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# SEARCH & CLEAR LOCATION OPERATION


Method Statement

**Dynasafe BACTEC Limited**

9 Waterside Court, Galleon Boulevard, Crossways Business Park, Dartford, Kent, DA2 6NX

| Reviewed By | Date       | Signed   |
|-------------|------------|--|
| N. Barton   | 04/08/2017 |  |
| M. Smith    | 04/08/2017 |  |

*Table 1: Internal Review*

| Name       | Position      | Signature   | Date       |
|------------|---------------|---|------------|
| Ard Battye | Asset Manager |  | 05/08/2017 |
|            |               |   |            |
|            |               |   |            |

*Table 2: Client Approval*

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## 1.0 Method Statement Briefing Log

I/We the undersigned have been given and fully understood the briefing of the contents of this Method Statement.

| Briefing provided by: |  |
|-----------------------|--|
| Name                  |  |
| Title                 |  |
| Date                  |  |
| Signature             |  |

Table 3: Briefing Educator

| Name | Signature | Trade | Company | Induction No | Date |
|------|-----------|-------|---------|--------------|------|
|      |           |       |         |              |      |
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Table 4: Briefing Attendees

## 2.0 Introduction

Dynasafe BACTEC Limited has been contracted by IGas to provide high assurance clearance from Unexploded Ordinance (UXO) at the site referenced as Springs Road, Doncaster.

## 3.0 Purpose

The purpose of this document is to provide an overview of how Dynasafe BACTEC Limited intends to carry out the Search & Clear Operations.

## 4.0 Scope

The scope of this Method Statement is to establish a consistent system of work to be applied to the different methods Dynasafe BACTEC Limited's personnel and subcontractors are to carry out for the contracted works at Springs Road, Doncaster. The Dynasafe BACTEC Limited Site Manager will be present during the works listed below to ensure continuity.

The works will include (but is not limited to):

- **Site Investigation** – enabling additional information to be obtained to discharge planning conditions
- **Pre-Construction** – enabling works by third parties including any fencing requirements, service clearance, and demarcation of areas. The Dynasafe BACTEC Limited Site Manager will be present during these pre-construction works to ensure continuity.
- **Construction** – construction of site including excavations for both the attenuation tank and cellar.

## 5.0 Training

All Dynasafe BACTEC Limited operatives working on site will attend a site induction.

| Operation / Personnel | Training Required                                       |
|-----------------------|---|
| All Operatives        | Client Site Induction                                   |
| All Operatives        | Dynasafe BACTEC Limited site induction / Tool Box Talks |

Table 5: Training

All Dynasafe BACTEC Limited personnel involved with the Search and Clearance Works will be former Military personnel who have gained formal NATO Military Explosive Ordnance Disposal Qualifications, having completed training at the Defence Explosive Ordnance Disposal School (DEODS), Chattenden, Kent or similar establishment throughout their military service.

Equipment handling, use of instruments/locators/detectors etc, is an integral part of the DEODS courses and as such each qualified EOD operator/engineer will have had to pass a series of associated tests and assessments.

As part of a continual updating and progression of skills, Dynasafe BACTEC Limited provides regular internal training and equipment familiarisation courses for its personnel.

## 6.0 Responsibilities

### 6.1 Client (Site)

The client's responsibilities are:

- Provide all Dynasafe BACTEC Limited personnel with an appropriate Health and Safety Induction and any special PPE requirements (see Section 11.0 for Dynasafe special requirements).
- Advise daily of any other works taking place on site.
- Provide clear access throughout the site;
- Physically mark all known services on site;
- Provide permits to work/dig and clearance from underground services;
- Supply and carryout any required fencing;
- Provide suitable certified plant & competent operators (excavators and dumpers if required);
- Provide a site representative to:
  - Confirm areas to be searched;
  - Give high level support for the works to be carried out; and
  - Act as liaison to the Dynasafe BACTEC Limited Site Manager;
- Provide additional information that may be requested by the Dynasafe BACTEC Limited Site Manager.
- Ensure the area is cleared of all personnel not required.

