



Please note that this method statement requires briefing to you by an SPUK Supervisor before you can commence work on site.

It is your responsibility to ensure you are briefed by an SPUK Supervisor and you fully understand the methodology and hold the correct qualifications for the work you are undertaking.

If you have any queries, you must stop and ask your supervisor for clarity or call the Contract Manager responsible for the project.

You must sign the SHQ.SF.20 – RAMS Briefing Register once you have been briefed.

Contract No:	E23181	Contract Name:	Vine Street, Manchester
Principal Contractor:	Kirkland Developments		
Doc No:	E23181-SPUK-MS-EJ-001	Revision P/C	Rev 0
Prepared by:	Russell Fogg	Reviewed by:	Richard Greenwood
Document Title:	The vibratory installation of sheet piles using an ABI TM20 long reach telescopic leader rig to form permanent slope stabilization		

Method Statement for the vibratory installation of sheet piles using an ABI TM20 long reach telescopic leader rig to form permanent slope stabilization.

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E23181	Vine Street, Manchester	Kirkland Developments

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These Documents MUST be submitted weekly as part of the Friday Pack:

- Daily Safety Briefing
- Site Safety Inspection Report
- Weekly Toolbox Talk
- Weekly Plant Checks – (Checkproof)
- Weekly PUWER & LOLER Inspection Register

Daily Reports:

- Daily Report
- Pre-Auger Record Sheet
- Driving Record Sheet - Impact Hammer
- Daily Plant Check Report – (Checkproof)
- Daily Piling Record - Installation Record Sheet - Vibratory Hammer or Silent Piler
- Daily Piling Record - Extraction Record Sheet - Vibratory Hammer or Silent Piler
- Basic Maintenance Checks on Work Vehicles – (Checkproof)

Special Conditions on Site That Require Third Party Approval:

Special Ecology ☐ Watercourses ☐ Highways ☐ Railway Asset ☐ Bridges ☐

Project Handover to Supervisor

- | | | | |
|----------------------------|-------------------------------------|-----------------------------------|-------------------------------------|
| ➤ DRAWINGS | ☒ | ➤ PLANT & EQUIPMENT | ☒ |
| ➤ DELIVERY SCHEDULE | ☒ | ➤ LOLER CERTIFICATION | ☒ |
| ➤ METHOD STATEMENT | ☒ | ➤ 12m THOROUGH INSPECTIONS | ☒ |
| ➤ RISK ASSESSMENTS | ☒ | | |
| ➤ LIFT PLANS | ☒ | | |

Signed Manager: print:.....

Signed Supervisor: print:.....

Date:

THIS MUST ONLY BE SIGNED WHEN THE SUPERVISOR HAS HAD A FULL HANDOVER FROM THEIR MANAGER AND UNDERSTANDS THE FULL PROJECT

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1. Purpose and Scope

- 1.1 This method statement defines the Sheet Piling UK Company Standard Implementation procedure for the vibratory installation of approx. 165Lm of sheet piles using an ABI TM20 Long reach Leader Rig to form permanent slope stabilization.

2. Site Specific Hazards

- 2.1 Please refer to section 18 and attached Risk Assessments E23181-SPUK-RA-EJ-002-Rev0
 2.2 NR asset in proximity to works area – all necessary controls and third-party approvals to be in place prior to commencement of works.

3. Site Organization and Control

3.1

Name	Contact Number	Position
		-
		-
		-
		-

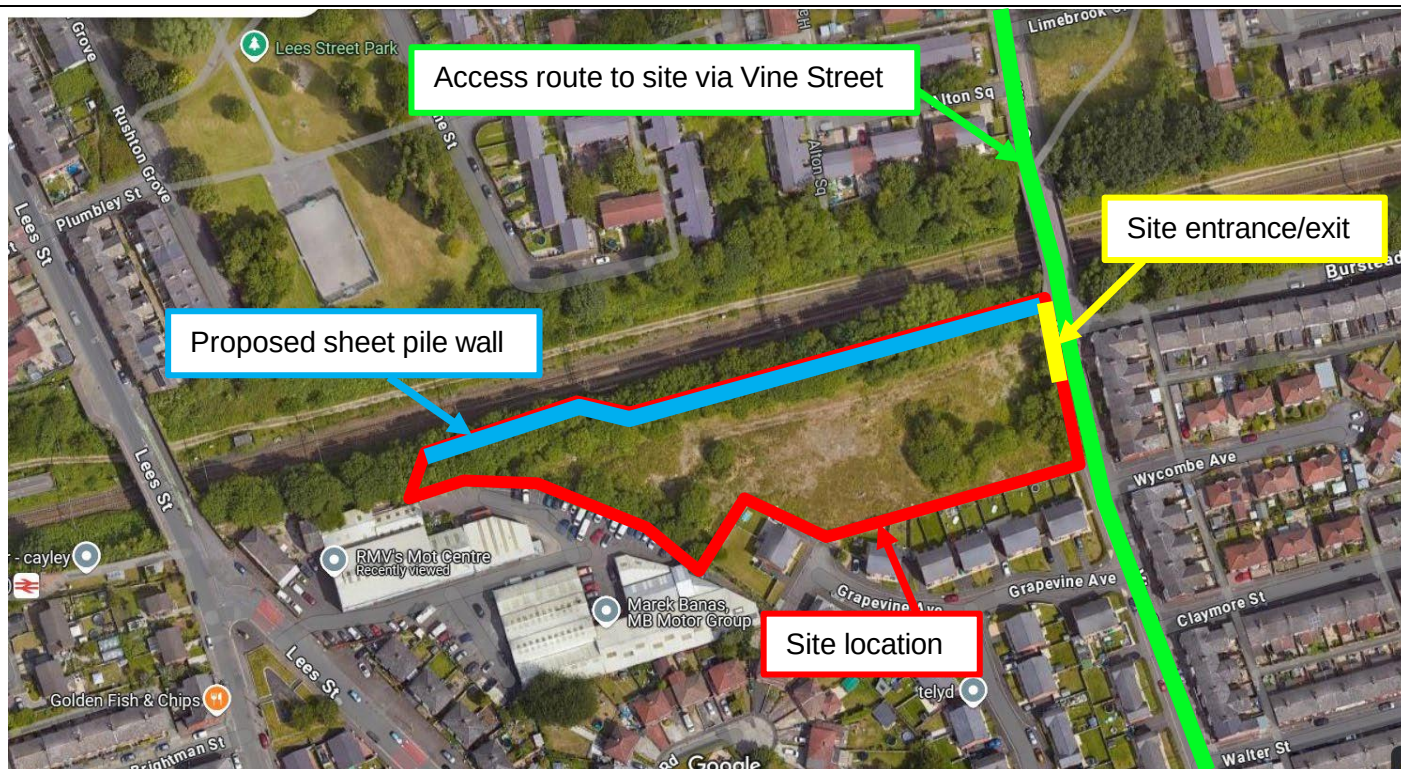
3.2 **Sheet Piling (UK) Ltd**

Name & Contact Number	Position
Russell Fogg - 07436220583	Construction Manager
Richard Greenwood – 07368868358	Health & Safety Director
Andy Ball – 07584604460	Construction Director
	-

4. Site Location & Access

- 4.1 The site address is C/o Kirkland Developments site entrance, Off Vine Street, Abbey Hey, Gorton, Manchester, M18 8SR.
 4.2 Access to the site is via: C/o Kirkland Developments site entrance, Off Vine Street, Abbey Hey, Gorton, Manchester, M18 8SR.

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- 4.3 Traffic Management: To be provided by M7 Projects Ltd
- 4.4 Restricted Delivery Times: **SPUK have not been made aware of any restrictions in regards to delivery times. All deliveries will be made between 08.00 – 18.00 unless classed as abnormal loads.** Abnormal loads will be delivered to site in compliance with the approved movement order.

5. Scope / Sequence of Works

- 5.1 The Sheet Piling UK works are to be carried out in compliance with this Method Statement, associated documents:
- 5.1.1 Risk Assessments - E23181-SPUK-RA-EJ-002-Rev0
 - 5.1.2 COSHH Assessments – E23181-SPUK-COSHH-EJ-004-Rev0
 - 5.1.3 Drawing Number – **NO FOR CONSTRUCTION DRAWINGS ISSUED TO DATE**
 - 5.1.4 Sequence of Works.
 - 5.1.4.1 Mobilization of piling plant & equipment and site-specific inductions.
 - 5.1.4.2 Commission ABI TM20 LR Leader rig on certified piling platform c/w vibro-hammer.
 - 5.1.4.3 Commence installation of approx. 165Lm of sheet piles to design level or practical refusal (whichever occurs first).
 - 5.1.4.4 Upon completion of sheet pile installation, decommission leader rig and demobilize piling plant & equipment from site.

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6. Duration and Hours of Works

- 6.1 Commencement date: TBC
- 6.2 Intended program duration is approx. 3-Weeks.
- 6.3 Site Working hours as below.

Monday – Thursday	0730-1800
Friday	0730-1500
Weekends	To be confirmed where necessary.

- 6.4 Timings and dates may vary during the works dependent on Site Rules and changes in Conditions.

7. Competent Labour.

Qty	Job Role	Additional Comments
1	Contracts Manager	Visiting
1	Piling Supervisor	Visiting
1	Safety Advisor	Visiting
1	Piling Foreman	Full time
1	Piling Operative / Signaler / Slinger	Full time
1	Crane Operator	Lifting Ops
1	Piling Welder	Full time
1	Temporary Works Coordinator	Site attendance when required for inspections
1	Temporary Works Supervisor	Site attendance when required for inspections
1	Plant Fitter	Site attendance when required

8. Welfare

- 8.1 Welfare arrangements will be supplied by the client or **Kirkland Developments**. These should be in line with Schedule 2 of the Construction Design & Management Regulations 2015 (CDM). All sites are to have a minimum amount of welfare facilities available for workers, which include the Following:
 - 8.1.1 Toilets
 - 8.1.2 Washing Facilities (with Hot and Cold running water)
 - 8.1.3 Drinking Water
 - 8.1.4 Changing rooms and lockers
 - 8.1.5 Heating
 - 8.1.6 Rest facilities.
 - 8.1.7 Suitable and Secure Drying Facilities
 - 8.1.8 Suitable Canteen Facilities to Prepare Hot and Cold Food
 - 8.1.9 Suitable Access and Lighting to Facilities

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9. First Aid

- 9.1 First Aid Provision will be identified in **Kirkland Developments** induction. Additionally, Refer to the onsite safety notice board for all first aid information.
- 9.2 Any accidents, incidents or Near Miss will be reported to **Kirkland Developments** Nominated Person.
- 9.3 Where required all Accidents will be reported in line with RIDDOR - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.
- 9.4 All accidents and incidents will be reported to SPUK Management.

