

Unexploded Explosive Ordnance (UXO)

The legacy of unexploded explosive ordnance (UXO) occasionally leads to problems on construction projects in the UK. These problems have led to delays and increased costs, especially during the groundwork phases of construction. The CIRIA guide “Unexploded Explosive Ordnance (UXO) – a construction industry guide” presents industry best practice for the assessment and management of UXO risk for construction projects. This note summarises some aspects relevant to piling and ground improvement contractors, but does not replace the need to reference the full report.

The Nature of UXO Risk

Clients are unlikely to have more than a passing knowledge of UXO. The CIRIA report is intended to provide good practice guidance on how to identify whether a site is likely to be at significant risk of UXO encounter and, if so, to set-out a process that will allow this risk to be managed. To be effective this process must start early in the life of the project (usually before a piling or ground improvement contractor has become involved) and have involved Clients, their advisors and Principle Contractors. Therefore the piling or ground improvement contractor should be provided with a systematic appraisal of the UXO risk when they become involved. The CIRIA report recommends the following stages be undertaken as part of the risk management process:-

- Preliminary Risk Assessment.
- Detailed Risk Assessment.
- Risk Mitigation.
- UXO Risk Management Implementation.
- Emergency Response Plan

It is anticipated that the majority of sites in UK will be identified as having a low probability of containing a UXO hazard and would be excluded from further consideration following the completion of the Preliminary Risk Assessment. However this is an important initial step to help construction professionals to assess sites with potential UXO risk.

The Emergency Response Plan (ERP)

For sites where there exists the possibility of a UXO hazard existing there should be an emergency response plan in place. This should provide clear and precise guidance on what to do should UXO be encountered, and/or initiated as part of the site works, with accompanying emergency management team roles and responsibilities. This should be included in the Health and Safety Plan for the proposed works and should be communicated to the work force at the operational level, typically as part of a Tool Box Brief. An Emergency Response Plan should cover the following:-

Identification of Appropriate Persons

Responsible for implementation of the ERP and to undertake specified roles in case of an incident.

Identify lines of communication

At all stages of an emergency event it is important to keep site staff informed of what is happening. Nominated responsible persons should also be prepared to provide briefings to the emergency services and, if required, to local residents and the media.

Site Evacuation Plan

To identify how the alarm will be raised, location of evacuation routes and muster points.

Safety Cordon

The size of the exclusion zone will be determined by site conditions and the suspected nature of the object. Appropriate nominated persons should supervise the exclusion zone to ensure that no one re-enters the cordoned off area.

Confirmation of Status of Suspect Item

Usually undertaken by the UXO specialist, who may in certain circumstances have been retained on site.

Work should not start on sites where a UXO hazard has been identified until an emergency response plan is in place.

Responsibilities

The general requirements for occupational health and safety are covered by the Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1999 with specific requirements relating to construction in the Construction (Design and Management) Regulations 2007. There is separate but equivalent legislation in Northern Ireland, the Isle of Man and the Channel Islands.

In the context of UXO risk management the following duties and responsibilities apply to the different parties involved in a construction project:-

Clients - must supply information relevant to the risks presented by a project. Where they do not have in depth knowledge of UXO risk they are required to seek guidance from suitably qualified advisors.

The Client's responsibilities under CDM cannot be transferred.

CDM Coordinator - provides the Client with a key project advisor in respect of construction health and safety risk management matters, including UXO risk.

The appointment of the CDM coordinator does not remove the Client's responsibilities with regard to health and safety.

The Designer - responsible for identifying and eliminating hazards and reducing risks in so far as this is reasonably practicable. They must supply adequate information regarding the design and any unusual or hidden risks. This information must be communicated in an appropriate manner so that other parties involved in the works are aware of any residual risks that were not eliminated by the design process and in an appropriate timescale to enable other parties to act upon the information as required. In the case of UXO, those responsible for undertaking the initial site characterisation, the UXO risk assessment and for designing the risk mitigation plan (including the design of any site works) will all be considered as Designers under CDM.

Principal Contractor – responsible for preparing the Construction Phase Plan and with overall responsibility for health and safety during the construction phase of works. They must ensure the potential risks from encountering UXO have been suitably addressed including the possible risks to off-site receptors. They are also responsible for ensuring any construction phase UXO risk mitigation requirements (including emergency plans) are implemented correctly. If a UXO risk assessment identifies the potential for UXO to be encountered on a site, and this risk cannot be mitigated, the Principal Contractor must prepare a suitably robust emergency response plan that details the procedures to be followed in the event of UXO being encountered during the works. The Principal Contractor must make sure that they have sufficient appropriately trained staff on site at all times to ensure the effective implementation of the emergency response plan and that adequate arrangements have been made with the public emergency services to enable them to respond in an appropriate manner to any potential UXO incident.

Contractors (Including Piling and Ground Improvement Contractors) - must provide the Principal Contractor with any information relating to their work that might affect health and safety. This will include information relevant to any changes in site practices or site conditions that may impact on potential risk from UXO. They must also comply with directions from the Principal Contractor.

All employers with employees working on or visiting a site at which there is a reasonably foreseeable risk from UXO therefore have a statutory duty to ensure, so far as is reasonably practicable, that a safe system of work is in place that adequately addresses the risk from UXO.

References.

K Stone, K., Murray, A, Cooke, S. and Foran, J. (2008) 'Unexploded Explosive Ordnance (UXO) – a construction industry guide'. Report RP732, CIRIA, London

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Disclaimer

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