

|                          |                      |              |                        |              |
|--------------------------|----------------------|--------------|------------------------|--------------|
| <b>Division</b>          | Specialist Piling    |              |                        |              |
| <b>Client</b>            | John Sisk & Son Ltd  |              |                        |              |
| <b>Project/Task</b>      | Etihad Stadium       |              |                        |              |
| <b>Job No. 224505-01</b> |                      |              | <b>Date 11/07/2023</b> |              |
| <b>VE Contacts</b>       | Contracts Manager    | Paul Grocott | <b>Tel no.</b>         | 07860 840396 |
|                          | Foreman / Supervisor | TBC          | <b>Tel no.</b>         | TBC          |
|                          | HSQE Dept            | Hotline      | <b>Tel no.</b>         | 01773 304065 |

### Revision Status

| Initial                   | Name         | Position          | Date     | Signature           |
|---------------------------|--------------|-------------------|----------|---------------------|
| Prepared by               | Paul Grocott | Contracts Manager | 11/07/23 | <i>Paul Grocott</i> |
| Reviewed by               | Dave Bourne  | Contracts Manager | 11/07/23 | <i>Dave Bourne</i>  |
| Client Acknowledgement by |              |                   |          |                     |

| Rev no. | Revised by | Date | Amendments |
|---------|------------|------|------------|
|         |            |      |            |
|         |            |      |            |
|         |            |      |            |

| EMERGENCY CONTACT DETAILS                                                                                                                                                                                                                              |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Dave Bourne                                                                                                                                                                                                                                            | 07912785108  |
| Paul Grocott                                                                                                                                                                                                                                           | 07860 840396 |
| Dave Bray                                                                                                                                                                                                                                              | 07834 800537 |
| Site location is: Etihad Stadium, Manchester City Football Club, Ashton New Road, Bradford, Manchester M11 3HY<br><br>Hospital location is: Manchester Royal Infirmary, Oxford Road, Manchester, Greater Manchester, M13 9WL<br><br>(see enclosed map) |              |

**BRIEFING SHEET**

By signing this method statement, I confirm that I have been briefed on its contents and understand my personal responsibilities to work in accordance with the RAMS and to **not undertake anything which adversely affects my own safety, or that of others**

I understand that I must stop work and notify my Line Manager if I cannot complete my work in accordance with this method statement.

I understand that I have a responsibility to challenge & report unsafe acts and conditions; copies of any reports shall be passed to the site manager and to Van Elle's H&S Dept.

All accidents must be reported directly to the Van Elle HSQE Dept. on **01773 30 40 65**

I understand that mp3 players, or other personal entertainment items must not be used in operational areas. Telephone calls must only be taken from a position of safety. Machines must be brought to a halt before calls are taken.

| A Van Elle Permit to Work must be completed fully and signed off<br><br>You must wear your PPE in accordance with the site rules and this RAMS. PPE must be maintained in a reasonable condition<br><br>You must not attempt to start work if you are in possession of, under the influence of alcohol or illegal substances. You may be tested at any time under the Van Elle Policy<br><br>Your work must stop and be reviewed if it is putting members of the public or other contractors at risk.<br><br>Make sure other contractors are excluded from your work area.<br><br>You must only carry out work for which you are trained and competent<br><br>All plant & vehicles movements must have a Banksman in attendance<br><br>Edge protection or fall arrest must be in place for work at height<br><br>All plant & equipment must be inspected and maintained in good working order<br><br>Use the correct tools & equipment for the task at hand. Do Not Improvise<br><br>All work areas must be kept clean & tidy. All debris to be | Date | Name | Signature | Job Role | First Aider? |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-----------|----------|--------------|
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|-----------------------------------|--|--|--|--|--|
| placed in the correct waste skip. |  |  |  |  |  |
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DRAFT

## Amendments to RAMS

### Dynamic Risk Assessment

**Complete at the place of work, before you start**

Answer the "Before You Start" questions

Review the "Hazards" list

Are the Hazards adequately controlled?

Yes
No

All team members briefed and signed onto the risk assessment

Start work.  
Keep checking for new hazards

| Are these Hazards / Risks present & NOT controlled |                                         |
|----------------------------------------------------|-----------------------------------------|
| 1                                                  | Falls from height                       |
| 2                                                  | Falling or flying objects               |
| 3                                                  | Chemicals or harmful substances         |
| 4                                                  | Heat, fire or explosion                 |
| 5                                                  | Work near water                         |
| 6                                                  | Risk to plant / property                |
| 7                                                  | Contact with stationary object          |
| 8                                                  | Object overturning or collapsing        |
| 9                                                  | Slips, trips or falls on the same level |
| 10                                                 | Entry into a confined space             |
| 11                                                 | Dust / Fumes / Vapours                  |
| 12                                                 | Deep Excavations (>1.2metres)           |
| 13                                                 | Noise / Vibration                       |
| 14                                                 | Poor ground conditions                  |
| 15                                                 | Electricity                             |

**STOP WORK**

Inform your Line Manager.  
Agree a Safe System of Work

| Are these Hazards / Risks present & NOT controlled |                                         |
|----------------------------------------------------|-----------------------------------------|
| 16                                                 | Poor storage / housekeeping             |
| 17                                                 | Underground / Overhead Services         |
| 18                                                 | Manual handling                         |
| 19                                                 | Poor lighting                           |
| 20                                                 | Temperature (High / Low)                |
| 21                                                 | Adverse weather (high winds, ice, snow) |
| 22                                                 | Defective or uncertified equipment      |
| 23                                                 | Risk to you from the work of others     |
| 24                                                 | Risk to others / public from your work  |
| 25                                                 | Stored energy                           |
| 26                                                 | Moving plant or vehicles                |
| 27                                                 | Security                                |
| 28                                                 | Temporary works                         |
| 29                                                 | Other (state)                           |
| 30                                                 | Training / Supervision                  |

List below any changes in site specific hazards that have been introduced

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What additional controls have been implemented to address the risks?

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Briefed By:

| Name | Signature | Date |
|------|-----------|------|
|      |           |      |

**Scope of Works** (This section MUST be completed by the person compiling the method statement. It must address the work to be undertaken and **all site specific** risks identified during pre-start.

Van Elle have been instructed to undertake the following works at the Etihad Football Stadium to future proof an area to the North of the main stadium for future development.

#### **Ground Stabilisation Works**

To complete ground consolidation works by means of drilling and grouting within the footprint of the development as specified in the Van Elle Specification dated 11/07/2023. The following works will be required:

Drill treatment bores to 30m depth on both a 6m x 6m grid in accordance with VE drawing 224505-01VE contained within the above specification document.

Treatment will be to underlying former mine workings and fractured ground using a 10:1 PFA / OPC grout.

The BHs are to be drilled using a rotary percussive drilling rig utilising water as the flushing medium. Validation will be completed as detailed within the Specification.

Particular care, detail and attention should be paid to the local water table and nearby watercourses to ensure the grouting works do not have a detrimental effect. On site monitoring will be carried out by a specialist sub-contractor, Van Elle will assist where appropriate.

#### **Methodology – Drilling**

**The drilling crew will ensure that all permits are in place as necessary before any drilling commences**

- A segmental 101mm/76mm drill system will be utilised for drilling and this will be advanced to 30m below ground level using water as the flushing medium.
- The drill crew will setup the drill rig at the drilling location with the initial lengths of casing installed on the mast.
- Once setup, the driller will commence drilling and will install the first lengths casing into the ground. The driller will ensure that the drill mast is angled at the correct inclination before drilling commences.
- With the initial casing lengths installed, the driller will split off the drill head from the casing and will raise the drill head to a position where it is ready to accept the next length of the casing/drill string.
- The driller will open the safety gates and the 2nd man will place the next 2.0m section of the drill string into position on the mast. Once the casing is secured on the drill head, the 2nd man will vacate the area and the driller will close the gates and continue drilling.
- The newly installed casing will then be advanced accordingly, and this process will then repeat itself until the required depth is reached. Where the ground conditions permit, the casing will be driven to and socketed into rock, and the inner drill rods will then be advanced on their own to achieve the required depth.
- On completion of drilling, the drill string will be removed, and the hole will be ready for grouting. If required, a plastic pipe will be installed through the overburden material to prevent collapse following the removal of the casing.
- The crew will then move to the next position and the drilling process will be repeated. A series of holes will be drilled across the grid prior to the grouting works commencing.

The sequencing of all drilling and grouting works will be in accordance with the works specification. Where necessary, the use of angled drill holes may be permitted to allow the crew to treat awkward grid positions from a safe location.

#### **Methodology - Grouting**

- Grouting works will commence once there are enough holes drilled out within the treatment area that is likely to permit and accommodate the batching of a full grout mix with minimal wastage. The number of holes required for this will vary accordingly with the conditions identified on site.

- The grouting works will be undertaken utilising a 6T Electric Grout mixer together with an electric Mat Pump. Grout will be pumped to the grouting location through a series of 3" and 2" Grout lines.
- The standard grout mix to be utilised for the works is to be 10:1 PFA/OPC. PFA will be delivered to site in bulk loads and at the cement will be delivered bagged and in pallets. Where grout takes are high, the grout mix may be altered by the project manager in line with the conditions encountered.
- The PFA will be introduced to the mixer utilising a Telehandler with a 1-ton capacity bucket, and the OPC will be lifted on to the stand using the fork attachment to minimise the manual handling requirements.
- The grout plant operator will ensure that the correct grout mix is adhered to throughout.
- Once mixed, grout will be pumped to the drilling location via the grout line. Grout will be placed into the borehole via the grout line at the top of the borehole and pumping will continue until the hole is full.
- When carrying out the grouting works, set of Cubes are to be taken from separate batches of grout, and tested at 7 and 28 days respectively. On site testing such as bleed and flow testing can also be carried out.
- This above process will be monitored by the client's project engineer/manager on site who will review the works and instruct any changes to the grout mix or drill pattern as necessary. Any variation to the planned works must be directed to VE Contracts Team for approval prior to commencement.

