



US Army Corps
of Engineers
Rock Island District

COFM 01-002

Defense Environmental Restoration Program
for
Installation Restoration
Ordnance and Explosives

ARCHIVES SEARCH REPORT
Conclusions and Recommendations
Findings
for the
MELROSE AIR FORCE RANGE

ROOSEVELT COUNTY, NEW MEXICO

October 2000



DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
for
INSTALLATION RESTORATION

Conclusions and Recommendations

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

October 2000

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ORDNANCE AND EXPLOSIVES
 ARCHIVES SEARCH REPORT
 FOR
 MELROSE AIR FORCE RANGE
 ROOSEVELT COUNTY, NEW MEXICO

ACKNOWLEDGMENT				
The following persons provided support as indicated.				
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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
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MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

The following conclusions and recommendations are provided by the Archives Search Report Team. These recommendations may not be the actions taken to remediate this site.

CONCLUSIONS AND RECOMMENDATIONS

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

1. INTRODUCTION

a. **Subject and Purpose**

(1) This report presents the conclusions and recommendations of a historical records search and site inspection for the presence of ordnance and explosives (OE) located on the Melrose Air Force Range. This site is located in Roosevelt County, New Mexico approximately 35 miles west of the city of Clovis (see plate 1 for general location map). The investigation was performed under the authority of the Defense Environmental Restoration Program for Installation Restoration (DERP-IR).

(2) The investigation focused on approximately 81,687 acres that is used as a bomb target and an air to ground range. The Department of the Air Force has used the site for these purposes from 1952 to the present time.

(3) The purpose of this investigation was to characterize the site for potential OE presence, to include conventional ammunition and chemical warfare materiel (CWM). The investigation was conducted by experienced ordnance experts through thorough evaluation of historical records, interviews, and on-site visual inspection results.

b. **Scope**

(1) This report presents the site history, site description, real estate ownership information, and confirmed ordnance presence, based on available records, interviews, site inspections, and analyses. The analyses provide a complete evaluation of all information to assess current day potential ordnance presence, where actual ordnance presence has not been confirmed.

(2) For the purpose of this report, OE presence consists of live ammunition, ammunition components, CWM or explosives which have been lost, abandoned, discarded, buried, fired, or thrown from demolition pits or burning pads. These items were either manufactured, purchased, stored, used, and/or disposed of by the Department of the

Air Force or other components of the Department of Defense. Such ammunition/components are no longer under accountable record control of any DOD organization or activity.

(3) **Expended** small arms ammunition (caliber .50 or smaller) is **not** considered OE presence. OE further includes "explosive soil" which refers to any mixture in soil, sands, clays, etc., such that the mixture itself is explosive. Generally, 10 percent or more by weight of secondary explosives in a soil mixture is considered explosive soil.

2. CONCLUSIONS

a. **Summary of Conclusions**

Table 2-1 has been provided to summarize conclusions made on confirmed, potential OE areas and areas with no OE presence within the Melrose Air Force Range.

TABLE 2-1 SUMMARY OF CONCLUSIONS						
AREA	FORMER USAGE	CURRENT USAGE	SIZE (acres)	ORDNANCE PRESENCE		
				Confirmed Ordnance Presence	Potential Ordnance Presence	No Ordnance Presence
A	Impact Area	Same	55,745	yes	-	-
B	Old Impact Area	Buffer Area	305	-	yes	-
C	Old EOD Range and Burial Site	Impact Area, Buffer Area	1	-	yes	-
D	Burial Site	Same	1	-	yes	-
E	Buffer Area	Same	24,995	-	-	yes
F	World War II Buffer Area	Buffer Area	640	-	-	yes
		TOTAL	81,687			

b. **Historical Site Summary**

(1) The origin of the range occurred in 1952 when the Air Force acquired a leasehold interest in 7,771 acres of land for use as an air to ground gunnery range. Construction of targets was completed in 1953 and was first used by F-86 fighters stationed at Clovis Air Force Base. The targets available during this time period were limited;

there was a strafing target, a bomb target, and possibly several tactical targets.

(2) In 1969 the range was expanded to 22,120 acres to meet the needs of a new generation of aircraft. However, it was considered desirable to expand the range's capacity to meet the capabilities of the newer aircraft. The assignment of the F-111D aircraft to Cannon AFB in 1971 intensified the need for a training range that could accommodate aircraft capable of performing enhanced tactical maneuvers as well as a nuclear mission. For a number of years an annual waiver from the Air Force was required in that the buffer area did ~~not~~ meet the minimum safety criteria. ^{NST}

(3) In 1987 additional land was acquired to increase the size of the buffer area to satisfy the safety criteria. There were plans to increase the size of the impact area but this never occurred; the current size of the impact area is the same as it was in the early 1970s.

c. Visual Site Inspection

(1) Site inspection was conducted 24 May 2000. During this inspection, OE was observed.

(2) Interviews were conducted with the current range manager and a senior EOD technician, whose experience at the Melrose range dates to 1988 and 1986 respectively. Both of these gentlemen stated that to their knowledge no high explosive munitions were used on the range.

(3) The assessment found that the public is not exposed to the hazards of the range. The Melrose range is located in a sparsely populated portion of the high plains. The impact area is over three miles from the nearest homestead. A fence surrounds the impact area and a second fence surrounds most of the buffer area. As the land is flat with sparse vegetation, the range operation personnel observed the assessment team several miles before the team reached the impact area.

d. Confirmed Ordnance Sites

(1) Confirmed ordnance and explosives (OE) presence is based on verifiable historical record evidence or direct witness of OE items (with explosive components and/or inert debris/fragments). Additional field data are not needed to identify a confirmed site.

(2) Verifiable historical record evidence is based on OE items actually seen on site and authenticated by: historical records (Archive Records, Preliminary Assessment Reports, Site Investigation Reports), local fire departments and law enforcement agencies/bombs squads, military Explosive Ordnance Disposal (EOD) Units, newspaper articles, photographs, or maps.

(3) Direct witness of OE items consists of the site inspection team(s) and other credible witnesses as determined by the ASR Research Team Leader (landowners, workers on-site, soldiers who served there, etc.) verifying that they have seen OE presence on the surface or subsurface.

(4) The Impact Area, Area A, was determined to have **confirmed** OE presence. It is an active impact area and OE will continue to be used in this area for the foreseeable future. The majority of OE items used in the impact area have been inert items or items with a pyrotechnic spotting charge. However fire bombs, which have a WP igniter, have been recovered from this area. Also two recovered 2.75-inch warheads, a HEAT and a WP, contained high explosives.

e. **Potential Ordnance Sites**

(1) Potential ordnance and explosives (OE) presence is based on a lack of confirmed OE presence. Potential OE presence is inferred from records, present day site features, non-verifiable direct witness, or indirect witness. Additional field data are needed to confirm potential OE sites.

(2) Inference from historical records is based on no OE items actually seen on site and would include documentation (records, aerial photographs, maps) indicating possible OE presence derived from common practice in production, storage, use, or disposal at that time and from records indicating known OE usage.

(3) Inference from present day site features would be the indication of possible OE presence from such obvious features as target circles, depressions, mounds/backstops, OB/OD areas/pits, etc. Indirect witness would be people who have stated that they have heard of OE presence on-site (hear-say evidence).

(4) The Old Impact Area, Area B; the Old EOD Range and Burial Site, Area C; and the Burial Site, Area D, were determined to have **potential** OE presence.

(a) The Old Impact Area, Area B, was determined to have potential ordnance presence due to the presence of ground targets visible in an old aerial photograph; additional fieldwork will be required to determine if OE exists in this area.

(b) The Old EOD Range and Burial Site, Area C; and the Burial Site, Area D, were determined to have potential ordnance presence due to the uncertainty that the scrap metal in these areas are 100 percent free of hazardous material.

f. Subsites with No Ordnance Presence

No ordnance presence is attributed to areas that lack confirmed or potential ordnance presence. The Buffer Area, Area E, and the World War II Buffer Area, Area F, were determined to have **no ordnance presence**.

3. RECOMMENDATIONS

a. Summary of Recommendations

Table 3-1, on the next page, includes an overall summary of the site recommendations. Explanations are included in the following paragraphs.

b. Ordnance and Explosive Actions

(1) Implement Interim Removal Actions

The ASR team did not identify any immediate hazard to health or safety. Therefore, no interim removal actions are recommended.

(2) Perform Further Study

While additional study will be needed to determine if areas with potential ordnance presence actually contain OE, no further studies are recommended. The only hazard that is likely to exist in these areas is that of unexpended pyrotechnics. The areas are within or immediately adjacent to an active impact area. The general public is kept several miles distant from these areas by fences and observation by range personnel. In that no hazard exists to the public, no further study is recommended.

(3) No DOD Action Indicated

No further OE actions, other than normal range maintenance, is recommended for the Melrose Air Force Range.

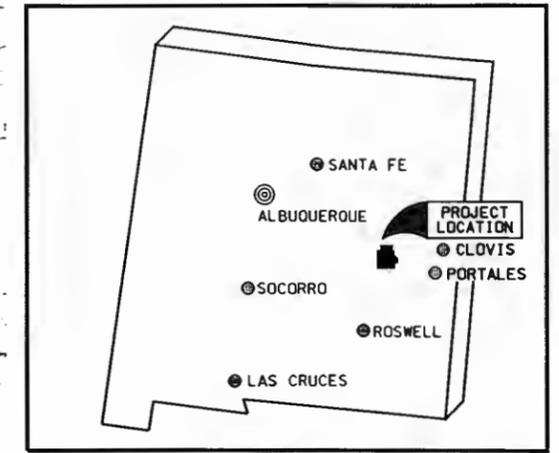
**TABLE 3-1
SUMMARY OF RECOMMENDATIONS**

AREA	FORMER USAGE	SIZE (acres)	OE Actions		
			No DOD Action Indicated	Implement Interim Removal	Perform Further Study
A	Impact Area	55,745	Yes	-	-
B	Old Impact Area	305	Yes	-	-
C	Old EOD Range and Burial Site	1	Yes	-	-
D	Burial Site	1	Yes	-	-
E	Buffer Area	24,995	Yes	-	-
F	World War II Buffer Area	640	Yes	-	-
TOTAL		81,687			

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

REPORT PLATES

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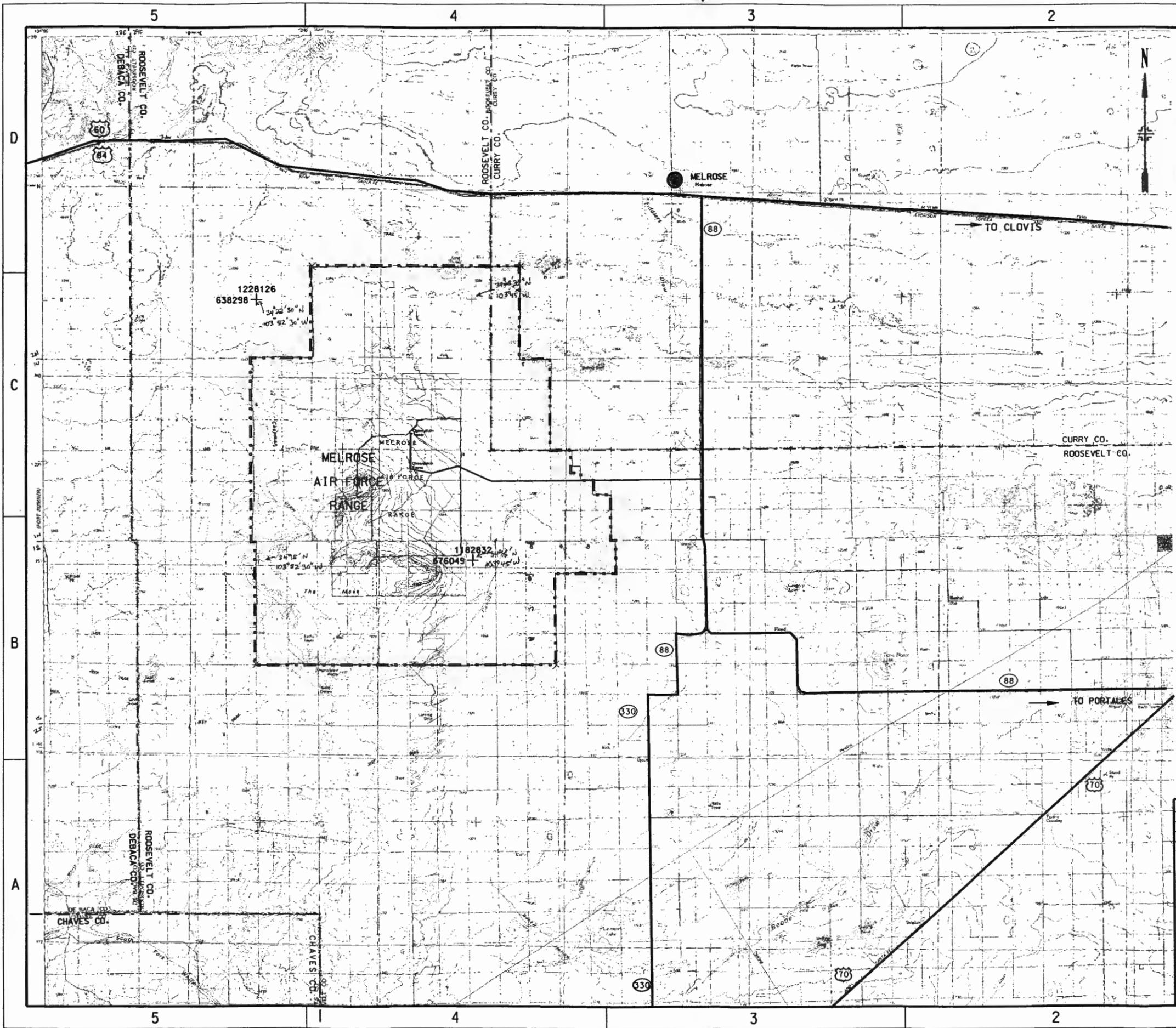
STATE MAP OF NEW MEXICO

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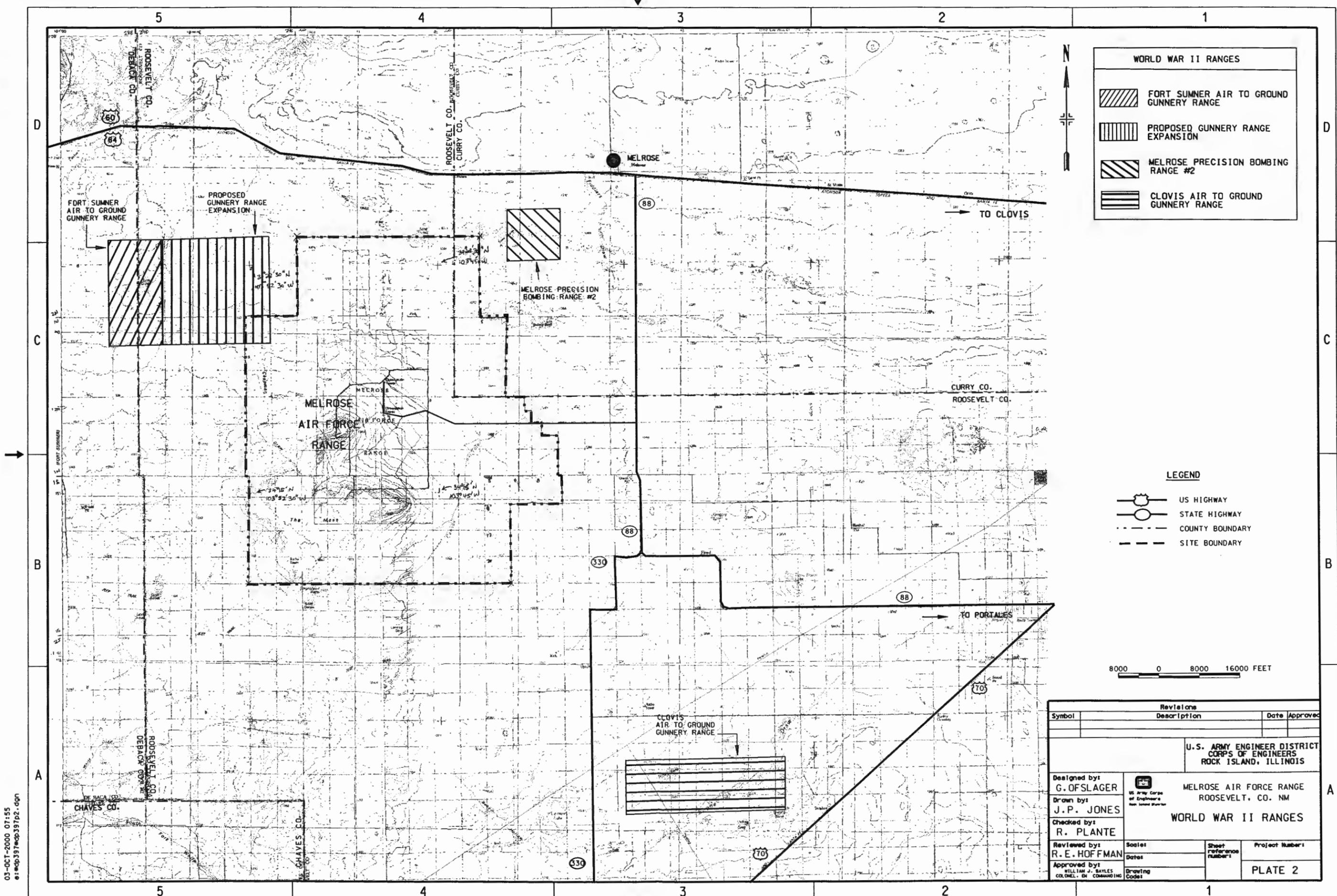
- US HIGHWAY
- STATE HIGHWAY
- COUNTY BOUNDARY
- SITE BOUNDARY



Revisions			
Symbol	Description	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS			
Designed by: G. OFSLAGER		MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM	
Drawn by: J.P. JONES			
Checked by: R. PLANTE	SITE LOCATION		
Reviewed by: R.E. HOFFMAN	Scale:	Sheet reference number:	Project Number:
Approved by: WILLIAM J. BAYLES COLONEL, BN COMMANDING	Date:	Drawing Code:	PLATE 1



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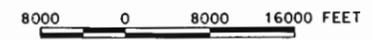


WORLD WAR II RANGES

-  FORT SUMNER AIR TO GROUND GUNNERY RANGE
-  PROPOSED GUNNERY RANGE EXPANSION
-  MELROSE PRECISION BOMBING RANGE #2
-  CLOVIS AIR TO GROUND GUNNERY RANGE

LEGEND

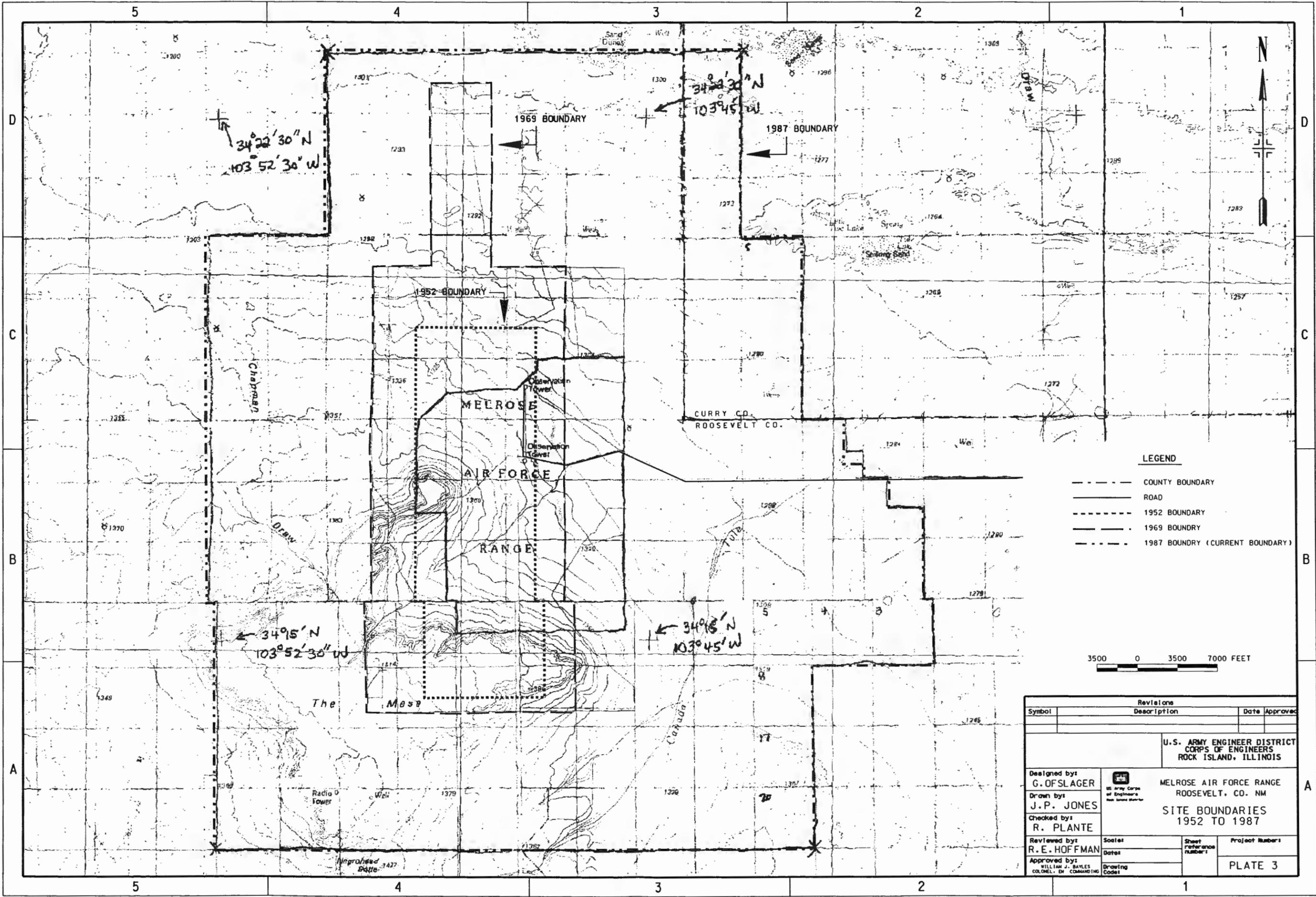
-  US HIGHWAY
-  STATE HIGHWAY
-  COUNTY BOUNDARY
-  SITE BOUNDARY



Revisions		Date	
Symbol	Description	Approved	
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS			
Designed by: G. OFSLAGER	 U.S. Army Corps of Engineers Rock Island District	MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM	
Drawn by: J.P. JONES		WORLD WAR II RANGES	
Checked by: R. PLANTE	Society: Dates:	Sheet reference number: Drawing Codes:	Project Number: PLATE 2
Reviewed by: R.E. HOFFMAN	Approved by: WILLIAM J. SAYLES COLONEL, DA COMMANDING	Drawing Codes:	Project Number: PLATE 2

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LEGEND

- COUNTY BOUNDARY
- == ROAD
- - - 1952 BOUNDARY
- - - 1969 BOUNDARY
- - - 1987 BOUNDARY (CURRENT BOUNDARY)



Revisions		Date		Approved	
Symbol	Description				
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS					
Designed by G. OFSLAGER		MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM SITE BOUNDARIES 1952 TO 1987			
Drawn by J. P. JONES					
Checked by R. PLANTE					
Reviewed by R. E. HOFFMAN		Sheet Number	Project Number PLATE 3		
Approved by WILLIAM J. BAYLES COLONEL, EN COMMANDING		Dates	Drawing Codes		

**DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
For
INSTALLATION RESTORATION**

Findings / Conclusions and Recommendations

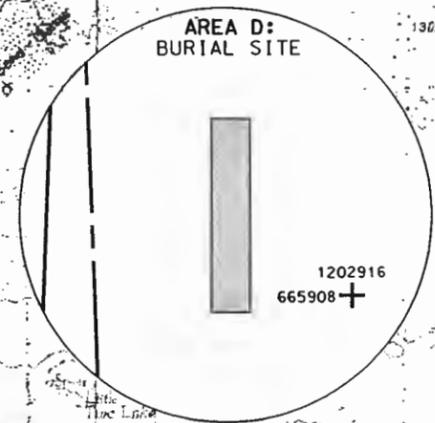
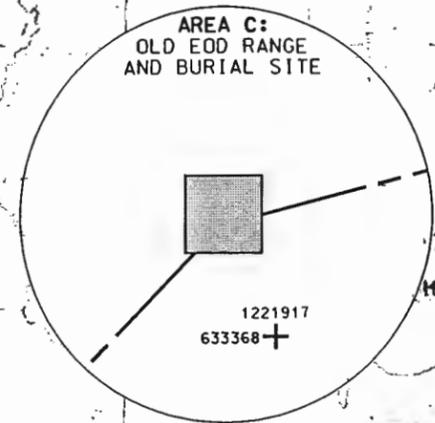
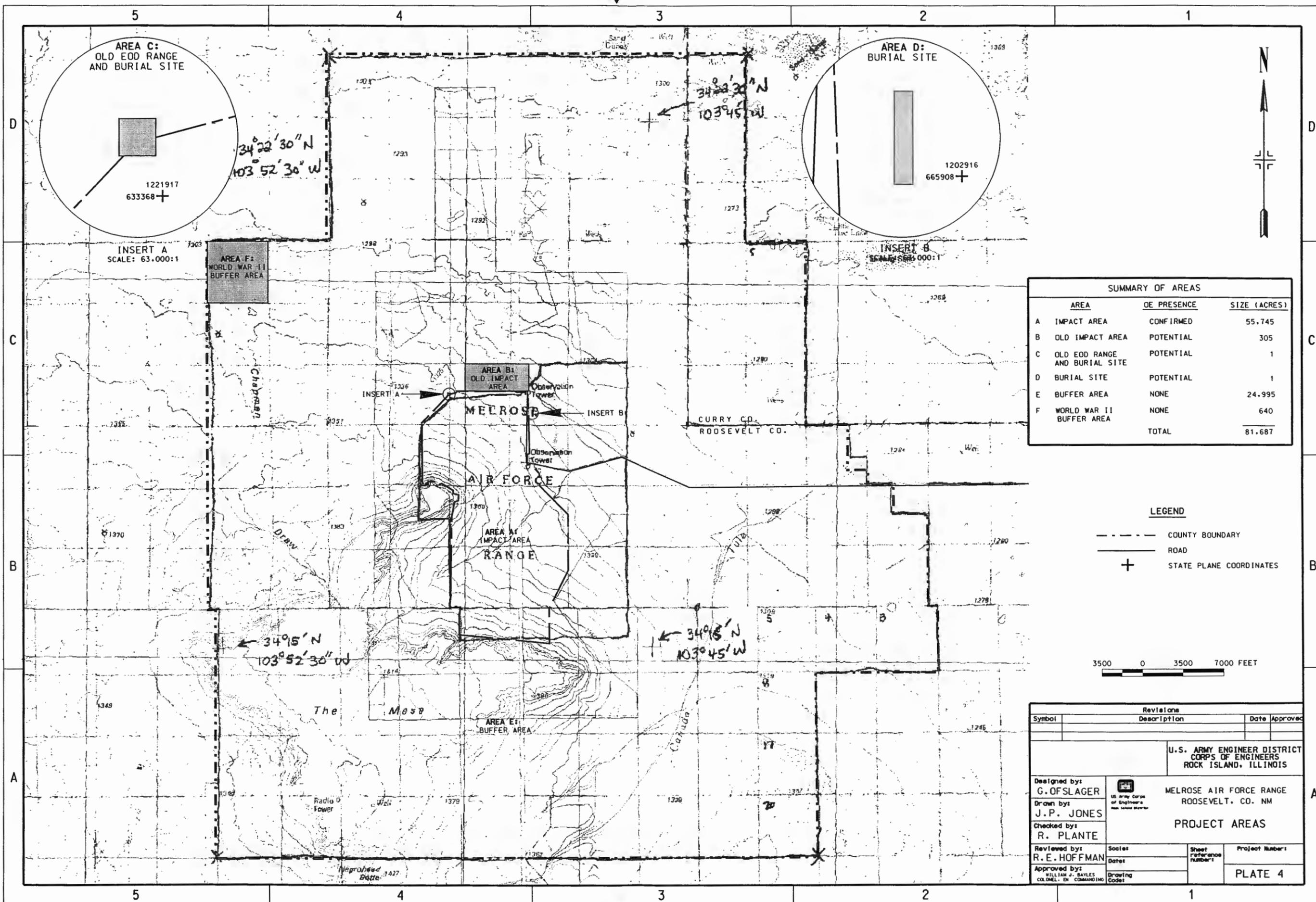
After comparing the six areas in Plate 4 in the above document with a Melrose Bombing Range site map, Figure 2.1, showing the seven AOC's and SWMU's I have come to the following conclusion:

PLATE 4 AREA

"A"
"B"
"C"
"D"
"E"
"F"

FIGURE 2.1

SWMU 115
AOC-1
AOC-4
SWMU 114
Not a Potential Site
Not a Potential Site



INSERT A
SCALE: 63,000:1

AREA F:
WORLD WAR II
BUFFER AREA

INSERT B
SCALE: 66,000:1

AREA B:
OLD IMPACT
AREA

MELROSE

AIR FORCE

AREA A:
IMPACT AREA
RANGE

AREA E:
BUFFER AREA

SUMMARY OF AREAS		
AREA	OE PRESENCE	SIZE (ACRES)
A	IMPACT AREA	CONFIRMED 55.745
B	OLD IMPACT AREA	POTENTIAL 305
C	OLD EOD RANGE AND BURIAL SITE	POTENTIAL 1
D	BURIAL SITE	POTENTIAL 1
E	BUFFER AREA	NONE 24,995
F	WORLD WAR II BUFFER AREA	NONE 640
TOTAL		81,687

LEGEND	
---	COUNTY BOUNDARY
—	ROAD
+	STATE PLANE COORDINATES



Revisions			
Symbol	Description	Date	Approved

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
ROCK ISLAND, ILLINOIS

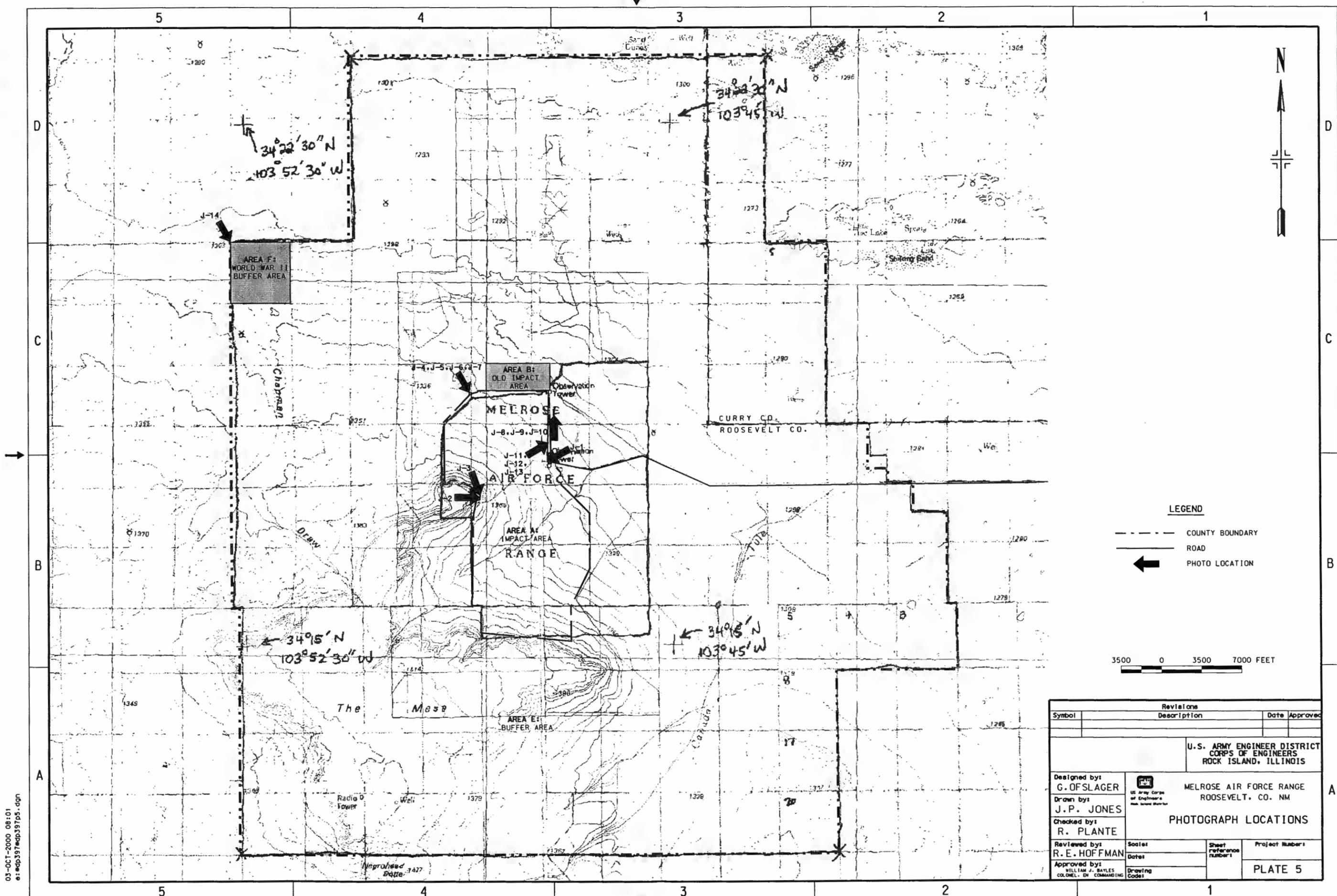
Designed by: G. OFSLAGER
 Drawn by: J. P. JONES
 Checked by: R. PLANTE
 Reviewed by: R. E. HOFFMAN
 Approved by: WILLIAM J. BAYLES
COLONEL, EN COMMANDING

MELROSE AIR FORCE RANGE
ROOSEVELT, CO. NM

PROJECT AREAS

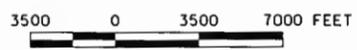
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 Project Number: _____
PLATE 4

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LEGEND

- COUNTY BOUNDARY
- == ROAD
- ← PHOTO LOCATION



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U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS			
Designed by G. OFSLAGER	 MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM	PHOTOGRAPH LOCATIONS	
Drawn by J.P. JONES			
Checked by R. PLANTE			
Reviewed by R. E. HOFFMAN	Scale:	Sheet reference number:	Project Number:
Approved by WILLIAM J. BAYLES COLONEL, IN COMMAND	Dates:	Drawing Code:	PLATE 5

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DEFENSE ENVIRONMENTAL RESTORATION PROGRAM
for
INSTALLATION RESTORATION

FINDINGS

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

October 2000

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* Team Leader				

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F.	LETTERS/MEMORANDUMS/MISCELLANEOUS ITEMS
G.	REAL ESTATE DOCUMENTS
H.	NEWSPAPERS/JOURNALS
I.	INTERVIEWS
J.	PRESENT SITE PHOTOGRAPHS
K.	HISTORICAL PHOTOGRAPHS
L.	REFERENCE MAPS/DRAWINGS
M.	ARCHIVE SEARCH REPORT CORRESPONDENCE
N.	REPORT DISTRIBUTION LIST

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REPORT PLATES

1. Site Map
2. FUDS Sites Near Melrose
3. Site Boundaries
4. Project Areas
5. Photograph Locations

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

1. INTRODUCTION

a. **Subject and Purpose**

(1) This report presents the findings of a historical records search and site inspection for the presence of ordnance and explosives (OE) located on the Melrose Air Force Range. This site is located in Roosevelt County, New Mexico approximately 35 miles west of the city of Clovis (see plate 1 for general location map). The investigation was performed under the authority of the Defense Environmental Restoration Program for Installation Restoration (DERP-IR).

