LMAC

LEBANON MINE ACTION CENTER

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Clearance Requirements

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Warning

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Foreword

As detailed in the National Mine Action Policy of 2007, the Lebanon Mine Action Center (LMAC) has the responsibility to execute and coordinate the Lebanon Mine Action Program (LMAP) on behalf of the Lebanon Mine Action Authority (LMAA), including the development and amendment of standards. Such standards shall be developed in a participatory approach that shall involve international, governmental, and nongovernmental organizations.

The NMAS shall be reviewed as needed to reflect amendments in the IMAS as well as incorporate changes to international obligations and local requirements. Such revisions shall be regularly made available on the LMAC's website www.lebmac.org or can be obtained through contacting the LMAC via the email info@lebmac.org.

The National Mine Action Standards (NMAS) of Lebanon were first developed in the form of Technical Standards and Guidelines (TSG). These TSG were edited into the first edition of the Lebanon NMAS in 2010 and were written to comply with the International Mine Action Standards (IMAS) at that time. The IMAS are constantly under review and subject to revision. The desire to remain compliant with the revised IMAS led to an update of the NMAS in 2020. Since then, further IMAS revisions have led to the NMAS being reviewed and revised again in 2023.

Acronyms

CASEVAC	Casualty Evacuation
CHA	Confirmed Hazard Area
EO	Explosive Ordnance
EOD	Explosive Ordnance Disposal
ER	Engineering Regiment
ERW	Explosive Remnants of War
HTHA	High Threat Hazardous Area
IA	Implementing Agency
IMAS	International Mine Action Standards
LA	Local Authority
LAF	Lebanese Armed Forces
LMAA	Lebanon Mine Action Authority
LMAC	Lebanon Mine Action Center
LMAP	Lebanon Mine Action Program
MCT	Mine Clearance Team
MDD	Mine Detection Dogs
NMAS	National Mine Action Standards
NTS	Non-Technical Survey
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
QM	Quality Management
SHA	Suspected Hazard Area
SOPs	Standard Operating Procedures
TS	Technical Survey
TSG	Technical Standards and Guidelines
UXO	Unexploded Ordnance

Introduction

The systematic clearing of all EO hazards from areas of land is referred to as 'clearance' or 'area clearance'. Clearance is a core activity in the land release process and is conducted when there is direct evidence of EO contamination. Whereas Non-Technical Surveys (NTS) and/or Technical Surveys (TS) are used in Suspected Hazard Areas (SHA), area search and clearance is required in a Confirmed Hazard Areas (CHA). However, the efficient use of resources in a QM system requires that a pragmatic degree of flexibility be applied to the designation of land as SHA or CHA. The designation of an area or parts of an area should change when new information about the EO hazards present is gathered while work is being conducted. Land may still be 'reduced' during area search and clearance when that is agreed with the LMAC. Similarly, it may be necessary to extend the boundaries of the task when evidence indicating a need to do so is discovered during clearance.

Clearance requires demining teams working in Lebanon to effectively search for, identify and remove/destroy all EO hazards from an identified area to a specified depth. In addition to clearance requirements set by the LMAC, it is an obligation for all IAs operating in Lebanon to support the collective goal of the community having confidence in the safety of released land. To meet national needs, this NMAS is designed to provide general requirements for clearance that shall be applied in Lebanon.

Within this context, community confidence in land release is supported by the adoption of a Quality Management (QM) system that provides assurance with QA and QC processes. Quality Assurance (QA) focuses on the processes involved in land release. It involves the accreditation of approved IAs before operations, then monitoring their operations thereafter to ensure that their procedures and assets are applied appropriately. Quality Control (QC) focuses on the inspection of the final product, the land declared ready for release, before it is formally handed over to its owner(s).

Some land is released without clearance being needed. This NMAS focuses on the reliable and comprehensive clearance requirements to be applied to land that will be released after clearance is conducted.

Clearance requirements

1. Scope

This NMAS provides standards and guidelines explaining the requirements for clearance as applicable in Lebanon to ensure that the land release process is completed with confidence. All Implementing Agencies (IAs) and their demining teams operating in Lebanon shall comply with the provisions of this NMAS.