#### **Validation Holes**

On completion of the grouting works, the drilling crew will drill Verification Holes as directed by the engineer/project manager to target the areas of highest grout take and confirm that these areas have been sufficiently treated. The method of drilling these validation holes will follow that of the above for drilling with holes being fully cased to the appropriate depths as required for testing. Validation holes will be pressure grouted to 2 Bar and held for 2 minutes. On completion of testing, the bore hole casing will be removed, and the pressure test results will be submitted to the engineer/project manager for review.

#### **Setting Out**

Sisk will provide all setting out as necessary for the works. This will include the locating, identification and protection of all buried services

#### **Traffic Management**

Sisk will provide and maintain a safe system of work as necessary to meet the proposed sequencing of works. This will include all traffic management as necessary.

#### **Site Attendances**

The client will provide all site attendances included within our quotation / agreed subcontract terms.

| Rig                  | Commencement Date | Approx duration of works |
|----------------------|-------------------|--------------------------|
| C6 XP / SM 14 / SM15 | tbc               | tbc                      |

#### **Method of Work and Control Measures**

##### **Prior to work commencing**

The Main Contractor / Client will be responsible for

- Carrying out site-specific inductions to Van Elle employees
- In accordance with HSE guidance HSG47, the location, identification and marking of underground services within the working area and taking the necessary precautions to protect and avoid them. (eg isolation, diversion, shrouding etc.).
- Providing a suitably maintained working area
- Advising on known or likely ground contamination

- Signing the Van Elle Permit to Work (SET16) to confirm the above has been completed.
- Obtaining appropriate permissions/licenses from the local water authority to extract water using a standpipe
- Ensuring site security is suitable to protect all plant and equipment

Member of the VE Contracts team shall ensure:

- A visit to site is carried out prior to work commencing & a copy of visit report to be provided to site.
  - Site specific hazards are identified, and suitable control measures identified.
  - Presence of cracks on any structure within 10m shall be recorded on site visit report.
  - Working Area requirements are communicated to the client/main contractor.
- Where work involves drilling through coal seams, a site specific gas risk assessment is carried out to determine necessary control measures to protect against spontaneous combustion and gas migration
- That crew deployed to site have necessary competencies.

|                    |                                           |
|--------------------|-------------------------------------------|
| Foreman            | SSSTS ; NVQ Drilling Operations           |
| Banksman           | CSCS                                      |
| Telehandler Driver | CPCS / NPORS Telescopic handler           |
| Grouting operative | In-house competence and CSCS as a minimum |

The Foreman shall:

- Walk the work area & confirm that all hazards are adequately controlled prior to work commencing.
- Ensure that client/main contractor has provided a suitable working area that is adequately maintained so as to provide a stable base for the rig.
- Check that the client / main contractor has carried out checks / protection for underground services
- Ensure that sufficient PPE provisions are available & that it is worn in accordance with Van Elle & Main Contractor requirements. Mandatory PPE is safety helmet, safety footwear, light eye protection and & hi-viz clothing. Other PPE such as hearing protection and FFP3 dust masks, in accordance with risk assessment. ALL PPE MUST BE CLEAN AND REFLECTIVE BANDS FREE OF DIRT. Should PPE be deemed unsuitable replacements will be ordered immediately.
- Check that the drilling rig, lifting accessories and other plant have in-date certification before use
- Ensure that daily inspections are carried out on all plant and equipment & a record of inspection completed on CON15. Any problems/defects must be reported to the Contracts Manager immediately. All machinery shall only be operated by trained & competent persons.
- Ensure that the Permit to Work (SET16) is signed prior to work commencing, and thereafter on a WEEKLY basis.
- Brief all operatives on the contents of the method statement and risk assessment and sign to confirm briefing attendance

### **Mobilisation**

All vehicles will be supervised by a Banksman and enter site as per the designated route agreed at pre-start meeting. Initial mobilisation will be during the week commencing **TBC** and will consist of the following loads:

- 1-2 x No. Low Loaders carrying a rotary percussive drill rig each with ancillary equipment and grout plant

The foreman shall

- Assess the area designated for unloading, taking into consideration surrounding buildings, other contractors, pedestrians, traffic routes etc. Safety barriers may need to be used to segregate our work from other activities and/or pedestrians.
- Make sure that all loads are checked for security before unloading commences. In the event of a load having moved or become unstable in some way during transport, unloading will not continue until a safe means of unloading has been determined. Unstable loads should not be allowed to tip or fall to the ground unless there are no other safe options & only after advice has been sought from the Line Manager
- Agree a sequence of unloading with the delivery driver. The Banksman will take control of the unloading process & directing the HIAB operator.

Where access is required onto the back of the trailer to sling loads, A secured ladder or step system must be used. edge protection shall be fitted to trailers to prevent injury by falls from height. This must consist of two restraints – a top rail at approx. 950mm and a mid rail. Clear walkways must be present to ensure that a person can access and move around the trailer bed safely whilst slinging the load.

On the trailer bed, LOOK where you're going - DO NOT walk backwards! DO NOT RUSH! DO NOT USE A MOBILE PHONE!

Avoid unloading rigs on inclines. The Banksman will position himself forward of the loading process so that all rig movements and the rig operator are clearly visible. NO ONE must be allowed to stand at the side or behind the vehicle being unloaded. All instructions to the rig operator must come from a single Banksman.

### Site set up

**The crew shall maintain good housekeeping at all times to reduce slip/trip hazards.**

- All cracks on any structures within 10 m of the working area must be marked. Cracks must be monitored for movement a minimum of twice per day. Should any movement be recorded, stop work and telephone your manager for instructions
- The foreman will set up an exclusion zone to prevent third parties entering our work area.
- Ply sheeting and visqueen will be used where necessary to protect property and surfaces
- Avoid running water hoses through public areas. If this is unavoidable, i.e., when the supply is located in the road or footpath, use hose ramps to reduce the risk of slips/trips. Signs, cones/barriers must also be in place.
- Compressed air, water and grout hoses, will be kept tidy and positioned away from walkways etc.
- Drips trays will be placed beneath plant as required.
- The grout station shall be set up on firm level ground. Use visqueen sheeting and sand bags to provide bunding where necessary. In windy conditions, ash should be protected or dampened to prevent dust clouds.

### Mines Gas

The following control measures are required for reducing risk from mines gas:

- Water flush used in all positions
- Operatives to wear personal gas monitors
- Recording of daily gas readings to be carried out and assessed

The following records will be taken & recorded

| Gas monitor type                                                   | Position       | Frequency of test |
|--------------------------------------------------------------------|----------------|-------------------|
| CO, CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> S, Combined | Rig / Personal | Constant          |

The use of water as the flushing medium will decrease the risk of mine gas to LOW risk (as shown on Table 6.2.7 of the Coal Authority Guidance document).

**All work will stop if gas concentrations approach or exceed the concentrations listed below:**

| Gas               | Levels    |
|-------------------|-----------|
| Methane           | 5-15%     |
| Hydrogen Sulphide | 5 ppm     |
| Carbon monoxide   | 30 ppm    |
| Carbon dioxide    | 5,000 ppm |

## Drilling operations

- Specific PPE for drilling is hearing protection within 5 metres of rig, gloves, & FFP3 respiratory protection where airborne dust is present, and the user should be face fit tested.
- Rigs will be set up, operated & moved around site in accordance with manufacturer's instructions by competent operatives.
- Two persons must attend all times when operating or moving the rig.
- Interlock guards fitted to rigs must remain in place throughout the drilling process. **Where drilling cannot be completed with guarding in place, the Foreman will stop work and seek further instruction from the Contracts Manager. Any instructions must be recorded & briefed to the crew.**
- Store all drill rods and tools in a safe place close to the front of the rig to minimise the carrying distance. Keep the area around the rig will be kept clear of excess arisings to reduce trip hazards.
- Position hands away from the bottom of the rods when lifting into position to prevent trapping of hands.
- Isolate the compressed air, water or grout flow before adding / removing drill rods.
- Care should be taken when clearing lines of water to prevent freezing.
- Where drilling with water or grout, ensure that measures such as digging channels, sumps, straw bunding or Siltbuster® are used to protect watercourses.
- **All works must stop if silty water is entering the watercourse.**

## Grouting

- Mixer operator will be responsible for the mixing and pumping of grout to the correct ratio & consistency
- Specific PPE for grouting is goggles, hearing protection, long-sleeve overalls, gauntlets & respiratory protection with minimum FFP3 protection.
- Do not stack cement pallets more than 2 full pallets high. Protect cement from rain using polythene (visqueen) sheets secured so that the wind cannot dislodge sheeting. Safe access for the telehandler must be taken into consideration.
- Stack cement so that the mixer operator does not have to bend or stretch to lift cement bags. Bags should ideally be between waist and chest height.
- Empty cement bags must be disposed of following specific site instructions.
- PF Ash will be added by a Telehandler with a bucket. The driver will ensure that the area is clear of obstructions & that his visibility is not impaired. The Telehandler should be a safe distance from mixer when mixer operator is adding cement.
- PF Ash dust will be controlled by dampening down and heras fencing with demolition netting attached if required. Should it be noted that dampening down is being ineffective then plastic sheeting shall be applied at the end of the day. In order to keep dust down stockpiles of ash will be kept at a minimum and ordering will be on a daily basis.
- When a borehole is full, pumping must be stopped and hose moved to next borehole, grout hose must be moved using safe handling techniques.
- When washing out, ensure all grout in mixer has been discharged down a borehole or to a specified place on site. If using compressed air, keep pressure to a minimum and secure the end of the hose to prevent it whipping.
- **If a blockage occurs it must be carefully dealt with due to the build-up of back pressure. The pump operator must stop pumping immediately.** Instruct personnel to move to a safe position (minimum 10 metres) before opening any joints
- The pipeline must be treated as being pressurized at all times. Goggles must be worn by operatives dealing with blockages.
- To release the back pressure a pressure release valve should be fitted between the pump and first grout hose, allowing back pressure to be released before disconnecting any hoses

When access is needed inside the grout mixer, for example, to clear blockages,

- Lone working is not permissible; Pump as much grout out as possible until the obstruction is visible
- Isolate the air supply to the mixer by disconnecting the airline from the compressor.
- Remove the guard. Use a secured ladder/steps to gain access.
- Once the obstruction is removed, replace & lock off the guard before reconnecting the air supply to the mixer.