(2) The investigation focused on approximately 81,687 acres that is used as a bomb target and an air to ground range. The Department of the Air Force has used the site for these purposes from 1952 to the present time.

(3) The purpose of this investigation was to characterize the site for potential OE presence, to include conventional ammunition and chemical warfare materiel (CWM). The investigation was conducted by experienced ordnance experts through thorough evaluation of historical records, interviews, and on-site visual inspection results.

b. **Scope**

(1) This report presents the site history, site description, real estate ownership information, and confirmed ordnance presence, based on available records, interviews, site inspections, and analyses. The analyses provide a complete evaluation of all information to assess current day potential ordnance presence, where actual ordnance presence has not been confirmed.

(2) For the purpose of this report, OE presence consists of live ammunition, ammunition components, CWM or explosives which have been lost, abandoned, discarded, buried, fired, or thrown from demolition pits or burning pads. These items were either manufactured, purchased, stored, used, and/or disposed of by the Department of the

Air Force or other components of the Department of Defense. Such ammunition/components are no longer under accountable record control of any DOD organization or activity.

(3) Expended small arms ammunition (caliber .50 or smaller) is not considered OE presence. OE further includes "explosive soil" which refers to any mixture in soil, sands, clays, etc., such that the mixture itself is explosive. Generally, 10 percent or more by weight of secondary explosives in a soil mixture is considered explosive soil.

2. PREVIOUS INVESTIGATIONS

a. **1998 Chemical Agent Archives Search Report**

This study was conducted by Mitretek Systems of McLean, Virginia, for Air Combat Command (ACC). The objective of the study was to determine if any archive evidence of CWM existed at a number of ACC installations and ranges. The report concluded that there is no archival evidence of CWM material at the Melrose Range (see document E-1)

b. **Other Investigations**

No other investigations pertinent to the purpose and scope of this investigation were located.

3. SITE DESCRIPTION

a. **Existing Land Usage**

Approximately 55,745 acres of the site are currently used as an impact area and 25,942 acres are used as a buffer area. Almost all of the buffer area is leased to a number of individuals or controlled by restrictive easements and is used for grazing and other agricultural purposes.

TABLE 3-1 CURRENT LAND USAGE				
AREA	FORMER USAGE	CURRENT USAGE	ACREAGE (see note)	COMMENTS
A	Impact Area	Same	55,745	See Plates 4, 5 and 6
B	Old Impact Area	Buffer Area	305	See Plates 4, 5 and 6
C	Old EOD Range and Burial Site	Impact Area, Buffer Area	1	See Plates 5 and 6

TABLE 3-1 (continued)				
CURRENT LAND USAGE				
AREA	FORMER USAGE	CURRENT USAGE	ACREAGE (see note)	COMMENTS
D	Burial Site	Buffer Area	1	See Plates 5 and 6
E	Buffer Area	Buffer Area	24,995	See Plates 5 and 6
F	World War II Buffer Area	Buffer Area	640	See Plates 2, 5 and 6
Note: approximate acreage		TOTAL	81,687	

b. Climatic Data

(1) Roosevelt County has a semiarid, continental climate. Winds bring moisture into the area from the Gulf of Mexico. Because of the more favorable summer wind circulation, 73 percent of the average annual rainfall normally occurs during the months of May through September. Much of this precipitation falls in the form of brief and, at times, heavy thundershowers. Occasionally, an upslope circulation of air brings moisture from the Gulf and will cause light or moderate rainfall for a period of several hours. During the winter months, part of the moisture falls in the form of snow, but the average annual snowfall is less than 10 inches.

(2) The temperature of Roosevelt County is characteristic of a continental climate. There is a distinct seasonal change and normally a relatively wide range in annual and daily temperatures. The variation in daily temperatures is commonly more than 30 degrees Fahrenheit. Consequently, during hot periods in summer, nights are comfortably cool, and during cold periods in winter, days warm up appreciably. In winter, the masses of cold air that form in Canada occasionally push far enough southward and westward to affect the temperature, but such invasions of cold air are rare and generally of short duration. Normally, only 1 year in 10 will any month have as many as 4 days with temperatures falling below zero. During summer months, daytime temperatures will be 90 degrees on approximately 75 days. There will be only 6 days on average when the temperatures will rise to 100 degrees or higher (reference B-2).

c. Topography

The site is generally flat with an average elevation of about 4,400 feet. There is a small mesa on the site with an elevation of about 4,600 feet. The predominate vegetation is short prairie grass.

d. Geology and Soils

(1) The Great Plains Province extends from the Canadian border south into Mexico. The southern High Plains, which includes Roosevelt County, is a part of this province.

(2) About 200 million years ago, a shallow sea covered the southern High Plains during the Permian period. The materials laid down in this sea consisted primarily of fine sand, silt and clay. Today, these sediments are known as the Permian Red Beds.

(3) During the rise of the Appalachian Mountains, some 185 million years ago, the sea retreated, exposing rocks and sedimentary sea deposits. The subsequent weathering action on this surface created the material recognized today as the Triassic Red Beds, distinguished from the Permian sediments by being markedly more red in color. These deposits represent the floor of most of the water wells being drilled throughout the county.

(4) Just prior to the formation of the Rocky Mountains, some 60 million years ago, the area was again submerged by a shallow sea. This sea deposited the blue shale, blue and yellow clay, limestone, sandstone, sand, and gravel identified today as Cretaceous sediments. Only scattered areas of these Cretaceous deposits are found in Roosevelt County, probably because of the vigorous erosion that accompanied the Rocky Mountain revolution. The Ogallala formation, the water-bearing strata presently being tapped for domestic and irrigation use, resulted from the rise of the Rocky Mountain chain. As the mountains were worn down by erosion, the streams began to deposit sand, gravel and silt near their source. These deposits formed alluvial fans of coarse gravelly material along foot slopes of the mountains; the finer materials were moved and spread farther to the east. The Ogallala formation developed in these deposits of outwash material. Fresh water saturated the material at times during its deposition.

(5) During the Pleistocene epoch, estimated to encompass about a million years on the geologic time table, four and perhaps five different advances and retreats of ice occurred over the northern third or half of the United States. Although the ice did not advance as far south as the southern High Plains, the effect of the wet and dry cycles of the glacial and interglacial periods had a profound effect on the climate, vegetation, and soil formation of the area. Following the initial wet cycle, the intermittent dry cycles caused increased deposition of eolian sands upon the region. During the alternate wet periods, these deposits were saturated with water high in minerals, principally calcium. Following each saturation and during the next dry cycle, caliche (calcium carbonate) was precipitated as a cap over the windblown material.

(6) In the Recent epoch, perhaps the last 10 thousand years in geologic time, the climate of the southern High Plains has been relatively dry and stable.

(7) The majority of the site, including the impact area, is covered by three soil associations. From north to south the are:

(a) Amarillo-Clovis loamy fine sands, a moderately deep to deep association. These soils have a course surface texture and a sandy clay loam subsoil. Soft caliche occurs at a depth of 20 to 36 inches or more.

(b) Amarillo-Clovis fine sandy loams, a moderately deep to deep association. These soils have a course surface texture and a sandy clay loam subsoil. Soft caliche occurs at a depth of 20 to 36 inches or more. Runoff is slight and internal drainage is good.

(c) Amarillo-Clovis loams, a moderately deep to deep association. These soils have a loamy surface layer that is hard when dry. The subsoil is sandy clay loam. Soft caliche occurs at a depth of 20 to 36 inches or more (reference B-2).

e. **Hydrology**

Surface water on the site is limited; there are a few ponds and intermittent streams. Two underground basins that are part of the Ogallala Aquifer, the Fort Sumner Basin and the Portales Basin, extend into the site (reference B-3). Water depth in Township 1 North Range 30 East, the location of the impact area, is 55 to 130 feet below surface level (reference B-4).

f. Natural Resources

There are no threatened or endangered species residing on the Melrose range. There are however several candidate and species of concern residing on the range.

Mountain Plover	Prairie Chicken	Western Burrowing Owl
Ferruginous Hawk	Baird's Sparrow	Texas Horned Lizard
Loggerhead Shrike	Long-billed Curlew	Swift Fox
Black Tailed Prairie Dog	Interior Lest Tern (possible)	White-faced Ibis

g. Historical/Cultural Resources

Historical and cultural resources are described in the "Cannon Air Force Base and Melrose Air Force Range Cultural Resources Management Plan" dated 1996. This report is available that the 27th Civil Engineer Squadron, Cannon Air Force Base.

4. HISTORICAL ORDNANCE PRESENCE

a. Chronological Site Summary

(1) The origin of the range occurred in 1952 when the Air Force acquired a leasehold interest in 7,771 acres of land for use as an air to ground gunnery range. Construction of targets was completed in 1953 and was first used by F-86 fighters stationed at Clovis Air Force Base. The targets available during this time period were limited; there was a strafing target, a bomb target and possibly several tactical targets (see document K-1).

(2) In 1969 the range was expanded to 22,120 acres to meet the needs of a new generation of aircraft. However, it was soon considered desirable to expand the range's capacity to meet the capabilities of the newer aircraft. The assignment of the F-111D aircraft to Cannon AFB in 1971 intensified the need for a training range that could accommodate aircraft capable of performing enhanced tactical maneuvers as well as a nuclear mission (reference B-3). For a number of years an annual waiver from the Air Force was required in that the buffer area did not meet the minimum safety criteria (reference B-5 and see document F-1).

(3) In 1987 additional land was acquired to increase the size of the buffer area to satisfy the safety

criteria. There were plans to increase the size of the impact area but this never occurred; the current size of the impact area is the same as it was in the early 1970s (see document L-2).

b. Ordnance Related Records Review

(1) Research efforts began with a thorough review of all reports, newspaper articles, historical documents and reference material gathered during the archival records search. Some of the sources that were checked in the search for any OE presence included:

- (a) National Archives
- (b) Regional Archives
- (c) Air Force Historic Research Agency
- (d) Military History Institute
- (e) U.S. Army Center for Military History
- (f) Explosive Ordnance Disposal (EOD) Units

For a complete list of sources checked, see Appendix A and Appendix B, sections II and III.

(2) The Army Air Force operated a number of ranges in Roosevelt County during the Second World War (references B-9 through B-13 and see plate 2). After examining the records of these ranges, it was determined that these ranges did not overlap the boundary of the current Melrose range with one possible exception. In 1945 there was a proposal to expand the Fort Sumner Air to Ground Range, a.k.a. the Tolar Range and the Clovis Air to Ground Range Number 2 (reference B-14). If this expansion did occur a small portion of the current Melrose range, one section, would have been part of the older range. However, due to the following there is little reason to assume that this parcel contained an impact area:

(a) There is some doubt to whether the expansion occurred, in that the project was canceled prior to the start of condemnation proceedings (reference B-15).

(b) No funds were expended to provide targets in this proposed expansion (references B-16 and B-17).

(c) The characteristic ground disturbances of a range are not evident in aerial photographs of this section.

(d) The section in question would have been part of a buffer area and not part a World War II impact

area; i.e., it was the extreme southeast corner of the proposed expansion.

(3) Very few documents were retrieved that described the Melrose range prior to the 1969 expansion; most documents concerned the real estate boundary and no documents were found that described the munitions used on the range. A 1959 aerial, however, clearly shows the impact area at the time (see document K-1). There was a standard bomb target and gunnery range within the northern portion of the current impact area. Also there appears to have been tactical targets immediately north of the current impact area.

(4) The current impact area, which date the 1969 real estate expansion, is fairly well documented. While the size and shape of the impact area has stayed constant, the number and position of individual targets has varied (see documents F-2, F-3, F-4, L-3, L-4 and L-5). All past targets with the exception of those described in the preceding paragraph are within the current impact area.

(5) EOD range sweeps were often included in the 27th Fighter Wing's unit history. The munitions and residue reported during these clearances are summarized in Table 4-1.

TABLE 4-1 MUNITIONS RECOVERED IN PAST EOD SWEEPS		
Date	Items	Document or Reference
September 1972	BLU-1 Fire Bombs BLU-27 Fire Bombs BDU-33 Practice Bombs Mark 106 Practice Bombs Mark 82 Inert Bombs M117 Inert Bombs M23 Igniters 2.75-Inch Rocket Motors 2.75-Inch High Explosive Anti-Tank (HEAT) Warhead	F-5
January to March 1973	BDU-33 Practice Bombs Mark 106 Practice Bombs	F-6
April to June 1973	BDU-33 Practice Bombs Mark 106 Practice Bombs	F-7
July to September 1977	BDU-33 Practice Bombs Mark 106 Practice Bombs M23 Igniters FMU 7 Fuzes Mark 2 Practice Bombs Mark 82 Inert Bombs	F-8

TABLE 4-1 (continued)
MUNITIONS RECOVERED IN PAST EOD SWEEPS

Date	Items	Document or Reference
October 1973 to December 1973	BDU-33 Practice Bombs	B-29
January to March 1979	BDU-33 Practice Bombs Mark 106 Practice Bombs Mark 82 Practice Bombs	F-9
April to June 1983	Practice Bombs (undisclosed type) Small Arms Ammunition (undisclosed type) M156 2.75-inch White Phosphorus (WP) Warhead Mark 82 Inert Bombs	F-10

(6) While reviewing the reports of EOD sweeps, it was noted that scrap metal from expended munitions was buried at the range (see documents F-5, F-10 and F-11). A map of the range (see document L-4) shows a location where this residue was buried.

c. Personnel Interviews

(1) Interviews were conducted with the current range manager and a senior EOD technician, whose experience at the Melrose range dates from 1988 and 1986, respectively (see documents I-1 and I-2). Both of these gentlemen stated that to their knowledge no high explosive munitions were used on the range.

(2) Additional information concerning the buffer area and burial sites was gathered during the interview with the range manager. He stated that occasionally a practice bomb would enter the buffer area, but in such cases the ordnance was always quickly located and removed. He knew of two locations where ordnance scrap was buried and he escorted the assessment team to these locations during the site visit.

5. REAL ESTATE

a. Site Boundary

The Melrose range consists of approximately 81,687 acres of land either owned in fee or controlled by restrictive easement. The assessment team found no evidence of confirmed or potential ordnance presence outside the

current boundary of the site; there is no additional acreage associated with this site.

b. Potential Formerly Used Defense Sites (FUDS)

(1) There are three FUDS sites near the Melrose range (see plate 2). None of these sites are connected in any way to the activities of the Melrose range; they were closed prior to the establishment of the current Melrose range.

(2) The Fort Sumner Air to Ground Gunnery Range has been found to be an eligible FUDS site by the Albuquerque District, Army Corps of Engineers (DERP FUDS site number K06NMO42400). The other two sites, Melrose Precision Bomb Range #2 and the Clovis Air to Ground Range can be reported to Albuquerque District for Preliminary Assessment of Eligibility action.

6. VISUAL SITE INSPECTION

a. General Procedures and Safety

(1) The primary task of the site inspection team was to assess OE presence or potential due to use as a bomb target and air to ground range. On-site inspection was limited to non-intrusive methods in that subsurface sampling was not authorized nor permitted.

(2) Prior to the on-site visit, a thorough review of all available reports, historical documents and available reference material gathered during the archival search was reviewed to ensure awareness of potential ordnance usage and types.

(3) A site safety plan was developed and was utilized by the assessment team to assure safety from injury during the site inspection of the facility (reference B-32). A pre-inspection briefing was conducted which stressed that OE should only be handled by military EOD personnel.

(4) On 24 May 2000, members of the assessment team traveled to the Melrose Air Force Range. An investigation of this real estate was conducted to determine the presence or absence of OE.

b. General Observations

(1) It is unlikely that a member of the general public could be exposed to the hazards of the range. The

Melrose range is located in a sparsely populated portion of the high plains. The impact area is over three miles from the nearest homestead. A fence surrounds the impact area and a second fence surrounds most of the buffer area. As the land is flat with sparse vegetation, the range operation personnel observed the assessment team several miles before the team reached the impact area.

(2) During the site visit the assessment team watched four F-16 drop inert practice bombs from the main observation tower. After watching the bombs drop, the assessment team was able to conclude that any ordnance inadvertently projected into the buffer area could be easily located.

c. Area A: Impact Area

(1) The assessment team did not spend a great deal of time in this area; it is an active impact area and there is no doubt that OE is present. This area was viewed primarily from the main observation tower on the eastern edge and from a small mesa on the western edge. It was noted that this area contains a large number and variety of tactical targets (see photographs J-1, J-2, J-3, and plate 6).

(2) The assessment team did not note any evidence of high explosive munitions on the range. There were no visible bomb craters and no fragments from high explosive items were noted.

d. Area B: Old Impact Area

The assessment team did not visit this area; its existence was discovered during additional record searches after the site visit.

e. Area C: Old EOD Range and Burial Site

(1) This area is locally referred to as a burial area, but the debris was not buried very deep; there are OE related items scattered on the surface though out the area. As many of the items appear to have been deformed by counter charges, it is believed that the area was once an EOD open burn/open detonation range.

(2) The debris in this area is of munitions that were common during the 1950s and 1960s, such as Mark 23 and M38A2 practice bombs and sub-caliber aircraft rockets. Some debris from 2.75-inch rockets were noted, but these items

were also used since the 1950s (see photographs J-4, J-5, J-6, J-7 and plate 6). The assessment team did not locate more modern items such as BDU-33s.

f. Area D: Burial Site

There is an open burial trench in this area (see photograph J-8 and plate 6). The assessment team noted a few expended practice bombs lying in the bottom of this trench (see photograph J-9). The area also contains several other trenches that have been capped (see photograph J-10).

g. Area E: Buffer Area

This area is short grass prairie devoted to cattle grazing and some irrigated crops. There are some obsolete aircraft and military vehicles, future targets for the impact area, parked in this area (see photographs J-11, J-12, J-13 and plate 6). Other than the vehicles and a few building associated with the range there is no evidence that this area was used by the military.

h. Area F: World War II Buffer Area

This area is a cultivated field with no evidence of past use by the military (see photograph J-14 and plate 6).

7. EVALUATION OF ORDNANCE HAZARDS

a. General Procedures

(1) Each sub-site was evaluated to determine confirmed, potential, or lack of ordnance presence.

(2) Confirmed ordnance and explosives (OE) presence is based on verifiable historical record evidence or direct witness of OE items (with explosive components and/or inert debris/fragments). Additional field data are not needed to identify a confirmed site.

(a) Verifiable historical record evidence is based on OE items actually seen on site and authenticated by: historical records (Archive Records, Preliminary Assessment Reports, Site Investigation Reports), local fire departments and law enforcement agencies/bombs squads, military Explosive Ordnance Disposal (EOD) Units, newspaper articles, photographs, or maps.

(b) Direct witness of OE items consists of the site inspection team(s) and other credible witnesses as

determined by the ASR Research Team Leader (landowners, workers on-site, soldiers who served there, etc.) verifying that they have seen OE presence on the surface or subsurface.

(3) Potential ordnance and explosives (OE) presence is based on a lack of confirmed OE presence. Potential OE presence is inferred from records, present day site features, non-verifiable direct witness, or indirect witness. Additional field data are needed to confirm potential OE sites.

(a) Inference from historical records is based on no OE items actually seen on site since site and would include documentation (records, aerial photographs, maps) indicating possible OE presence derived from common practice in production, storage, use, or disposal at that time and from records indicating known OE usage.

(b) Inference from present day site features would be the indication of possible OE presence from such obvious features as target circles, depressions, mounds/backstops, OB/OD areas/pits, etc.

(c) Indirect witness would be people who have stated that they have heard of OE presence on-site (hear-say evidence).

(4) Sub-sites with no ordnance presence are based on a lack of confirmed or potential ordnance presence. Additional field data are not needed to assess sub-sites with no ordnance presence.

b. Area A: Impact Area

This area is considered to have **confirmed** ordnance presence. It is an active impact area and OE will continue to be used in this area for the foreseeable future.

The majority of OE items used in the impact area have been inert items or items with a pyrotechnic spotting charge. However fire bombs, which have a WP igniter, have been recovered from this area. Also two recovered 2.75-inch warheads, a HEAT and a WP, contained high explosives.

No records were recovered that indicated that high explosive 20-mm cannon ammunition was used at this range

c. **Area B: Old Impact Area**

This area is considered to have **potential** ordnance presence due to the presence of ground targets visible in an old aerial photograph; additional fieldwork will be required to determine if OE exists in this area. Based upon the residue found in Area C, it is believed that the old EOD range supported the old impact area in the 1950s and 1960s; only items that contain a pyrotechnic spotting charge are likely to be found in this area.

d. **Area C: Old EOD Range and Burial Site**

This area is considered to have **potential** ordnance presence. The purpose of an EOD range is to demilitarize OE. However, the records of this past demilitarization have long been lost; additional investigations or inspections will be required before the scrap metal can be determined to be 100 percent free of hazardous material.

e. **Area D: Burial Site**

This area is considered to have **potential** ordnance presence. As in the case of Area C this area probably contains only scrap metal but additional information will be required before the scrap metal can be determined to be 100 percent free of hazardous material.

f. **Area E: Buffer Area**

This area is considered to have **no ordnance presence**. While ordnance has occasionally entered this area, it is likely that the OE was quickly recovered. There is no documentation to indicate that OE is in this area.

g. **Area F: World War II Buffer Area**

This area is considered to have **no ordnance presence**. There is no documentation that ammunition was used in this area and there are no reports of OE being recovered from this area.

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8. SITE ORDNANCE TECHNICAL DATA

a. **End Item Technical Data**

Table 8-1 has been developed to establish a list of ordnance items that may be present on the site.

TABLE 8-1 AMMUNITION USED AND EXPLOSIVE/CHEMICAL FILLERS			
Item	Type, Model	Filler, Weight	Fuze Type
Caliber .50	Ball, M2	Inert Projectile	-
	Tracer, M1	Tracer Composition, 70 grains	-
20-mm	Target Practice (TP), M55A2	Inert Projectile	-
	Target Practice Tracer (TP-T), M242	Tracer Composition, 140 grains	-
Bombs	Fire Bomb, BLU-1	WP, 1.25 lbs. (M23 Igniter)	FMU 7 Fuze
	Fire Bomb, BLU-27	WP, 1.25 lbs. (M23 Igniter)	FMU 7 Fuze
	Practice Bomb, BDU-33	Smokeless Powder, 3.0 g Red Phosphorus, 21.0 g (Mk 4 Mod 3 Bomb Signal)	Inertial Firing Pin
	Practice Bomb, Mark 23	Smokeless Powder, 3.0 g Red Phosphorus, 21.0 g (Mk 4 Mod 3 Bomb Signal)	Inertial Firing Pin
	Practice Bomb, Mark 106	Smokeless Powder, 3.0 g Red Phosphorus, 21.0 g (Mk 4 Mod 3 Bomb Signal)	M173 Fuze (modified)
	Bomb, Practice, M38A2	Sodium Nitrate Black Powder, 3 lbs.	Inertial Firing Pin
	Inert Bomb, Mark 82 (BDU-50/B)	Inert	-
	Inert Bomb, M117	Inert	-
Rockets	Warhead, 2.75- inch HEAT, Mark 5	Comp B, 0.89 lb.	Mk181
	2.75-inch Warhead, WP, M156	WP, 2.0 lbs. Comp B, 48.0 g	M427

b. Chemical Data of Ordnance Fillers

Table 8-2 has been developed to provide information on the explosive/chemical compounds used in the ordnance cited in Table 8-1.

TABLE 8-2 CHEMICAL DATA OF ORDNANCE FILLERS		
Explosive Material	Synonyms	Chemical Compounds
Composition B (typical) 60% RDX	Cyclotol Cyclotrimethylene- trinitramine Hexhydro-1, 3,5-Trinitro-5- triazine Cyclonite Hexogen T4	$C_3H_6N_6O_6$
40% TNT	2,4,6-Trinitrotoluene Trotyl Tolite Triton Tritol Trilite	$C_6H_2CH_3(NO_2)_3$
WP	White phosphorous	P_4
Red Phosphorus		P_4
Smokeless Powder (typical) 98.5% Nitrocellulose 1.5% Diphenylamine		$[C_6H_8O_5(NO_2)_3]_n$ $(C_6H_5)_2NH$
Sodium Nitrate Black Powder 72% Sodium Nitrate		$NaNO_3$
12% Sulfur		S
16% Charcoal		C
Tracer Composition Various percentages:		
Magnesium		Mg
Magnesium-aluminum alloy		Mg, Al
Strontium nitrate		$Sr(NO_3)_2$
Barium peroxide		BaO_2
Polyvinyl chloride		$[CH_2CHCl]_n$
Calcium resinate		
Chlorinated rubber		

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX A

REFERENCE SOURCES

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Reference Sources

Organizations	Name	Telephone	Nature of Support
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GOVERNMENT SOURCES

FEDERAL AGENCIES

Department of Defense

Defense Technical Information Center and Secure STINET 8725 John J. Kingman Rd Suite 0944 Fort Belvoir, VA 22060-6218	Computer Search (STINET)	(703) 427-8274 (703) 767-8228	No Information
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Department of Defense Explosives Safety Board Historical Accident Database 2461 Eisenhower Avenue Alexandria, VA 22331-0600	Computer Search (DDESB)	(703) 325-1369	No Information
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National Imagery and Mapping Agency ATTN: ISDFR 4600 Sangamore Road Bethesda, MD 20816	Bill Harris	(800) 826-0342 DSN 287-2495	No Information
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Army

USACE-Office of History Humphreys Engineer Center ATTN: CEHO-ZA 7701 Telegraph Road Alexandria, VA 22310	Staff	(703) 428-6554	See Appendix B, Section II, Parts A and B
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IOC Historical Office ATTN: AMSIO-PA Building 390 Rock Island, IL 61299	Tom Slattery	(309) 782-1450 DSN 793-1450	No Information
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Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
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GOVERNMENT SOURCES

Department of Defense (continued)

Army (continued)

MANSCEN Library 597 Engineer Loop Building 3202, Suite 200 Fort Leonard Wood, MO 65473-8928	Joyce Waybright	(573) 563-4109 DSN 676-4109	No Information
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Rock Island Arsenal Museum ATTN: SIORI-CFS-M Building 60 Rock Island, IL 61299-5000	Chris Leinicke	(309) 782-5021 DSN 793-5021	No Information
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U.S. Army Center of Military History 103 Third Avenue Fort McNair Washington, DC 20319-5058	Staff	(202) 685-2733 DSN 325-2733	No Information
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U.S. Army Military History Institute Reference Library 22 Ashburn Drive Carlisle Barracks Building 22 Carlisle, PA 17013-5008	Louise Friend John Slonaker	(717) 245-3103 DSN 242-3103	No Information
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U.S. Army Military History Institute Archives 22 Ashburn Drive Carlisle Barracks Carlisle, PA 17013-5008	David Keough	(717) 245-3189 DSN 242-3189	No Information
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Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
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GOVERNMENT SOURCES**Department of Defense (continued)****Army (continued)**

U.S. Army Military History Institute Photo Archives 22 Ashburn Drive Carlisle Barracks Carlisle, PA 17013-5008	Mike Winey	(717) 245-3434 DSN 242-3434	No Information
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U.S. Army Ordnance Museum Aberdeen Boulevard Building 2601 Aberdeen PG, MD 21005-5201	Dr. Atwater	(410) 278-3602 DSN 298-3602	No Information
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U.S. Army SBCCOM ATTN: AMSSB-SCI-H 5232 Fleming Road Aberdeen PG, MD 21010	Kathleen Ciolfi	(410) 436-4430 DSN 584-4430	Negative Report
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Air Force

Air Force Historical Research Agency Research Division (AFHRA) 600 Chennault Circle Building 1405 Maxwell AFB, AL 36112-6424	Joe Caver	(334) 953-5834 DSN 493-5834	Unit Histories
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Air Force Historical Research Agency Research Division (AFHRA) Information Systems Division 600 Chennault Circle Building 1405 Maxwell AFB, AL 36112-6424	Sheila Roten (IRIS) Essie Roberts (IRIS microfiche)	(334) 953-6884 DSN 493-6884 (334) 953-2439 DSN 493-2439	Unit Histories
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Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
GOVERNMENT SOURCES			
Department of Defense (continued)			
Air Force (continued)			
27 th Civil Engineer Squadron Real Estate Office 506 North DL Ingram Blvd. Cannon AFB, NM 88103	Helen Pate	(505) 784-4985	Real Estate Documents
27 th Civil Engineer Squadron Environmental Flight 506 North DL Ingram Blvd. Cannon AFB, NM 88103	John Pike Sanford Hutsell Dave Davis	(505) 784-1092 (505) 784-6378 (505) 784-1090	No Information
27 th Fighter Wing Fire Protection Flight Cannon AFB, NM 88103	Bob Butler Roy Valdez	(505) 784-6648 (505) 784-2578	No Information
27 th Fighter Wing Historian's Office 100 S. DL Ingram Blvd. Suite 202 Cannon AFB, NM 88103	TSGT Witt	(505) 784-2460	Unit histories of the 27th Wing
27 th Fighter Wing Public Affairs Office Cannon AFB, NM 88103	Ms. Lara	(505) 784-4131	No Information
Air University Library 600 Chennault Circle Bldg. 1405 Maxwell AFB, AL 36112-6424	Reference Services	(334) 953-2888 DSN 493-2888	No Information
27 th Civil Engineer Squadron EOD Flight 506 N. DL Ingram Blvd. Cannon AFB, NM 88103	TSGT Warren Downing	(505) 784-2909	Interview

Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
GOVERNMENT SOURCES			
Department of Defense (continued)			
Air Force (continued)			
Cannon AFB Library 202 West Arcadia Cannon AFB, NM 88103	Staff	(505) 784-2789	No Information
Navy			
Marine Corps Historical Center Washington Navy Yard 901 M St., SE Washington, DC 20374-5040	Staff	(202) 433-3447 DSN 288-3447	See Appendix B, Section II, Parts A and B
Naval Construction Battalion Center (NCBC) NAVFAC Historian Office CB Logistics Center, Code 09 4111 San Pedro St. Port Hueneme, CA 93043	Dr. Vince Transano Carol Marsh	(805) 982-5913 DSN 551-5913 (805) 982-5563 DSN 551-5563	No information
Naval Construction Battalion Center (NCBC) Technical Information Center ATTN: Code 72 1100 23rd Ave. Port Hueneme, CA 93043	Brian Thompson	(805) 982-1124 DSN 551-1124	No Information
Naval Historical Center Washington Navy Yard Naval Aviation History Branch 901 M Street, SE Washington, DC 20374-5060	Contractor	(202) 433-4407 DSN 288-4407	See Appendix B, Section II, Parts A and B

Reference Sources
(continued)

Organizations	Name	Telephone	Nature of Support
GOVERNMENT SOURCES			
Department of Defense (continued)			
Navy (continued)			
Naval Historical Center Washington Navy Yard Operational Archives 901 M Street, SE Washington, DC 20374-5060	Staff	(202) 433-2833 DSN 288-2833	See Appendix B, Section II, Parts A and B
Naval Historical Center Washington Navy Yard Navy Department Library 901 M Street, SE Washington, DC 20374-5060	Staff	(202) 433-4132 DSN 288-4132	See Appendix B, Section II, Parts A and B
NAVEODTECDIV Technical Library 2008 Stump Neck Road Indianhead, MD 20640-5070	Betty Arbogast Dawn Risko	(301) 743-6834	No Information
U.S. Naval War College Archives 686 Cushing Road Newport, RI 02841-1207	Dr. Evelyn Cherpack	(401) 841-2435	No Information
U.S. Naval War College Library 686 Cushing Road Newport, RI 02841-1207	Alice Juda Maggie Rauch	(401) 841-4551	No Information
U.S. Naval War College Museum 686 Cushing Road Newport, RI 02841-1207	Tony Nicolosi Bob Cembrola	(401) 841-4052	No Information

Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
GOVERNMENT SOURCES			
National Archives and Records Administration			
	NARA-Archives I (Old Military and Civil Textual Division) Pennsylvania Ave. & 7th St., NW Washington, DC 20408	Staff (202) 208-1903 (202) 208-0370 (202) 208-6273	See Appendix B, Section II, Parts A and B
	NARA-Archives II (Cartographic & Architectural Branch) 8601 Adelphi Rd College Park, MD 20740	Staff (301) 713-7040	See Appendix B, Section II, Parts A and B
	NARA-Archives II (Motion Picture, Sound, and Video Branch) 8601 Adelphi Rd College Park, MD 20740	Staff (301) 713-7060	See Appendix B, Section II, Parts A and B
	NARA-Archives II (Still Picture Branch) 8601 Adelphi Rd College Park, MD 20740	Staff (301) 713-6660	See Appendix B, Section II, Parts A and B
	NARA-Archives II (Textual Reference Branch) 8601 Adelphi Rd College Park, MD 20740	Staff (301) 713-7250	See Appendix B, Section II, Parts A and B

Reference Sources
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Organizations	Name	Telephone	Nature of Support
GOVERNMENT SOURCES			
National Archives and Records Administration (continued)			
NARA-Rocky Mountain Region (Denver) Denver Federal Center Building 48 West 6 th Avenue and Kipling Street Denver, CO 80225-0307	Eileen Bolger Rick Martinez	(303) 236-0817	See Appendix B, Section III, Parts A and B
National Personnel Records Center (Military Personnel Records) 9700 Page Ave. St. Louis, MO 63132-5100	Wilson Sullivan	(314) 538-4085	See Appendix B, Section III, Parts A and B
Washington National Records Center 4205 Suitland Rd Suitland, MD 20746-8001	Staff	(301) 457-7190	See Appendix B, Section II, Parts A and B
Department of Agriculture			
Consolidated Farm Service Agency 705 East Canadian St. Portales, NM 88130	Beverly Roberts	(505) 356-4465	No information
Natural Resources Conservation Service 705 East Canadian Street Portales, NM 88130	Doug Walker	(505) 356-4465	Soil Survey
Department of the Interior			
EROS Data Center Sioux Falls - ESIC U.S. Geological Survey Sioux Falls, SD 57198	Staff	(605) 594-6151	Aerial Photographs

Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
GOVERNMENT SOURCES			
Department of the Interior (continued)			
USGS Information Services Box 25286, Bldg 810 Denver Federal Center Denver, CO 80225	Staff	(303) 202-4700	Topographical Maps
Department of Commerce			
NOAA National Climatic Data Center Federal Building, Room 305 Ashville, NC 28801	Yolanda Goosch Sam Mccowan	(704) 271-4272	Climatic Data
United States Congress			
Library of Congress Geography and Map Division 101 Independence Ave., SE Washington, DC 20540-4650	Staff	(202) 707-5000	See Appendix B, Section II, Parts A and B
Library of Congress Prints and Photographs Division 101 Independence Ave., SE Washington, DC 20540-4650	Staff	(202) 707-5000	See Appendix B, Section II, Parts A and B
State Agencies			
New Mexico State Police 3024 South 2 nd Street Tucumcari, NM	Staff	(505) 763-3426	No Information
County and Local Agencies			
Portales City Police Department Law Enforcement Center 1700 N. Boston Ave. Portales, NM 88130	Staff	(505) 356-4404	No Information

Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
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GOVERNMENT SOURCES**County and Local Agencies** (continued)

Portales Public Library 218 S. Avenue B Portales, NM 88130	Danielle Swopes	(505) 356-3940	Referral
Roosevelt County Sheriff Law Enforcement Center 1700 N. Boston Ave. Portales, NM 88130	Deputy Rosa	(505) 356-4408	No Information

NON-GOVERNMENT SOURCES**National Agencies**

Council on America's Past 518 Why Worry Lane Phoenix, AZ 85021	Heliogram Publication	(800) 396-4693	No Information
Online Computer Library Center 6565 Frantz Road Dublin, OH 43017-3395	Computer Search (OCLC)	(800) 848-5878	No Information
Coast Defense Study Group, Inc. 1560 Somerville Rd Bel Air, MD 21014	Publication		No Information
Scientific and Technical Information Library System 689 Discovery Drive Huntsville, AL 35806	Computer Search (STILAS)	(205) 922-9820	No Information

Reference Sources

(continued)

Organizations	Name	Telephone	Nature of Support
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NON-GOVERNMENT SOURCES**Local Agencies**

PROTEUS Corporation
Bldg 12
Cannon AFB, NM 88103

Tom Prescott

(505) 784-2878

No Information

Roosevelt County Historical Society
1420 Avenue A
Portales, NM 88130

Marjorie Gunn

(505) 356-4737

No Information

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX B

REFERENCES AND ABSTRACTS

APPENDIX B

REFERENCES AND ABSTRACTS

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	Part A: Positive Reports
	Part B: Negative Reports
SECTION III	Regional National Archives Search References
	Part A: Positive Reports
	Part B: Negative Reports

APPENDIX B

REFERENCES AND/OR ABSTRACTS

- B-1. Mitretek Systems, "Chemical Agent Archive Search Report", June 1998. Report included a number of ACC ranges, including Melrose (E-1).
- B-2. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Roosevelt County, New Mexico, Issued March 1967 (K-1).
- B-3. Tactical Air Command, "Environmental Impact Analysis Process", 1984.
- B-4. New Mexico Office of the State Engineer, Well Reports, <http://www.seo.state.nm.us>.
- B-5. 27th Tactical Fighter Wing, History, Vol. 1, 1 October to 31 December 1979.
- B-6. Cannon AFB, Map, "Target Area", circa 1980 (L-1).
- B-7. 27th Tactical Fighter Wing, History, Vol. 1, 1 January to 31 March 1972 (F-1).
- B-8. U.S. Army Corps of Engineers, Albuquerque District, Map, "Melrose Air Force Range, Expansion Area", circa 1985 (G-2, L-2).
- B-9. U.S. Army Corps of Engineers, Southwestern Division, Letter, "Access Road - Melrose Precision Bombing Field, Clovis, New Mexico", 22 February 1943. A drawing showing the boundary of the Melrose PBR is attached to this letter. Washington National Records Center, RG 77, Accession 52-0434, Box 5.
- B-10. Realty Control File Summary, Melrose PBR#2, annotated with lease termination 30 June 1950. U.S. Army Corps of Engineers, Office of History, Real Estate Records.
- B-11. U.S. Army Corps of Engineers, Southwestern Division, Letter, "Access Road - Air to Ground Gunnery Range, Clovis, New Mexico", 22 February 1943. A drawing showing the boundary of the gunnery range near Delphos is attached to this letter. Washington National Records Center, RG 77, Accession 52-0434, Box 5.