### 6.2 Dynasafe BACTEC Limited

Dynasafe BACTEC Limited's responsibilities are:

- Ensure all Dynasafe BACTEC Limited personnel (including Dynasafe BACTEC Limited sub-contractors) are suitably briefed to carry out their respective duties in a safe & controlled manner and comply with all health and safety requirements;
  - Briefings are to be conducted daily, prior to work commencing;
- 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;
- Ensure that all Dynasafe BACTEC Limited personnel and their sub-contractors are inducted to work with Dynasafe BACTEC Limited. Upon completing the induction and prior to any involvement with work activities on site they are to complete and sign off on the:
  - Dynasafe BACTEC Limited Certificate of Compliance Operations;
  - Dynasafe BACTEC Limited Health & Safety at Work Form; and
  - Dynasafe BACTEC Limited Method Statement Sign Off Sheet.
- 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 Dynasafe BACTEC Limited Project Manager.
  - The Dynasafe BACTEC Limited Project Manager, in consultation with the Contractor's 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;
- Determine what other works are being undertaken on the site, if any, and whether it is likely to impact on Dynasafe BACTEC Limited's works;
- Comply with safety requirements as dictated by the Client.

## 7.0 Personnel

On site personnel and responsibilities;

| NAME           | POSITION                  | CONTACT       | REMARKS  |
|----------------|---------------------------|---------------|----------|
| Paul Fawcett   | UK Operations Manager     | 01322 284 550 | Off Site |
| Jessica Deans  | Project Coordinator       | 01322 284 550 | Off Site |
| Richard White  | Site Manager/EOD Engineer | 07738 890 816 | On Site  |
| Dan Carruthers | EOD Engineer              | 07714 857 233 | On Site  |

Table 6: Personnel

Personnel may be changed throughout the project; the client will be informed of personnel changes. Personnel changed throughout the project will conform to the clients and Dynasafe BACTEC Limited site induction process.

## 8.0 Procedures

### 8.1 Introduction

The Method Statements below specify the safe systems of work that will be followed by Dynasafe BACTEC Limited when carrying out Search & Clear Operations.

### 8.2 Methodology - Search and Clear Operations

The Dynasafe BACTEC Limited Site Manager will liaise with the clients' representative, in order to be issued with a permit to work/dig and certification confirming clearance from underground services for all survey locations.

The client is to designate each area of works. The Dynasafe BACTEC Limited Site Manager is to mark out designated survey areas within each area of works.

For each area of work, two Dynasafe BACTEC Limited EOD (Explosive Ordnance Disposal) operators will then carryout a visual lane search for ground contamination. Once the visual search has been completed they will then carryout a handheld electro-magnetic instrument lane search. Ensuring an effective overlap; normally 100mm of each lane.

The area is to be searched and cleared by Dynasafe BACTEC Limited operators using handheld electro-magnetic to ensure a non-ferrous and ferro-magnetically clean environment.

The hand-held locators will be calibrated daily, in accordance with the manufacturers guidelines, if required. This will depend on which type of instrument is to be employed; certain instruments used by Dynasafe BACTEC Limited are self-calibrating. The most appropriate instrument for the specific work will be determined by the Dynasafe BACTEC Limited Site Manager. All locators/instruments will be function tested at the start of each day once calibrated and periodically checked throughout the day.

On completion of the day's work, the Dynasafe BACTEC Limited Site Manager is to up-date drawing, clearly showing the area worked, and is to communicate to the client's representative the progress of works.

### 8.3 Excavation

Once the position has been located and marked the item will be excavated.

If required (client will inform Dynasafe BACTEC Limited), excavators employed for this work will be operated by fully qualified operators; their competence and qualifications will be checked during their site induction.

Mechanical plant brought onto site must be in safe and good working order, fitted with any necessary guards and safety equipment. All dumpers and excavators must have a certificate of examination by a competent person (fitter or engineer) issued within the last six months to show that the plant is safe and has been serviced in accordance with the manufacturer's instructions. The operator will be required to inspect and record that a daily check of their machine has been carried out prior to works commencing.

The items location will be checked with a handheld electro-magnetic locator to both confirm the presence of the item and reassess its predicted depth. Mechanical excavation will commence and after the 0.3 metre the excavation will be rechecked with a handheld locator to re-establish the depth to the item and its centre of mass to the excavation. Excavation will continue with instrument checks every 0.3m to ascertain the centre of mass and projected depth. Mechanical excavation will continue until 0.3m above the item whereupon all excavation will be by manual means. Trenching may take place though this will not be within 0.3m of the identified item.

On completion of the manual excavation the item will be exposed allowing for identification.

### 8.4 Exploratory

All works require an exclusion zone of 25m from the nearest asset. This ensures that site personnel are not in danger areas while machines/rigs are working or manoeuvring.

The Dynasafe BACTEC Limited Engineer will set-out and mark the proposed centre of each found item position, marking each position with a numbered peg or spray paint marking on the ground. This will be carried out using a dGPS system. Each position surveyed will be identified by a unique letter/number pre-fix.



