

Chapter 6

Reserve Obstacles

This chapter implements STANAG 2017.

This chapter outlines the procedures to plan, prepare, and execute reserve obstacle groups. Reserve obstacle groups are those for which the commander restricts execution authority. These are "on-order" obstacles. The commander specifies the unit responsible for obstacle emplacement, guarding, and execution. Units normally plan and prepare reserve obstacles during preparation of the battlefield. Units execute them only on command of the authorizing commander or based on specific criteria that the commander identifies. The purpose of a reserve obstacle group is to retain control over the mobility along an AA. Commanders use reserve obstacles when failure to maintain control over the mobility along an AA will have disastrous effects on the current battle or future operations.

EMPLOYMENT PRINCIPLES

Commanders carefully select and have their staffs plan reserve obstacles. Normally, the commanders assign a maneuver unit as a guard element to protect the reserve obstacle

site. They also commit an engineer unit to provide the technical expertise to ensure that the obstacle is executed. Both the maneuver and engineer units that the commander dedicates to the reserve obstacle have other potential missions. The commander must conclude that the reserve obstacle group is so critical that the loss of units to protect and execute the obstacle outweighs the combat potential of those units in other areas.

The commander must clearly identify the criteria for executing the obstacle. Reserve obstacles require detailed coordination and synchronization to ensure success.

Units normally install, but do not execute, reserve obstacles early in the preparation phase because they are a critical part of the plan. Units may use a reserve obstacle to close a lane in a larger obstacle. Obstacles used for rapid lane closure are often demolition obstacles or mines; however, the type of obstacle used is only limited by imagination and ingenuity.

RESPONSIBILITIES

Key persons involved in the execution of a reserve obstacle (see *Figure 6-1, page 6-2*) are the—

- Authorizing commander.
- Guard commander.
- Firing commander.

AUTHORIZING COMMANDER

The authorizing commander is the maneuver commander who determines the requirement for a reserve obstacle. The authorizing commander—

- Establishes the criteria and procedures for executing the obstacle. Typically, he withholds authority to execute until he gives the order, using specific code words.

- Selects the code words for the execution of the obstacle.
- Establishes other specific criteria for executing the obstacle if he does not withhold the execution authority. He may authorize the guard commander to execute the target based on his own initiative or based on other criteria.
- Determines the need for a separate guard force. If a small guard force can protect the obstacle site, he may choose to combine the duties of the guard force and the firing party. In this case, the guard commander and the firing commander are the same person.