- B-12. Fort Sumner Army Air Field, Letter, "Air to Ground Gunnery Range near Delphos, New Mexico", 6 September 1945 and endorsements. NARA - Archives II, RG 18, Entry 2, File 1944 -1948, Box 2294.
- B-13. 509th Bomb Wing, Letter, "Declaration of Surplus - Melrose Bombing Range", 5 February 1948. NARA - Archives II, RG 18, Entry 2, File 1944 -1948, Box 2199.
- B-14. Second Air Force, Letter, "Cancellation of Air-to-Ground Gunnery Range Site for Fort Sumner Army Air Field", 3 July 1945 and two endorsements. NARA - Archives II, RG 18, Entry 2, Box 2294.
- B-15. U.S. Army Corps of Engineers, Southwestern Division, Letter, "Condemnation Assembly, Tract 6, Air to ground Gunnery Range No.2, Clovis Army Air Field, New Mexico", 2 March 1945 and twelve endorsements. NARA - Archives II, RG 77, Entry 1011, Box 286.
- B-16. Office of the Chief of Engineers, Letter, "Construction on Tolar Range, Ft. Sumner, New Mexico", 10 October 1945. NARA - Archives II, RG 18, Entry 2, Box 2294.
- B-17. Army Air Forces, Letter "Construction on Tolar Range, Ft. Sumner, New Mexico", 10 October 1945. NARA - Archives II, RG 18, Entry 2, Box 2294.
- B-18. 27th Tactical Fighter Wing, Unit History, 1 October to 31 December 1972 (F-2, F-3).
- B-19. Proteus Corporation, Sketch of Current Impact Area, 2000 (F-4).
- B-20. Tactical Air Command, Map, "Melrose Range", 8 May 1967 (L-3).
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- B-22. 27th Tactical Fighter Wing, Unit History, 1 April to 30 June 1977 (L-5).
- B-23. 27th Tactical Fighter Wing, Unit History, 1 July to 30 September 1972 (F-5).
- B-24. 27th Tactical Fighter Wing, Unit History, 1 January to 31 March 1973 (F-6).

- B-25. 27th Tactical Fighter Wing, Unit History, 1 April to 30 June 1973 (F-7).
- B-26. 27th Tactical Fighter Wing, Unit History, 1 July to 30 September 1977 (F-8).
- B-27. 27th Tactical Fighter Wing, Unit History, 1 January to 31 March 1979 (F-9).
- B-28. 27th Tactical Fighter Wing, Unit History, 1 April to 30 June 1983 (F-10).
- B-29. History of 27th Fighter Wing, 1 October 1973 to 31 December 1973. 186 BDU-33s removed by EOD.
- B-30. History of 27th Fighter Wing, 1 October 1973 to 31 December 1984 (F-11).
- B-31. Cannon AFB Real Estate Office, "USAF Land Change Report", 9 October 1991 (G-1).
- B-32. U.S. Army Corps of Engineers, Rock Island District, "Site Safety Plan for Ordnance and Explosive Waste", 25 June 1992 with appendix A-254 dated 17 May 2000.
- B-33. Air University, "Munitions Systems Specialist", vol. 3, 1987 (Table 8-1, D-8)
- B-34. Air University, "Munitions Systems Specialist", vol. 4, 1979 (Table 8-1)
- B-35. 4410th Combat Crew Training Wing, "Air Delivered Ordnance", 3 April 1969 (D-1, D-2).
- B-36. Departments of the Army, Navy and Air Force, Bombs and Bomb Components, with change 3, TM 9-1325-200/NANWEPS OP 3530/T0 11-1-28, April 1966 (D-3, D-6, D-7).
- B-37. Departments of the Army and Air Force, Bombs for Aircraft, TM 9-1980, AFM 136-7, December 1950 (D-4).
- B-38. Department of the Navy, 2.25" Subcaliber Aircraft Rockets, OP 1187, 1945 (D-5).
- B-39. Naval Sea and Naval Air Systems Commands, Ordnance Data for Toxic Hazards Associated with Pyrotechnic Items, NAVSEA SW050-AC-ORD-010/NAVAIR 11-15-8, 15 October 1985 (Table 8-1).

B-40. Departments of the Army and Air Force, Military Explosives, TM 9-1910, TO 11A-1-34, 14 April 1955 (Table 8-2).

B-41. U.S. Army Corps of Engineers, Rock Island District, "CENCR Management Plan for Ordnance and Explosive Waste Investigations", dated 20 July 1992, with revisions dated 10 March 1995 and 23 June 1995.

SECTION II
NATIONAL CAPITAL REGION ARCHIVES FINDINGS
PART A
POSITIVE FINDINGS

MELROSE BOMBING RANGE, NM

Also Researched Under: Cannon Air Force Base, NM; Melrose, NM; Tolar, NM; Clovis, NM; Texico, NM; Portair, NM; Clovis Army Airfield, NM; Fort Sumner Army Airfield, NM; Alamogordo Army Airfield, NM; Alamogordo Bombing Range, NM; Curry County, NM; Roosevelt County, NM; Tolar Bombing and Gunnery Range, NM; Fort Sumner Air to Ground Gunnery Range, NM; Roosevelt County Bombing Range, NM; Barksdale Air Force Base, LA; Clovis Municipal Airport, NM; Clovis Air Force Base, NM; Holloman Air Force Base, NM; and Air Combat Command

***NARA - ARCHIVES II - TEXTUAL BRANCH
COLLEGE PARK, MD***

RG 18 (Records of the Army Air Corps)

Entry 1: Security Classified Decimal File, 1944 - 1948
Box 288

Correspondence Relative to Real Estate Acquisition, Clovis Army Airfield Air to Ground Gunnery Range, 2 March - 24 October 1945

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2199

Correspondence and Map Relative to Post - War II Status of Melrose Bombing Range and Clovis Air Force Base, 5 February - 21 June 1948

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2199

Correspondence Relative to Decision to Retain Holloman Air Force Base as a Permanent Element of the Air Force Establishment, 23 January - 26 March 1948

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2199

Letters Relative to Status of Clovis Air Force Base, 15 April - 3 May 1948

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2199

Letters Relative to Possibility of Permanent Air Force Retention of Clovis Air Force Base, 19 - 28 July 1948

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Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
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Correspondence Relative to Reassignment of Fort Sumner Army Airfield to
Command Jurisdiction of the Corps of Engineers, 2 - 11 April 1946

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2266

Correspondence Relative to the Reactivation and Expansion of Alamogordo Army
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1 - 7 October 1946

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
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Letters Relative to Declaration of Fort Sumner Air to Ground Gunnery Range as
Excess to Army Air Force Requirements, 16 January - 5 February 1946

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2266

Letters Relative to Declaration of Fort Sumner Army Airfield's Delphos Air to
Ground Gunnery Range as Surplus to Army Air Force Requirements,
6 - 13 June 1946

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2294

Correspondence Relative to Cancellation of Real Estate Acquisition in Connection
With Proposed Fort Sumner Army Airfield, 2 May - 24 July 1945

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2294

Correspondence Relative to Declaration of Delphos Air to Ground Gunnery Range
As Excess to Army Air Force Requirements and Its Certification as Having Been
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Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2294

Correspondence Relative to Declaration of Fort Sumner Army Airfield Air to
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15 November - 13 December 1945

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2294

Correspondence Relative to Declaration of Tolar Bombing and Gunnery Range as
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4 October - 28 November 1945

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- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
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Correspondence Relative to Proposed Construction of Bombing and Gunnery Range Facilities, Tolar Bombing and Gunnery Range, 10 - 19 October 1945
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2294
Correspondence Relative to Real Estate Acquisition In Connection with Expansion Of Fort Sumner Army Airfield Air to Ground Gunnery Range, 31 March - 2 May 1945
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2294
Letters Relative to Cancellation of Proposed Bombing and Gunnery Range Facility Construction, Tolar Bombing and Gunnery Range, 24 - 26 October 1945
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2294
Letters Relative to Declaration of Fort Sumner Army Airfield as a Surplus Command Installation, 18 October - 23 November 1945
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2295
Correspondence Relative to Transfer of Use of Clovis Army Airbase Aerial Gunnery Range to Fort Sumner Army Airfield, 14 March - 18 April 1945
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2295
Letters Relative to Post World War II Status of Clovis Army Airfield's Precision Bombing Range, 21 November - 4 December 1945
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2295
Report, Inspection of Ammunition, Ammunition Components, Explosives and Ammunition Storage Facilities at Clovis Army Airfield, 5 November - 7 December 1945
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2324
Correspondence Relative to Clearance for Clovis Army Airfield Air to Ground Gunnery Range, 6 May - 4 July 1944
- Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2324
Correspondence Relative to Possible Discontinuance of Clovis Army Airfield Practice Bombing Ranges and Camp Sites, 11 December 1943 - 18 July 1944

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Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
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Correspondence Relative to Real Estate Acquisition, Clovis Army Airfield Small Arms Range, 5 - 13 July 1944

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2324

Correspondence Relative to Real Estate Acquisition, Clovis Army Airfield Ground Gunnery Range, 17 October 1944

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2324

Map, Fort Sumner Advanced Flying School (Twin Engine Pilot) Local Flying Area, 26 November 1943

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2807

Correspondence Relative to Discontinuance of Demolition Bombing at Melrose Bombing Range in Response to Claims of Property Damage by Original Property Owner, 16 September - 28 November 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2807

Correspondence Relative to Proposed Donation by the City of Clovis, NM of Clovis Army Airfield to the U.S. Government, 22 April - 21 July 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2807

Correspondence Relative to Use of Melrose Precision Bombing Range for Visual Demolition Bombing Purposes, 1 July - 14 August 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2807

Letters Relative to Safety Precautions in Connection with Use of Melrose Precision Bombing Range for Visual Demolition Bombing Purposes, 9 - 30 September 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2808

Correspondence and War Department Shipping Form Relative to Transfer of Melrose Precision Bombing Range from Command Jurisdiction of Clovis Army Airfield to Command Jurisdiction of Roswell Army Airfield, 2 - 18 May 1947

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Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2808

Correspondence Relative to Future Use of Clovis Army Airbase,
27 February - 6 March 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2808

Correspondence Relative to Proposed New Mexico Air National Guard Use of
Clovis Army Airfield, 29 November 1946 - 16 January 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 2808

Letters Relative to Placement of Clovis Army Air Field on Temporarily Inactive
Status, 1 - 6 May 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
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Letters Relative to Proposed Return of Clovis Municipal Airport to Town Control,
20 January 1947 - 4 February 1947

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
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Memorandum Relative to Placement of Clovis Army Air Field on Temporarily
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Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
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Correspondence Relative to Declaration of Melrose Bombing Range as Excess to
Requirements of Clovis Army Air Base, Its Subsequent Transfer to Walker Air
Force Base, and Its Declaration as Excess to Requirements of the Latter,
24 October 1947 - 24 February 1948

Entry 2: Air Adjutant General Unclassified Decimal File, 1944 - 1948
Box 3188

Letter Relative to Real Estate Acquisition, Melrose Precision Bombing Range No. 2,
11 May 1948

Entry 46: Air Inspector Decimal File, 1945-1947
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Report, Annual General Inspection of Army Air Force Units and Activities, Clovis
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Entry 292: Air Adjutant General Unclassified Decimal File, Oct 1942 - May 1944
Box 1486

Correspondence Relative to Real Estate Acquisition, Clovis Army Airfield Air to
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Entry 292: Air Adjutant General Unclassified Decimal File, Oct 1942 - May 1944
Box 1503

Correspondence Relative to Fort Sumner Army Airfield Ordnance Facilities
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Entry 293: Central Decimal File, 1939-1942

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Correspondence Relative to Site Selection for Clovis Air Force Base,
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Entry 295: Correspondence Relating to Airfields, 1939 - 1942

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Construction Completion Report, Alamogordo Bombing Range Flying Field and
Range Facilities, 29 May 1942

Entry 295: Correspondence Relating to Airfields, 1939 - 1942

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Correspondence Relative to Planned Construction for British Operational Training
Unit at Alamogordo Army Airfield, 13 - 16 April 1942

Entry 295: Correspondence Relating to Airfields, 1939 - 1942

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Letter and Telegram Relative to Incendiary Bomb Storage Facility Construction,
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Entry 295: Correspondence Relating to Airfields, 1939 - 1942

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Entry 295: Correspondence Relating to Airfields, 1939 - 1942

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Memorandum Relative to Proposed Assignment of Alamogordo Bombing and
Gunnery Range and Proposed Station at that Site to Second Air Force for Final
Staging of Operational Units Before Proceeding Overseas, 7 May 1942

Entry 295: Correspondence Relating to Airfields, 1939 - 1942

Box 1236

Report, Annual General Inspection of Alamogordo Army Air Base, 18 August 1942

Entry 295: Correspondence Relating to Airfields, 1939 - 1942

Box 1367

Letter Relative to Elementary Flying Operations at Clovis Army Airfield,
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Entry 295: Correspondence Relating to Airfields, 1939 - 1942
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Paper and Project Proposal Relative to Proposed Development of Clovis Municipal Airport for National Defense Purposes, 1 May 1941

Entry 295: Correspondence Relating to Airfields, 1939 - 1942
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RG 77 (Records of the Office of the Chief of Engineers)

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Entry 102: Office, Administrative Assistant to the Secretary of War, Project Decimal File, Aviation Fields and Air Bombing Ranges, 1943 - January 1946
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Entry 102: Office, Administrative Assistant to the Secretary of War, Project Decimal File, Aviation Fields and Air Bombing Ranges, 1943 - January 1946
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Letters Relative to Real Estate Acquisition In Connection with Clovis Army Airfield Aerial Gunnery Range, 28 - 31 July 1944

Entry 102: Office, Administrative Assistant to the Secretary of War, Project Decimal File, Aviation Fields and Air Bombing Ranges, 1943 - January 1946
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RG 330 (Records of the Office of the Secretary of Defense)

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Charts, Inventory of Military Real Property Installation Summaries, Melrose Air Force Range, 1955 - 1956

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Entry 494: Correspondence Re: Air Force Real Estate Facilities, 1948 - 1955
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Letter Relative to Clovis Air Force Base Real Estate Situation, 30 August 1948

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Letter Relative to Placement of Clovis Air Force Base in Inactive Status,
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Entry 494: Correspondence Re: Air Force Real Estate Facilities, 1948 - 1955
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Correspondence Relative to Land Acquisition, Holloman Air Force Base Guided
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Correspondence Relative to Funding for Early Completion of Design for Additional
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Correspondence Relative to Proposed Re-activation of Clovis Air Force Base, 20 June - 8 July 1949

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Entry 494: Correspondence Re: Air Force Real Estate Facilities, 1948 - 1955
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Entry 494: Correspondence Re: Air Force Real Estate Facilities, 1948 - 1955
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Entry 494: Correspondence Re: Air Force Real Estate Facilities, 1948 - 1955
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Correspondence Relative to Transfer of Clovis Air Force Base from Strategic Air Command to Air Training Command, 25 May - 12 July 1950

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Realty Control Summary Sheet
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Also Researched Under: Cannon Air Force Base, NM; Melrose, NM; Tolar, NM; Clovis, NM; Texico, NM; Portair, NM; Clovis Army Airfield, NM; Clovis Air Force Base, NM; Fort Sumner Army Airfield, NM; Fort Sumner Air to Ground Gunnery Range, NM; Alamogordo Army Airfield, NM; Alamogordo Bombing Range, NM; Curry, NM; Roosevelt County, NM; Tolar Bombing and Gunnery Range, NM; Roosevelt County Bombing Range, NM; Barksdale Air Force Base, LA; Clovis Municipal Airport, NM; Holloman Air Force Base, NM; and Air Combat Command

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Posts, Camps, and Stations File
WW II Posts, Camps, and Stations File

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RG 49 (Records of the Bureau of Land Management)
Entry: Land Entry Papers

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Entry 106: Secretary of War (Patterson) Subject File (Safe File), 1945 - 1947

Entry 108: Secretary of the Army, Patterson, Central Decimal Files, 1946 - 1947

Entry 110: Office, Administrative Assistant to the Secretary of War, Decimal File, February 1946 - June 1947

Entry 127: Office, Special Consultant to the Secretary of War, John D. Russell's File, 1942 - January 1946

Entry 158: Under Secretary of War, Special Assistant for Construction, M.J. Madigan, General Correspondence, 1940 - 1945

Entry 159: Under Secretary of War, Special Assistant for Construction, M.J. Madigan, Projects, 1940 - 1945

Entry 211: Office of the Assistant Secretary of War for Air, Establishment of Airfields and Air Bases, 1940 - 1945

Entry 213: Office of the Assistant Secretary of War for Air, Robert A. Lovett, Decimal File, 1940 - 1946

RG 111 (Records of the Office of the Chief Signal Officer)

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RG 49, Records of the Bureau of Land Management
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Memo, Subject: Interagency Land Adjustments, 22 Dec 1967

RG 270, Records of the War Assets Administration
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Letter, Subject: Bombing Range for Clovis AAB, 1 Oct 1945
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RG 30, Records of the Bureau of Public Roads
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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX C

GLOSSARY

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APPENDIX C

GLOSSARY

AR	Army Regulation
ACC	Air Combat Command
AFM	Air Force Manual
CEHNC	Corps of Engineers, Huntsville Center
CEMVR	Corps of Engineers, Mississippi Valley Division, Rock Island District
CENCR	Corps of Engineers, North Central Division, Rock Island District
COE	Corps of Engineers
CWM	Chemical Warfare Materiel
DA	Department of the Army
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
FDE	Findings and Determination of Eligibility
FUDS	Formerly Used Defense Site
HEAT	High Explosive Anti-Tank
IRP	Installation Restoration Program
NARA	National Archives Records Administration
OE	Ordnance and Explosives
OP	Ordnance Publication
PAE	Preliminary Assessment of Eligibility
PN	Project Number or Part Number
QASAS	Quality Assurance Specialist (Ammunition Surveillance)
RG	Record Group
SAB	Same As Before
SAM	Surface to Air Missile
SCAR	Sub-Caliber Aircraft Rocket
SI	Site Investigation or Site Inspection
TM	Technical Manual
TO	Technical Order
TP	Target Practice
TP-T	Target Practice Tracer
TSGT	Technical Sergeant
USA	U.S. Army
USACE	U.S. Army Corps of Engineers
USAF	United States Air Force
UXO	Unexploded Ordnance
WP	White Phosphorus

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX D

TEXTS/MANUALS

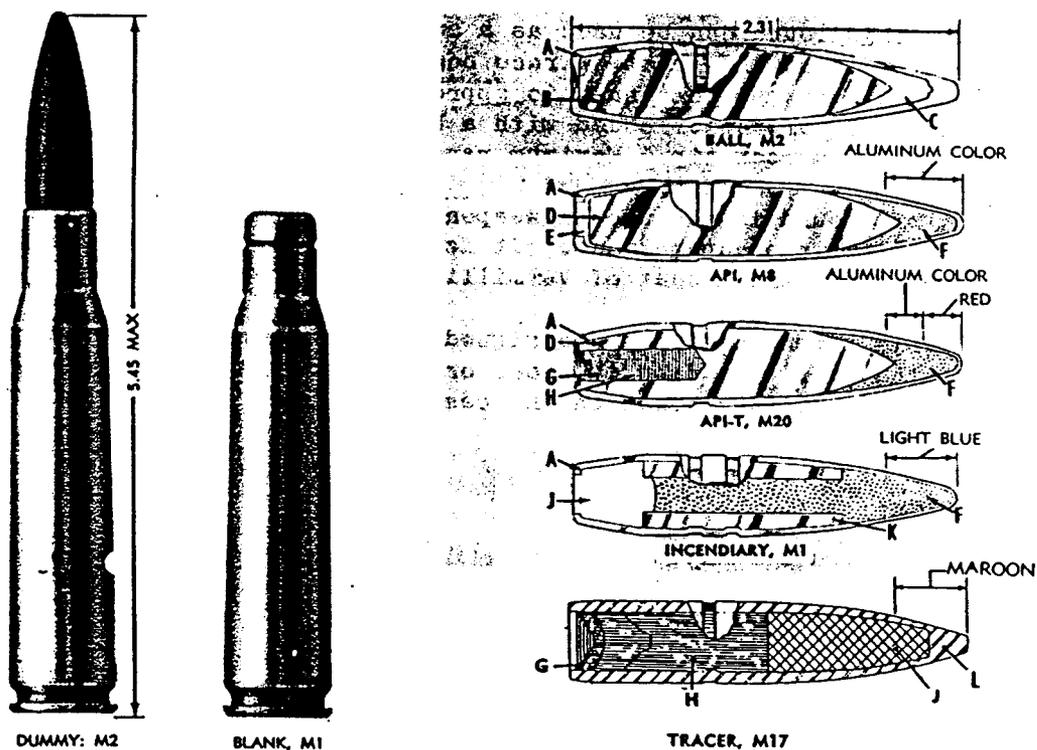
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TEXTS/MANUALS

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D-5	Sub-caliber Aircraft Rockets (SCAR) (B-38)
D-6	Practice Bomb, Mark 106 (B-36)
D-7	Practice Bomb, BDU-33 (B-36)
D-8	2.75-inch Rocket Ammunition (B-33)

AMMUNITION: .50 CALIBER

GENERAL: The trajectories of caliber .50 service rounds for aircraft use match at 1000 yards. The time of flight does not vary by more than 1/10 second under specified conditions. The ammunition is issued in belts, linked with the M2 or M9 metallic link.



A-Gilding-Metal Jacket
 B-Steel Core
 C-Lead-Antimony Point Filler
 D-Hardened Alloy Steel Core
 E-Lead-Antimony Base Filler
 F-Incendiary Mixture

G-Igniter Composition
 H-Tracer Composition
 J-Lead Antimony Slug
 K-Steel Body
 L-Gilding-Metal-Clad Steel Jacket

Figure 10-9. Ammunition - .50 caliber

BALL, M2 & M33: These rounds are designed for general use and gunnery practice where armor penetration or incendiary characteristics are not important considerations. The M2 has a maximum range of 7,275 yards. The M33 duplicates the ballistics of the API, M8 round.

API, M8: This is the standard combat round. It replaces all types and models of armor piercing and incendiary rounds formerly in use. It will penetrate 7/8 inch thick homogenous armor plate at normal impact at 100 yards, and 5/8 inch face hardened plate at 30 degrees impact at 100 yards. Maximum range is 6,375 yards.

API-T, M20: This round is similar to the API, M8 except for the addition of the tracer element. Visible trace begins at approximately 100 yards and continues for 1,600 yards. Maximum range is 6,375 yards.

INCENDIARY, M1: This round was designed for maximum incendiary effect. It is effective against light materiel, inflammable targets. Although replaced by the API, M8, it is still available and is used where armor penetration is not a requirement. Maximum range is 5,960 yards.

TRACER, M17: This round can be used as a substitute for the API-T, M20 except that penetration is not so great. Trace begins at a point not greater than 250 yards from the weapon and continues to approximately 2,450 yards. Rounds manufactured after 1952 are color coded with a brown tip, prior to 1952 they were color coded with a maroon tip. Maximum range is 5,350 yards.

BLANK, M1: This round is for use in weapons that are fitted with blank firing attachments for training operations. It is identified by the absence of the bullet, a crimped neck, and a coat of vermillion lacquer over the wad.

DUMMY, M2: This is an inert round designed for training personnel and testing the mechanism of the gun. The case is steel or brass, it is identified by the absence of the primer and the four holes in the case.

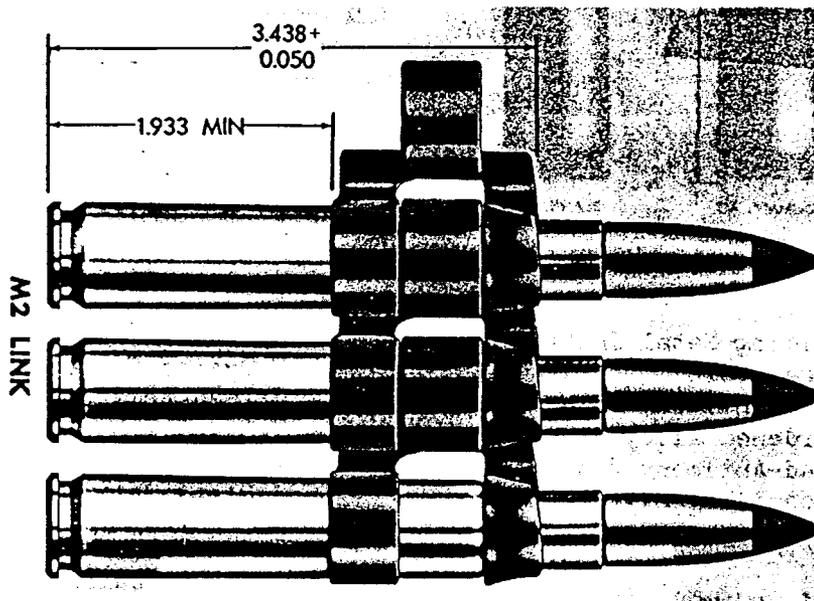


Figure 10-10. Ammunition - .50 caliber, linked

AMMUNITION: 20MM

GENERAL: At present, the M3 is the only 20MM gun that fires percussion-primed ammunition. The trajectories of the various projectiles cross at 1000 yards, at which range the time of flight for each projectile is approximately 1.66 seconds when fired from a stationary weapon with a muzzle velocity of 2730 fps. The M10 link is used to link the ammunition into belts.

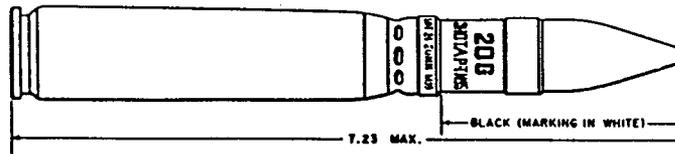


Figure 10-2. AP-T - M95

AP-T, M95: This cartridge is for use against armored targets. The projectile is a solid shot made from bar or forged steel. A drawn steel windshield is crimped into annular grooves in the projectile body. The base of the projectile contains a red tracer composition, sealed in by means of a metal closing cup. The tracer burns for about 2.25 seconds, equivalent to a range of about 1400 yards. Minimum burning time is 2.0 seconds, equivalent to a range of 1270 yards.

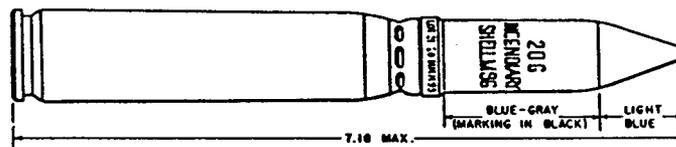


Figure 10-3. Incendiary - M96

INCENDIARY, M96: This cartridge is for use against inflammable targets, functioning with incendiary effect. The body of the projectile is made of cold drawn steel. The nose, threaded to screw into the body, is made of a die-cast zinc alloy. Both the body and nose are filled with incendiary composition. This projectile does not require a fuze, as functioning is initiated by impact.

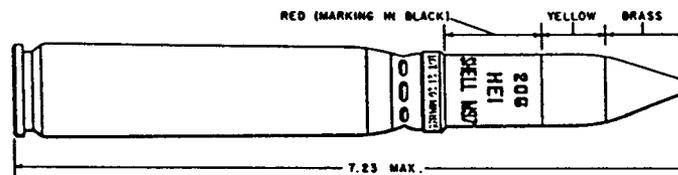


Figure 10-4. HEI - M97 & M97A1

HEI, M97 & M97A1: These cartridges are for use against aircraft and light materiel targets, functioning with both explosive and incendiary effect. The high explosive is tetryl and is located in the nose portion of the projectile, while the incendiary mixture is located in the base. The weight of the tetryl charge is 0.012 pound, the weight of the incendiary charge is 0.005 pound. Upon impact the fuze detonates the tetryl, the incendiary is ignited and scattered by the explosion. The M97 and M97A1 differ only in their fuzes, the M97 uses PD fuze M75 which is not boresafe, and the M97A1 uses PD fuze M505 which is boresafe. Rounds of late manufacture have an olive drab band instead of yellow and a silver fuze instead of brass colored.

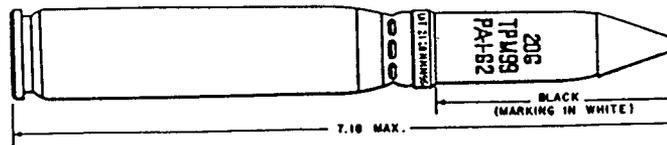


Figure 10-5. TP - M204 & M99

TP, M204 & M99: These rounds are used for target practice. The projectile is similar in shape and ballistics to the M96 but is hollow. The body is made of cold-drawn steel, the nose consists of a zinc-die casting weighted to give the projectile a weight of 0.29 pound. The M204 is the latest production model and is painted light blue with black markings, the tip of the projectile may be unpainted and has no color code significance. The M99 is no longer in production and has the old color code as pictured in Figure 10-5.



Figure 10-6. Dummy - M18A3

DUMMY, M18A3: This cartridge is a completely inert assembly, which is intended to provide a round for drill purposes and for testing the feed mechanism of the weapon. The round is simulated by a one piece zinc-or-cadmium-coated casing made of steel, cold-drawn to size, shape, and weight of the service round. A steel base plug, formed to provide an extractor groove, is soldered into the recessed base.

WARNING

20MM rounds fuzed with the PD M75 fuze must be handled carefully at all times. Since the fuze is not bore-safe, and designed to function upon impact, it can be set off by rough handling.

FUZE, PD, M75: The fuze M75 was used with 20MM ammunition of early manufacture. It is a single-action super-quick type intended to function with percussion action upon impact. Its design differs from the ordinary fuzes in that functioning is initiated upon impact by the set-forward force of the detonator charge, or by compression of the air column (with the accompanying formation of heat) forward of the detonator charge, or by a combination of any or all of these. The striker or firing pin mechanism usually found in point-detonating fuzes is omitted in this design.

Table 2-34. Bomb, Fire: 750-Pound, BLU-27 / B

—Continued

Filler	.....Napalm-B
Filler Weight (lb)	.....790.0
Fuze	.....FMU-7 / B or FMU-7A / B (2 required)
Initiator	.....FMU-7 / B or FMU-7A / B
Cable Assembly	.....FMU-7 / B or FMU-7A / B
Igniter	.....AN-M23A1 (2 required)

a. *Description.* The 750-pound fire bomb BLU-27 / B (table 2-34) is a welded version of fire bomb BLU-1B / B (para 2-26). The bomb is assembled, welded, filled, and packaged at the factory. Therefore, there are no applicable field assembly procedures as in the nested models of other fire bombs.

b. *Filler.* The standard filling for this bomb is napalm-B for which there is presently no field filling and transfer capability.

c. *Differences Between BLU-27 / B and BLU-1B / B.* The other principal differences between this bomb and the earlier BLU-1B / B are that the newer model has modified filler caps; the fuze cable is assembled to the bomb at the time of manufacture, and the aft bulkhead is reversed with the flange pointing rearward.

2-31. Bomb, Fire: 500-Pound, BLU-32 / B

Table 2-35. Bomb, Fire: 500-Pound, BLU-32 / B

Model	.....BLU-32 / B
Length of Assembled Bomb (in.)	.....119.0
Diameter of Body (in.)	.....15.75
Weight of Assembled Bomb (lb)	.....589.0
Filler	.....Napalm-B
Filler (gal)	.....67.0
Filler Weight (lb)	.....529.0
Fuze	.....FMU-7 / B or FMU-7A / B (2 required)
Initiator	.....FMU-7 / B or FMU-7A / B
Cable Assembly	.....FMU-7 / B or FMU-7A / B
Igniter	.....AN-M23A1 (2 required)

a. *Description.* The 500-pound fire bomb BLU-32 / B (table 2-35) is a welded version of fire bomb BLU-23 / B. The bomb is assembled, welded, filled, and packaged at the factory. Therefore, there are no applicable field assembly procedures as in the nested models of the other fire bombs.

b. *Filler.* The standard filling for this bomb is napalm-B for which there is presently no field filling and transfer capability.

c. *Differences Between BLU-32 / B and BLU-23 / B.* This bomb differs from the earlier BLU-23 / B in that the filler caps have been modified and the fuze cable is assembled to the bomb at time of manufacture.

Section VI. SMOKE BOMBS

2-32. General

Smoke bombs are generally used for screening purposes to conceal combat areas, the movement of troops and ships, for marking targets, and for anti-personnel effect. The standard filling for these bombs is plasticized white phosphorus (PWP), which is a smoke-producing agent.

White phosphorus (WP) has a mild incendiary effect and will set fire to materials having a low kindling point, such as clothing, dry brush, paper, canvas, etc.

