



CTC Notes



National Training Center (NTC)

Integration of Obstacle Design and Fires

By Major Frederick J. Erst

Both maneuver and engineer units have difficulty achieving obstacle integration during engagement area development at the National Training Center (NTC). Most obstacle groups lack sufficient density and are not integrated with effective direct and indirect fires. As a result, they are rapidly bypassed or reduced by enemy engineers. However, when maneuver and engineer units understand the task and purpose of fires for each obstacle group design, they can achieve the intended obstacle effect of *disrupt*, *fix*, *turn*, or *block* on the enemy's formation.

Design

Tactical obstacle design is based on the formation of the attacking enemy and the intended obstacle effect. During task force defensive planning, the assistant task force engineer should design and array each obstacle group based on the commander's intended obstacle effect,

the resource factor (RF), and the total width of the avenue of approach (AA). Use the obstacle group design calculation in FM 90-7, *Combined Arms Obstacle Integration*, to determine the total quantity of standard minefields required to achieve the intended effect (Figure 1).

Antivehicular obstacles, such as antitank ditches or 11-row concertina roadblocks, may be substituted for as much as 20 percent of the standard minefields in a group. Plan to use scatterable mines such as Volcano, MOPMS, and ADAM-RAAM or special purpose munitions such as Hornet as part of the minefield groups. These mines and munitions also can reinforce an avenue of approach to counteract an expected enemy penetration. The key is to array the obstacle groups with sufficient depth and density so they will manipulate the enemy's maneuver in the desired direction.

During the defense, the engineer battlefield assessment (EBA) often focuses on friendly engineer capabilities and does not address the impacts of terrain or the enemy engineers' breaching capability. Engineer platoons can use the EBA to design obstacles that will defeat enemy breaching assets. Or platoons can use a combination of "more visible" and "unseen" obstacles in each obstacle group to manipulate enemy maneuver in the desired direction. They can use the countermobility time line to emplace specific obstacles during the day (or at night) based on expected enemy reconnaissance in sector.

Obstacle Integration

Effective obstacle integration begins with the commander's intended effect of the obstacle on the enemy's maneuver. This effect should include the enemy target, the specific obstacle effect, and the relative location of the