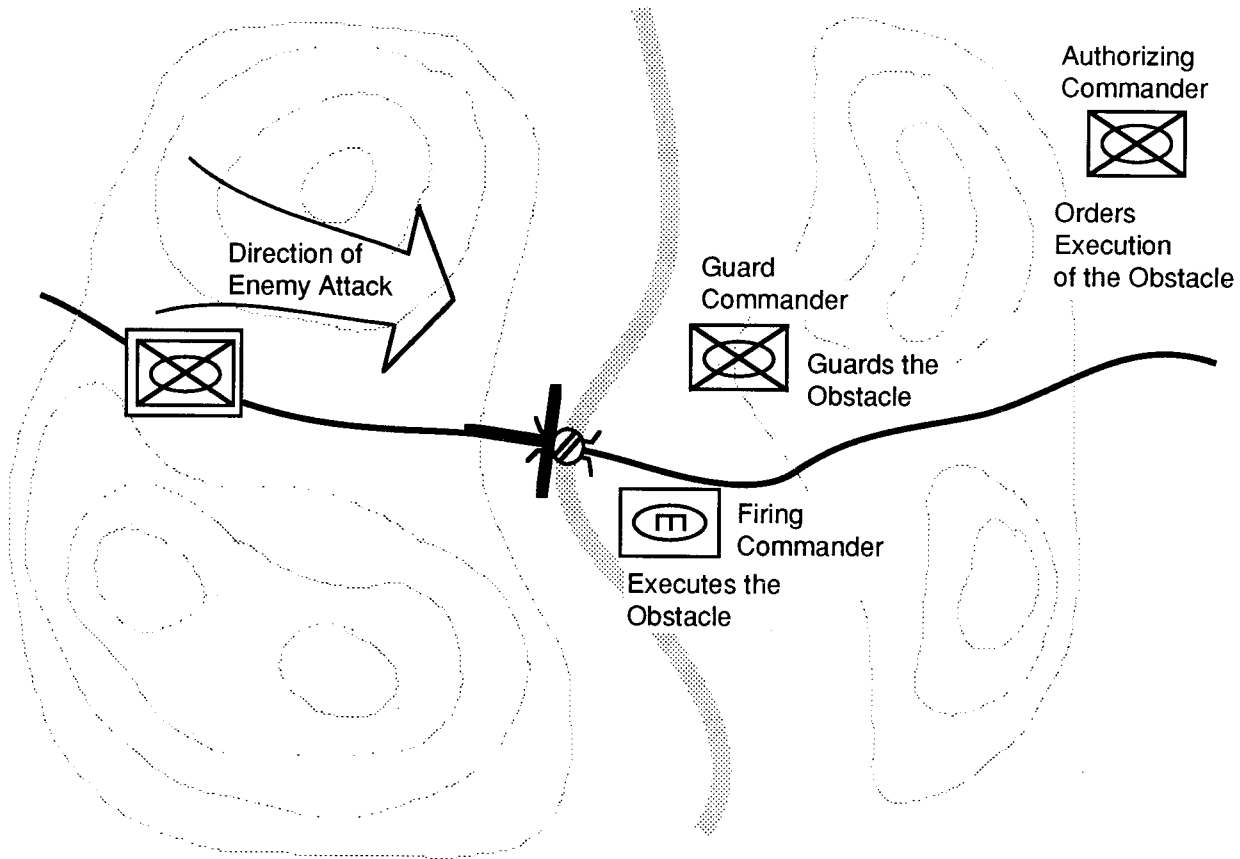


Figure 6-1. Reserve-obstacle responsibilities.

- Determines the need for a separate firing party. If the reserve obstacle requires an engineer technical expert on site to ensure obstacle execution, then the firing party is separate from the guard force.

GUARD COMMANDER

The guard commander is the leader of the unit that protects the obstacle. He is a commissioned officer or an NCO. The guard commander—

- Ensures that the obstacle site is not captured by the enemy.
- Gives the firing commander the order to execute the obstacle (based on the criteria that the authorizing commander established).

FIRING COMMANDER

The firing commander is the leader of the firing party and is an engineer NCO, unless the commander determines that there is no need for an engineer technical expert on site. The firing commander—

- Executes the obstacle when the guard commander orders him to do so.
- Inspects and repairs the obstacle, as required.

The specific orders to the guard and firing commanders are shown on the sample STANAG Form 2017 (see *Figure 6-2, pages 6-4 and 6-5*).

RESERVE-OBSTACLE PLANNING CONSIDERATIONS

The staff plans reserve obstacles during the decision-making process. The following paragraphs contain some considerations for determining the requirement for, and the planning, preparation, and execution of, reserve obstacles.

The commander determines the requirement for a reserve obstacle during the COA analysis or possibly following the COA development. The commander may also receive a requirement for a reserve obstacle from a higher commander as a specified task. If so, the staff identifies the requirement during the mission analysis.

If the commander decides that he needs to retain control over mobility along an AA, he has two options. He can—

- Assign a specified task to a subordinate unit to maintain a lane.
- Use a reserve obstacle.

The commander must consider the effect of the premature loss of mobility along an AA. For example, if an ACR is withdrawing under pressure through a division sector, premature loss of mobility along the AA may slow or even stop the ACR's withdrawal. The corps commander may specifically task the division commander to ensure that the ACR's withdrawal lanes are clear until the ACR has withdrawn. Thus he allows the division commander to determine the need for reserve obstacles. The corps commander may also decide to use reserve obstacles (see *Figure 6-3, page 6-6*).

If the commander decides to use reserve obstacles, he again has two options. If specific obstacle sites are obvious, such as bridges across a major river, the corps commander may designate those sites as corps reserve obstacles. This will require detailed planning by the corps staff and coordination down to the executing unit. If obstacle sites are not obvious, the corps commander may specify that any obstacles along the withdrawal lanes are corps reserve targets. This will require subordinate units to conduct detailed planning and then coordinate through operational and engineer channels with the corps.

(Security Classification)

Action to be taken	Codeword
4. Change from State 1 (SAFE) to State 2 (Armed)	RED
b. Change from State 2 (ARMED) to State 1 (SAFE)	GREEN
c. Fire the demolition now	GOLD
4. Para 3b cancelled, para 3c applies	PURPLE
e. Para 3c cancelled, para 3b applies	YELLOW
f. Para 3c cancelled, para 3b applies	ORANGE
g. The Authorized Commander is changed to	TAN
h. Authorized Commander	SRJID

Appointment Rank/Name Date/Time Group

PART II

10. Changing State of Readiness:
- a. Time estimated by Firing Party Commander to change from State of Readiness 1 (SAFE) to State of Readiness 2 (ARMED) is 1.....minutes.