2-33. Bomb, Smoke: PWP or WP, 100-Pound, AN-M47A4

Section V. MISCELLANEOUS FUZES

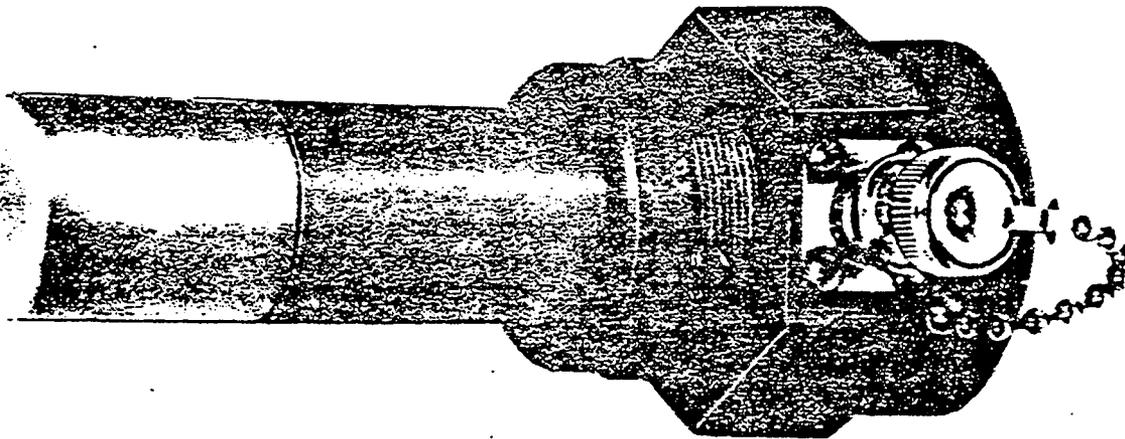
4-44. General

This section pertains to fuzes with physical and functional characteristics and specialized application which prohibits their being classified as a standard series or type.

4-45. Fuze, Bomb: FMU-7/B or FMU-7A/B

a. General. These fuzes are designed for use on

later model fire bombs. Electrically armed and impact fired, they are used in conjunction with FMU-7 series initiators and cable assemblies. Fuzes FMU-7/B and FMU-7A/B are interchangeable and similar except that the FMU-7A/B (fig. 4-60) has a round head with metal tape under a hole in the center of the head. Two identical fuzes are used in each bomb in the nose and tail.



ORD D1260

Figure 4-60. Fuze FMU-7A/B.

b. Functioning. After release of the bomb from the aircraft an electrical pulse from the FMU series initiator in the bomb operates a motor bellows in each fuze which results in their arming. Upon ground impact of the munition, an all ways-func-

tioning striker assembly initiates a primer and a primer-detonator, in sequence, which in turn causes detonation of the high explosive booster. This detonation fragments igniter AN-M23A1 or AN-M23, thus causing ignition of the incendiary filler.

2-26. Bomb, Fire: 750-Pound, BLU-1/B and BLU-1B/B



ORD D1144

Figure 2-38. Bomb, fire: BLU series.

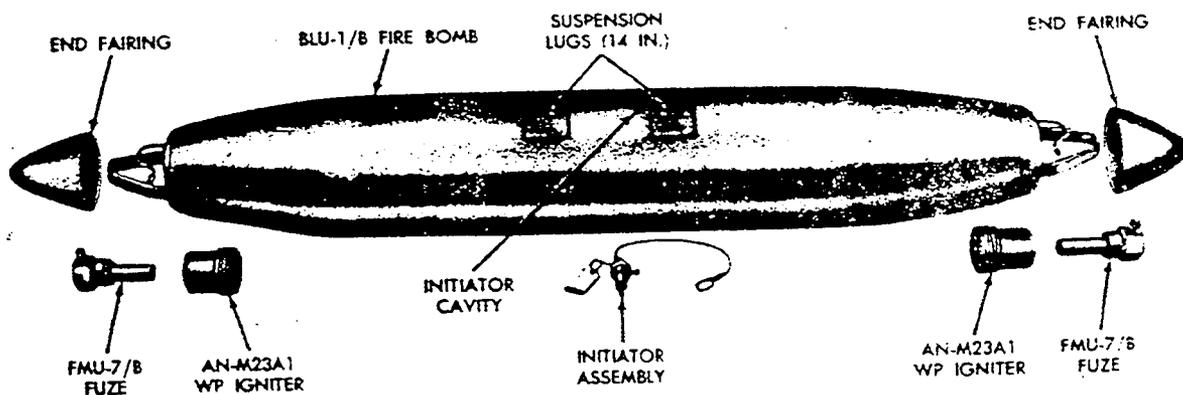
Table 2-30. Bomb, Fire: 750-Pound, BLU-1/B

Model.....	BLU-1/B
Length Assembled (in.).....	130.0
Diameter Body (in.).....	18.5
Weight of Assembled Bomb (lb).....	697-873*
Filler Capacity (gal).....	90-100*
Filler Weight (lb).....	615-790* Napalm
Fuze.....	FMU-7/B or FMU-7 A/B (2 required)
Initiator.....	FMU-7/B or FMU-7 A/B
Cable Assembly.....	FMU-7/B or FMU-7 A/B
Igniter.....	AN-M23A1 (2 required)

*Actual figure depends on filler used.

a. Description. The BLU-1/B and BLU-1B/B

750-pound fire bombs (figs. 2-38, 2-39 and table 2-30) are designed for external carriage on high-performance aircraft with forced-ejection release systems. They are constructed of aluminum with reinforced areas for sway bracing and aircraft forced ejection. The bomb body consists of three major sections: the nose, center, and tail which are nested with the supplemental components to obtain a high density package. Metal components and special assembly tools for 14 individual bombs are packaged for shipment and storage in one hermetically-sealed, reusable, cylindrical metal container.



ORD D1145

Figure 2-39. Bomb, fire: BLU series (components).

b. Differences Between the BLU-1/B and Earlier Type Fire Bombs. Unlike earlier types of fire bombs, the BLU-1/B utilizes electrically-armed impact fuzes which require a cable assembly to utilize power generated by a thermal battery in the initiator. End caps are used in the BLU-1/B instead of nose caps and tail cones and there are

significant overall size and weight differences. In addition, the fuze system has an arming delay of .3 to 1.1 seconds.

c. Differences Between BLU 1B/B and BLU-1/B. The fire bomb BLU-1B/B differs from the BLU-1/B in that it has a beam assembly (hard back) which is extruded rather than cast, and an initiator

adapter which is designed to prevent napalm from leaking into the initiator well. In addition, it has newly designed suspension lugs which allow sufficient clearance for the initiator when the bomb is loaded on an aircraft. Otherwise, the two bombs are identical and are packaged, stored, and assembled in the same manner.

2-27. Bomb, Fire: 250-Pound, BLU-10/B and BLU-10A/B

Table 2-31. Bomb, Fire: 250-Pound, BLU-10/B and BLU-10A/B

Model.....	BLU-10/B, BLU-10A/B
Length of Assembled Bomb (in.)	88.0
Diameter of Bomb (in.)	12.5
Filler.....	Napalm
Weight of Complete Round (lb)	250.0
Filler (gal)	33.0
Filler Weight (lb)	211.0
Fuze.....	FMU-7/B or FMU-7A/B (2 required)
Initiator.....	FMU-7/B or FMU-7A/B
Cable Assembly.....	FMU-7/B or FMU-7A/B
Igniter.....	AN-M23A1 (2 required)

a. *Description.* The BLU-10/B and the BLU-10A/B 250-pound anti-personnel and materiel bombs (table 2-31) are smaller versions of the BLU-1/B (para 2-26). In addition, they have an initiator adapter which is designed to prevent napalm from leaking into the initiator well. Otherwise, the bombs are similar to the BLU-1/B and are assembled and stored in the same manner. The bomb consists of three major sections: the nose, the center, and the tail, which are nested with the supplemental components to obtain a high density package. Metal components and special assembly tools for 16 individual bombs are packaged for shipment and storage in reusable, hermetically-sealed containers.

b. *Differences Between BLU-10A/B and BLU-10/B Bombs.* The BLU-10A/B bomb has an extended open-type hard back. Otherwise it is identical to the BLU-10/B bomb.

2-28. Bomb, Fire: 500-Pound, BLU-11/B

Table 2-32. Bomb, Fire: 500-Pound, BLU-11/B

Model.....	BLU-11/B
Length of Assembled Bomb (in.)	110.0
Diameter of Body (in.)	18.6
Weight of Complete Round (lb)	502.0
Filler.....	Napalm
Filler (gal)	65.0

2-54

Table 2-32. Bomb, Fire: 500-Pound, BLU-11/B—Continued

Filler Weight (lb)	442.0
Nose.....	AN-M173A1* M173*
Tail.....	AN-M173A1* M173*
Igniter.....	AN-M23A1* M23* (2 required)

*Note. Igniter AN-M23A1 is compatible with bomb fuze AN-M173A1 only. Igniter M23 is compatible with bomb fuze M173 only.

The 500-pound fire bomb BLU-11/B (table 2-32), is a modified version of fire bomb M116A1. The center section of BLU-11/B is 25 inches shorter than the center section of M116A1. Otherwise, the bombs are similar and are assembled and stored in the same way.

2-29. Bomb, Fire: 500-Pound, BLU-23/B

Table 2-33. Bomb, Fire: 500-Pound, BLU-23/B

Model.....	BLU-23/B
Length of Assembled Bomb (in.)	119.0
Diameter of Body (in.)	15.75
Weight of Assembled Bomb (lb)	490.0
Filler.....	Napalm
Filler (gal)	67.0
Filler Weight (lb)	430.0
Fuze.....	FMU-7/B or FMU-7A/B (2 required)
Initiator.....	FMU-7B or FMU-7A/B
Cable Assembly.....	FMU-7B or FMU-7A/B
Igniter.....	AN-M23A1 (2 required)

a. *Description.* The BLU-23/B, 500-pound fire bomb (table 2-33) is a smaller version of the BLU-1/B (para 2-26). In addition, it has an initiator adapter added which is designed to prevent napalm from leaking into the initiator well. Otherwise, the bombs are identical and are assembled and stored in the same manner.

b. *Components.* The bomb consists of three major sections: the nose, the center, and the tail which are nested with the supplemental components to obtain a high-density package. Metal components and special assembly tools for 20 individual bombs are packaged for shipment and storage in reusable, hermetically-sealed containers.

2-30. Bomb, Fire: 750-Pound, BLU-27/B

Table 2-34. Bomb, Fire: 750-Pound, BLU-27/B

Model.....	BLU-27/B
Length of Assembled Bomb (in.)	130.0
Diameter of Body (in.)	18.5
Weight of Assembled Bomb (lb)	873.0
Filler (gal)	100.0

5-28. Igniter, Bomb: WP, M23 and AN-M23A1

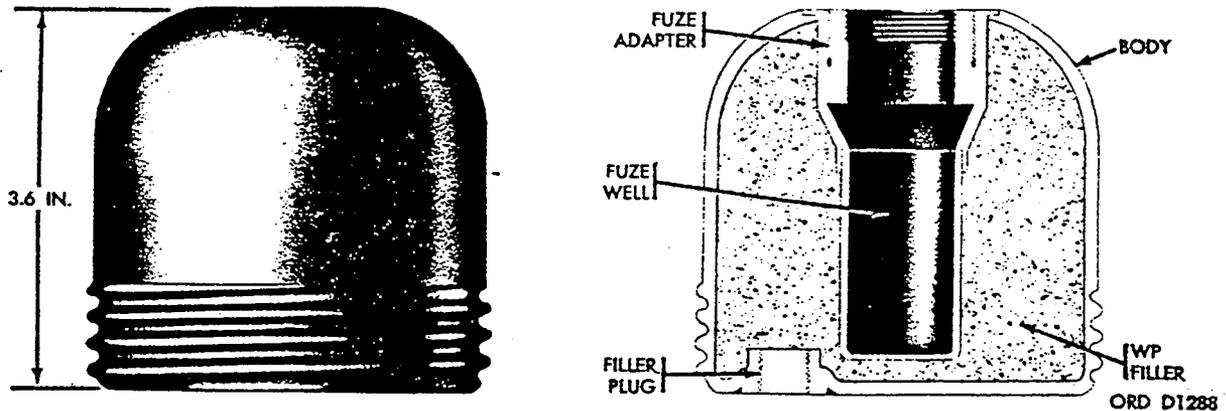


Figure 5-22. Igniter, bomb: WP, M23.

Table 5-23. Igniter, Bomb: WP, M23 and AN-M23A1

Model	M23
Length of Assembly (in.)	3.6
Diameter of Body (in.)	3.85
Weight of Assembly (lb)	3.25
Filler Weight (lb):	
WP	1.25

a. *Description.* Igniter M23 (fig. 5-22 and table 5-23) is used with fire bomb M116A1 and M116A2. It is cylindrical in shape, rounded at one end and externally threaded at the other. A fuze well is located in the rounded end of the igniter. A fuze adapter, threaded internally to receive bomb fuze igniter M173, is threaded externally for attachment to the igniter. The igniter body is filled with white phosphorus (WP) and a filler plug is inserted in the filler hole when the igniter is loaded.

b. *Functioning.* When the fire bomb strikes the target, the fuze functions, exploding the booster which bursts the igniter. When the igniter bursts, the WP filler scatters, igniting spontaneously upon exposure to the air. The burning WP in turn ignites the scattered filler of the bomb.

c. *Differences Between Igniters M23 and AN-M23A1.* Igniter AN-M23A1 is identical to ig-

niter M23 except that the M23 has a fuze adapter. The fuze well of igniter AN-M23A1 is threaded to receive bomb fuze AN-M173A1. The well of igniter M23 is threaded to receive bomb fuze M173.

5-29. Signal Cartridges

a. *General.* Signal cartridges are used for spotting purposes during practice missions. A signal cartridge consists of a small charge which produces a visible signal when initiated by fuze action.

b. *Safety Precautions.* Rough handling may cause immediate functioning of the signal or may damage it so that it will not function properly. Do not unpack signals unless they are to be used immediately. If unpacked and not used, return signals to original packing. In order for the signal to function properly, the primer must be flush with or slightly below the base of the signal. Swollen or deformed signals are not to be used. Defective signals will be turned over to authorized munitions personnel. Under no circumstances should a signal case be opened or tampered with.

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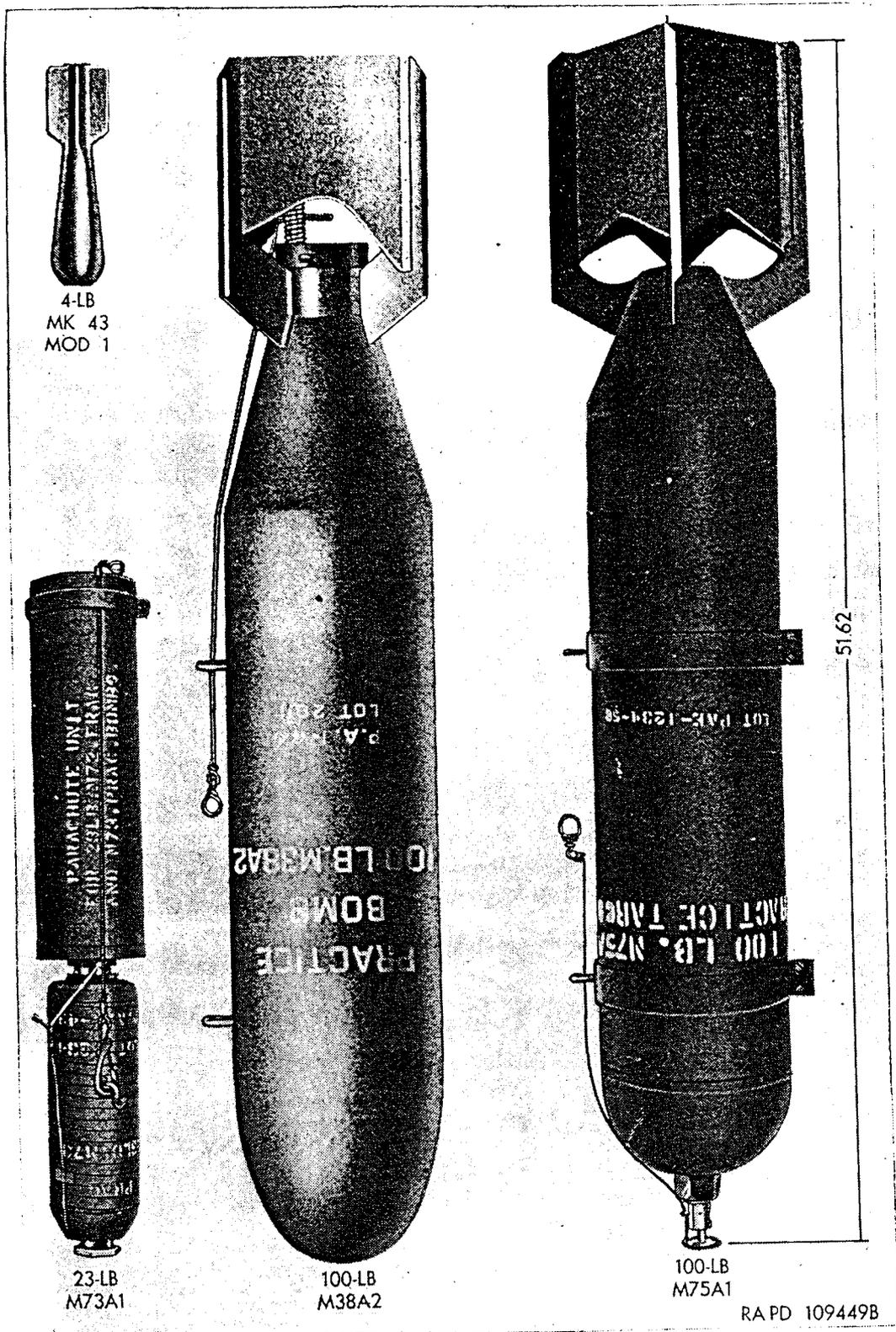


Figure 108. 4-lb, 23-lb, and 100-lb practice bombs and 100-lb practice target bomb.

Section VI. PRACTICE BOMBS

154. General

Practice bombs are provided for target practice and are available in various sizes and weights to simulate service bombs. Some practice bombs have a fuze and spotting charge, others are completely inert, and one bomb (par. 158) is used to provide a colored target on snow covered ranges.

155. Bomb, Practice, Miniature, 3-lb, MK 23 MOD 1 (AN-MK 23 Mod 1)

a. DATA. The Mk 23 Mod 1 is a streamlined miniature practice bomb 8.25 inches long and 2.18 inches in diameter. It is made of cast iron. Its weight without signal but with firing pin assembly is approximately 2 pounds, 14 ounces; with signal, 3 pounds. The authorized spotting charge is SIGNAL, bomb, practice, miniature, Mk 4 or Mk 5 (fluorescein dye) over water.

b. OTHER MODELS. The BOMB, practice, miniature, 4.5-pound, Mk 43 Mod 1 (fig. 108) is the same as the Mk 23 type except that it is made of lead and consequently weighs approximately 4.5 pounds. The BOMB, practice, miniature, 3-pound, Mk 23 Mod 0 and 4.5-pound, Mk 43 Mod 0 are the same as the Mk 23 Mod 1 except that they lack the sheet metal stabilizing shrouds across the tail vanes.

c. ASSEMBLY. In order to assemble the spotting charge, it is only necessary to remove the cotter pin in the nose of the bomb, remove the firing pin, insert the signal, and replace the firing pin and cotter pin.

156. Bombs, Practice, 23-lb Size

a. GENERAL. These bombs (fig. 108) represent parachute type fragmentation bombs for assembly in clusters or for individual suspension dependent upon the model. There are four models of 23-pound practice bombs: M71, M71A1, M73, and M73A1. They consist of an empty fragmentation bomb body fitted with either the M3 or M4 parachute-unit. These bombs do not require fuze or spotting charge since the parachute is ample for spotting purposes. Both the M71A1 and M73A1 differ from their respective basic models by the addition of a cylindrical shoulder, 1/2 inch long, to the nose of the bomb body.

b. DATA. Table XXIII lists the characteristics of the four models of 23-pound practice bombs.

Table XXIII. Characteristics of Practice Bombs M71, M71A1, M73, and M73A1

Nomenclature	Complete round		Parachute unit employed	Use	
	Length (in)	Weight (lb)		In clusters	Individually
BOMB, practice, 23-lb, M71----	26.7	21.1	M3	✓	
BOMB, practice, 23-lb, M71A1--	27.24	21.1	M3	✓	
BOMB, practice, 23-lb, M73----	26.77	21.0	M4*		✓
BOMB, practice, 23-lb, M73A1--	27.24	21.0	M4*		✓

*The M4 parachute unit may be converted to the equivalent of an M3 parachute unit by removing suspension assembly, band assembly, and pull wire container assembly.

157. Bomb, Practice 100-lb, M38A2

a. DATA. The M38A2 is a round-nosed cylindrical bomb (fig. 108) designed to simulate GP bombs. It is 47.5 inches long and 8.12 inches in diameter. As issued, the fin is assembled to the bomb body which is empty. This assembly (fin and body) weighs 15.8 pounds. At the point of use, 80 pounds of sand are poured into the bomb case, and the spotting charge added to create the complete round which weighs 100 pounds. The spotting charge is assembled in a sleeve at the base of the bomb.

b. SPOTTING CHARGE. The authorized spotting charge is the CHARGE, spotting, assembly, M1A1, for practice bomb, 100-lb M38A2 (black powder). However, the spotting charge assemblies, M3 and M4 may also be used. These assemblies consist of a 3-pound charge and an integral fuze consisting of an inertia type firing pin and a blank loaded shotgun shell as the primer. The M3 produces a large cloud of black smoke and is authorized over snow covered ranges. The M4 is authorized for use on ranges equipped with sonic spotting devices. The M1A1 is used for all other purposes.

c. ASSEMBLY. The complete round is assembled as follows:

- (1) *Inspection.* All lots of M38 series practice bombs manufactured prior to 13 September 1943 will be inspected at time of use for defective spot welds, particularly at the joint of the fin cone and body. If the welding is unsatisfactory and the bomb is otherwise serviceable, the bomb may be repaired by a continuous or interrupted seam weld in order to obtain a joint with sufficient strength.
- (2) *Load with sand to weight.* Remove the bomb from the carton and inspect for serviceability. Remove the closing cover from its place in the sleeve. Place the bomb upright and fill completely with a uniform sand mixture. Shake the load down well so that there will be no room for shifting. If a lighter loading is desired, mix dry sawdust

or dry sifted ashes with the sand. The bomb must be filled and the loading material uniform. Press the closing cap into place.

- (3) *Assembly of the spotting charge.* Insert spotting charge assembly and seat firmly with arming pin pointing away from bomb suspension lugs. Pass arming wire through rear suspension lug and then through the eyelet in the arming pin. Adjust the arming wire to extend 2 to 3 inches beyond the arming pin.

158. Bomb, Target, Practice, 100-lb, M75A1

a. DATA. The M75A1 (fig. 108) is designed to provide a target reference for practice bombing over snow covered ranges. The bomb resembles the 100-pound TI red smoke bomb M84A1 and consists of a light sheet metal case, a charge of red iron oxide (hematite), a burster, and a fuze. The bomb is 51.62 inches long and 8.125 inches in diameter. It weighs 101.22 pounds of which 72 pounds is hematite. Upon impact, the burster distributes the charge over an area 35 feet in diameter.

b. COMPLETE ROUND. The following components are necessary to assemble the complete round:

- 1 bomb body.
- 1 FUZE, bomb, nose, M108—with pressure plate.
- 1 arming wire assembly.
- 1 BURSTER, AN-M4.

c. ASSEMBLY. To assemble the complete round, proceed in the following manner:

- (1) Remove components from packing and inspect for serviceability.
- (2) Remove the fuze seat and adapter sleeve from the adapter.
- (3) Insert the burster in the burster well; push it in until the shoulder of the burster seats against the shoulder of the burster well. Use no force.
- (4) Replace the adapter sleeve and screw firmly against the burster.
- (5) Assemble the pressure plate to the striker of the fuze bending the lugs on the plate to hold it securely.
- (6) Push the fuze into the fuze seat until both ball latches engage the groove in the seat.
- (7) Screw the fuze seat, with fuze, into the bomb handtight. Arrange the arming pin so that the safety cotter pin is perpendicular to the length of the fuze.
- (8) Thread the arming wire through the forward suspension lug of the bomb then, pressing the head of the arm-

ing pin to expose the lower hole, thread the arming wire through the inner eyelet in the arming pin.

- (9) When the bomb is installed in the rack, remove the safety cotter pin in the fuze.
- (10) If the bomb is not dropped, disassemble and return the components to their original condition and packing by first defuzing the bomb as directed in paragraph 54 and then removing the burster.

d. OTHER MODELS. The BOMB, target, practice, 100-lb, M75 is an earlier design of the M75A1. The fin assembly of the M75 is 3 inches shorter than that assembled to the M75A1 and consequently the complete round length of the M75 is only 48.62 inches. The suspension lugs of the M75A1 are designed for greater strength than those assembled to the M75. In all other respects the M75 is the same as the M75A1 including components and method of assembly.

159. Bomb, Practice, 100-lb, M85 (Concrete)

The M85 is a round-nosed cylindrical type bomb constructed completely (except for fin assembly and spotting charge) of reinforced concrete. It simulates the M38A2 in general shape and employs the same spotting charges as the M38A2 (par. 157 *b*). It is issued without fin and spotting charge. Four studs are cast into the rear of the bomb body to which the fin assembly is bolted when the complete round is assembled. The M85 (complete) is 38.25 inches long and weighs 103.5 pounds.

Section VII. DRILL BOMBS

160. General

Drill bombs are provided for training of ground crews in assembling, fuzing, unfuzing, and other handling of bombs. Drill bombs and their components are completely inert and are usually constructed from the metal parts of service bombs. They differ from inert practice bombs in that practice bombs are expendable; drill bombs are not.

161. Assembly

a. COMPONENTS. The components of a drill bomb are the inert metal parts of the service bomb which they are intended to simulate.

b. METHOD OF ASSEMBLY. Drill bombs are assembled in accordance with the service bombs they simulate.

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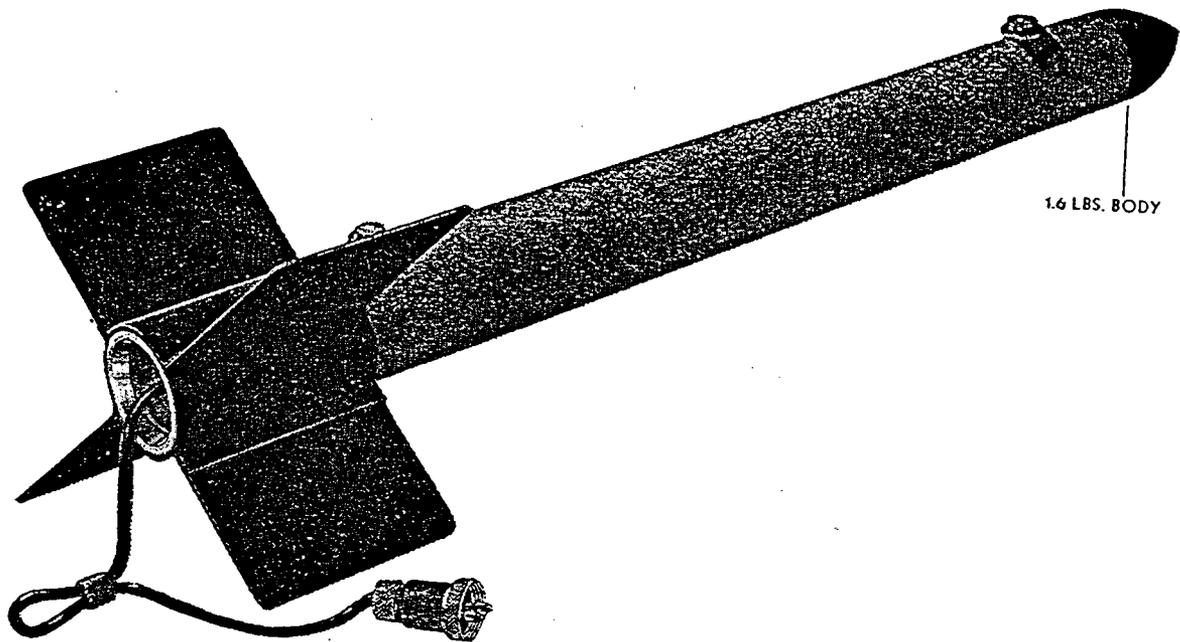


Figure 1.—2.25-inch Subcaliber Aircraft Rockets

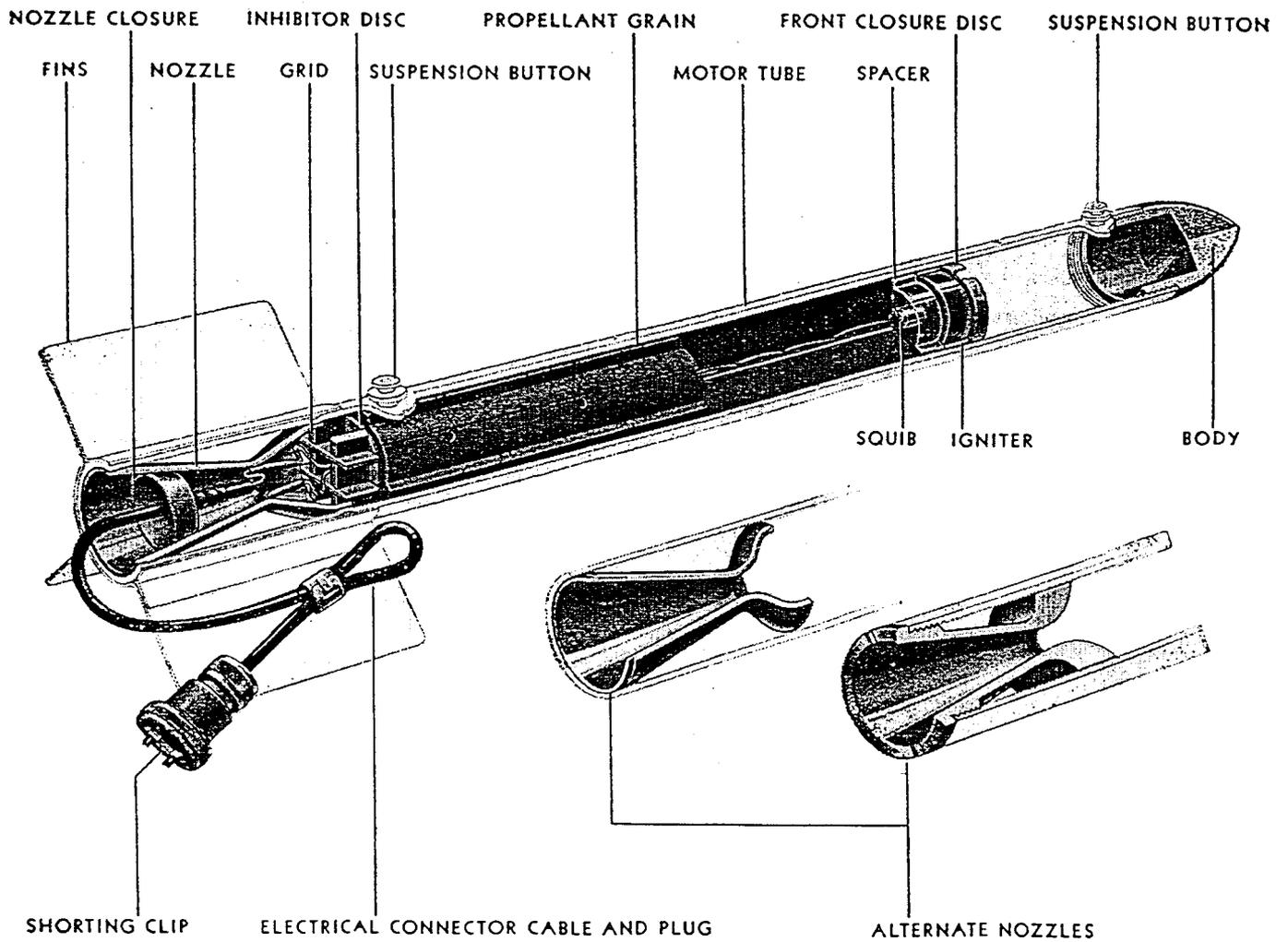


Figure 2—Descriptive View of Rocket

INTRODUCTION

WHAT THEY ARE

The 2.25-inch Subcaliber Aircraft Rockets described in this pamphlet are subcaliber, high velocity, fin stabilized rockets with inert heads.

THEIR PURPOSE

The 2.25-inch Subcaliber Aircraft Rocket is used as a training round in place of the service aircraft rockets.

Only one of the two types of subcaliber rockets is necessary for this purpose since the essential elements in rocket training embody; first, teaching the pilot to put the center of impact of the training round onto the target by adjusting his attack conditions to those originally laid out, and, second, to attempt, by proper fly-

ing, to reduce the overall dispersion to the inherent dispersion of the training round.

The assembly sheet on page 3 lists the various combinations of components now in service.

WHERE THEY ARE USED

These rockets are for use in conducting training and refresher courses in forward firing from aircraft.

WEIGHTS AND DIMENSIONS

The weights and dimensions of the various complete rounds, of their individual components, and of the rounds packed in shipping containers are given in the chart of Physical Characteristics of 2.25-inch Subcaliber Aircraft Rockets on page 3.

DESCRIPTION

GENERAL DESCRIPTION

2.25-inch Aircraft Rockets are composed of two major components, the head and the motor.

The Head is of machined steel, diecast zinc or cast iron. It is threaded at the rear for assembly to the motor and is hollowed out to give the head the correct weight to produce proper ballistic characteristics when the rocket is fired.

The Motor consists of the following parts:

1. **TUBE.** The tube is a seamless, or electrically welded, steel tube which contains the propelling charge and the igniter. It is the combustion chamber for the propellant.

2. **MOTOR SHIPPING CAP.** This cap protects the threads on the front end of the motor and also acts as an additional moisture seal for the front end of the motor. It must be removed before assembly of motor and head.

3. **FRONT CLOSURE DISC.** This disc acts as a seal, keeping out moisture and dirt from the front end of the motor. It also serves to retain the igniter and the grain in place in the motor.

4. **IGNITER.** The igniter is a plastic case con-

taining 14 grams of FFFG black powder and an electric squib. Leads, connected to the squib, pass through the central hole in the propellant grain and extend through the nozzle, where they are connected to the electrical connector cable.

