defense Environmental Restoration Program                                 |
| DERP-FUDS | Defense Environmental Restoration Program-<br>Formerly Used Defense Sites |
| DoD       | Department of Defense   |
| DOE       | Department of Energy  |
| DOI       | Department of Interior  |
| EE/CA     | Engineering Evaluation/Cost Analysis                                      |
| EIS       | Environmental Impact Statement  |
| EOD       | Explosives Ordnance Disposal  |
| EPA       | Environmental Protection Agency   |
| ERDA      | Environmental Restoration Defense Account                                 |
| FDE       | Findings and Determination of Eligibility                                 |
| FFMC      | Federal Farm Mortgage Corporation   |
| FLCH      | Flechette   |
| FS        | Feasibility Study   |
| FUDS      | Formerly Used Defense Sites   |

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

|      |   |
|------|---|
| GIS  | Graphic Information System                      |
| GSA  | General Services Administration                 |
| HE   | High Explosive                                  |
| HEAT | High Explosive Anti-Tank                        |
| HEI  | High Explosive Incendiary                       |
| HEP  | Plastic   |
| HE-S | Illuminating                                    |
| HTRW | Hazardous Toxic and Radioactive Waste           |
| HTW  | Hazardous and Toxic Waste                       |
| IAS  | Initial Assessment Study                        |
| INPR | Inventory Project Report                        |
| IRP  | Installation Restoration Program                |
| MCAS | Marine Corps Air Station                        |
| MCX  | Mandatory Center of Expertise                   |
| MG   | Machine Gun                                     |
| MG   | Major General                                   |
| mm   | Millimeter                                      |
| MT   | Mechanical Time                                 |
| MTSQ | Mechanical Time Super Quick                     |
| NARA | National Archives and Records Administration    |
| NAS  | Naval Air Station                               |
| NCDC | National Climatic Data Center                   |
| NCP  | National Contingency Plan                       |
| NFS  | National Forest Service                         |
| NG   | National Guard                                  |
| NGVD | National Geodetic Vertical Datum                |
| NOAA | National Oceanic and Atmospheric Administration |
| NOFA | No Further Action                               |
| NPRC | National Personnel Records Center               |
| NRAB | Naval Reserve Air Base                          |
| NRC  | National Records Center                         |

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

|         |  |
|---------|--|
| OE      | Ordnance and Explosives                              |
| OSHA    | Occupational Safety and Health Act                   |
| PA      | Preliminary Assessment                               |
| PD      | Point Detonating                                     |
| PIBD    | Point Initiating, Base Detonating                    |
| PL      | Public Law   |
| QASAS   | Quality Assurance Specialist Ammunition Surveillance |
| RA      | Removal Action                                       |
| RAC     | Risk Assessment Code                                 |
| RD      | Remedial Design                                      |
| RG      | Record Group   |
| RI      | Remedial Investigation                               |
| RI/FS   | Remedial Investigation/Feasibility Study             |
| SARA    | Superfund Amendments and Reauthorization Act         |
| SCS     | Soil Conservation Service                            |
| SLD     | St. Louis District, Corps of Engineers               |
| SSHO    | Site Safety and Health Officer                       |
| SSHP    | Site Specific Safety and Health Plan                 |
| SWMU    | Solid Waste Management Units                         |
| TECOM   | Test Evaluation Command                              |
| TEU     | Technical Escort Unit                                |
| TNT     | Trinitrotoluene                                      |
| TP      | Target Practice                                      |
| USA     | United States of America                             |
| USACE   | U.S. Army Corps of Engineers                         |
| USADACS | U.S. Army Defense Ammunition Center and School       |
| USAED   | U.S. Army Engineer District                          |
| USAEDH  | U.S. Army Engineer Division, Huntsville, Alabama     |

**ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT**

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

|         |  |
|---------|--|
| USATHMA | U.S. Army, Corps of Engineers, Toxic and Hazardous<br>Materials Agency |
| USC     | United States Code   |
| USDA    | U.S. Department of Army  |
| USFWS   | U.S. Fish and Wildlife Service   |
| USGS    | U.S. Geological Survey   |
| UXO     | Unexploded Ordnance  |
| WAA     | War Assets Administration  |
| WD      | War Department   |
| WNRC    | Washington National Records Center                                     |

APPENDIX C

TEXT/MANUALS  
(NOT USED)

APPENDIX D  
REPORTS/STUDIES

**ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT**

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

**APPENDIX D**

**REPORTS / STUDIES**

D-1          Inventory Project Report

APPENDIX D-1

INVENTORY PROJECT REPORT



DEPARTMENT OF THE ARMY  
U.S. Army Corps of Engineers  
WASHINGTON, D.C. 20314-1000

REPLY TO  
ATTENTION OF:

09 JAN 1995

CEMP-RF (200-1a)

MEMORANDUM FOR

COMMANDER, HUNTSVILLE DIVISION, ATTN: CEHND-PM-SO  
COMMANDER, SOUTH ATLANTIC DIVISION, ATTN: CESAD-PD-R

SUBJECT: Defense Environmental Restoration Program for Formerly  
Used Defense Sites (DERP-FUDS), Inventory Project Report (INPR)  
for Site I04FL091400, Bostwick Bomb Target, FL

1. References:

a. Memorandum, CEHND-PM-SO, 23 Aug 94, SAB.

b. DERP-FUDS Program Manual, U.S. Army Corps of Engineers,  
Directorate of Military Programs, Environmental Restoration  
Division, Washington, D.C., 8 Dec 93.

2. This memorandum authorizes an ordnance and explosive waste  
(OEW) project (project number I04FL091401) at the subject site.  
The first phase of this project is limited to a site inspection  
(SI). All work will be executed in accordance with reference 1b.

3. Overall Project Management for the subject site is the  
responsibility of Jacksonville District. This memorandum assigns  
Technical Management responsibility for execution of this OEW  
project through remedial design to the Huntsville Division. If  
required, execution of any remedial action will be performed by  
Jacksonville District.

4. CEMP-RF POC for this action is Mr. Jim Coppola,  
(202) 504-4992.

FOR THE DIRECTOR OF MILITARY PROGRAMS:

  
CARY JONES  
Chief, Environmental Restoration  
Division  
Directorate of Military Programs

CF:  
CESAJ-PD-EE

Britton/et/5482

8-18D.PRO/Disk 8

CEHND-PM-SO (200-1b)

23 August 1994

MEMORANDUM FOR Commander, HQUSACE, ATTN: CEMP-RF (Mr. Jim Coppola), 20 Massachusetts Avenue NW, Washington, DC 20314-1000

SUBJECT: DERP-FUDS Inventory Project Report (INPR) Requiring an Ordnance and Explosive Waste (OEW) Engineering Evaluation and Cost Analysis (EE/CA)

1. The enclosed INPR has been submitted for further investigation or action by Huntsville Division. We have reviewed the INPR and recommend a phased EE/CA be scheduled for the following site:

| DIVISION | PROJECT NO. | RAC | SITE NAME                   |
|----------|-------------|-----|-----------------------------|
| SAD      | I04FL091401 | 3   | Bostwick Bomb Target (encl) |

2. A completed DD1391 cost estimate and RAC score is included with the enclosure. The POC is Mr. Robert Britton, DSN 645-5482 or commercial 205-955-5482.

FOR THE DIRECTOR OF PROGRAMS  
AND PROJECT MANAGEMENT:

Encl

LAWSON S. LEE, P.E.  
Chief, Ordnance and Technical  
Programs Division

CF:

Commander, U.S. Army Engineer Division, South Atlantic Division,  
ATTN: CESAD-PD-R, Room 313, 77 Forsyth Street SW, Atlanta, GA  
30335-6801

PM-OT, Britton / *DAVINS* / READ

PM-ED, Douglas

PM-SO, Chamness

~~PM~~ File

~~EO~~ Read

*W/S 8/24/94* PM-SO, Galloway

*CRB 8/31/94* PM-OT, Britton

vs  
Jen.  
BM  
C

CEHND-PM-SO

CONTROL NUMBER: 7-497  
DUE DATE: 11 AUG 1994

MEMORANDUM THRU CEHND-ED-ES

AUG 11 1994

FOR CEHND-PM

SUBJECT: DERP FUDS PUTMAN CNTY BOSTWICH BOMB TARGET INPR  
I04FL091400

1. Subject data has been reviewed and comments by Branch are as indicated:

| Comments Enclosed | No Comment | N/A | No. Hours |
|-------------------|------------|-----|-----------|
|-------------------|------------|-----|-----------|

|     |     |     |  |
|-----|-----|-----|--|
| (✓) | ( ) | ( ) | (2) Safety Office Review by <u>BDM</u> |
|-----|-----|-----|--|

2. Additional comments:

Jen  
WB

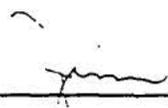
Encl

*C. David Douthat*  
C. DAVID DOUTHAT  
Chief, Safety Division

C

SAD  
RAC 3  
SAJ  
01

## DISPOSITION OF INFORMATION/DATA FORM

|   |  |  |
|---|--|--|
| CONTROL NUMBER<br><b>7-497</b>  | SUSPENSE DATE (NLT COB)<br><b>11 AUG 94</b>        | DATE<br><b>28 JUL 94</b>               |
| REVIEW OFFICE   |  |  |
| SITE DEV  | MFG TECH   | ANALY                                  |
| GEOTEC  | MECH   | ADV TEC                                |
| ENVIRON   | ELEC   | OPNS                                   |
| STRUCT  | I & C  | SAFETY DATA REV L01812                 |
| ARCH  | ET   |  |
| EST   |  |  |
| SPECS   |  |  |
| SERVICE BRANCH (Map Files/Room)   |  | PROJ MGR EAST DF                       |
| <b>1 CY DATA ON FILE</b>  |  |  |
| PROJECT MANAGER<br><b>EAST</b>  | PHONE NUMBER                                       | PROJECT NUMBER<br><b>104 FL 091400</b> |
| PROGRAM DESIGNATION<br><b>DERP-FUDS</b>   | REVISION NUMBER                                    |  |
| CONTRACT NUMBER (IFB/RFP/DO)  | PROJECT DESCRIPTION<br><b>BOSTWICH BOMB TARGET</b> |  |
| PROJECT LOCATION<br><b>PUTMAN CNTY</b>  | DESIGN STATUS<br><b>INPR-SIGNED 14 JUL 94</b>      |  |
| COST ACCT NUMBER  | FILE IDENTIFIER                                    | TRANSMITTAL #                          |
| ALL COMMENTS WILL BE DELIVERED TO SVC BR ON CEHND 7 AS SUSPENDED, UNLESS OTHERWISE NOTED.                   |  |  |
| SPECIAL INSTRUCTIONS  |  |  |
| <br>_____<br>SIGNATURE |  |  |

U. S. ARMY ENGINEER DIVISION HUNTSVILLE

I04FL091400

CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT DERP FUDS PUTMAN CNTY BOSTWICH BOMB TARGET

- |  |   |  |                                      |
|--|---|--|--------------------------------------|
| <input type="checkbox"/> SITE DEV & GEO  | <input type="checkbox"/> MECHANICAL     | <input checked="" type="checkbox"/> SAFETY | <input type="checkbox"/> SYSTEMS ENG |
| <input type="checkbox"/> ENVIR PROT&UTIL | <input type="checkbox"/> MFG TECHNOLOGY | <input type="checkbox"/> ADV TECH          | <input type="checkbox"/> VALUE ENG   |
| <input type="checkbox"/> ARCHITECTURAL   | <input type="checkbox"/> ELECTRICAL     | <input type="checkbox"/> ESTIMATING        | <input type="checkbox"/> OTHER       |
| <input type="checkbox"/> STRUCTURAL      | <input type="checkbox"/> INST&CONTROLS  | <input type="checkbox"/> SPECIFICATIONS    |                                      |

REVIEW INPR/7-497

DATE 02 AUG 1994

TYPE

NAME B. McPHERSON/54588

*BDM*

| ITEM | DRAWING NO. OR REFERENCE | COMMENT  | ACTION |
|------|--------------------------|--|--------|
| 1.   | GENERAL                  | <p>This site was used as a bombing range. In May of 1977, the Navy performed a visual inspection and range clearance of this target range. The clearance consisted of surface OEW only. The ordnance found included practice bombs, 2.75 rockets, rocket pods, 30mm projectiles, and craters that ranged in size from 6 to 8 feet in diameter. The Site Survey Summary Sheet states that "no attempt to survey this Site for ordnance was made due to safety concerns"; consequently this Site has never been surveyed for OEW. Recommend an OEW EE/CA be scheduled for this Site.</p> |        |
| 2.   | GENERAL                  | <p>An updated RAC Form and a completed DD 1391 are attached. A RAC score of 3 has been assigned.</p>   |        |

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



DEPARTMENT OF THE ARMY

SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS

ROOM 313, 77 FORSYTH ST., S.W.

ATLANTA, GEORGIA 30335-6801

REPLY TO  
ATTENTION OF:

CESAD-PD-R (200)

14 JUL 1994

MEMORANDUM FOR

COMMANDER, USACE, ATTN: CEMP-ZA, WASH DC 20314-1000

✓ COMMANDER, HUNTSVILLE DIVISION, HUNTSVILLE, AL 35807-4301

SUBJECT: DERP-FUDS Inventory Project Reports (INPR) for Bostwick Bomb Target (I04FL091400), Cummer OLF (I04FL089300), Holopaw Bomb Target (I04FL091300), Lake Disston Bomb Target (I04FL090700)

1. I am forwarding the INPR's for the subject sites for appropriate action. The proposed Ordnance Explosive Waste (OEW) projects are eligible for DERP-FUDS.

2. I recommend that CEHND determine if further study and remedial action are required at the sites.

3. The Division focal point for this effort is Mr. Gary Mauldin, CESAD-PD-R, at (404) 331-6043. The Division focal point for actions beyond the preliminary assessment phase is Richard Connell, CESAD-PM-H, at (404) 331-7045.