State of Readiness Ordered	Originator	Date/Time Group of Receipt of Order	Date/Time Group of Change Completed

11. Handover and Takeover of Demolition Target:

Transferring Commander	Rank, Name, and Unit	Signature	Date/Time Group
Accepting Commander			

(Security Classification)

(Security Classification)

DEMOLITION ORDER
 From COA, 52FD
 (Authorized Commander)

COPY NO. OF

- 1. Demolition Guard Commander
- 2. Retained by the Authorized Commander
- 3. Retained by the Authorized Commander
- 4. Retained by the Authorized Commander

PART I

1. Demolition Target Details:
- a. Description TRINE FIELD W/TANK DIRCH
 - b. Location (grid co-ordinates) NY 13 456
 - c. Target nickname, number, or codeword 5053860A003+
 (All orders are to be prefilled by target identifying including RED Codeword.)
 - d. Technical instructions
2. Escalating Units:
- a. Demolition Guard 1st Ade, 52FD
 - b. Demolition Firing Party 52 Bqr Bn
3. Orders to the Demolition Firing Party Commander
- a. The demolition target is to be prepared to State of Readiness SAFE, 131500 NOV 93
 - b. All other orders will be issued to you by the Demolition Guard Commander. Record their receipt in Part II.
 - c. There is no Demolition Guard. You are to act as instructed in para 5, 6, and 7, recording the orders received in Part II. (Only one box is to be crossed)
4. Orders to the Demolition Guard Commander
- Your responsibilities are detailed in para IV. You are to act as instructed in para 5, 6, and 7, recording the orders received in Part II.
5. Demolition is to be fired:
- a. Immediately upon being prepared.
 - b. Upon receipt of codeword in para 3c by radio.
 - c. Upon receipt of the order from the Authorized Commander or his Liaison Officer personally.
 - d. (Other orders).....
6. Emergency Firing Orders
- a. You will NOT fire the demolition except as ordered in para 5.
 - b. You WILL fire the demolition on your own initiative if the enemy is in the act of capturing it. (Only one box is to be crossed)
7. Orders other than for firing will be given:
- a. By the Authorized Commander personally.
 - b. By the Authorized Commander's Liaison Officer personally.
 - c. By radio.
 - d. (other means)

(Security Classification)

Figure 6-2. Sample demolition order.

(Security Classification)

ORDERS FOR THE DEMOLITION
(ENHANCED BY STANAG 2017)

INSTRUCTIONS FOR PREPARING THIS FORM

- I. Paragraphs 1-9 are to be completed, placing a cross in each box where applicable.
- II. Copy No. 1 is to be returned to the Demolition Guard Commander and Copy No. 2 to the Firing Party. Copy No. 3 is to be returned to the Demolition Guard Commander. If there is no Demolition Guard, Copy No. 1 is to be returned to the unit providing the firing party.
- III. If the Demolition Guard changes a new form should be issued.

ORDERS TO THE DEMOLITION GUARD COMMANDER

- IV. You are responsible for:
 - a. Command of the Demolition Guard and Demolition Firing Party.
 - b. The security of the demolition site from enemy attack or sabotage, and the control of traffic and refugees at the demolition site.
 - c. Giving the order to the Demolition Firing Party Commander in writing (para 10 of Copy No 2) to change the State of Readiness.
 - d. Giving the order to the Demolition Firing Party Commander in writing (para 13 of Copy No 2) to fire the demolition.
 - e. Keeping the Authorized Commander informed of the operational situation at the demolition site.
- V. The Demolition Firing Party Commander is in technical control of the demolition but you must insure that he keeps you informed of all action he takes. Your command post should be co-located with the firing point if possible.

VI. You are to find out from the Demolition Firing Party Commander the time required to change the demolition site from the State of Readiness 1 (R1) to the State of Readiness 2 (R2), pass this information to the Authorized Commander and record it in para 10a.

VII. You are to nominate a deputy forthwith and compile a seniority roster. You are to insure that each man knows his place in the roster, understands his duties, and knows where to find this form if you become a casualty (it is immediately absent). The seniority roster must be made known to the Demolition Firing Party Commander.

VIII. The State of Readiness 2 (ARMED) has been ordered either you or your deputy must always be at your command post. Orders that orders can be passed immediately to the Demolition Firing Party Commander.

IX. If you are ordered to shoot part the demolition to another unit without the issue of a new form, para 11 to be completed and the new form handed to the more Demolition Guard Commander. A receipt is to be issued and retained by you. If a new form has been issued, para 11 is to be completed on the old form which you will retain.

X. When the demolition has been completed you are to report its effectiveness to the Authorized Commander by the fastest means available, and return Copy No 1 to him with para 14 completed.

XI. If you receive orders to fire the demolitions other than those given in para 5, you should refer to the Authorized Commander.

XII. You are in technical charge of the preparation, charging, and firing of the demolition.

XIII. You are in technical charge of the preparation, charging, and firing of the demolition.

XIV. You are in technical charge of the preparation, charging, and firing of the demolition.

XV. You are in technical charge of the preparation, charging, and firing of the demolition.

XVI. You are in technical charge of the preparation, charging, and firing of the demolition.

XVII. You are in technical charge of the preparation, charging, and firing of the demolition.

XVIII. You are in technical charge of the preparation, charging, and firing of the demolition.

XIX. You are in technical charge of the preparation, charging, and firing of the demolition.

XX. You are in technical charge of the preparation, charging, and firing of the demolition.

XXI. You are in technical charge of the preparation, charging, and firing of the demolition.

XXII. You are in technical charge of the preparation, charging, and firing of the demolition.

XXIII. You are in technical charge of the preparation, charging, and firing of the demolition.

XXIV. You are in technical charge of the preparation, charging, and firing of the demolition.

XXV. You are in technical charge of the preparation, charging, and firing of the demolition.

XXVI. You are in technical charge of the preparation, charging, and firing of the demolition.

XXVII. You are in technical charge of the preparation, charging, and firing of the demolition.

XXVIII. You are in technical charge of the preparation, charging, and firing of the demolition.

XXIX. You are in technical charge of the preparation, charging, and firing of the demolition.

(Security Classification)