2. References

A list of normative and informative references is provided in Annex A.

Normative references provide cross-referencing to other standards referred to in this NMAS, and which form an integral part of the provisions of this standard.

Informative references provide a list of documents that may be consulted for a clearer understanding of this standard.

3. Key terms and definitions

The following key terms and definitions are used in this NMAS:

- *Battle Area Clearance (BAC):* the planned and systematic search, detection, identification, field evaluation, and final disposal of UXO contained in an area where the presence of UXO other than mines has led to contamination.
- *Clearance plan:* a plan detailing the search & clearance procedures and assets that will be used in an area. A clearance plan is required for each clearance site and is used to facilitate an effective response to the EO contamination believed to be present. A clearance plan should be revised when additional relevant information is gained during search and clearance activities.
- *Cleared land:* adopting the definition in IMAS 09.10, land shall be accepted as 'cleared' after systematic search and clearance actions have ensured the removal and/or destruction of all mine and EO hazards from the specified area to the specified depth.
- *Confidence:* in this context, 'confidence' refers to the state of being sure that the required level of search and clearance has been achieved after ensuring that 'all reasonable effort' has been exerted.
- *Confirmed Hazardous Area (CHA)*: an area where the presence of a contamination hazard has been confirmed based on direct evidence, such as an accident or incident or the reliable sighting of visible indications of EO hazards.
- *Deminer/Searcher:* a person responsible for conducting demining operations as directed by the relevant demining Implementing Agency (IA). The word 'deminer' is used

interchangeably with 'searcher'. The tasks of a deminer primarily focus on searching for and detecting hazards in accordance with the NMAS and the demining organization's LMAC approved Standard Operating Procedures (SOPs).

- *Demining team:* a team of professionals approved and accredited by the LMAC to conduct one or more demining activities, such as technical survey, non-technical survey, area clearance operations, BAC and EOD spot tasks.
- *Land Release*: the process that is applied to release land to the community for socio-economic utilization through NTS, TS, or area Clearance. Data gathered and recorded during the Land Release process shall demonstrate that 'all reasonable effort' has been applied. 'All reasonable effort' requires the ability to demonstrate that all predictable information has been identified, gathered and accurately analyzed to support logical and evidence-based decision making.

In addition to the above terms, NMAS 04.10 provides a glossary of terms and definitions used across all standards.

As in the IMAS, the terms 'shall', 'should' and 'may' are used across all standards to indicate the required degree of compliance. For any organization working in Lebanon, the use of 'shall' indicates a compulsory requirement. The term 'should' indicates the national preference which may be varied with LMAC approval. The term 'may' indicates a suggestion that is not obligatory.

4. Clearance requirements

4.1 General provisions

Area clearance is a vital activity within the land release process: it is required in any area for which there is credible evidence that there is likely to be contamination with EO hazards.

To maintain high confidence, land shall only be released and handed over to its owner(s) after search and clearance when the clearance process has been appropriately and confidently assessed using LMAC approved quality management procedures that are based on a well-documented evidence-base. Accordingly, land shall only be accepted as "cleared" when the demining organization has ensured the removal and/or destruction of all EO hazards from the specified area(s) to a specified depth(s).

Clearance requirements may differ between tasks depending on the assets available for use, the terrain, and the type of EO hazard(s) anticipated. The IA's requirements from its staff shall primarily focus on safety rather than speed: speed of clearance shall never be allowed to compromise safety for the end-users of the land or for the demining IA's staff.

4.2 Implementing Agencies (IAs) - demining organizations

The demining Implementing Agency (IA) shall:

- have applied for and been granted accreditation to conduct the activities required for its work in Lebanon by LMAC;
- have submitted SOPs for the demining activities to be conducted to the LMAC and have had those SOPs approved as suitable for use;
- be appropriately equipped with the assets necessary for the type of terrain and the type of EO contamination anticipated;
- have a sufficiently trained and experienced staff capacity to conduct its work safely and effectively; and
- adhere to the health and safety regulations laid out in NMAS 10.20, 10.20, 10.30 an 10.40.