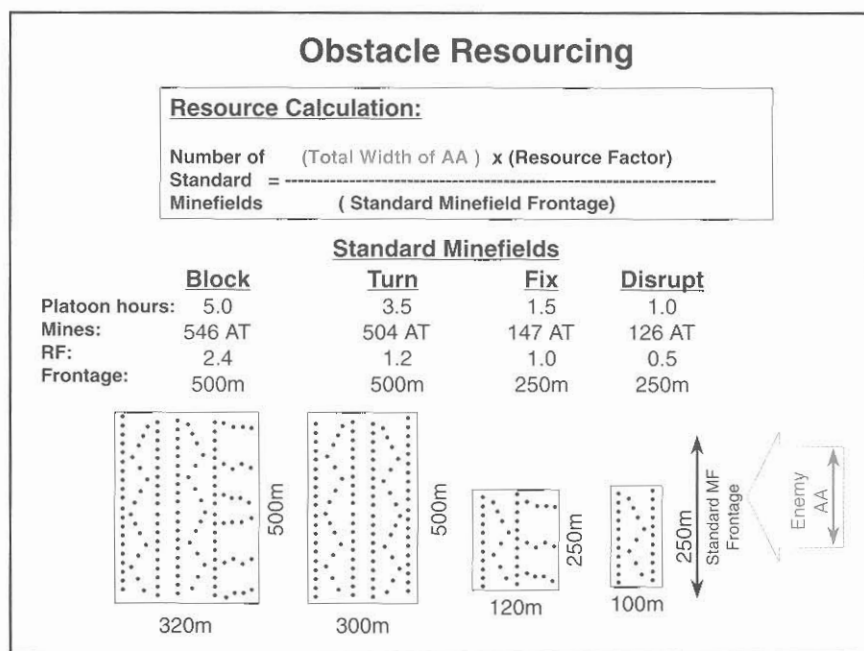


Figure 1

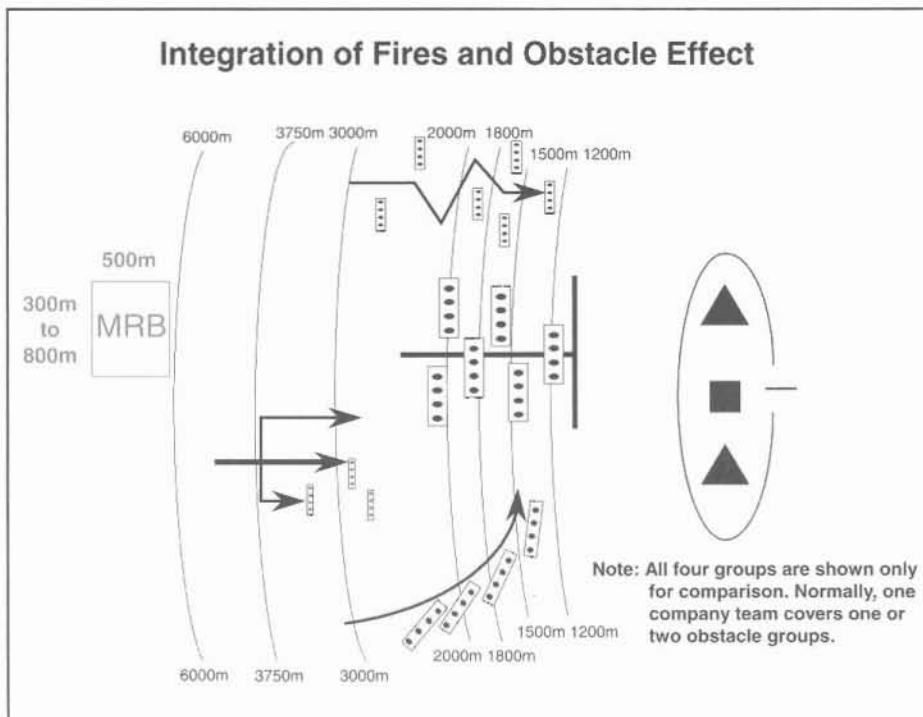


Figure 2

obstacle. The method to achieve this effect is to integrate obstacles with direct and indirect fires and manipulate enemy maneuver in the desired direction. The end state is for each company team to kill at least one enemy battalion while remaining combat effective. The maneuver commander's intent must specify locations *where* he wants to affect the enemy's maneuver. The engineer must ask the commander four questions during engagement area development:

- Where does the enemy want to go?
- Where should the enemy go?
- Where should the enemy not go?
- Where do you want to kill the enemy?

At the task force level, the maneuver commander uses obstacle groups to graphically portray the obstacle effect. Figure 2 depicts weapon ranges from a company-team battle position to each type of obstacle group. The four groups are shown for comparison only. Normally, one company team covers one or two obstacle groups with direct fires.

Integrating Obstacle Groups and Direct Fires

Effective units emphasize the use of the following three techniques to successfully integrate obstacle group design with direct and indirect fires:

- Obstacle siting.
- Obstacle ownership.
- Fire-control plan (direct and indirect fires).

Obstacle Siting

Obstacle integration begins during obstacle siting. The maneuver company team that overwatches a particular obstacle group must understand the intended obstacle effect and the type of direct and indirect fires required to achieve that effect. The company team and the engineer platoon must work together to position each obstacle in the group using the direct fire plan and the initial obstacle group design. Based on the terrain, the company team commander, the fire-support officer, and the engineer platoon leader adjust obstacle locations to ensure that the group is covered by direct and indirect fires and that the group design is consistent with the task force commander's intent. Use the obstacle siting procedure described in FM 90-7.

Obstacle Ownership

"Ownership" of the obstacle group by the company team begins with obstacle siting and continues through obstacle turnover. While the obstacle group is emplaced by an engineer platoon, the actual "owner" is the company team overwatching the obstacles. The company team should provide security and manpower for fratricide fence construction or mine-dump operations for their own obstacle group. This technique allows the engineer platoon to focus on its primary mission of emplacing minefields. It also allows the company team leadership to account for, equip, transport, and supervise its own personnel. The company team is then better prepared for obstacle turnover and land closure during the battle and for obstacle recovery after the fight. Ownership ensures that the company team remains integrated throughout the entire process; it results in better integration of the obstacle group with fires.

Fire-Control Plan

Engineers must know weapons' ranges and capabilities; they must also understand and use the same fire-control terminology as their maneuver counterparts. When engineer platoon leaders are asked, "How far should an obstacle be positioned from the overwatching unit?" most will answer, "Two-thirds of the maximum effective weapons range." However, their response should also include the task and purpose of direct and indirect fires for the obstacle group design needed to achieve the obstacle effect. An engineer platoon leader who can confidently talk about direct fire-

Disrupt Obstacle Group

RF = 0.5
SF = 250m

- Breaks up enemy formation and tempo.
- Forces enemy to deploy and breach early.
- Slows part of enemy formation and fragments command, control, and communications.
- Allows part of enemy to bypass piecemeal into main engagement area.
- Shallow obstacles are not visible at long range communications but should be easily bypassed as enemy nears.

