JRL CIVIL ENGINEERING LTD

Method Statement – CFA Piling

At

Victoria Riverside, Dantzic Street, Manchester

For

JRL

Doc Reference: T21001-SSOW#01					
Revision	Date	Description	By	Approved	Status
01	10.09.21	RA included (Watercourse contamination risk addressed)	ML	KMcQ	
00	09.09.21	First issue	ML	KMcQ	

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Company Registration No. 6928456

Safe System of Work Form SHE 4

To be completed when tasks involve multiple or complex activities that are not covered in their entirety by risk assessments and/or key procedures.

Note: This form is only valid when sections K and L are completed and signed by the manager responsible and all personnel involved.

Site/project name:	Victoria Riverside		**Project no:** T21001		
Address:	Dantzic Street, Manchester				
Company:	JRL Civil Engineering Ltd - 4 Elstree Borehamwood, WD6 1RN				
Client:	JRL				
Method Statement No.	SSOW#01		**Title:**	CFA Piling	
Operations manager:	Kevin McQuarrie				
Site supervisor:	TBC				
Prepared by:	M Love	**Signature:**		**Date:** 09.09.21	
Approved by:	K McQuarrie	**Signature:**		**Date:** 09.09.21	
Revision: 01	**Revised by:** M Love			**Revision Date:** 10.09.21	

A: *Brief description of work to be undertaken*

CFA Piling for Victoria Riverside development on Dantzic St	
Site Start date: 29th Nov 21	**Duration:** 5 weeks

B: Work equipment required for a safe working environment

Note: Include all equipment needed for a safe work environment, Do not include PPE – see section H.

CFA Hydraulic Piling Rig - Diesel/Hydraulic
Compressor - Diesel/Pneumatic
Concrete pump (CFA Piling) - Diesel/Hydraulic
Agitator – Diesel/Hydraulic
MEWP ("Cherry Picker") - Diesel/Hydraulic
Excavator - Diesel/Hydraulic
Dumper - Diesel/Hydraulic

COSHH (See Appendices)
Diesel
Hydraulic Oil
Grease
Prime-a-pump
Concrete

Safe System of Work Form SHE 4 (cont'd)

C: *Sequence of main job tasks* *(identifying the work equipment required for health and safety, method and associated safety controls)*

1. Scope of Works

The scope of works for JRL Civil Engineering (JCE) at Victoria Riverside in Manchester comprises of 155Nr 450, 600 and 750mm CFA Bearing Piles as shown below;