IAs shall comply with all the requirements laid out in the NMAS in Lebanon.

4.3 Risk assessment

Before starting any clearance operations, IAs shall conduct a task risk assessment in order to manage the safety of demining teams and third parties. Demining shall only be conducted when risk assessments determine that the level of risk of severe injury to staff or the public is tolerably low and that all reasonable risk mitigation measures have been taken. See NMAS 07.14 Risk Management.

Risk assessments shall take into consideration:

- the type and condition of EO hazards anticipated at the worksite;
- the environmental conditions and the terrain at the worksite;
- the protection that staff are afforded by Personal Protective Equipment (PPE) or other means;
- the likelihood of unintended detonations as well as the likelihood of serious injury resulting from an unintended detonation during each procedure that will be used; and
- any other risk contributing factor.

The task risk assessment shall be reviewed and adapted as work progresses and unanticipated hazards or environmental conditions are encountered. Risk management may require an increase in working distances without reference to LMAC but any reduction in approved working distances shall be authorization by the LMAC before being implemented.

For further information on working distances and other safety requirements please refer to NMAS 10.20, 10.20, 10.30 an 10.40..

4.4 Clearance depth

The intended end-use of the land may influence the depth of search and Clearance required in any sub-surface search.

The default search and Clearance depth in areas where the presence of anti-personnel mines is anticipated is 15 cm below the natural ground surface unless another depth is specified in the tasking order and recorded in the Clearance plan. The depth shall be increased by the IA whenever evidence suggests that anti-personnel mines may be buried at a greater depth than 15 cm.

When the EO hazards anticipated are not anti-personnel mines, varied minimum depths of search and clearance may be appropriate when ground conditions at a task site are varied. The required search and clearance depth(s) will be agreed and specified in the Clearance plan. The IA shall increase the agreed minimum search and clearance depth whenever evidence suggests that EO hazards may be buried at a greater depth.

4.5 Clearance boundaries

The LMAC shall set clearance priorities and allocate search and clearance tasks. The specified area to be cleared showing clear geographical boundaries that have usually been determined after a Non-Technical Survey (NTS) or Technical Survey (TS) shall be a part of the Tasking order issued by the LMAC Operations Section.

When defined boundaries are uncertain or prove inaccurate, the IA should contact the LMAC with evidence to justify a revision of those boundaries. Boundaries of tasked search and clearance areas may be varied by contraction (reducing land) or expansion (extending the task boundary), or both. Any variation of the original task boundaries shall only occur with the LMAC's approval.

4.6 Task order / Task dossier

A task order or task dossier will be supplied to the IA. This may occur after discussion with the IA and agreement of an appropriate Clearance plan.

The task order or task dossier should specify:

- any additional activities required of the IA, such as marking;
- a specification of the approved demining assets and procedures to be used;
- an estimated duration of the work requested;
- requirements for Quality Assurance (QA) and Quality Control (QC); and
- any additional task requirements.

4.7 Clearance plan

A Clearance plan is required for each clearance task. It should indicate the assets and procedures to be used and an appropriate risk assessment for the task based on the anticipated hazard(s).

A preliminary search and clearance approach should be prepared with the LMAC Operations Section after conducting a site visit with a representative of the IA that will conduct the task. Together they should conduct a ground appreciation and assessment of the likely EO contamination. A Clearance Plan should then be prepared by the IA and submitted for LMAC approval before any search and clearance operations are conducted at the site. All subsequent amendments to the Clearance plan should be approved by the LMAC Operations Office before they are implemented.

When appropriate, the Clearance plan should include:

- the history of the task area, its location and the field number;
- assets to be used during search and clearance;
- IA team identifier and team composition;
- an estimate of deminer/searcher working days required;
- minimum search and clearance depth requirements and any variations authorized by the LMAC;
- agreed fade-out distances in the case of BAC operations and the clearance of sub-munitions as authorized by the LMAC;
- minimum working distances and PPE requirements during work;
- the position(s) of the IA's intended temporary demolition area(s);
- the IA's medical evacuation plan;
- an internal IA Quality Management monitoring plan; and
- a planned start date.

The Clearance plan shall be approved by the LMAC before work is conducted at the Task site.

