



17803, 17805, & 17806 300-meter Rifle Ranges (AFF ARF MRF)



RANGE DESIGN GUIDE



RANGE AND TRAINING LAND PROGRAM – MANDATORY CENTER OF EXPERTISE

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General

This document contains information specific to the standard army 300 Meter Rifle Ranges including the Automated Field Fire (AFF), Automated Record Fire (ARF), and Modified Record Fire (MRF) Ranges. Facility Category Codes are 17801 for the AFF, 17805 for the ARF, and 17806 for the MRF. It describes the design and construction information that is specific to these ranges and is not contained in, or differs from, the general sections. The document includes references to sections of the RDG for information that is general to multiple range types. Use both the specific information in this section and the general sections referenced together for a complete, useable range.

Purpose

All of these ranges are lane based with targets out to 300 Meters. All present targets for the Soldier to detect, identify, and engage. The baselines have areas for standing, kneeling, and prone firing. The AFF is for initial entry and basic officer training only, the ARF is for qualification, and the MRF is a combination of both.

AFF

The AFF is designed for training target engagement techniques with rifles for initial entry and basic officer training (It is an introduction to single and multiple untimed and timed target engagements). Soldiers use this range to train and familiarize on the skills necessary to identify, engage, and hit stationary infantry targets. The range has fully automated target with the event-specific target scenarios computer driven and scored from the range observation tower. An addition of an automated Location of Misses and Hits (LOMAH) system may be authorized on this range.

ARF

Soldiers use the ARF to train and test the skills necessary to identify, engage, and defeat stationary infantry targets for day/night qualification requirements with the M16/M4 series weapons. The range has fully automated targets with event-specific target scenarios computer driven and scored from the range control tower.

MRF

The MRF combines the capabilities of AFF, ARF, and the 17808 Automated Night Fire (ANF) to reduce land and maintenance requirements and increase efficiencies. All targets are fully automated, and the event-specific target scenario is computer driven and scored from the range observation tower. This range is only required at Initial Entry Training (IET) and Basic Officers Leaders Course (BOLC) locations.

Primary Features

This section provides the standard layout and a listing of the primary features that are standard on these ranges; separated into Range and the Range Operations and Control Area (ROCA). The tables include the number and/or size of each item included in a standard facility with hyperlinks to the RDG section with the general design and construction requirements.

Standard Layout

The following drawings depict the standard layout for the range. They are included at the end of this document.

- [AFF-C-01](#)
- [ARF-C-01](#)
- [MRF-C-01](#)

Range

NUMBER	FEATURE	RDG SECTION
AFF – 96 ARF – 112 MRF - 144	Stationary Infantry Target	SIT
AFF – 0 ARF – 32 MRF - 32	Target Boots	Target Boots
AFF – 32 ARF – 16 MRF - 16	1-Man Fighting Position	
	Range Signage	Range Signage

ROCA

NAME	SIZE	UoM	RDG SECTION
Control Tower – Small Arms	1	EA	Range Control Towers
Operations/Storage Building, Standard	800	SF	Ops/Stg Buildings
Classroom Facility	800	SF	Classroom and AAR Facilities Part 1 Classroom and AAR Facilities Part 2
Latrine: Vault (Latrine: Water)	330 (550)	SF	Latrines
Bleacher Enclosure	1	EA	Bleacher Enclosure
Covered Mess	800	SF	Covered Mess
Ammunition Breakdown Building	185	SF	Ammunition Breakdown Building

Design

Use the standard layouts referenced above as the basis for the range.

The AFF has 32 firing lanes; each lane is 16 meters wide by 300 meters long. The ARF and MRF each have 16 firing lanes; each lane is 20 meters wide by 300 meters long. The AFF has 3 targets per lane, the ARF has 7, and the MRF has 9. Each target is equipped with a night muzzle flash simulator, used at the determination of the trainer.