10. Emergency Procedures

- 10.1 The Client or **M7 Projects Ltd** will ensure that the existing site emergency procedures are followed, and that relevant information is given to operatives at time of induction or when changes are made to procedures.
- 10.2 The nearest Hospital is **Manchester Royal Infirmary A&E Dept, Upper Brook St, Manchester, M13 9NZ.**

13 min (3.6 miles)

via A635

Fastest route, despite the usual traffic

85 Vine St

Abbey Hey, Manchester M18 8SR

↑ Head north on Vine St towards Burstead St

0.2 mi

↶ Turn left onto Ashton Old Rd/A635

Continue to follow A635

2.2 mi

↶ Turn left onto Chancellor Ln/A665

0.2 mi

↷ Turn right onto Higher Ardwick

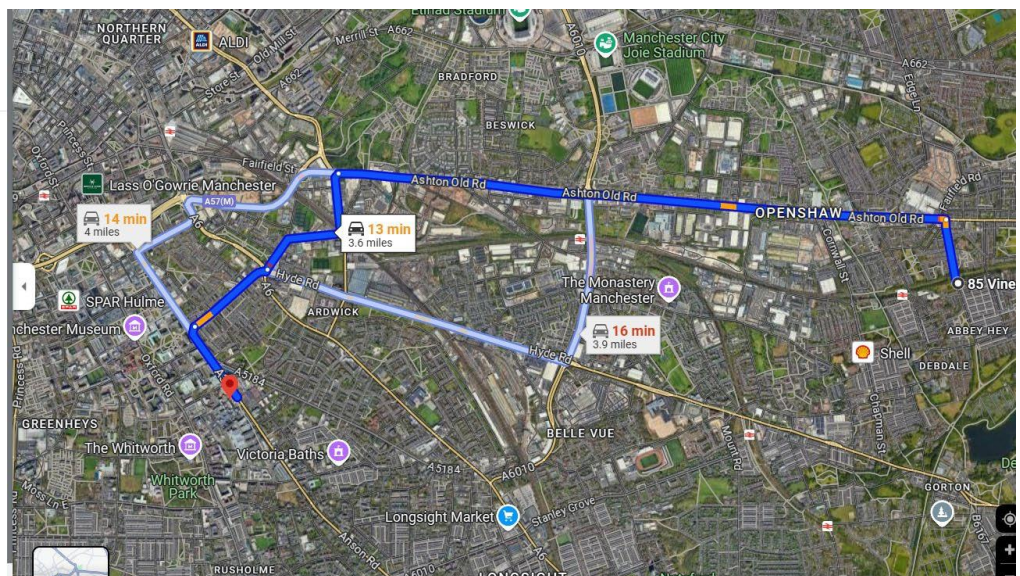
0.3 mi

↷ At the roundabout, continue straight onto Brunswick St

0.3 mi

↶ Turn left onto Upper Brook St/A34

Destination will be on the right



- 10.3 All Emergency Provisions will be established and briefed by **Kirkland Developments** during the Site Induction.
- 10.4 All SPUK Ltd Persons must make themselves aware of all Health and Safety Notice boards and Emergency Signs indicating nearest Assembly Points, First Aid and Fire Points.
- 10.5 If a member of the team is involved in an accident, in the first instance ensure the operative is safe and receives any first aid treatment, report it to site management and ensure all is recorded in the accident book.
- 10.6 **Kirkland Developments** are to be informed of any emergency as soon as is practicable possible.
- 10.7 SPUK Management to be notified as soon as possible of any incident.

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11. Site Security

- 11.1 SPUK will ensure that all Plant and equipment are secured during and at the end of each Shift.
- 11.2 All Plant and Cranes will have keys removed and doors locked when left unattended.
- 11.3 All small tools and equipment will be safely secured in containers to prevent theft or damage.
- 11.4 All Flammable Materials will be secured and stored correctly to minimize the risk of Fire or Arson.
- 11.5 During Works, SPUK will ensure that exclusion zones are established to prevent any unauthorized access.
- 11.6 SPUK will report all Security Concerns to the relevant persons who shall be nominated in the Site Induction.
- 11.7 **Kirkland Developments** is responsible for Site Security including secured site perimeter.
- 11.8 SPUK Site Foreman / Supervisor to inspect work area before leaving at the end of every shift, ensuring work area left secure. This is to be recorded in daily diary.

12. Proposed Plant & Equipment

Plant/Equipment Type	Qty	Activity (General)
ABI TM20LR leader rig – Max GBP371KN/m2	1	Sheet Piling Activities
ABI vibro-hammer	1	Sheet Piling Activities
50Te service crane	1	Sheet Piling Activities
Delmag D19-52 Impact Hammer (if required)	1	Sheet Piling Activities
Gas Cage c/w Bottles (2 Oxy and 1 propane)	1	Storage and movement of gas bottles around the work area. Gas bottles are to be stored outside and within a secured bottle cage
Burning Equipment (Torch,Hoses,Regulators)	1	Flame cutting/Welding activities
Bunded Diesel Bower	1	Fueling of all SPUK plant.
300 Amp weld set	1	Welding activities
Fire Extinguishers	1	Two number per hot works permit
Lifting Accessories (Various)	1	General Lifts / Off-loading & Loading plant and equipment, handling and distribution of sheet piles - pitching of sheet piles.
Site toolbox container 3m x 3m steel container store	1	Containing piling accessories, spill kits, fire-fighting equipment
MEWP	1	Sheet Piling Activities

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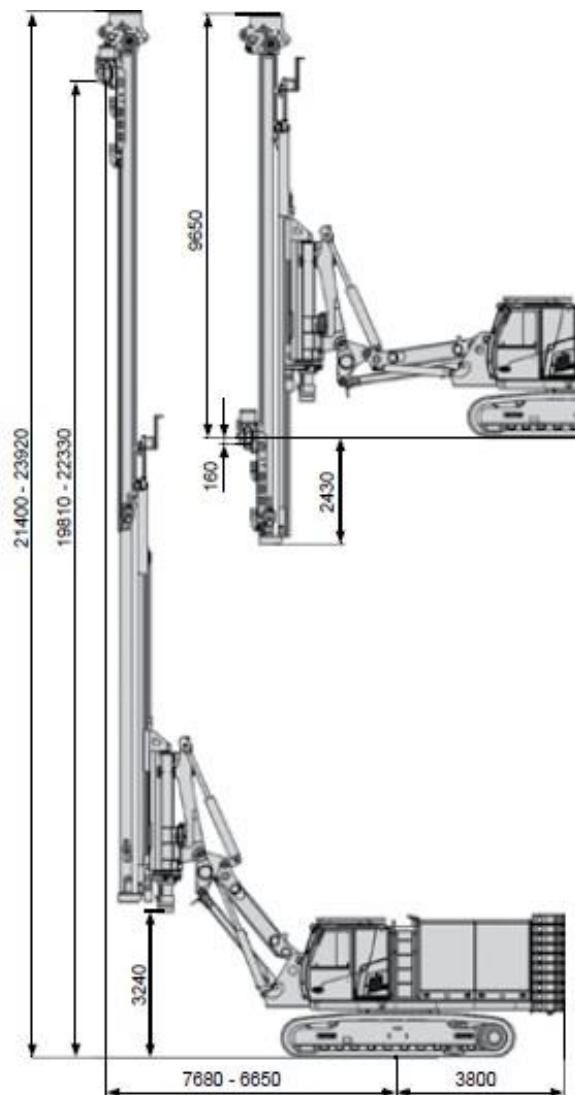
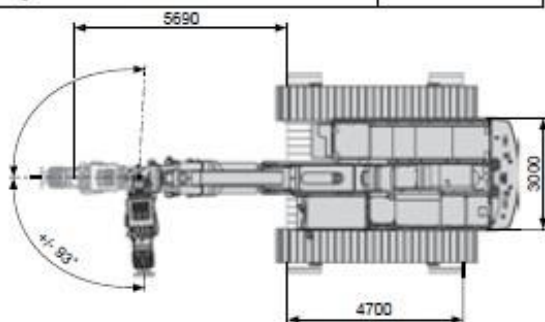
12.1 ABI TM20 LR leader rig specification

Base Carrier	SR35 F (HD)
Engine Type	CAT C18
Engine Power	470 kW
Operating Weight	84.5 tonnes
Transport Weight	79.1 tonnes

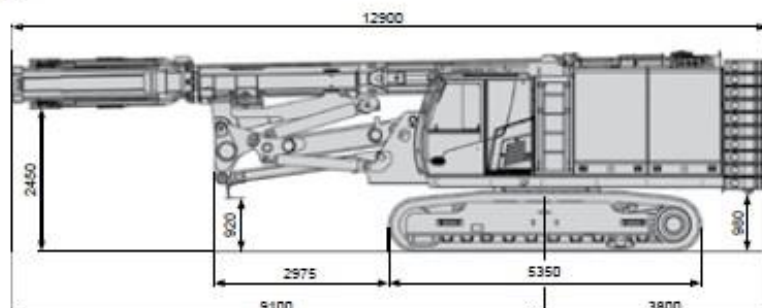
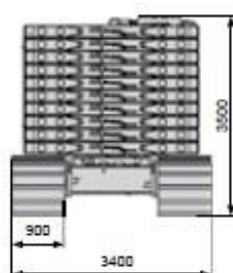
Telescopic Leader Mast	TM 20
Total Height	23.92 m
Maximum Pile Length	20.0 m
Crowd Force	180 kN
Extraction Force	180 kN

Vibro Hammer	MRZV 30VV
Static Moment	0-30 kgm
Docking System	D6
Frequency	2140/minute
Centrifugal Force	1500 kN
Weight	5390 kg

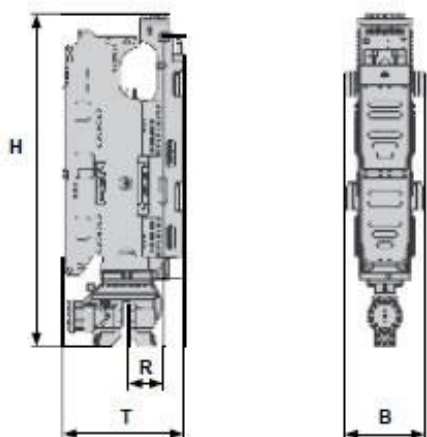
Augering	
Auger Model	MDBA 7000
Torque	7.0 tonnes



DIMENSIONS: TRANSPORTATION



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VIBROHAMMER: MRZV 30VV with D6 Docking Station


Vibro Hammer	MRZV 30VV
(H) Length	3405 mm
(B) Width	790 mm
(T) Depth	1465 mm
(R) Guide to Driving Axle	360 mm

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13. Mobilization / Demobilization

- 13.1 All required Traffic Management will be established and controlled by **Kirkland Developments**, parked vehicles, or any other obstacles at the access to the site to be controlled or prohibited by **Kirkland Developments** so access/egress is unhindered.
- 13.2 The piling plant and crane will be delivered on low loaders using the routes identified under the movement order, this will also dictate delivery/collection time which may be out of hours.
- 13.3 All plant, equipment and sheet piles will be delivered on articulated vehicles which will be unloaded by the site crane.
- 13.4 All delivery vehicles to be fitted with compliant safety handrails, to suit the load being carried.
- 13.5 Access to the site is via C/o **Kirkland Developments** site entrance, Off Vine Street, Abbey Hey, Gorton, Manchester, M18 8SR.
- 13.6 Loading out will be similar unless site conditions change whereby suitable and sufficient Risk assessments will be undertaken and briefed prior to demobilization.