4.8 Monitoring

Monitoring shall be conducted internally by the accredited IA and externally by the LMAC's QA/QC Section. For further information on external QA monitoring please refer to NMAS 07.11 Monitoring Mine Action Organizations and Operations. LMAC QA monitoring is designed to ensure that accredited IAs apply their approved management processes and SOPs in a manner that will result in the safe, effective, and efficient release of the land.

Formal internal monitoring shall be continually conducted by the IA. Its internal QA and QC monitoring shall comply with the organization's LMAC approved SOPs. Internal monitoring

may involve dedicated QA staff whose primary role is to conduct on-site inspections. Results of such monitoring shall be efficiently recorded, documented, and made available to the LMAC QA/QC section as required.

Further details of Quality Assurance evaluation can be found in NMAS 07.40 Monitoring Mine Action Organizations and Operations.

4.9 Reporting

Before any field operations start, a pre-clearance review should be conducted by the IA that has been assigned an area search and clearance task. The aim of the pre-clearance review is to provide a 'before' picture of the land's former use. This provides base data against which the socio-economic impact of post-clearance use can be measured.

Clearance operations, completion, and handover should be recorded and reported to the LMAC as required and without delay.

The reporting required includes, but is not limited to, the following:

- Daily report: IAs shall submit a daily report to the LMAC on areas searched and cleared, items found and their use of explosives and ancillaries.
- Weekly/Monthly summary reports: IAs shall submit weekly/monthly summary reports to the LMAC as required.
- Weekly intentions plan: In addition to the Weekly summary report, IAs should submit weekly plans detailing their planned activities during the forthcoming week by close of operations every Saturday. This allows the LMAC to plan QA monitoring visits.
- Demining Incident/Accident Reports and Initial Casualty Reports shall be submitted by the IA following any accident or incident during demining activities. See NMAS 10.60 Reporting and Investigation of Demining accidents and Incidents.
- Completion report: by agreement with LMAC, Completion reports may be submitted for a part of a large task that has been cleared and prepared for release or for an entire task at which the search and clearance work has been completed. IAs will not be credited with clearance figures stated in the Weekly Reports until the relevant Completion report has been received and verified.
- Suspension report: whenever work at a task is suspended, the IA should submit a suspension report containing all of the detail required by the LMAC.

5. Clearance assets

Clearance assets used in Lebanon include manual equipment, machines, and MDD. An appropriate SOP for all assets to be used shall be submitted to the LMAC for authorization and shall not be used until authorization has been received.

5.1 Vegetation

5.1.1 Manual vegetation removal

When it is required to cut vegetation to aid the search and clearance process, the procedure shall be conducted using a safe, controlled method that avoids any disturbance to vegetation outside the immediate area to be cut. The deminer/searcher shall ensure that he/she carefully examines the vegetation for any signs of hazards or suspicious objects prior to cutting the vegetation. When instrumented search for sub-munitions is required, the locator shall be used to search the vegetation before it is cut. Upon seeing or detecting any suspicious object, the deminer shall follow the procedures in the IA's SOPs that have been approved by the LMAC.

Vegetation should be cut up to a maximum distance of 50 cm forward from the front of the clearance lane (e.g. base stick) and across the complete width of the lane, incorporating the overlap to the sides.

5.1.2 Mechanical vegetation removal

Mechanical vegetation cutting shall only be permitted by machines after an in-country test and evaluation has been conducted and the machine with its specific cutting tool(s) has gained the approval of the LMAC. Approved mechanical assets shall then be accredited and licensed to operate by the LMAC.

An approved flail or rotary cutter may be used to cut vegetation and/or prepare the ground for follow-up by manual or MDD assets at some tasks as described in NMAS 09.50 Mechanically assisted Land Release.

After it has cut vegetation, if the cutter used on any machine has disturbed the ground surface, MDD assets shall not be used to search the area until a suitable wait-time has elapsed.

5.1.3 Burning of vegetation before clearance

Burning of discrete areas in order to remove vegetation to facilitate clearance operations may be permitted in some circumstances. Generally no burning activity will be permitted during the driest and hottest times of the year or when the provision of appropriate firebreaks on all sides of the area to be burned cannot be achieved.