4 Encls

ROGER F. YANKOUBE  
Brigadier General, USA  
Commanding

CF (w/encls):

CDR, JACKSONVILLE DISTRICT, ATTN: CESAJ-PD-EE



DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
P. O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO  
ATTENTION OF

CESAJ-PD-EE (1105-2-10a)

10 May 1994

MEMORANDUM FOR Commander, South Atlantic Division

SUBJECT: Defense Environmental Restoration Program - Formerly Used Defense Sites (DERP-FUDS) Inventory Project Reports (INPRs) for Site Nos. I04FL091400 (Bostwick Bomb Target), I04FL089300 (Cummer Outlying Field), I04FL091300 (Holopaw Bomb Target), and I04FL090700 (Lake Disston Bomb Target)

1. These INPRs report on the DERP-FUDS preliminary assessment of the former bomb target areas. Site visits were conducted between the months of December 1993 and January 1994. Site survey summary sheet and site maps are enclosed for each of the subject sites.
2. We have determined that the sites were used by the Navy. Recommended Findings and Determination of Eligibility are included in the enclosures.
3. We have determined that the hazardous waste (Ordnance and Explosive Waste (OEW)) at these sites meets the eligibility criteria as defined by DERP-FUDS policies. Project summary sheets are enclosed for each of the potential OEW projects.
4. I recommend that you approve these INPRs and forward them to the Huntsville Division for further coordination. These coordinations will result in a determination of the need for further study of the subject sites.
5. Point of contact for the District is Mr. Ivan Acosta at 904-232-1693.

4 Encls

A handwritten signature in cursive script, appearing to read "Richard E. Bonner", is written over a horizontal line.

RICHARD E. BONNER, P.E.  
Deputy District Engineer  
for Project Management

DEFENSE ENVIRONMENTAL RESTORATION PROGRAM  
FORMERLY USED DEFENSE SITES  
FINDINGS AND DETERMINATION OF ELIGIBILITY

Bostwick Bomb Target, FL  
(Putnam Bomb Target, FL)

Site No. I04FL091400

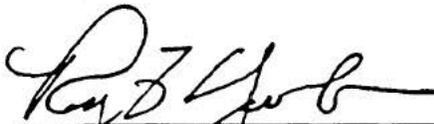
FINDINGS OF FACT

1. In the early part of World War II, the United States acquired a total of 640 acres by lease and condemnation for leasehold (actual dates unknown) from eight different owners for a Naval bomb target. The site was located in Section 22, Township 8 South, Range 26 East, about two miles northwest of the town of Bostwick in Putnam County, Florida. The site was developed and sequentially known as the Bostwick Bomb Target and the Putnam Bomb Target.
2. The Naval Air Advanced Training Command utilized the site for training operations associated with the Jacksonville Naval Air Station located about 25 miles to the north. Naval improvements at the site consisted of clearing about 40 acres in the middle of the site for a target in the shape of a circle (outlined with limestone on the surface of the ground), fencing and warning signs. The site remained active until 1977 when its functions were no longer required by the Navy for training purposes.
3. By 1977, only one lease was in effect as one of the original lessors had acquired fee title to the entire 640 acre site. The Navy determined the site was surplus to their needs and terminated the lease on 15 December 1977. Extensive restorations were required and made on about 70 acres in the center of the site. All acquisition and disposal information was acquired from maps, correspondence and records of the Jacksonville Naval Air Station, the Naval Construction Battalion Center in Port Hueneme, California, and the Naval Facilities Engineering Command in Charleston, South Carolina. The site is owned by a private corporation and utilized to grow timber for harvest.

DETERMINATION

Based on the foregoing findings of fact, the Bostwick Bomb Target (Putnam Bomb Target), Florida, has been determined to be formerly used by the Department of Defense. It is therefore eligible for the Defense Environmental Restoration Program - Formerly Used Defense Sites established under 10 USC 2701 et seq.

10 July 94  
DATE

  
\_\_\_\_\_  
ROGER F. YANKOUBE  
Brigadier General, USA  
Commanding

**PROJECT SUMMARY SHEET**  
**FOR**  
**DERP-FUDS OEW PROJECT NO. IO4FL091401**  
**BOSTWICK BOMB TARGET, FLORIDA**  
**SITE NO. IO4FL091400**  
4 February 1994

**PROJECT DESCRIPTION.** The site is a former bomb target. A visual inspection was performed by the United States (U.S.) Naval Air Station-Weapons Department on 9 May 1977. According to the Weapons Department report, several types of "dud" or expended ordnance were observed to be present in part, as well as complete rounds. Only some of the items found could be certified as "inert" by visual inspection. According to naval and Union Camp Paper Corporation sources, an ordnance cleanup was performed after this inspection; however, documentation to support this claim is unavailable. Even though ordnance cleanup activities reportedly have been conducted, it is possible that ordnance is still present on site, particularly in the wooded marshy area surrounding Simms Creek west of the former target. It also should be noted that any metal objects (e.g., practice bombs) are potential hazards to timber workers on site because the bombs can become projectiles if they come in contact with the high-speed saws used during logging operations.

**PROJECT ELIGIBILITY.** Bostwick Bomb Target is eligible for DERP-FUDS. The project has been evaluated in accordance with the 16 March 1993 DERP-FUDS Standing Operating Procedures for Performing Preliminary assessment at Potential Ordnance and Explosive Waste Sites.

**POLICY CONSIDERATIONS.** The site has been contaminated by the U.S. military and is a possible danger to the public. Currently, Department of Defense (DoD) policy permits remediation of DoD-generated ordnance.

**PROPOSED PROJECT.** The Inventory Project Report should be referred to Huntsville Division for a determination of further action.

**RISK ASSESSMENT Categorization (RAC).** Attached (RAC 3).

**DISTRICT POC.** Ivan Acosta. CESAJ-PD-EE, (904) 232-1693.

RISK ASSESSMENT PROCEDURES FOR  
ORDNANCE AND EXPLOSIVE WASTE (OEW) SITES

Site Name BOSTWICH BOMB TARGET Rater's Name RILL McPherson  
 Site Location PUTMAN CNTY, FL Phone No. 205 955-4588  
 DERP Project # I04FLO91400 Organization CEHND-PM-50  
 Date Completed 1 Aug 94 RAC Score 3

OEW RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882C and AR 385-10. The RAC score will be used by CEHND to prioritize the remedial action at Formerly Used Defense Sites. The OEW risk assessment should be based upon best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) detachment actions, and field observations, interviews, and measurements. This information is used to assess the risk involved based upon the potential OEW hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability. Personnel involved in visits to potential OEW sites should view the CEHND videotape entitled "A Life Threatening Encounter: OEW."

Part I. Hazard Severity. Hazard severity categories are defined to provide a qualitative measure of the worst credible mishap resulting from personnel exposure to various types and quantities of unexploded ordnance items.

TYPE OF ORDNANCE  
(Circle all values that apply)

| A. Conventional Ordnance and Ammunition                                   | VALUE |
|---|-------|
| Medium/Large Caliber (20 mm and larger)                                   | (10)  |
| Bombs, Explosive  | (10)  |
| Grenades, Hand and Rifle, Explosive                                       | 10    |
| Landmines, Explosive  | 10    |
| Rockets, Guided Missiles, Explosive                                       | (10)  |
| Detonators, Blasting Caps, Fuzes, Boosters, Bursters                      | 6     |
| Bombs, Practice (w/spotting charges)                                      | (6)   |
| Grenades, Practice (w/spotting charges)                                   | 4     |
| Landmines, Practice (w/spotting charges)                                  | 4     |
| Small Arms (.22 cal - .50 cal)  | 1     |
| Conventional Ordnance and Ammunition<br>(Select the largest single value) | 10    |

What evidence do you have regarding conventional OEW? SEVERAL 6 FT TO 8 FT CRATERS ARE ON SITE (THE BOMB) PRACTICE BOMBS WERE FOUND ALONG WITH ORDNANCE, AWON SURFACE.

B. Pyrotechnics (For Munitions)

|   | VALUE       |
|---|-------------|
| Munition (Container) Containing White Phosphorus or other Pyrophoric Material (i.e., Spontaneously Flammable) | 10          |
| Munition Containing A Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)        | 6           |
| Flares, Signals, Simulators   | 4           |
| Pyrotechnics <u>(Select the largest single value)</u>   | <u>0</u>    |
| What evidence do you have regarding pyrotechnics?   | <u>NONE</u> |

C. Bulk High Explosives (Not an integral part of conventional ordnance; uncontainerized.)

|   | VALUE       |
|---|-------------|
| Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.) | 10          |
| Demolition Charges  | 10          |
| Secondary Explosives (PETN, Compositions A, B, C, Teteryl, TNT, RDX, HMX, HBX, Black Powder, etc.)                              | 8           |
| Military Dynamite   | 6           |
| Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)   | 3           |
| High Explosives <u>(Select the largest single value)</u>  | <u>0</u>    |
| What evidence do you have regarding bulk explosives?  | <u>NONE</u> |

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)

|   | VALUE       |
|---|-------------|
| Solid or Liquid Propellants                           | 6           |
| Propellants   | <u>0</u>    |
| What evidence do you have regarding bulk propellants? | <u>NONE</u> |

E. Radiological/Chemical Agent/Weapons

|  | VALUE       |
|--|-------------|
| Toxic Chemical Agents<br>(Choking, Nerve, Blood, Blister)                | 25          |
| War Gas Identification Sets  | 20          |
| Radiological   | 15          |
| Riot Control and Miscellaneous<br>(Vomiting, Tear, incendiary and smoke) | 5           |
| Radiological/Chemical Agent <u>(Select the largest single value)</u>     | <u>0</u>    |
| What evidence do you have of chemical/radiological OEW?                  | <u>NONE</u> |

=====

TOTAL HAZARD SEVERITY VALUE 10  
(Sum of Largest Values for A through E--Maximum of 61)  
 Apply this value to Table 1. to determine Hazard Severity Category.

TABLE 1

| HAZARD SEVERITY* |            |                       |
|------------------|------------|-----------------------|
| Description      | Category   | Hazard Severity Value |
| CATASTROPHIC     | I          | 22 and greater        |
| CRITICAL         | II         | 11 to 21              |
| MARGINAL         | <u>III</u> | 6 to 10               |
| NEGLIGIBLE       | IV         | 1 to 5                |
| **NONE           |            | 0                     |

\* Apply Hazard Severity Category to Table 3.

\*\*If Hazard Severity Value is 0, you do not need to complete Part II. Proceed to Part III and use a RAC Score of 5 to determine your appropriate action.

Part II. Hazard Probability. The probability that a hazard has been or will be created due to the presence and other rated factors of unexploded ordnance or explosive materials on a formerly used DOD site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD  
(Circle all values that apply)

A. Locations of OEW Hazards

|   | VALUE |
|---|-------|
| On the surface  | (5)   |
| Within Tanks, Pipes, Vessels<br>or Other confined locations.          | 4     |
| Inside walls, ceilings, or other<br>parts of Buildings or Structures. | 3     |
| Subsurface  | (2)   |

Location (Select the single largest value)

5

What evidence do you have regarding location of OEW? ALL ITEMS WERE FOUND ON OR NEAR THE SURFACE

B. Distance to nearest inhabited locations or structures likely to be at risk from OEW hazard (roads, parks, playgrounds, and buildings).

|                        | VALUE |
|------------------------|-------|
| Less than 1250 feet    | 5     |
| 1250 feet to 0.5 miles | 4     |
| 0.5 miles to 1.0 mile  | 3     |
| 1.0 mile to 2.0 miles  | (2)   |
| Over 2 miles           | 1     |

Distance (Select the single largest value)

2

What are the nearest inhabited structures? ROADS & RESIDENCES

C. Numbers of buildings within a 2 mile radius measured from the OEW hazard area, not the installation boundary.

|             | VALUE |
|-------------|-------|
| 26 and over | 5     |
| 16 to 25    | 4     |
| 11 to 15    | 3     |
| 6 to 10     | 2     |
| 1 to 5      | 1     |
| 0           | 0     |

Number of Buildings (Select the single largest value)

5

Narrative RESIDENTIAL AREA ON WEST SIDE OF SITE

D. Types of Buildings (within a 2 mile radius)

|   | VALUE |
|---|-------|
| Educational, Child Care, Residential, Hospitals, Hotels, Commercial, Shopping Centers | 5     |
| Industrial, Warehouse, etc.   | 4     |
| Agricultural, Forestry, etc.  | 3     |
| Detention, Correctional   | 2     |
| No Buildings  | 0     |

Types of Buildings (Select the largest single value)

5

Describe types of buildings in the area. RESIDENTIAL

E. Accessibility to site refers to access by humans to ordnance and explosive wastes. Use the following guidance:

| BARRIER  | VALUE |
|--|-------|
| No barrier or security system  | 5     |
| Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.   | 4     |
| A barrier, (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.  | 3     |
| Security guard, but no barrier   | 2     |
| Isolated site  | 1     |
| A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the facility; or   | 0     |
| An artificial or natural barrier (e.g., a fence combined with a cliff), which completely surrounds the facility; and a means to control entry, at all times, through the gates or other entrances to the facility (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the facility). |       |

Accessibility (Select the single largest value)

3

Describe the site accessibility. GATE ACROSS ROAD RESTRICTS ACCESS

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion by beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

|                                      | VALUE |
|--------------------------------------|-------|
| Expected                             | 5     |
| None Anticipated                     | 0     |
| Site Dynamics (Select largest value) | 5     |

Describe the site dynamics. SITE IS A PINE TREE FARM WITH ONGOING PLANTING, DIGGING 1-2 FOOT TRENCHES. EROSION IS A POSSIBILITY ALONG SIMMS CREEK.