## 8.5 Results of Investigation

If a found item is determined to be an item of Explosive Ordnance the Dynasafe BACTEC Limited Site Manager will carry out a Risk/Hazard Assessment for that item; this will include evacuation distances. Findings will be communicated to the client, Dynasafe BACTEC Limited Head Office and any other party that is within the perceived danger area. As required, the Dynasafe BACTEC Limited Site Manager will act as liaison to the emergency services and assist the client throughout the incident.

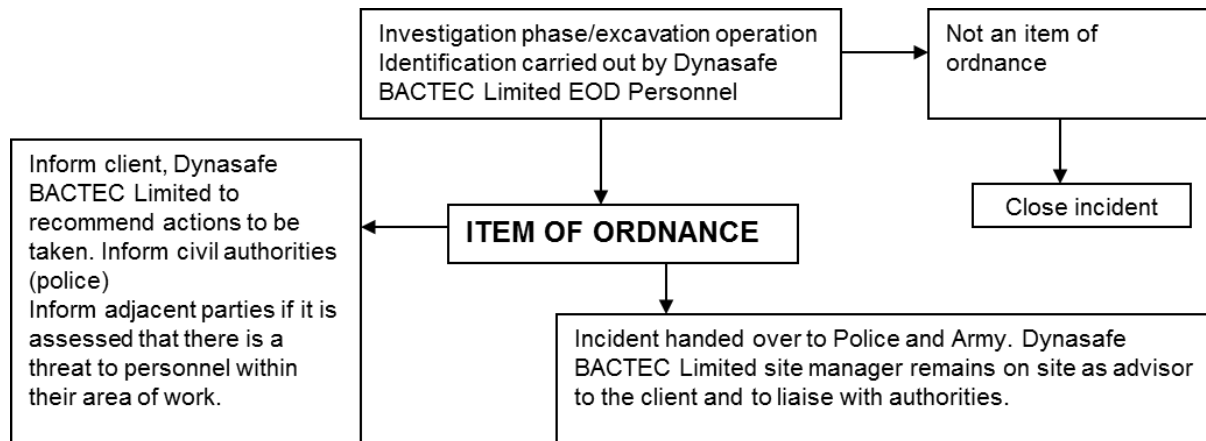


Figure 1: Methodology - Search and Clear Operations

## 8.6 Classification of Explosive Ordnance

If the item is determined as Live Safe to Move, the item will be moved to the prepared safe holding area. The Dynasafe BACTEC Limited Site Manager liaise with the Police authorities to ensure the final disposal of the item.

If the item is determined as Live Unsafe to Move the Dynasafe BACTEC Limited Site Manager will liaise with the Police authorities until their arrival on site.

Inert items will be identified, recorded and stored in inert storage to await disposal.

During all phases of the excavation safe access and egress to excavations will be achieved by a sloping ramp or ladders (provided by the client) created by the mechanical plant.

The Dynasafe BACTEC Limited Site Manager will monitor the excavation works at all times. If at any time during the process of excavation the integrity of the sides is in question, the angle of repose will be increased to maintain a safe working environment. If a safe and workable environment cannot be maintained through reasonably increasing the size of the excavation, all works will cease. If open casting is not viable, consultation with the client will then take place with the option of using a manbox / ragbox to complete the works. A separate Method Statement will be produced if this option is required.

During the process of investigation and until the excavation is backfilled Dynasafe BACTEC Limited will be responsible for the area immediately surrounding the excavation. At no time will open excavations be left without Dynasafe BACTEC Limited personnel in attendance.

All excavations will be dug and backfilled in the same day – no excavations are to be left overnight.

If, during the excavation process it becomes evident that groundwater is an issue the Dynasafe BACTEC Limited Site Manager will stop work and review the situation. Pumps may be employed to allow work to continue; normally submersible pumps are used. However, other pump types may be employed if

the situation requires them. The client's representative on site will be briefed as to any additional requirements.

Once completed Dynasafe BACTEC Limited will supervise the backfill of each excavation leaving it in a safe condition; however, Dynasafe BACTEC Limited will not be responsible for full ground remediation. The backfilling of holes will be carried out in 0.5m layers. The excavator will use its bucket to compact each layer until the hole has been filled. If there are any significant changes to the sub-surface strata, the new layer will be separated and returned during backfilling in the correct order.

## 9.0 Programme/Work Schedule

The programme of works is due to start in September 2017.