## Mineshaft Treatment (if required)

Mineshaft Treatment uses a similar methodology to the treatment of shallow workings; however, the treatment holes are located adjacent to each other rather than on a 3 / 6m grid. Additionally, there are additional safety requirements including the use of a shaft frame when treating shafts. The methodology is given below:

- Prior to mobilisation the Client / Main Contractor needs to clear and level an area of approximately 12m x 12m
- Shaft frame to be installed (12m long) across the mineshaft
- Planks to be added to the shaft frame to make a working platform
- Operatives to wear full body harnesses secured to a point outside the working area
- Rig to be tracked onto the shaft frame spanning the mineshaft
- A segmental 101mm/76mm drill system will be utilised for drilling and this will be advanced to 5m beyond the base of the shaft using water flush.
- The drill crew will setup the drill rig at the drilling location with the initial lengths of casing installed on the mast.
- Once setup, the driller will commence drilling and will install the first lengths casing into the shaft. The driller will ensure that the drill mast is angled at the correct inclination before drilling commences.
- The shaft will then be drilled down to the base plus 5m (to ensure rockhead and not staging) Casing will be advanced in 2m sections as the drilling advances
- On completion of drilling, the drill string will be removed, and the hole will be ready for grouting.
- The Grouting will be carried out under pressure (2 bar) through the casing down into the shaft
- Once the pressure gauge atop of the casing records 2 bar of pressure and is held for 2 minutes, grouting will cease.
- The casing will then be pulled up 2m and the process repeated up to surface
- Once the shaft has been fully grouted up to surface a period of 12 hours must be allowed to pass to allow the grout to start to cure
- After the 12-hour period, a second treatment hole will be drilled using the same method as above
- Once the second treatment hole has been completed, a further 12 hours will need to pass
- A final test hole will then be drilled to validate the works
- The rig can then be removed, and the shaft frame dismantled.

#### **Telehandlers**

- These will be driven by competent operators (eg. CPCS, AITT, NPORS, LANTRA).
- A banksman will be used in accordance with site rules, when reversing or when visibility is restricted.
- The operator will know the dimensions of the machine in operating & travel mode – relative to constraints of site, making sure you there is good all round visibility.
- The machine will be operated in accordance with Manufacturers safety instructions regarding its safe working limits. The operator will always wear seat belts.
- Make sure forks are correctly positioned / adjusted to compensate for the size/shape of the load.
- All movements of mobile plant to be made in a smooth controlled manner. Make sure the load is always stable and remains under control.
- The immediate area around the machine operations shall be kept clear of personnel. Operatives on the ground working with the telehandler must always stand in a position of safety clear of the load and machine in case the load becomes unstable

#### **Security**

Foreman will make sure that adequate measures are taken to prevent the theft or unauthorised use of equipment/materials. This will include locking away all tools in the van or lock up, removing keys from plant & equipment where fitted, when not in use and left unattended & using cab guards if fitted.

#### **Leaving site**

- The work area shall be left in a clean & tidy manner
- The Foreman will make sure that the rig is configured for transport in accordance with the manufacturer's instructions, making sure all securing bolts & pins are correctly fitted and that the rig is safe to transport.
- All excessive spoil must be cleaned off the rig, augers and associated plant.
- The Foreman shall make sure his Foreman's Completion Form is signed off by the main contractor before leaving site.

## Communication and liaison

*(Other contractors, Local Authority, Highways Authority, Statutory Bodies)*

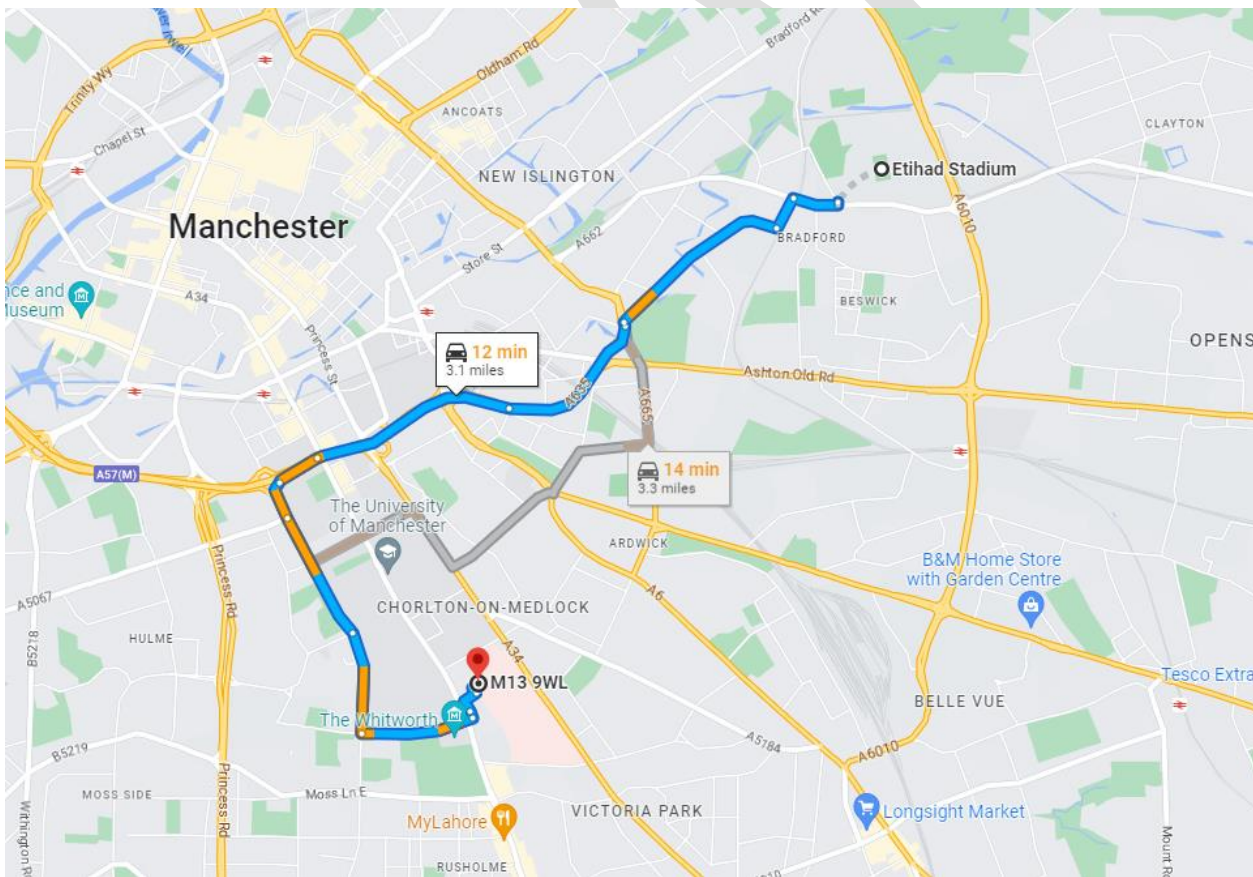
- Van Elle site operations will be under the full-time supervision of a competent and experienced Foreman who has completed Supervisor Training (NVQ3 / SSSTS). The Site Foreman for this project will be identified in due course upon specific request.
- The Foreman will be responsible for daily routine operation; preparation and submission of all daily records; receiving and acting upon formal site instructions; and reporting site conditions which may require variations to this method statement.
- The Foreman will report directly to the Contracts Manager / Director on a regular routine basis or on specific instances when necessary.
- The Divisional Director responsible for this project is Dave Warner
- Site safety tours are carried out at regular intervals by our Safety Dept and Contract Management personnel

## Emergency plans

*(Contact phone number, fire plans, accident/injury plan, defect/sub-standard condition reporting.)*

- Main contractor will induct all site operatives into the site specific emergency arrangements.
- Van Elle crews are equipped with several 2kg dry powder extinguishers and first aid provisions to complement the main contractor's arrangements.
- Emergency First Aid & Fire Awareness training has been completed by the crew.
- Spill kits will be provided and our crews instructed in their use.
- All accidents & near misses must be reported directly to the Van Elle HSQE Dept. on **01773 304065** and the Main contractors site manager

The location and route to the nearest A&E hospital from the site is shown on the route map below



**Route Map to Manchester Royal Infirmary**

### **SERVICE STRIKES**

**Electric** - Switch machine off & evacuate all personnel. Do not attempt to disengage the cable from the casing/rods. Do not touch exposed cables.

**Gas** - Switch all machinery off & evacuate all personnel to safe distance. Extinguish all naked flames. No smoking. Gas emergency number is 0800 111 999

### **SPILLS**

Eliminate sources of ignition. Contain spillage in booms or sand or absorbents. All contaminated items & oil must be returned to your office/depot & be disposed of at an authorised disposal facility.

### **Mechanical / structural failure that puts persons at risk**

In the event of a failure, stop all operations and if possible bring the machine to a safe condition. Isolate the machine (eg key out) and if possible, set up an exclusion zone.

