

1ST LINE DEFENCE

UXO SOLUTIONS



Method Statement: Unexploded Ordnance (UXO) Intrusive Magnetometer Survey

Project Name	Citylabs 4, Manchester		
Client	GM Construction		
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1ST LINE DEFENCE



Client Approval

Name	Position	Signature	Date



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1st Line Defence Limited

Method Statement: Unexploded Ordnance (UXO)

Specialist Project Support

Site: Citylabs 4, Manchester
Client: GM Construction

1. Introduction

GM Construction has commissioned 1st Line Defence Limited to carry out an Unexploded Ordnance (UXO) Intrusive Survey at their Citylabs 4, Manchester site.

1.1. Purpose

The purpose of this document is to provide an overview of how 1st Line Defence Limited intends to carry out the Intrusive UXO Survey of piling locations.

1.2. Scope

The scope of this Method Statement is to establish a consistent system of work to be applied to the on-site methods carried out by 1st Line Defence Limited personnel. Including (but not limited to);

1. Pre-works: Enabling works to be carried out by others prior to 1st Line Defence deployment.
2. Works: UXO magnetometer survey and collection/interpretation of data.

1.3. Responsibilities

Client

- Provide clear unobstructed access throughout the site in order to carry out the survey works.
- Provide permits to work/dig (as required) and clearance from underground services.
- Provide a safe working platform for all survey activity.
- Review all service drawings, provide the 1st Line Defence supervisor with copies and physically mark all services on site. CAT and Genny scan ahead of the survey works.
- Provide 24 hour security.
- Mark and number the survey positions as required daily for the intrusive survey, a minimum of 50 positions per day will be required.
- Provide site inductions.
- Provide welfare facilities.
- Provide additional information that may be requested by the 1st Line Defence UXO Supervisor.
- Provide facilities/measures for site staff to adhere to current government guidelines for the construction industry and ensure the site is "Covid Secure".

1st Line Defence Limited

- Ensure that the contractor's site team members are suitably briefed on the requirements of the accepted method statement before work commences and that all work is carried out in accordance with these requirements, including any accepted revisions.
- Keep a copy of or have ready access to the accepted method statement whilst carrying out the work.
- Identify any change that may be required, and inform the 1st line Defence Operations Manager. The 1st Line Defence Operations Manager, in consultation with the site manager, will submit to the Client for review an updated method statement; which then must be approved prior to the works being carried out.
- Comply with the clients safe systems of work at all times.
- Ensure all 1st Line Defence personnel attend the client's site induction.
- Determine what other works are being undertaken on the site, if any, and whether they will impact on 1st Line Defence works.
- Comply with safety requirements as dictated by the Client.
- Ensure all works comply with Covid-19 Government guidance

2. Personnel

2.1. On site personnel and responsibilities

Personnel may be changed throughout the project; the client will be informed of personnel changes. Personnel changed throughout the project will conform to the client's and 1st Line Defence's site induction process.

Name	Position	On/Off Site
B. Kinsman	Managing Director	Off Site
M. Watson	Technical Director	Off Site
M. Webb	Operations Manager	Off Site
K. Minton & J. Marchetti	Project Supervisor	Off Site
TBC	UXO Supervisor	On Site
TBC	Rig 1 Operator	On Site

3. Procedures under Covid-19

All workers must adhere to the mitigation measures within the risk assessment and client site rules, with any changes being approved by the Senior Management Team.

All workers must follow site induction rules and comply with any site regulations regarding COVID-19 safety control measures. Any concerns should be immediately raised to the 1LD Site Supervisor (if applicable) and the Site Manager. Any worker who suspects they have been exposed to COVID-19 should test accordingly, and any positive tests should be reported to the appropriate manager to dictate safe working procedures moving forward.

4. Introduction to Methodology

4.1. Introduction

The scope of this works consists of the UXO intrusive magnetometer survey and clearance for intrusive works, including; window sample site investigations and piling works. This will provide clearance from German Unexploded Second World War Air delivered weapons.

4.2. Methodology

Setting Out

The 1st Line Defence Supervisor will liaise with the client's representative, in order to be issued, with a permit to work and certification confirming clearance from underground services for all survey locations.