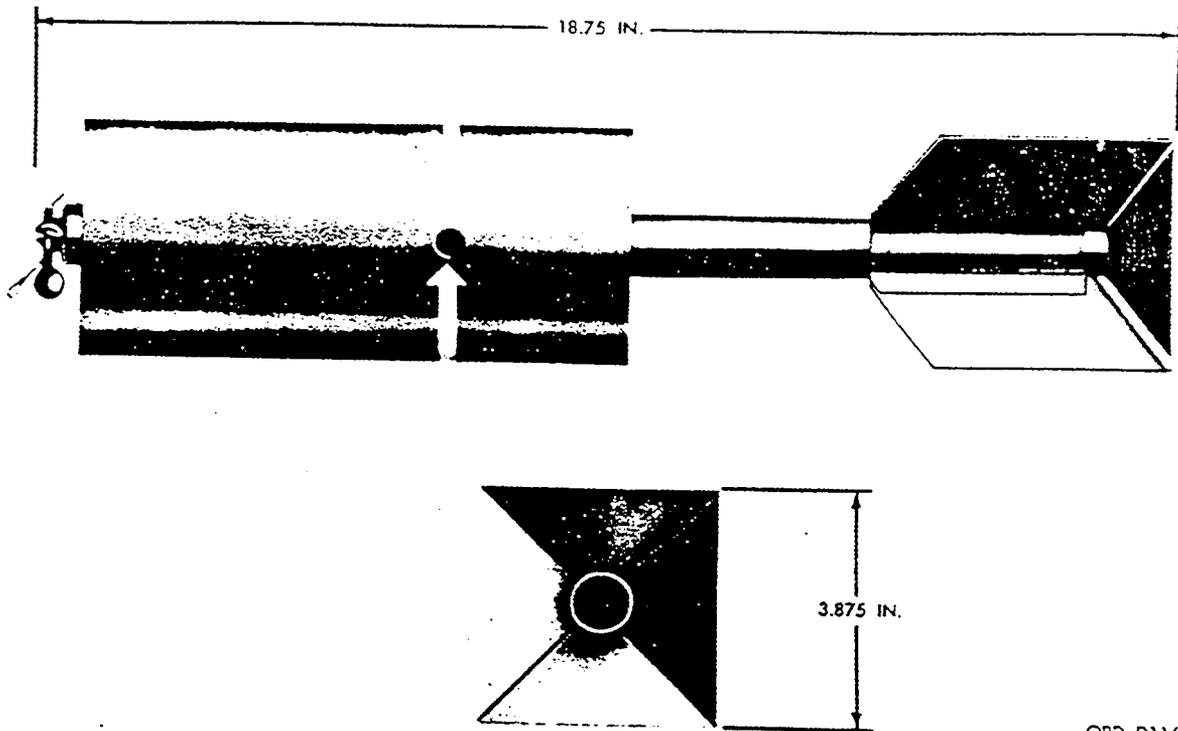
5. **PROPELLANT.** The Propellant is an extruded cylindrical grain of ballistite. Inhibitor discs, cemented to the ends of the grain, control the burning area and, hence, the pressure developed.

6. **GRID.** The grid supports the powder grain. During burning, it prevents the powder grain from sliding rearward and clogging the nozzle opening.

7. **NOZZLE.** The nozzle is a steel venturi through which the gases flow. It directs the gas jet in the desired direction and also provides for the expansion of the gases in the exit cone.

8. **NOZZLE CLOSURE.** The nozzle closure seals the rear end of the motor. It is crimped to the electrical connector cable, providing a moisture proof seal.

2-49. Bomb, Practice, 5-Pound, MK106 Mod 0



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Figure 2-57. Bomb, practice: 5-pound, MK106 Mod 0.

Table 2-47. Bomb, Practice: 5-Pound, MK106 Mod 0

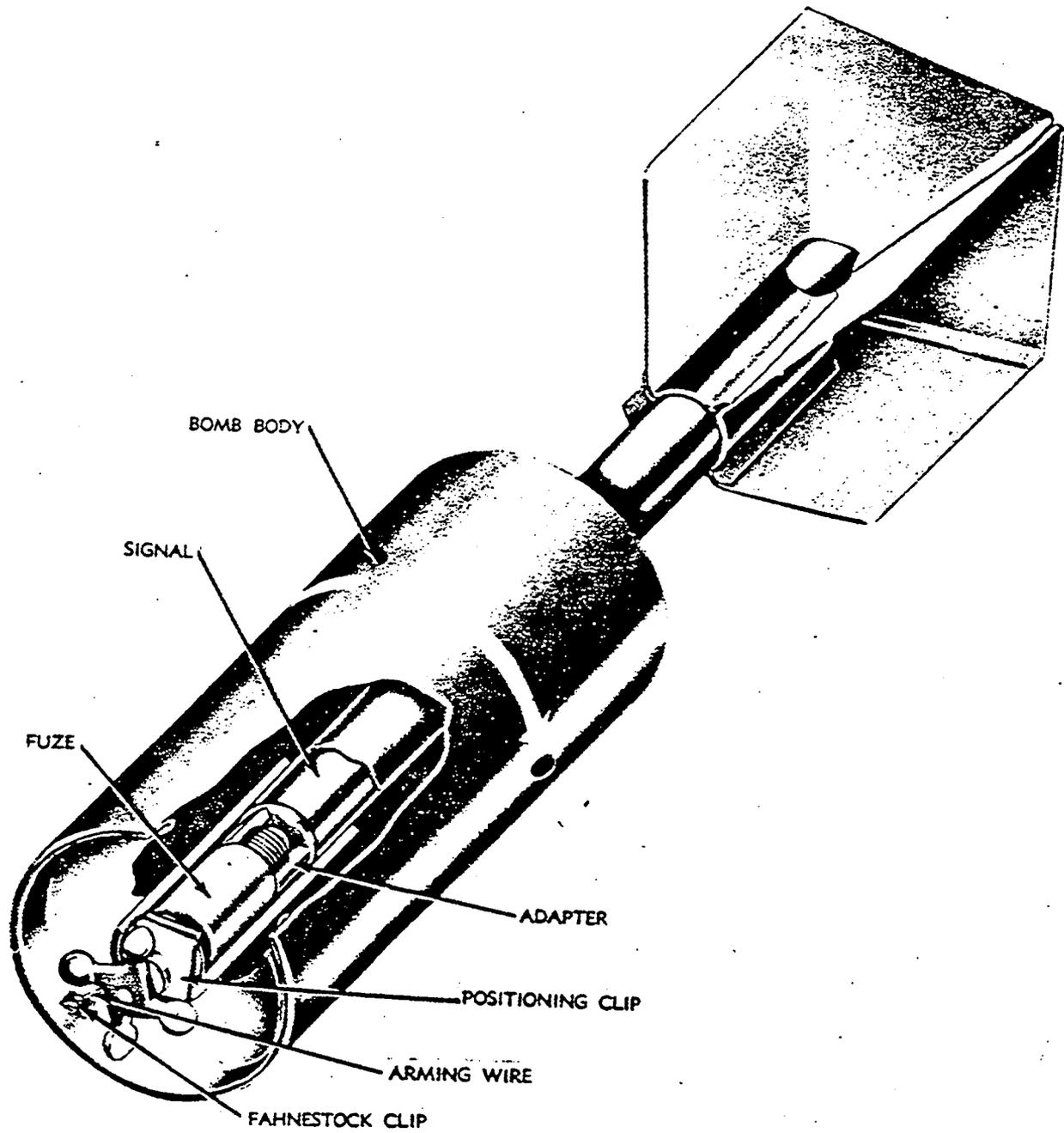
Mark.....	106
Mod.....	0
Length of Assembled Bomb (in.).....	18.75
Diameter of Body (in.).....	3.875
Fin Span (in.).....	3.875
Weight of Assembled Bomb (lb).....	4.56
Signal.....	MK4 Mod 3
Fuze.....	M173 (modified)

a. *Description.* Practice bomb MK106 Mod 0 (fig. 2-57 and table 2-47) is a thin-cased, cylindrical bomb. It is composed of a bomb body assembly, a practice bomb signal MK4 Mod 3, and a modified fuze assembly M173. The bomb body (fig. 2-58) is composed of an inner cylinder, and outer cylinder, and a fin assembly. The inner cylinder is composed of two seamless steel tubes; one is smaller in diameter and is partially inserted into the larger and welded in position. The inner cylinder has internal threads on the forward end for receiving fuze assembly M173. It also forms the base for the outer cylinder and fin assembly. The outer cylinder is fabricated of sheet steel. It is suspended on the

forward end of the inner cylinder by two sheet-steel supports which are welded to both the inner and outer cylinders. A box fin assembly consisting of four metal vanes welded together is welded to the aft end of the inner cylinder. The bomb has two $\frac{3}{8}$ -inch indexing holes drilled into the body 2 inches forward of the center of gravity. These holes accommodate dispenser aero 8A.

b. *Use.* This 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 fully armed by anemometer vanes after completing 220 feet of air travel. When the fuze is armed, impact forces from any direction will cause instantaneous detonation of the fuze which, in turn, fires the signal. Practice bomb signal MK4 Mod 3 is seated in the inner cylinder of one bomb body.

c. *Functioning.* When the bomb impacts with the target, the fuze functions and causes detonation of the signal. Smoke produced from the detonated signal is discharged rearward through an inner cylinder in the bomb body.



ORD D1162

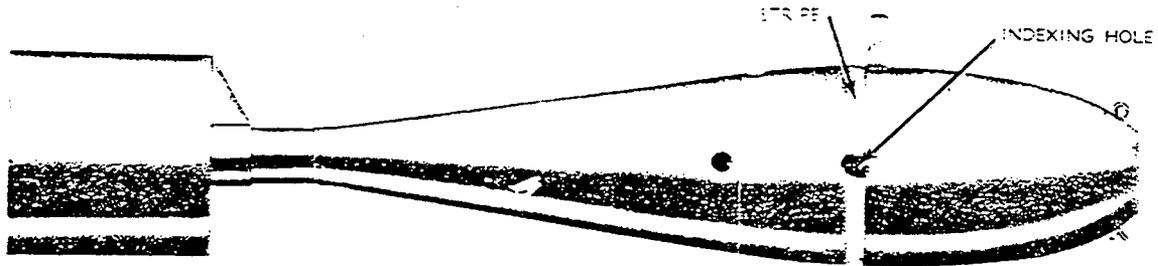
Figure 2-58. Bomb, practice: 5-pound MK106 Mod 0, cutaway view.

2-50. Bomb, Practice: 25-Pound, BDU-33 / B and BDU-33A / B

a. Description. The 25-pound practice bomb, BDU-33 / B or BDU-33A / B (fig. 2-59 and 2-59.1 and table 2-48), has a tear-drop-shaped, cast, metal body with a hollow, round cavity lengthwise through the center of the bomb. The conical afterbody is roll-crimped into two grooves in the aft end of the bomb body. The tail tube with fins is welded to the afterbody of the bomb. Both models have a lug well positioned just forward of the center of gravity of the assembled bomb. The BDU-33 / B is issued

with a lug installed in the lug well. If the lug is required for the BDU-33A / B, it is issued separately.

b. Differences. The BDU-33 / B has shrouded fins while the BDU-33A / B has cruciform-type fins. The BDU-33 / B has the firing pin assembly and signal assembled into the nose cavity of the body and secured in place by a safety (cotter) pin. The BDU-33A / B contains an inertia tube in addition to the firing pin assembly and signal. These three components are assembled into the central cavity of the afterbody and tailtube and secured in place by a safety (cotter) pin.



MU-D2 2508

Figure 2-59. Bomb, practice: 25-pound, BDU-33 / B.



MU-D2 2509

Figure 2-59.1 Bomb, practice: 25-pound, BDU-33A / B.

Table 2-48. Bomb, Practice, 25-Pound, BDU-33 Series

Model—BDU-33 / B or BDU 33A / B	
Length of Bomb (in.)	22.5
Diameter of Bomb (in.)	4.0
Weight of Empty Bomb (lb)	23.5
Weight of Assembled Bomb (lb)	23.7
Signal	Mk4 Mod 3
Firing Pin	Mk1 Mod 0

c. *Functioning.* When the BDU-33 / B bomb impacts the target, the firing pin assembly fires the signal, discharging smoke rearward through the central cavity of the bomb. When the BDU-33A / B bomb impacts the target, the inertia tube forces the signal against the firing pin. The signal fires, discharging smoke rearward through the inertia and tail tubes.

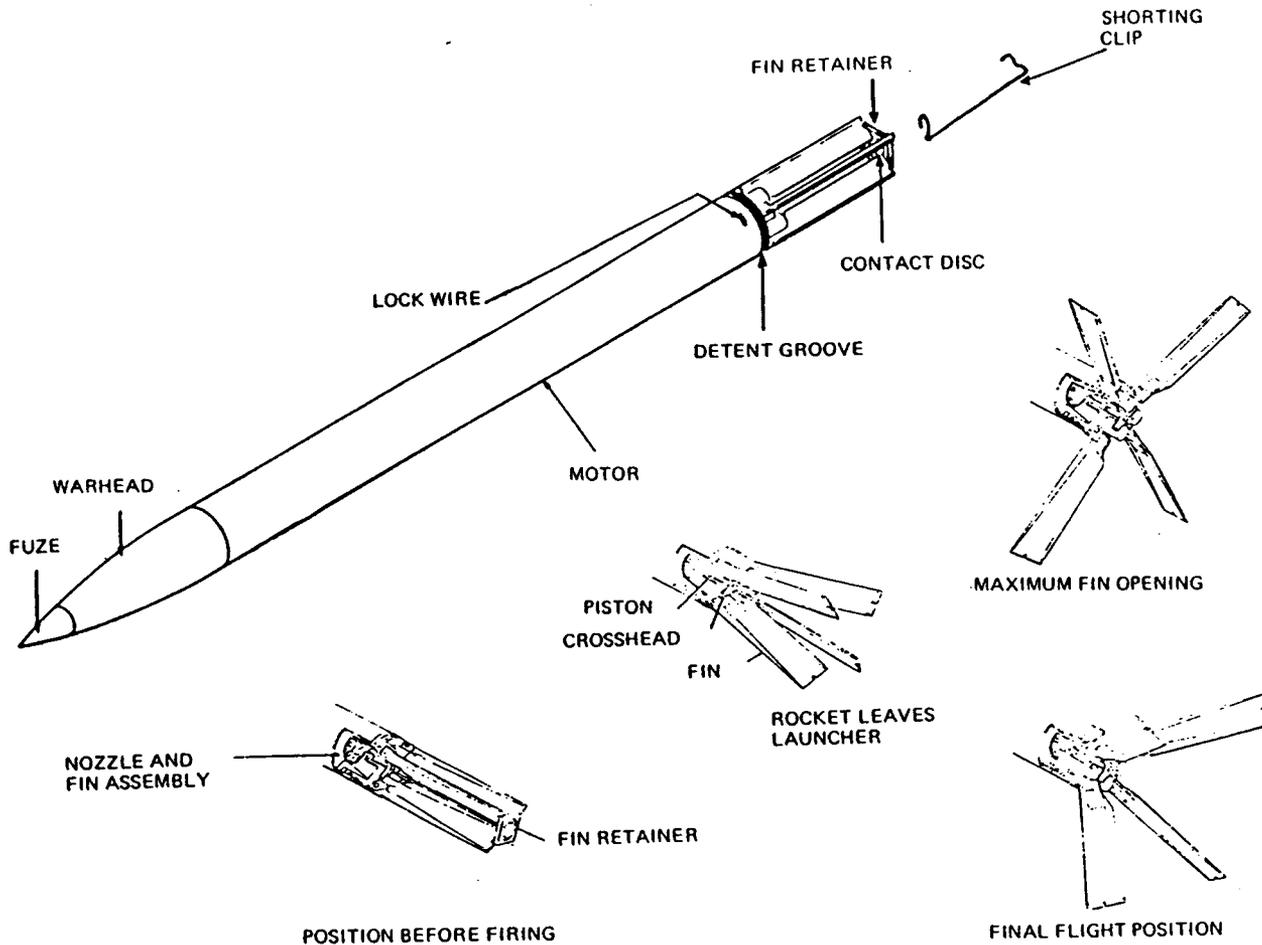


Figure 4-2. 2.75-inch FFAR rocket.

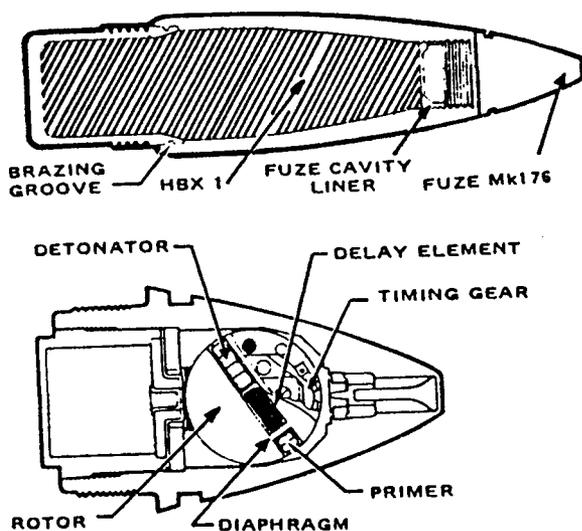


Figure 4-3. MK1 HE warhead and MK176 fuze.

superquick, graze-sensitive fuze that detonates the warhead above ground. The fuze is detonator-safe, with a detonator out-of-line rotor that is aligned by the G-forces of the rocket's acceleration. Arming is basically the same as that for the MK176. The M427 fuze functions instantaneously without ricocheting off the target. The primary effect of the MK1 warhead is blast and fragmentation.

MK5 HEAT warhead. The MK5 warhead is similar in appearance and weight to the MK1 warhead. It is intended for the penetration of armored vehicles, tanks, and other resistant targets. The HEAT head is loaded with 0.89 pound of composition B in the form of a shaped charge. The shaped charge, as you will remember, is designed to focus all of the energy of the detonation into a narrow, high-velocity jet. At impact, the base detonator is ignited to detonate the main charge. The shock waves of the detonation move forward from the base toward the apex of the thin metal liner that forms the concave cone at the front of the shaped charge. As the liner collapses, it ejects a narrow jet of explosive products and metal particles at extremely high velocities. The jet is first to strike the target, followed by the main body of the cone (called the secondary

40150

penetration) or the slug. The depth of jet penetration depends on the target's density rather than its strength. The shaped charge produces no appreciable lateral blast effect or temperature rise, since all of its energy is directed forward. The warhead uses the MK181 point-initiating, base-detonating fuze, which is similar to the MK176 fuze. The fuze contains a shaped-charge booster that directs a jet of hot gas rearward to the base of the HEAT warhead to initiate the booster pellet, which, in turn, detonates the main charge. The fuze is detonator-safe and armed by sustained acceleration, as were the MK176 and M427 fuzes. The fuze functions instantaneously upon impact with the target. The MK5 HEAT warhead is shipped and stored with the fuze installed. Figure 4-4 illustrates the detonating waves of the MK5 head. The MK181 fuze is shown in the detonator-safe condition.

M151 HE warhead. This warhead has a case designed to produce high fragmentation. The M151 warhead is intended for air-to-ground use against personnel and light material targets. Its 2.75-inch, 15-inch warhead has a pearlite malleable iron (PMI) case loaded with 2.37 pounds of composition B-4 explosive for fragmentation and blast effect. It may be shipped with or without its M423/427 fuze. (The M423 has a shorter arming time.) A cutaway of the warhead is shown in figure 4-5,A.

M156 WP warhead. The M156 is a target-spotting warhead for the 2.75-inch FFAR. Since it is identical to the M151 HE warhead in appearance, you must note the marking carefully. The warhead is filled with 2.13 pounds of WP and has a bursting tube of composition B-4 inserted through the center of the warhead. The explosive tube is detonated upon impact by the M427 fuze, dispersing the WP. The warhead is packed and stored with the fuze installed. Figure 4-5,B, is a cutaway of the M156 head. Note the burster location.

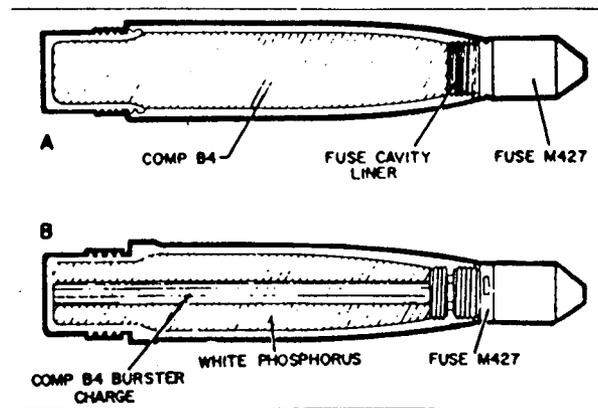


Figure 4-5. M151 HE and M156 warhead.

WDU-4/A fletcherette warhead. The WDU-4/A warhead is a flechette-ejecting warhead that provides considerable increase in antipersonnel effectiveness over other warheads. It is 2.75 inches x 17.76 inches, and weighs 9.4 pounds. It has a base fuze, an ejecting charge, a piston, 6000 flechettes, and an aerodynamic nose cone. The WDU-4/A is compatible with all 2.75-inch FFAR motors. The fuze is installed during factory assembly and is an integral part of the warhead. At launch, acceleration forces arm the fuze. At motor burnout (about 1.8 seconds after launch), an airburst is initiated by the deceleration forces, which force the spring-loaded firing pin to ignite the ejecting charge. The ejecting charge generates a gas pressure against the pusher plate (piston), which transmits the pressure through the stacked flechettes and to the shear pins on the nose cone. The shear pins break to allow the nose cone to eject, followed by the flechettes. The flechettes are packed tightly in the split sleeves, with alternating flechettes pointing fore and aft (fig. 4-6). When the flechettes are ejected, aerodynamic forces make the tail-forward flechettes tumble and streamline, causing dispersion. The WDU-4/A warhead is shipped and stored with the fuze installed. The cutaway view (fig. 4-6) shows the fuze in the safe condition.

Practice heads. Practice heads look the same externally as the HE warhead, and they're installed on service motors to provide training rounds for pilot proficiency training.

Motor assembly. The 2.75-inch rocket motors have an aluminum alloy motor tube. The MK4 motors, models up to and including MOD 7 and the MK40 MOD 0 have a nonintegral forward head closure. The MK4 MOD 8, MK40 MOD 1, and all subsequent motors have an integral, solid head closure. All motors include: an igniter, a propellant grain, and a nozzle and fin assembly (fig. 4-7). There are visual design changes you can easily see on external parts of motors with different mark and mod numbers. The MK40 motor has scarfed (angled) nozzles that increase stability by rotating the rocket in flight. For identification, a rocket equipped with the MK40 motor is designated low-spin, folding-fin aircraft rocket (LSFFAR). Other external differences are the routing of the igniter lead wire and the nozzle seal (cupped). Newer model rocket

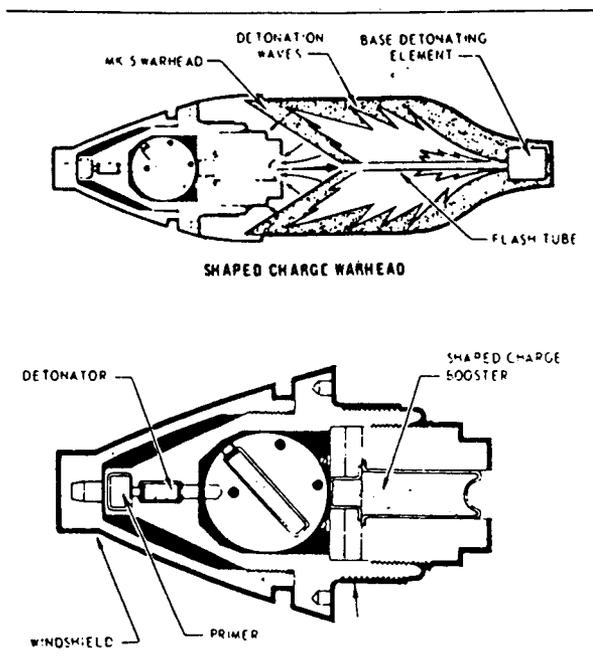


Figure 4-4. MK5 HEAT warhead and MK181 fuze.

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX E

REPORTS/STUDIES

APPENDIX E

REPORTS/STUDIES

Table of Contents

E-1 Conclusions of Chemical Agent Archive Search Report,
June 1998 (B-1).

A.4 Cannon Air Force Base and Melrose Air Force Range, New Mexico (Need to insert latest version)

Site Location: Cannon AFB is located in Curry County in eastern New Mexico near the Texas Panhandle. It occupies 3,782 acres. Melrose AFR is located 35 miles west of Cannon AFB, near Melrose, New Mexico. It occupies 73,189 acres.

Aliases: Cannon AFB has been known by several names—Portair Field, Clovis Municipal Airport (1929), Clovis Army Air Base (1942), Clovis Army Air Field (1943), and Clovis AFB (1951). The base was renamed Cannon AFB in 1957. Melrose AFR is the only known name for this facility.

A.4.1 History and Missions

During the late 1920s and 1930s, the Cannon AFB property was used as a civilian transcontinental air terminal. It later provided training facilities for B-17, B-24, and B-29 bombers. The 16th Bombardment, 27th Tactical Fighter Wing, the 312th Fighter-Bomber Group, and 140th Fighter-Bomber Wing, were assigned to the base at various times. In 1965, the mission of the base changed to that of a replacement-training unit. Since 1971, the primary mission of the base has been to develop and maintain tactical fighter wings composed of various models of F/EF-111 aircraft. In 1995, Cannon was reassigned to the Air Combat Command and it began transitioning from F/EF-111 aircraft to F-16 aircraft.

Melrose AFR was acquired by the Air Force in 1952 to serve as a bombing range for F-86 aircraft. F-16 and B-1 aircraft also used the facility. Melrose AFR is currently used for simulated special and conventional weapons delivery. The northern half of the range is used as a standard practice range. The southern half is used as a tactical range for ground-attack training.

A.4.2 Previous Archive Surveys

No information is available.

A.4.3 Findings of this Survey

A 1945 Report of Controlled and Other Critical Items of Equipment for Clovis Army Air Field indicates that the Second Air Force's 234th Air Base Unit, Section D, Maintenance and Supply, Chemical Warfare, had two 3 gal. M1 decontaminating apparatuses on hand (10 loaned out; 8 M1s, 1 400 gal M4, and 1 1-1/2 qt M2). Also on hand were one M3 airplane smoke tank filling line, one M1 airplane smoke tank carrying stand, and one M6 airplane smoke tank platform stand. Other items loaned out were an M4 HS vapor detector kit and an M10 airplane smoke tank.

A.4.4 Conclusions and Recommendations

This archive search shows evidence of the possible use of chemical agents at Cannon AFB. Since evidence of CAIS or mustard was not found, the base is assigned a Priority II. Further, because Melrose AFB was acquired by the Air Force in 1952, it is assumed that the finding mentioned above is not related to the range. Melrose AFB is assigned a Priority III.

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX F

LETTERS/MEMORANDUMS/MISCELLANEOUS ITEMS

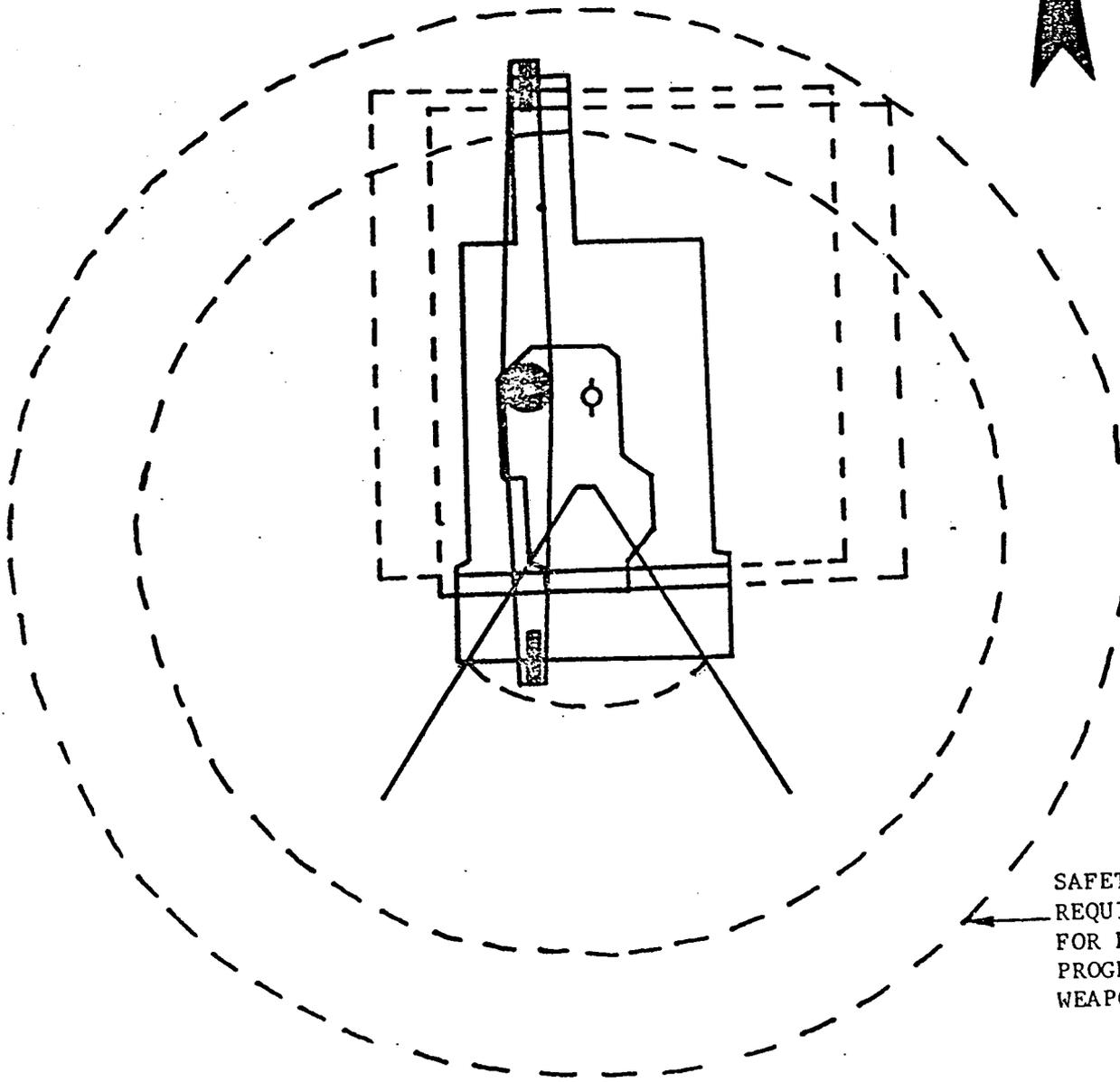
APPENDIX F

LETTERS/MEMORANDUMS/MISCELLANEOUS ITEMS

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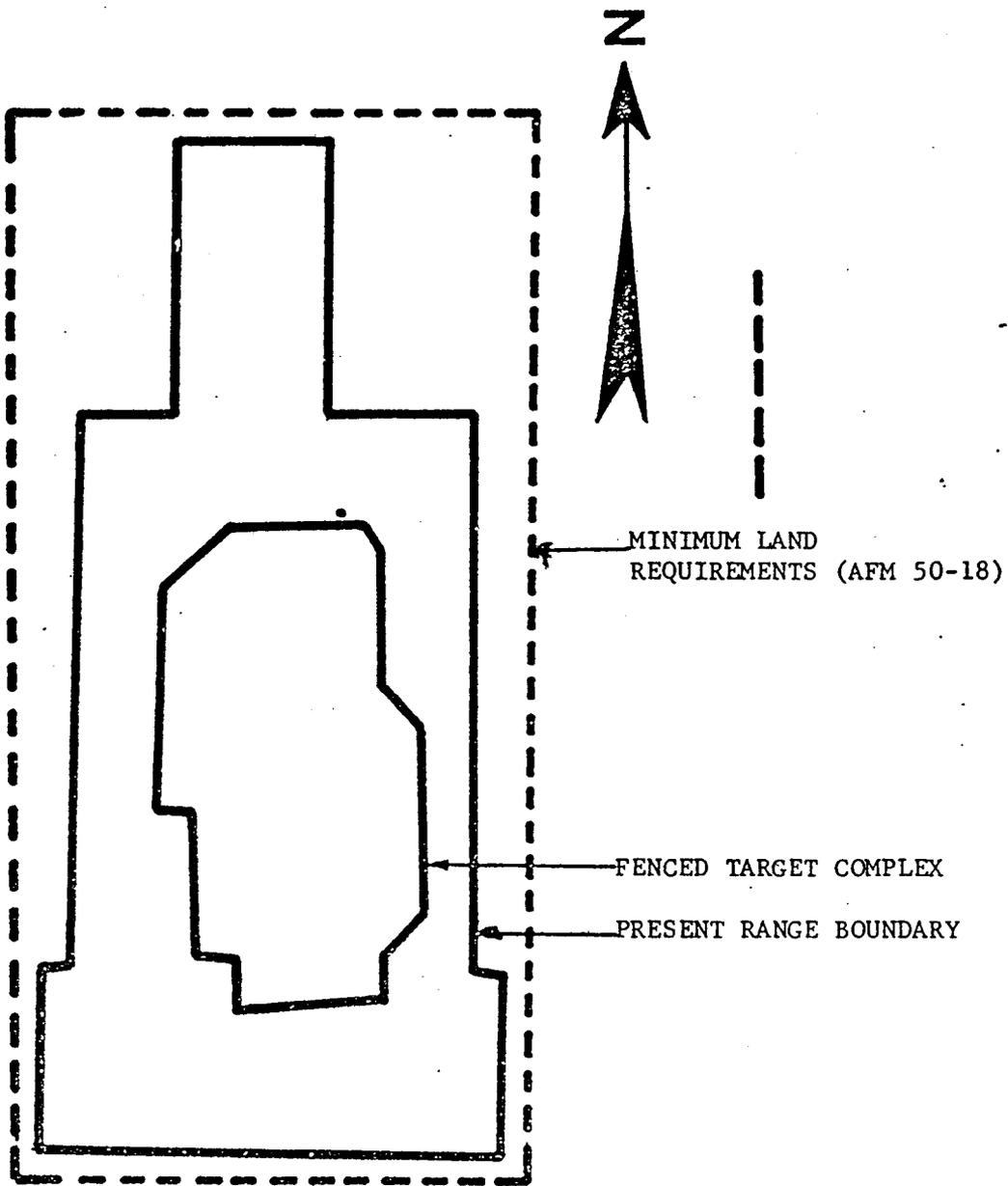
F-1	Safety Zones Requiring Waiver, 1972 (B-7)
F-2	Sketch of Tactical Targets, 1972 (B-18)
F-3	Relocation of Bomb Target, 1972 (B-18)
F-4	Sketch of Current Impact Area, 2000 (B-19)
F-5	Range Sweep, 1972 (B-23)
F-6	Range Sweep, 1973 (B-24)
F-7	Range Sweep, 1973 (B-25)
F-8	Range Sweep, 1977 (B-26)
F-9	Range Sweep, 1979 (B-27)
F-10	Range Sweep, 1983 (B-28)
F-11	Buried Residue, 1984 (B-30).