### **Mines Gas**

All work will stop if the gas alarms sound. All equipment will be switched off and the immediate area evacuated. Smoking will not be permitted. Allow area to ventilate before rechecking gas readings. Backfill borehole when safe to do so

**Coal Authority 01623 646 333**

| <b>RISK ASSESSMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                       |
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| <b>Persons Affected: Drilling Crew, other contractors on site, members of the public</b>                                                                                                                                                                                                                                                                                                                                              |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                       |
| <b>Significant hazards</b>                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Initial risk</b> | <b>Control Measures</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Residual risk</b> | <b>Responsibility</b> |
| <b>Site wide risks</b>                                                                                                                                                                                                                                                                                                                                                                                                                | Medium              | <ul style="list-style-type: none"> <li>Site visit by member of the contracts team</li> <li>The site team will attend the site induction and the site wide risks will be briefed out by the PC's on site representative.</li> <li>Mandatory PPE at all times – safety helmet, high visibility clothing, protective footwear, eye protection, gloves</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Low                  | All                   |
| <b>Contact with underground services</b>                                                                                                                                                                                                                                                                                                                                                                                              | High                | <p>Permit to Work (SET16) to be signed by the Clients senior representative on site or by a senior manager employed by Van Elle prior to any drilling work commencing. In accordance with our Permit to Work System, if for any reason the following cannot be achieved, the office will be notified before work commences.</p> <ul style="list-style-type: none"> <li>Drawings shall be available on site for utility providers</li> <li>The working area and 5 m surrounding the working area has been scanned with Cable Avoidance Tool used by a competent person</li> <li>Any services within the working area and 5 m surrounding have been exposed and their location marked clearly across the whole of the working area</li> <li>Rigs must not be operated within 1000mm of a service (15metres for gas unless client has contacted the service provider and specific instructions issued <b>in writing</b>)</li> <li>Underground Services will always be assumed to be live</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           | Low                  | All                   |
| <b>Mines gas</b><br>Induced ground instability from drilling method<br>Presence of irrespirable, toxic or flammable gases (Carbon Monoxide & Methane)<br>Oxygen deficiency<br>Spontaneous combustion of flammable gases by drilling method<br>Potential for gas migration to nearby premises / surrounding areas<br>Unrecorded coal workings & shafts<br>Mines water<br>Adverse impact on surrounding environment from water flushing | High                | <ul style="list-style-type: none"> <li>Coal Authority Permit &amp; records</li> <li>Water flush / air mist to be used as priority technique to prevent gas migration or spontaneously combustion, but give consideration to water courses &amp; drains</li> <li>Consider the order in which holes will be drilled to prevent gas migration. Eg. perimeter holes before the remainder of the site</li> <li>Gas monitoring for CO, CO<sub>2</sub>, oxygen &amp; methane at specified locations (eg at the rig in close proximity to the hole, within occupied properties, in first hole which passes through the voided ground, measuring oxygen deficiencies at the bottom and methane at the top)</li> <li>Gas readings will be recorded. The frequency will be dependent on site readings</li> <li>Note any movements / voids / cracks etc opening up within the local surrounding areas during operations. Inspections will be recorded.</li> <li>Where practicable, each hole is to be filled with cementitious material within a stated period (1 hour, 2 hour, 4 hour etc.) This will be determined by site conditions. If this is not practicable, each hole is to be sealed to prevent air ingress</li> <li>Attention to be given to the barometric pressure during operations – low or falling pressure will increase the risk of encountering mine gas</li> </ul> | Low                  | Contracts<br>Foreman  |
| <b>Working Area</b> <ul style="list-style-type: none"> <li>Overturning rig or machinery</li> </ul>                                                                                                                                                                                                                                                                                                                                    | High                | <ul style="list-style-type: none"> <li>Qualify working area requirements and responsibilities prior to work commencing.</li> <li>Maintenance of working area in accordance with the contractual requirements throughout the contract.</li> <li>VE Foreman not to enter on to area until completed. Foreman to monitor during our operations &amp; report to Main Contractor / VE Contracts Manager</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Low                  | Contracts<br>Manager  |

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|                                                                                                                                                                                                                                                                                        |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     | Foreman           |
| <b>Plant &amp; vehicle movements</b> <ul style="list-style-type: none"> <li>Obstruction of footpaths at site access and egress points;</li> <li>Other road / site traffic movements,</li> <li>Collision with surrounding structures or plant/equipment during rig movements</li> </ul> | High | <ul style="list-style-type: none"> <li>Agreed access routes for deliveries lorries with the main contractor</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Low | Contracts Manager |
|                                                                                                                                                                                                                                                                                        |      | <ul style="list-style-type: none"> <li>Site speed restrictions will be adhered to</li> <li>Consideration of the room required for manoeuvring the machine. Check for obvious hazards &amp; obstructions such as soft ground, narrow gaps, limited head-room, steep gradients, adverse cambers, and excavations</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     | Driver operator   |
|                                                                                                                                                                                                                                                                                        |      | <ul style="list-style-type: none"> <li>All reversing vehicles &amp; rig/plant movements will be conducted under the direction of a Banksman</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     | Foreman, Banksman |
| <b>Loading &amp; unloading of drilling rigs</b> <ul style="list-style-type: none"> <li>Damage to road surfaces / pavements</li> <li>Plant or equipment falling from transport vehicle</li> <li>Slips, trips falls</li> </ul>                                                           | High | <ul style="list-style-type: none"> <li>At pre-start meetings, identify what provisions/requirements the MC has, such as dedicated unloading areas &amp;/or air mats that must be used</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Low | Contracts         |
|                                                                                                                                                                                                                                                                                        |      | <ul style="list-style-type: none"> <li>Establish suitable safety zone. Anyone not involved in the mobilisation to be kept clear. Safety barriers may need to be used to segregate the lift from other activities and/or pedestrians. Vehicle warning beacons will be used in public areas</li> <li>Loading/unloading on level and stable ground, under the direction of a Banksman</li> <li>Check security of loads &amp; agree sequence of unloading. Ratchet strap must be checked for damage. Load must be checked for any movement prior to removing straps.</li> <li>Plant &amp; machinery offloaded by lorry mounted winches fitted with D-shackle. Open hooks must not be used under any circumstances</li> <li>Protection of roadway/footpath e.g. by the use of mats/plywood etc. when rig/plant equipment is being loaded/unloaded on the highway</li> </ul> |     | Foreman           |
|                                                                                                                                                                                                                                                                                        |      | <ul style="list-style-type: none"> <li>Inspection of trailer to ensure it is safe to walk on, that there are no holes or signs of damage &amp; that it is not slippery. Report any defects.</li> <li>Track mats will be used where there is steel on steel e.g. steel tracks on a steel trailer bed, to reduce risk of rig/plant equipment sliding off the side of the ramps/low loader</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     | Driver            |
|                                                                                                                                                                                                                                                                                        |      | <ul style="list-style-type: none"> <li>Nobody to stand at the side of the vehicle being loaded/unloaded including the Banksman</li> <li>Use of ramp (if fitted) to access the vehicle or trailer. Climbing up the sides of trailers is not permitted. No-one should ever jump onto or off a vehicle – always use steps &amp; handholds.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     | All Staff         |
|                                                                                                                                                                                                                                                                                        |      | <ul style="list-style-type: none"> <li>Where possible, work at height to be avoided by using tele handlers or pre-slinging of loads.</li> <li>Use of edge protection fitted to the sides of trailers. Where edge protection is not fitted, injury from falls from height will be minimised by the provision of air bags, or temporary platforms.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     | Foreman           |
|                                                                                                                                                                                                                                                                                        |      | <ul style="list-style-type: none"> <li>Safe means of access and egress via proprietary ladder or step system that is part of the lorry, or a properly secured ladder.</li> <li>Inspect ladders for signs of damage &amp; be free from mud or grease. Ladders must extend past the trailer bed to enable you to step off whilst still having 3 points of contact</li> <li>LOOKING where you're going - DO NOT walk backwards whilst on the trailer. DO NOT RUSH! DO NOT USE A MOBILE PHONE</li> <li>Where possible, the unloading should take place with nobody being on the vehicle. When this is unavoidable: <ul style="list-style-type: none"> <li>Keep the number of persons on the lorry to a minimum</li> </ul> </li> </ul>                                                                                                                                      |     | All Staff         |
|                                                                                                                                                                                                                                                                                        |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |                   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |                |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | <ul style="list-style-type: none"> <li>○ Ensure that the person on the trailer is well out of the way when the load is being lifted.</li> <li>○ The initial instruction to lift the load must be given by the person on the trailer</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |                |
| <b>Lorry mounted crane operations</b> <ul style="list-style-type: none"> <li>• Overturning of the crane may occur through the following; <ul style="list-style-type: none"> <li>○ Ground conditions.</li> <li>○ Tampering with safety devices.</li> <li>○ Lifting of loads above the Safe Working Limit.</li> </ul> </li> <li>• Collision with surrounding structure</li> <li>• Failure of lifting equipment</li> <li>• Damage or injury to passing vehicles &amp; pedestrians by the position of outriggers, crane or load movements or when visibility is restricted</li> </ul> | High | <ul style="list-style-type: none"> <li>• Crane &amp; Lifting accessories to have in date Thorough Examination</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Low | Transport Mgr  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | <ul style="list-style-type: none"> <li>• All crane movements &amp; lifts will be completed under the direction of a Banksman</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     | Foreman        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | <ul style="list-style-type: none"> <li>• The operator &amp; Slinger signaller will ensure they are aware of the safe working load before the lift commences. Do not overload SWL of crane or lifting accessories</li> <li>• No one will be allowed to stand at the side of the vehicle being loaded/unloaded including the slinger/signaller</li> <li>• Do not allow the load to swing over or into live traffic lanes or over people</li> <li>• Lifting equipment will not be used for towing or pulling</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     | All staff      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | <ul style="list-style-type: none"> <li>• The crane, lifting accessories and all safety devices to be inspected daily &amp; the daily check sheet completed.</li> <li>• Fully extended outriggers will be used at all times. Outriggers must not be positioned where the ground could collapse e.g. on soft ground, at the edge of excavations, on or over manholes, chambers, drains, services etc.</li> <li>• Outrigger mats must be placed under outriggers on all lifts. Where additional support is needed, sleepers should be placed UNDER the outrigger mats so that the load is evenly spread. Off-cuts of wood found on site are not acceptable alternatives.</li> <li>• Where a HIAB has factory-fitted remote controls, these must be used at all times to allow the operator to stand in a position of safety</li> <li>• A test lift will be conducted to make sure the lift can be carried out safely e.g. to check levels, outriggers don't sink, load is stable etc.</li> <li>• No loads will be left suspended.</li> <li>• Lifting points on loads shall be checked for signs of damage prior to being lifted.</li> <li>• Only propriety lifting points on loads will be used; only recognised slinging techniques will be used; Tag lines will be used when necessary.</li> </ul> |     | Crane Operator |
| <b>Drilling rig operations</b> <ul style="list-style-type: none"> <li>• Injury due to poor condition of equipment</li> <li>• Collision with pedestrian &amp; other plant</li> <li>• Machine overturning due to Unstable ground conditions</li> <li>• Bodily injury from entanglement with rotating / moving drill rods</li> <li>• Noise</li> <li>• Inhalation of dust</li> <li>• Eye &amp; bodily injuries from flying debris</li> <li>• Fluid / air injection from burst hydraulic hoses</li> </ul>                                                                              | High | <ul style="list-style-type: none"> <li>• The rig must have a current Thorough Examination certificate and must be available on site.</li> <li>• Trained &amp; competent operators of drilling rig. Trainees can operate under direct supervision of experienced rig operator</li> <li>• Rigs to be fitted with interlock guards to prevent access to rotating drill string. Where interlock guards are not practicable, a site specific risk assessment must be completed by Contracts Manager before work continues</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Low | Contracts      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | <ul style="list-style-type: none"> <li>• Recorded daily inspection of all equipment, and during use by the rig operator. Any signs of damage must be dealt with according to procedure.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     | Foreman        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      | <ul style="list-style-type: none"> <li>• All rig movements will be completed under the direction of a trained and competent Banksman</li> <li>• Interlock guards to be fitted to rigs. Where interlock guards cannot be used consult Contracts Manager. Implement exclusion zone around front of rig with barriers. Nobody to enter exclusion zone when drill string is rotating. Banksman in attendance at all times whilst the rig is active.</li> <li>• Dust suppression to be used; Shrouding to contain ejected materials</li> <li>• Isolation of compressed air / water supply before adding / removing drill rods</li> <li>• Ear protection will be worn within 10 metres of drilling rigs; Position compressors away from work area.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     | All staff      |