12. Record of Other Changes to Part I (if any)

Detail	Date/Time of Receipt

13. FIRE THE DEMOLITION NOW

Signed
 (Rank, name, unit)
 (Date/Time Group)
 (or enter date/time group of receipt of codecard in para 8c)

PART III

14. Demolition Report

- a. Bridge
 - Estimated width of gap.....
 - Road/Runway/Railway.....
 - Number of craters.....
 - Diameter/Depth.....
- b. Other target.....
- c. Mines laid:
 - AT mines.....
 - AP mines.....
- d. Sketch

Signature _____ Rank/Name/unit _____

(Security Classification)

NOTE: This is a sample only. Each unit must develop a Demolition Order locally (unless a suitable form is available from a higher HQ). The contents and paragraph numbers of the form must conform exactly to Annex A, STANAG 2017. The form should also conform as closely as possible, both in size and shape, to Annex B, STANAG 2017.

(Security Classification)

AE Form 1350, 1 Dec 81 Reference AE Form 1350, 1 May 78, and AE Form 1350-1, which are obsolete.

Figure 6-2. Sample demolition order (continued).

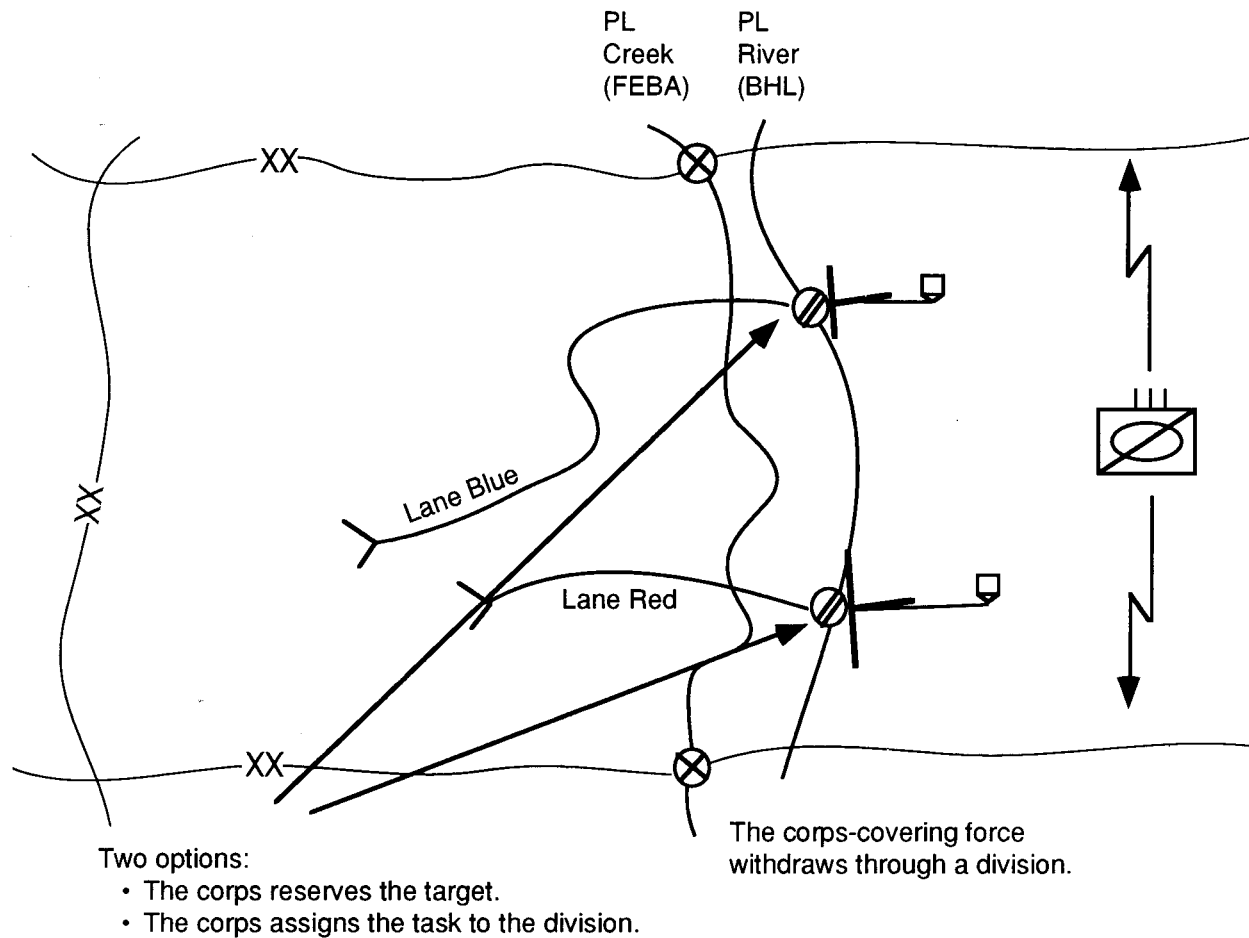


Figure 6-3. Considerations for using a reserve obstacle.