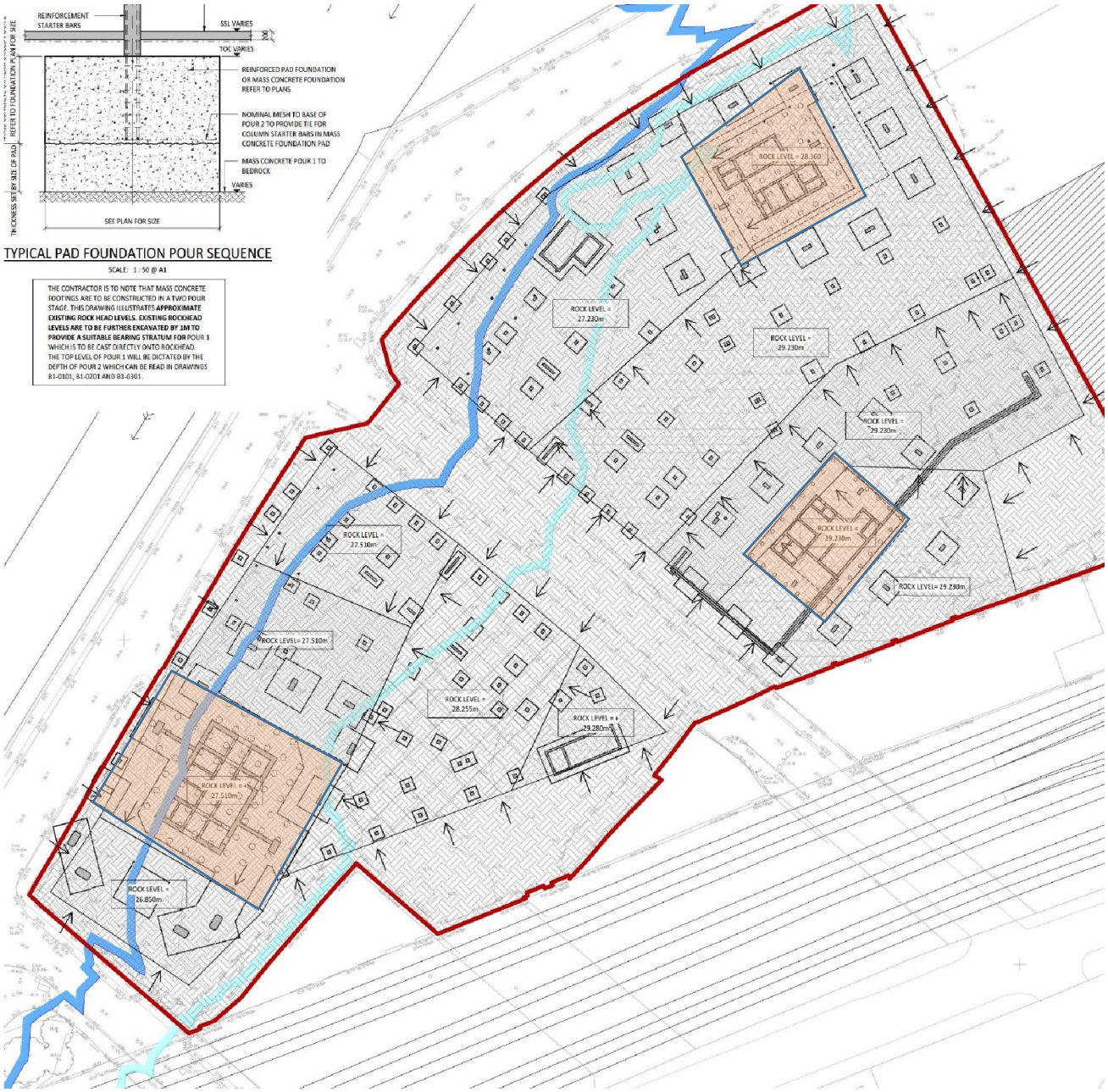


Figure 1: General site layout and piling areas highlighted

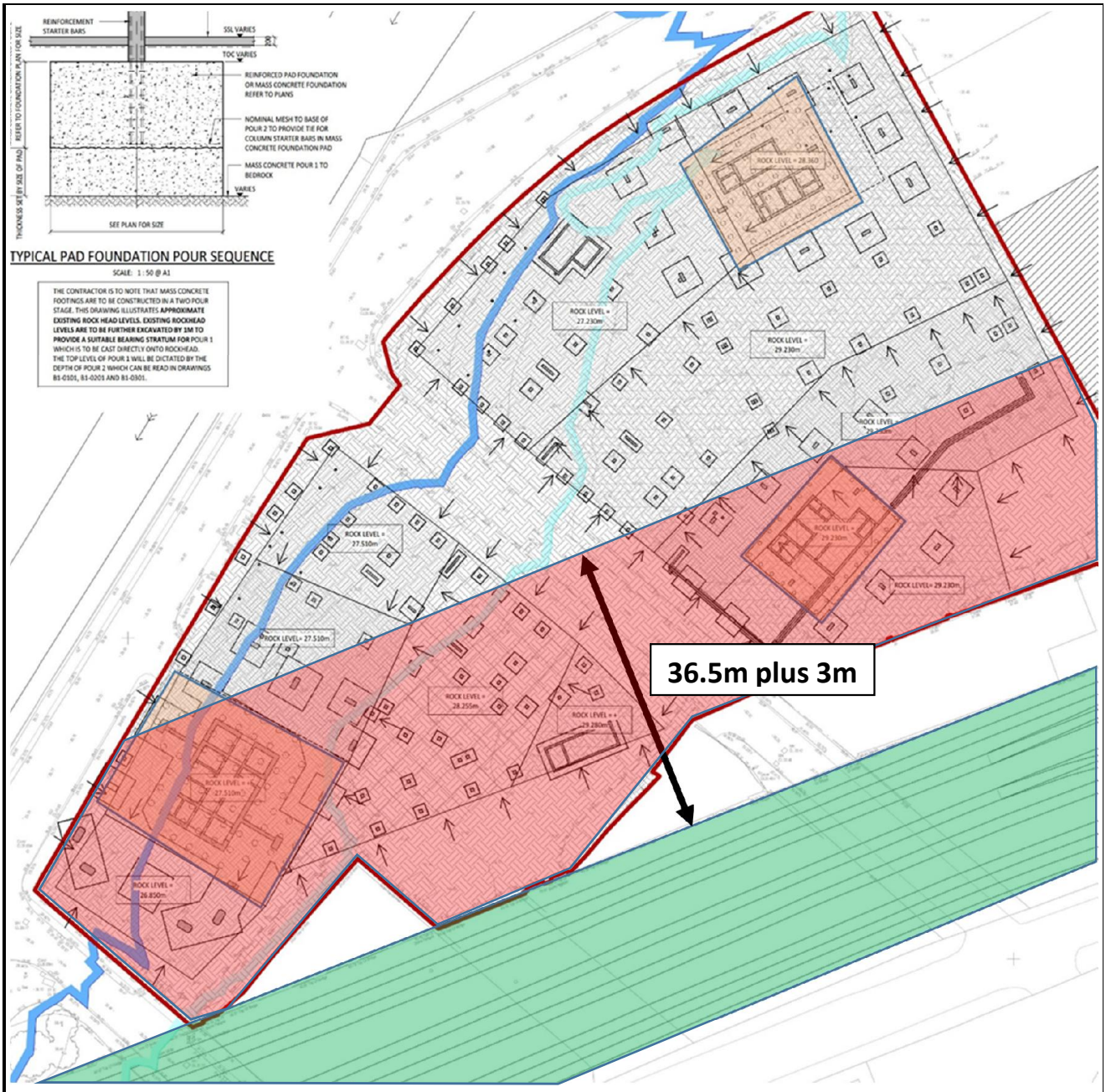


Figure 2: NR Affected Area

When working in the NwR (in green) affected area as highlighted in red in figure 2 the rig will work in accordance with Network Rail Standard NR/L3/INI/CP0063: “Piling adjacent to the running line” and the allowable rig positions as shown in section 3 of this document.