|                                                                                                                                                                                                                                                                                       |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |           |
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| <ul style="list-style-type: none"> <li>Slip trip over hoses</li> <li>Manual handling of drill rods</li> </ul>                                                                                                                                                                         |      | <ul style="list-style-type: none"> <li>Dust masks will be worn by clean shaven operatives where airborne dust is present. Fit testing</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |     |           |
| <b>Compressors / Compressed air</b><br>Eye & Injection injuries as a result of unintended release<br>Strike by flailing hoses<br>Slips, trips from trailing cables/hoses<br><br>Compressor moving across site<br><br>Unauthorised use.<br><br>Air left in when hoses are disconnected | High | <ul style="list-style-type: none"> <li>Written scheme of examination for compressors and compressed air pipes</li> <li>Check all tools, hoses and fittings for damaged, dirt or moisture before use.</li> <li>Never direct compressed air at yourself or any other person (HORSEPLAY).</li> <li>Compressed air must not be used to clean down clothing</li> <li>Route air hoses so that they are not across gangways or in a position where they may be damaged. Hoses etc. which cross walkways to be covered with ramps &amp; warning notices displayed</li> <li>There must always be a valve between the compressor and the airline.</li> <li>All tools and equipment must be fitted with an operating valve.</li> <li>Operator to ensure valves are closed and hoses are connected before start up.</li> <li>End of line remote from compressor must be attached to equipment to be used whilst compressor is running. Air must only be turn off at valve.</li> <li>Before disconnecting hoses or equipment, operator to ensure that air is purged out of receiver and hose. Crimping' the hose as a means of reducing pressure in order to change a tool is strictly prohibited.</li> <li>Self sealing connections are to be used for all breaking joints where possible.</li> <li>Where self sealing joints are not fitted, depressurise equipment &amp; hoses before breaking joints.</li> <li>Whip-checks must be used on all joints that are not self sealed.</li> <li>Eye protection must be used at all times.</li> <li>Never leave hoses trailing across walkways.</li> <li>Keep all other persons not involved in the activity away.</li> <li>Switch off at end of shift or for prolonged breaks. Release any stored air. Lock out to prevent unauthorised use</li> <li>Compressor to be placed on firm, level ground. Hand brake is to be engaged and, if necessary, chocks to be placed.</li> <li>Compressor 'in line' valves must be closed before disconnecting or changing tools or equipment. '</li> </ul> | Low | All staff |
| <b>Telehandlers</b> <ul style="list-style-type: none"> <li>Risk of load falling due to uneven ground, overloading or unbalanced loading of telehandler.</li> </ul>                                                                                                                    | High | <ul style="list-style-type: none"> <li>Confirm maintenance certificate has been provided by the hire company. Conduct pre-use checks &amp; complete the daily inspection sheet. Do not attempt to operate the machine if faults are found</li> <li>Only specifically trained &amp; competent operators to be driving the machine. (CPCS)</li> <li>Passengers must not be carried. Telehandlers must not be used to lift people. No tandem lifts</li> <li>Sequencing of works to minimise lifting over restrictions/obstructions</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Low | Foreman   |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |                                                      |
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| <ul style="list-style-type: none"> <li>Machine overturning due to unstable ground conditions, Working on steep inclines, overloading, etc</li> <li>Crush injuries when adjusting fork width</li> <li>Driver falling or being thrown from machine</li> <li>Poor operator discipline. Erratic / uncontrolled operation of machine (sharp cornering, excess speed, etc)</li> <li>Poor communications / visibility of work area due to load restricting view, blind corners etc</li> </ul> |      | <ul style="list-style-type: none"> <li>Machine to be set up in accordance with the manufacturers instructions</li> <li>Lift in accordance with duty charts. The machine operator will know the lift capacity of the machine, to prevent a tip-over. Operate in a controlled manner. Telehandlers may only be used as a crane if they are equipped to do so and only if the telehandler operative is trained on suspended loads. Lifting accessories must only be shackled to a lifting eye. Chains should not be wrapped around the forks.</li> <li>Confirm Centre of Gravity. Carry out test lifts to confirm load is balanced before continuing.</li> <li>Forks must be spread to an appropriate distance for the load being lifted and the load evenly distributed across the forks to maintain balance. Do not lift off single fork or use loose lifting accessories directly onto fork(s). Loads must not be carried that are 3 times longer than the width of the forks; Only propriety lifting points on loads will be used. Never use steel bands or tie wires as lifting points</li> <li>Loads should be carried butted up to the heel of the forks, not on the tips. Angle forks backwards</li> <li>Transport loads as close to ground level as possible to minimise the distance loads can fall and to increase stability</li> <li>Ensure visibility is not impaired when travelling. Where impaired visibility cannot be avoided, banksman must be used</li> <li>Make sure no one enters the danger zone while the machine is lifting/travelling</li> <li>Never jump down from the cab. When climbing in and out of the cab always use the steps and grab rails.</li> <li>Prevent crush injuries when adjusting forks by tilting fork frame forward so that the forks swing freely away from the frame</li> <li>To prevent unauthorised use, the machine must be left in a secure manner when not in use; switch off the engine &amp; remove Keys</li> <li>Pedestrians to get thumbs up before approaching machine</li> </ul> |     | Machine operator<br>All                              |
| <b>Grouting mixing operations</b> <ul style="list-style-type: none"> <li>Burns &amp; irritation from contact with grout</li> <li>Inhalation of cement dust</li> <li>Bodily injury from entanglement with rotating / moving machinery during operations &amp; when cleaning</li> <li>Slips, trips and falls</li> <li>Open boreholes</li> </ul>                                                                                                                                          | High | <ul style="list-style-type: none"> <li>Trained &amp; competent operators to use the grout mixer</li> <li>Plan the site layout taking into consideration the prevailing wind direction &amp; nearby properties.</li> <li>All plant &amp; grout hoses shall be inspected before being used. All damaged equipment shall be returned to the yard for repair.</li> <li>Water hoses running across public areas must be adequately guarded with warning notices &amp; cones. Hoses must be tucked tight to the kerb. Where a hose crosses a road or pavement it must be covered by a clearly visible ramp.</li> <li>Hoses to be sheaved / protected in operating area from site vehicles and regularly inspected for damage</li> <li>Adequate guarding of all moving parts on pump. (Interlock switches must not be by-passed).</li> <li>Stock piles of PFA should be shielded, covered or kept damp to cut down airborne dust.</li> <li>Machine operators should minimise dust by emptying ash into the mixer in a controlled manner. Over-filling &amp; erratic movement of the bucket should be avoided.</li> <li>Ensure that hoses don't get kinked. Protect them against other site vehicles.</li> <li>Complete isolation of machine before cleaning or maintenance. A second person will always be in attendance. Secure ladder access</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Low | Contracts<br><br>Foreman<br><br>Telehandler operator |