Maximum Gradient for tracking Piling Rig in Transport Mode

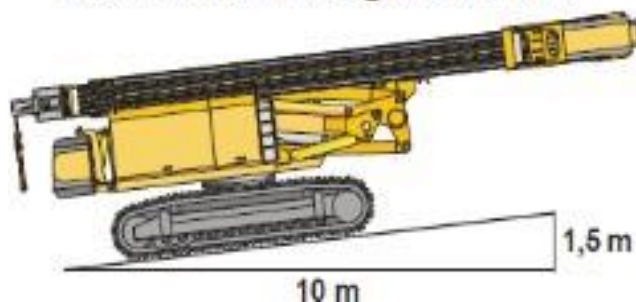
3 Moving machine



Danger

- Risk of severe or even deadly personal injury through of tipping over the machine. Move the machine on bearing ground only and in transport position Do not exceed maximum permissible gradient of 15 %.
- When driving over hard edges or bumps in the ground, there is a risk of tipping over. There must be a gradual changeover from slope to flat ground.
- Check again that there are no persons in the danger area. Only move the machine if there is sufficient safety distance to possible danger zone.
- Avoid abrupt movements and braking - avoid hazardous situations.
- Adapt speed to local conditions.

Maximum drivable gradient 15 %



Maximum Gradient for tracking Piling Rig in work mode with mast up is 4°

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14. Materials

- 14.1 Approx **105no** sheet piles at **14.0m** in length
- 14.2 Approx **130no** sheet piles at **8.0m** in length

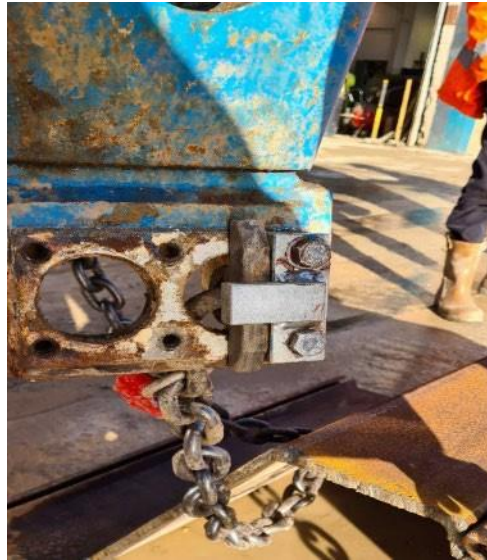
15. Prior to Works Commencing

- 15.1 Prior to the commencement of any works on site, the following will be in place:
 - 15.1.1 A valid lift plan has been developed and signed off by the Appointed Person.
 - 15.1.2 A Permit to Dig / Break Ground verifying that a utility drawing desk study has been completed and sufficient probing and CAT scanning has been carried out to ensure services are not present beneath the Piling Platform and Pile Lines. All carried out by **Kirkland Developments**
 - 15.1.3 A Daily Hot Works Permit which must include 60min fire watch.
 - 15.1.4 A Certificate verifying the Platform design has been completed to withstand the loading of the specific plant use on the site.
 - 15.1.5 Any overhead hazards / structures / services have been identified and appropriate safety measures implemented. i.e goal posts, warning signage, exclusion zones.

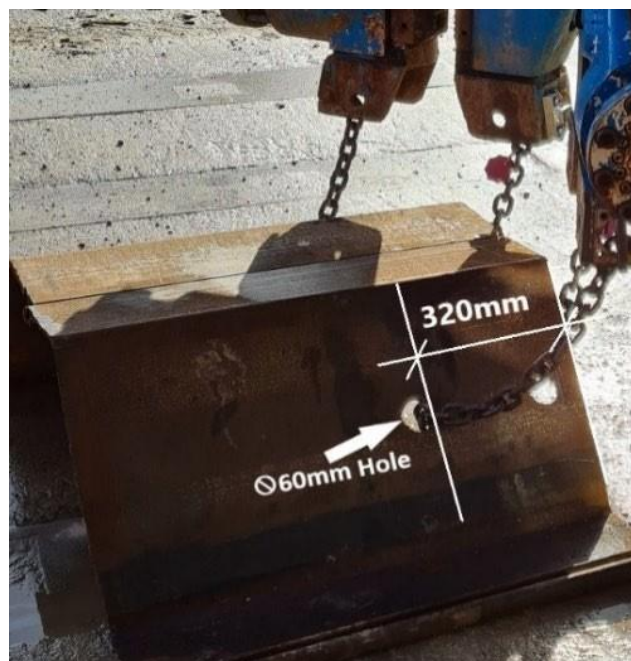
16. Sequence of Works

- 16.1 **Leader rig self-pitching sheet piles using proprietary pitching chains procedure.**
 - 16.1.1 SPUK Leader Rig Operator will carry out a pre-use check and ensure that the check sheet is endorsed and any repairs and or maintenance issued highlighted to the relevant parties.
 - 16.1.2 Once the telescopic leader rig is at the agreed starting position.
 - 16.1.3 The Leader Rig is commissioned whilst positioned on the certified piling platform.
 - 16.1.4 The two bolts that fix the chain to the hammer must be checked for torque before each shift.

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16.1.5 The pitching hole in the piles must be 320mm from the top of the pile to the top of the hole, the hole must be 60mm diameter.



16.1.6 Insert the pitching chains on the clamping jaw through the pitching holes in the pile.

16.1.7 Insert the pitching chains with the T-handle through the pitching holes in the clamping jaw and lock the T-handle at the chain holder and observe tight seating.

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16.1.8 Lift the pile vertically **ONLY** to engage the jaw clamp, **NO SLEWING AT THIS STAGE**



16.1.9 The head of the pile is then fed into the jaws of the hammer mounted on the rig's leader mast.

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16.1.10 The pile is then gripped by the hammer and positioned on the center line.



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- 16.1.11 This is done with the aid of a laser set on the center line of the proposed piled wall.
- 16.1.12 After being checked for verticality and position the pile will be driven to approximately 1.5m above ground level, 3x points of contact remain i.e. 1x fully clamped jaw and 2x pitching chains.
- 16.1.13 Once driven, remove pitching chains from the pile, the hammer is then released and the rig slews out of the way.
- 16.1.14 The rig will pick up the second pile using pitching shackle(s) connected to the pile.
- 16.1.15 The head of the pile is then fed into the jaws of the hammer mounted on the rig's leader mast.
- 16.1.16 The pile is then gripped by the hammer and positioned correctly. This is done with the aid of a laser set on the center line of the proposed piled wall.
- 16.1.17 Once aligned correctly the pile will be driven approximately 1.0m into the ground before being checked for verticality and position.
- 16.1.18 After checking the pitching shackle can be removed from the top of the pile and the pile will be driven to an initial 'suitable' distance above ground level.
- 16.1.19 The pile is left high at this stage to allow support for the next pile when it is pitched into the interlock.
- 16.1.20 Once driven, the hammer is then released and the rig slews out of the way.
- 16.1.21 The next pile and all subsequent piles are picked up using the ground release pitching shackle fixed to a pitching hole in the top of the pile.
- 16.1.22 The pile is picked up to the vertical position and pitched into the interlock of the previously driven pile.
- 16.1.23 Once the pile is interlocked the shackle is released and the hammer is re-positioned on top of the pile gripping the head of the pile in the jaws.
- 16.1.24 This pile is then driven to the same level as the initial pile before releasing the hammer and slewing the rig away to allow the next pile to be pitched.

Under no circumstances must a pitched pile be left unsupervised without being driven to a safe and suitable same level as the initial pile.

- 16.1.25 Once enough piles have been installed to this level the rig re-visits all the piles driving them down to the required level.

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16.1.26 The operations listed above are repeated as the rig installs the piles as per the working drawing.

16.1.27 Should any of the piles refuse to go down to level or the finished level of the head of the pile cannot be accessed safely from ground level, subsequent piles will be pitched from a MEWP or by suitable safe means of access.

16.1.28 The piling operative, when working from the MEWP/safe suitable means of access, will wear a safety harness with a fixed lanyard, which will be attached to the anchor point of the MEWP at all times.

Under no circumstances should previously driven piles be vibrated whilst pitching piles are being supported by a lift accessory or pitching shackle.

16.2 Vibratory Installation using Telescopic Leader Rig

16.2.1 The SPUK Rig Operator will carry out a pre-use check and ensure that the check sheet is slinged (by the operator) and any repairs and or maintenance issued highlighted to the relevant parties.

16.2.2 The leader rig will be tracked from the low loader by the operator, directly onto the working platform and is commissioned by the operator.

16.2.3 Utilizing the site crane, the vibro-hammer will be lifted from the SPUK laydown area and placed in front of leader rig.

16.2.4 Under the guidance of the piling foreman, the leader mast is lowered into the vibro-hammer socket, automated securing pins are then engaged.

16.2.5 The operator will then access the top of the vibro-hammer using the ladder/walkway attached to the vibro-hammer, at this stage the hydraulic pipes are connected to the valve block of the leader mast.

16.2.6 The operator will then return to the cab, under the instruction of the piling foreman, will release the jaws and hoist the vibro-hammer clear of the hammer stand. The leader rig is now ready for work.

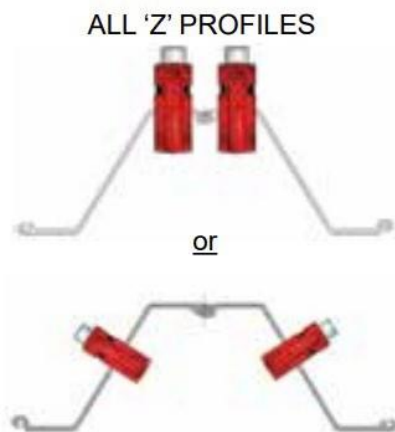
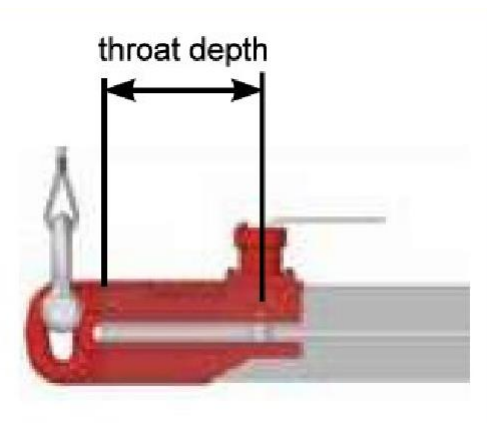
16.2.7 Removal is the reverse of the above process.