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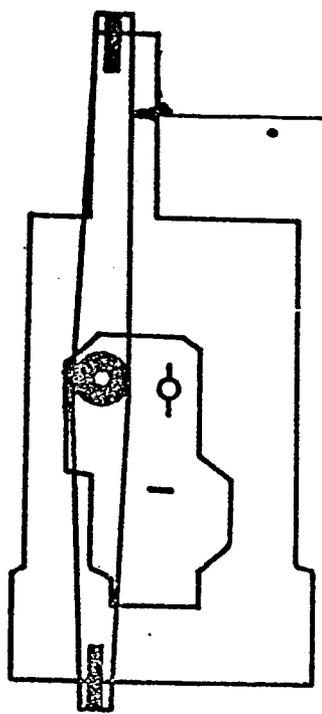


SAFETY ZONE
REQUIREMENTS
FOR FUTURE
PROGRAMMED
WEAPONS

SAFETY ZONE REQUIREMENTS FOR
FUTURE PROGRAMMED WEAPONS

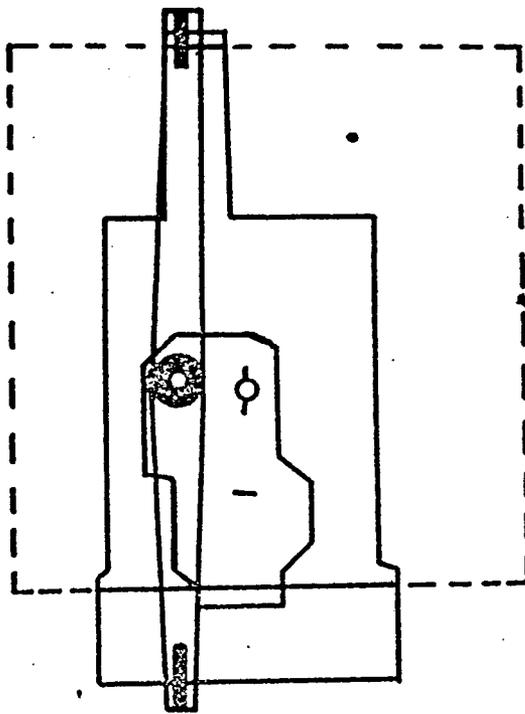


FENCED TARGET COMPLEX
PRESENT RANGE BOUNDARY
MINIMUM LAND REQUIREMENTS (AFM 50-18)



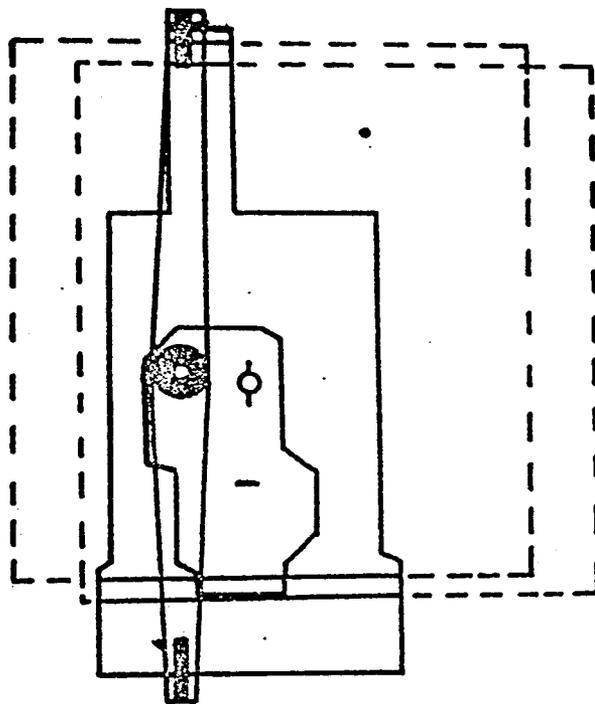
SAFETY ZONE REQUIREMENTS FOR
SIMULATED NUCLEAR WEAPONS DELIVERIES

SAFETY ZONE REQUIREMENT FOR
SIMULATED NUCLEAR WEAPONS
DELIVERIES



SAFETY ZONE REQUIREMENT
FOR CONVENTIONAL BOMB
DELIVERIES AND EMERGENCY
JETTISON PATTERNS ON
NUCLEAR TARGET.

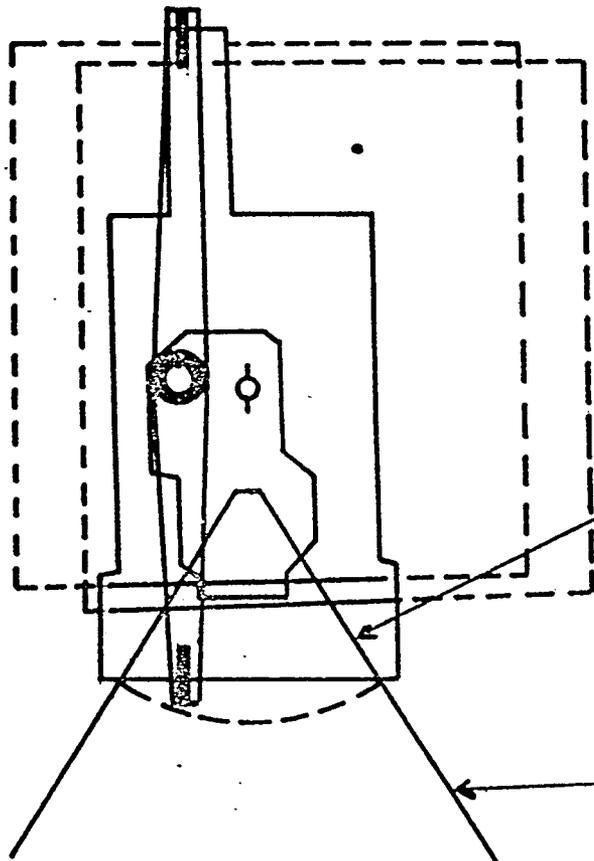
SAFETY ZONE REQUIREMENT FOR
CONVENTIONAL BOMB DELIVERIES
AND EMERGENCY JETTISON PATTERNS
ON NUCLEAR TARGET



← SAFETY ZONE REQUIREMENTS
FOR BOMB DELIVERIES ON
CONVENTIONAL TARGET.

SAFETY ZONE REQUIREMENTS FOR
BOMB DELIVERIES ON CONVENTIONAL
TARGET.

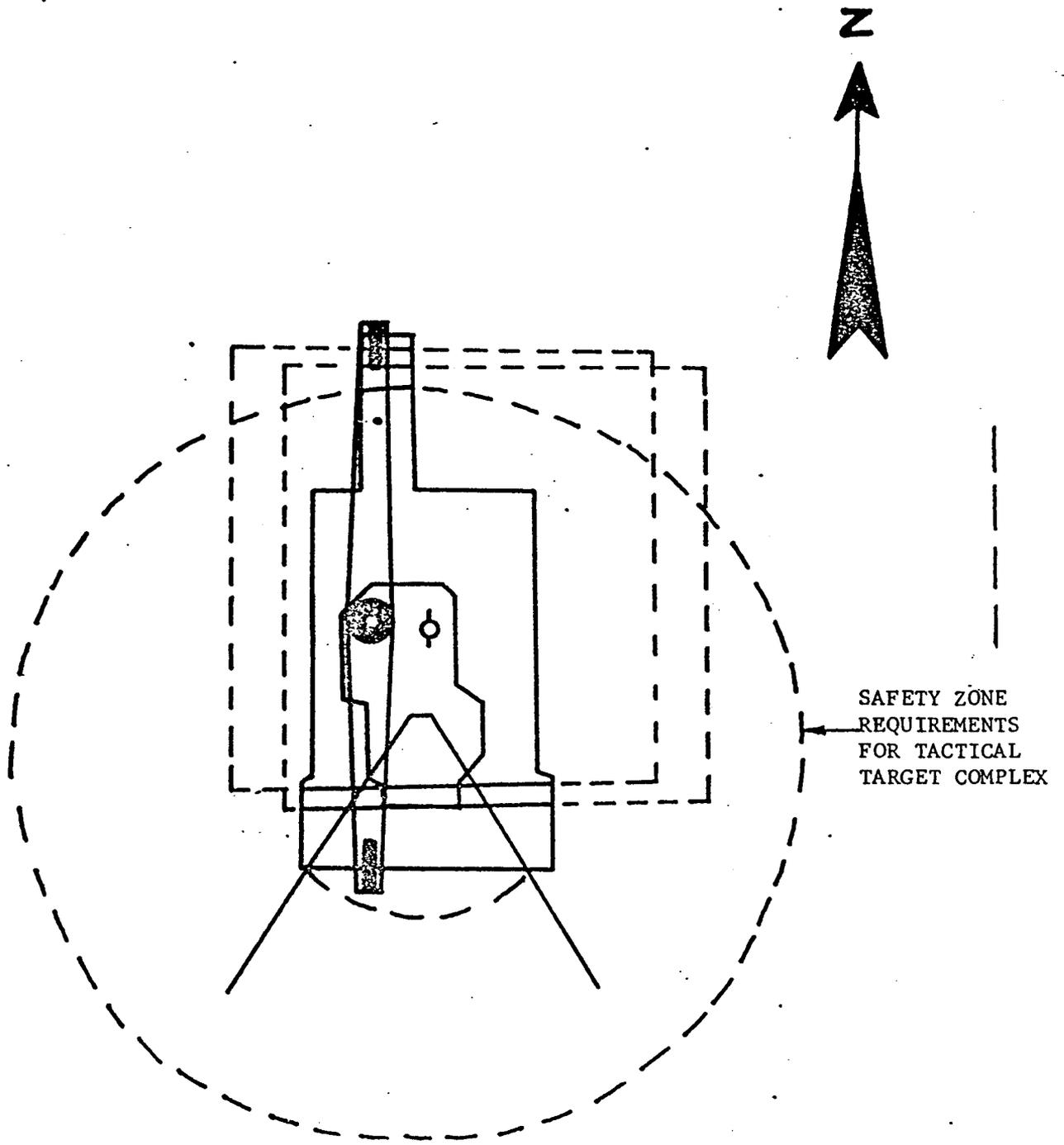
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SAFETY ZONE REQUIREMENTS
FOR .50 STRAFE FAN

NORTHERLY APPROACH
CORRIDOR

SAFETY ZONE REQUIREMENTS FOR
.50 STRAFE FAN. NORTHERLY
APPROACH CORRIDOR

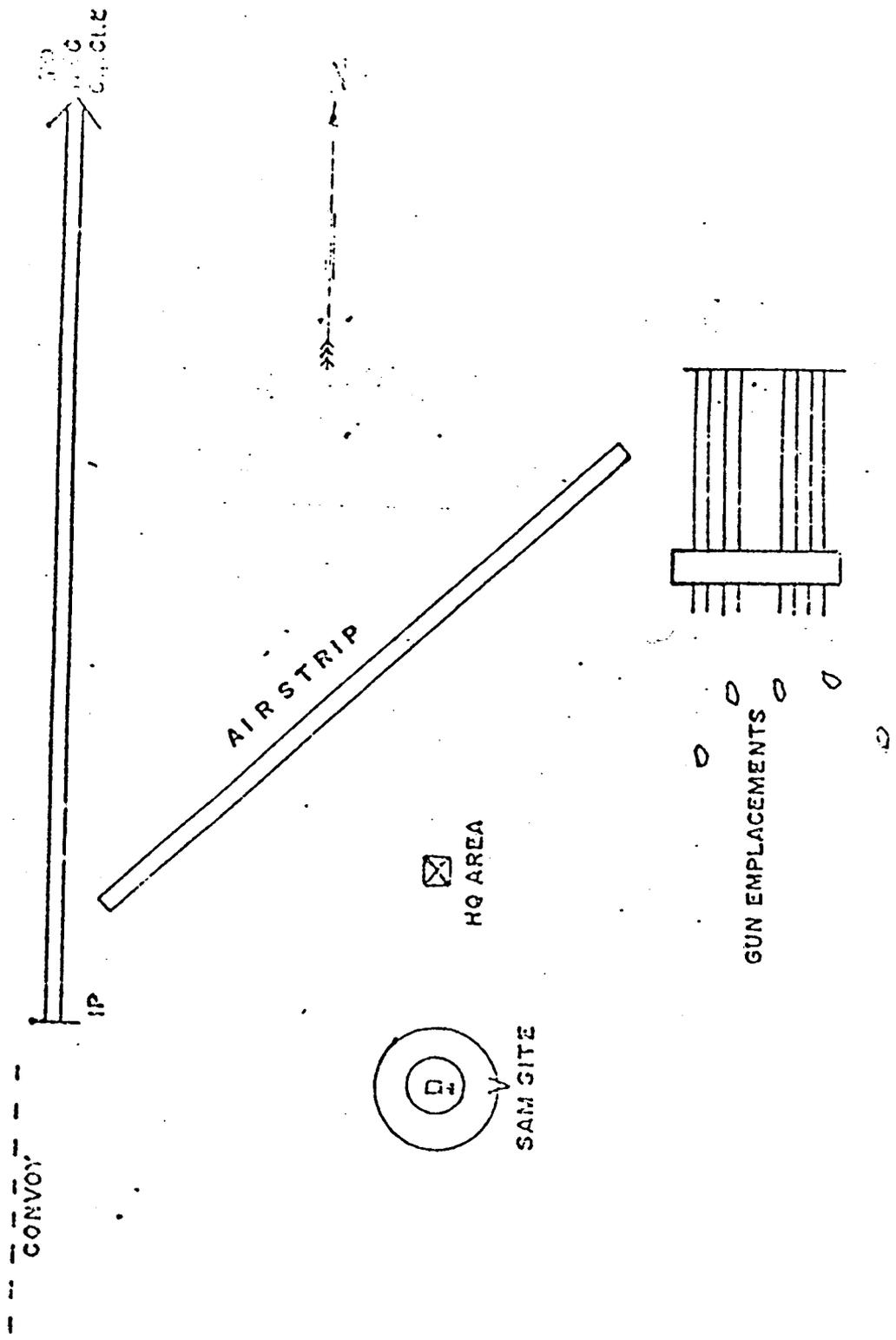


SAFETY ZONE REQUIREMENTS FOR
TACTICAL TARGET COMPLEX

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TACTICAL TARGETS

MELROCE RANGE
CANNON AFB, NMEX



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consolidated, and distributed. Coordination was effected on 31 F-111D
 factory pick-ups, on all support flying of the locally based T-29, and
 for operation of the runway supervisory units (RSUs).¹⁹

(U) Air Traffic Control. Considering the vital mission performed
 by Air Force Communications Service in support of the TAC mission,
 Colonel Little made an in-depth study of the air traffic control facil-
 ities at Cannon whereby he reviewed priorities for facilities in-place
 and those known programs of the future. The two areas of concern
 were the control tower renovation, which was delayed due to contrac-
 *
 tor error, and belated equipment installation on the fixed radar ap-
 proach control center (RAPCON). The equipment inspection and re-
 pair as necessary (IRAN) was completed in December, and all base
 facilities have been ready for further RAPCON work since 3 Febru-
 ary 1972. However, the Wing Commander felt that the assigned pri-
 ority and base support rendered were satisfactory. The 2040 Com-
 munications Squadron agreed with this assessment.²⁰

(U) Melrose Gunnery Range.²¹ Renovation of the range was fin-
 ished this quarter. Captain Tomlinson was credited with the

19. Telephone conversation with TSgt Hill/DOO, and discussion
 at Wing Staff Meetings as noted by Historian. Distribution mentioned
 was made in accordance with AFM 66-1.

20. MEMO FOR THE RECORD fm 27TFWg/CC, 4 Dec 72, Subj:
 Air Traffic Control, file 27TFWg/CCEA.

21. Civil Engineer Work Orders CA10-1 and CA43-1 dtd 30 Jan
 69 and 18 May 80, respectively, file 27TFWg/DOTR.

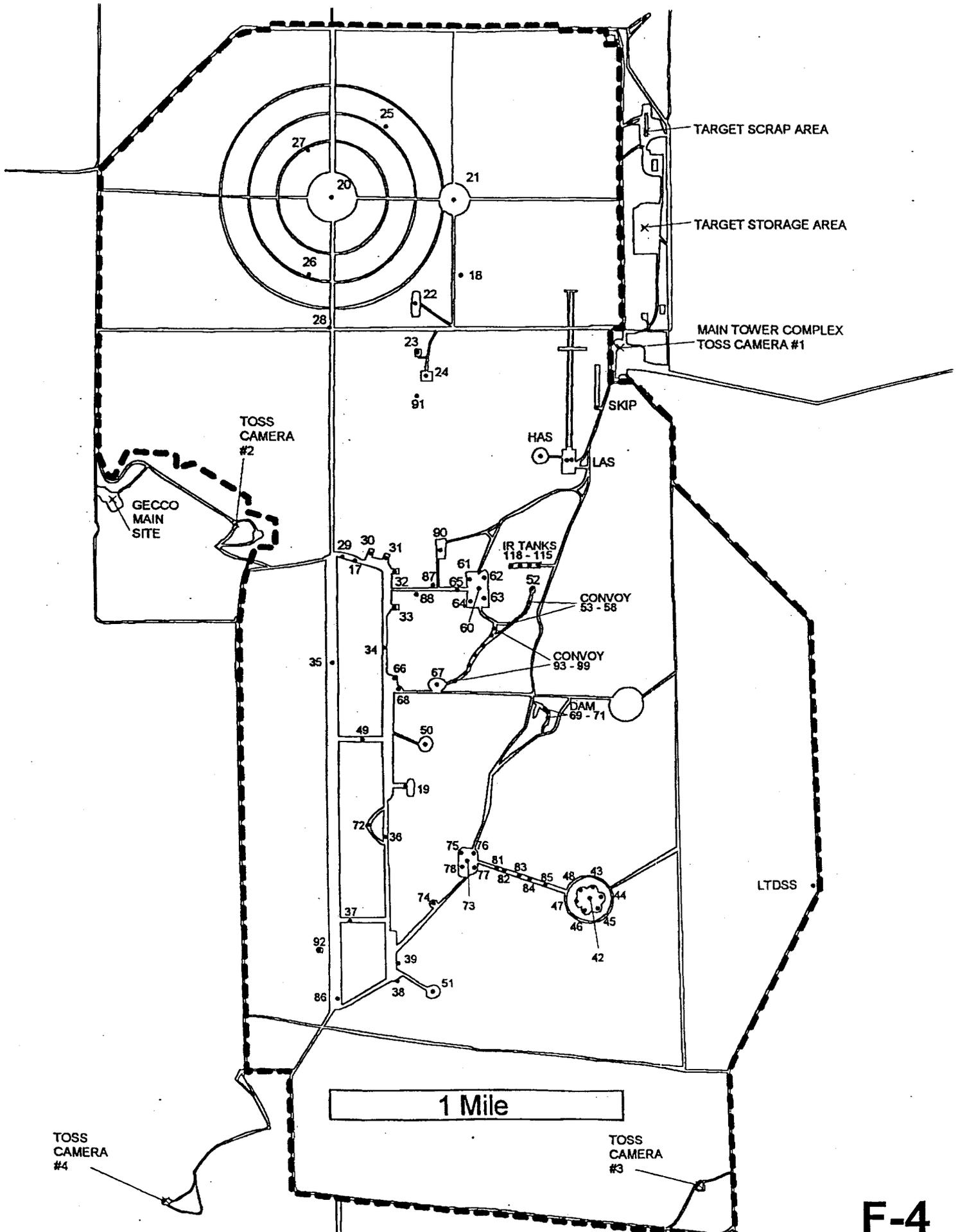
* Replacement of broken glass was the responsibility of the
 contractor.

changes made in the layout of the range complex. Major modifications included removal of one of the scoring towers and relocation of a scoring circle. These revisions resulted in an increased bomb scoring capability and resultant monetary savings to the United States Air Force.

(U) Range Management Study. Increased range utilization by Cannon AFB units will necessitate additional manpower to perform maintenance during the few non-flying periods or on weekends. The normal duty hours of a range crew are from 0700L to 2300L on a five day week basis. Occasionally, flying is conducted six days per week. The current unit detail listing (UDL) authorizes a 27170 Air Force Specialty Code (AFSC) as range noncommissioned officer in charge (NCOIC). Since a qualified range officer is present during flying operations, and as 65 percent of manhours devoted to range operations are for maintenance performed either by construction equipment operators or roads and grounds specialists, the Wing requested realignment of the UDL and an increased manning from 13 to 16 due to extensive night operations. When the UDL was established, practically no night activity was scheduled.

22. Suggestion No. CAN2228-72 per AF Form 1000, file 27TFWg/DOTW, which referenced AFM 50-18 as the reference for gunnery range layouts.

23. CAFBR 55-8 dtd 14 Jul 71 specifies that a range control officer must be flight lead qualified.



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(U) Interest in the USAF Suggestion Program excelled, with the 'squadron having already satisfied its quota of 30 percent for FY 73.

72
It leads all organizations at Cannon AFB.

(U) 27 Combat Support Group (CSGp) Operations. The Clearance and Dispatch Section processed 5,960 clearances which included

73
2982 inbound and 2978 outbound.

(U) The 817 flights at Melrose Bombing Range included 158 by the 4427TFRSq, 166 by the 4429CCTSq, 165 by the 522TFSq with off-base units absorbing 328, 208 of which were flown by the 347TFWg, at Mountain Home AFB, Idaho; 16 by the 49TFWg, Holloman AFB, New Mexico, and 104 by the 150ANG at Kirtland AFB, New Mexico.

74
(U) During the annual Melrose Bombing Range clean-up from 4 through 17 September, 80,960 pounds of bomb dummy units (BDU) -33 bombs and 33,780 pounds of BLU-1 and BLU-27 fire bombs residue were delivered to salvage. Policing the range resulted in burying 40,000 pounds Mark 106, 10,000 pounds of Mark 82, and 7,500 pounds of M-117 practice bombs. Some 18,000 pounds of .50 caliber (cal) and 20 millimeters of brass were recovered and delivered

72. Ltr (U), HQS TAC to All TAC Bases, 18 Jul 72, Subj: TAC Personnel Management Rating System, and Suggestion Program Weekly Report, Military, 14 Sep 72; Notations made by Historian in Weekly Wing Staff Meetings. Also, see chart following this p.

73. Data extracted fm Aircraft Inbound and Outbound logs, 27CSGp/OTB, 1 Jul - 30 Sep 72.

74. Data extracted fm Weekly Range Schedule and Duties Report, 1 Jul - 30 Sep 72, file 27TFWg/DOT.

to the 27 Munitions Maintenance Squadron (MMSq) for cleaning.

Destruction by detonation on the range included 24 M-23 igniters,
two 2.75 rocket motors, one 2.75 rocket heat head, 124 M-106 and
170 BDU-33 practice bombs.
75

(U) The entire conventional circle was moved and lined up on a
45° angle with the main and right tower at Melrose Gunnery Range
which eliminated the necessity for a center tower. The contract
was awarded and released to build consoles and paint and replace
steps on both towers.
76

75. Extract fm 27CSGp Hist, 1 Jul - 30 Sep 72, file 27CSGp/
OTA.

76. Contract no. F-29 (605) -72-C-0127 in amount of \$17,500
awarded to John Bowman, Inc., file 27CSGp/PMK.

Standardization Evaluation Team (MSET) visit 12-16 February 1973,
 was to determine the capability of the element to support the 27
 117 118
 TFWg Mission. A rating of satisfactory was awarded, with
 119
 deficiencies noted corrected by 5 March 1973.

(U) The EOD Branch expended 98 manhours in clearing all
 targets from Melrose Range.~ Approximatley 10,500 pounds of
 BDU-33's and 4500 pounds of MK-106's were removed with disposi-
 120
 tion made of all unserviceable munitions.

(U) Facilities for Munitions Maintenance Organizations. Con-
 current with the formation of munitions maintenance squadrons in
 March, 1971, a requirement was generated for the identification of
 standardized munitions facilities. All munitions facility require-
 ments were included in the directive; with the exception of the ad-
 dition to the weapons release building and the arm/dearm shelters
 which have been approved for inclusion in subsequent printings of
 AFM 86-4. During the week of 19 to 23 March, five house trailers
 were transported from the recreation area at Lake Conchas to the

117. The inspection involved the Air Force Explosive Ordnance
 Disposal (EOD) Program in accordance with AFR 136-10 and Main-
 tenance Management as specified in AFM 66-1, both as supplement-
 ed.

118. Pursuant to AFM 66-1, TAC Sup 1 (Test) para 6-6a (4),
 file 27 TFWg/DC/Maintenance.

119. Ltr (U), 27 MMSq to 27 TFWg/CC, 5 Mar 73, Subj: 27
 TFWg/CCE, Ltrs dtd 26 Feb 72, 22 Feb 73, EOD Evaluation, file
 27 MMSq.

L. 120. Ibid.

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rendered the A-7D deployment to participate in the Fort Sill

23

firepower demonstration:

204 each MK-82 bombs
 6 each CBU-24B/B cluster bombs
 53 each BLU-27 firebombs
 22 each BDU-58

(U) The Explosive Ordnance Disposal (EOD) Branch expended a total of 134 manhours in clearing all targets on Melrose Range. Approximately 11,000 pounds of BDU-33 and 3,950 pounds of MK-106's were removed from the range on 28 April, 26 May, and 30 June 1973. 24

(U) The 27 MMSq did not concur with the major change to the task assignment lists (TAL's) that required the crew chief to operate the MJ-1 table controls, 25 and said that F-111 loadings utilizing this change were not observed at Cannon during the TAL visit 13-15 April. The procedure was discussed at the TAL conference 5 to 12 February at Nellis AFB and was rejected in its entirety by all three wings. It was the concensus of opinion of that conference that this procedure relegates a crew chief to worker status in lieu of a supervisory role. The TAL procedures dated 12 February adequately adhere to the intent of the F-111 standardization program. 26

23. Data furnished Historian by Capt Warren W. Curtis, Squadron Comdr.

24. Ibid.

25. Msg (U), HQS TAC to RUWTBWA/27 TFWg, LGW 302040Z, Apr 73, subj: F-111 Task Assignment Lists, filed in 27 TFWg/LGW.

26. Msg (U), 27 TFWg to HQS TAC, LGM 072232Z, May 73, subj: F-111 Task Assignment Lists, filed in 27 MMSq.

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(U) Mountain Home AFB was host to the 832 Air Division tri-annual Loadeo competition from 10 to 14 September. The 27 MMSq load crew comprised of Sergeant Daily, A1C Lehmkuhl, A1C Nobles,⁶⁹ and A1C Jordon, placed second.

(U) Munitions required for CORONET ORGAN IX included 240 MK-82 and 60 MK-84 high explosive bombs. The ordnance was received, built up, and delivered in a 4-day period. Although the practice exercise was deemed a success, problems were encountered in weapons delivery and release, primarily due to avionics problems⁷⁰ and the interface between the avionics and weapons release system.

(U) Munitions for CORONET SHARPSHOOTER included 100 BDU-33, 100 MK-106, and 19 BDU-12 practice bombs. Three each BDU-12's were expended during the competition. The 27 TFWg placed second. The AIM-9 missile was dropped as a support munition and the unit committed nuclear munition was changed from the⁷¹ B-43 to the B-57.

(U) All targets were cleared from Melrose Range 28 July and 25 August; annual range clearance was accomplished 15 through 19 September. Approximately 39,410 pounds of BDU-33 and 22,750 pounds of MK-106 practice bombs were removed. Six M23 igniters

69. Mach Meter News release 14 Sep 73, and data extracted fm discussion at 27 TFWg Staff Meeting 19 Sep 73.

70. Data supplied by Major Roose 10 Oct 73.

71. Ibid.

with FMU 7 fuze and 13 MK-2 practice bombs were destroyed. Seventy-six MK-82, inert, general purpose bombs were demilitarized.⁷²

(U) Emphasis was placed on maintaining adequate numbers of formed and certified munitions loading crews. The long term objectives were directed at attaining 100 percent of authorized formed and certified munitions loading crews. Turbulence and lack of stability in Air Force Specialty Code (AFSC) 462X0 severely restricted reaching the goal in the immediate future. With adequate emphasis and management controls, attainable goals of 75 percent formed and 60 percent certified munitions loading crews seemed appropriate for most units.⁷³ All 15 loadings performed during the TAC Inspector General Management Effectiveness Inspection from 17 to 24 September were rated satisfactory. This was described by them as "a commendable achievement."⁷⁴

Field Maintenance Squadron

(U) Lt Col Thomas J. Dodd remained in command throughout the quarter.⁷⁵

(U) The phase-out of T-33 aircraft caused a drop in personnel authorizations. The propulsion branch experienced a decrease of

72. Ibid.

73. Extract fm ltr (U), 12AF/CC to 27TFWg, subj: Munitions Loading Crews, 10 Aug 73, file 27TFWg/CCEA/ADM 6-1.

74. PC 20 MEI, 17-24 Sep 73, included as SD 29, this hist.

75. Shown on Roster of Key Personnel, Table 1, in Appendix to this hist, p. 173.

UNCLASSIFIED

26

(U) The Crash Recovery teams earned a letter of commendation from the Wing Commander for their professional performance following the 22 Jan crash of aircraft 68-160.¹

(U) Explosive Ordnance Disposal (EOD) utilized 629 man-hours for the monthly Melrose Range and Gunnery Range cleanups. 4,400 expended MK 106 practice bombs were recovered and 132 MK 82 inert bombs were removed and awaiting disposal. EOD saved the Air Force some \$4,500 by turning in 41,000 pounds of BDU 33 residue to salvage. EOD also reacted quickly and professionally in a number of emergency situations, including a bomb threat against an aircraft, an Improvised Explosive Device (IED) incident at the base water tower, and the leakage of three containers of bulk CS-1 tear agent in the Munitions Storage Area.²

(U) On 5 Mar the Deputy Commander for Maintenance advised 12AF/LG of a number of ECS water tank leaks caused by sealant reversion, similar to that discovered on F-111D fuel cells a few years ago. Five F-111D's were inspected by removing the injection plugs and probing in the sealant. Two of the aircraft were found to have reverted sealant. Both aircraft had early serial numbers (indicating they were older aircraft) and both had water leaks.³

(U) It was indicated that if the problem were to continue, it could extend throughout the F-111D fleet within a few years.⁴

(U) It was recommended that the F-111D ECS water tanks be resealed in a timely manner during the next programmed depot input or Cannon AFB speed line.⁵

1-Letter, 27TFW/CC, 31 Jan 79, Crash Recovery, Aircraft 160.

2-27EMS History, 1 Jan-31 Mar 79, pg 4

3-Msg (U), 27TFW/MA to 12AF/LG, 052057Z Mar 79, ECS Water Tank Leaks.

4-Ibid.

5-Ibid.

UNCLASSIFIED

F-9

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We sent SrA Madison and A1C Leslie TDY to support Red Flag 83-4. We also prepared a munitions static display for Cannon's Community Appreciation Day. TAC approved our request to formally establish a Support Section which incorporates the duties of the Mobility NCO, Training NCO, TODA, Branch Resource Monitor, and Tool Crib Monitor. SSgt Johann Gilbert earned the Honor Graduate Award for PME III Class 83F. He was also selected as Munitions NCO of the Quarter with Amn Norman Hunt as Munitions Airman of the Quarter. Newly assigned personnel are: 2LT Roger Hulett, MSgt James Griffith, and Airmen Edwin Adams, Phillip Drake, Robert Kennedy, and Richard Dean. The 12th Air Force Base Appearance Team visited the MSA on 22 June.

ARMAMENT SYSTEMS BRANCH (MAED)

During this quarter, Armament personnel were tasked with the movement and checkout of two hundred and eleven pieces of Alternate Equipment. Major inspections were performed on one hundred and sixteen Bomb Rack Units (BRU-3A), ninety-five Bomb Racks (MAU-12C/A), Bomb Dispensers (SUU-20), and twelve Pivot Pylons. The Line Replacement Unit (LRU) Section processed one hundred and four LRUs through the shop. Troubleshooting and repair, bench check and cleaning were accomplished on forty-three Release Pulse Units (RPU), fifty-three SPUs, seventy-four CPUs, fifty-four SSPs, fifty-eight SCPs, eighteen AMACS, seventy assorted cassettes and four SMUs. LRU Section also processed eighty assorted cables and rebuilt sixteen assorted cables. During this quarter, three people were reassigned PCS. Training was heavy this quarter, twenty-five volume review exercises required and twenty-five completed. The Alternate Mission Equipment Section (AME) controls 1,268 pieces of AME for the 27th TFW. During this quarter, one hundred and eighty-eight TCTOs were complied with on the BRU-3A made for "Rock Eye". One hundred and fifty more modes have been received on the 29th of June which will begin in the first part of July.

EXPLOSIVE ORDNANCE DISPOSAL (EOD) (MAEE)

During this quarter this branch responded to seventeen inflight/ground emergencies, one routine pickup of ordnance and one actual IED incident with a total expenditure of forty-three manhours. We supported the monthly clean up of Melrose Bombing and Gunnery Range which included the disposal of five hundred and twenty-two practice bombs, twenty-four small arms ammo, thirty-five pyrotechnics, one rocket warhead white phosphorus M156 and 35,000 pound of scrap metal along with one hundred and fifty-nine MK82 practice bombs were placed in the range burial pit. Also, during this quarter, SSgt Painter and Sgt Polchinski went TDY to Nellis AFB to participate in Coronet Clean 83-1. SrA Carson and SrA Hiller went TDY to Holloman AFB to participate in their annual range clearance. Sgt Jones arrived from Germany PCS to bring our manning to one hundred percent.