The need for reserve obstacles is not limited to ensuring successful rearward passage of friendly units. The reserve obstacle may control key terrain along a CATK axis that is along the most dangerous enemy AA (see *Figure 6-4*). Control of the key terrain (a choke point) along the CATK axis may be critical to success in the battle. The commander may reserve the obstacle controlling the key terrain to retain his flexibility to commit the CATK force along the axis and have a means to close the AA if the enemy uses the most dangerous AA.

ADDITIONAL FACTS AND ASSUMPTIONS

Once the commander decides on the need for a reserve obstacle, the staff examines the SITEMP. It is used to determine the—

- Size of the guard force required.
- Requirement to secure the obstacle, either by fire or occupation.
- Size of the obstacle required.
- Most effective type of obstacle.

The expected threat determines the size of the guard force. The enemy and terrain

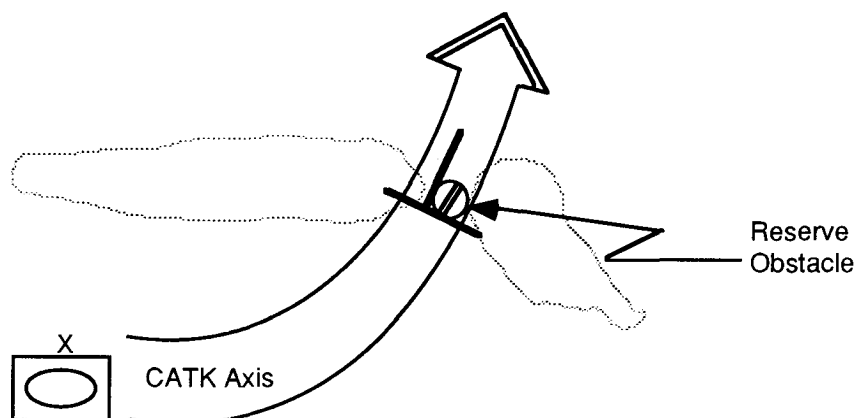


Figure 6-4. Using a reserve obstacle to control key terrain.

situation dictate whether the guard force must secure the site by occupation or whether they can do so from a distance by fire. The terrain that determines the size of the AA may determine the size of the obstacle. The enemy's breaching capability may determine the most feasible obstacle. For example, if the enemy does not have organic assault bridging, then tank ditches and RCs may be the best obstacle.

FIRES ANALYSIS

The staff analyzes the COA to determine the—

- Location of the obstacle relative to subordinate units' positions.
- Ability of the unit to cover the reserve obstacle group by fire following execution.
- Most likely subordinate unit to assign to the guard force mission.

The best spot for an obstacle may not be the best spot to bring overwhelming combat power to bear. When the unit uses the reserve obstacle to close a lane in a properly planned directed obstacle, the reserve obstacle is already integrated with fires. However, in some cases, a reserve obstacle

site is dictated by a higher commander or the terrain. A reserve obstacle directed by the higher HQ may require the subordinate unit to adjust its positions to cover the obstacle by fire. In some terrain, there may be only a few sites where a commander can use reserve obstacles to control mobility along an AA. This terrain is usually dominated by some type of existing obstacle (such as a river, canal, or canyon). If the commander decides to use a reserve obstacle, he repositions forces to ensure that the obstacle is covered by fire.

OBSTACLE INTENT INTEGRATION

The staff places the reserve obstacle group relative to the terrain and friendly maneuver graphics to support the COA. Normally, the desired obstacle effect of a reserve obstacle is to block. Even if it is used to close a lane in a directed fix obstacle group, the commander uses the reserve obstacle to block the AA, in this case the lane; however, the commander may use reserve obstacles to achieve any of the four obstacle effects. The staff indicates the location of reserve obstacles by using the obstacle effect graphics and annotating them as reserve obstacles.

OBSTACLE PRIORITIES

Reserve obstacles are high-priority obstacles. Because a reserve obstacle is critical to the plan, units must emplace reserve obstacles early in the preparation phase.

MOBILITY REQUIREMENTS

The commander's decision to use reserve obstacles is based on—

- Analysis of the COA.
- Detection of mobility requirements.

An additional consideration is the establishment of procedures for traffic control and lane marking. *Figure 6-5* shows a possible lane-marking system based on lane-marking guidance from *FM 90-13-1*.

