

12. ROUTE, CANAL and HOUSE CLEARANCE

ROUTE CLEARANCE

1. General

A demining, BAC or an EOD team must carry out route clearance, utilizing two-man drills and the mark the area upon completion.

Before the clearance task commences, a survey must be conducted, and the following areas must be cleared and marked:

- Safe Area;
- Base Line (preferably with multiple Start Points into the contaminated area);
- Vehicle Park and turning areas;
- Control and Medical post;
- Stores and equipment area;
- Resting area with latrine;
- HELIPAD (if applicable);
- Demolition area (if applicable);

2. Asphalt roads and railways

The clearance team must remain on the asphalt or concrete at all times and check breaks in the surface, potholes and verges with the metal detector.

Unless otherwise stated by ANAMA, a three-meter wide verge will be cleared on each side of the road. The clearance operation must be well-controlled and as a minimum the following procedures must be applied:

- The “number one” with the detector will carry out the tripwire feeler drill, prior to sweeping with the detector. Particular attention must be paid to command wires, which may be laid on the surface of the road. Otherwise, all aspects of the drill remain the same;
- Particular attention should be paid to all cracks, breaks or fuel spills on the asphalt roads;
- When clearing verges, the normal drills are followed;
- Special attention should be paid to culverts and drainages that run under the carriageway. The areas, adjacent to the ends of culverts, should be thoroughly checked before the culverts themselves.

MDD and Mechanical support should be considered for such tasks.

If a large area of unpaved road is encountered during clearance operations of asphalt roads, the operations must change to the standard clearance drills.

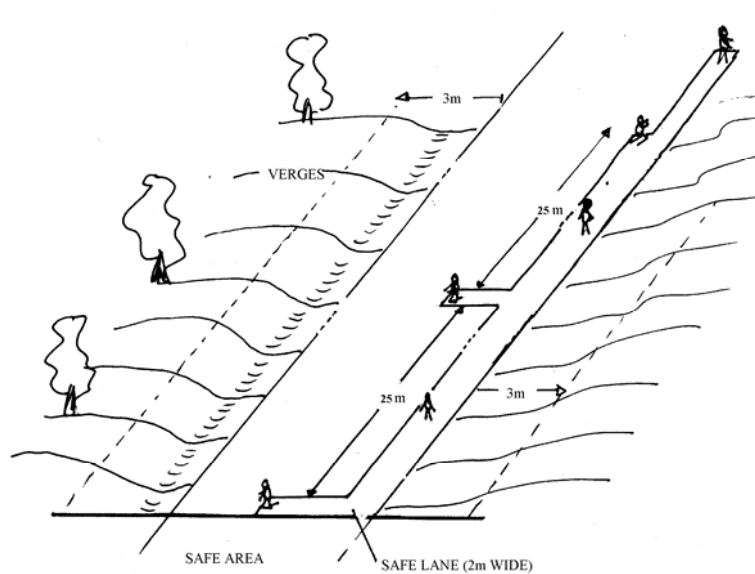
3. Graveled roads (Dirt roads)

Clearance will be conducted as standard clearance drill:

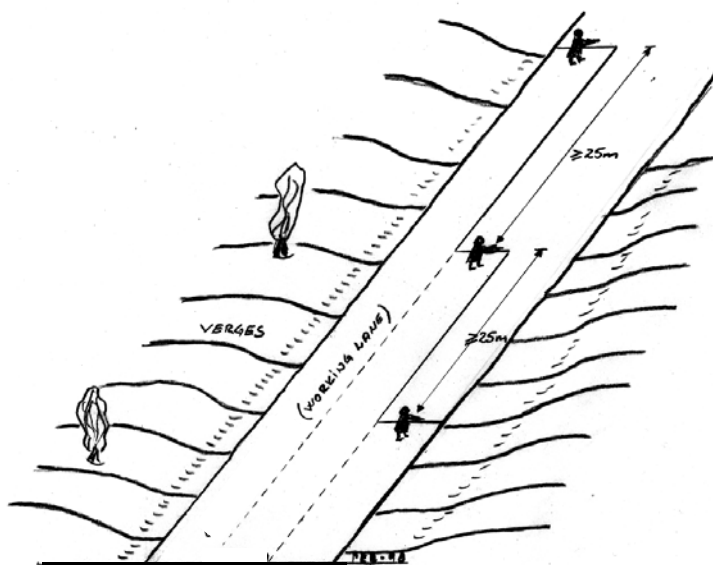
a) Area clearing method

This method is applied in the following way:

1. Clear a safe lane along the side of the road and then clear the road and verges. The diagram below depicts this method;
2. Clear a safe lane on the middle of the road and then clear to each verge;
3. Clear a safe lane along the verge and then clear the remainder of the verge, the road and adjacent verge.



b) Stair way method



CANAL CLEARANCE

1. General

Canal, stream or viaduct clearance is one of the high-risk tasks for survey and clearance teams. As with all other tasks, accurate and detailed information from the level one survey is curtail. Therefore, the following points should be considered:

- a. what types of mines were used in the canal?
- b. To what depth and location the mines are buried?
- c. When were the mines laid?
- d. How long has it been since the canal was de-silted?
- e. What UXOs are likely to be encountered in the area?
- f. What is the level of fragmentation?
- g. What type of foliage is in and around the canal?
- h. Does water flow in the canal? If so, when and to what depth?

Once this data has been assessed, the method of clearance and excavation can be determined.

2. Principles

The following principles are to be adopted, when carrying out this type of task:

- a. Survey should always adopt the linear task approach, similar to road clearance, and provide multiple entry points, where deminers can commence work outside the safety distances;
- b. The bed of the watercourse should be checked up to its original depth plus 20cm. For example, silt build up has to be investigated and removed prior to clearance of the original watercourse bed.
- c. Manual demining should be avoided because:
 - It is too slow;
 - It exposes the deminers to greater risks, such as mines that have moved by the flow of water;
- d. Where possible, a combination of mechanical and MDD support should be used;
- e. Deminers must check all mechanically removed earth;
- f. Where concrete lined watercourses are present, metal detectors might be ineffective. In such cases either manual or mechanical excavation of the silt must be carried out. The drill is to manually or with MDD check all cracks and holes for mine/UXO.
- g. All foliage will be removed to ground level after informing the landowner.---

HOUSE CLEARANCE

1. General

All unoccupied houses are to be considered as having been booby-trapped and will be entered and cleared accordingly. The tasks of searching and clearing will require extreme caution and careful organization. In many cases, the buildings being cleared will be required for accommodation of by internally displaced persons or returning refugees, and any damage must be avoided as far as possible.

2. Working party

The clearing party for an average size house or building will not exceed two qualified IED/EOD operators working as a team. No other person will enter the building until it has been cleared. In very large buildings two or more pairs may be employed, provided they maintain a 25 m safety distance and work within clearly defined boundaries. As a general rule, either two walls or two floors will be the minimum distance between working parties.

3. Exterior reconnaissance and entry

Before advancing to a building, its approach and surrounding will be checked for booby traps and nuisance mines. These will be cleared before the dwelling is tackled. When completed, the leader of the team will carry out a reconnaissance to determine the point of entry. When selecting a point of entry, the following points must be considered:

- *Doorways.* Doorways must never be considered as safe, unless the door is fully open and the entrance can be seen to be safe. Regardless if a house is built on a concrete slab or not, it is not unlikely to have a pressure-firing device, located in the floor;
- *Windows.* Windows offer excellent opportunities for trapping. Particular attention will be given to the ground outside, and the floor inside, as these are classic sites for pressure-firing devices. If access has to be gained through a window, the following procedure is recommended:
 - 1) If the window is unsecured and can be moved by pulling, pull it. If it is secured, break the glass by using a small charge or a heavy object;
 - 2) If there is a choice between an open or closed window, choose the one that cannot be opened;
 - 3) Deal with blinds and curtains in a manner similar to windows;
- *Roofs.* Roofs must never be considered as safe, until a full search has been conducted. Particular attention should be given to the external surface in areas, where battle has taken place. Also, the areas between roof trusses and under tiles must be checked carefully. Be aware of the possibility of pressure-firing devices, located under tiles or attached to roof hatches and charges in the chimney;
- *Mouse Holes.* If it is decided not to enter through a door or window, a mouse hole will have to be made in the wall, roof or floor. Where possible, this should be made, using explosives, as this offers not only a remote and hence safe method of creating an access point, but may also set off any traps in the near vicinity. When entering through the roof of a two-storey house, be cautious, as it is far more difficult to clear stairs going down than going up.