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX G

REAL ESTATE DOCUMENTS

APPENDIX G

REAL ESTATE DOCUMENTS

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- G-1 USAF Land Change Report, 9 October 1991 (B-31)
- G-2 Tract Register, circa 1985 (B-8)

PREPARED 91 OCT 29 21:29

USAF LAND CHANGE REPORT

AS OF 91 SEP 30

RCS HAF-LEE(A)7118

NAME: ****INSTALLATION**** MELROSE RANGE
 CODE: PXLY
 COMMAND: TAC
 COUNTY: ROOSEVELT
 ST. GR. CTRY: NMEX

NAME: ****NEAREST TOWN**** MELROSE OVER MEXICO
 DIST. & DIR. FROM: MSW0012
 POPULATION: 20001

NAME: ****PARENT INSTL**** CARRONAS
 CZCZ

NAME: ****NEAREST CITY OVER 10,000**** CLAYTON MEXICO
 DIST. & DIR. FROM: MSW0035
 POPULATION: 00028

PART 1 AIR FORCE CONTROLLED PROPERTY END FY-91

TYPE REAL EST	NOMENCLATURE	NUMBER OF ACRES	COST OF ACRES	P	COST OF IMPR	***INSTRU. DATE** BEGIN END	PURPOSE
SUB-TOTAL		72417.95	775416.65		831792.07		
EASEMENT LAND ESMT RESTR /T		28.20	1400.00				1987MELROSE EXPANTION HARVEY CROSS
EASEMENT LAND ESMT RESTR /T		162.01	10400.00				1987MELROSE EXPANTION GENE & AJA BRODIE
EASEMENT LAND ESMT RESTR /T		633.71	45384.00				1988MELROSE EXPANTION NEW MEX 30YS RANCH
EASEMENT LAND ESMT RESTR /T		48.88	4800.00				1986MELROSE EXPANTION BJ & SUSAN K PIERCE
EASEMENT LAND ESMT RESTR /T		647.26	44800.00				1986MELROSE EXPANTION FB-JA&BJ GREATHOUSE
EASEMENT LAND ESMT R-0-W/P		2.65	1200.30			19810331	1981EASEMENT FOR ROAD ROW MELROSE RANGE
EASEMENT LAND ESMT R-0-W/P		2.81	500.000			19792226	1979P/EASMT ROW FOR ACCESS RD RUSSELL
SUB-TOTAL		1497.17	127684.30		0.00		
TOTAL		73922.12	12883100.95		831792.07		

PART 5 LAND AND IMPROVEMENTS ORIGINALLY ACQUIRED

NUMBER OF ACRES	COST OF ACRES	COST OF IMPROVEMENTS
7770.95	10945.00	8019.03

G-1

G-1

PREPARED 91 OCT 39 11:29

USAF LAND CHANGE REPORT

AS OF 91 SEP 32

RCS HAF-LEE(A)7118

NAME: ****INSTALLATION**** MELROSERANGE	***PARENT INSTL*** CANNONAF3	NAME: ****NEAREST TO IN**** MELROSE MEXICO	***NEAREST CITY OVER 10,000** CLOVIS MEXICO
CODE: PXLY	(ZCZ)	DIST. & DIR. FROM: WSW012	WSW035
COMMAND: TAC		POPULATION: 00001	00028
COUNTY: ROOSEVELT			
ST OR CTY: NMEX			

PART 1 AIR FORCE CONTROLLED PROPERTY END FY 91

TYPE REAL EST	NOMENCLATURE	NUMBER OF ACRES	COST OF ACRES	P F	COST OF IMPR	***INSTRU. BEGIN	DATE** END	PURPOSE
OWNED	LAND, FEE, PUR	3343.71	1320000.00					1988MELROSE EXPANTION ONE HUNDRED RANCH
OWNED	LAND, FEE, PUR	542.00	506500.00					1987MELROSE EXPANTION J & VW BRIZZLE
OWNED	LAND, FEE, PUR	80.00	12800.00					1987MELROSE EXPANTION WB & BA RUSSELL
OWNED	LAND, FEE, PUR	157.24	21890.00					1987MELROSE EXPANTION L & NM SIMONS
OWNED	LAND, FEE, PUR	1600.00	222750.00					1987MELROSE EXPANTION L & NM SIMONS
OWNED	LAND, FEE, PUR	42.00	5000.00					1987MELROSE EXPANTION SH & NS BENJAMIN
OWNED	LAND, P/D, P.L.C.	6713.90	6713.90					1970BLM LAND WITHDRAWN FROM PUBLIC DOMAIN
OWNED	LAND, FEE, CONDEMN	560.00	33160.00					1987MELROSE EXPANTION HAROLD CROSS
OWNED	LAND, FEE, CONDEMN	160.00	23700.00					1987MELROSE EXPANTION HAROLD CROSS
OWNED	LAND, FEE, CONDEMN	400.00	54000.00					1987MELROSE EXPANTION HAGABELLE CROSS
OWNED	LAND, FEE, CONDEMN	160.00	10800.00					1986MELROSE EXPANTION FRANCES LEOTA MARTIN
OWNED	LAND, FEE, CONDEMN	2400.00	324000.00					1986MELROSE EXPANTION W.M. CRENSHAW
OWNED	LAND, FEE, CONDEMN	5338.52	842140.00					1986MELROSE EXPANTION MESA RANCH
OWNED	LAND, FEE, CONDEMN	3066.91	738182.45					1986MELROSE EXPANTION GOTTSCH FEEDING CORP
OWNED	LAND, FEE, CONDEMN	560.00	75600.00					1986MELROSE EXPANTION CLINTON ROGERS
OWNED	LAND, FEE, CONDEMN	1559.96	270000.00					1986MELROSE EXPANTION ALVA J. PARKER
OWNED	LAND, FEE, CONDEMN	520.00	36000.00					1986MELROSE EXPANTION HARNEY EARL CROSS
OWNED	LAND, FEE, CONDEMN	150.30	200000.00					1986MELROSE EXPANTION THOMAS GORLEY

PREPARED 91 OCT 09 21:25

USAF LAND CHANGE REPORT

AS OF 91 SEP 32

RCS HAF-LEE(A)7118

NAME: ****INSTALLATION****	***PARENT INSTL***	NAME: ****NEAREST TOWN****	***NEAREST CITY OVER 10,000**
MELROSERANGE	CARRONAF3	MELROSENEW MEXICO	CLAYTON MEXICO
CODE: PXYL	CZ07	DIST. & DIR. FROM: WSW012	WSW035
COMMAND: TAC		POPULATION: 0001	0028
COUNTY: ROOSEVELT			
ST OR CTRY: NMEX			

PART 1 AIR FORCE CONTROLLED PROPERTY - EAD - FY - 91

TYPE REAL EST	NOMENCLATURE	NUMBER OF ACRES	COST OF ACRES	F	COST OF IMPR	***INSTRU. BEGIN	DATE** END	PURPOSE
OWNED	LAND, FEE, PUR	40.00	5400.00					1987MELROSE EXPANTION EILEEN H MORRIS
OWNED	LAND, FEE, PUR	800.00	120000.00					1987MELROSE EXPANTION GRACE STEEL
OWNED	LAND, FEE, PUR	40.00	5000.00					1987MELROSE EXPANTION OPAL A ALBAUGH
OWNED	LAND, FEE, PUR	1193.76	390500.00					1987MELROSE EXPANTION RR & GC GRIDER
OWNED	LAND, FEE, PUR	4879.09	1262000.00					1987MELROSE EXPANTION RY & WA GRIDER
OWNED	LAND, FEE, PUR	240.00	32000.00					1987MELROSE EXPANTION LW & EM MCGUFFIN
OWNED	LAND, FEE, PUR	160.00	32000.00					1987MELROSE EXPANTION MS & OL GRESHAM
OWNED	LAND, FEE, PUR	1870.04	161900.00					19701968 PARTIAL ACQUISITION MELROSE RANGE
OWNED	LAND, FEE, CONDEMN	320.00	55000.00					1988MELROSE EXPANTION J.O. BROOKS
OWNED	LAND, FEE, CONDEMN	640.00	46400.00					1988MELROSE EXPANTION ELOISE ERWIN
OWNED	LAND, FEE, CONDEMN	400.00	56800.00					1989MELROSE EXPANTION MARY F. SELBY
OWNED	LAND, FEE, CONDEMN	3881.34	1923000.00					1988MELROSE EXPANTION ORIS J. GLASS
OWNED	LAND, FEE, CONDEMN	980.00	63500.00					1987MELROSE EXPANTION FRED E. JEWELL
OWNED	LAND, FEE, CONDEMN	80.00	12400.00					1987MELROSE EXPANTION ROLAND F. REID
OWNED	LAND, FEE, CONDEMN	13536.11	1395312.00					19701970 ACQUIRED UNDER CONDEMNATION ACTIO
OWNED	LAND, FEE, PUR	5652.00	672500.00					1988MELROSE EXPANTION LUCKY FOUR INC.
OWNED	LAND, FEE, PUR	230.00	29900.00					1987MELROSE EXPANTION TO & J6 STEVENSON
OWNED	LAND, FEE, PUR	4.00	5940.00					1987MELROSE EXPANTION K & K SIMONS

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TRACT REGISTER

TRACT NO.	LANDOWNER	ACREAGE			REMARKS
		FEE	EASM'T	LEASE	
200					
201	Alva J. Parker	1,559.96			
202		2,303.53			
202-1		1,675.45			
202-2		80.00			
202E			1,744.25		
202E-1			320.00		50 year restrictive easement, dtd.
202E-2			1,943.68		
203	M.S. Gresham, et al	160.00			
204	Roland F. Reid, et al	80.00			
205		160.00			
205-1	C.F. Stevenson	70.00			
206E	Gene O. Brodie, et ux		160.00		50 year restrictive easement, dtd.
207E	Francis L. Martin et al		160.00		50 year restrictive easement, dtd.
209	O.A. Albaugh	40.00			50 year restrictive easement, dtd.
210E	C.S. Greathouse		640.00		50 year restrictive easement, dtd.
211E	Eloise Erwin, et al		640.00		50 year restrictive easement, dtd.
213		2,706.96			
213-1		160.00			
213-2		321.88			
213-3		637.79			
213-4		640.00			
213E			1,962.52		
213E-1	State of New Mexico		160.00		
213E-2			5,343.28		
213E-3			38.36		50 year restrictive easement, dtd.
213E-4			80.00		
213E-5			3,921.24		
213E-6			47.90		
214		4221.66			
214E	One Hundred Ranch, Inc.		1,120.00		50 year restrictive easement, dtd.
215	James Grizzle, et ux	640.00			
216	Grayum Steele & Grace Steele <small>REVOCABLE TRUST</small>	640.00			
217	O.J. Glass	2200.00			
218	Lloyd Simons	1160.00			
218-1		597.24			
219E			553.71		50 year restrictive easement, dtd.
219E-1	New Mexico Boys Ranch, Corp.		80.00		50 year restrictive easement, dtd.
220	Thomas Gorley, et ux	158.35			
222E	B.J. Pierce, et ux		40.00		50 year restrictive easement, dtd.
223	Keith Simons & Kenneth Simons	40.00			50 year restrictive easement, dtd.
224	Eileen H. Morris	40.00			50 year restrictive easement, dtd.
225	Wayne B. Russell	80.00			50 year restrictive easement, dtd.
226	Nelle C.M. Benjamin, et al	40.00			50 year restrictive easement, dtd.
227	Robert Y. Grider	2,559.09			
227-1		2,320.00			Mesa Ranch Fred Ashley D.W. Luce Clinton Rogers Robert Grider Robert & Paul Grider Jim Grizzle M.S. Gresham O.J. Glass Russell Grider Kenneth Simmons Bill Crenshaw 100 Ranch Alva J. Parker
228	R. Russell Grider, et ux	160.49			
228-1		1,033.29			
229	Wm. Crenshaw, et ux	2400.00			
230	Mary F. Selby, Trustee	160.00			
230-1		240.00			
232	J.D. Brooks	320.00			
233	Grady Rogers Estate	560.00			
234		5,068.30			
234-1	Mesa Ranch, Inc	160.00			
234-2		80.22			
217-1	O.J. Glass	401.34			
217E			1,280.00		50 year restrictive easement, dtd.
235E	Fred E. Jewell, et al		980.00		50 year restrictive easement, dtd.
236E	Harvey Earl Cross, et ux		520.00		50 year restrictive easement, dtd.
237		320.00			
237-1	Harold Cross	160.00			
237-2		80.00			
238	Harold Cross, et al	160.00			
239	Edith McGuffin	240.00			
240	Hagabelle Cross	320.00			
240-1	Hagabelle Cross	80.00			
243E	H.E. Cross & Vivian B. Pitcock		20.00		50 year restrictive easement, dtd.

APPENDIX J

PRESENT SITE PHOTOGRAPHS

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- J-1 Looking Southwest from the Main Observation Tower
(Area A: Impact Area)
- J-2 Aircraft Targets in Foreground and four M60 Tank
Targets in Background (Area A: Impact Area)
- J-3 Aircraft Targets (Area A: Impact Area)
- J-4 Aft End of a Mark 5 Practice Bomb and Caliber .50
Debris (Area C: Old EOD Range and Burial Site)
- J-5 Debris from a M38A2 Practice Bomb (Area C: Old EOD
Range and Burial Site)
- J-6 Inert 2.75-Inch Rocket Warhead (Area C: Old EOD
Range and Burial Site)
- J-7 Inert Warhead from a Sub-Caliber Aircraft Rocket
(SCAR) (Area C: Old EOD Range and Burial Site)
- J-8 Open Burial Trench (Area D: Burial Site)
- J-9 Expended Practice Bombs (Area D: Burial Site)
- J-10 Capped Burial Trenches (Area D: Burial Site)
- J-11 T-33s Prepared for Use as Future Targets (Area E:
Buffer Area)
- J-12 Various Military Vehicles Awaiting Use as Targets
(Area E: Buffer Area)
- J-13 F-4s to be Used as Targets (Area E: Buffer Area)
- J-14 A Cultivated Field; No Evidence of Past Military Use
(Area F: World War II Buffer Area)

ORDNANCE AND EXPLOSIVES
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ROOSEVELT COUNTY, NEW MEXICO

APPENDIX J

PRESENT SITE PHOTOGRAPHS

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CONVERSATION RECORD	TIME 1030 MDT	DATE 25 May 2000
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TYPE

VISIT
 CONFERENCE
 TELEPHONE
 INCOMING
 OUTGOING

NAME OF PERSON CONTACT WITH TSGT Warren Downing	ORGANIZATION EOD 27 th Fighter Wing Cannon AFB, NM	TELEPHONE NO. (505) 784-2909
---	---	--

SUBJECT Melrose Air Force Range

SUMMARY

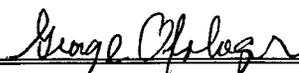
TGST Downing is an EOD technician currently assigned to Cannon AFB. He has a total of six years experience clearing the Melrose range; his current tour has been four years in length and he was previously assigned to Cannon in 1985 and 1986.

He said that most of the ordnance recovered at Melrose were practice bombs such as the BDU-33. He could not recall any unusual recoveries at the range.

He said that he knew of no high explosive items being recovered at the range. Also while working on the range, he had not noted any indication, such as high explosive fragments (shrapnel) or craters, that high explosive munitions had previously been used on the range.

ACTION REQUIRED

ACTION TAKEN

NAME OF PERSON DOCUMENTING CONVERSATION George Ofslager	ORGANIZATION CEMVR-ED-DO	TELEPHONE NUMBER (309) 782-3216
SIGNATURE 	TITLE QA Spec (Ammo)	DATE 25 May 2000

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CONVERSATION RECORD	TIME	DATE 23-24 May 2000
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TYPE

VISIT

CONFERENCE

TELEPHONE
 INCOMING
 OUTGOING

NAME OF PERSON CONTACT WITH John C. Rodgers	ORGANIZATION Range Management 27 th Fighter Wing Cannon AFB, NM	TELEPHONE NO. (505) 784-2878
---	--	--

SUBJECT Melrose Air Force Range

SUMMARY Mr. Rodgers is manager of the Melrose range. He has been involved in the management of the range since 1988.

He said that he knew of two burial areas on the range, one located in the northwest portion of the impact area and one located just east of the impact area in the buffer area. He said that the burial area in the buffer area had been used during his tenure at the range to bury scrap metal; it is currently not used and the scrap metal is sold. He said that he did not have much information concerning the burial site in the impact area other than its location.

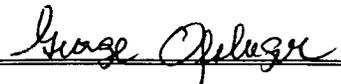
He described the various targets in the impact area. Vehicles and aircraft are transported from various other installations and are stored on the range. Prior to being used as targets hazardous materials such as fuel and fluid, as well as glass, are removed. When the target has been used to an extent that it is no longer recognizable, it is removed.

He said that to his knowledge no high explosive munitions were used on the range.

There was a discussion concerning the possibility of OE presence in the buffer area. Mr. Rodgers stated that occasionally a bomb would broach up to a quarter of a mile outside the impact area and occasionally there were inadvertent releases by pilots into the buffer area. However, in all of these cases, the munitions were quickly located and recovered.

ACTION REQUIRED

ACTION TAKEN

NAME OF PERSON DOCUMENTING CONVERSATION George Ofslager	ORGANIZATION CEMVR-ED-DO	TELEPHONE NUMBER (309) 781-3216
SIGNATURE 	TITLE QA Spec (Ammo)	DATE 24 May 2000

APPENDIX I

INTERVIEWS

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- I-1 Interview with John C. Rodgers, 24 May 2000
- I-2 Interview with TSGT Warren Downing, 25 May 2000

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
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MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX I

INTERVIEWS

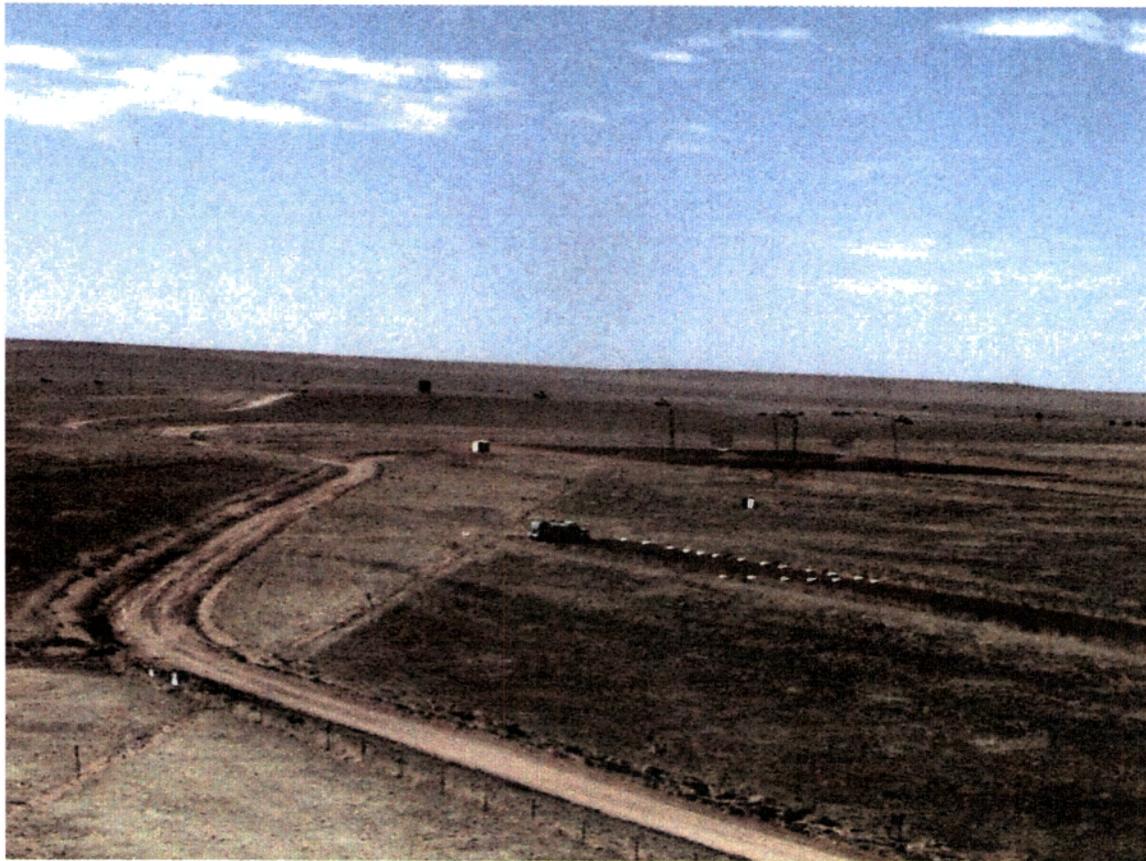
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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX H

NEWSPAPERS/JOURNALS

(This Section Not Used)



J-1 Looking Southwest from the Main Observation Tower (Area A: Impact Area)



J-2 Aircraft Targets in Foreground and four M60 Tank Targets in Background (Area A: Impact Area)



J-3 Aircraft Targets (Area A: Impact Area)



J-4 Aft End of a Mark 23 Practice Bomb and Caliber .50 Debris (Area C: Old EOD Range and Burial Site)



J-5 Debris from a M38A2 Practice Bomb (Area C: Old EOD Range and Burial Site)



J-6 Inert 2.75-Inch Rocket Warhead (Area C: Old EOD Range and Burial Site)



J-7 Inert Warhead from a Sub-Caliber Aircraft Rocket (SCAR) (Area C: Old EOD Range and Burial Site)



J-8 Open Burial Trench (Area D: Burial Site)



J-9 Expended Practice Bombs (Area D: Burial Site)



J-10 Capped Burial Trenches (Area D: Burial Site)



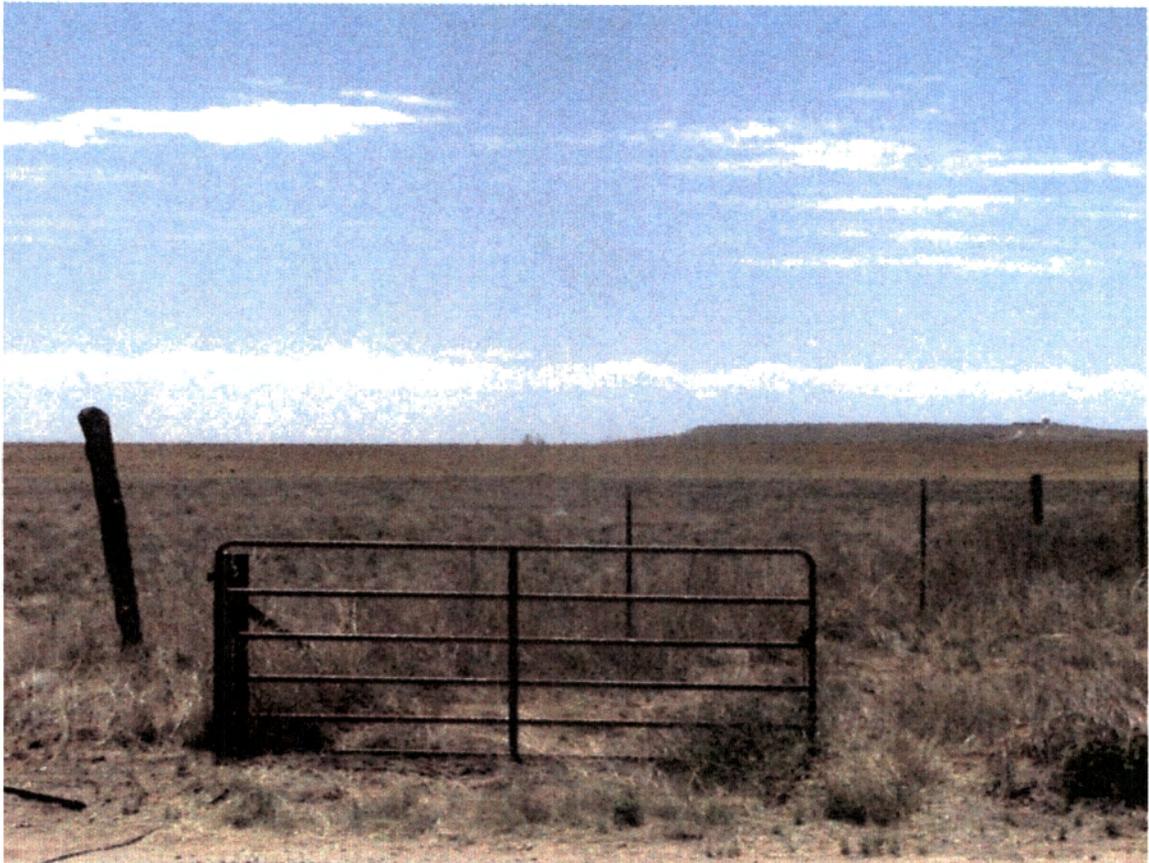
J-11 T-33s Prepared for Use as Future Targets (Area E: Buffer Area)



J-12 Various Military Vehicles Awaiting Use as Targets (Area E: Buffer Area)

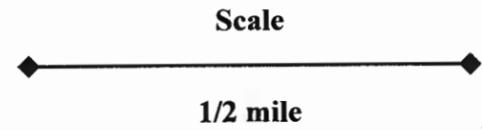
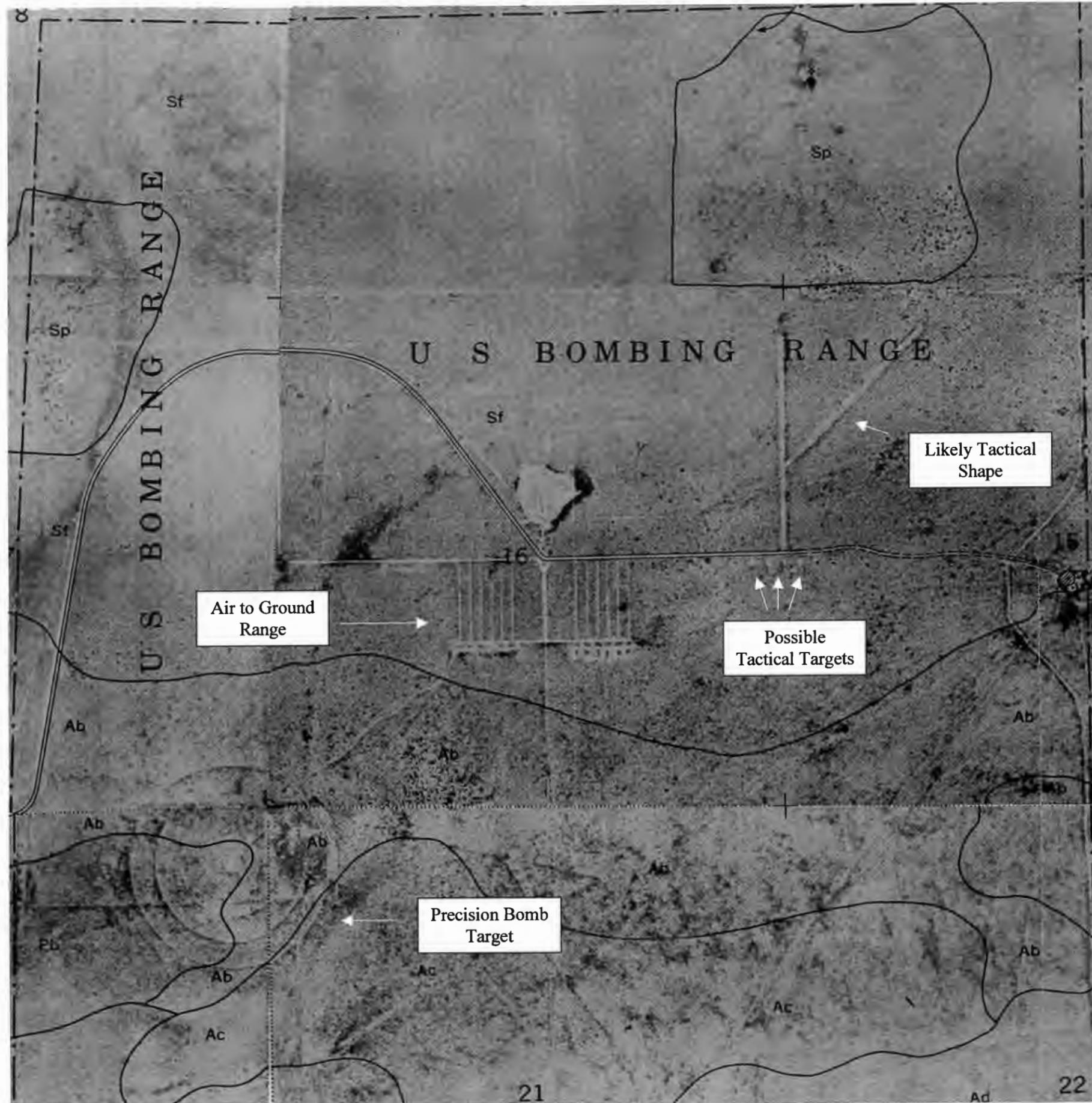


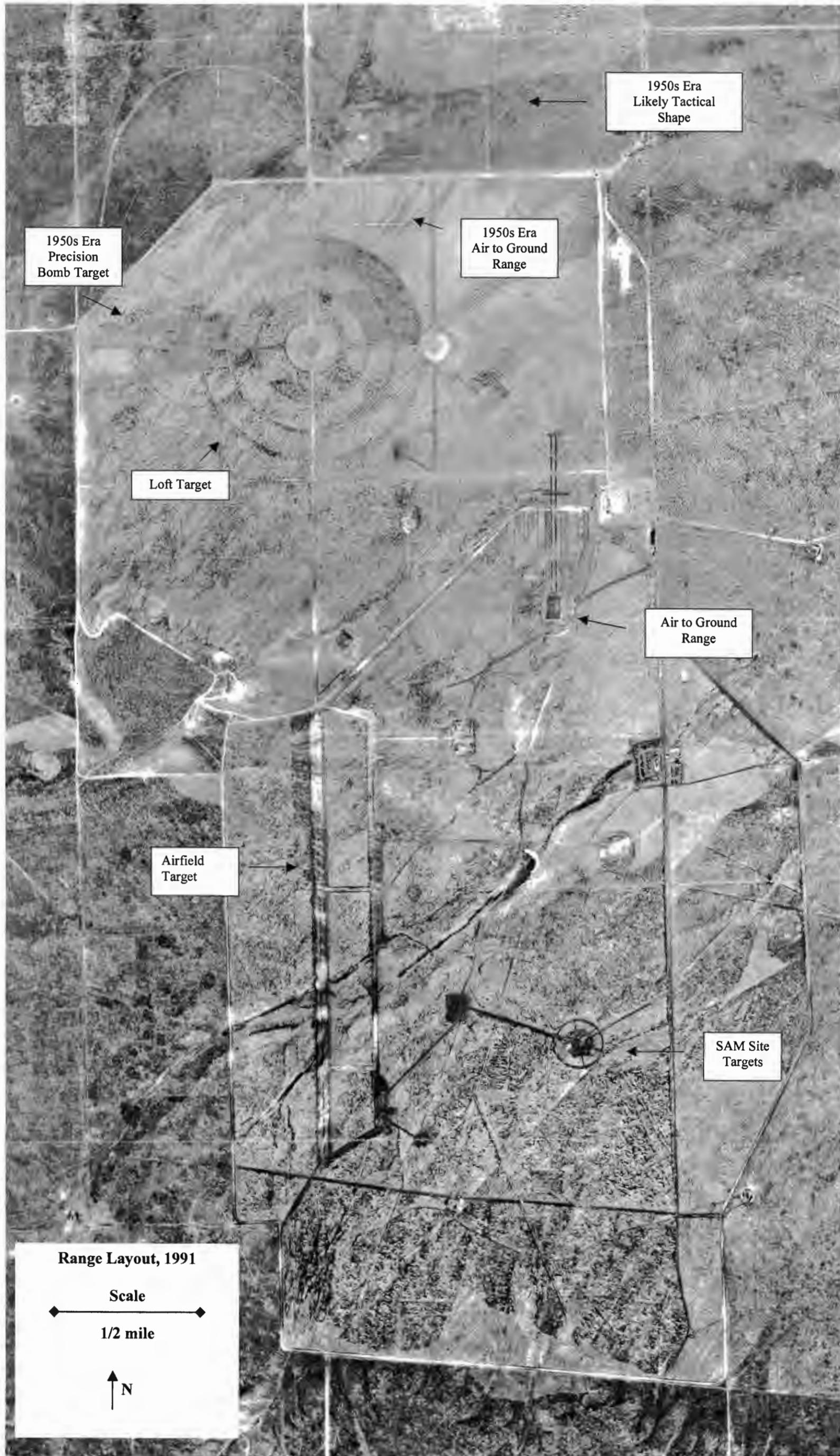
J-13 F-4s to be Used as Targets (Area E: Buffer Area)



J-14 A Cultivated Field; No Evidence of Past Military Use (Area F: World War II Buffer Area)

Range Layout, 1959





Range Layout, 1991

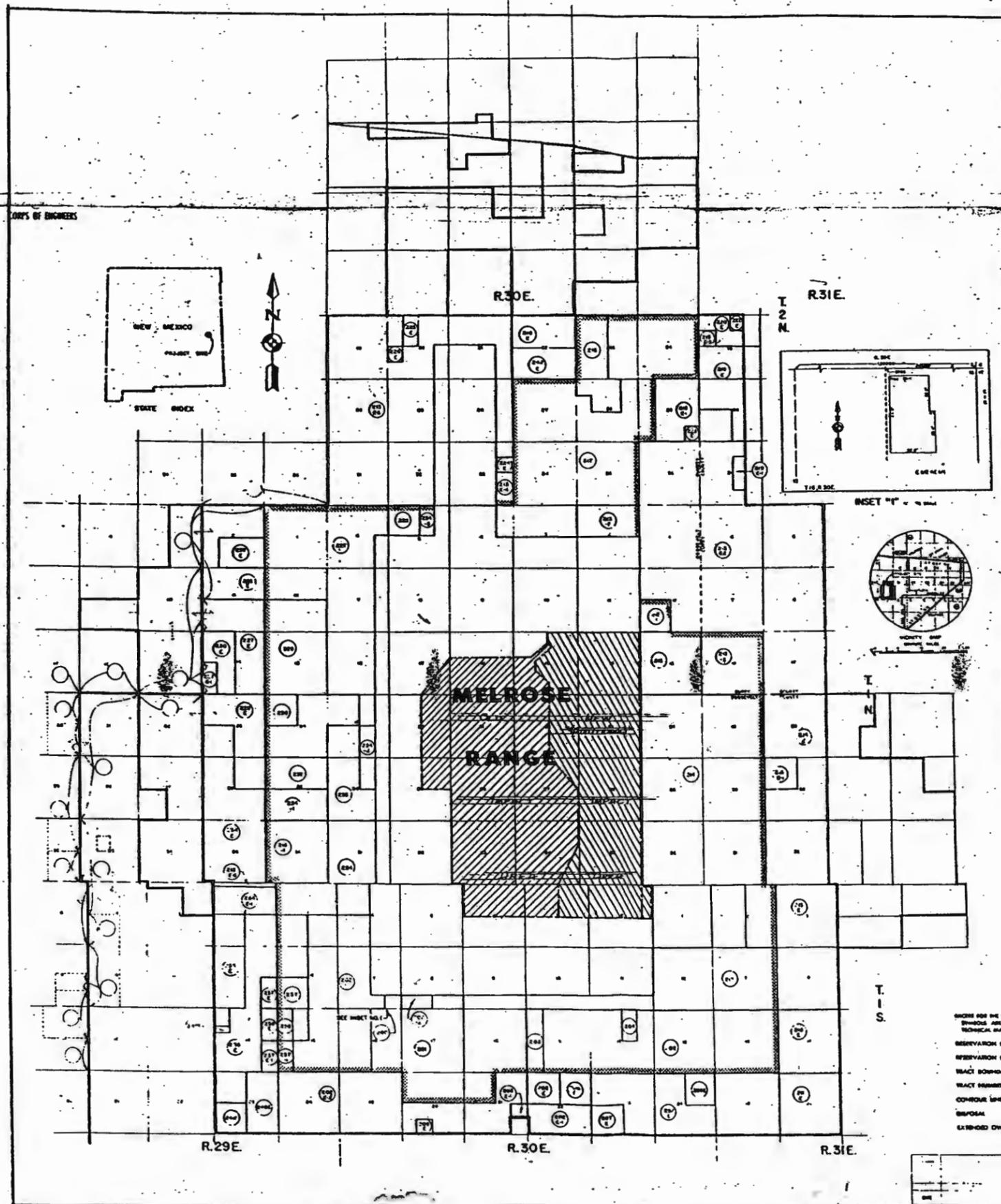
Scale
1/2 mile

N

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX L

REFERENCE MAPS/DRAWINGS



U.S. ARMY

TRACT REGISTER				
TRACT NO.	LANDOWNER	ACREAGE		REMARKS
		TRK	LEASE	
2001	John A. Dyer	2,388.84		
2002	John A. Dyer	2,393.51		
2003	John A. Dyer	1,477.71		
2004	John A. Dyer	8,663		
2005	John A. Dyer	1,564.71		
2006	John A. Dyer	1,477.71		
2007	John A. Dyer	1,477.71		
2008	John A. Dyer	1,477.71		
2009	John A. Dyer	1,477.71		
2010	John A. Dyer	1,477.71		
2011	John A. Dyer	1,477.71		
2012	John A. Dyer	1,477.71		
2013	John A. Dyer	1,477.71		
2014	John A. Dyer	1,477.71		
2015	John A. Dyer	1,477.71		
2016	John A. Dyer	1,477.71		
2017	John A. Dyer	1,477.71		
2018	John A. Dyer	1,477.71		
2019	John A. Dyer	1,477.71		
2020	John A. Dyer	1,477.71		
2021	John A. Dyer	1,477.71		
2022	John A. Dyer	1,477.71		
2023	John A. Dyer	1,477.71		
2024	John A. Dyer	1,477.71		
2025	John A. Dyer	1,477.71		
2026	John A. Dyer	1,477.71		
2027	John A. Dyer	1,477.71		
2028	John A. Dyer	1,477.71		
2029	John A. Dyer	1,477.71		
2030	John A. Dyer	1,477.71		
2031	John A. Dyer	1,477.71		
2032	John A. Dyer	1,477.71		
2033	John A. Dyer	1,477.71		
2034	John A. Dyer	1,477.71		
2035	John A. Dyer	1,477.71		
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2049	John A. Dyer	1,477.71		
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2096	John A. Dyer	1,477.71		
2097	John A. Dyer	1,477.71		
2098	John A. Dyer	1,477.71		
2099	John A. Dyer	1,477.71		
2100	John A. Dyer	1,477.71		

- LEGEND**
- RESERVAIR LINE
 - RESERVAIR LINE (dashed)
 - TRACT BOUNDARY LINE
 - TRACT NUMBER
 - CONTOUR LINE
 - SECTION
 - EXTENDED OWNERSHIP LINE

PROJECT MAP (CONTINUATION SHEET)