TOTAL HAZARD PROBABILITY

(Sum of Largest Values for A through F--Maximum of 30)  
Apply this value to Hazard Probability Table 2 to determine  
Hazard Probability Level.

20

TABLE 2

HAZARD PROBABILITY

| Description | Level | Hazard Probability Value |
|-------------|-------|--------------------------|
| FREQUENT    | A     | 28 or greater            |
| PROBABLE    | B     | 22 to 27                 |
| OCCASIONAL  | C     | 16 to 21                 |
| REMOTE      | D     | 9 to 15                  |
| IMPROBABLE  | E     | less than 9              |

\* Apply Hazard Probability Level to Table 3.

Part III. RISK ASSESSMENT - Enter with the results of the hazard probability and hazard severity values.

TABLE 3

| Probability Level  |     | FREQUENT<br>A | PROBABLE<br>B | OCCASIONAL<br>C | REMOTE<br>D | IMPROBABLE<br>E |
|--------------------|-----|---------------|---------------|-----------------|-------------|-----------------|
| Severity Category: |     |               |               |                 |             |                 |
| CATASTROPHIC       | I   | 1             | 1             | 2               | 3           | 4               |
| CRITICAL           | II  | 1             | 2             | 3               | 4           | 5               |
| MARGINAL           | III | 2             | 3             | 4               | 4           | 5               |
| NEGLIGIBLE         | IV  | 3             | 4             | 4               | 5           | 5               |

RISK ASSESSMENT CODE (RAC)

- RAC 1 Expedite INPR, recommending further action by CEHND - Immediately call CEHND-ED-SY--commercial 205-955-4968 or DSN 645-4968.
- RAC 2 High priority on completion of INPR - Recommend further action by CEHND.
- RAC 3** Complete INPR - Recommend further action by CEHND.
- RAC 4 Complete INPR - Recommend further action by CEHND.
- RAC 5 Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHND.

Part IV. Narrative. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

IN MAY OF 1977 A VISUAL INSPECTION WAS PERFORMED BY THE NAVY. SEVERAL "DUDS"/OEW WAS OBSERVED AND DISPOSED OF ACCORDINGLY. THE SUB-SURFACE OF THIS SITE WAS NEVER CHECKED FOR OEW. THE POTENTIAL OF EXPLOSIVE HAZARDS BEING BURIED AT THIS SITE IS HIGH CONSIDERING THE TYPE OF ORDNANCE USED.

2:00

505

1507

33  
 12  
 Rodgers  
 Unger (AIR ANT)  
 690-7481

WEAPONS DEPARTMENT  
 U. S. NAVAL AIR STATION  
 JACKSONVILLE, FLORIDA 32212

Code 500  
 10 May 1977

From: Weapons Officer  
 To: Commanding Officer  
 Via: Executive Officer

Subj: Visual Inspection of Putnam Bombing Range Target Area conducted  
 9 May 1977

1. On 9 May 1977, I conducted a visual inspection of Putnam Bombing Range in the company of (Mr. Bobby HALL), WG-6502-9, Munitions Inspector, and LCDR L. S. VENTERS, JR., USN, Target Division Officer, NAS, Jacksonville, Florida.

2. The following types of "dud" or expended ordnance were observed to be present in part, as well as complete rounds. Not all of the items found could be certified as "inert" by visual inspection.

2.75 Rocket Heads

2.75 Rocket Motors

MK-87 Water Sand Fill - 500 LB. Shapes

2.25 Rockets SCAR

MK-76 and MK-106 Practice Bombs (one (1) MK-106 Practice Bomb appeared to have been dropped intact with cotter key safety pin still installed)

MK-23 Practice Bomb

MK-89 Bomb Practice - 56 LB. Size Low Drag Sub-Caliber

MK-82 Low Drag Bomb - 500 LB. - some blue paint showing

LAU-69 Rocket Pods

30 MM Projectiles

MK-15 - 100 LB. Water Sand Fill

MK-81 Bombs with some blue paint visible - 250 LB. Low Drag

LAU-68 Rocket Pods; 7 Round 2.75 Rockets

MK-5-3 Miniature Bomb Practice - MK-5 MOC 3 LBS

Code 500  
10 May 1977

Subj: Visual Inspection of Putnam Bombing Range Target Area conducted  
9 May 1977

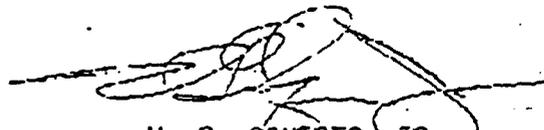
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3. Several "craters" were observed which were approximately 6-to-8 feet in diameter, had a depth of 18 inches to 2 feet deep with almost verticle side walls. It is beyond the writer's competence to assess beyond any doubt the causative agent for these craters.

Very respectfully,

  
Mr. Bobby D. HALL  
WG-9 Munitions Inspector

  
LCDR L. S. VENTERS, JR., USN  
Target Division Officer

  
W. G. SQUIRES, JR.

**SITE SURVEY SUMMARY SHEET  
FOR  
DERP-FUDS SITE NO. I04FL091400  
BOSTWICK BOMB TARGET  
4 February 1994**

**SITE NAME(S).** Bostwick Bomb Target; also referred to as Putnam Bomb Target.

**LOCATION.** The site is located approximately 2 to 3 miles northeast of the town of Bostwick in Section 22, Township 8 South, Range 26 East, Putnam County, Florida (see Attachment 1).

**SITE HISTORY.** In the early part of 1940, the United States (U.S.) acquired a total of 640 acres by lease and condemnation for leasehold (actual dates unknown) from eight different owners for a naval bomb target. The Naval Air Advanced Training Command utilized the site for training operations associated with Jacksonville Naval Air Station, located about 25 miles north. Naval improvements at the site consisted of an approximately 40-acre circular clearing (outlined with limestone on the ground surface) in the middle of the site for a target, fencing, and warning signs (see Attachment 2). The site remained active until 1977 when its functions were no longer required by the Navy for training purposes. The Navy determined the site was surplus to their needs and terminated the lease on 15 December 1977. Extensive restorations were required and made on about 70 acres in the center of the site.

**SITE VISIT.** A site visit was conducted on 8 December 1993 by K. Longsworth and S. Newchurch, Ecology and Environment, Inc. (E & E). E & E interviewed Mr. Bostwick, representing UCPC, the site owner. Mr. Bostwick said that UCPC employees had told him that the Navy cleared the target of practice ordnance and related debris sometime in early 1978 and that the target was being used by the U.S. Military until sometime in 1977. Mr. Bostwick indicated that an unspecified number of fires resulted from near misses at the target prior to the site restoration activities. Mr. Bostwick then showed E & E one 1-foot-long "practice bomb" that was previously found on site.

During the site visit, it was observed that the site was wooded, and that the property is currently being used to grow and harvest pine trees. It appeared that younger pine trees were growing in the former target area. No practice bombs or other metal objects were observed during E & E's site visit; however, no attempt to survey the site for ordnance was made because of safety concerns. The current site conditions are shown on Attachment 3.

E & E also obtained information from Southern Division Naval Facility Engineering Command-Real Estate Division regarding an ordnance inspection by B. Hall and others from the Weapons Department of U.S. Naval Air Station, Jacksonville, Florida. Mr. Hall conducted the visual ordnance inspection of the Bostwick Bomb Target site on 9 May 1977. Several types of "dud" or expended ordnance were observed on site. A copy of a letter detailing Mr. Hall's observations is attached (Attachment 4). Mr. Hall indicated that ordnance removal activities were subsequently conducted; however, documentation regarding any restoration activities at the former bomb target has not been acquired.

**CATEGORY OF HAZARD.** Ordnance and Explosive Waste (OEW).

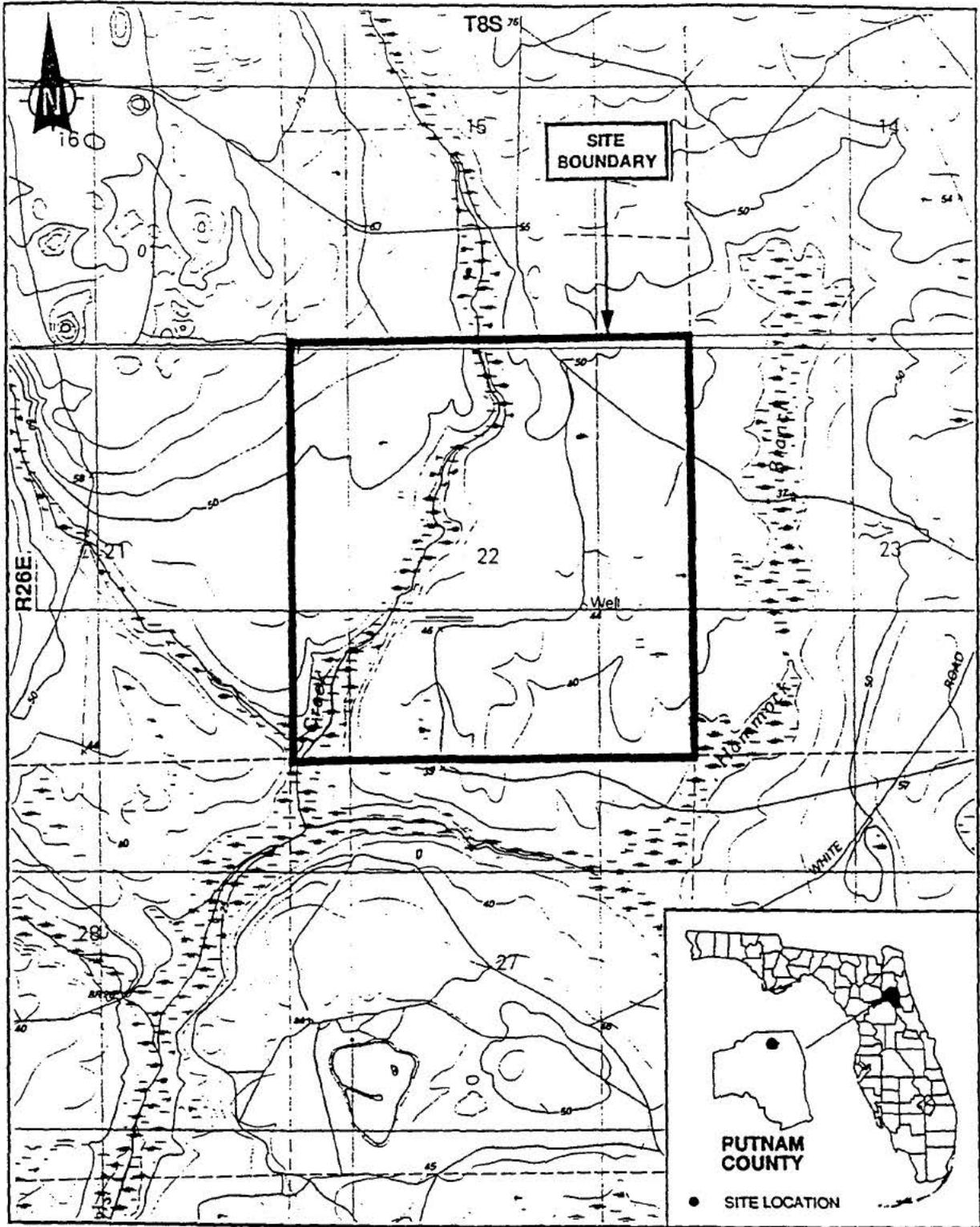
**PROJECT DESCRIPTION.** One potential project exists at this site: to locate and remove bombs and/or practice bombs. Even though ordnance reportedly has been removed from the

Site Survey Summary  
Bostwick Bomb Target  
Page 2

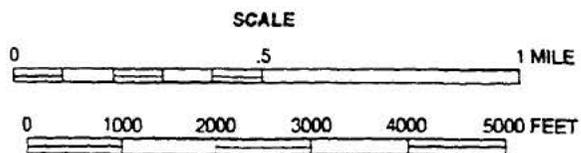
site, it is possible that ordnance is still present, particularly in the marshy wooded area surrounding Simms Creek west of the former target. The bombs also may be hazards even if they are nonexplosive because they can become projectiles if they come in contact with the high-speed saws that are used during logging operations.

**AVAILABLE STUDIES AND REPORTS.** According to naval and UCPC sources, an ordnance cleanup was performed at this site in the late 1970s; however, actual cleanup documentation is unavailable. A 1969 aerial photograph and a 1965 site plan map show the bomb target layout.