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16.3 Pre-Installation Checks

Prior to the installation a pitching shackle onto any steelwork, the following checks shall be carried out by SPUK foreman and recorded in the LOLER check register:

- 16.3.1 Ensure that the current thorough examination report is in place, and it corresponds to the individual lifting appliance.
- 16.3.2 Establish the weight of the lift involved and ensure a pitching shackle with appropriate Safe Working Load is being used, in conjunction with the approved site lift plan.
- 16.3.3 Ensure the lifting hole is at the correct distance from the top of the steelwork, i.e. 150mm from a 150mm throat depth shackle, 250mm for a 250mm throat depth shackle or 300mm for a 300mm throat depth shackle.
- 16.3.4 Incorrect hole placement in steelwork may cause shackle failure throat depth.



SAFE
Lifting off a stack at
90° to the axis of the
pile



- 16.3.5 The lifting hole should be neatly flame cut, and of suitable size to suit the plunger.

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- 16.3.6 The flame cutting will be carried out in line with hot works permit with task specific PPE utilized, i.e.. flame retardant overalls etc.
- 16.3.7 The burning equipment (Oxy/Propane) will be stored in a suitable and sufficient gas bottle cage with signage and have a minimum of 2 fire extinguishers present.
- 16.3.8 All hot works will be undertaken within the SPUK works exclusion zone (approx. 15.0m).
- 16.3.9 Competence of operator to be evidenced.
- 16.3.10 The Safe Working Load rating of any shackle is based on a purely tensile (axial) load. When lifting steelwork from horizontal to vertical or the reverse - **the shackle becomes de-rated by 50%. i.e. A 10-ton SWL ratchet shackle should only be loaded to a 5 ton at the start of a horizontal lift.**
- 16.3.11 Do not use the lifting shackles for pulling or extracting.
- 16.3.12 Ensure that the pin has gone through both sides of the shackle body – check indicator bar position prior to lifting. **HOLD POINT**
- 16.3.13 Do not modify the lifting shackles or any part of the lifting apparatus. Keep the burning torch well clear. **HOLD POINT**
- 16.3.14 Keep the plunger mechanism well lubricated. **HOLD POINT**
- 16.3.15 Care should be taken to avoid the pull ropes getting snagged. **HOLD POINT**
- 16.3.16 The angle between the two legs of the lifting strop, where applicable should not exceed 90°. **HOLD POINT**
- 16.3.17 Ensure that all the appropriate laws, byelaws and regulations are complied with. **HOLD POINT**
- 16.3.18 Always use the safety ring to prevent accidental release. **HOLD POINT**
- 16.3.19 The crane will pick up the first pile using a pitching shackle connected to the top of the pile, the pile is then lowered so in contact with the platform, at this point the rig will be tracked into position and under the instruction of the Supervisor the leader rig vibro-hammer is slewed over the head of the pile, the hammer is lowered, jaws clamped to the head of the pile, a final check is then made to ensure all is secure, the quick release shackle is then released – the Leader Rig has control of the pile.
- 16.3.20 At no point must anyone walk under or be positioned under a suspended load.
- 16.3.21 All operatives must be clear of crush zones prior to commencement of lifting.

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16.3.22 The slinger signaller must be separated from any lifts, but still maintaining visual contact with the crane operator at a safe distance.

16.3.23 The pile is then moved by the Leader Rig into the correct position with the aid of a laser the pile is positioned along the correct alignment.

16.3.24 Once aligned correctly the pile will be driven approximately 1.0m into the ground before being checked for verticality and position.

16.3.25 After checking the pile for line and level the pile is then driven further, it is then periodically checked for line and level, corrected as necessary.

16.3.26 SPUK installation Supervisor must ensure that he is in a place of safety once vibratory installation commences, which will be behind the exclusion zone barriers – crowd barriers.

16.3.27 However, to allow the Supervisor to check pile line and verticality, he must intermittently stop the vibratory installation and check the sheet pile.

16.3.28 Once driven to the required intermediate level the hammer is then released and the rig slews out of the way.

16.3.29 The next pile and all subsequent piles are picked up using the ground release pitching shackle fixed to a pitching hole in the top/center of the pile.

16.3.30 The pile is picked up to the vertical position and pitched into the interlock of the previously driven pile.

16.3.31 Once the pile is interlocked the shackle is released and the hammer is re-positioned on top of the pile gripping the head of the pile in the jaws.

16.3.32 This pile is then driven to the same level as the initial pile before releasing the hammer and slewing the rig away to allow the next pile to be pitched.

16.3.33

Under no circumstances must a pitched pile be left unsupported and unsupervised without being driven to the same level as the initial pile.

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16.3.34 Once a sufficient number of piles have been installed to this level the rig re-visits all the piles driving them down to the required level/refusal.

16.3.35 The operations listed above are repeated as the rig installs the piles in accordance with the setting out provided by **Kirkland Developments**.

Under no circumstances should previously driven piles be vibrated whilst pitching piles are being supported by a lift accessory or pitching shackle.

16.3.36 If the head of the pile cannot be accessed safely from ground level, subsequent piles will be pitched from a MEWP, this is possible if the piles reach practical refusal during vibratory installation.

16.3.37 Any MEWPs supplied will need to be fitted with a secondary guarding device, to mitigate the possibility of entrapment.

16.3.38 A lift plan will also be submitted and approved prior to utilization on site.

16.3.39 The piling operative, when working from the MEWP, will wear a safety harness with a fixed lanyard, which will be attached to the anchor point of the MEWP.

16.3.40 Where a corner clutch is required, the specific section will be pitched into the clutch of the previously installed sheet pile, utilizing a quick release shackle, as above and driven utilizing the vibro-hammer of the installation rig.

16.3.41 Whilst installation works are being undertaken, the said works will be monitored for noise and vibration (if required), in line with any limits imposed by **Kirkland Developments**.

16.3.42 If the limits are neared and or exceeded, all works are to be stopped and guidance sort from **Kirkland Developments**.

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16.4 Vibratory Installation Practical Refusal

16.4.1 During vibratory sheet pile installation practical refusal may occur, this is defined as when the head of the pile starts to deform or when the rate of driving exceeds the following limits for a continuous period of 5 minutes:

- (i) Single 'U' or 'Z' piles, less than 200mm of pile penetration per minute

If practical refusal is encountered, this will require witnessing by **Kirkland Developments** and a clear instruction issued on how to proceed.

HOLD POINT – If refusal is encountered due to an obstruction in the sheet pile line, this will require witnessing by the Client, and a clear instruction issued on how to proceed.

The SPUK Contracts Manager must be informed of the obstruction at this stage and ensure that the correct procedure is followed by the site team.

16.4.2 Should obstructions or early refusal be encountered in the sheet pile line then the obstructed/refused sheet pile should be extracted until the rig can lift the pile without the use of vibration.

16.4.3 The rig should then be detached from the sheet pile and slewed out of the way.

16.4.4 An operative wearing the appropriate safety harness and PPE working from a MEWP (or from ground level if the head of the pile is safely accessible) will then access the top of the sheet pile to attach the Ground Release Piling Shackle suspended from the rig to the top of the sheet pile.

16.4.5 Once attached, the rig will lift the pile free of the ground and the clutch of the previously installed pile and lay the pile on the ground.

16.4.6 If the above procedure cannot be followed, then the obstructed pile should be fully extracted by the rig and re-driven further back along the pile line (adjacent to previously driven piles).

16.4.7 The pile must be driven at least 2 thirds of its length before the rig is released from the pile.

16.4.8 Once the obstruction has been removed from the pile line by the client the pile can be extracted and reinstalled in the correct location.

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16.5 Impact Driving using Rig Mounted Delmag (if required following formal instruction)

If vibratory refusals should take place where design toe levels are not reached with the leader rig, SPUK will impact drive the piles to achieve these levels.

- Upon delivery, the Delmag hammer, and all pre-attached lifting accessories must be inspected prior to lifting.
- The Delmag hammer is unloaded utilizing the site crane from the horizontal and set on the ground.
- The Delmag hammer is assembled by the commissioning engineer, following manufacturers procedures.
- Once the Delmag hammer is assembled it is raised to the vertical and placed directly in front of the piling rig
- The Delmag hammer will then be connected to the rig, again following manufacturers procedures and then raised by the rig and sited on the first sheet pile ensuring the striker plate is sat flush.
- The rig operator will control the motion of the hammer and when activated, the rate of impact driving will be adjusted to suit driving conditions commencing using a low setting and gradually increasing the rate if impact driving.
- Once the pile has been driven to level (or refusal) the hammer is then removed and located on the next pile to be impact driven. The above is repeated until all impact driving has been completed.
- Upon completion, the Delmag hammer is lowered to the ground, all hoses are then disconnected, and the hammer will be decommissioned.
- No operatives are permitted to walk or work under any suspended loads.
- Ultimate refusal with the impact hammer is where driving is greater than 10 blows per 20mm of penetration.
- No lead trench required.

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16.6 Delmag Commissioning

3 Commissioning and control

3.1 Commissioning



Caution

Before each commissioning and mounting, perform a thorough visual and technical inspection of the impact hammer:

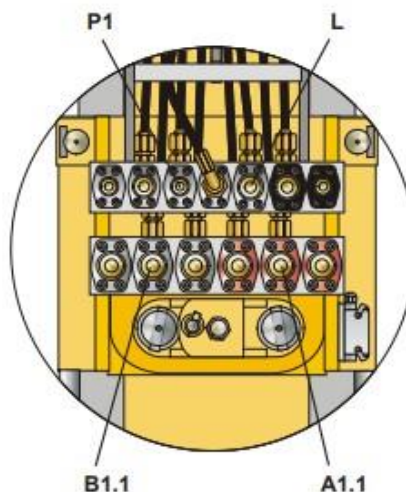
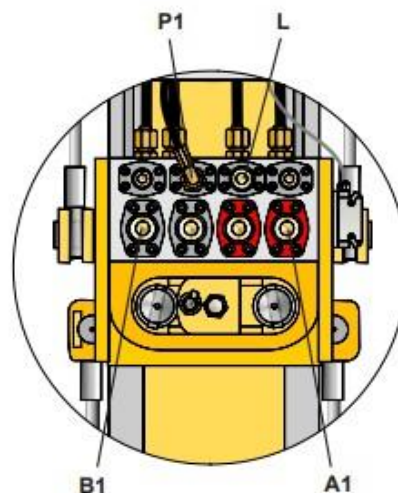
- Mount adapter carriage at rapid changing device or at docking-system of the ABI MOBILRAM-System (see chap. Mounting and removal of attachments).
- Clean diesel pile hammer and check complete condition.
- Check screwed connections.
- check hydraulic system for oil leakage (esp. pressure container, hydraulic cylinder, hydraulic hoses and fittings), eliminate if necessary.
- Check wear and tear parts (esp. pile cap), exchange if necessary.
- Secure loose objects.
- Observe maintenance intervals.
- Slew auxiliary winch to side before working with the diesel pile hammer - danger of damaging the auxiliary winch and diesel pile hammer.
- For comissioning two persons are needed - one operator and one spotter.
- Collect remaining oil in the fittings and dispose as prescribed - danger of environmental pollution.
- Pressure is reduced with ballvalves B. Both ballvalves has to be opened in hydraulic hammer mode, otherwise diesel pile hammer may be damaged.
- Hydraulic return line is led directly in hydraulic tank with ballvalve D. Ballvalve has to be opened in diesel pile hammer mode, otherwise diesel pile hammer is damaged by back pressure.
- Slew auxiliary winch to the side before starting the diesel pile hammer - danger of damaging the machine by ejected impact weight.