No other works will be conducted in the area whilst 1st Line Defence carries out their drilling/survey operation. This ensures that site personnel are not in danger areas while machines / rigs are working or manoeuvring

The clients' engineer will set-out and mark the proposed centre of each survey location, marking each position with a numbered peg/pin. Each position surveyed will be identified by a unique letter/number pre-fix. The engineer will locate these positions using co-ordinates taken from the pile layout drawings, issued prior to works commencing. The client will then issue a Permit to dig to the 1st Line Defence Supervisor before any survey works commence.

Survey Conducted from Survey Truck

The intrusive survey phase of the work will be conducted from a survey truck unit, one or more may be deployed throughout the duration of the works. Each survey rig will be manoeuvred onto the surveyed position on level ground under the supervision of a competent banks man. Once on position a calibrated sensor is inserted into the ground using continual hydraulic pressure. The sensor is calibrated and tested at the beginning of each day and the results recorded on the 1st Line Defence daily diary by the 1st Line Defence Supervisor. During each survey, magnetic field data is recorded in real time by a 1st Line Defence survey/rig operator on a computer mounted inside the truck, during the survey the computer plots continuous graphical records of magnetic field data. The survey is terminated when the bomb penetration depth, for the site, is achieved. Once the survey data has been recorded it will receive first line interpretation on site by the 1st Line Defence survey operator or 1st Line Defence Supervisor. The data will then be returned to 1st Line Defence Head Office to complete QA procedures prior to clearance being given.

On completion of the penetration phase of the test the probe and rods are retracted. As the rods re-enter the test vehicle they are cleaned of soil and fluid by using rubber scrapers fitted in the vehicle's guide casing hanging beneath the vehicle. Similarly during penetration the rods pass through the cleaning system preventing contaminants present on the rods entering the ground. During the fieldwork the operators wear Standard site PPE, gloves are worn at all times by all operators handling the survey rods.

If an anomaly is identified during the survey works, the 1st Line Defence Supervisor may require additional data as a confirmatory measure. This will require additional survey positions to the agreed works. This process is referred to as 'triangulation'. Triangulation works will not be carried out on site without consultation with the client before-hand.

Pre-Drilling Works

If the ground conditions cause refusals to the survey probe pre-drilling will be required. In order to reduce the fall height radius whilst working within the boundaries of the site, the drilling provided will typically be a Commachio Rotary Rig with a maximum operating height of 4.6 metres. As this may vary, please advise the office if a specific rig is required.

The drilling rig will arrive on site on the back of a trailer. The drilling rig will be manoeuvred into position, by a competent operator. The drilling rig will only operate from firm standing ground and will always be supervised by a competent banks man. The mast will be lowered prior to manoeuvring where possible. Once on position, the jacks will be lowered and the mast raised and secured. Drilling will commence only after the drilling supervisor has carried out all pre-start/pre-drilling checks and the client has issued a permit to work, with service clearance.

At the start of each working day all safety equipment controls on the drilling rig are to be checked, if any are found to be defective it is to be reported to the Operations Manager immediately – no work is to be conducted with the equipment until the fault is identified, repaired and re-tested.

Once the drill rig is in position all normal checks are to be carried out by the drilling supervisor (as paragraph above). The drill attachments, augers or rods, will then be added to the drill rig. Once fitted and secured the safety cage interlocking guard is to be closed. This is to ensure that the drillers cannot approach the drill strings whilst it is operating. This will also prevent any other site personnel approaching the working parts of the rig whilst it is in operation. The cage is only to be opened, for access once the drill rig has stopped its rotary operation and the rotation control lever is in neutral this will be in order to add the next rod or auger or carry out other operations, as required. It will be closed prior to the drilling operation continuing. The safety cage interlocking guard has a cut-out switch which, when opened, will cut power to the drill controls to prevent the drill being operated while drill strings or tools are being fitted to the drill head.

The drilling technique employed will use a rotary drilling rig, this system can simultaneously drill and case using a Down Hole Hammer or drag bit driven by compressed air or Auger sections. A suppression mat will be used throughout the drilling works.

4.3. Emergency Procedures

In the event of an emergency 1st Line Defence Supervisor is to contact HQ Office 01992 446974.