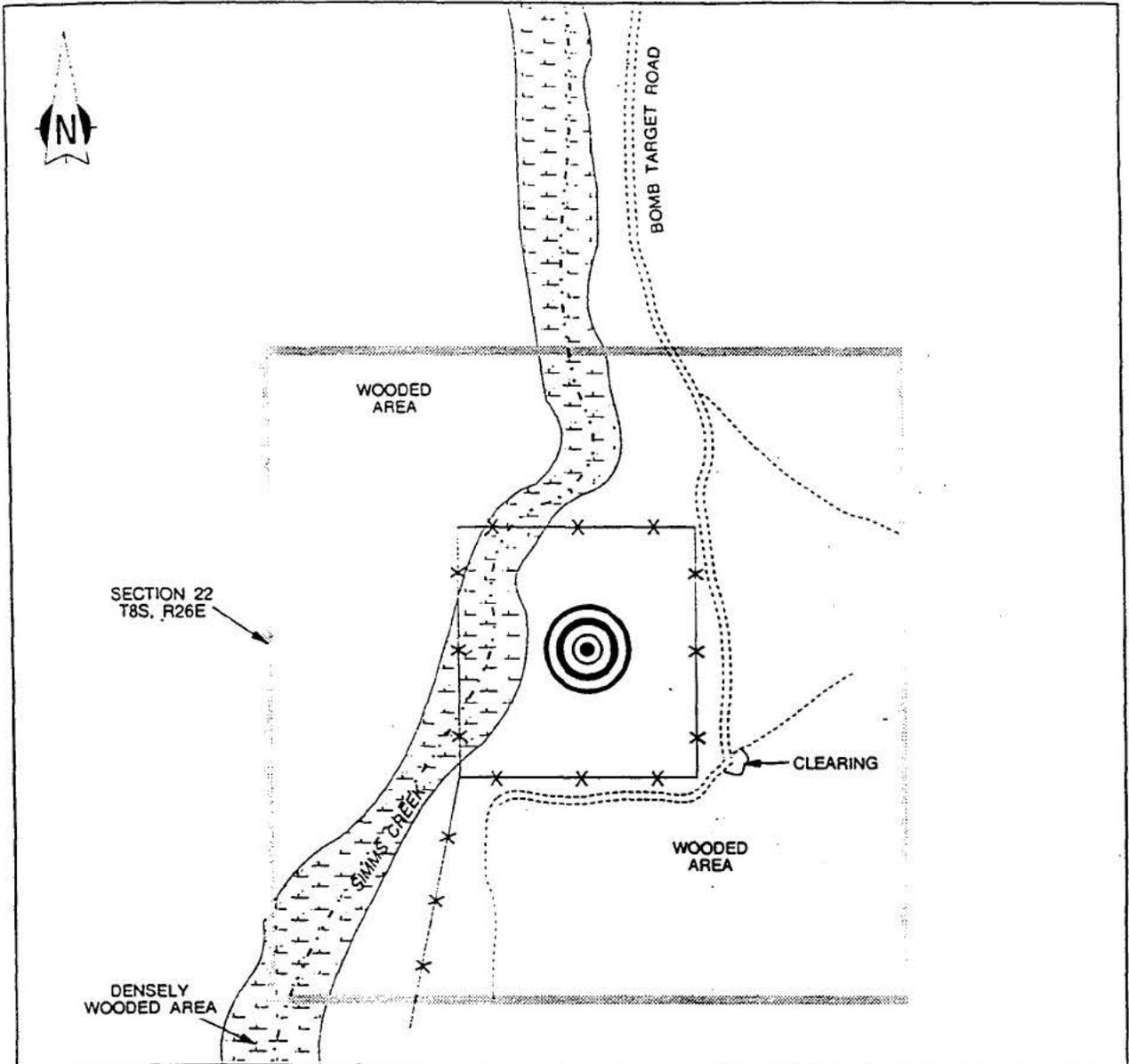
**PA POC.** Ivan Acosta (904) 232-1693.



SOURCE: U.S.G.S. 7.5 Minute Series (Topographic-Bathymetric) Quadrangle: Bostwick, Florida 1991.



Attachment 1  
 LOCATION MAP — BOSTWICK BOMB TARGET, PUTNAM COUNTY, FLORIDA



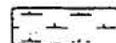
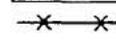
SOURCE: Union Camp Paper Corporation 1965; Ecology and Environment, Inc., 1994.

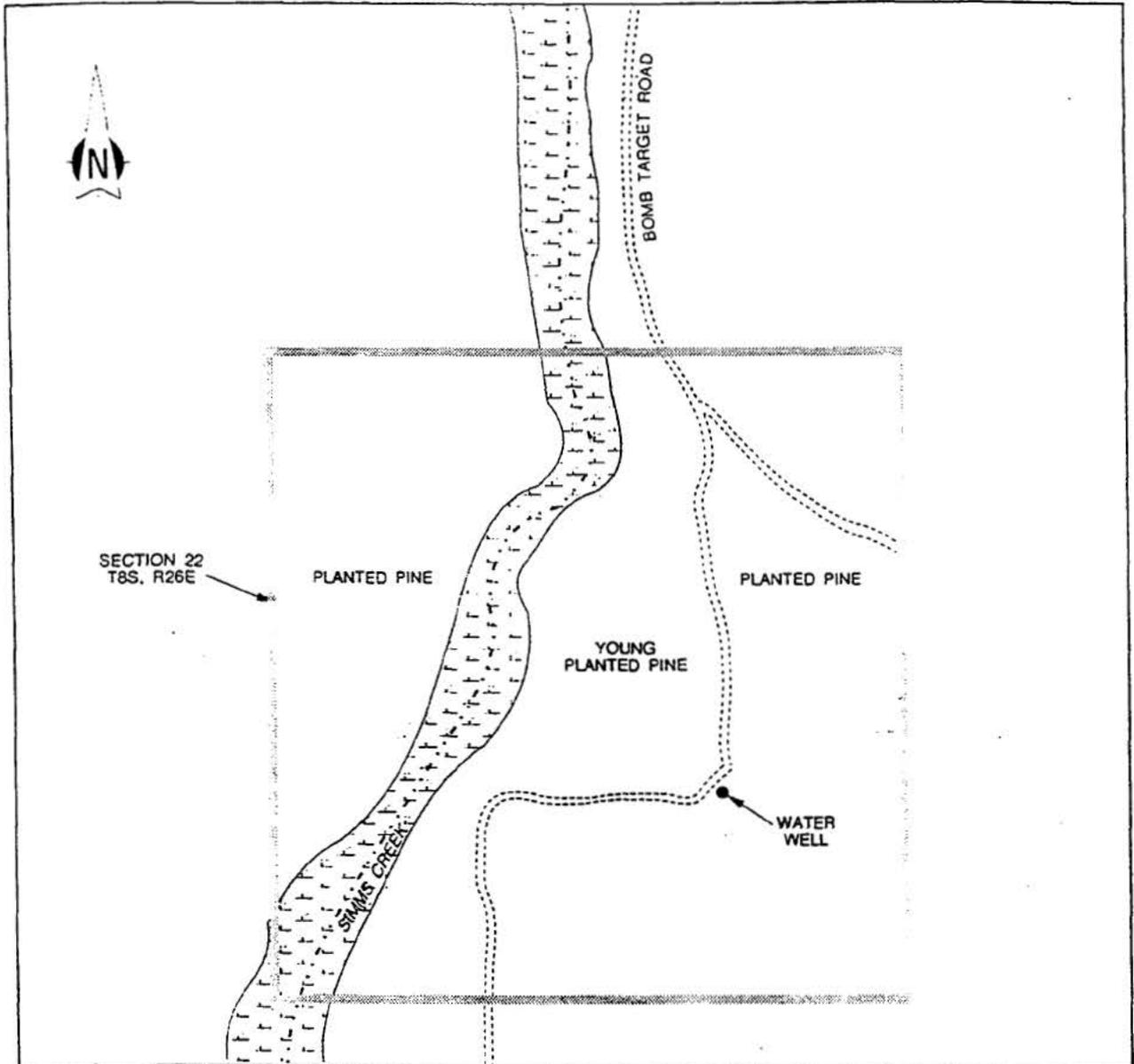
SCALE

0 1,500 3,000 FEET

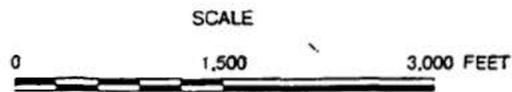
KEY:

- Unpaved Road
- Jeep Trail
- Stream

-  Marshy Wooded Area
-  Fence
-  Site Boundary



SOURCE: Ecology and Environment, Inc., 1994.



- KEY:
-  Site Boundary
  -  Unpaved Road
  -  Stream
  -  Marshy Wooded Area

RISK ASSESSMENT PROCEDURES FOR  
ORDNANCE AND EXPLOSIVE WASTE (OEW) SITES

|                |                               |              |                                      |
|----------------|-------------------------------|--------------|--------------------------------------|
| Site Name      | <u>Bostwick Bomb Target</u>   | Rater's Name | <u>K. Longsworth</u>                 |
| Site Location  | <u>Putnam County, Florida</u> | Phone No.    | <u>(904) 877-1978</u>                |
| DERP Project # | <u>I04FL091400</u>            | Organization | <u>Ecology and Environment, Inc.</u> |
| Date Completed | <u>January 28, 1994</u>       | RAC Score    | <u>3</u>                             |

OEW RISK ASSESSMENT:

This risk assessment procedure was developed in accordance with MIL-STD 882B and AR 385-10. The RAC score will be used by CEHND to prioritize the remedial action at this site. The OEW risk assessment should be based upon best available information resulting from records searches, reports of Explosive Ordnance Disposal (EOD) detachment actions, and field observations, interviews, and measurements. This information is used to assess the risk involved based upon the potential OEW hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability. Personnel involved in visits to potential OEW sites should view the CEHND videotape entitled "A Life Threatening Encounter: OEW."

Part I. Hazard Severity. Hazard severity categories are defined to provide a qualitative measure of the worst credible mishap resulting from personnel exposure to various types and quantities of unexploded ordnance items.

TYPE OF ORDNANCE  
(Circle all values that apply)

A. Conventional Ordnance and Ammunition

|   | VALUE     |
|---|-----------|
| Medium/Large Caliber (20 mm and larger)                                   | (10)      |
| Bombs, Explosive  | (10)      |
| Grenades, Hand and Rifle, Explosive                                       | 10        |
| Landmines, Explosive  | 10        |
| Rockets, Guided Missiles, Explosive                                       | (10)      |
| Detonators, Blasting Caps, Fuzes, Boosters, Bursters                      | 6         |
| Bombs, Practice (w/spotting charges)                                      | (6)       |
| Grenades, Practice (w/spotting charges)                                   | 4         |
| Landmines, Practice (w/spotting charges)                                  | 4         |
| Small Arms (.22 cal - .50 cal)  | 1         |
| Conventional Ordnance and Ammunition<br>(Select the largest single value) | <u>10</u> |

A. (cont.) lists several types of ordnance observed on site as well as the observation of several unnatural depressions.

B. Pyrotechnics (For munitions not described above.)

|   | VALUE    |
|---|----------|
| Munition (Container) Containing White Phosphorus or other Pyrophoric Material (i.e., Spontaneously Flammable) | 10       |
| Munition Containing A Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)        | 6        |
| Flares, Signals, Simulators   | 4        |
| Pyrotechnics (Select the largest single value)  | <u>0</u> |
| What evidence do you have regarding pyrotechnics? <u>No evidence of pyrotechnics was found.</u>               |          |

C. Bulk High Explosives (Not an integral part of conventional ordnance; uncontainerized.)

|   | VALUE    |
|---|----------|
| Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.) | 10       |
| Demolition Charges  | 10       |
| Secondary Explosives (PETN, Compositions A, B, C, Teteryl, TNT, RDX, HMX, HBX, Black Powder, etc.)                              | 8        |
| Military Dynamite   | 6        |
| Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)   | 3        |
| High Explosives (Select the largest single value)   | <u>0</u> |
| What evidence do you have regarding bulk explosives? <u>No evidence of bulk high explosives was found.</u>                      |          |

D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized)

|   | VALUE    |
|---|----------|
| Solid or Liquid Propellants   | 6        |
| Propellants   | <u>0</u> |
| What evidence do you have regarding bulk propellants? <u>No evidence of bulk propellants was found.</u> |          |

E. Radiological/Chemical Agent/Weapons

|  | VALUE    |
|--|----------|
| Toxic Chemical Agents<br>(Choking, Nerve, Blood, Blister)                | 25       |
| War Gas Identification Sets  | 20       |
| Radiological   | 15       |
| Riot Control and Miscellaneous<br>(Vomiting, Tear, incendiary and smoke) | 5        |
| Radiological/Chemical Agent <u>(Select the largest single value)</u>     | <u>0</u> |
| What evidence do you have of chemical/radiological OEW? <u>None</u>      |          |

TOTAL HAZARD SEVERITY VALUE 10  
 (Sum of Largest Values for A through E--Maximum of 61)  
 Apply this value to Table 1 to determine Hazard Severity Category.

TABLE 1

HAZARD SEVERITY\*

| Description  | Category | Hazard Severity Value |
|--------------|----------|-----------------------|
| CATASTROPHIC | I        | 22 and greater        |
| CRITICAL     | II       | 11 to 21              |
| MARGINAL     | III      | 6 to 10               |
| NEGLIGIBLE   | IV       | 1 to 5                |
| **NONE       |          | 0                     |

\* Apply Hazard Severity Category to Table 3.

\*\*If Hazard Severity Value is 0, you do not need to complete Part II. Proceed to Part III and use a RAC Score of 5 to determine your appropriate action.

Part II. Hazard Probability. The probability that a hazard has been or will be created due to the presence and other rated factors of unexploded ordnance or explosive materials on a formerly used DOD site.

AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD  
(Circle all values that apply)

A. Locations of OEW Hazards

|   | VALUE    |
|---|----------|
| On the surface  | (5)      |
| Within Tanks, Pipes, Vessels<br>or Other confined locations.          | 4        |
| Inside walls, ceilings, or other<br>parts of Buildings or Structures. | 3        |
| Subsurface  | (2)      |
| Location (Select the single largest value)                            | <u>5</u> |

What evidence do you have regarding location of OEW? During an interview, the current landowner reported that practice bombs had been found on or near ground surface. Several ordnance items were observed by Mr. Hall of the U.S. Naval Air Station-Jacksonville during a visual inspection on 9 May 1977

B. Distance to nearest inhabited locations or structures likely to be at risk from OEW hazard (roads, parks, playgrounds, and buildings).

|  | VALUE    |
|--|----------|
| Less than 1250 feet                        | 5        |
| 1250 feet to 0.5 miles                     | 4        |
| 0.5 miles to 1.0 mile                      | 3        |
| 1.0 mile to 2.0 miles                      | (2)      |
| Over 2 miles                               | 1        |
| Distance (Select the single largest value) | <u>2</u> |

What are the nearest inhabited structures? Roads and residences.