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ABI

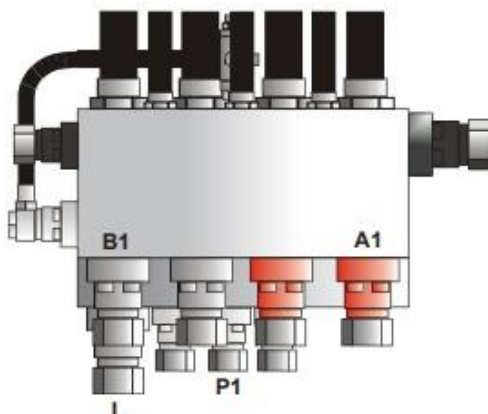
Commissioning the diesel pile hammer

- Position adapter carriage for mounting (see chapter 4.3.1).
- Mount adapter carriage at rapid changing device (see Operator's manual Telescopic leader mast, **Mounting and removal of attachments**).
- Mount diesel pile hammer at the adapter carriage (see chapter 4.3.1).
- Connect the hydraulic lines according to the specifications in the hydraulic connection scheme (**A1** and **B1**) to the rapid changing device. The pressure line are marked red.
- Connect locking cylinder of the hydraulic lines (diesel pile hammer) to the connections **L** and **P1** of the hydraulic block.
- Start **ABI MOBILRAM-System**.
- Slew **auxiliary winch** to the side (see Operator's manual **control panel**).
- Check Emergency stop device of **ABI MOBILRAM-System**.
- Check all functions without load - stop **ABI MOBILRAM-System** immediately by troubles
- Start diesel pile hammer.



Connection rapid changing device

- | | |
|-------------------|---------------------------------|
| A1, (A1.1) | Pressure line attachment |
| B1, (B1.1) | Return line attachment |
| P1 | Hydraulic starting device lock |
| L | Hydraulic starting device lock |



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Installation kit adapter carriage - diesel pile hammer

3.2 Control

The **ABI MOBILRAM**-System is operated and controlled from the driver's cab of the carrier unit.



Caution

The equipment must always be operated by two persons. One equipment operator who operates the control devices in the driver's cab and one slinger or spotter.



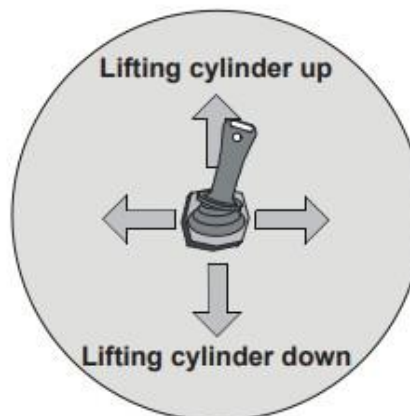
Notice

- Tripping devices see operators manual DELMAG diesel pile hammer.
- Elcan-Touch-Control see operators manual ABI Telescopic leader mast (chapter control panel).

3.2.1 Hydraulic starting device (option)

The hydraulic starting device consists of a lifting cylinder and a tripping device (locking cylinder). By means of the lifting cylinder the striking mass is driven into start position. The lifting cylinder is activated by moving the left control lever to the left or right. The control lever is in the middle position centered.

Left control lever



3.2.2 Locking cylinder of the hydraulic starting device (option)

By means of the locking cylinder of the hydraulic starting device (diesel pile hammer) the lifting cylinder is activated for starting.



Caution

Never activate locking cylinder while the process of pile driving - risk of damaging the hydraulic starting device (tripping device)!

Elcan-Touch control:

The locking cylinder of the hydraulic starting device is activated by the **button locking cylinder into the diesel pile hammer mode at the ABI touch-screen** (see Operator's manual control panel).

Elcan-Touch-control Locking cylinder of hydraulic starting device	
Button locking cylinder into the diesel pile hammer mode (press and hold)	Locking cylinder extends
Button locking cylinder into the diesel pile hammer mode (stop pressing)	Locking cylinder retracts automatically

Litron control:

The locking cylinder of the hydraulic starting device is activated by the **switch clamping cylinder at the ABI control panel**.

Litron - control Locking cylinder of hydraulic starting device	
Switch - open clamping cylinder	Locking cylinder extends
Neutral position	Locking cylinder retracts automatically

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16.7 **The Emergency Lowering Procedures for site MEWPS.**

- 16.7.1 During the sheet pile installation process, the utilization of a MEWP may be required to allow safe working at height - if required - SPUK have allowed for all sheet piles to be driven to within 1800mm of platform level in the first driving phase – if piles reach practical refusal above this height, then a MEWP will be required – this will be instructed by the client.
- 16.7.2 Each MEWP will be utilized in line with the manufacture's guidance and the instruction, information, and training of the individual.
- 16.7.3 Only suitably and sufficiently IPAF trained operators will be permitted to utilize MEWPS on the site.
- 16.7.4 A daily pre-use check will be carried out by the operator and recorded, and a copy provided to the Client.
- 16.7.5 During its use should the MEWP controls fail, SPUK will adopt the emergency lowering procedure from the manufacturer list detailed below.
- 16.7.6 This is to be read in conjunction with the manufacturers guidelines and emergency lowering procedure below.
- 16.7.7 The guidance on emergency rescue from IPAF is also enclosed and should be adhered if the emergency lowering is not possible.
- 16.7.8 If SPUK MEWP operatives are not familiar with the machine's specifics for emergency decent, the familiarization training will be provided by the hire company.
- 16.7.9 The emergency decent procedure for the MEWP will be demonstrated to the SPUK operative by the hire company, prior to commencement of works.
- 16.7.10 Further checks of the emergency procedure will be carried out weekly.

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Emergency Lowering Instructions

JLG Diesel Boom Lifts

Machine Range: All derivatives of 450, 600, 660, 800, 1200, 1250 and 1350



If there is a machine breakdown or if the operator becomes incapacitated it may be necessary to perform an emergency rescue from the ground. Emergency rescues must be rehearsed routinely.



Warning

While every effort is made to ensure that the information provided is accurate and up to date, we are not able to guarantee the completeness and accuracy of these instructions and you should therefore not rely on them. Nationwide Platforms Ltd accepts no liability for reliance on the contents of this information sheet which has been produced as additional GUIDANCE ONLY and is not intended to replace the manufacturer's manual. You should refer to the manufacturer's manual.

You should not operate this Mobile Elevating Work Platform (MEWP) unless you are suitably trained and fully familiarised with its operation and the emergency procedures set out in the manufacturer's manual. Operating plant necessarily involves risk of injury to the person.



Before starting work consider the following:

- Will there be a second person in the vicinity of the machine to undertake a rescue if required?
- Have both the operator and rescuer been familiarised with the ground controls?
- Can the rescuer gain access to the ground controls? i.e. Ensure that the machine is not parked with the ground controls facing a wall or similar obstruction.
- Is the key in the ground control to allow the rescuer to switch power from basket to ground controls?



Before attempting to operate any boom functions:

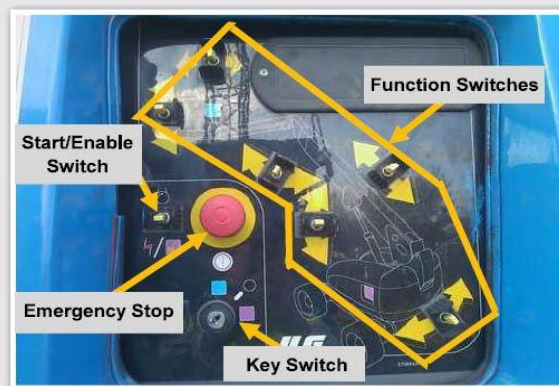
- It is imperative that an inspection be carried out to ensure the lowering of the platform is not hindered by obstructions such as steel work, pipes, cables, etc.
- If the operator in the cage has been incapacitated ensure they will not be put in additional danger by operation of the platform. Remember that completing a rescue in 4-6 minutes may be critical.
- If unsure seek help (it may be necessary to carry out a mid air rescue).
- Carefully plan each action before starting to lower the platform.

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If there are no obstructions and the engine is functional:

In order of preference, always attempt C before attempting D

- 1 Check for any obstructions.
- 2 Switch the Key Switch fully clockwise to "base" position, as marked by the purple square.
- 3 Pull out or twist the Emergency Stop.
- 4 Start the engine by operating and holding the Start/Enable Switch in upwards position.
- 5 Once engine starts operate and hold Start/Enable Switch in downwards position.
- 6 Operate and hold desired boom function switch (an alarm should sound to indicate boom is being lowered).



Base control panel JLG

(Panels may vary slightly in appearance depending on year and model but all have the same functions)


In the case of engine failure, obstructions or trapped operator:

In the case where the boom cannot be directly lowered or if the operator is trapped, it is necessary to use the Auxiliary Power Function until the boom is clear. This will give the rescuer more precise control of each function. Once all obstructions have been cleared normal operation of the boom using the engine should be resumed

- 1 Check for any obstructions.
- 2 If the engine is still running push the Emergency Stop Switch in to switch the machine off.
- 3 Switch the Key Switch fully clockwise to "base" position, as marked by the purple square.
- 4 Pull out or twist the Emergency Stop.
- 5 Operate and hold the Start/Enable Switch in the downwards position while simultaneously operating and holding the required Boom Function Switch (an alarm should sound to indicate boom is being lowered).
- 6 Once the boom is clear of obstructions start the engine by moving the start/enable switch to the upwards position.
- 7 Operate and hold start/enable switch to downwards position.
- 8 Operate and hold desired boom function switch (an alarm should sound to indicate boom is being lowered).


Technical advice and training courses:

If the controls do not function or you are unsure of their operation please call our Technical Support team on 0845 745 0000 option 3.

As the UK's largest training provider in our industry, we have a range of courses to help you and your operators to work efficiently and safely at height.

Contact us for full details of courses and dates.

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16.8 Flame Cutting and General Welding

16.8.1 Flame cutting will be carried out by the operatives who are trained and authorized as competent.

16.8.2 A 'Hot Works' permit should be issued by **Kirkland Developments** before starting work.

16.8.3 Where mobile platform (MEWP) is to be used, ensure that **Kirkland Developments** has prepared the working platform to the correct standard prior to commencing work.