5. Programme/Work Schedule

The programme of planned works will last 3 days. This is subject to the availabilities of all site areas.

6. Training

All 1st Line Defence UXO Specialists working on site will attend a site induction.

Personnel	Training Required
UXO Supervisors & Specialists	1 st Line Defence Site Induction
UXO Supervisors & Specialists	CSCS Card if issued
UXO Supervisors	CITB SSSTS
UXO Supervisors & Specialists	Clients Site Induction

Internal training and equipment handling continues within in 1st Line Defence as a continual updating/progression of these skills.

1st Line Defence are compliant within the CSCS system, however, as of 31st March 2017, CSCS Construction Related Occupation Cards are no longer issued or required for the category of Explosive Ordnance Clearance (EOC). Any queries should be directed to WWW.citb.co.uk

7. Personal Protective Equipment (PPE)

7.1. PPE to be used on site

PPE	Required	Grade	When
Safety Helmets	Yes	BS EN397	All times
Safety Boot	Yes	BS EN345 (S3/S5)	All times
High Visibility Jackets/Vests	Yes	BS EN ISO 20471 BS EN 343	All times
Gloves	Yes	BS EN388	All times
Eye Protection	Yes	BS EN 166 /172	As required
Ear Defenders	Yes	BS EN352-3 SNR 25-35	As required
Disposable Gloves	Yes	EN 420:2003 + A1:2009	As required
Disposable face coverings	Yes	EN 149:2001 + A1:2009	As required

8. Systems/Codes of Practice

8.1. 1st Line Defence Limited

1st Line Defence Limited work to an internal company code of practice; Company Standard Operating Procedures (CSOP's).

1st Line Defence Ltd is an accredited ISO 9001 / 14001 /45001 company (Certification No. 194361, 206527, 206832).

8.2. Sub-contractors

All sub-contractors employed by 1st Line Defence Limited on site, will have all relevant certification, records of competence/training and in-date equipment certification on site throughout the works. These records will be retained by the 1st line Defence UXO Supervisor and will be available for audit at all times.

All certification will be retained on site throughout the works and will be available for the client's inspection prior to work commencing.

Drilling Rigs

Will have an in date Annual Inspection Certificate & Servicing Schedule.

All drilling personnel will have a record of competence (this will be in the form of a recognised standard).

8.3. Statutory Records

Record	Location	Person Responsible	Comment
Accident Book	On Site	UXO Supervisor	
Statutory Form 2508 or 2508A (RIDDOR)	Head Office	D. Cartledge	

9. Environmental

9.1. UXO Intrusive Survey

No environmental impact.

10. Risk Assessment

See attached. 33



Project Risk Assessment

CLIENT	GM Construction	OPN	16714
SITE	Citylabs 4, Manchester	DATE	29.6.23

Probability Severity	Frequent(A) Expected to occur frequently	Probable (B) Quite probable to occur in time	Occasionally (C) May occur in time	Remote (D) Not likely to occur but possible	Improbable (E) Unlikely to occur	RISK DEFINITIONS Many events, without proper planning, can have unreasonable levels of risk however, by applying risk management strategies, you can reduce the risk to an acceptable level.		
Catastrophic (A) Death, system loss, or irreversible environment+tal damage;	E	E	H	H	M	E	Extremely High Risk	Activities in this category contain unacceptable levels of risk, including catastrophic and critical injuries that are highly likely to occur.
Critical (B) Severe injury, occupational illness, major system damage, or reversible severe environmental damage;	E	H	H	M	L	H	High Risk	Activities in this category contain potentially serious risks that are likely to occur. Application of proactive risk management.
Marginal (C) Injury requiring medical attention, illness, system damage, or mitigatable environmental damage	H	M	M	L	L	M	Moderate Risk	Activities in this category contain some level of risk that is unlikely to occur.
Negligible (D) Possible minor injury, minor system damage, or minimal environmental damage.	M	L	L	L	L	L	Low Risk	Activities in this category contain minimal risk and are unlikely to occur.