---

C. Numbers of buildings within a 2 mile radius measured from the OEW hazard area, not the installation boundary.

|   | VALUE    |
|---|----------|
| 26 and over   | 5        |
| 16 to 25  | 4        |
| 11 to 15  | 3        |
| 6 to 10   | 2        |
| 1 to 5  | 1        |
| 0   | 0        |
| Number of Buildings (Select the single largest value) | <u>5</u> |

Narrative Rural housing development on west side of site.

---

D. Types of Buildings (within a 2 mile radius)

|   | VALUE    |
|---|----------|
| Educational, Child Care, Residential, Hospitals, Hotels, Commercial, Shopping Centers | 5        |
| Industrial, Warehouse, etc.   | 4        |
| Agricultural, Forestry, etc.  | 3        |
| Detention, Correctional   | 2        |
| No Buildings  | 0        |
| Types of Buildings (Select the largest single value)                                  | <u>5</u> |

Describe types of buildings in the area. Rural single-family residences.

---

E. Accessibility to site refers to access by humans to ordnance and explosive wastes. Use the following guidance:

| BARRIER  | VALUE    |
|--|----------|
| No barrier or security system  | 5        |
| Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.   | 4        |
| A barrier, (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.  | 3        |
| Security guard, but no barrier   | 2        |
| Isolated site  | 1        |
| A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the facility; or<br>An artificial or natural barrier (e.g., a fence combined with a cliff), which completely surrounds the facility; and a means to control entry, at all times, through the gates or other entrances to the facility (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the facility). | 0        |
| Accessibility (Select the single largest value)  | <u>3</u> |

Describe the site accessibility. Site is accessible by an unpaved road; however, a locked gate restricts access.

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion by beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

|                                      | VALUE    |
|--------------------------------------|----------|
| Expected                             | 5        |
| None Anticipated                     | 0        |
| Site Dynamics (Select largest value) | <u>5</u> |

Describe the site dynamics. Currently, the site is forested/farmed plantation pine. During pine timbering activities, 1- to 2-foot-long trenches are dug for planting. In addition, erosion of sediments along Simms Creek could potentially expose buried ordnance, and it is also possible

TOTAL HAZARD PROBABILITY VALUE

(Sum of Largest Values for A through F--Maximum of 30)

25

Apply this value to Hazard Probability Table 2 to determine Hazard Probability Level.

TABLE 2

HAZARD PROBABILITY

| Description | Level | Hazard Probability Value |
|-------------|-------|--------------------------|
| FREQUENT    | A     | 28 or greater            |
| PROBABLE    | B     | 22 to 27                 |
| OCCASIONAL  | C     | 16 to 21                 |
| REMOTE      | D     | 9 to 15                  |
| IMPROBABLE  | E     | less than 9              |

\* Apply Hazard Probability Level to Table 3.

determined using the following Table 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

| Probability Level  |     | FREQUENT<br>A | PROBABLE<br>B | OCCASIONAL<br>C | REMOTE<br>D | IMPROBABLE<br>E |
|--------------------|-----|---------------|---------------|-----------------|-------------|-----------------|
| Severity Category: |     |               |               |                 |             |                 |
| CATASTROPHIC       | I   | 1             | 1             | 2               | 3           | 4               |
| CRITICAL           | II  | 1             | 2             | 3               | 4           | 5               |
| MARGINAL           | III | 2             | 3             | 4               | 4           | 5               |
| NEGLIGIBLE         | IV  | 3             | 4             | 4               | 5           | 5               |

RISK ASSESSMENT CODE (RAC)

- RAC 1 Expedite INPR, recommending further action by CEHND - Immediately call CEHND-ED-SY--commercial 205-955-4968 or DSN 645-4968.
- RAC 2 High priority on completion of INPR - Recommend further action by CEHND.
- RAC 3 Complete INPR - Recommend further action by CEHND.
- RAC 4 Complete INPR - Recommend further action by CEHND.
- RAC 5 Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHND.

Part IV. Narrative. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that you made.

The site is a former bomb target. A visual inspection was performed by the U.S. Naval Air Station Weapons Department on 9 May 1977. According to the report, several types of "dud" or expended ordnance were observed to be present in part, as well as complete rounds. Only some of the items found could be certified as "inert" by visual inspection. According to Naval and Union Camp Paper Company sources, an ordnance cleanup was performed after this inspection; however, documentation to support this claim is unavailable. It also should be noted that any metal objects (e.g., practice bombs) are potential hazards to timber workers on site because the bombs can become projectiles if they come in contact with the high-speed saws used during logging operations.

APPENDIX E

LETTERS/MEMORANDA/MISCELLANEOUS ITEMS  
(NOT USED)

**APPENDIX F**

**REAL ESTATE DOCUMENTS**

**ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT**

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

**APPENDIX F - REAL ESTATE DOCUMENTS**

The archives search did not locate any real estate information that contradicted or modified the information contained in the Inventory Project Report (INPR) for the Bostwick Bomb Target, furnished in Appendix D-1, except that the property is now owned by Mr. George Nab of Macelleny, Florida.

APPENDIX G

NEWSPAPER/JOURNALS  
(NOT USED)

APPENDIX H

INTERVIEWS  
(NOT USED)

APPENDIX I

PRESENT SITE PHOTOGRAPHS



**PHOTO #1** - Well and Former Administration Area  
**Date:** 06 Dec 95 **Time:** 0830 am **Weather:** Overcast and warm  
**Location:** Southwest of Bomb Target



**PHOTO #2** - Standing at Bomb Target Center looking North  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #3** - Standing at Bomb Target Center looking Northeast  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #4** - Standing at Bomb Target Center looking East  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #5** - Standing at Bomb Target Center looking Southeast  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Southwest of Bomb Target



**PHOTO #6** - Standing at Bomb Target Center looking South  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #7 - Standing at Bomb Target Center looking Southwest**  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #8 - Standing at Bomb Target Center looking West**  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #9** - Standing at Bomb Target Center looking Northwest  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Southwest of Bomb Target



**PHOTO #10**- Standing near Bomb Target Center  
White Shell Material used for Bomb Target Rings  
**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #11 - Vicinity of Bomb Target Center**  
Metal Fragments, White Aluminum and Rusted Threaded Steel (next to knife)  
**Date:** 06 Dec 95 **Time:** 0900 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #12 - Vicinity of Bomb Target Center**  
Nose Portion Only of 4# Navy Practice Bomb (next to knife)  
**Date:** 06 Dec 95 **Time:** 0915 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #13 - Vicinity of Bomb Target Center**  
**Expended Sub-caliber RocketNose Fuze (next to knife)**  
**Date:** 06 Dec 95 **Time:** 0930 am **Weather:** Overcast and warm  
**Location:** Southwest of Bomb Target



**PHOTO #14 - Former Location of 1960's Era Debris Pile**  
**Approximately 400' Southeast of Bomb Target Center**  
**Date:** 06 Dec 95 **Time:** 0945 am **Weather:** Overcast and warm  
**Location:** Bomb Target Center



**PHOTO #15** - View from former Administration Area to Northeast  
toward former Observation Tower Area

**Date:** 06 Dec 95 **Time:** 1015 am **Weather:** Overcast and warm

**Location:** Administration Area



**PHOTO #16** - View from Edge of Bombing Area toward Bomb Target Center  
Bomb Target Center approximately 400' into Woods

**Date:** 06 Dec 95 **Time:** 0845 am **Weather:** Overcast and warm

**Location:** Bomb Target Center

APPENDIX J.

HISTORICAL PHOTOGRAPHS  
(NOT USED)

APPENDIX K

HISTORICAL MAPS/DRAWINGS  
(NOT USED)

**APPENDIX L**

**SITE SPECIFIC SAFETY AND HEALTH PLAN**

**SITE SPECIFIC SAFETY AND HEALTH PLAN (SSHP)  
OEW/CWM Archives Search Site Inspection Visit**

Bostwick Bomb Target

Putnam County, FL

Site #I04FL091400

1. REFERENCES:

- a. Safety Manual, CELMS-PM-M, 16 Sep 93 w/ Ch1.
- b. SOP for Reporting Ordnance and Unexploded Ordnance (UXO), CELMS-PM-M, 19 Jan 95.
- c. OEW Guidance Regarding Coordination with EOD Organizations, 10 Jan 95.

2. GENERAL: This plan prescribes the safety and health requirements for team activities and operations conducted to determine the presence of ordnance and explosive waste and /or chemical warfare materials at the specified site.

a. The Safety Officer has final authority on all matters relating to safety. The safety rules will be followed at all times. Any member of the team may stop operations if they observe a situation or activity which poses a potential hazard to any individual or to the operation. All actions must comply with the common sense rule!

b. All team members will be aware of the local emergency numbers and the location of the nearest telephone.

c. A minimum of two and a maximum of eight persons will be allowed on-site at any one time.

d. The property owner is not required to sign the SSHP, but should be politely asked to participate in the safety briefing.

3. MISSION: Reconnoiter, document, and photograph areas on Bostwick Bomb Target suspected to be contaminated with UXO and/or toxic chemical munitions. The target aiming circle and low, marshy areas along a creekbed will be investigated .

4. SAFETY PRECAUTIONS: All team members will stay within sight of each other while on site. A first aid kit will be on hand. The following three basic safety rules apply at all times:

a. Rule 1 - Do not touch or pick up anything at the site.

b. Rule 2 - Do not step anywhere you cannot see where you place your foot.

c. Rule 3 - There will be no eating or smoking at the site. Hands will be washed after the survey and prior to eating. Drinking fluids should be done during periodic breaks.

5. SITE COMMUNICATIONS: The primary means of communicating with other team members will be by voice. Team members will always remain within sight of each other. Cellular telephones should be carried to facilitate and expedite calling for emergency medical services.

6. NATURAL HAZARDS: Temperatures should be in the 60's this time of year. Marshy areas have the potential for water moccasins, and the other stinging/biting creatures. Wetlands can be difficult to traverse and hypothermia could be a problem if someone gets soaked.

7. ORDNANCE HAZARDS: A list of items observed back in 1977 prior to a range clearance indicated a host of practice bombs and rockets, including 3- and 5-lb. practice bombs, 2.75" rockets and 30mm projectiles (type unknown).

8. HAZARD EVALUATION: Estimate the overall hazards using the following guidelines: (check appropriate item)

Low (small arms ammunitions)

Moderate (practice bombs with spotting charge)

High (high explosive munitions, toxic chemicals, WP)

Unknown

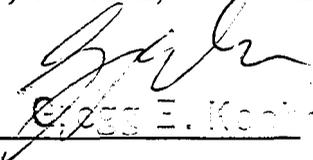
9. EMERGENCY PROCEDURES: First aid will be rendered for any injuries. In the event of a detonation, everyone should freeze until the situation can be assessed by the team leader. Unnecessary injuries can be avoided by not panicking and planning a logical course of action, which may include retracing your steps out of an impact area. Emergency medical services will be contacted by the most expeditious means available.

10. SAFETY STATEMENT: Safety is everyone's business. No unnecessary risks will be taken to obtain photos or other data. Team members are responsible for notifying the project Manager or safety Officer of any physical conditions that may impede or prevent their accomplishment of the mission. An example is allergic reactions to bee stings.

### Important Phone Numbers

Emergency medical service: 911  
Putnam County Sheriff: (904) 329-0800  
Huntsville Safety: (205) 895-1582/1579  
(800) 627-3532, PIN 777-2534

SSHP reviewed by: \_\_\_\_\_

  
Charles E. Koehler

UKC Specialist

Encls

1. Safety Briefing Attendance
2. Safety gear

# SITE SURVEY SAFETY BRIEFING

## PPE

- Work Clothing
- Gloves
- Hardhat
- Hearing protection
- Safety shoes
- Safety glasses

## Site Hazards

- OEW
- CSM
- HTW
- Slips, falls, trips
- Wildlife
- Vegetation

## Weather Precautions

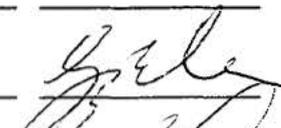
- Cold/Heat
- Severe Weather

## Safety Briefing Attendance

All team members and any accompanying personnel will be briefed and sign this form:

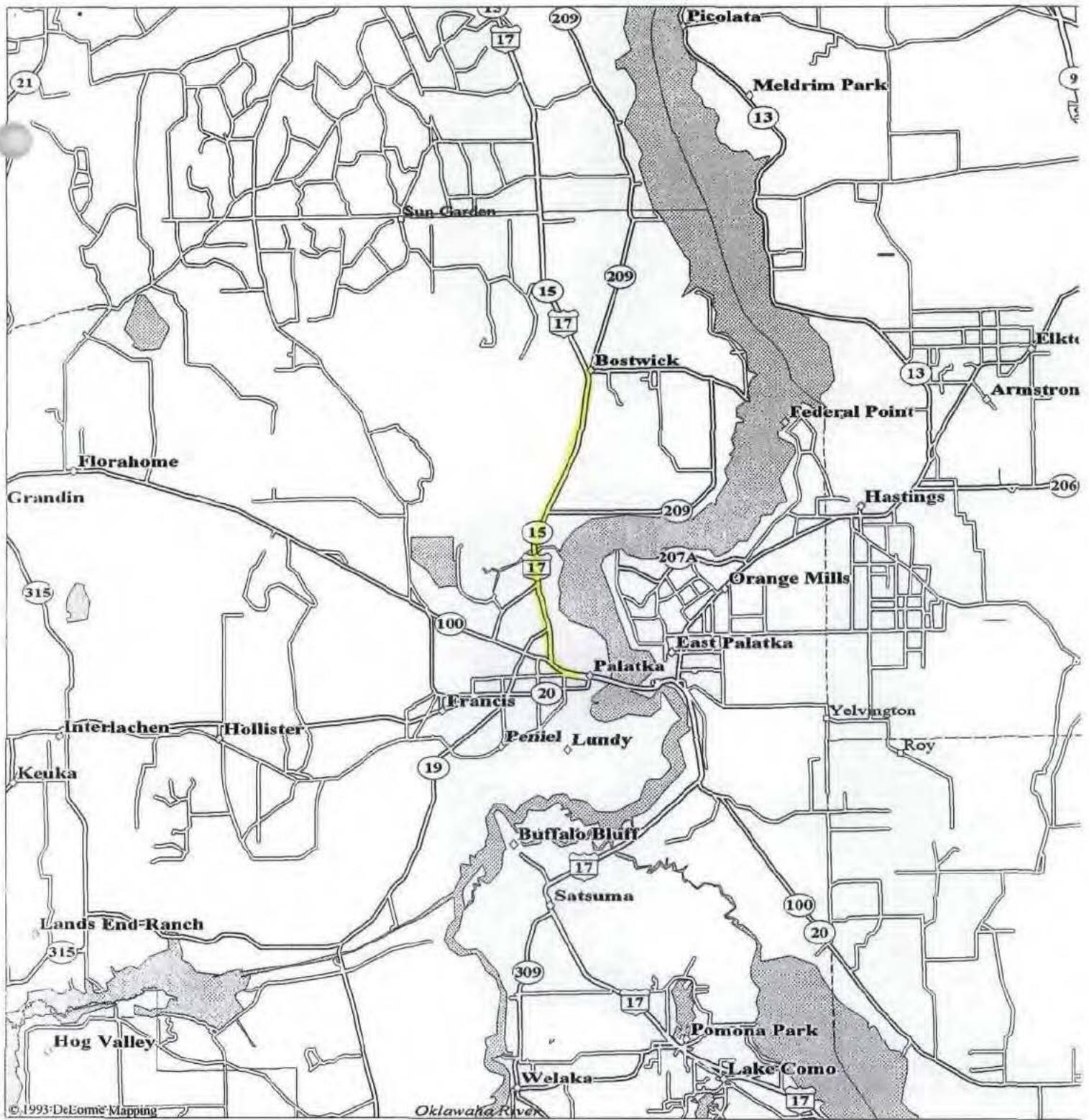
Print name and organization

Signature

|                               |   |
|-------------------------------|---|
| GREGG E. KOCHETZ, CELMS-PM-M  |  |
| RANDY FRASER, CELMS-PM-M      |  |
| THOMAS R. FREEMAN, CELMS-DM-M |  |
|                               |   |
|                               |   |
|                               |   |

MANDATORY MINIMUM SAFETY GEAR

|                            |          |
|----------------------------|----------|
| First aid kit (individual) | <u>✓</u> |
| Survival kit               | <u>✓</u> |
| Fire starter               | <u>✓</u> |
| Space blanket              | <u>✓</u> |
| Whistle                    | <u>✓</u> |
| Mirror                     | <u>✓</u> |
| Cellular phone             | <u>✓</u> |
| Flash light                | <u>✓</u> |
| Survey tape                | <u>✓</u> |
| Canteen                    | <u>✓</u> |



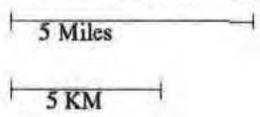
© 1993 DeLorme Mapping

Oklawaha River

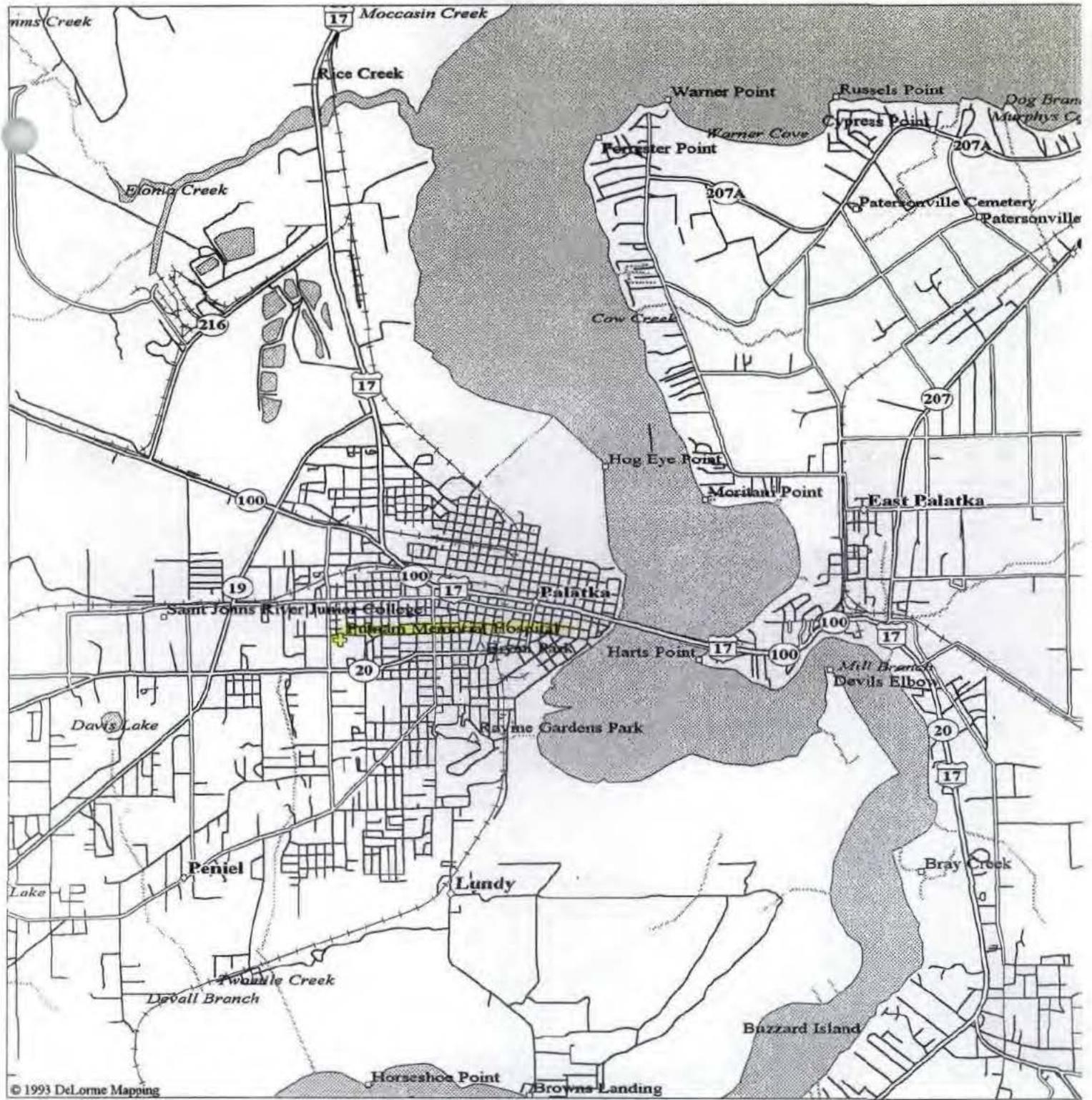
**LEGEND**

- |                        |                      |
|------------------------|----------------------|
| ○ Population Center    | — State Route        |
| ○ State Route          | — Interstate Highway |
| □ Geo Feature          | — US Highway         |
| ◇ Town, Small City     | — Airfield           |
| ◐ Interstate, Turnpike | □ Land Mass          |
| ◑ US Highway           | ▨ Open Water         |
| - - - County Boundary  |                      |
| — Major Street/Road    |                      |

Scale 1:250,000 (at center)



Mag 11.00  
Wed Nov 29 10:08:29 1995



**LEGEND**

- |  |                   |  |                   |
|--|-------------------|--|-------------------|
|  | Population Center |  | Hwy Ramps         |
|  | State Route       |  | Major Street/Road |
|  | Geo Feature       |  | State Route       |
|  | Town, Small City  |  | US Highway        |
|  | Hospital          |  | Railroad          |
|  | Park              |  | River             |
|  | US Highway        |  | Airfield          |
|  | Street, Road      |  | Land Mass         |

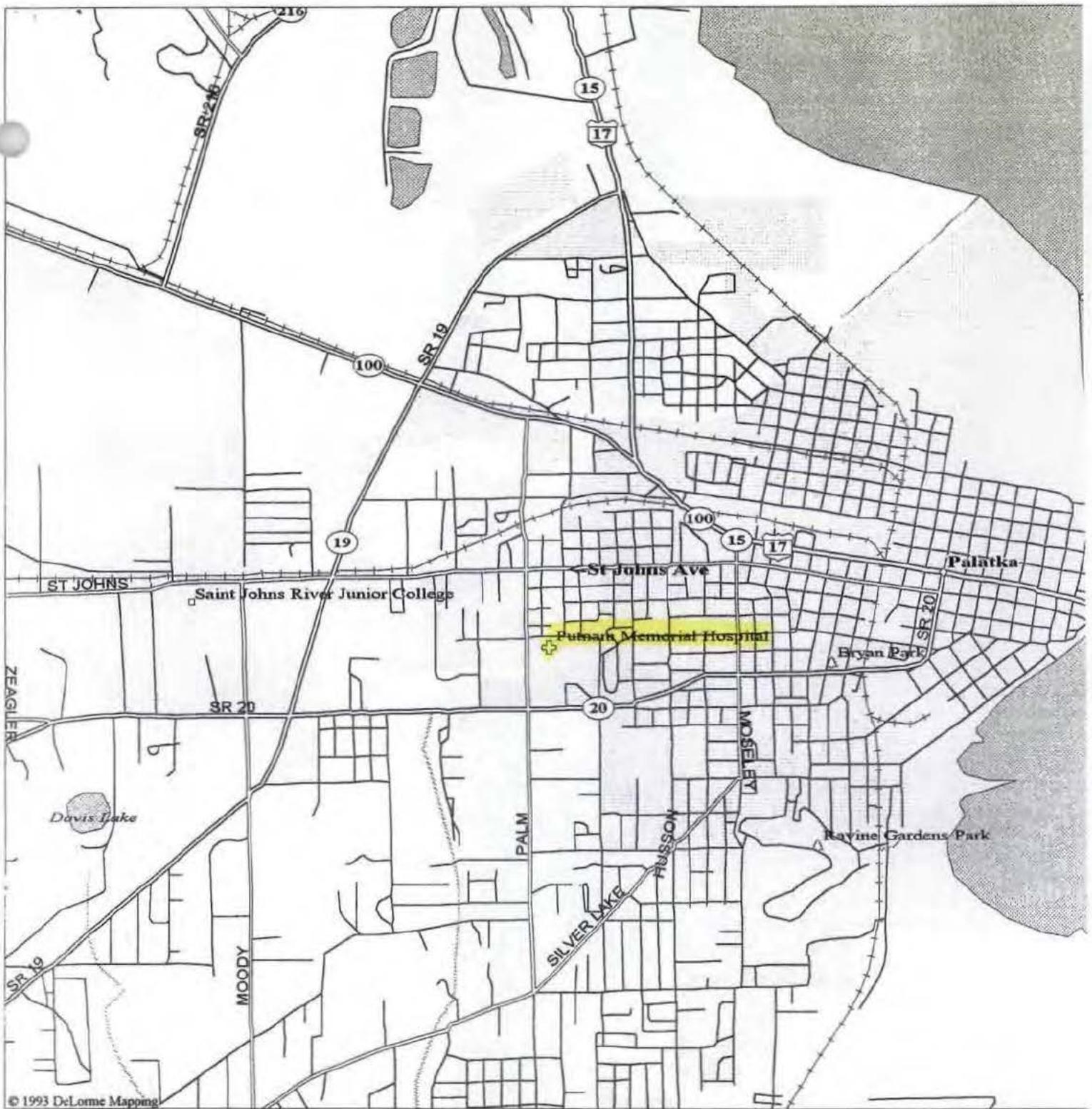
Scale 1:62,500 (at center)

1 Miles

2 KM

Mag 13.00

Wed Nov 29 10:06:41 1995



**LEGEND**

- |                     |                     |
|---------------------|---------------------|
| ○ Population Center | — Major Street/Road |
| ○ State Route       | — State Route       |
| □ Geo Feature       | — US Highway        |
| ● Town, Small City  | +++ Railroad        |
| ● Hospital          | — River             |
| ● Park              | ■ Open Water        |
| — US Highway        |                     |
| — Street, Road      |                     |

Scale 1:31,250 (at center)

2000 Feet

1000 Meters

Mag 14.00

Wed Nov 29 10:07:40 1995

APPENDIX M  
REPORT DISTRIBUTION LIST

## **DISCLAIMER**

As of the date of re-finalization of Project Number I04FL091401-Bostwick Bomb Target, the U.S. Army Engineering and Support Center, Huntsville's (USAESCH) Technical Advisory Group (TAG) Risk Assessment Code (RAC) has not been located in the USAESCH files or in the U.S. Army Engineer District, St. Louis's files. This TAG RAC likely does not exist; early USAESCH policy consisted of using the original ASR RAC if changes did not occur between the ASR RAC score and the TAG RAC score.

For the purpose of re-finalization, the ASR RAC, dated 25 March 1997, prepared by Freeman/McPherson, CELMS-ED-P/CEHNC-ED-SY, will be used. The RAC score of "4" has remained the same between the ASR RAC and the TAG RAC, as listed on page 1 of the Project Fact Sheet, dated 26 March 1997.

In Appendix M – Finalization Documents, the 26 March 1997 Project Fact Sheet lists a TAG RAC score of "4" and states in Section 8-ISSUES AND CONCERNS: "The site is RAC 4 with a strategy of EE/CA. ... the ASR recommended NOFA and RAC 5. Also, during the site inspection, the site survey team observed only small, scrap metal fragments from ordnance on the site. However, Safety review of the ASR recommended EE/CA, noting that the current requirements set forth in DOD 6055.9 STD for agriculture is a clearance to four feet. Based on Safety comments, the ASR writer filled out and submitted a new RAC Form with a RAC of 4. The geographic district will finalize the ASR by inserting the new RAC Form with a RAC of 4 and changing the text of the ASR to reflect a recommendation of EE/CA, RAC 4. Also, the new RAC Form must also have the values in Part I, A, for Medium/Large Caliber and Bombs, Explosive circled based on the listing of ordnance in paragraph 4.1.3 of pages 4-1 through 4-2 of the ASR Findings."