## 10.0 Clearance

Clearance levels will be determined during consultation with the client prior to works commencing.

Clearance will normally be issued as part of the final report.

## 11.0 Personal Protective Equipment (PPE)

PPE to be used on the site.

| PPE                     | Req. | Grade          | When         | Additional Info. |
|-------------------------|------|----------------|--------------|------------------|
| Safety Helmet           | Y    | BS EN397       | At all times |                  |
| Safety Boots            | Y    | BS EN 345      | See note     |                  |
| High Visibility Jackets | Y    | BS EN 471      | At All Times |                  |
| Work Gloves             | Y    | BS EN 388      | At All Times |                  |
| Eye protection          | Y    | BS EN 166.1.F  | If Required  |                  |
| Ear protection          | Y    | BS EN 352-1    | If Required  |                  |
| Dust Masks/Respirators  | Y    | BS EN 149:2001 | If Required  |                  |
| Short life coveralls    | Y    | BS PR EN 13034 | If Required  | Disposable suits |

Table 7: Personal Protective Equipment

**Note:** *Metalled safety boots cannot be worn by EOD Engineers while using hand-held instruments as the steel in the boot may compromise the detection capability of the instrument. This will have a detrimental effect on the interpretation carried out by the EOD Engineer.*

## 12.0 Systems/Codes of Practice

### 12.1 Dynasafe BACTEC Limited

- Dynasafe BACTEC Limited work to an internal company code of practice: Essential Standard Operating Procedures (ESOPs), 7th Edition.
- Dynasafe BACTEC Limited is certificated to ISO 9001:2008 (Cert No: 13670-QMS-001)
- Dynasafe BACTEC Limited is certificated to ISO 14001:2004 (Cert No: 13670-EMS-001)
- Dynasafe BACTEC Limited is certificated to OHSAS 18001:2007 (Cert No: 13670-HAS-001)

### 12.2 Sub-contractors

Not Applicable.

### 12.3 Statutory Records

| Record | Kept by | Location | Notes |
|--------|---------|----------|-------|
|--------|---------|----------|-------|

|                                       |                    |                                     |  |
|---------------------------------------|--------------------|-------------------------------------|--|
| Accident book (BI510)                 | Site Manager       | Held at site office                 |  |
| Statutory Form 2508 or 2508A (RIDDOR) | Compliance Manager | Dynasafe BACTEC Limited Head office |  |

*Table 8: Statutory Records*

## 13.0 Risk Assessment

See attached

## Risk Assessment Procedure

|                 |             |               |                         |  |                |              |      |
|-----------------|-------------|---------------|-------------------------|--|----------------|--------------|------|
| <b>Client :</b> | IGas Energy | <b>Site :</b> | Springs Road, Doncaster | <b>Tasks covered by this assessment:</b> | Search & Clear | <b>INO :</b> | 7256 |
|-----------------|-------------|---------------|-------------------------|--|----------------|--------------|------|

The following matrix is to be used to assess the risk to health and safety due to site working conditions. The tasks covered by this assessment are those shown above. A separate risk assessment should be made for additional tasks or if the nature of the task changes significantly during the job execution.

### Severity, Likelihood and Risk Rating Tables

**TABLE 1 - Severity Table and Definitions**

| Description   | Code | Definition   |
|---------------|------|--|
| Fatality      | A    | Multiple or Single fatality per event  |
| Severe Injury | B    | Major (Multiple or Single) severe/disabling injury or occupational illness per event, e.g. broken limbs          |
| Major Injury  | C    | RIDDOR injury per event-injury resulting in more than 7 days' absence from work including broken toes or fingers |
| Minor Injury  | D    | Injury requiring medical attention and leading to absence from work not exceeding 3 days                         |

**TABLE 2 - Likelihood Table and Definitions**

| Description | Code | Definition                                      |
|-------------|------|---|
| Frequent    | A    | Occurs at least every month                     |
| Likely      | B    | Occurs at least once a year                     |
| Possible    | C    | Occurs every few years                          |
| Unlikely    | D    | Expected to occur within 20 - 150 years         |
| Remote      | E    | Unlikely to occur within 20 - 150 years         |
| Improbable  | F    | Extremely unlikely to occur within 20-150 years |