2. Programme

The mobilisation of all plant and equipment for Victoria Riverside is planned to commence on 29th Nov 2021. The mobilisation and setup of all plant and equipment will take approximately 2 days. Piling works is scheduled to commence on 1st Dec 2021. The duration for the piling works at Victoria Riverside is programmed to take 5 weeks including mobilisation and demobilisation of all plant and equipment.

3. Significant risk and controls

The following Network Rail related key risks have been identified for the piling works in close proximity to the network rail. Risk mitigations have been planned in line with Network Rail Standard NR/L3/INI/CP0063: "Piling adjacent to the running line".

1) Risk: Piling rig activity causing damage to Network Rail Asset
Controls: Due to the design pile positions and with reference to NR/L3/INI/CP0063: "Piling adjacent to the running line", the rig will sit more than 3m clear of the Network Rail tracks.
The NWR fence will provide physical separation between the train tracks and the piling area.
The piling supervisor will ensure that no lights are pointed at the railway track.
There is no risk of arcing or damage to HV cables. The site operation does not require any RRAPs as no works take place around the tracks.

2) Risk: Vibration, displacement or loosening of soil causing damage to Network Rail Asset
Controls: The chosen installation method for installation of the bearing piles in close proximity to Network Rail is CFA. This technique does not require use of vibrators. The auger remains in the pile and is only extracted as the concrete is pumped through the stem of the auger and therefore there is no risk of loosening of soil.

3) Risk: Operator/Workforce error causing damage to Network Rail Asset
Controls: All staff and labour will be competent and hold the required certifications to carry out their respective duties. All lifts will be planned by a competent Appointed Person who will brief the lifting team.

4) Risk: Piling platform failure causing rig to overturn on Network Rail Asset
Controls: In advance of the works, the ground bearing pressure calculations for the piling rig and attending crawler crane have been used by the designer to perform the design of the piling platform. JRL are responsible for the installation of the piling platform in line with the design. Before offloading of any tracked plant, JRL will issue to JCE a FPS Working Platform Certificate confirming suitability of the provided piling platform for the specific models of piling rig.
Subsequently, the JCE site supervisor will inspect the condition of the piling platform before each shift. Inspections will be recorded on the supervisor's daily reports. Any defects will be reported to JRL immediately and affected areas will not be loaded until the piling platform has been reinstated appropriately.
Plant operators will be instructed to keep spragging to a minimum in order to minimise disturbance of the piling platform. Freshly cast piles will be protected from machines tracking.

5) Risk: Equipment failure causing rig to overturn on Network Rail Asset
Controls: The piling rigs will be CE marked models which are each not older than 7 years. All rigs will be covered under a valid thorough examination certificate.
All lifting gear will be fitted with an individual ID number and a valid inspection tag. Valid inspection certificates will be available in the site office. All lifting gear will be visually inspected before use by the slinger/signaller.

When constructing the bearing piles, the rig will face the NWR asset during the digging operation, as shown in figure 3.