Item 4 on the 30 May 1996 Design Review Comments/Form 7, states "A RAC score of 3 has been assigned based upon the RAC of the INPR until St. Louis District re-RAC's this site based upon the DOD 6055.9 STD."

In response, St. Louis District replied "The attached RAC Form, based on items observed by Navy personnel in 1977 before removal activities, indicates that a RAC score of 4."



DEPARTMENT OF THE ARMY  
HUNTSVILLE CENTER, CORPS OF ENGINEERS  
P.O. BOX 1600  
HUNTSVILLE, ALABAMA 35807-4301

REPLY TO  
ATTENTION OF:

CEHNC-OE-DC-D

16 May 1997

MEMORANDUM FOR Commander, U.S. Army Engineer District, St. Louis  
ATTN: CELMS-PM-M (Mr. Mike Dace), 1222 Spruce  
Street, St. Louis, MO 63103-2833

SUBJECT: Results of Technical Advisory Group (TAG) Review of  
Archives Search Reports (ASR) and Fact Sheets for Defense  
Environmental Restoration Program-Formerly Used Defense Sites.  
The following ASRs and Fact Sheets have been finalized:

| <u>Project Number</u> | <u>Site</u>                               |
|-----------------------|---|
| C03DE006304           | Fort Miles Military Reservation           |
| B08CO071501           | Pueblo Precision Bombing Range #2         |
| C02NJ094701           | Greenwich Bombing Range                   |
| J09AZ101501           | Yuma Proving Ground (Yuma Test Branch)    |
| B08CO067701           | Craig Army National Guard Training Sites  |
| B07IA011300           | Polk County National Guard Target Range   |
| B07IA000401           | Camp Dodge                                |
| G05OH099004           | Cleveland Plant                           |
| J09CA026001           | Cadiz Lake Sonic Target #6                |
| I04FL091401           | Bostwick Bomb Target (Putnam Bomb Target) |
| J09CA017001           | Holtville Target (BT) No. 2 (#95)         |
| C03PA045903           | Reading Army Air Field                    |
| J09AZ071201           | Williams Field Bomb Target Range #10      |
| B07NE005102           | Harvard Army Air Field                    |
| I04AL004101           | Alabama Army Ammunition Plant             |
| F10WA005000           | Tulalip Backup Ammunition Storage Depot   |
| B08SD081901           | Armstrong County Air-To-Air Gunnery Range |
| B08SD086601           | Rapid City Precision Bombing Range No. 2  |
| B07NE003801           | Broken Bow Air-To-Ground Gunnery Range    |
| J09CA045001           | Long Beach Municipal Airport              |

1. Strategy for future actions to be taken by the Project Manager are included in attached fact sheets. Supporting data for TAG decisions are also included with the fact sheets.
2. Fact sheets and supporting data are to be distributed with the subject ASRs.
3. Subject projects are considered to be final when attached fact sheets and supporting data are included as a part of the project package.

CEHNC-OE-DC-D

16 May 1997

SUBJECT: Results of Technical Advisory Group (TAG) Review of Archives Search Reports (ASR) and Fact Sheets for Defense Environmental Restoration Program-Formerly Used Defense Sites.

4. The POC is Mr. Danny Mardis at 205-895-1797, DSN 760-1797, and FAX 205-895-1737.

FOR THE DIRECTOR, ORDNANCE  
AND EXPLOSIVES TEAM:

Encls



DANNY R MARDIS

Archives Search Report Manager  
for Ordnance and Explosives Team

54

**RESTORATION INFORMATION MANAGEMENT SYSTEM**  
**FORMERLY USED DEFENSE SITES (FUDS)**  
**PROJECT FACT SHEET**  
**MARCH 1996**  
**TAG REVIEW DATE: 26 March 1997**

1. **SITE NAME:** Bostwick Bomb Target (Putnam Bomb Target)

**SITE NUMBER:** I04FL091400

**LOCATION:**

City: Bostwick  
 County: Putnam  
 State: Florida

**PROJECT NUMBER:** I04FL091401

**CATEGORY:** OE

**INPR RAC:** 3

**ASR RAC:** 4

**TAG RAC:** 4

2. **POC's:**

**TECHNICAL MANAGER:**

Name: Robert V. Nore  
 Office: CEHNC-OE-DC  
 Phone: 205-895-1507

**GEO DISTRICT POC:**

Name: David Roulo  
 Office: CESAS-PM-H  
 Phone: 912-652-5945

**GEO DIVISION POC:**

Name: Sharon Ernst  
 Office: CESAD-PM-M  
 Phone: 404-331-2495

**HEADQUARTERS POC:**

Name: James Huang  
 Office: CEMP-RF  
 Phone: 202-761-8883

**SUPPORT DISTRICT (ASR) POC:**

Name: Thomas R. Freeman  
 Office: CELMS-PM\_M  
 Phone: 314-331-8785

**ASR TAG REVIEW POC:**

Name: Thomas M. Meekma  
 Office: SIOAC-ESL  
 Phone: 815-273-8739

3. **SITE DESCRIPTION:** The former Bostwick Bomb Target, consisting of 640 acres of land, is located in Section 22, Township 8 South, Range 26 East, approximately 25 miles southwest of the city of St. Augustine and three miles west-northwest of the town of Bostwick in Putnam County, Florida. The site is part of a larger area that is used in the cultivation of pine trees for wood and pulp production.

The terrain around the site is slightly hilly; relief varies in the area up to 85 feet. The bomb target area itself is relatively flat with a ten foot difference in elevation from one end to the other. The land cover is mainly forest, with small lakes and swamps visible throughout the area. A two-lane highway and rail line going north-south are east of the site.

The swampy lowlands adjacent to the site are fed by Simms Creek. Three branches feed into this creek immediately south of the study area. The Simms Creek flows from north to south through the center of the site. Simms Creek is a tributary of the Rice Creek. All the surface runoff drains into the Simms Creek.

4. **SITE HISTORY:** In the early part of 1940, the United States acquired a total of 640 acres by lease and condemnation for leasehold(actual dates unknown) from eight different owners for a Naval bomb target. The site was developed and sequentially known as the Bostwick Bomb Target and the Putnam Bomb Target. Naval improvements at the site consisted of clearing about 40 acres in the middle of the site for a target in the shape of a circle (outlined on the surface of the ground), fencing, and warning signs. An updated General Development Map showed concentric circles of 100', 200' and 300' at the main target area, boundary fencing(chain link), a fire break, two observation towers, a glide angle observation point, control building and dirt access roads. The site remained active until 1977 when its functions were no longer required by the Navy for training purposes. The lease was terminated on 15 December 1977.

The site was used by the Naval Air Advanced Training Command stationed at Jacksonville Naval Air Station for operational training and practice dive bombing. A visual inspection was conducted by the Navy in 1977 in which 30 mm projectiles and various rockets and bombs, fragments and whole, and practice and HE were observed. Although no documentation was found, two

witnesses, each interviewed independently, stated that this inspection was followed by an extensive clearance of the entire bomb target during 1978-79, costing millions of dollars, of site OE to a depth of two feet using heavy equipment. This is supported by historical aerial photographs.

From the time the lease was terminated until recently, the Union Camp Paper Corporation used the land to grow timber for harvest. Mr. George Nab is the present owner and still uses the land for wood production. Improvements built by the Navy are no longer present.

**5. PROJECT DESCRIPTION:**

|                    |  |
|--------------------|--|
| Size, Acres:       | 640  |
| Former Use:        | Dive Bombing Target  |
| Present Use:       | Grow timber for harvest  |
| Probable End Use:  | Same as present  |
| Ordnance Presence: | Confirmed  |
| Type:              | Bombs(Practice and HE);<br>rockets(Practice and HE);<br>30 mm cartridge ammunition |

**6. CURRENT STATUS:** The draft Archives Search Report for Bostwick Bomb Target (Putnam Bomb Target) was completed by the U.S. Army Corps of Engineers, St Louis District, in March 1996.

**7. STRATEGY:** EE/CA; (RAC 4)

**8. ISSUES AND CONCERNS:** The site is RAC 4 with a strategy of EE/CA. Based on Navy clearance of OE from the site to a depth of two feet using heavy equipment in 1978-79, the ASR recommended NOFA and RAC 5. Also, during the site inspection, the site survey team observed only small, scrap metal fragments from ordnance on the site. However, Safety review of the ASR recommended EE/CA, noting that the current requirements set forth in DOD 6055.9 STD for agriculture is a clearance to four feet. Based on Safety comments, the ASR writer filled out and submitted a new RAC Form with a RAC of 4. The geographic district will finalize the ASR by inserting the new RAC Form with a RAC of 4 (attached) and changing the text of the ASR to reflect a recommendation of EE/CA, RAC 4 based on the additional information provided by HNC safety. Also, the new RAC Form must also have the values in Part I, A, for Medium/Large Caliber and

Bombs, Explosive circled based on the listing of ordnance in paragraph 4.1.3 of pages 4-1 through 4-2 of the ASR Findings.

**CWM:** The research team found no information confirming chemical warfare material usage or storage at the Bostwick Bomb Target.

**Natural Resources:** There are known Federally- and State-listed species occurring in the site area. Listings are provided in the ASR Findings, page 3-4, paragraph 3.5. An on-site inspection by appropriate State and Federal personnel may be necessary to verify the presence, absence or location of listed species, or natural communities.

**Historical Resources:** No cultural or historical sites associated with this site are reported in the ASR. However, any intrusive measures taken within the area will require oversight by the State Historical Preservation Office (SHPO) and/or other like organizations.

**9. SCHEDULE SUMMARY:**

|       | Orig. | Sch.  | Actual | Orig. | Sch. | Actual |
|-------|-------|-------|--------|-------|------|--------|
| Phase | Start | Start | Start  | Comp  | Comp | Comp   |
| EE/CA |       |       |        |       |      |        |

**10. FUNDING/BUDGET SUMMARY:**

| Year | Phase | Exec<br>FOA | In-House<br>Required | Contract<br>Required | Funds<br>Obligated |
|------|-------|-------------|----------------------|----------------------|--------------------|
|------|-------|-------------|----------------------|----------------------|--------------------|

ED-ES provides estimate of EE/CA based on number of samples, size of area, plan of action, etc. This is a programming estimate to be used for programming project start in appropriate FY.



| B. Pyrotechnics (For munitions not described above)   | VALUE    |
|---|----------|
| Munitions (Container) containing White Phosphorus (WP) or other Pyrophoric Material (i.e., Spontaneously Flammable) | 10       |
| Munitions Containing A Flame or Incendiary Material (i.e., Napalm, Triethylaluminum Metal Incendiaries)             | 6        |
| Flares, Signals, Simulators, Screening Smokes (other than WP)   | 4        |
| Pyrotechnics <u>(Select the largest single value)</u>   | <u>0</u> |
| What evidence do you have regarding pyrotechnics? <b>None</b>   |          |

| C. Bulk High Explosives (Not an integral part of conventional ordnance; uncontainerized.)                                       | VALUE    |
|---|----------|
| Primary or Initiating Explosives (Lead Styphnate, Lead Azide, Nitroglycerin, Mercury Azide, Mercury Fulminate, Tetracene, etc.) | 10       |
| Demolition Charges  | 10       |
| Secondary Explosives (PETN, Compositions A, B, C Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)                                | 8        |
| Military Dynamite   | 6        |
| Less Sensitive Explosives (Ammonium Nitrate, Explosive D, etc.)   | 3        |
| High Explosives <u>(Select the largest single value)</u>  | <u>0</u> |
| What evidence do you have regarding bulk explosives? <b>None</b>  |          |

| D. Bulk Propellants (Not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized) | VALUE    |
|---|----------|
| Solid or Liquid Propellants   | 6        |
| Propellants   | <u>0</u> |
| What evidence do you have regarding bulk propellants? <b>None</b>   |          |

|    |  |          |
|----|--|----------|
| E. | Chemical Warfare Materiel and Radiological Weapons                         | VALUE    |
|    | Toxic Chemical Agents<br>(Choking, Nerve, Blood, Blister)                  | 25       |
|    | War Gas Identification sets  | 20       |
|    | Radiological   | 15       |
|    | Riot Control and Miscellaneous<br>(Vomiting, Tear)                         | 5        |
|    | Chemical and Radiological ( <u>Select the largest single value</u> )       | <u>0</u> |
|    | What evidence do you have regarding chemical/radiological OEW? <b>None</b> |          |

TOTAL HAZARD SEVERITY VALUE

(Sum of the Largest Values for A through E--Maximum of 61) 10  
**Apply this value to Table 1 to determine Hazard Severity Category.**

TABLE 1  
HAZARD SEVERITY\*

| <u>Description</u> | <u>Category</u> | <u>Hazard Severity Value</u> |
|--------------------|-----------------|------------------------------|
| CATASTROPHIC       | I               | 21 and greater               |
| CRITICAL           | II              | 10 to 20                     |
| MARGINAL           | III             | 5 to 9                       |
| NEGLIGIBLE         | IV              | 1 to 4                       |
| **NONE             |                 | 0                            |

\* APPLY HAZARD SEVERITY CATEGORY TO TABLE 3.

\*\* IF HAZARD SEVERITY IS 0, YOU DO NOT NEED TO COMPLETE PART II. PROCEED TO PART III AND USE A RAC SCORE OF 5 TO DETERMINE YOUR APPROPRIATE ACTION.