General Range Design Requirements

This section contains references to the general range design sections of the RDG. Use these in addition to the sections for a specific item or structure and the design requirements in this document specific to the MRF.

General

- [Fire Protection](#)
- [LEED](#)
- [EPACT](#)
- [Furniture](#)
- [ADA](#)
- [Utility Services](#)

Civil Range Design

- [Siting Considerations](#)
- [Roads/Trails/Parking](#)
- [Target Protection Design Curves](#)
- [Line of sight](#)
- [Topographic Surveying](#)
- [Surface Danger Zones](#)

Electrical Range Design

- [Data Termination Rack](#)
- [Downrange Power and Data Distribution – General](#)
- [Downrange Power and Data Distribution – Under 300M](#)
- [Target Feeder Voltage Drop Spreadsheet/Instructions](#)

ROCA

Refer to the [ROCA-General](#) section of the RDG for general design information. All three ranges have the same ROCA requirements based on the standard Small Arms ROCA.

The Control Tower must have an unrestricted view of the firing line. Range operators in the tower should be able to see most of the target area.

For some initial entry training or schoolhouse installations, some of the ROCA facilities are larger to accommodate the larger unit sizes. Refer to the individual ROCA building Sections of the RDG for details.

Firing Line

The standard firing lines are all similar. Each lane must have a fighting position and an adjacent prone firing position. Firing positions should be on slightly elevated ground and designated with numbered markers. Refer to the standard Civil Details for details of the firing positions.

Down Range

Target emplacements locations must conform as closely as possible to the established distances. With the approval of the installation, locations may vary by ± 1 meter in order to avoid undesirable locations such as depressions or drainage.

Line of sight

Refer to the [Line of Sight](#) (LoS) section of the RDG for LoS requirements, procedures and submittal requirements.

The ranges are lane-based, requiring line of sight from the firing positions to each target within that lane. The limit markers also need to be visible from each firing position.

The control tower must have an unobstructed view of the entire firing line.