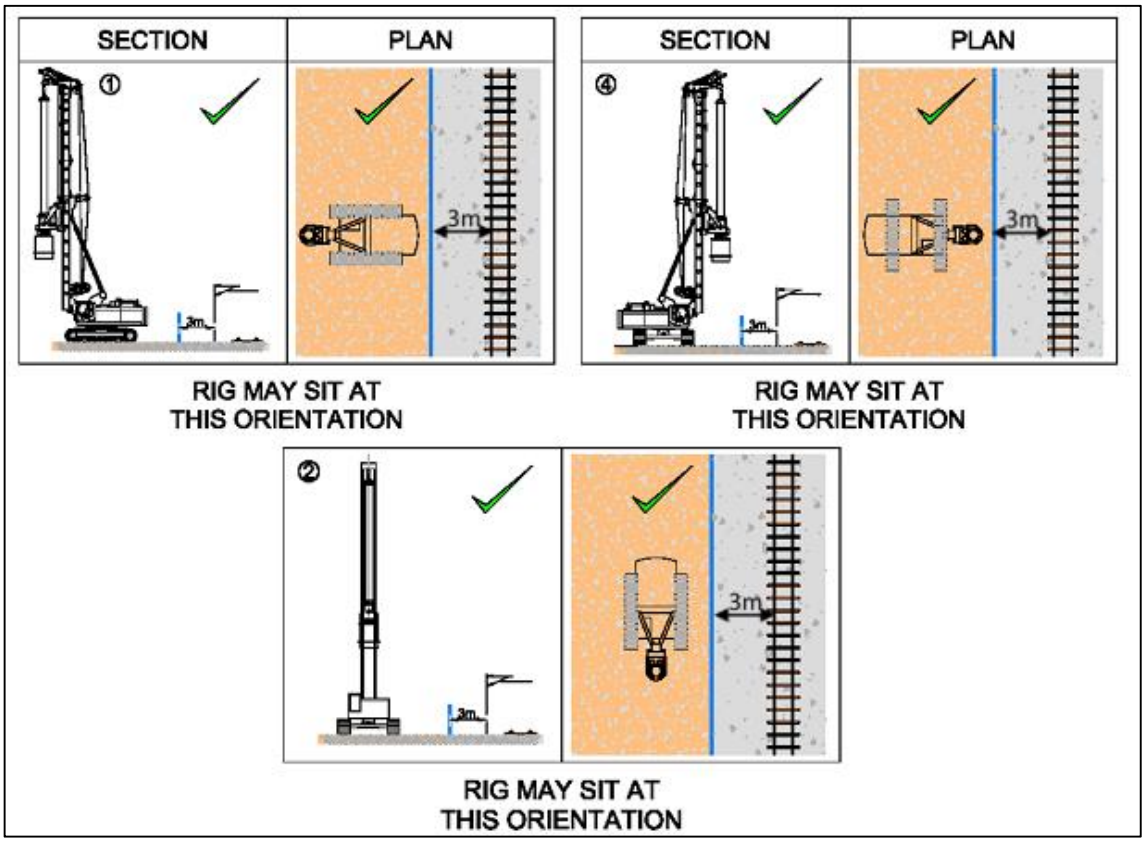


Figure 3: Allowable rig position when working close to network rail tracks

6) Risk: Lifted Loads over sailing site boundary causing damage to NwR assets or coming in contact with running trains

Controls: All lifting to be carried out within the site boundary and loads to be kept low to the ground where possible. Slinger will ensure that sufficient tag lines are used where practical to safely control position of the load during the lifting process.

4. Mobilisation to site

Prior to the mobilisation of any equipment, FPS Platform Certificate is to be issued to JCE by JRL in compliance to FPS requirement.

A low loader will deliver the piling rigs to site. The rig will be tracked off the low loader and track over to designated area. The rigging and derigging of the rig is covered by separate method statement. The remaining plant and equipment will be driven onto site using either 40ft articulated or 28ft flatbed rigid wagons.

All equipment will be off loaded from the wagons either into a designated compound area or its permanent position on site with the aid of hiab or excavator. Any designated compound area will be clearly demarcated from the piling platform.
All loads will be either pre-slung with strops to ground level or lifting points are accessible safely without risk of working at height (edge protection on lorries).

5. Plant and equipment

Machines to be switched off when left unattended and keys removed.

Piling rigs are not equipped with seat belts for safety reason in order-+ to allow operator to escape in case of emergency. The rig will only move under the direction of a banksman. Piling rigs are not equipped with beacons.

The following is the list of equipment mobilised to site to complete the piling works;

- CFA piling rig
- Concrete pump
- Concrete holding tank (agitator)
- Compressors
- MEWP (Used by fitter for accessing the mast during rigging of Piling rig)
- Jet wash
- Various length of 5'' concrete hoses
- Various ancillary CFA piling equipment
- Barriers for segregation purposes
- CFA stores container
- Excavator 20t
- Dumper

6. Construction of a CFA Pile

Prior to breaking ground, a permit to work and a permit to dig will be obtained.

Any CAT and Genny scan required are to be carried out by others prior to piling commencement. The permit to dig shall be produced in line with HSG47 'Avoiding danger from underground services' Any services identified shall be clearly marked at platform level.

The main sequences of work will be as follows:

- On site, the CFA piling plant is set up as shown in the sketch below. The hose will not be buried but crossover ramps will be in place for crossing of vehicles.