|                                                                                                                                                                                                                                               |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |                         |
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|                                                                                                                                                                                                                                               |        | <ul style="list-style-type: none"> <li>Good housekeeping. Ensure machine and mixing area is level and clear of debris. If possible, stone up muddy areas; keep hoses tidy and away from pedestrian areas.</li> <li>Impervious PPE to be worn i.e. gauntlets, footwear, leggings (no shorts allowed) and arms and legs will be covered</li> <li>FFP3 dust masks to be worn. Ensure dust masks are effective by ensuring they are tight fitting &amp; not repeatedly removed.</li> <li>Operatives are to be face fit tested.</li> <li>Minimise dust by emptying dry materials into the mixer in a controlled manner. Do not shake bags.</li> <li>Cement pallets to be stacked maximum 2 full pallets high. Protect from rain with visqueen sheets. Safe access for tele handlers must be taken into consideration</li> <li>Stack cement in a suitable position to reduce the need for the mixer operator to bend or stretch to lift cement bags. Bags should be between waist and chest height at all times</li> <li>Grouters to stand clear whilst telehandler is emptied</li> <li>Grouting operatives will work from purpose built work platforms with handrails on all exposed sides</li> <li>Use mechanical means or team lifting to move grout hoses around site</li> </ul> |     | Pump Operator           |
| <b>Hose bursts</b> <ul style="list-style-type: none"> <li>Injury/property damage</li> <li>Burns &amp; irritation from contact</li> </ul>                                                                                                      | High   | <ul style="list-style-type: none"> <li>Additional controls in high risk areas e.g. shrouding of hoses, positioning of pump, additional bunding to contain spillages &amp; screens to protect from ejected material;</li> <li>Use higher site fencing and if Herras type this must be covered</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Low | Contracts / Foreman     |
| <b>Dealing with blockages</b> <ul style="list-style-type: none"> <li>Hose whipping</li> <li>Strike by high pressure water/air/grout</li> </ul>                                                                                                | High   | <ul style="list-style-type: none"> <li>Stop pumping immediately &amp; release pressure inside the hose as much as possible</li> <li>Treat system as though it is pressurized until confirmed otherwise. Do not under any circumstance manually open or attempt to open the hose under pressure.</li> <li><b>Must wear goggles or full face visor – glasses do not provide adequate protection</b></li> <li>Use gravity to empty as much of grout as possible from the hose</li> <li>Protect people against uncontrolled hoses &amp; ejected grout with minimum 10metre exclusion zone; secure hose to prevent whipping</li> <li>Compressed air should only be used as a last resort when clearing blockages.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Low | Foreman / Pump operator |
| <b>Refuelling plant &amp; machinery</b> <ul style="list-style-type: none"> <li>Fire</li> <li>Pollution of watercourses, drains and sewers through accidental spills and poor storage</li> <li>Health risks as per COSHH assessment</li> </ul> | Medium | <ul style="list-style-type: none"> <li>Engines to be switched off prior to refuelling; Re-fuel in well ventilated area.</li> <li>No smoking/no naked flames when refuelling; Fire extinguishers to be available in vicinity.</li> <li>Refuel carefully and prevent spills. Do not overfill tanks. <ul style="list-style-type: none"> <li>Store fuel in secure, vandal proof bunded tanks or jerry cans;</li> <li>Refuelling must not be undertaken within 15m of a watercourse.</li> </ul> </li> <li>Spill kits are available on site with personnel instructed in their use</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Low | All Staff               |

|                                                                                                                                                                                                                       |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |                      |
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| <b>Security</b> <ul style="list-style-type: none"> <li>Unauthorized use of plant by other contractors or trespassers</li> <li>3<sup>rd</sup> party damage</li> <li>Theft of plant, equipment and materials</li> </ul> | Medium | <ul style="list-style-type: none"> <li>Reduce risk of theft of plant &amp; equipment by e.g. as removing one wheel or fitting wheel clamps, chaining plant equipment to a fixed object; removing batteries, fitting control arm covers. Locking small tools that are on hire in the property or van or secure store every night</li> <li>All keys must be removed from plant &amp; equipment where fitted, when not in use and left unattended. Hydraulic pressure to be relieved on control levers</li> <li>Materials will be safely stacked and stored e.g. pallets of cement stored at one level only to prevent them toppling over if kids climb on them.</li> <li>Diesel bowzers locked</li> <li>Where Van Elle are responsible for the site, adequate security fencing and sufficient number of construction/mandatory warning signs will be deployed</li> </ul> | Low | All staff            |
| <b>Collapse of mineshaft</b>                                                                                                                                                                                          | High   | <ul style="list-style-type: none"> <li>Shaft Frame to be designed &amp; constructed on firm level ground.</li> <li>Routine visual inspections to be completed. Shaft frame to have In Date Thorough Examination.</li> <li>Exclusion zone around shaft to be barriered off</li> <li>All staff to wear harness &amp; safety line to position beyond immediate area of shaft</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Low | Contracts<br>Foreman |

**Task Covered:** Completion of grouting using readymix concrete or manual grout mixing. Operatives will be exposed infrequently and for moderately long periods to cementitious materials.

| Hazard                                                                                                                                           | Who is harmed & how?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Initial Risk | Specific Control Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Emergency Procedures                                                                                                                                            | Residual Risk |
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| <b>Bagged cement &amp; admixtures</b><br><br>Contains various chemicals including lime, calcium silicates and alkalis plus Soluble chromium (VI) | <p>Inhalation can lead to developing acute rhinitis and localised irritation. Risk of chronic respiratory problems. When dry, Respirable Crystalline Silica is a risk via inhalation</p> <p>Contact with skin and eyes can lead to irritation &amp; burning due to the corrosive properties. Prolonged &amp; repeated exposure may also lead to Irritant and allergic dermatitis developing</p> <p>Ingestion – the swallowing of small amounts of concrete products and admixture is unlikely to cause any significant reaction. Larger doses may result in irritation to the gastrointestinal tract, nausea, diarrhoea &amp; vomiting</p> | High         | <p>Keep exposed skin to a minimum to avoid contact – wear impervious gloves and protective clothing, including overalls with long sleeves and long trousers.</p> <p>Do not allow grout to become trapped between the skin &amp; clothing</p> <p>All spills to be cleaned up</p> <ul style="list-style-type: none"> <li>• <i>Gauntlets must be worn when mixing grout, but do not allow grout/cement to become trapped between the glove and skin.</i></li> <li>• <i>If mixing cement by hand, Wear respiratory protection with minimum standard of FFP3. Must be clean shaven and fit tested</i></li> <li>• <i>Airborne dust should be prevented by only opening bags when needed and by not shaking bags completely empty them</i></li> </ul>                                                                                                                                                                                                        | <p>First aid processes detailed within the COSHH Assessment</p> <p>Prevent entry into drains and watercourses. Allow to dry before disposing of as hardcore</p> | Low           |
| PFA                                                                                                                                              | <p>Not hazardous but prolonged / repeated exposure to dust may lead to irritation of the skin, eyes and the lungs</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Medium       | <ul style="list-style-type: none"> <li>• Avoid contact with skin – wear impervious gloves and protective clothing, including overalls with long sleeves and long trousers &amp; keep exposed skin to a minimum.</li> <li>• Gauntlets will help protect hands/wrists but staff must ensure that cement does not become trapped between the glove &amp; the skin.</li> <li>• Goggles must be worn to protect from splashes.</li> <li>• Wear respiratory protection when mixing grout. Minimum standard is FFP3.</li> <li>• Airborne dust should be prevented by only opening bags of cement when needed and by not shaking bags completely empty them.</li> <li>• The machine operator shall take care not to cause unnecessary airborne dust by not over-filling the telehandler bucket carrying less ash &amp; make more frequent trips. Emptying smaller quantities of ash into the mixer rather than tipping the whole bucket in one go.</li> </ul> | <p>First Aid measures Detailed within the COSHH Assessment</p>                                                                                                  | Low           |

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|  |  |  | <ul style="list-style-type: none"><li>• Bucket movements should be smooth – banging &amp; jerking the bucket was also seen to cause lots of dust.</li><li>• The grout operator should try to stand clear when the loading shovel is being tipped</li></ul> |  |  |
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**Task Covered:** Various tasks related to the on site inspection and basic maintenance of equipment. Includes refuelling, topping up fluids etc . Operatives will be exposed infrequently and for short periods

| Hazard                          | Who is harmed & how?                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Initial Risk | Specific Control Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Emergency Procedures                                                                                                                                                                                                                                                                                                                                                                                                                                | Residual Risk |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Engine Oil</b>               | Fitters can suffer skin irritation from contact with engine oil.<br><br>(long-term repeated) exposure to used oil may lead to the production of skin tumours.<br><br>Hot oil may produce irritant fumes                                                                                                                                                                                                                                                                                       | Med          | <ul style="list-style-type: none"> <li>Standard Working Practices</li> <li>Do not perform oil change on excessively hot oil</li> <li>Do not breathe in oil mist from hot oil – Ensure good ventilation throughout oil change;</li> <li>No contaminated materials (oily rags) in pockets</li> <li>Storage on drip trays / bunded areas</li> </ul>                                                                                                                                                                                                                    | Turn leaking containers leak-side up to prevent further escape. Contain spillages using spill granules, sand or other inert absorbent. Protect drains. Once dry, sweep up and transfer to suitable, labelled containers for disposal.                                                                                                                                                                                                               | Low           |
| <b>Hydraulic Oil</b>            | Not classified as hazardous however can become highly toxic if oil becomes injected into the body<br>In common with most mineral oils, prolonged and repeated skin contact may cause dermatitis.                                                                                                                                                                                                                                                                                              | Med          | <ul style="list-style-type: none"> <li>Standard Working Practices</li> <li>Prevention of injection injuries in accordance with hydraulic safety work instruction</li> <li>Avoid generating &amp; breathing in mists</li> <li>No contaminated materials (oily rags) in pockets</li> <li>Storage on drip trays / bunded areas</li> </ul>                                                                                                                                                                                                                              | <b>Seek immediate medical assistance if hydraulic oil is injected into the body</b><br><br>Turn leaking containers leak-side up to prevent further escape. Contain spillages using spill granules, sand or other inert absorbent. Protect drains. Once dry, sweep up and transfer to suitable, labelled containers for disposal.                                                                                                                    | Low           |
| <b>Grease</b>                   | Continuous & prolonged exposure to grease may cause skin irritation                                                                                                                                                                                                                                                                                                                                                                                                                           | Med          | <ul style="list-style-type: none"> <li>Standard Working Practices</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Standard First Aid measures.                                                                                                                                                                                                                                                                                                                                                                                                                        | Low           |
| <b>Petrol</b>                   | Operator may be harmed if vapours are inhaled. May cause irritation to the respiratory system.<br><br>Prolonged exposure to vapours may cause drowsiness and narcosis.<br><br>May cause skin irritation and inflammation; prolonged or repeated contact may result in dermatitis. May also cause cancer.                                                                                                                                                                                      | Med          | <ul style="list-style-type: none"> <li>Standard Working Practices</li> <li>Use in well ventilated areas</li> <li>Keep chemicals away from heat sources, open flames &amp; other sources of ignition.</li> </ul>                                                                                                                                                                                                                                                                                                                                                     | <b>Ingestion of petrol can lead to unconsciousness.</b> If this occurs, place injured person in recovery position and protect airway. Seek immediate medical attention<br><br>Turn leaking containers leak-side up to prevent further escape. Use foam extinguisher to smother spills to prevent ignition                                                                                                                                           | Low           |
| <b>Diesel and exhaust fumes</b> | Irritation of your eyes & respiratory tract; headaches and convulsions.<br><br>Repeated contact with your skin can cause de-fatting & in some cases, dermatitis.<br><br>Irritation of the mucous membranes, throat and stomach, nausea and vomiting. Liver and kidney damage is possible<br><br>Continuous exposure to exhaust fumes can cause long term, or chronic, respiratory ill health including cancer. Exhaust fumes in poorly ventilated areas can lead to Carbon Monoxide poisoning | High         | <p>Turn off engines when not required;</p> <p>All re-fuelling to be carried out in well-ventilated areas- preferably outdoors and away from sources of ignition.</p> <p>Store in well ventilated areas away from naked lights &amp; heat sources.</p> <p>Store in bunded bowsers or jerry cans. Drums must be stored upright in a bunded area. Do not allow to enter water supplies or soil.</p> <p>For smaller rigs, locate powerpacks in well ventilated areas. Use mechanical ventilation &amp;/or tail-pipe filters when working in poorly ventilated areas</p> | <b>Standard first aid measures</b><br><br>Turn leaking containers leak-side up to prevent further escape. Contain spillages using spill granules, sand or other inert absorbent. Protect drains. Once dry, sweep up and transfer to suitable, labelled containers for disposal<br><br><b>CO Poisoning – don't put yourself at risk – make sure the area is ventilated before you enter. get the casualty to fresh air before taking to casualty</b> | Low           |