**TABLE 3 – Risk Rating Matrix**

|                    | Likelihood of exposure to harm |             |               |               |             |                 |
|--------------------|--------------------------------|-------------|---------------|---------------|-------------|-----------------|
|                    | Frequent<br>A                  | Likely<br>B | Possible<br>C | Unlikely<br>D | Remote<br>E | Improbable<br>F |
| Fatality<br>A      | <b>HIGH</b>                    |             |               |               |             |                 |
| Severe Injury<br>B |                                |             |               |               |             |                 |
| Major Injury<br>C  |                                |             | <b>MED</b>    |               |             |                 |
| Minor Injury<br>D  |                                |             |               |               | <b>LOW</b>  |                 |

**TABLE 4 – Risk Definitions**

|        |   |
|--------|---|
| HIGH   | Immediate requirement to review and investigate the case removing / reducing the risk or improving the controls |
| MEDIUM | Risks not clear "broadly acceptable" need investigating to consider reasonable practicable improvements         |
| LOW    | Detailed working to support   |

## Risk Assessment Work Sheet

| Ref | Activity                         | Hazard                 | Consequences          | Persons Affected | Pre Control Risk Rating |   |   | Control Measure  | Post Control Risk Rating |   |   |
|-----|----------------------------------|------------------------|-----------------------|------------------|-------------------------|---|---|--|--------------------------|---|---|
|     |                                  |                        |                       |                  | S                       | L | R |  | S                        | L | R |
| 1   | Unloading Equipment              | Crush injuries         | Injury to personnel   | Operators        | B                       | C | M | a) Competent operators & banks men only.<br>b) All unloading to take place on level firm ground.<br>c) Mechanical means employed if possible.  | C                        | D | L |
| 2   | General works                    | Slips, trips and falls | Major injury          | Operators        | A                       | C | H | a) All hazardous areas ie. Open manhole covers, drain covers highlighted and fenced off.<br>b) Team walk ground prior to work highlighting areas of potential hazard, slippery under foot etc.<br>c) Where practical all trip hazards removed from working area.<br>d) Vegetation reduced to ground level.<br>e) Competent operators.<br>f) Suitable and adequate footwear worn for Investigation work (non-magnetic).<br>g) Suitable rest periods.                                    | B                        | E | L |
| 3   | Manual and Mechanical Excavation | Collapse of Excavation | Major injury/fatality | Operator         | A                       | C | H | a) Use open cast method. 2.1 ratio/max angle of repose 45 degrees.<br>b) Monitor excavation – sides, water table.<br>c) No personnel in hole while mechanical excavations carried out.<br>d) Maintain access and egress with ladder up side of excavation.<br>e) Competent operators<br>f) Maintenance of exclusion zone around excavation, no plant movement within 25m.<br>g) Experienced operators/manager.<br>h) Provision to extend excavation or adjust to supported excavation. | B                        | E | L |

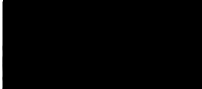
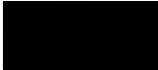
**Dynasafe Bactec Ltd**

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Tel: 01322 284550

**Form ref: 7-B v4.0**

|                     |  |                                  |  |  |                |   |   |  |              |   |            |
|---------------------|--|----------------------------------|--|--|----------------|---|---|--|--------------|---|------------|
| 4                   | Mechanical Excavation                        | Crush Injuries                   | Injury to personnel                        | Operator, other contractors                  | B              | C | M   | a) Competent operators.<br>b) Competent banks men to control all movement.<br>c) Briefings<br>d) Awareness of pinch points.<br>e) Barrier off pinch points.  | C            | D | L          |
| 5                   | Possible excavation onto Unexploded Ordnance | Detonation of weapon (explosion) | Fatality/injury. Damage to infrastructure. | - Contractor.<br>- Personnel working nearby. | A              | D | H   | a) Competent/trained Explosive Ordnance trained engineers.<br>b) Correct use, following approved methodology, of the EO survey equipment in order to clear ahead of any intrusive works.<br>c) Toothless Excavator Bucket. | A            | F | L          |
| 6                   | Contamination                                | Injury to personnel              | Fatality/injury                            | - Contractor<br>- Personnel working nearby   | D              | A | M   | a) Competent operators.<br>b) All personnel briefed to threat & actions to be taken (method statement)<br>c) PPE available if risk identified.<br>Guidance by trained knowledgeable contractor.                            | D            | C | L          |
| <b>Assessed by:</b> |  | Nigel Barton                     |  |  | <b>Signed:</b> |   |   |  | <b>Date:</b> |   | 04/08/2017 |
| <b>Reviewed by:</b> |  | Mark Smith                       |  |  | <b>Signed:</b> |   |  |  | <b>Date:</b> |   | 07/08/2017 |