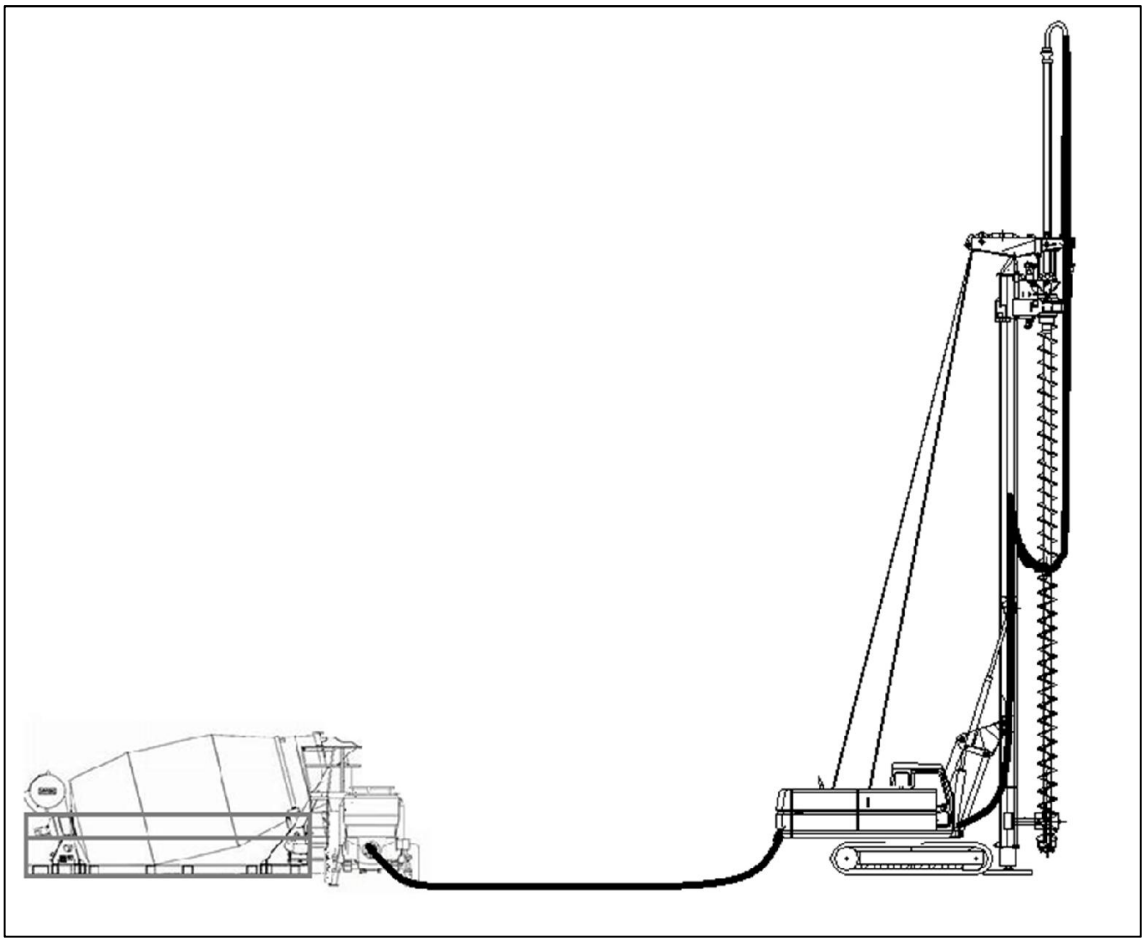


Figure 4: CFA Piling Set Up

1. For the first pile of the day, the concrete line will be lubricated with prima pump. Prima pump will be inserted at the pump and then pumped through the length of the line and the rig. Once the prima pump exits the rig through the boring head the pumping will stop.

2. The hollow stem at the base of the digging head is closed off using a steel flap or auger bung to prevent pile spoil entering the hollow stem.

3. The auger string is pitched centrally over the pile position (as marked with a setting out pin). The mast is plumbed to ensure verticality and the instrumentation package, including target overbreak, is set up.

4. The auger string is rotated in a clockwise direction down to the required depth, with both the rate of penetration and the hydraulic demand of the drilling motor observed.

5. Pile bore stability is maintained due to the spoil being compacted between the continuous flights. Some spoil will inevitably arise at the head of the pile (approximately equivalent to the volume of the auger flights and stem). Boring continues until the auger reaches the design depth.

6. Upon achieving the required depth, the auger string is withdrawn some 200-300mm, the piling rig operator will then signal the pump operator to commence pumping operations using previously agreed signals, concrete is then pumped to allow the opening of the flap or auger bung., the pile will be re-bored to full depth to clean the base prior to extraction.

7. Concrete is pumped through the hollow stem to the base of the auger and the pile is constructed as the auger is withdrawn at a controlled rate. As necessary, the auger string will be cleaned with the aid of a mechanical auger cleaner. Should the spoil not be fully removed from the auger, the excavator will be used to remove any debris that has passed the auger cleaner.

8. Once the auger tip reaches ground level the piling rig operator will signal the pump operator to stop pumping operations using previously agreed signals.

9. Once the pile is complete the banksman will instruct the rig operator to reverse away from the pile position using agreed signals and on to the next position.

10. The arising's will be completely removed from around the pile position by the attending excavator supplied by the client and the top of the concrete carefully cleaned off.

11. A rebar cage will be lifted by the excavator and installed into the freshly cast pile to design level. Should any steel protrude above platform level, it will be protected by mushroom caps or barriered off..

12. All freshly cast piles will be protected to prevent people falling into them.

Steps 1 to 12 will then be repeated.