SERIAL	ACTIVITY	HAZARD	POSSIBLE OUTCOME	PERSONS AFFECTED	RISK RATING			CONTROL MEASURES	FINAL RISK RATING		
					S	P	R		S	P	R
1	Unloading Equipment	Crush injures	Injury to personnel	UXO Specialist	B	C	H	- All unloading to take place on firm level ground. - Competent banksmen only.	B	E	L
2	Drilling and Survey Works	Slip, trip and falls hazards	Injury to personnel	UXO Specialist	C	C	M	- Site husbandry. - Site Awareness.	C	D	L
3	Unexploded Ordnance	Detonation of weapon (explosion)	Fatality/injury and/or damage to infrastructure	Contractor, personnel working nearby & property	A	C	H	- Competent Explosive Ordnance (EO) trained operators and surveyors. - Correct use, following approved methodology, of the EO survey equipment in order to clear ahead of any intrusive works.	A	E	M
4	Support Works & Moving Equipment	Manual Handling	Injury to personnel	UXO Specialist	C	C	M	- Use mechanical means where possible. - As per manual lifting training through tool box briefings. - Use correct tools for the job. - Do not improvise.	C	D	L
5	Moving and Positioning Survey Rig	Overturning of rig and/or collisions	Injury to personnel	Operators	B	C	H	- Competent operators. - Competent banksmen to control all movement. - Flashing beacon on at all times during operation. - All movement on ground level. - Out riggers to use appropriate spreaders. - Site traffic plan when possible.	B	E	L



6	Survey Works	Service disruption and/or damage to infrastructure	Damage to underground services	Operators and/or property	A	C	H	- Certified Operatives. - Experienced Operatives. - Toolbox talk / Method Statement briefings. - Clearance of underground services certificates to be issued by the client prior to work commencing. - All personnel briefed as to exclusion zones. - Underground drawings to be reviewed and held on site.	A	E	M
7	Survey Works	Absorption and/or ingestion of greases and oils	Injury to personnel	Operators	A	C	H	- Provide and monitor correct use of PPE (i.e. gloves). - Washing facilities. - Toolbox briefings (COSHH)	A	E	M
8	Survey Works	Fall hazard	Fatality and/or severe injury	Operators	A	C	H	- Competent persons on site. - Awareness briefings. - Use of handrails.	A	E	M
9	Personal Protective Equipment (PPE)	All works	Serious injury to personnel	UXO Specialist	C	C	M	- PPE to be worn at all times. - Safety briefing to be carried out by supervisor. - Safety glasses to be worn at all times.	C	D	L
10	Moving Drilling Rig	Overturning of rig and/or collisions	Injury to personnel	Operators	B	C	H	- Competent operators. - Competent banksmen to control all movement. - Track with mast below 45 degrees. - All movement on ground level. - Drilling rig with maximum operating height of 4.6m.	B	E	L



11	General work	Covid-19 Virus	Illness to personnel	Everyone on site	B	C	H	- Adhere to all client site policies on Covid-19 - Adhere to 1st Line Defence Covid-19 policies in section 3 of this document.	C	C	M
12	Drilling Works	Entrapment in drill strings during rotary drilling operation	Injury to personnel	Driller and/or site personnel	B	C	H	- Drilling rig to be operated only by competent operators. - No loose or incorrectly fitting clothing to be worn (including PPE). - Drilling rig to be fitted with trip wire emergency stops and dump valve; in order to stop the rig immediately. - Daily function checks of all emergency stop equipment fitted. No work is to be carried out if the safety stop check fails until repaired and re-tested – this is to be recorded in the maintenance log for each rig. This check is to be conducted by a competent driller. - Mechanical guard fitted to drill rig with auto cut-offs when cage gate is opened.	B	E	L
13	Hand Washing in Rig Station	Legionella	Illness to personnel	Rig Operators	C	D	M	- Empty hand wash station tank every second day. - Empty hand wash station at the end of every project	C	E	L
14	Excavation/Intrusive Investigations	Underground Services	Injury to personnel	UXO Specialists and Operators	B	B	H	- Service Clearance/utility scan carried out and all underground services located - All services clearly marked on the ground - Any live cables isolated/Exclusion zones demarcated - Permit to dig issued by competent persons prior to intrusive works	B	E	L



ASSESSOR (Ops Management)	M. Webb	SIGNATURE		DATE	29.6.23
REVIEWER (Site Supervisor)		SIGNATURE		DATE	