After the commander decides on a COA, the staff can do the detailed planning for reserve obstacles. This detailed planning involves designing and resourcing the reserve obstacle group.

OBSTACLE DESIGN AND RESOURCING

The staff determines—

- What obstacle assets are available.
- Which type of obstacle asset is best to use.

The staff must know the obstacle emplacement assets that are available. It finds this information by reexamining the facts and assumptions for the mission. The staff limits its consideration of available assets to those that are quickly executed. Demolition obstacles, preconstructed obstacles (like the falling blocks used in Korea), and SCATMINEs are examples of easily executed obstacles. For small lanes, hand-emplaced conventional mines may be suitable. If the commander decides to use SCATMINEs, the staff ensures that the asset directed to emplace the reserve obstacle is available for the mission at the

required time. The obstacle-emplacement unit is dedicated to the reserve obstacle, which makes it an "on-order" mission. The staff identifies potential situations where SCATMINE assets may not be available and ensures that the commander understands any risk associated with their nonavailability.

DECISION AND EXECUTION

The staff prepares orders and provides information on reserve obstacles on the SCI of-obstacles overlay, in a reserve-obstacle-execution matrix, and in a demolition order for the unit with the guard force mission.

SCHEME-OF-OBSTACLES OVERLAY

Reserve obstacles are included on the scheme-of-obstacles overlay. The staff uses the obstacle effects graphics and, in many cases, the individual obstacle symbols (if the commander intends to use a specific type of individual obstacle for the reserve obstacle). This provides the emplacing unit with clear guidance on what obstacle effect is desired and what individual obstacles to use.

OBSTACLE-EXECUTION MATRIX

The obstacle-execution matrix for reserve obstacle groups is similar to the matrix for directed obstacles (see *Figure 6-6, page 6-10*). Typical information shown on the matrix includes—

- Zone/belt/group designation and individual obstacle numbers.
- Location, effect, and priority of the group.
- Emplacing and owning units.
- Designation of the firing and guard commanders.
- Emplacing asset and asset location.
- Any special instructions for each group.