Before burning, the IA concerned shall notify LMAC of its plans and obtain authorization for the burning. The burning procedure, including the method of starting the fire, should be agreed with the LMAC on a case-by-case basis.

The IA shall ensure that the burning presents no risk to the local population and that effective measures are in place to prevent any uncontrolled spread of fire. The possible effects of burning on the anticipated EO hazards shall be considered in the task risk assessment. Burning activities shall be controlled by a suitably experienced person.

Any IA permitted to conduct controlled burning of parts of a task area shall have conducted a documented Fire risk assessment and ensure that the following precautions are taken:

- gain authorization for burning from the LMAC: vegetation burning should be included in the task Clearance plan;
- ensure that the landowner(s) or, when the landowner(s) cannot be contacted, the LA agrees in writing to the burning;
- when possible, notify LAs and the local emergency fire services;
- make effective firebreaks to prevent the fire from spreading;
- ensure that adequate precautions are taken to extinguish any small fires that spread across the firebreaks (e.g., a water bowser with pump); and
- calculate an appropriate fragmentation hazard zone (safety distance) to suit the anticipated EO hazards and post sentries accordingly.

During burning:

- apply all safety measures used during search and clearance operations;
- monitor the burning procedure;
- record any detonations; and
- post sentries to keep the fragmentation hazard zone clear of people and livestock during the burn.

After the burning is completed:

- inform the LMAC and relevant authorities on completion of burning;
- ensure that the burning has entirely ceased by applying water before leaving the site; and
- depending on the anticipated EO hazards, allow an appropriate soak time after the last signs of smoke before conducting demining operations inside the burned area.

Note: The minimum wait time between burning an area and using MDD in the area shall be documented in the IA's MDD SOPS that must have prior approval from the LMAC before being used.

6. Roles and responsibilities

6.1 The LMAC

The LMAC shall:

- accredit IAs and approve their relevant SOPs before assigning any tasks to them;
- allocate clearance tasks to IAs, specifying the boundaries of the area to be cleared and the minimum clearance depth(s) required;

- notify the IA of the minimum required internal QA and QC to be applied;
- support the IAs to develop appropriate Clearance plans and approve them;
- assist with the revision of Clearance plans when necessary;
- monitor the work of IAs to assure quality operations; and
- record all data and information related to clearance operations securely in a system that allows retrieval and analysis.

6.2 The Implementing Agencies (IAs)

The IAs shall:

- acquire accreditation to conduct clearance operations in Lebanon;
- submit appropriate SOPs for their clearance activities and receive LMAC approval of those SOPs before starting work;
- comply with the NMAS related to clearance and ensure appropriate and timely data gathering and reporting;
- develop, maintain and revise, as appropriate, Clearance plans;
- perform internal QA / QC checks during all demining operations conducted by their staff; and
- maintain an appropriately detailed internal reporting system and report on their tasked clearance operations in the manner required by the LMAC.

The documents listed below constitute normative references which form an integral part of the provisions of this standard.

- NMAS Series 8, covering varied Clearance and Land Release activities;
- NMAS Series 10 covering Safety and Occupational Health; and
- NMAS 04.10 Glossary of Mine Action Terms, Definitions, and Abbreviations used in the Third Edition of the NMAS.

In addition to the normative references listed above, the following informative references may be consulted:

- Lebanon National Mine Action Policy.

The NMAS are subject to a comprehensive or partial review by the Review Board periodically. Changes in the context as well as safety requirements and efficiency considerations may necessitate amendments to individual NMAS standards more frequently. If this occurs, such amendments shall be given a number, dated, and detailed in the table below. The amendment should also be indicated on the header under the NMAS edition number.

Whenever the formal review of the NMAS is completed, a new edition shall be issued. Amendments that have taken place before the review date shall be incorporated in the new edition and the amendment record table cleared. Consequently, the recording of amendments shall start again until the next review.

The most recent revisions of the NMAS shall be posted on the Lebanon Mine Action Center (LMAC) website on www.lebmac.org.

Number	Date	Amendment Details