Part II. Hazard Probability. The probability that a hazard has been or will be created due to the presence and other rated factors of unexploded ordnance or explosive materials on a formerly used DOD site.

**AREA, EXTENT, ACCESSIBILITY OF OEW HAZARD**  
(Circle all values that apply)

| A. Location of OEW Hazards  | VALUE    |
|---|----------|
| On the surface  | 5        |
| Within Tanks, Pipes, Vessels<br>or Other confined locations           | 4        |
| Inside walls, ceilings, or other<br>parts of Buildings and Structures | 3        |
| Subsurface  | <b>2</b> |

Location (Select the single largest value) 2

What evidence do you have regarding location of OEW? **Clearance operations removed items to 2 feet deep, remaining items would be below this depth.**

| B. Distance to nearest inhabited locations or structures likely to be at risk from OEW hazard (roads, playgrounds, and buildings). | VALUE    |
|--|----------|
| Less than 1250 feet  | 5        |
| 1250 feet to 0.5 miles   | 4        |
| 0.5 miles to 1.0 miles   | 3        |
| 1.0 miles to 2.0 miles   | 2        |
| Over 2 miles   | <b>1</b> |

Distance (Select the single largest value) 1

What are the nearest inhabited structures? **Isolated residences near highway.**

C. Numbers of buildings within a 2 mile radius measured from the OEW hazard area, not the installation boundary.

|  | VALUE    |
|--|----------|
| 26 and over  | 5        |
| 16 to 25   | 4        |
| 11 to 15   | 3        |
| 6 to 10  | 2        |
| 1 to 5   | 1        |
| 0  | 0        |
| Number of Buildings <u>(Select the single largest value)</u> | <u>1</u> |

Narrative. **Isolated residences near highway.**

D. Types of Buildings (within a 2 mile radius)

|   | VALUE    |
|---|----------|
| Educational, Child Care, Residential, Hospitals, Hotels, Commercial, Shopping Centers | 5        |
| Industrial, Warehouse, etc.   | 4        |
| Agricultural, Forestry, etc.  | 3        |
| Detention, Correctional   | 2        |
| No Buildings  | 0        |
| Types of Buildings <u>(Select the largest single value)</u>                           | <u>5</u> |

Describe the types of buildings in the area. **Small isolated residences.**

E. Accessibility to site refers to access by humans to ordnance and explosive wastes. Use the following guidance:

| BARRIER   | VALUE    |
|---|----------|
| No barrier or security system   | 5        |
| Barrier is incomplete (e.g. in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing. | 4        |
| A barrier, (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.   | 3        |
| Security guard, but no barrier  | 2        |
| <b>Isolated site</b>  | <b>1</b> |

A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the facility; or An artificial or natural barrier (e.g., a fence combined with a cliff), which completely surrounds the facility; and a means to control entry, at all times, through the gates, or other entrances to the facility (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the facility).

Accessibility (Select the single largest value) 1

Describe the site accessibility. **Access to the site is by dirt logging roads.**

F. Site Dynamics - This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion by beaches or streams, increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

|                         | VALUE    |
|-------------------------|----------|
| Expected                | 5        |
| <b>None Anticipated</b> | <b>0</b> |

Site Dynamics (Select largest value) 0

Describe the site dynamics. **None expected.**

TOTAL HAZARD PROBABILITY VALUE

(Sum of Largest Values for A through F--Maximum of 30)  
Apply this value to Hazard Probability Table 2 to determine  
Hazard Probability Level.

10

TABLE 2  
HAZARD PROBABILITY

---

| <u>Description</u> | <u>Level</u> | <u>Hazard Probability Value</u> |
|--------------------|--------------|---------------------------------|
| FREQUENT           | A            | 27 or greater                   |
| PROBABLE           | B            | 21 to 26                        |
| OCCASIONAL         | C            | 15 to 20                        |
| REMOTE             | D            | 8 to 14                         |
| IMPROBABLE         | E            | less than 8                     |

\* Apply Hazard Probability Level to Table 3.

---

---

Part III. Risk Assessment. The risk assessment value for this site is determined using the following Table 3. Enter with the results of the hazard probability and hazard severity values.

TABLE 3

| Probability Level  |     | FREQUENT<br>A | PROBABLE<br>B | OCCASIONAL<br>C | REMOTE<br>D | IMPROBABLE<br>E |
|--------------------|-----|---------------|---------------|-----------------|-------------|-----------------|
| Severity Category: |     |               |               |                 |             |                 |
| CATASTROPHIC       | I   | 1             | 1             | 2               | 3           | 4               |
| CRITICAL           | II  | 1             | 2             | 3               | 4           | 5               |
| MARGINAL           | III | 2             | 3             | 4               | 4           | 5               |
| NEGLIGIBLE         | IV  | 3             | 4             | 4               | 5           | 5               |

RISK ASSESSMENT CODE (RAC)

- RAC 1 Expedite INPR, recommending further action by CEHND - Immediately call CEHND-OE-ES--commercial (205) 895-1582.
- RAC 2 High priority on completion of INPR - Recommend further action by CEHND.
- RAC 3 Complete INPR - Recommend further action by CEHND.
- RAC 4 Complete INPR - Recommend further action by CEHND.
- RAC 5 Usually indicates that no further action (NOFA) is necessary. Submit NOFA and RAC to CEHND.

Part IV. Narrative. Summarize the documented evidence that supports this Risk assessment. If no documented evidence was available, explain all the assumptions that you made.

**The site had been cleared of munitions by the Navy in 1978 down to a 2-foot depth. No ordnance items have been reported during on-going logging operations.**

**DRAFT**

| U. S. ARMY ENGINEER DIVISION NUNTSVILLE  |   | 104FLQ41501   | CORPS OF ENGINEERS   |
|--|---|---|--|
| DESIGN REVIEW COMMENTS   |   | PROJECT   | BOSTWICK BOMB TARGET, BOSTWICK, FL   |
| <input type="checkbox"/> SITE DEV & GEO  | <input type="checkbox"/> MECHANICAL     | <input checked="" type="checkbox"/> SAFETY  | <input type="checkbox"/> SYSTEMS ENG   |
| <input type="checkbox"/> ENVIR PROT&UTIL   | <input type="checkbox"/> MFG TECHNOLOGY | <input type="checkbox"/> ADV TECH   | <input type="checkbox"/> VALUE ENG   |
| <input type="checkbox"/> ARCHITECTURAL   | <input type="checkbox"/> ELECTRICAL     | <input type="checkbox"/> ESTIMATING   | <input type="checkbox"/> OTHER   |
| <input type="checkbox"/> STRUCTURAL  | <input type="checkbox"/> INST&CONTROLS  | <input type="checkbox"/> SPECIFICATIONS   |  |
| REVIEW ASR   |   |   |  |
| DATE   |   |   | 30 MAY 1996  |
| NAME   |   |   | MCPHERSON/1595 <i>RCP</i>  |
| ITEM   | DRAWING NO. OR REFERENCE                | COMMENT   | ACTION   |
| 1.   | GENERAL                                 | This site was used by the Navy for a bombing range and a gunnery field in which NE was both dropped and fired into the area. The Navy conducted an extensive ordnance clearance operation in 1978-1979. The ASR reports that heavy equipment was used to cut to a depth of approximately 2-foot removing and detonating several UXOs.   | A  |
| 2.   | GENERAL                                 | The only items found during the site visit were pieces of frag and other related nonexplosive OE components. Reports from interviews reveal that no other OE has been found. It is the conclusion of this ASR that the possibilities of encountering OE would be very minimal. This area has been planted for tree harvest with recent activity and harvesting, the crews never found any OE. Practice bombs, NE bombs, and projectiles were used in the area, there is the potential for the OE to be at a greater depth than the 2-feet which the Navy cleared. The ASR recommends no further action on this site based upon the Navy's clearance. However, DOD 6055.9 STD gives a default depth for agriculture of 4 feet. | - Based on the current day 4 ft. default depth the site might require additional field investigation.  |
| 3.   | GENERAL                                 | Nonconcur with the recommendation of the ASR and the RAC score of 5 because of the end usage of this site and the fact that NE bombs and NE projectiles were used on this site. The soil is soft enough for the OE to go to a greater depth than 2 feet. This ASR has also failed to obtain the clearance documents that gives details of the clearance performed by the Navy.  | - See Action # 2 above.<br>- Although several appropriate Navy offices were contacted, no clearance documents were found. Operational details were from interviews.            |
| 3.   | GENERAL                                 | Recommend continuation of the OE EE/CA process. An updated RAC Form is not attached because this ASR does not contain the necessary information. A RAC Form could be  | - The 1977 Navy document indicates the items found at the site prior to the ca. 1978 clearance operations. If it is assumed that items remain at site then they would probably |
| <p><b>ACTION CODES:</b>            W - WITHDRAWN<br/> A - ACCEPTED/CONCUR - NON-CONCUR<br/> D - ACTION DEFERRED VE - VE POTENTIAL/VEP ATTACHED</p> |   |   |  |

U. S. ARMY ENGINEER DIVISION HUNTSVILLE

104FL041501

CORPS OF ENGINEERS

DESIGN REVIEW COMMENTS

PROJECT

BOSTWICK BOMB TARGET, BOSTWICK, FL

- |   |   |  |                                      |
|---|---|--|--------------------------------------|
| <input type="checkbox"/> SITE DEV & GEO | <input type="checkbox"/> MECHANICAL     | <input checked="" type="checkbox"/> SAFETY | <input type="checkbox"/> SYSTEMS ENG |
| <input type="checkbox"/> ENVR PROT&UTIL | <input type="checkbox"/> MFG TECHNOLOGY | <input type="checkbox"/> ADV TECH          | <input type="checkbox"/> VALUE ENG   |
| <input type="checkbox"/> ARCHITECTURAL  | <input type="checkbox"/> ELECTRICAL     | <input type="checkbox"/> ESTIMATING        | <input type="checkbox"/> OTHER       |
| <input type="checkbox"/> STRUCTURAL     | <input type="checkbox"/> INST&CONTROLS  | <input type="checkbox"/> SPECIFICATIONS    |                                      |

REVIEWER

DATE 30 MAY 1996

TYPE

NAME MCPHERSON/1595

| ITEM | DRAWING NO.<br>OR REFERENCE | COMMENT  | ACTION   |
|------|-----------------------------|--|--|
|      |                             | completed based upon the INPR RAC but it would just be a duplicate copy.   | be of the same kind. The ASR RAC sheet could be based on that information.   |
| 4.   | GENERAL                     | A RAC score of 3 has been assigned based upon the RAC of the INPR until St. Louis District re-RAC's this site based upon the DOD 6055.9 STD. | The attached RAC form, based on files reviewed by Navy personnel in 1977 before removal activities, indicates that a RAC score of 4. |

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

DESIGN REVIEW COMMENTS

PROJECT DERP FUDS PUTMAN CNTY BOSTWICH BOMB TARGET

- |  |   |  |                                      |
|--|---|--|--------------------------------------|
| <input type="checkbox"/> SITE DEV & GEO  | <input type="checkbox"/> MECHANICAL     | <input checked="" type="checkbox"/> SAFETY | <input type="checkbox"/> SYSTEMS ENG |
| <input type="checkbox"/> ENVIR PROT&UTIL | <input type="checkbox"/> MFG TECHNOLOGY | <input type="checkbox"/> ADV TECH          | <input type="checkbox"/> VALUE ENG   |
| <input type="checkbox"/> ARCHITECTURAL   | <input type="checkbox"/> ELECTRICAL     | <input type="checkbox"/> ESTIMATING        | <input type="checkbox"/> OTHER       |
| <input type="checkbox"/> STRUCTURAL      | <input type="checkbox"/> INST&CONTROLS  | <input type="checkbox"/> SPECIFICATIONS    |                                      |

REVIEW INPR/7-497

DATE 02 AUG 1994

TYPE

NAME B. McPHERSON/54588

*BOM*

| ITEM | DRAWING NO. OR REFERENCE | COMMENT  | ACTION |
|------|--------------------------|--|--------|
| 1.   | GENERAL                  | <p>This site was used as a bombing range. In May of 1977, the Navy performed a visual inspection and range clearance of this target range. The clearance consisted of surface OEW only. The ordnance found included practice bombs, 2.75 rockets, rocket pods, 30mm projectiles, and craters that ranged in size from 6 to 8 feet in diameter. The Site Survey Summary Sheet states that "no attempt to survey this Site for ordnance was made due to safety concerns"; consequently this Site has never been surveyed for OEW. Recommend an OEW EE/CA be scheduled for this Site.</p> |        |
| 2.   | GENERAL                  | <p>An updated RAC Form and a completed DD 1391 are attached. A RAC score of 3 has been assigned.</p>   |        |

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



**US Army Corps  
of Engineers**  
HUNTSVILLE ENGINEERING  
SUPPORT CENTER

**DRAFT**

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**DEFENSE ENVIRONMENTAL RESTORATION PROGRAM  
FOR  
FORMERLY USED DEFENSE SITES**

**ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS**

**ARCHIVES SEARCH REPORT**

**FINDINGS**

**BOSTWICK BOMB TARGET  
(PUTNAM BOMB TARGET)**

**BOSTWICK, FLORIDA  
PUTNAM COUNTY**

**PROJECT No. I04FL091401**

**MARCH 1996**

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PREPARED BY  
**U.S. ARMY CORPS OF ENGINEERS**  
**ST. LOUIS DISTRICT**

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APPENDIX M  
REPORT DISTRIBUTION LIST

ORDNANCE AND EXPLOSIVES  
CHEMICAL WARFARE MATERIALS  
ARCHIVES SEARCH REPORT

**FINDINGS**

**BOSTWICK BOMB TARGET**

Bostwick, Florida  
Putnam County

PROJECT NO. IO4FL091401

APPENDIX M

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