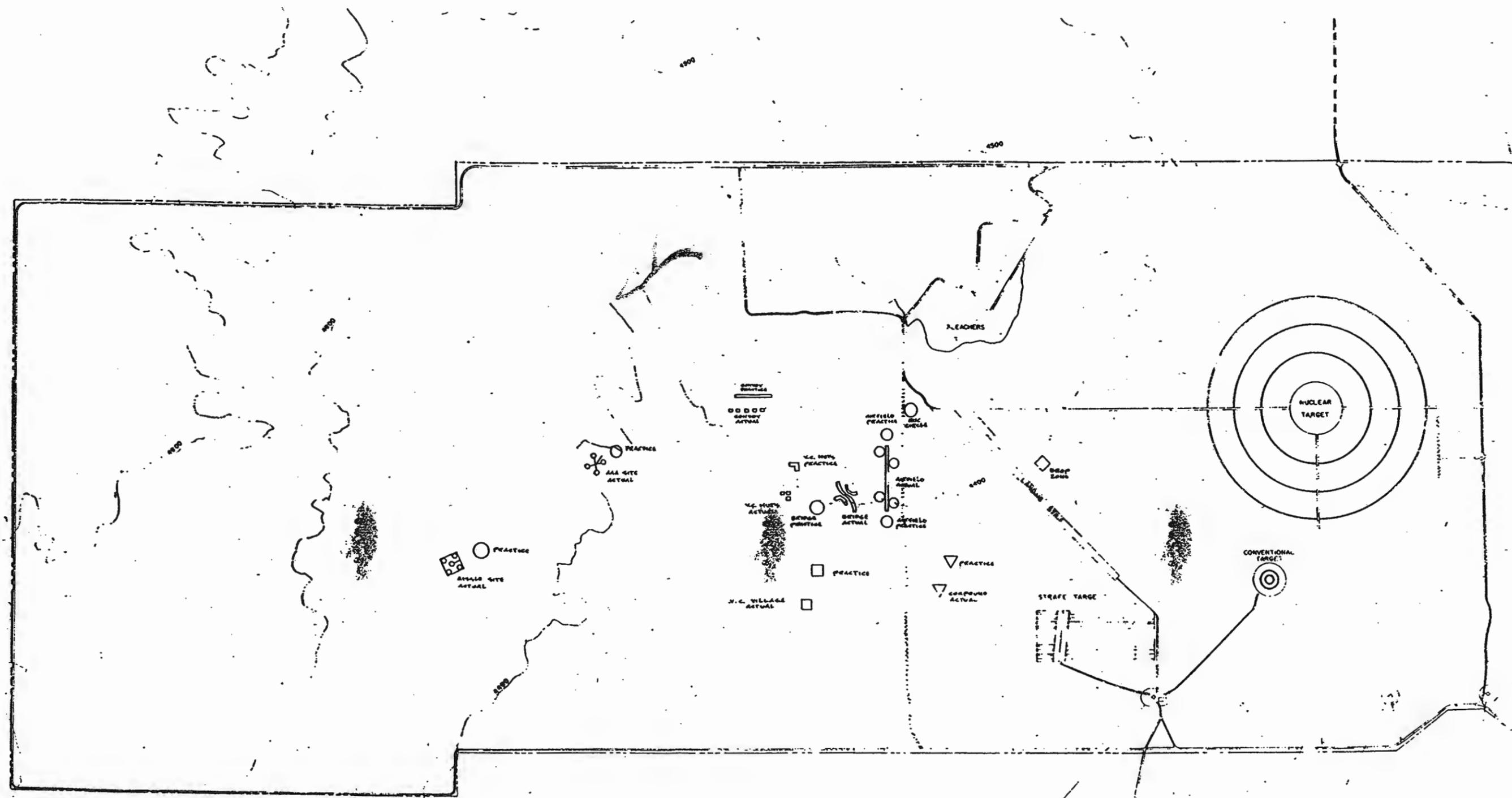
U.S. ARMY
 LOCATION OF PROJECT
 MELROSE AIR FORCE RANGE
 EXPANSION AREA

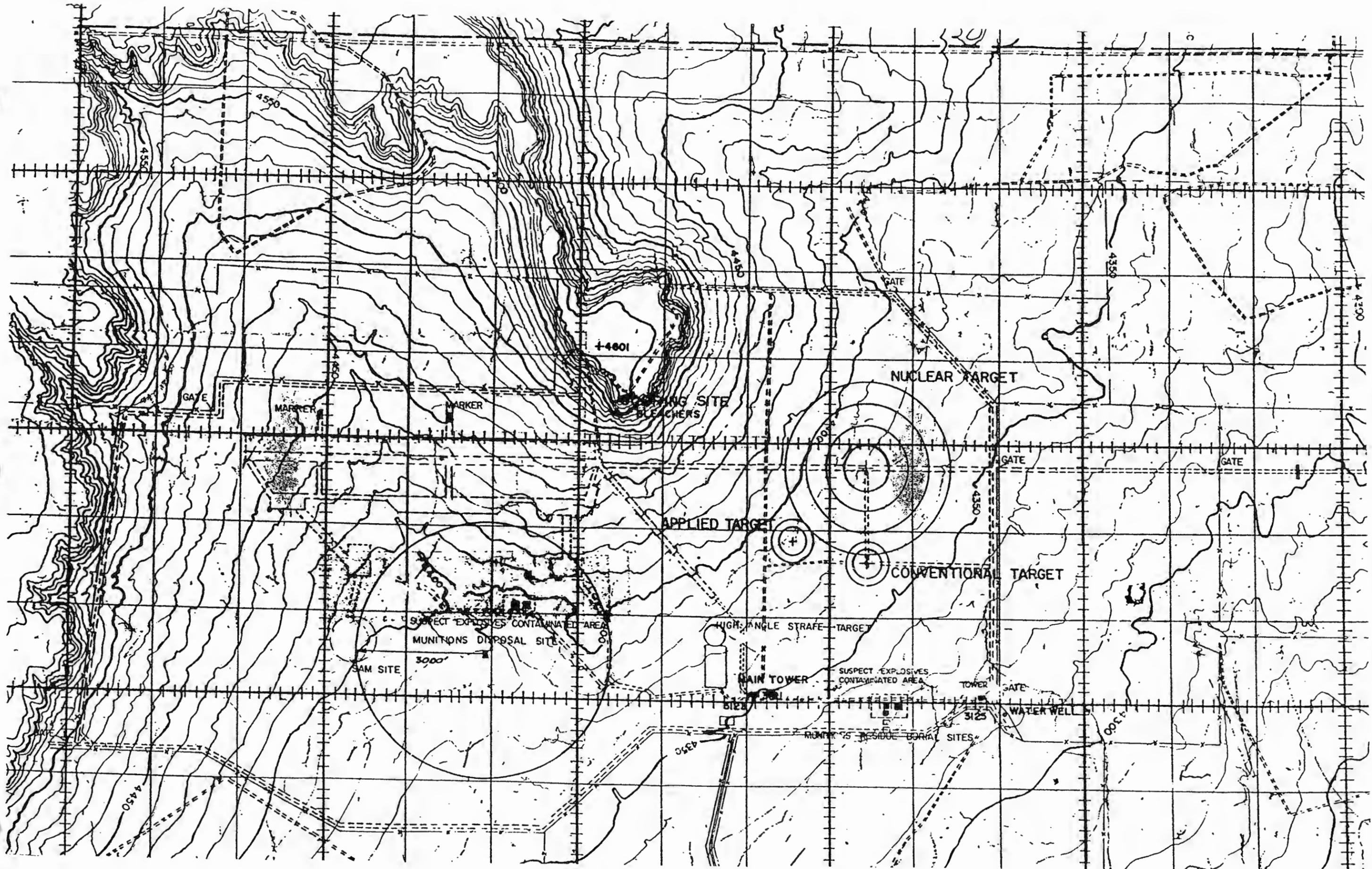
SEGMENT 2

DEPARTMENT OF THE ARMY
 OFFICE OF THE ADJUTANT GENERAL
 SOUTHWESTERN DIVISION

REAL ESTATE
**MELROSE AIR FORCE RANGE
 EXPANSION AREA**
 CLOVIS, NEW MEXICO
 MILITARY RESERVATION

SCALE: 1" = 100'





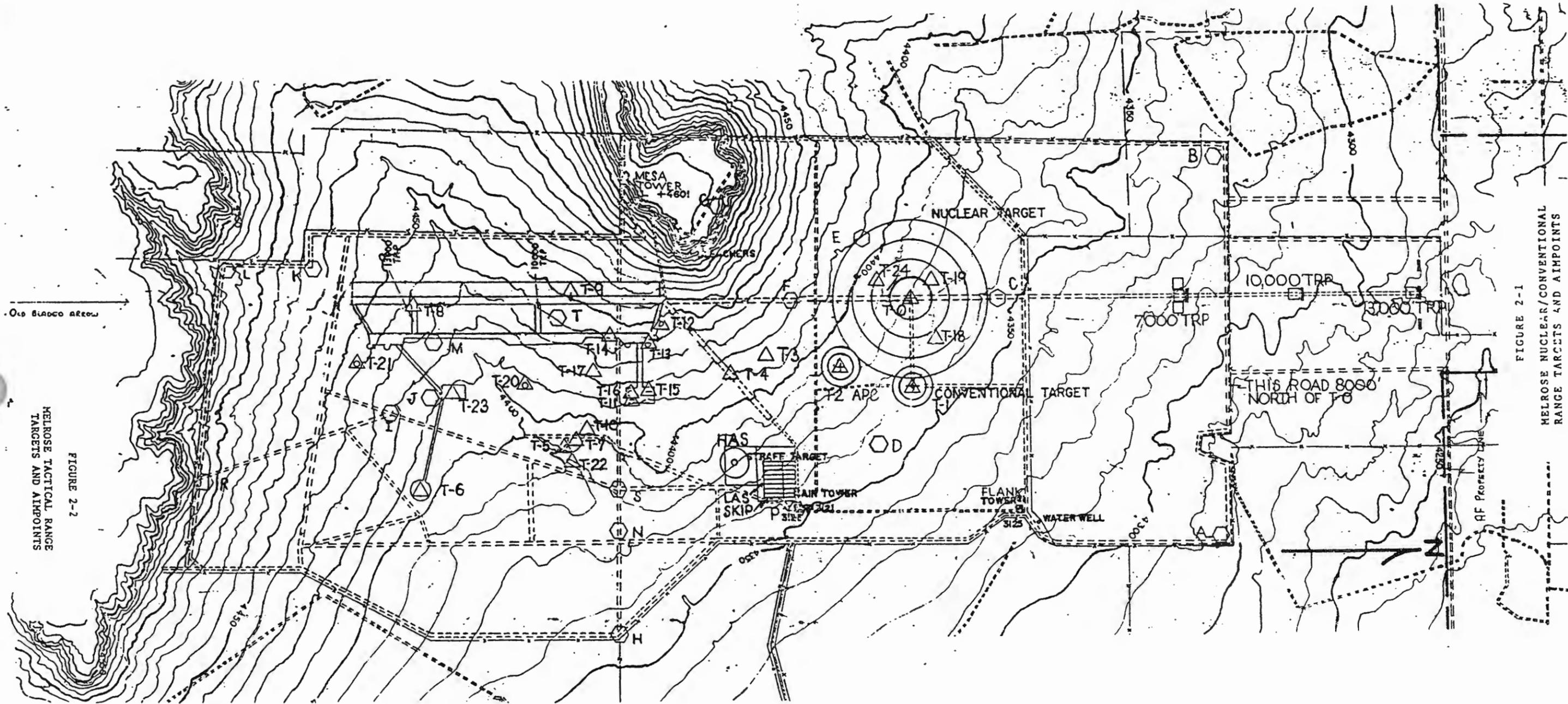


FIGURE 2-2
MELROSE TACTICAL RANGE
TARGETS AND AIMPOINTS

FIGURE 2-1
MELROSE NUCLEAR/CONVENTIONAL
RANGE TARGETS AND AIMPOINTS

ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX M

ARCHIVES SEARCH REPORT CORRESPONDENCE

(This section is not used)

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

APPENDIX N

REPORT DISTRIBUTION LIST

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APPENDIX N

REPORT DISTRIBUTION LIST

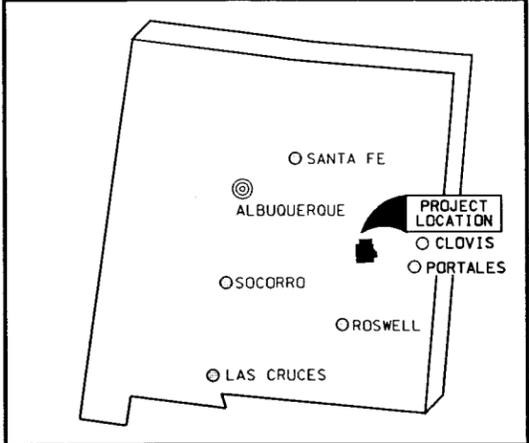
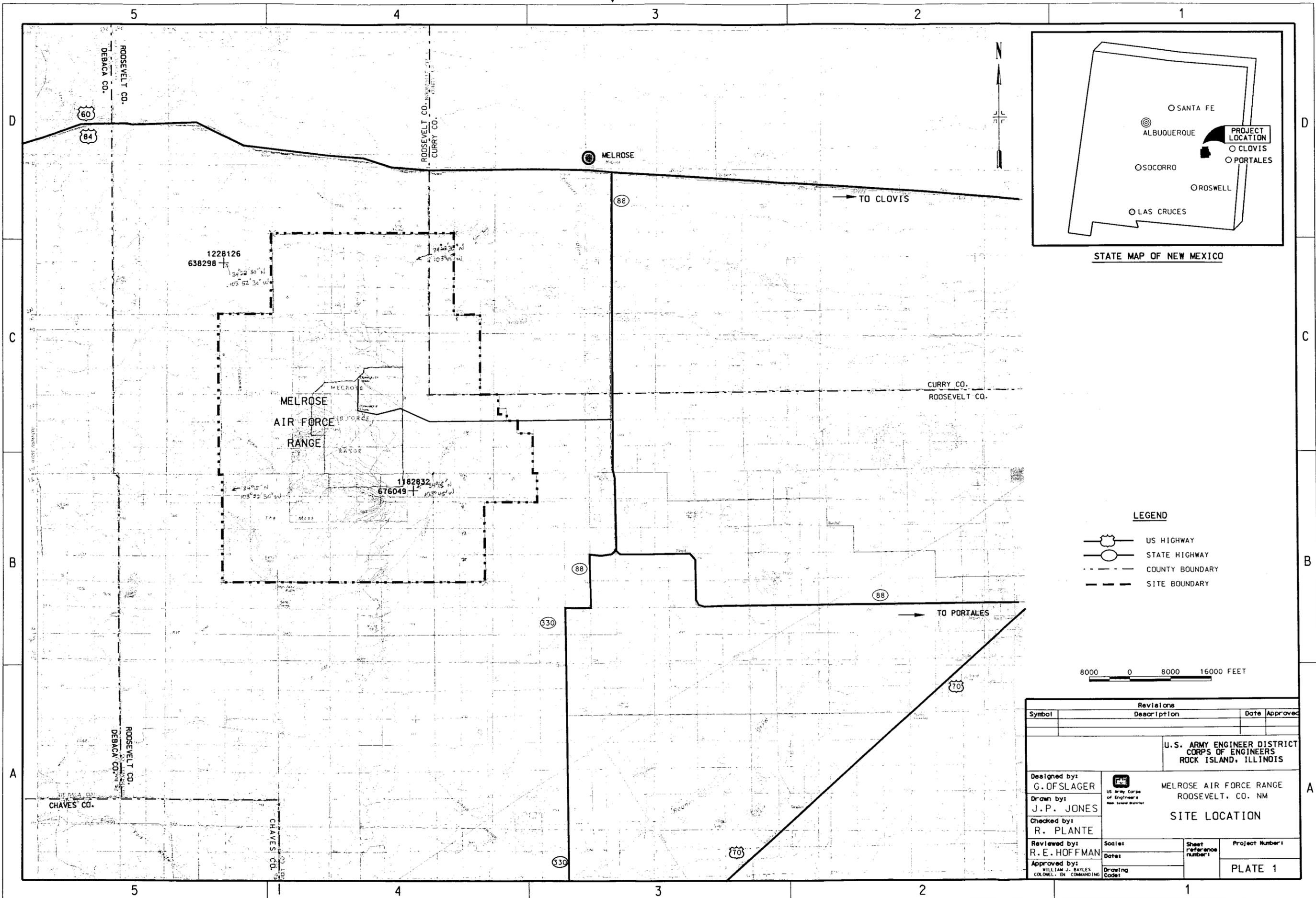
	I	II	III
Commander, 27 th Civil Engineer Squadron Environmental Flight (Hutsell) 506 North DL Ingram Blvd. Cannon AFB, NM 88103	2	-	-
Commander, U.S. Army Corps of Engineers, Omaha District ATTN: CENWO-PM-H (Zink) 215 North 17th Street Omaha, NE 68102-4978	2	-	-
Commander, U.S. Army Engineer District, Rock Island P.O. Box 12004 Rock Island, IL 61204			
CEMVR-ED			1
-ED-D			1
-ED-DO	2		
I - Final Report			
II - Findings Report			
III - Routed Final Report			

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ORDNANCE AND EXPLOSIVES
ARCHIVES SEARCH REPORT
FOR
MELROSE AIR FORCE RANGE
ROOSEVELT COUNTY, NEW MEXICO

REPORT PLATES

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STATE MAP OF NEW MEXICO

LEGEND

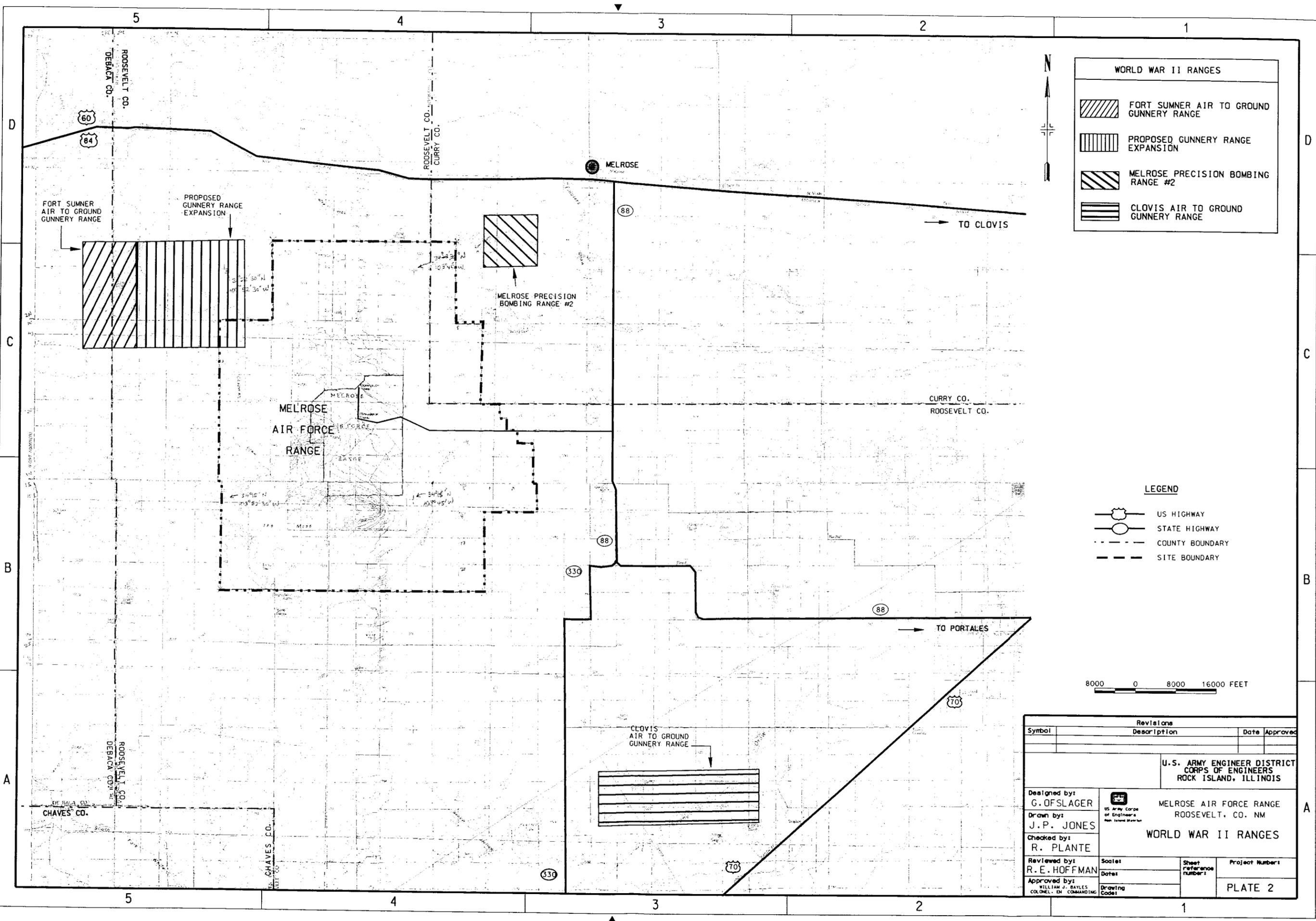
- US HIGHWAY
- STATE HIGHWAY
- COUNTY BOUNDARY
- SITE BOUNDARY

8000 0 8000 16000 FEET

Revisions		Date	Approved
Symbol	Description		
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS			
Designed by: G. OFSLAGER	 MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM SITE LOCATION	Project Number:	
Drawn by: J. P. JONES		PLATE 1	
Checked by: R. PLANTE	Scales:	Sheet reference number:	
Reviewed by: R. E. HOFFMAN	Dates:		
Approved by: WILLIAM J. BAYLES COLONEL, EN. COMMANDING	Drawing Code:		

03-OCT-2000 07:52
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03-OCT-2000 07:55
 e:\p397\p397p2.dgn



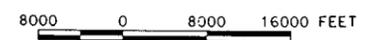
WORLD WAR II RANGES

-  FORT SUMNER AIR TO GROUND GUNNERY RANGE
-  PROPOSED GUNNERY RANGE EXPANSION
-  MELROSE PRECISION BOMBING RANGE #2
-  CLOVIS AIR TO GROUND GUNNERY RANGE

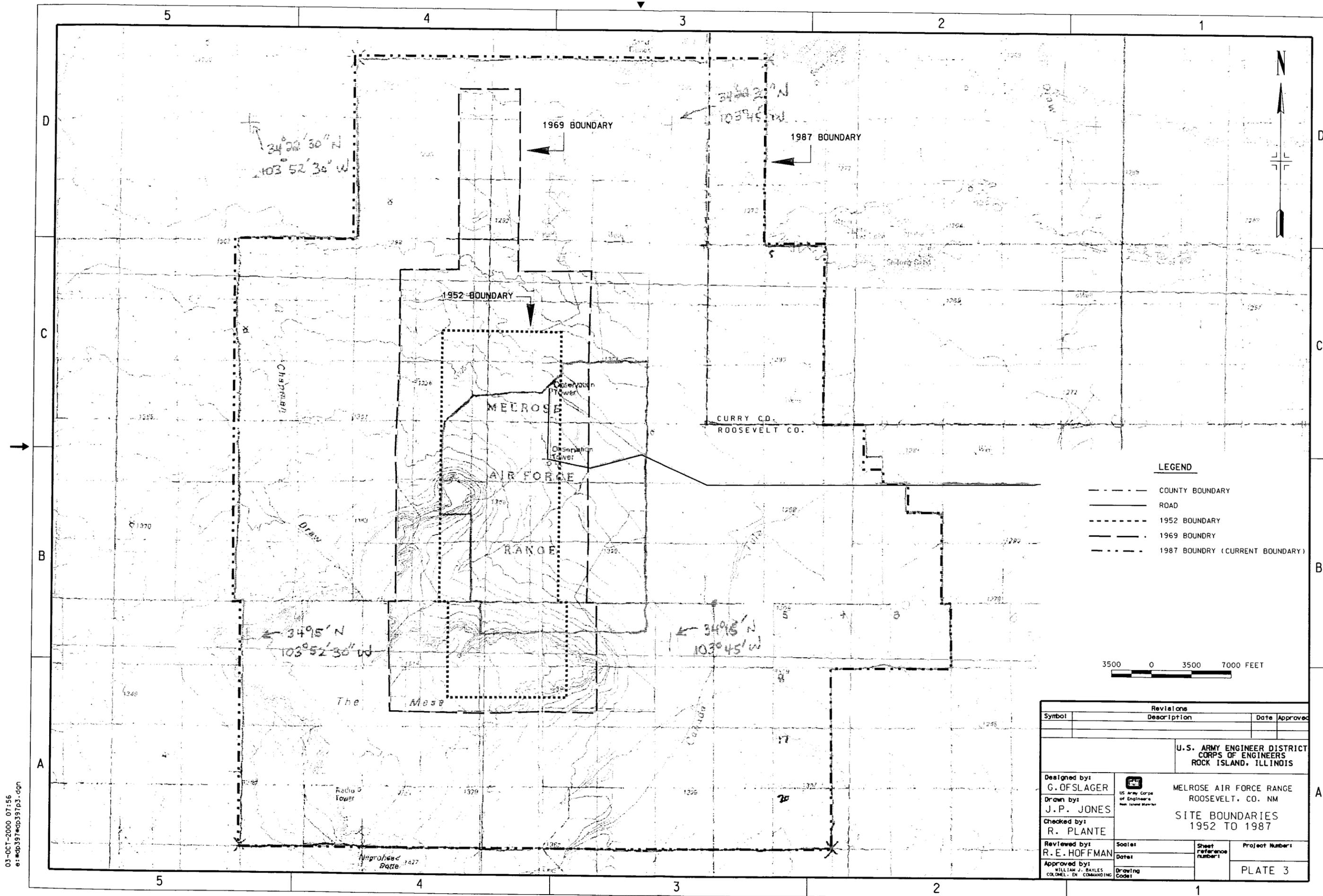


LEGEND

-  US HIGHWAY
-  STATE HIGHWAY
-  COUNTY BOUNDARY
-  SITE BOUNDARY



Revisions			
Symbol	Description	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS			
Designed by: G. OFSLAGER		 MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM	
Drawn by: J. P. JONES			
Checked by: R. PLANTE		WORLD WAR II RANGES	
Reviewed by: R. E. HOFFMAN		Soles: Date:	Project Number: PLATE 2
Approved by: WILLIAM J. BAYLES COLONEL, EN COMANDING		Sheet Reference number: Drawing Code:	



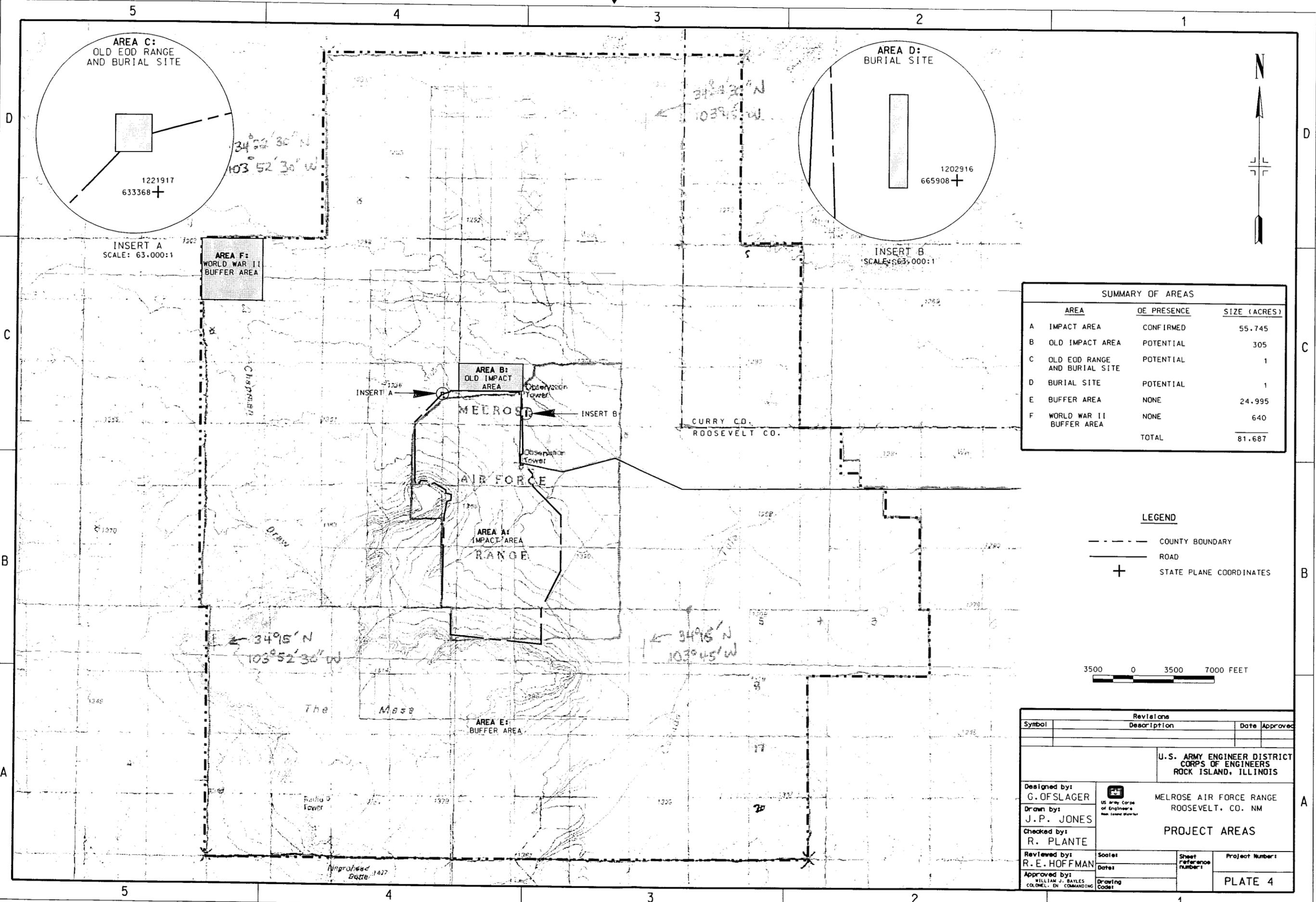
LEGEND

---	COUNTY BOUNDARY
—	ROAD
- - - -	1952 BOUNDARY
- · - · -	1969 BOUNDARY
- · - · -	1987 BOUNDARY (CURRENT BOUNDARY)



Revisions		Date		Approved	
Symbol	Description				
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS					
Designed by: G. OFSLAGER		MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM			
Drawn by: J.P. JONES		SITE BOUNDARIES 1952 TO 1987			
Checked by: R. PLANTE		Scale:	Sheet reference number:	Project Number:	
Reviewed by: R.E. HOFFMAN		Date:			
Approved by: WILLIAM J. BAYLES COLONEL, EN COMMANDING	Drawing Code:		PLATE 3		

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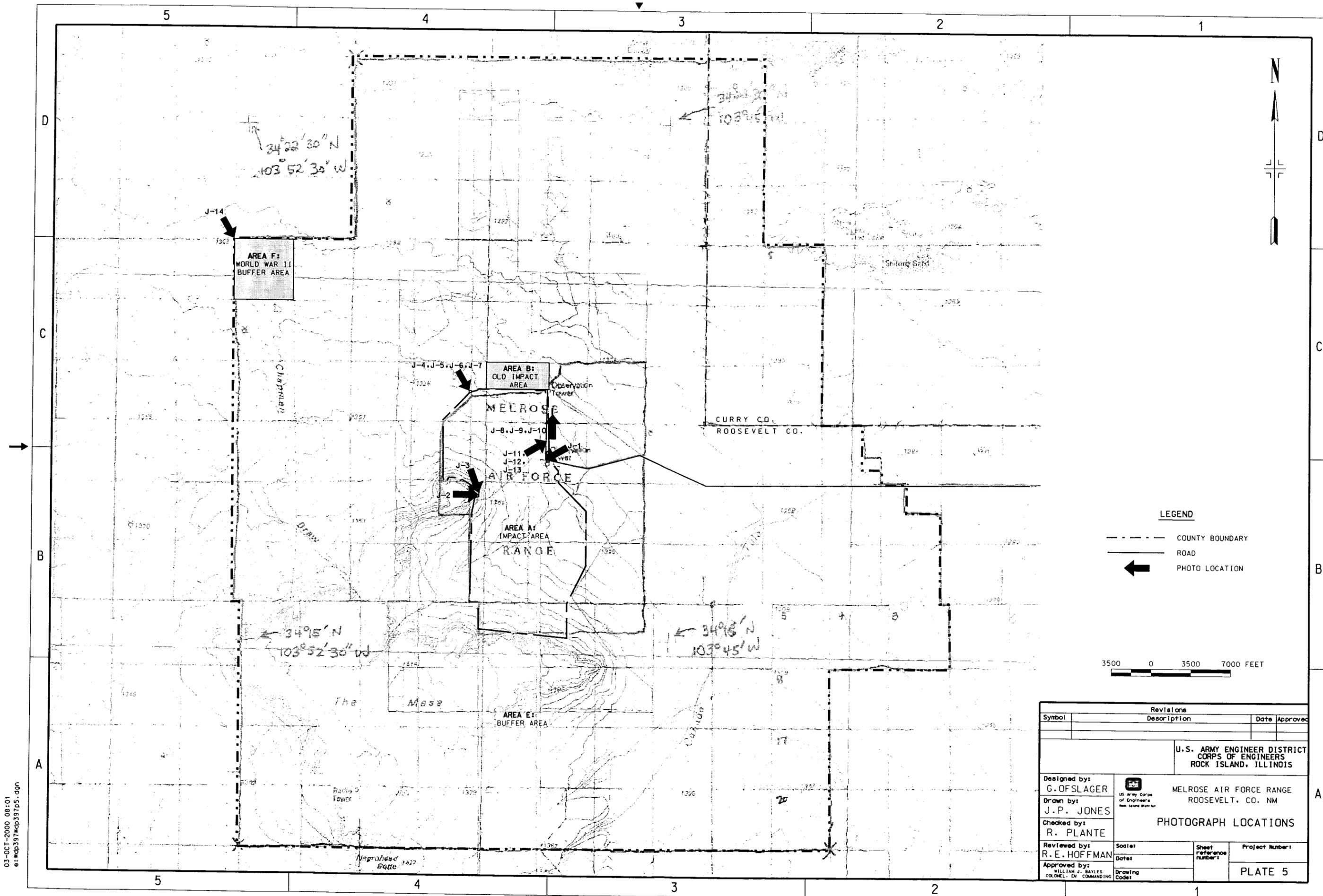
SUMMARY OF AREAS		
AREA	OE PRESENCE	SIZE (ACRES)
A	IMPACT AREA	CONFIRMED 55.745
B	OLD IMPACT AREA	POTENTIAL 305
C	OLD EOD RANGE AND BURIAL SITE	POTENTIAL 1
D	BURIAL SITE	POTENTIAL 1
E	BUFFER AREA	NONE 24.995
F	WORLD WAR II BUFFER AREA	NONE 640
TOTAL		81.687

LEGEND	
---	COUNTY BOUNDARY
—	ROAD
+	STATE PLANE COORDINATES



Revisions			
Symbol	Description	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS			
Designed by: G. OFSLAGER		MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM PROJECT AREAS	
Drawn by: J.P. JONES			
Checked by: R. PLANTE			
Reviewed by: R.E. HOFFMAN			
Approved by: WILLIAM J. BAYLES COLONEL, EN COMMANDING	Scales: Date:	Sheet reference number:	Project Number: PLATE 4

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LEGEND

--- COUNTY BOUNDARY

— ROAD

← PHOTO LOCATION



Revisions		Date		Approved	
Symbol	Description				
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS					
Designed by: G. OFSLAGER	U.S. Army Corps of Engineers Rock Island District	MELROSE AIR FORCE RANGE ROOSEVELT, CO. NM			
Drawn by: J.P. JONES		PHOTOGRAPH LOCATIONS			
Checked by: R. PLANTE	Scale:	Sheet reference number:	Project Number:		
Reviewed by: R.E. HOFFMAN	Date:				
Approved by: WILLIAM J. BAYLES COLONEL, EN COMMANDING	Drawing Code:		PLATE 5		

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