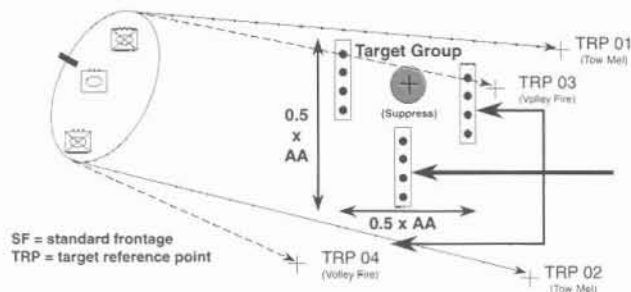


Figure 3

Fix Obstacle Group

RF = 1.0
SF = 250m

- Slows enemy in an engagement area (EA) so defender has time to acquire, target and destroy enemy in detail.
- Intensity of fires and obstacle density varies as the enemy advances through the depth of the engagement area.
- Interlocking fires force the enemy to fight in many directions at once.
- Shallow obstacles are arrayed in depth to cause enemy formations to react and breach repeatedly.
- Individual obstacles appear to be easily breached/bypassed.

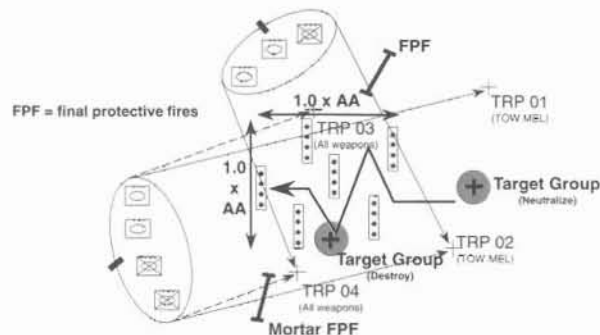


Figure 4

Turn Obstacle Group

RF = 1.2
SF = 500m

- Diverts enemy off an AA into an EA or another AA.
- Masses fires and ties obstacles into NOGO terrain at anchor point to prevent enemy bypass or breach.
- Allows enemy to bypass in desired direction of turn.
- Fires shift to maintain pressure throughout the turn.
- Obstacles at anchor point are "more-visible" (use a tank ditch or more wire) and look more complex than those at the end of the turn.

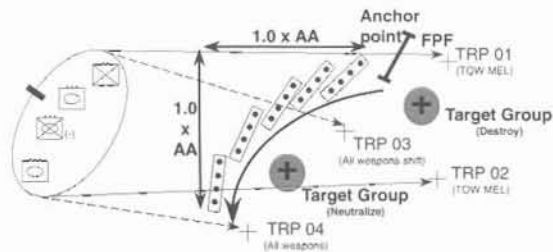


Figure 5

Block Obstacle Group

RF = 2.4
SF = 500m

- Masses fires / obstacles to stop enemy attack along specific AA or to prevent enemy from passing through an EA.
- No bypass available; the EA must cover the entire AA.
- High volume of interlocking fires across the entire AA.
- Block obstacles must defeat enemy breaching effort.
- Group consists of complex obstacles that require multiple breaching techniques to reduce a lane.
- Incorporates both "visible" and "unseen" obstacles to discourage breaching.
- Block obstacles do not stop an enemy attack by themselves; they must be integrated with intense fires.

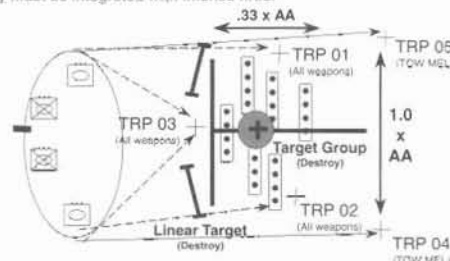


Figure 6

control measures (such as maximum engagement lines) or discuss the type of indirect fires on an obstacle group, can effectively assist the company team commander when he develops his fire-control plan.

The four types of obstacle effects (disrupt, fix, turn, and block) require a different combination of direct and indirect fires to achieve the commander's intent. The engineer platoon and the company team must understand where fires must be massed, distributed, and shifted within the obstacle group. Both must understand how the obstacle group is designed to manipulate the enemy's maneuver in the desired direction. Figures 3 through 6 combine engineer considerations for obstacle group design with the specific direct fire-control measures needed for each obstacle effect, as shown in FM 90-7.

Summary

To ensure mission success, units must ensure that

obstacle integration is an integral part of engagement area development. The engineer must understand fire-control planning, and the maneuver commander must understand obstacle-group design. Both the engineer and the maneuver unit must work closely together throughout the engagement area development process. By improving their understanding of the task and purpose of fires for each type of obstacle group design, commanders can achieve the intended obstacle effect of disrupt, fix, turn, or block on the enemy's formation.

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