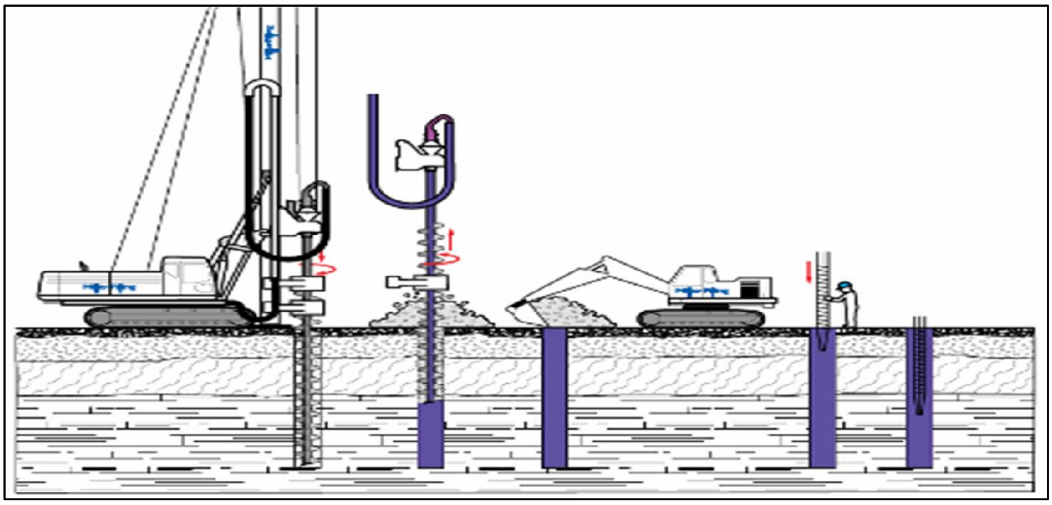


Figure 5: CFA Piling Process

8. Environmental considerations

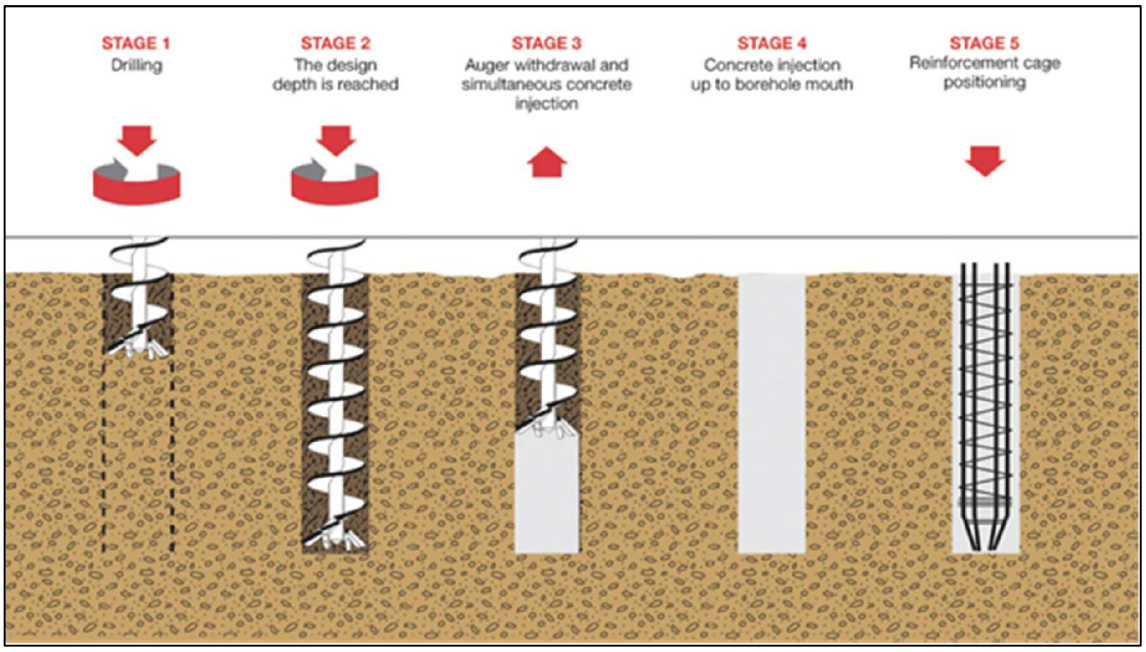


Figure 6: CFA Piling Stages

9. Obstructions and blockages

There may be circumstances where it is necessary to abort the pile without concrete being injected. Causes of this may include:

- concrete blockage within the auger
- concrete pump breakdown
- obstructions

Because the auger is loaded with spoil that is providing support within the bore, it is important the auger is back-screwed to leave the spoil on the auger within the ground and backfill any resulting empty bores (at the top) with suitable material. This is particularly important, in drilling through made ground or granular material and where there is a group of piles within a limited area.

10. COSHH

The Control of Substances hazardous to Health Regulations, 2002 (COSHH), requires that an assessment is undertaken of health risks created by work involving substances hazardous to health. The substance identification record is based on information obtained from a data sheet received from the substance supplier.

A copy of all the substance identification records are held on a central database with a copy maintained on site.

11. First aid arrangements

A first aider will be on site whilst any work is carried out.

12. Personal protective equipment (PPE)

A list of required PPE can be found in section H.

13. Training & Supervision

- All operatives to complete pre-enrolment online before attending site. (mipre-enrolment.co.uk).
- All operatives to undertake a site specific induction once on site.
- All operative to have valid and relevant CSCS cards (CPCS as relevant) and must bring them when attending the induction. Hiab operators must carry relevant ticket to operate the hiab.
- All managers to hold a SMSTS and supervisors SSTS
- Daily briefing to be held by JCE supervisors before work commences at the start of each shift.