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| <b>Linemarker Spray Paints</b> | <p>Can cause asphyxiation, irritating to the respiratory system, skin and eyes when used in areas with poor ventilation.</p> <p>Repeated &amp; prolonged exposure to the propellant can result in the de-fatting of the skin.</p> | Med | <ul style="list-style-type: none"> <li>Standard Working Practices</li> <li><b>Pressurised containers</b> - Do not use or store in close proximity to sources of ignition.</li> <li>Wear gloves to prevent paint coming into contact with skin.</li> <li>Ensure good ventilation. Do not inhale aerosol mist</li> </ul> | <p><b>Burning produces irritating, toxic and obnoxious fumes</b></p> <p>Only attempt to fight fires if safe to do so. Evacuate if smoke is affecting your breathing, you cannot see the way out, or the fire continues to grow</p> | Low |
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| <b>Standard Working Practices</b>                         | <p>Good housekeeping to be maintained in all work areas and welfare facilities;</p> <p>Use the welfare provided to dry clothes and change clothes regularly</p> <p>Change out of heavily soiled / contaminated clothing and wash hands &amp; face before eating or drinking</p> <p>Regularly wash the skin with warm water and soap, and dry the skin afterwards.</p> <p>Refrain from touching face with soiled hands.</p> <p>Do not eat or smoke in areas where there is likely to be exposure;</p> <p>Cuts or wounds must be covered</p> <p>Apply work creams to exposed skin regularly</p> <p>Wear long-sleeved protective clothing;</p> <p>Wearing impervious vinyl or nitrile gloves when handling chemicals or contaminated equipment</p> <p>Eye protection must be worn at all times</p> <p>Always store in original containers that are correctly labelled.</p> <p><b>FOLLOW MANUFACTURERS INSTRUCTIONS</b></p> |
| <b>Instruction Information Training &amp; Supervision</b> | <p>All operatives briefed on routes of entry, skin checks and health risks of working with hazardous substances as part of 1-day Safety Awareness training</p> <p>Foremen completed 2-day SSSTS course which covers COSHH</p> <p>All staff briefed on correct fitting of respiratory protection as part of fit test programme</p> <p>Regular toolbox talks delivered on occupational health issues delivered by foreman fitter</p> <p>Copies of Safety Data Sheets kept on file. Instruction given that if a new product is being used, the COSHH assessment will need to be reviewed</p> <p>Regular manager visits carried out to ensure controls are being implemented</p> <p>Instruction given that if the product is being used in a manner different from the way specified, a separate risk assessment will be needed</p>                                                                                         |
| <b>Exposure limits</b>                                    | <p>Cement has a Workplace Exposure Limits (WEL's) of <b>10mg/m3</b> total inhalable dust and 4mg/m3 respirable dust (8 hour TWA)</p> <p>Exposure limits are not exceeded during normal operating conditions &amp; due to the quantities involved at any one time it is unlikely that the limits be exceeded in the event of an accidental release.</p> <p>Previous monitoring of airborne dust identified levels of dust that were significant but were below their respective limits</p>                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Health Surveillance</b>                                | <p>Health screening with occupational nurse covers dermatitis checks &amp; spirometry.</p> <p>Safety Awareness training includes instruction to carry out self-checking</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Thorough Examination &amp; Testing</b>                 | <p>Not required. No LEV in operation</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| <b>Emergency Provisions</b> | <p>Emergency First aid trained personnel present;                      Eye wash &amp; first aid facilities shall be kept in an easily accessible place.</p> <p>Fire extinguishers (dry powder) maintained and readily accessible</p> <p>Spill granules and absorbent pads readily accessible. Use correct waste stream</p> |
| <b>Standard First Aid</b>   | <p><b>In all cases should exposure be excessive or symptoms develop seek medical attention.</b></p>                                                                                                                                                                                                                        |
|                             | <p><b>Ingestion</b> - wash mouth / nose out with water, and give patient plenty of water to drink. DO NOT induce vomiting. Seek medical attention</p>                                                                                                                                                                      |
|                             | <p><b>Skin</b> – Remove contaminated clothing as soon as possible and wash with soap and water. If irritation, pain or other skin conditions occur, seek medical advice</p>                                                                                                                                                |
|                             | <p><b>Eyes</b> – Do not rub eyes, remove any contact lenses. Hold the eyes open and wash with emergency eye wash solution (if available) or clean water for up to 15 minutes. Seek medical attention</p>                                                                                                                   |
|                             | <p><b>Inhalation</b> - Remove casualty from exposure ensuring your own safety whilst doing so. If possible, remove any excess substances from the nasal passages. Keep casualty warm &amp; at rest. Seek medical attention</p>                                                                                             |

| Task Description: Handling of drill rods                                                                                                                                                                                                                                                             |   |                                           |   |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
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| Task involves lifting of drill rods on and off the front of the rig and placing them onto tressles or rod rack fixed to rig.<br>Frequency of handling is affected by number and depth of boreholes. Work lasts between 4-8 hours but is punctuated by frequent short breaks during drilling process. |   |                                           |   |                                                                                                                                                 | Duration of task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |
|                                                                                                                                                                                                                                                                                                      |   |                                           |   |                                                                                                                                                 | Less than 2 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4 to 8 hours |
|                                                                                                                                                                                                                                                                                                      |   |                                           |   |                                                                                                                                                 | 2 to less than 4 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Over 8 hours |
| Load considerations                                                                                                                                                                                                                                                                                  |   |                                           |   | Notes                                                                                                                                           | Control measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |
| Uneven distribution of weight                                                                                                                                                                                                                                                                        |   | Bulky / unwieldy                          | ✓ | Wet arisings reduces friction & grip on rods.                                                                                                   | <ul style="list-style-type: none"><li>• Process can be mechanised by use of telehandler &amp; auxiliary winch, however this depends on type of rig.</li><li>• Carry distance kept to a minimum through positioning / storage of tressles as close to rig as possible</li><li>• Reduce bending / stooping by setting tressles at front of rig set at shoulder height.</li><li>• Gloves to be worn at all times.</li><li>• Reducing impact on individuals through team lifting</li><li>• Repetitive work broken up by rest periods between drilling and changes in activity</li><li>• Ensure ground is scraped and kept firm &amp; level.</li><li>• Ensure task lighting is available and operational. Check for shadow areas for trip hazards.</li><li>• Thermal clothing listed on PPE register; welfare facilities by main contractor</li><li>• Awareness of own limitations</li><li>• Completion of manual handling training - use good lifting techniques. Toolbox talks</li><li>• Health screening including musculoskeletal assessment</li></ul> |              |
| Unstable / contents likely to shift                                                                                                                                                                                                                                                                  |   | Difficult to grasp?                       | ✓ | Rods will have grease on joint areas                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Intrinsically harmful (sharp/hot)?                                                                                                                                                                                                                                                                   | ✓ |                                           |   |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Task considerations                                                                                                                                                                                                                                                                                  |   |                                           |   | Notes                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Holding load away from trunk                                                                                                                                                                                                                                                                         |   | Strenuous pushing/pulling                 |   | No issues with keeping up with the work                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Twisting                                                                                                                                                                                                                                                                                             | ✓ | Repetitive handling                       | ✓ | Height of tressles will affect amount of stooping                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Stooping                                                                                                                                                                                                                                                                                             | ✓ | Carrying distances (10m+)                 | ✓ | High forces are exerted to move load                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Reaching above head height                                                                                                                                                                                                                                                                           |   | Lifting from floor level                  | ✓ | Head/neck is bent or twisted part of the time; back is bent or twisted more than half of the time; wrists are bent or deviated part of the time |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Frequent/ prolonged physical effort                                                                                                                                                                                                                                                                  | ✓ | Large vertical movements                  |   |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Work organisation / pace                                                                                                                                                                                                                                                                             | ✓ | Force exerted                             | ✓ |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Poor coordination, communication & control?                                                                                                                                                                                                                                                          |   | insufficient rest                         | ✓ |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Individual factors                                                                                                                                                                                                                                                                                   |   |                                           |   | Notes                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Unusual strength / height required                                                                                                                                                                                                                                                                   |   | Risk to the pregnant?                     |   | Ability to function is affected by requirement to wear helmet, eye & ear protection.                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Risk to those with health problems /disability                                                                                                                                                                                                                                                       | ✓ | Requires special information or training? | ✓ | Generation of dust requires respiratory protection to be worn which will affect ease of breathing.                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Movement affected by PPE                                                                                                                                                                                                                                                                             | ✓ |                                           |   |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Environmental Considerations                                                                                                                                                                                                                                                                         |   |                                           |   | Notes                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Slippery ground?                                                                                                                                                                                                                                                                                     | ✓ | Strong air movements                      |   | Increased risk of slips/trips during wet weather if ground conditions deteriorate. This will be affected by quality of main contractor          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Variations in levels? (steps/slopes)                                                                                                                                                                                                                                                                 |   | Poor lighting?                            | ✓ |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Extreme heat / cold?                                                                                                                                                                                                                                                                                 | ✓ | Postural constraints                      |   | Cold is an issue when working during winter                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |
| Uneven ground?                                                                                                                                                                                                                                                                                       | ✓ | Dust & fumes                              |   |                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |

| Manual Handling - Grout mixing                                                                                                                                                                         |   |                                           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| Task involves transferring cement bags weighing 25kg bags from pallets onto the grid on top of a grout mixer. Duration & frequency is determined by the number and grout take of boreholes/mineshafts. |   |                                           |       | Duration of task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                                                                                                                                                                                        |   |                                           |       | Less than 2 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                                                                                                                                                                                        |   |                                           |       | 2 to less than 4 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                        |   |                                           |       | 4 to 8 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                        |   |                                           |       | Over 8 hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Load considerations                                                                                                                                                                                    |   |                                           | Notes | Control measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Uneven distribution of weight                                                                                                                                                                          |   | Bulky / unwieldy                          | ✓     | <ul style="list-style-type: none"> <li>Walking around pallet to move bags closer to mixer instead of dragging bags across the top of the stock of cement bags</li> <li>Reduce bending / stooping by setting platform so that top of the mixer is at waist height.</li> <li>Stack cement so that the mixer operator does not have to bend or stretch to lift cement bags. ie between waist and chest height at all times, either stacked on pallets or left on telehandler so working height can be adjusted as necessary.</li> <li>Positioning of pallets alongside mixer to prevent twisting</li> <li>Repetitive work broken up by rest periods between batches and changes in activity</li> <li>Job rotation with colleagues. Additional labour for large mixes</li> <li>Where large volumes require mixing, cement silo can be mobilised but has space constraints.</li> <li>Ensure ground is scraped and kept firm &amp; level.</li> <li>Ensure task lighting is available and operational. Check for shadow areas for trip hazards.</li> <li>Thermal clothing listed on PPE register; welfare facilities by main contractor</li> <li>Completion of manual handling training - use good lifting techniques. Toolbox talks</li> <li>Health screening including musculoskeletal assessment</li> </ul> |
| Unstable / contents likely to shift                                                                                                                                                                    |   | Difficult to grasp?                       |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Intrinsically harmful (sharp/hot)?                                                                                                                                                                     |   |                                           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Task considerations                                                                                                                                                                                    |   |                                           | Notes |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Holding load away from trunk                                                                                                                                                                           |   | Strenuous pushing/pulling                 |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Twisting                                                                                                                                                                                               | ✓ | Repetitive handling                       | ✓     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Stooping                                                                                                                                                                                               | ✓ | Carrying distances (10m+)                 |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Reaching above head height                                                                                                                                                                             |   | Lifting from floor level                  | ✓     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Frequent/ prolonged physical effort                                                                                                                                                                    | ✓ | Large vertical movements                  |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Work organisation / pace                                                                                                                                                                               | ✓ | Force exerted                             | ✓     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Poor coordination, communication & control?                                                                                                                                                            |   | insufficient rest                         | ✓     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                        |   |                                           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Individual factors                                                                                                                                                                                     |   |                                           | Notes |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Unusual strength / height required                                                                                                                                                                     |   | Risk to the pregnant?                     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Risk to those with health problems /disability                                                                                                                                                         | ✓ | Requires special information or training? | ✓     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Movement affected by PPE                                                                                                                                                                               | ✓ |                                           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Environmental Considerations                                                                                                                                                                           |   |                                           | Notes |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Slippery ground?                                                                                                                                                                                       | ✓ | Strong air movements                      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Variations in levels? (steps/slopes)                                                                                                                                                                   |   | Poor lighting?                            | ✓     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Extreme heat / cold?                                                                                                                                                                                   | ✓ | Postural constraints                      |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Uneven ground?                                                                                                                                                                                         | ✓ | Dust & fumes                              |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                        |   |                                           |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Environmental Assessment                     |                                                                                                                                                                                                                                                                                                                                                                                                                          | Risk rating | Control Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Residual risk |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Aspect                                       | Impact                                                                                                                                                                                                                                                                                                                                                                                                                   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |               |
| <b>Mobilisation &amp; deliveries</b>         | <ul style="list-style-type: none"> <li>HGVs block roads causing delays; potential for noise &amp; disruption to local community particularly during early deliveries to avoid peak traffic; vehicles or plant being transported are not cleaned prior to leaving site then contamination of the highways &amp; surface drains is possible.</li> <li>Fuel consumption &amp; exhaust emissions</li> </ul>                  | High        | <ul style="list-style-type: none"> <li>Considerate driving &amp; parking - large vehicles parked up clear of site and only brought in when vehicle can be accommodated on site</li> <li>Neighbour notifications &amp; planning around busy times</li> <li>Cleaning down plant prior to transport if required</li> <li>Use low emission fuels, ADBLUE. Switching vehicles off when not in use</li> <li>Lodging in hotels close to work area; Use of crew cabs &amp; van sharing instead of each person using their own vehicle</li> </ul>                                                                                                                                                                                                       | Low           |
| <b>Piling operations</b>                     | <ul style="list-style-type: none"> <li>Generation of large volumes of spoil.</li> <li>Likely for some of the spoil to be contaminated, particularly on brownfield / reclaimed land which may need to be treated as hazardous waste</li> </ul>                                                                                                                                                                            | High        | <ul style="list-style-type: none"> <li>Choice of work method to minimise spoil generation;</li> <li>Correct disposal route; Re-use spoil on site provided any contaminant is separated;</li> <li>Ensure type of ground to be encountered on site has been ascertained i.e. contaminated. If contaminated set up safe regime to deal with</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                            | Low           |
| <b>Concrete pumping</b>                      | <ul style="list-style-type: none"> <li>Large volumes of raw materials to produce concrete</li> <li>Concrete pumping may cause pollution of drains, &amp; watercourses particularly when washing down of wagons and pumps</li> <li>May also be an issue if blockages occur &amp; concrete is ejected across site.</li> <li>Use of water within concrete plant - wetting down mix &amp; cleaning down drum/pump</li> </ul> | High        | <ul style="list-style-type: none"> <li>Reduction at design stage; accurate ordering; mix design &amp; site set up to minimise blockages. Careful placing of concrete to avoid unnecessary spills;</li> <li>Positioning equipment away from watercourses; Wash out skips or other bunding away from watercourses and surface water drains.</li> <li>Maintenance of plant &amp; machinery; protection of hoses from damage &amp; containment of hose bursts;</li> <li>Good water connections and hoses in good condition, switch off water supply when not being used</li> <li>Sending excess concrete back to batching plant. Placing in designated area to allow the concrete to cure without polluting the ground or watercourses.</li> </ul> | Low           |
| <b>Mobile plant operations</b>               | <ul style="list-style-type: none"> <li>Exhaust emissions; Black smoke if machine is poorly maintained</li> <li>rigs use large volume of fuel during operations</li> <li>Noise &amp; vibration nuisance when working in urban areas,</li> </ul>                                                                                                                                                                           | Medium      | <ul style="list-style-type: none"> <li>Servicing of machinery</li> <li>Reducing noise levels from all plant whenever possible; switching off plant when not in use; All plant will be fitted with efficient silencers; Restricted hours of operation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Low           |
| <b>Storage &amp; use of fuels &amp; oils</b> | <ul style="list-style-type: none"> <li>Pollution of water courses, drains &amp; sewers through accidental spills, hose bursts and poor storage</li> </ul>                                                                                                                                                                                                                                                                | High        | <ul style="list-style-type: none"> <li>Store fuel in secure, vandal proof bunded tanks (at least 10m away from watercourses) Carry out refuelling safely &amp; prevent spills.</li> <li>Spill kits are available on site with personnel instructed in their use</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Low           |
| <b>Poor storage &amp; handling waste</b>     | <ul style="list-style-type: none"> <li>Waste being mixed or sent to incorrect landfill</li> <li>Leaching into ground and entering drains &amp; watercourses.</li> <li>Damage to plants/animals, unsightly windblown rubbish</li> </ul>                                                                                                                                                                                   | High        | <ul style="list-style-type: none"> <li>Segregation of waste &amp; recycling;</li> <li>site waste management plans, use of licensed disposal routes;</li> <li>Provision of suitable waste containers.</li> <li>Housekeeping</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Low           |
| <b>Material Handling</b>                     | <ul style="list-style-type: none"> <li>Poor handling and storage of materials leading to excess waste to landfill, Materials becoming damaged &amp; unusable; poor stock control</li> </ul>                                                                                                                                                                                                                              | Medium      | <ul style="list-style-type: none"> <li>Order correct amounts of materials; avoid accepting incorrect deliveries; avoid double handling; Re-use/recycling materials, segregation of waste</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Low           |

## ROTARY RIG GUARDING RISK ASSESSMENT

Initial Assessment completed by: \_\_\_\_\_ Date: \_\_\_\_\_ Briefed to: \_\_\_\_\_

Identify all Pile/Borehole position(s) where interlock guards are NOT practicable:

| Pile / Borehole position(s) | Give reason why Interlock Guards cannot be fitted | Identify the control measures to be implemented |
|-----------------------------|---------------------------------------------------|-------------------------------------------------|
|                             |                                                   |                                                 |
|                             |                                                   |                                                 |
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|                             |                                                   |                                                 |
|                             |                                                   |                                                 |

Ongoing Assessment by: \_\_\_\_\_

Where site conditions dictate that the standard of guarding (above) cannot be achieved, the foreman shall notify their Contracts Manager & agree any changes to the risk assessment. All site operatives shall be briefed on the new arrangements.

| Pile / Borehole position(s) | Give reason for change to standard of guarding | Identify the control measures to be implemented | Changes agreed with | Date |
|-----------------------------|------------------------------------------------|-------------------------------------------------|---------------------|------|
|                             |                                                |                                                 |                     |      |
|                             |                                                |                                                 |                     |      |
|                             |                                                |                                                 |                     |      |
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