16.8.4 The following indicative procedure should be adopted:

- In the immediate work area, and behind the steel work to be cut (or worked on), ensure that the area is cleared of all loose combustible material.
- Cover other combustible material with sand or other non-combustible material e.g., a fire blanket.
- Examine equipment for damage and leaks.
- Make sure flash back arrestors are fitted.
- Use correct nozzle for the type of gas and work being done.
- Have two fire extinguishers at the immediate work area.
- Wear the correct PPE including goggles and gloves, cover skin.
- Wear the correct RPE minimum of FFP3 EN149
- Keep cylinders secure and upright.
- Cylinders to be stored in bottle cages.
- Do not work in poorly ventilated areas.
- Use scaffold towers or podium steps when the cut off level is between 1.0m and 2.0m from ground level.
- Use a scissor lift/telescopic boom when cut off level exceeds 2.0m from ground level.
- Use welding screens where other workers or third parties may be susceptible to 'Flash'.
- Ensure welding leads and earth clamps are in good condition. Always check before use.
- Drip trays should be placed under welding sets.
- A fire safety check of the work area must be carried out approximately 30 minutes after the completion of each period of work. Immediate steps must be taken to extinguish any smoldering material or flames discovered.

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16.9 Minimum PPE requirements



Minimum PPE Requirements When Working On site For SPUK



Note: On some sites the PPE will be site specific such as Chapter 8 Overalls on the Highways, Chin Strap Hard Hats and pop seams Hi Viz on Rail - Check with your line manager to ensure you have the correct PPE for the site you are working on

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SHEET PILING (UK) LTD
Minimum PPE Requirements When Welding On site For SPUK


Note: On some sites the PPE will be site specific such as Chapter 8 Overalls on the Highways, Chin Strap Hard Hats and pop seams Hi Viz on Rail - Check with your line manager to ensure you have the correct PPE for the site you are working on

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SHEET PILING (UK) LTD
Minimum PPE Requirements When Flame Cutting On site For SPUK


Note: On some sites the PPE will be site specific such as Chapter 8 Overalls on the Highways, Chin Strap Hard Hats and pop seams Hi Viz on Rail - Check with your line manager to ensure you have the correct PPE for the site you are working on

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17. Attendance to be provided by Kirkland Developments

- 17.1 Protection of services above and below ground
- 17.2 Protection of existing hard standing areas, carriageways, footpaths etc to allow access to and from site including throughout site.
- 17.3 Provision, testing and construction of the working platform for the Plant specified above to meet advised Ground Bearing Pressures.
- 17.4 General site lighting/Safety Lighting. To ensure the site is suitably and adequately lit during the works.
- 17.5 Water supply to working area(s).
- 17.6 All setting out and levelling, including checking of installed piles.
- 17.7 Welfare facilities including Toilets and Washing Facilities, Mess Facilities and Drying Rooms.
- 17.8 Pre-trenching of pile line to remove any obstructions if deemed necessary.
- 17.9 In the event of any obstructions being encountered during pile installation an attendant excavator shall be made available to remove the said obstruction and re-in state and compact piling platform. The piling platform may require re-testing/certifying if it has been disturbed.
- 17.10 Noise and vibration monitoring are the responsibility of **Kirkland Developments** as and when deemed necessary.
- 17.11 Dewatering of lead trenches and any groundwater on site to ensure safe pile installation.
- 17.12 Traffic Management, all TM associated with entering site to be provided by **Kirkland Developments**. SPUK to manage all delivery vehicles etc within the site boundary.

18. Site Specific Risk Assessments

- 18.1 All risk assessments have been undertaken for all SPUK activities associated with this project and are included in addition to this Method Statement.

19. Health & Safety Management

- 19.1 Prior to SPUK operations commencing all SPUK personnel are to attend the site-specific safety induction.
- 19.2 The Contracts Manager/Supervisor will carry out a Method Statement/Lift Plan briefing to all personnel carrying out works on the site on the day the work commences and whenever new personnel arrive on site. All Persons involved in the Works Must sign the Method Statement to accept and confirm they fully understand the Content, Hazards, Risks and Control Measures contained.
- 19.3 SPUK will ensure that all persons carrying out specific tasks are deemed competent and have the relevant qualifications and appropriate licenses FPS/CPCS/CSCS/PASMA/IPAF cards for the specific Plant or Equipment and duties performed. All operatives are experienced in this type of work and have received training to perform their duties safely.
- 19.4 All plant and equipment will comply with PUWER 1998 and LOLER 1998 (where relevant).

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19.5 On SPUK plant:

- Cab steps and handles are painted high visibility yellow ensuring 3 points of contact is always achievable when accessing & egressing the cab (Use manufacturers steps and handles)
- Safe access for refueling, maintenance and to any place where accessories are stored.
- Where access is required at height; suitable handrails must be fitted.

- 19.6 Specifically for crawler cranes: Handrails must be fitted to running boards and crane upper structure.
- 19.7 Any routine maintenance, re-fueling and potential repairs are all accessed using the manufactured access points, podium steps or a MEWP.
- 19.8 All Plant must be banked by a competent slinger signaller/banksman on the ground, this includes MEWP's.
- 19.9 Relevant test certificates will be available including Sheet Piling UK Ltd plant inspection forms – **SPUK Supervisor is to carry out LOLER and PUWER checks prior to EACH use of any equipment or lifting accessories.**
- 19.10 All lifting equipment is inspected on a six-monthly basis and colour coded. Details of the colour coding procedure are always available on site. – **SPUK Supervisor is to carry out LOLER and PUWER visual checks prior to equipment being used**
- 19.11 All SPUK staff will wear mandatory PPE in accordance with Site Requirements. Additional PPE will be available free of charge and be worn by SPUK staff in accordance with the requirements of Risk, COSHH and Noise assessments.
- 19.12 COSHH Assessments are available for those hazardous substances taken to site. All Sheet Piling UK Ltd personnel will be informed and instructed as to the precautions necessary when handling these substances.
- 19.13 The sheet piling equipment used has been monitored on construction sites. Hearing Protection will be worn where Risk Assessment highlights additional control measures are required such as anything above the Upper Exposure Level 85 dB (A-weighted); Hearing protection is MANDATORY for all operatives on site, all operatives are issued Peltor Optime 3 SNR36 hearing protection. In addition, a 20m exclusion zone is established whereby any other person wishing to enter the immediate site must be wearing the correct hearing protection.
- 19.14 The Client is responsible for establish Safe access to Work areas and Traffic Movements. SPUK will follow all Site rules at all times.
- 19.15 The Piling Platform will be designed, established, and maintained by the Client. SPUK will NOT commence works until a suitable Certificate of Handover for the Piling Platform has been issued by the Client.
- 19.16 SPUK will report ALL defects associated with the Piling Platform to site management, so that any remedial works and maintenance can be undertaken.
- 19.17 SPUK will undertake periodic Site Safety Inspections/Audits and will be available to accompany Joint inspections as required.
- 19.18 SPUK will have utilize the following PPE, Overalls – EN ISO 11612, Hard Hats – BS EN 397, Boots – EN ISO 20345, Burning / Welding Gloves – EN 12477, Handling Gloves – CE CAT 1 and EN 388 Suitable eye protection when cutting and welding. Suitable RPE (FFP3 Minimum) when welding duration is under 1 hour, and flame cutting, when welding duration is over 1 hour air fed RPE must be worn in accordance with the Risk Assessments
- 19.19 There will be no manual handling of plant and equipment, all lifting will be carried out by the attendant Crawler Crane in accordance with the Lift Plan.

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- 19.20 SPUK Supervisors are issued a tablet to allow progress/safety/statutory information to be recorded digitally on the PIM mobile app.
- 19.21 All SPUK operators have access to Check Proof App which is where all plant/equipment & vehicle daily/weekly checks will be made, and deviations recorded.
- 19.22 QR Codes are available on all SPUK plant, containers & equipment which will take you to the digital documents relevant to that piece of plant/equipment/container, the mandatory documents available will be Operators Manual, Self-Familiarization Document, Report of Thorough Inspection, LOLER Certification.
- 19.23 Actual length of installed pile to be sprayed within the top meter of the pile to allow extraction team to know exactly what length has been installed.

20. Maintenance & Repair of Plant & Equipment

- 20.1 In the event of plant or equipment requiring maintenance or repair, access will be made via the manufacturers access points, podium step or MEWP. If there is any need for hot works this will be done under a permit to work issued by the client, the RAMS submitted and approved for the project will be followed to cover the hot work that needs to be undertaken, if the risk assessments are insufficient a Dynamic Risk Assessment will be completed, recorded and the work planned before being undertaken.

21. Practical Refusal & Rebound

21.1 Percussive & Vibratory Practical refusal:

Practical Refusal for installation equipment shall be defined as when the head of the pile starts to deform or when the rate of driving exceeds the following limits for a continuous period of 5 minutes:

- (a). Percussive Hammers - greater than 12 blows per 25mm of pile penetration
- (b). Vibratory Hammers – less than 100mm of penetration per minute

21.2 Silent Pile Press Practical Refusal:

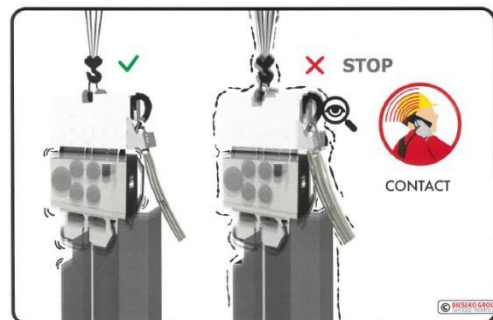
Practical refusal for pile installation or extraction using the Silent Pile Press shall be deemed to have occurred solely when the SPUK operator considers that no further discernible progress can be made and/or the pile press is being worked at the manufacturer's recommended maximum power rating and/or a duration of 30 minutes is exceeded for an individual pile based on a continuous operation.

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21.3 Rebound:

Rebound occurs when a large portion of the vibrators energy is 'bounced' back into the pile as a result of force reflection at the pile. The rebound forces will be transferred back into the vibrator and the suspension head, as a result of which the head (Yoke) will start 'jumping' relative to the vibratory case.)

If rebound occurs, driving must be stopped immediately, or the vibrator be retracted. Failure to do so, will cause the gearbox to fail.



21.4 Practical Refusal Extraction:

Practical refusal for extraction equipment shall be defined as when the head of the pile starts to deform or when the rate of extraction is less than 100mm of residual movement of the pile after 5 minutes initial effort and thereafter a rate of pile withdraw of less than 100mm per minute. Any such pile will be deemed to have practically refused.

22. Tolerances

22.1 Except where deflected by obstructions or by ground conditions, we shall endeavor to drive the piles to within: -

- 75mm of the plan position at the commencing level
- 50mm of the level specified.
- 1 in 75 of vertical position measured over the top 1m of the pile.
- 1 in 25 of the designed rake for raking piles.