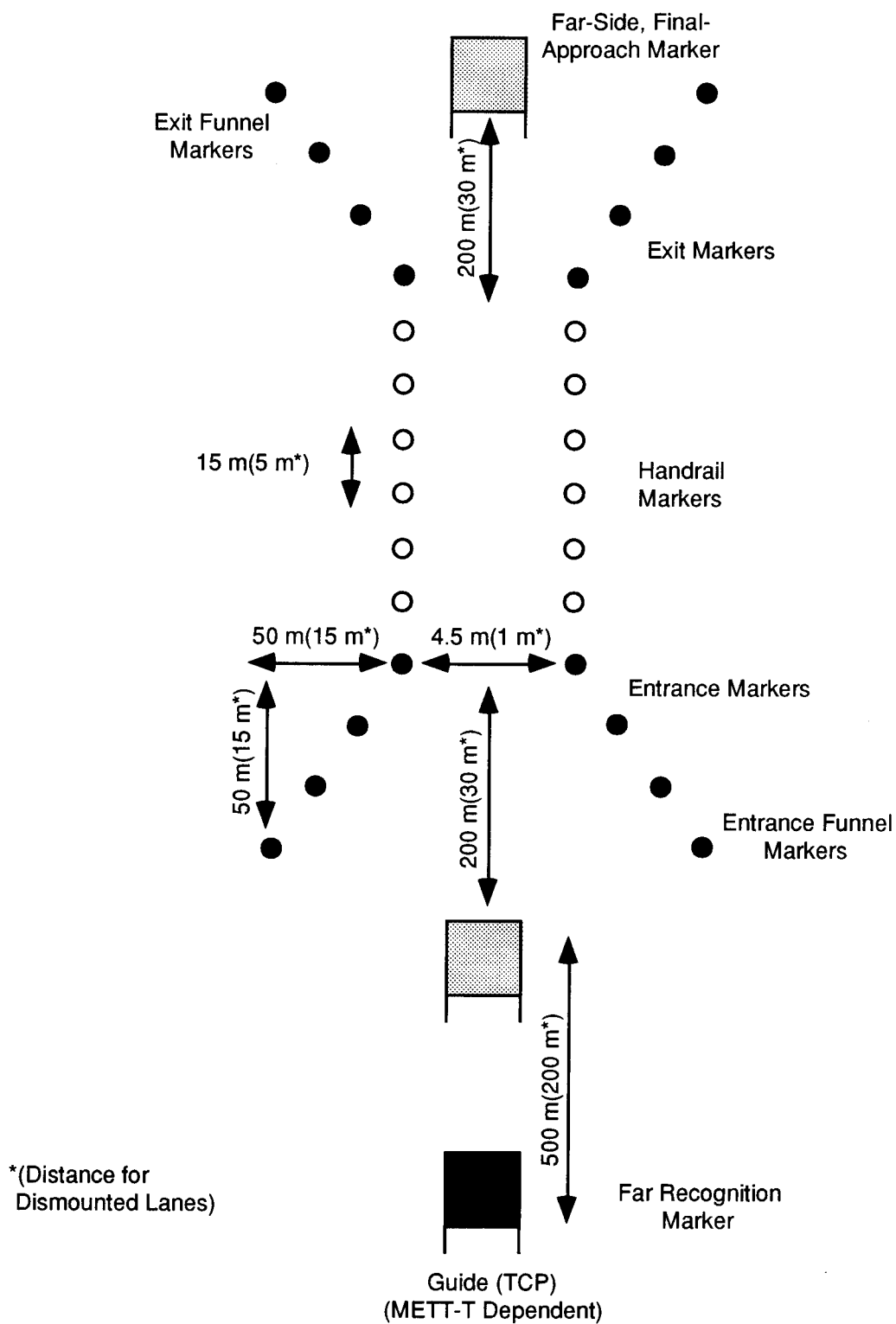


Figure 6-5. Lane marking.

DEMOLITION ORDER

The demolition order, *STANAG Form 2017*, consists of a single sheet printed on both sides. This order can be used for any obstacle, not just demolitions. *Figure 6-2, pages 6-4 and 6-5*, includes an example of a completed demolition order.

The demolition order may include emergency firing orders (indicated on *STANAG Form 2017*, items 5 and 6). The commander performs a risk assessment on the execution criteria. The commander has two options: withhold execution authority or grant execution authority to the guard commander based on—

- The possibility that the enemy is about to capture the obstacle.
- A NLT time being reached.
- Specific friendly action.
- Specific enemy action.

- The combination of an enemy and a friendly action.

If the commander does not establish emergency firing orders, he takes the risk of the enemy destroying the guard unit and the obstacle not being executed. If he establishes emergency firing orders, he takes the risk that the premature execution of the obstacle may hamper future operations. The commander makes a decision on execution criteria and issues clear orders concerning the authority to execute the obstacle (see *Figure 6-7*).

REHEARSALS

Once the order is published, the next step is to rehearse the execution of the obstacle. Reserve obstacles require detailed coordination and execution. The focus of the rehearsal is to confirm the timing

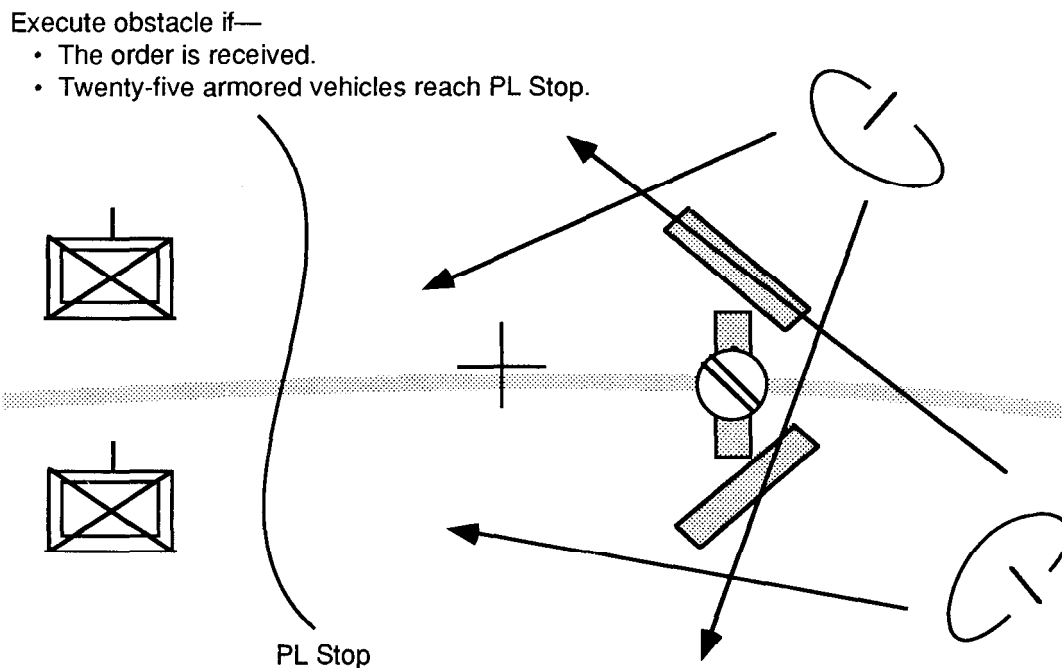


Figure 6-7. Emergency fire-order criteria.

requirements. Units should conduct this rehearsal as part of a larger rehearsal with minimal simulation. The following timing requirements are considered during the rehearsal (see *Figure 6-8*):

- Time required for the guard commander to notify the firing commander to execute the target.
- Time required to execute the target.
- SCATMINE arming and duration time, if applicable.