Targetry

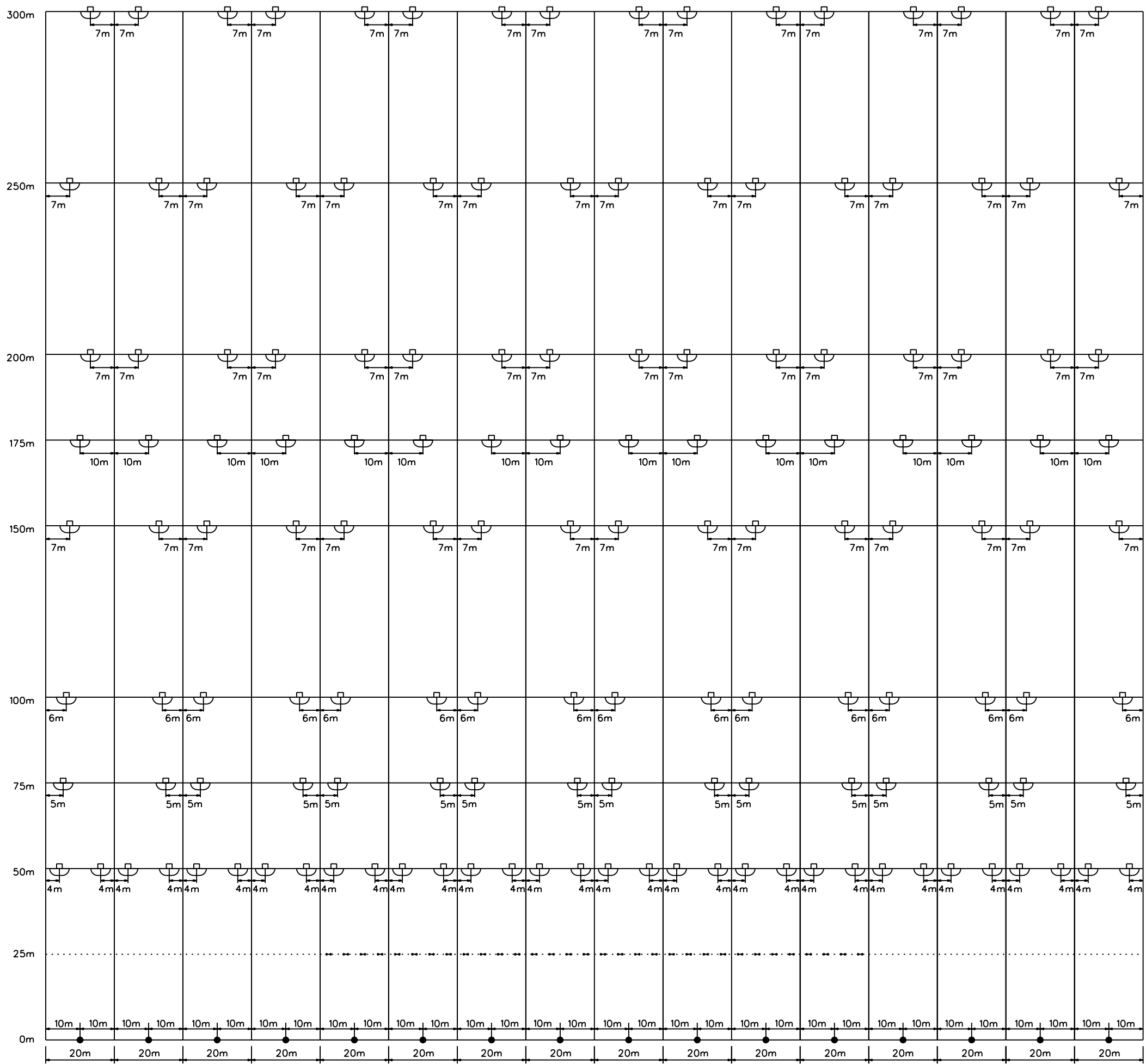
The ranges use fully automated targets with event-specific, computer-driven target scenarios and scoring. The targetry computer in the Control Tower controls the targets through the target data network. The target data network can be either hard-wired or Radio Frequency (RF), refer to the Electrical Range Design Section of the RDG for further information. The computer captures the scoring data, which is then available to the unit for after action review (AAR).

Requirement Documents


Refer to Training Circular TC 25-8, Training Ranges, for additional information and references to the FMs, ARTEPs, TCs, etc. that describe and require the training on this type of range. The latest TC 25-8, dated 10 May 2010, is available at Army Knowledge Online (www.us.army.mil) and the General Dennis J. Reimer Training and Doctrine Digital Library (www.train.army.mil).

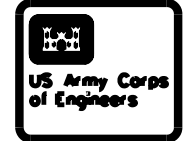
Additional Information

Night firing is accomplished in the same process as the day qualification. All targets should be thermal capable. Unassisted night-fire is accomplished from the baseline, firing at the 50m targets. One of the 50m F-type silhouettes should be replaced with an E-type silhouette during Unassisted Night Fire (UNF). The 50m target emplacements are equipped with Night Muzzle Flash Simulators (NMFS) to facilitate unassisted night fire requirements.



LEGEND

-  STATIONARY INFANTRY TARGET EMPLACEMENT
- FOXHOLE
- TARGET BOOT



Rev.	Description	Date	Approved

Designed by:	Date:	Rev.:
Dwn by:	Design file no.:	
Reviewed by:	Drawing code:	
Submitted by:	File name:	
	Plot date:	
	Plot scale:	

U. S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE HUNTSVILLE, ALABAMA

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RANGE AND TRAINING LAND PROGRAM STANDARD DESIGN MANUAL

FCC- 17806

MODIFIED RECORD FIRE RANGE

Sheet reference number: **MRF-C-01**

Sheet of

ZERO BOOTS

FIRE LINE