Any sheet pile wall layout will be a 'best fit' solution to suit full pile widths and available corner profiles. Overall plan lengths will also vary due to pile rolling tolerances (+/-2% on single pile width) and installation tolerances.

We do not accept any liability for any consequential costs associated with the 'best fit' layout installed on site. Should a precise layout be required, then any additional cost incurred with complying to this requirement will be chargeable.

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23. Addendum

- 23.1 Any addendum or changes to the original proposed method of work must be entered into the addendum table below, with full details of any updated or changed method of works. Any changes must be signed off by the author and a copy issued to **Kirkland Developments**.

Description of Change	Revision Nr	Written by	Date

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24. Record of Briefing

- 24.1 All personnel, involved with this work activity must be briefed, by the Contracts Manager/Supervisor or Piling Foreman about the method of work to be implemented, the potential risks involved and the control measures to eliminate and or reduce those risks.
- 24.2 All personnel that operate plant and equipment understand that signing the below record of briefing is qualification that they have read and understood the self-familiarization document behind the QR Code relevant to the plant/equipment that they are operating.
- 24.3 All personnel to sign below to confirm the Method Statement & Risk Assessment Briefing has taken place and the method of work is understood. If the method of work is revised a further Method Statement Briefing must be carried out.

Name	Occupation	Signature	Date

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Dynamic Risk Assessments:

How to carry out a dynamic risk assessment.

Carrying out a dynamic risk assessment is a practice all operatives should be encouraged to perform. In essence, performing a dynamic risk assessment is the practice of conducting an on-the-spot risk assessment that responds to developing situations outside the current RAMS.

To carry out a dynamic risk assessment, an individual should:

Identify the risk. The supervisor or operative should first be able to spot and acknowledge a source of risk not covered in the current active paperwork. This might be a piece of equipment being found faulty, changes in weather conditions, changes in ground conditions or something as simple as having the right lifting accessories. Identifying risk dynamically is extremely important - workers should be attuned to the situation and be able to identify risk as it occurs.

Assess the risk. Workers should then measure the risk of the hazard that falls outside the current risk assessments. Is the risk large enough to merit further consideration or immediate action? What is the likelihood of the risk happening? What is the severity of the risk should something happen that wasn't planned?

Consider the tools they have to mitigate the risk. Can a worker safely continue with a task, and do they have the controls or tools they need to prevent or minimize risk?

Consider whether it is safe to proceed and either take the necessary steps to make a task safe or delay the task until it can be made safe, liaising with managers, supervisors, and colleagues if possible.

If the dynamic risk assessment carried out has found risk, and you have the means necessary to reduce that risk to safe levels, you should do so. This might mean calling a member of the management team or other supervisors for guidance and requesting additional equipment.

One of the other purposes of a dynamic risk assessment is to highlight if a situation is too dangerous to proceed and allow operational operatives to make an informed judgement call. This might mean standing down or delaying work until safe equipment is sourced.

Remember that even if working conditions have been assessed for risk prior to the work being carried out, this might not be enough to protect operatives in dynamic, changing conditions. A dynamic risk assessment allows supervisors and operatives to react to developing situations that are not detailed in the current RAMS and work safely at all times.

Dynamic risk assessments conducted by employees need to be recorded so any findings or insights discovered as a result of a dynamic risk assessment can be communicated back to the team and other operative. The lessons learned from a dynamic risk assessment can be used for regular, recorded risk assessments and to develop up to date procedures and policy.

Every incident and risk assessment is an opportunity to learn and improve: dynamic risk assessments are an extension of this

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Site:			Location:			Ref:	C	
Description of Work:								
Persons Affected			Yes	No	Hazard Type		Yes	No
Employees					Physical Injury			
Other Workers					Health Hazard (e.g. Harmful Substance)			
Public					Biological (e.g. Leptospirosis)			
					Natural (e.g. Weather)			
Comments:								
Hazard Category (x) as Appropriate				Hazard Effects/Causes (x) as Appropriate				
Contact With				A	Fire		R	Poor Visibility
1	Moving Machinery/Plant			B	Explosion		S	Manual Handling
2	Moving Materials			C	Burns		T	Lone working
3	Moving Vehicles			D	Falls from Height		U	Remote Working
4	Fixed Machinery			E	Slips, Trips & Falls		V	Confined Spaces
Electrical				F	Pressurised Systems		W	Restricted Access
5	Shock			G	Vibration		X	Crush/Trapping
6	Burns			H	Noise		Y	Unstable Ground
7	Explosion			I	Inhalation		Z	Unstable Plant
Radiation				J	Absorption		A1	Sharp Objects
8	Ultraviolet			K	Skin contact		B1	Acts of Violence
9	Ionising			L	Vermis		C1	Power Tools
10	Lasers			M	Particles		D1	Drowning
Working on/near water				N	Heat		E1	
11	River/Canal/Lake/Pond			O	Cold		F1	
12	Fast Flowing			P	Wet		G1	
13	Tidal			Q	Winds		H1	
Comments:								
Ref	Control	In Place (✓)/(x)	Ref	Control	In Place (✓)/(x)	Ref	Control	In Place (✓)/(x)
A	Trained Operative		J	Method Statement		S	Security	
B	Guards		K	Permit System		T	Communication	
C	PPE		L	Information		U		
D	Barriers		M	Instructions		V		
E	Fencing		N	Supervision		W		
F	Signage		O	Lighting		X		
G	Test Cert		P	Housekeeping		Y		
H	Maintenance		Q	Welfare		Z		
I	Procedures		R	Rollover Protection		A1		
Ref	Any Other Specific Controls Measures Required/Comments							In Place (✓)/(x)
Actions Register								
Ref	Actions Required					Date Implemented		Initial
RISK EVALUATION								
BEFORE CONTROL MEASURES IN PLACE (✓)					AFTER CONTROL MEASURES IN PLACE (✓)			
HIGH	MEDIUM	LOW	HIGH	MEDIUM	LOW	HIGH	MEDIUM	LOW
Assessed By			Date	Approved By			Date	Review Period
Print Signature				Print Signature				

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25. Appendix A -Vibration assessment and monitoring.

Due to the close proximity of a network rail asset, a vibration assessment and monitoring regime will need to be in place to ensure any all risks are assessed and mitigated accordingly.

The method statement is to be read in conjunction with the accompanying documents.

- (i) 2664.DWG.001 - Vine Street, Manchester - Monitoring GA & Specification Drawing- Rev. 0 - 17 06 25.
- (ii) 2664 - Vine Street, Manchester - Vibration Assessment and Monitoring Report - Rev. 0 - 17 06 25.

All monitoring on the project is the responsibility of Kirkland Developments, however, SPUK will assist where possible.

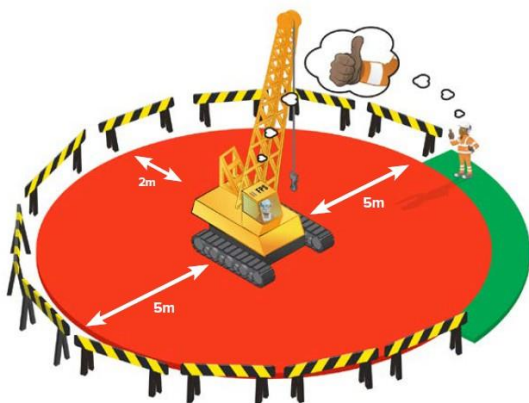
25.1 Sequence of Works

- 25.1.1 Mobilization of piling plant & equipment and site-specific inductions.
- 25.1.2 Commission ABI TM20 LR Leader rig on certified piling platform c/w vibro-hammer.
- 25.1.3 Commence installation of approx. 165Lm of sheet piles to design level or practical refusal (whichever occurs first).
- 25.1.4 Upon completion of sheet pile installation, decommission leader rig and demobilize piling plant & equipment from site.

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26. Appendix D. Red Zone Information.

CRAWLER CRANE RESTRICTED ZONE



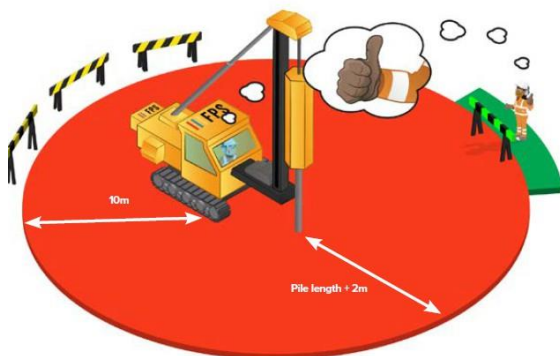
Red Zone: The crane operator must ensure the crane is in a safe condition before an Authorised Person can enter the Red Zone. The Red Zone includes all areas below the hook and the mast during lifting activities which may extend past 10m.



Green Zone: Slinger/signaller must be within the line of sight to the operator during lifting operations. Give the 'Thumbs up' recognition to the crane operator and receive a positive 'Thumbs up' response before entering the Red Zone. Ideally the load should be grounded before entering Red Zone.

Note: Under no circumstances should anyone stand below a raised load during lifting operations. Barriers are only required when the crane is static and not tracking. A minimum distance of 2m must be established at all times behind the counterweight.

DRIVEN PILING RIGS /VCC/DCIS RESTRICTED ZONE

5


Red Zone: The Rig Operator must ensure the rig is placed in a safe condition before an Authorised Person enters the Red Zone. The operator must give a 'Thumbs up' to the Authorised Person wanting access confirming it is safe to enter before they enter the Red Zone.



Green Zone: Rig Operators sight line (safe approach), optimum Rig Attendant position.

Note: People entering the Red Zone must be aware of and consider loads being lifted by the rig and the increased risk of falling objects and plant movements from other plant such as excavators and dumper trucks.

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MEWP (BOOM) RESTRICTED ZONE



Red Zone: Keep out of this area at all times. Except in emergency situations.



Green Zone: Always signal a 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone.

360° EXCAVATOR (TRACKED OR WHEELED) RESTRICTED ZONE

12


Red Zone: To be determined by the boom length and slew radius. No personnel to enter area unless the attachment is on the ground and the machine is placed in a safe condition.



Green Zone: Safe area - Plant Operators line of sight. Always signal 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone.

Note: The slew radius of the machine will vary dependant on the machine type and size.

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LORRY MOUNTED CRANE (HIAB) RESTRICTED ZONE



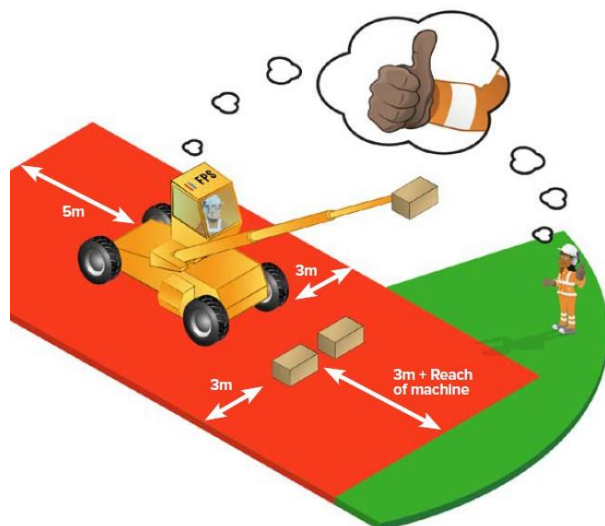
Red Zone: Keep out of this area at all times. Authorised Person (slinger/signaller) only. This zone should be determined by the working radius of the lorry mounted crane plus 2m (factor load size - ie piling cages length).