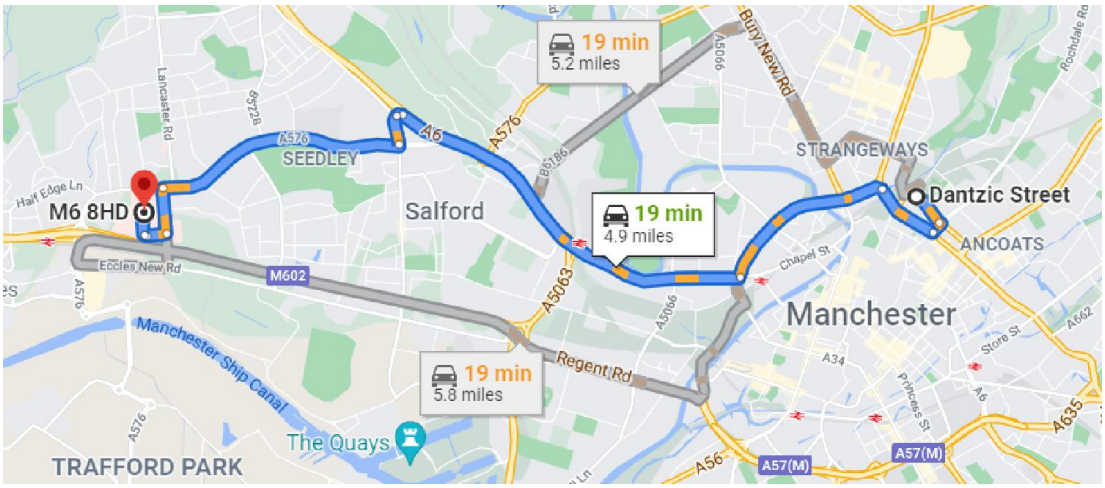
14. Manual handling

Mechanical plant is provided as far as possible to reduce manual handling to a minimum. The attendant excavator will carry out most of the lifts. Manual handling activities should be limited to carrying small tools.

15. Medicals, Accidents, incidents and RIDDOR

All operatives to have safety critical medical assessment done prior to commencing work.
The arrangements for reporting injuries, diseases and dangerous occurrences under the regulations are detailed in the company safety procedure HSP#15, a copy of which will be held on site. The ultimate responsibility for reporting/investigating is held by JCE Health and Safety Advisor. In the unfortunate event of any accident or near miss, the JCE Health and Safety Advisor will be informed immediately and in turn would forward all relevant details to JRL Project Manager and if necessary, inform the HSE. All accident will be immediately reported.

The nearest hospital with A&E to site is



Salford Royal NHS Foundation Trust
Stott Lane
Salford
M6 8HD

Figure 6: Route to closest Hospital

16. Existing services

A permit to work must be obtained prior to the start of any drilling operation as a control measure against drilling through services.

In the event where previously unknown services are discovered, all disused pipes or ducts shall be plugged off to prevent entry of concrete during pile construction.

17. Manoeuvring rigs around the site

A firm, dry level all weather piling mat shall be provided as a stable working platform for the piling rig work. The mat shall be installed to BRE Specification 'Working platforms for tracked plant'. The maximum gradient of the working platform must not exceed 1 in 20. Any ramps to access the platform must not exceed 1 in 10 (for fully rigged up piling rigs) and 1 in 7 for rigs in transport mode.

The appointed banksman will supervise all rig manoeuvres and direct the attendant excavator in their duties. An exclusion zone will be provided around the rear of the rig. This will be demarcated using temporary barriers which can be repositioned easily as the rig moves around site. Entry to the area in front of the rig will be controlled by the banksman.

18. Access and Site Layout

Vehicular access to the site will be via Dantzic. Vehicles will be brought onto site by the JRL appointed traffic marshals. Once on site JCE traffic marshals will take control of the vehicles.

Pedestrian and vehicle access must be maintained at all times.

19. Welfare

Welfare is provided by JRL including provision of changing room with drying facilities and offices.

Safe System of Work Form SHE 4 (cont'd)

D: *Key health and safety procedures (HSP) required*

Note: Each relevant HSP to be briefed to site team.
HSP 3 - Work at Height HSP 4 - Selection of Safe Work Equipment HSP 9 - Noise & Vibration Procedure HSP 11 - Permits to work HSP 12 - Safe Use of Harnesses and Inertia Reels HSP 14 - Statutory Inspections of Plant and Equipment HSP 15 - Accident and Incident Reporting and Investigation HSP 16 - Management of Change Procedure HSP 17 - Oil & Pollution Control HSP 20 - Health, Safety and Environmental Training HSP 21 - First Aid Arrangements HSP 22 - Selection, Use and Control of Personal Protective Equipment (PPE)

E: *Relevant risk assessment guidelines (RAG)*

Note: Each relevant RAG to be in place, associated toolbox talk completed and section L of this form completed.
RAG 004 Manual handling of materials RAG 008 Safe Handling and Movement of Plant and Equipment on Sites RAG 017 Safe Use of Mobile Elevating Work Platforms (MEWPs) RAG 022 Driving and operating mobile plant and equipment RAG 026 Working in noisy areas RAG 035 Avoiding danger from underground services RAG 036 Safe Use of Pressure Washing Equipment RAG 037 Lifting operations using excavators RAG 039 Maintaining Mobile Plant and Equipment RAG 064 Setting up Exclusion Zones

F: Additional *resources, specialised skills & competencies*

Note: This may include other specialist trades/skills, in-house or external
Site Supervisor – SSSTS Piling Rig Driver – CPCS > 15 Tonne Concrete Pump Operator – CPCS Concrete Pump Operator Slinger/Signaller – CPCS – Slinger/Signaller 360 Driver - CPCS Dumper driver - CPCS MEWP Operator – IPAF Setting-out Engineer - CSCS Traffic Marshall - CSCS

G: *Details of work permits or authorisations required* *(tick ✓ and attach permits or other forms are required for the work activity)*

Permit to work *(general)*	**No**	Permit to work *(excavate)*	**Yes**	Permit to work *(hot work)*	**No**	Permit to work *(confined spaces)*	**N/A**
Permit to work *(electrical)*	**N/A**	Permit to work *(working platform certificate)*	**Yes**	Permit to work *(mobile crane authorisation)*	**No**	Permit to work *(other)*	
If Other, please describe:							