4. Search techniques

The following sequence is to be adopted, when searching all buildings:

- a) Floors and furniture;
- b) Walls, including doors, windows, fireplaces, fitted cupboards, etc.;
- c) Fittings, including light switches, pictures, etc.
- d) Ceilings.

As each area or item is cleared, it will be marked in white as SAFE. This can be done using spray paint, chalk, felt tip pen, etc.

5. Precaution during search

The following techniques and precautions will be the minimum adopted for all building searches:

- a) Check both sides of a door before opening it. Drilling a hole through it and using a mirror to check the other side can do this. They can be further checked or opened by remote pulling or by blowing the lock and hinges with a small explosive charge;
- b) Examine floor coverings for signs of disturbance;
- c) Open cupboard doors, drawers, moving any furniture by using a pulling cable;
- d) Check upholstered furniture and beds by remotely dropping a heavy objects on them;
- e) Electric wiring in a house provides a ready-made circuit for electric booby traps, and every switch will be treated with suspicion;
- f) Leave open all windows, doors, cupboards and drawers that have been cleared;
- g) Clearly mark all routes, areas and items that have been cleared;
- h) Check plumbing by remotely turning on all water taps and allow the water to run into baths and basins for at least one minute;
- i) Check cisterns before flushing toilets;
- j) In dark places, such as attics and chimneys, beware of light-sensitive devices;
- k) After remote pulling of anything, allow at least 10 minutes wait time, as there may be a delay fuse.

6. Command and Control

Close supervision of the demining of buildings is to be carried out by the Supervisor/Team Leader. Visual contact between the deminers and the observers is often absent, and they cannot monitor the actions of their partners. The Supervisor/Team Leader must maintain sufficient level of command and control by means of visual or radio communications.

7. Clearance in Secured Areas. Policy and Planning

Formal clearing procedures must be followed in secured areas. This type of clearance can be done by deminers or EOD personnel. It is subject to time constraints, when traps or suspected traps are located in urgently required installations or facilities, such as supply dumps or telecommunication centers.

Team Leader must make detailed plans, prepare orders and brief deminers. The following points are covered:

- Reconnaissance;
- How the operation is to be conducted (including acceptable damage and methods of clearing);
- Action on finding traps;
- Marking and numbering of booby traps;
- Disarming procedures;
- Tasking and allocation of areas;
- Available equipment;
- Control measures;
- Time requirements;
- Rehearsal and equipment preparation.

8. Control Point

Upon arrival at the area to be cleared, Team Leader establishes a control point. The control point functions as the headquarters and the storage area. It is the point, from which all clearance starts. It must be cleared prior to being used. A master diagram of the site to be cleared must be at control point. This diagram will depict all found booby traps and devices. The found items will be sequentially numbered by the clearance teams and recorded on this diagram.

9. Control and Size of Parties

The size of clearing parties varies depending on the location being cleared. The following rules apply:

- Each party is controlled by a SL;
- Only one party works in a particular sub-area;
- Sufficient distance is to be maintained between the parties, so that detonation in one area does not endanger persons in other areas;
- The SL of each party is in visual, radio or voice contact with every person in his party;
- Only one person works with booby traps;
- Radio communication should be maintained with the clearing party inside the building;
- Deminers are to be changed every 15 minutes;
- When anyone enters the access corridor or room, all demining is to stop inside the building;
- No other demining activity is to take place within 25 - 100 meters of the building, depending on the mine/UXO type;
- The clearance of access inside the building is to be completed before demining of rooms commences;

- Deminers are not to work in adjacent rooms. There must be at least two walls between the deminers.