



NATO ENGINEER WINTER WEBINAR

*Norwegian Land Warfare Center
School of Engineers*



*Ubique quo fas et gloria ducunt
- Where ever duty and honour leads us*



Agenda

- Obstacle establishment
- Minefields
- Axis improval
- Survivability
- Breaching

- Time: 30-45 minutes per presentation, 15 minutes break in between presentations.





Obstacle Establishment

*Norwegian Land Warfare Center
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Agenda

- Effectors that we rely on in arctic climate
- Details regarding establishment
- Tactical advantages in establishing obstacles in cold weather.

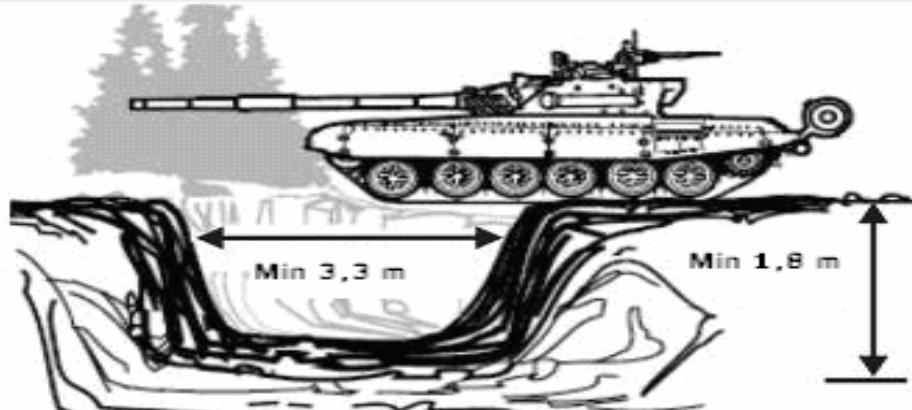
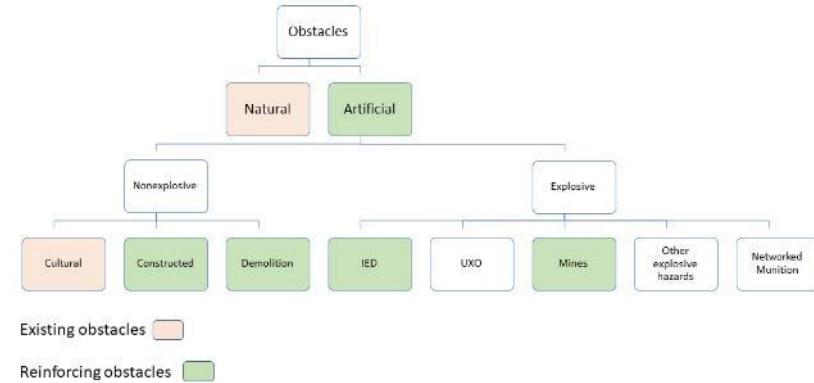
- Time: 30 minutes



Effectors that we rely on in artic climate

- Mines
- Anti-tank ditches
- Berms and obstacles created out of snow in general
- Abatis and wooden obstacles
- Bridge demolitions
- Ice demolitions
- Mountainside demolitions (destruction of lines of communication).

Types of Obstacles



Details regarding establishment

- Machines and equipment need to be equipped and maintained in order to fully function in cold climate. Temperatures shifting from above, to below zero are critical.
- Areas for equipment and machines need to be marked and maintained.
- Low visibility increases the need for command and control especially regarding explosive obstacles.
- Time is of the essence, and often a lot more time consuming than in warmer climate.



Tactical advantages

- Worse mobility for us means worse mobility for the enemy.
- Complexity and composition of obstacles makes breaching the obstacle more time consuming.
- Deception is easier regarding tracks, heat signatures and dummy minefields.



Key factors in establishing obstacles

- Emphasis on the terrain and weather assessment during the MDMP
 - Important to separate facts, conclusion and assumptions.
 - Make assumptions into facts
 - Plan robustly (in both time and force factor)
 - Dedicate ENG units to enhance and maintain mobility throughout the operation
- Cold weather can be a force multiplier, if exploited correctly
- Prepare the force through training and education on all levels.



Orientation ends
Questions?
(10 minutes maximum)



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