Green Zone: Always signal 'Thumbs up' to the Plant Operator and receive a positive 'Thumbs up' response before entering Red Zone. The Red Zone is determined by the operators position (some may have remotes).

Note: Red & Green Zone illustrated may differ depending which side the load is being lifted.

Do not walk beneath elevated loads.

TELEHANDLER RESTRICTED ZONE



Red Zone: Keep out of this area at all times. 3m + reach of machine to front, 3m to each side, 5m to rear. No personnel to enter area unless the attachment is on the ground and the machine is placed in a safe condition.

Green Zone: Vehicle Marshaller must be within the line of sight of the Plant Operator at all times and give 'Thumbs up' recognition before entering Red Zone.

Note: Under no circumstances should anybody stand below a raised boom or raised load. Where outriggers are fitted they should be lowered before lifting loads. Refer to the duty charts in the cab.

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27. Appendix B. Guidance on Piling Platform Requirements

To be read in conjunction with [SPUK Tracked Plant Technical Specifications Brochure](#).

27.1 General Introduction

- 27.1.1 This information is intended for use by designers and engineers considering the piling platform requirements for a project utilizing Sheet Piling (UK) Ltd equipment and it only applies to ground supported working platforms for tracked plant construction on granular material.
- 27.1.2 The information is based upon details supplied by the plant manufacturers and Sheet Piling (UK) Ltd own experiences of the plant performance.
- 27.1.3 To produce the bearing pressures an analysis has been conducted in accordance with the agreed procedures of the FPS and cover the typical working envelope within which piling plant is operated. Further analysis should be undertaken when operating equipment outside of this envelope and when the situation requires different loads or constraints from those noted within [SPUK Tracked Plant Technical Specifications Brochure](#).
- 27.1.4 A piling platform designer should consider any imposed loading by other plant, the ground conditions, the effects of weather, platform deterioration with time, soft spots, and the platform maintenance regime.
- 27.1.5 In accordance with the BRE guidance document (published June 2004) on Design, Installation and Maintenance of Working Platforms the loads for each rig have been analyzed and are presented for the two load cases of Case 1 and Case 2.
- 27.1.6 Case 1 loading applies to the situation when the rig or crane operator is unlikely to be able to aid recovery from an imminent platform failure.
- 27.1.7 Operations in which this type of loading condition applies could include standing, travelling, and handling.
- 27.1.8 Case 2 loading applies to the situation when the rig or crane operator can control the load safely, for example by releasing the line load, or by reducing power, to aid recovery from an imminent platform failure.
- 27.1.9 Operations in which this type of loading condition applies could include installing/extracting a sheet pile, and/or drilling/extracting an auger. Consequently, a lower factor of safety can be adopted for this loading case.
- 27.1.10 These operations include sheet pile installation, extraction and pre-augering (where applicable).

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27.2 Installation

- 27.2.1 The Sheet Piling (UK) Ltd Platform Certificate is mandatory for all sites where a piling rig or attendant plant operates. It must be signed by an authorized representative of the Principal Contractor. This merely confirms that the legal duties required under CDM have been carried out.
- 27.2.2 The working platform provides access for all piling plant, ancillary plant, deliveries, subcontractors, and personnel associated with the piling operations. Properly designed and installed, the working platform could also provide suitable and safe access for following trades for the whole project.
- 27.2.3 One of the main causes of rig instability is a result of poor definition of the edge of the working platform. In general, the working platform should be clearly defined relative to the proposed pile line to suit the method of installation and/or extraction. This ensures sufficient safe working area for the piling personnel and attendance plant.
- 27.2.4 Where access ramps are used to move between working levels these must be of sufficient gradient and width to allow the piling plant to move safely within the stability constraints of the machine. Ramps must be in a straight line between working areas. Piling rigs and cranes cannot change direction on ramps. Where a change in direction is required, this must be on a flat level platform.

27.3 Maintenance, Repair and Reinstatement

- 27.3.1 The working platform must be kept free draining. Water and arisings which are allowed to build up on the working platform can hide recently constructed piles, trip hazards, unstable ground, and excavations.
- 27.3.2 Obstructions encountered during the piling process will generally require excavation to remove them. This can create a 'soft spot' which can result in the rig overturning. It is essential that any excavations made in the working platform are reinstated to the designed standard, including any reinforcement and separation filter/membrane.
- 27.3.3 Inspection of the platform should be an ongoing process throughout the design life of the platform. Any damaged areas must be reinstated to the designed standard.

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PLANT LOADINGS

PILING RIG & CRAWLER CRANE BEARING PRESSURES

Plant Manufacturer & Model	Track Pad Width (m)	Track Bearing Length (m)	Working Weight (Te)	Max Crowd Force (kN)	Max Extraction Force (kN)	Case 1 Loading Standing or Travelling		Case 1 Loading Handling		Case 2 Loading Installation		Case 2 Loading Extraction [1]		Notes [2]
						Max Rectangular Bearing Pressure (kN/m²)	Equivalent Track Bearing Length (m)	Max Rectangular Bearing Pressure (kN/m²)	Equivalent Track Bearing Length (m)	Max Rectangular Bearing Pressure (kN/m²)	Equivalent Track Bearing Length (m)	Max Rectangular Bearing Pressure (kN/m²)	Equivalent Track Bearing Length (m)	
Sheet Piling Rigs														
ABI TM 20 LR Long Reach	0.90	4.40	84	180	180	260	2.38	N/A	N/A	199	2.36	315	1.87	Maximum Working Radius = 8.04m Maximum Crowd Force = 120kN Maximum Extraction Force = 120kN
ABI TM 20	0.90	4.50	74	200	235	194	2.64	N/A	N/A	218	1.48	371	1.51	Maximum Working Radius = 6.09m Maximum Crowd Force = 145kN Maximum Extraction Force = 185kN
ABI TM 18/22 HD	0.70	4.80	82	120	200	205	3.49	N/A	N/A	215	2.52	313	2.64	Maximum Working Radius = 5.70m Maximum Crowd Force = 120kN Maximum Extraction Force = 200kN
ABI TM 13/16 SL	0.60	3.85	50	90	175	200	3.08	N/A	N/A	204	2.32	291	2.30	Maximum Working Radius = 5.79m Maximum Crowd Force = 58kN Maximum Extraction Force = 109kN
ABI TM 12/15 LR Long Reach	0.70	4.51	62	90	100	194	2.77	N/A	N/A	121	3.56	320	1.70	Maximum Working Radius = 8.08m Maximum Crowd Force = 72kN Maximum Extraction Force = 80kN Handling of Sheet Pile is NOT Permitted
Bauer RTG 21T	0.70	4.42	78	140	260	343	2.23	N/A	N/A	222	2.91	372	1.85	Maximum Working Radius = 5.91m Maximum Crowd Force = 60kN Maximum Extraction Force = 20kN
Bauer RTG 19T	0.70	4.15	60	140	200	243	2.38	N/A	N/A	147	3.19	335	1.68	Maximum Working Radius = 5.29m Maximum Crowd Force = 60kN Maximum Extraction Force = 50kN
Kobelco SK380 SRLC Excavator Piling Rig	0.80	4.05	40	60	60	154	2.29	201	1.91	162	1.76	178	2.08	Maximum Working Radius = 8.0m Maximum Load = 5Te (Bundle Piles)
Kobelco SK350 LC Excavator Piling Rig	0.80	4.05	40	60	60	128	2.90	148	2.41	165	1.80	171	2.20	Maximum Working Radius = 8.0m Maximum Load = 5Te (Bundle Piles)
CAT 328D LCR Excavator Piling Rig	0.85	4.05	58	60	60	138	2.30	182	1.91	182	1.19	179	1.95	Maximum Working Radius = 8.0m Maximum Load = 5Te (Bundle Piles)
Crawler Cranes														
Sennebogen 673R	0.70	5.10	70	N/A	N/A	184	2.66	291	2.46	-	-	-	-	Maximum Radius / Maximum Load Minimum Radius / Maximum Load
Sennebogen 653E	0.70	4.40	50	N/A	N/A	94	3.82	241	1.92	-	-	-	-	Maximum Radius / Maximum Load Minimum Radius / Maximum Load
Sennebogen 643R	0.70	4.40	42	N/A	N/A	121	2.94	237	3.28	-	-	-	-	Maximum Radius / Maximum Load Minimum Radius / Maximum Load
Kobelco CKG900E	0.80	5.44	90	N/A	N/A	163	3.40	357	2.78	-	-	-	-	Maximum Radius / Maximum Load Minimum Radius / Maximum Load 3.5Te Hook Block / 3 Fall Duties 7/8 Length = 24.4m (Min) / 45.7m (Max)

Contract No:	E23181	Contract Name:	Vine Street, Manchester
Principal Contractor:	Kirkland Developments		
Doc No:	E23181-SPUK-MS-EJ-001	Revision P/C	Rev0
Prepared by:	Russell Fogg	Reviewed by:	Richard Greenwood
Document Title:	The vibratory installation of sheet piles using an ABI TM20 long reach telescopic leader rig to form permanent slope stabilization		

28. Appendix C. Example Working Platform Certificate.

WORKING PLATFORM CERTIFICATE

Project Name	
Work area covered by this certificate	

PART 1: WORKING PLATFORM DESIGN

Equipment to be used on site	
Maximum Plant Loading	

(Note: BR470 Working Platforms for Tracked Plant: Good practice guide to the design, installation, maintenance and report of ground supported platforms is available for HS BRE Press - Tel: 01344 328 038).

Designer Name		
Designer Organisation		
Contact Telephone		
Is Testing Specified?	No:	Yes: (give details)

PART 2: VERIFICATION BY PRINCIPAL CONTRACTOR

The working platform detailed above has been designed, installed to the design and, if specified, tested to safely support the equipment detailed in Part 1 above. The limits of the platform have been clearly identified on site as necessary.

This working platform will be **REGULARLY INSPECTED, MAINTAINED, MODIFIED, REPAIRED** and **REINSTATED** to the as-designed condition after any excavation or damage, throughout the period when the equipment is on the site. A completed copy of this certificate signed by an authorised person from the Principal Contractor shall be given to each user of the working platform prior to commencement of any works on site.

Name & Position		Date	
Organisation		Signature	

Sheet Piling (UK) Ltd are committed to develop this initiative and supports the principle of reducing accidents by the certification of properly designed prepared and maintained working platforms.