The guard force and the firing party rehearse notification procedures, using redundant communication procedures, such as wire and radio. They rehearse the time required to receive notification and move to the firing point under all conditions.

The firing commander and the guard commander calculate how long it will take to execute the obstacle. The full rehearsal includes rehearsal of the backup plan and

considerations for execution in reduced visibility, such as smoke, darkness, or fog. Once these times are determined through rehearsal, the firing commander informs the guard commander.

Another time consideration is the arming and duration times. If SCATMINEs are used, the arming and duration times can be a significant factor. For example, it takes two minutes for a MOPMS dispensed mine to arm. The duration on MOPMS is sixteen hours (assuming the mines are recycled three times) from the time the mines are armed; however, the mines begin to SD at 80 percent of their expected life. It is important not to execute this and similar systems too late or too early.

During the rehearsal, the guard commander also identifies the decision point for executing the obstacle according to emergency firing orders. Emergency firing orders may not

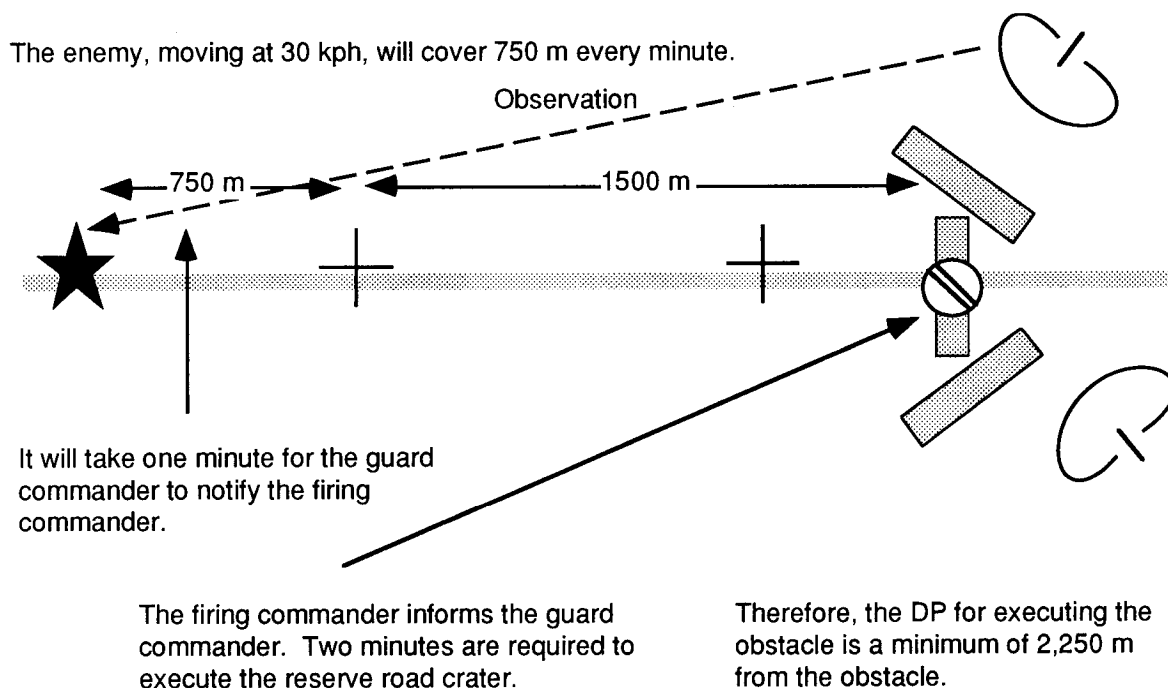


Figure 6-8. Minimum timing requirements for reserve obstacles.

require a physical DP but may require execution of the obstacle based on enemy or friendly actions that the guard commander cannot see. If so, the guard commander confirms, with the authorizing commander, how he will get the information that drives the decision to execute the obstacle (such as a report from the TF scouts that the enemy has reached a certain location).

If execution depends on imminent enemy capture of the obstacle site, the guard commander makes assumptions about how much combat power he must have to retain control of the site. He must also consider the time requirements for execution that will affect the DP. For example, he must determine at what point during the fight to retain control that he can order execution and still have enough time for notification, execution, and arming.

If execution is based on a certain size enemy force reaching the obstacle site, the guard commander uses the time required for obstacle execution and works backwards to locate

the DP to execute the obstacle. Ideally, the point should be clearly marked with a TRP. This spot may change based on visibility conditions.

If the reserve obstacle is also a lane, the coordination required is similar to the coordination required to conduct a passage of lines. The guard commander must know the following:

- The number of vehicles to expect.
- The near and far recognition signals.
- The passage time.

Another important element to consider during the rehearsal is the commitment of assets, especially if the assets have other missions. For example, artillery assets must be available to fire a reserve ADAM/RAAM obstacle. During the rehearsal, the staff verifies the availability of the asset and identifies additional situations where the asset may not be available. It ensures that the executing unit understands the commander's priorities.