Safe System of Work Form SHE 4 (cont'd)

H: *Personal protective equipment required*

Description of PPE	Required Yes/No? (*tick* ✓)	Type of PPE *(In accordance with PPE regulation or international standards)*
Head protection • Safety Helmet	✓	EN 397:2012+A1:2012
Foot protection • Boots • Wellington	✓	BS EN ISO 20345:2011
High visibility clothing • Vest, • Jackets • Trousers	✓ ✓ (cold weather)	EN 471
Hand protection • General • Chemical • Mechanical • Thermal	✓	EN 420 EN 374 EN 388 EN 407
Eye protection • Glasses • Goggles • Visor	✓ If required by RAG	EN 166
Hearing protection • Earmuff • Earplugs • Helmet Earmuff	If required by RAG	EN 352 – 1 EN 352 – 2 EN 352 – 3
Clothing • Waterproof/foul weather • Chemical resistant • Heat and flame	If required Welding only	EN 343 EN 465 EN 470-1
Respiratory protection • Filtering face-piece • Half face mask • Full face mask	No	EN 149 FFP3 EN 140 EN 136
Fall arrest protection • Full body harness • Fall arrest system • Fall restraint system	Only if working at height or as part of RAG	EN361 EN362 EN353
Other PPE required	No	

Safe System of Work Form SHE 4 (cont'd)

I: Are other *contractors involved in the activity?* *(If so state name, address and key contact details).* ***Other site health and safety information***

Concrete testing and sampling – by Socotec Pile Setting out – by Apex Muck away – by JRL Piling attendance – by JRL

J: ***Details of contacts, site management etc., or special emergency arrangements***

JCE Contracts Manager – Sean Henshall – 07551 394327 **JCE Operations Manager** – Kevin McQuarrie – 07786 560394 **JCE Safety Advisor** – TBC **JRL Safety Manager** – Ben Dixon – 07789 957445 **JRL Safety Department** – 0208 953 7800

K: ***Name of person responsible for implementation of safe system of work*** *(communications and monitoring compliance)*

Name *(please print)*:			
Position:		**Contact no:**	
1. Check all sections and confirm correct.			
Signature:	-	**Date:**	-
2. Issue document to site team and ensure briefing.			
Signature:	-	**Date:**	-

Safe System of Work Form SHE 4 (cont'd)

L: ***Details of personnel involved and confirmation that information and instructions in this document have been satisfactorily communicated.***

I, the undersigned, have been instructed and made aware of the contents of this 'Safe System of Work and Risk Assessments' and agree to comply with its requirements. If I am unable to carry out the work safely I agree that I must immediately stop work and inform my manager/supervisor.

Date	Name	Position/Role	Signature

Briefing given by: ***Date:***

KEY to scoring

The risk matrix considers hazards that are associated with the piling works. It lists the consequences that could arise in the event that the hazard was realised and then allocates a score, which is designed to rate the risk.

All risks other than green should be mitigated in some way. An orange or red risk MUST be mitigated before the project is allowed to start.

Risk Matrix

Impact					
5	O	R	R	R	R
4	Y	O	O	R	R
3	Y	Y	Y	Y	Y
2	G	G	Y	Y	Y
1	G	G	G	Y	Y
	1	2	3	4	5

Likelihood

Impact Ratings:

Others at risk?

Public =P
Third Party = T
Both = B

To form part of the induction?

If a risk is identified as significant then it should be considered for inclusion in the site induction.

Health, Safety and Environment (S)

1. Negligible
2. Minor Injury or environmental impact
3. Major Injury
4. Fatality or major environmental incident
5. Multiple fatality or extreme environmental incident.

Likelihood of occurrence (L)

1 Improbable < 1 %
2 Unlikely 1 - 10 %
3 Possible 11 - 50 %
4 Likely 51 - 90 %
5 Almost Certain > 90 %

Project:	Chatham Waterfront	**Project No:**	JCE077	**Status:** Contract	**First Issue Date:** 01st Dec '20
Revision:	0	**Revised By:**	Kevin McQuarrie		**Revision Date**

Risk event and causes	Likely consequences if risk arises	Others at Risk	Significant Risk (I)	Impact (S)	Likelihood (L)	Severity R (SxL)			Typical Options Considered to Mitigate Risk	Residual Risk / Consequence with Option in Place	Further Action and Responsibility	Control Specific to this site? Y or N	By Whom	By When
COVID-19 CORONAVIRUS														
Spread of Covid-19 Coronavirus	Workers or visitors coming to site and spreading Coronavirus.	B	Y	4	4	16								
				4	1	4			Any operative showing symptoms to be refused entry to site.	Opertive is asymptomatic.	Social Distancing -Reducing the number of persons in any work area to comply with the 2-metre (6.5 foot) gap recommended by the Public Health Agency	N	Client	Prior to start
				4	1	4					Frequently cleaning and disinfecting objects and surfaces in comunal areas such as canteen and toilets using appropriate cleaning products and methods.	N	Client	During works
				4	1	4					Employees to be reminded on a regular basis to wash their hands for 20 seconds with water and soap and the importance of proper drying with disposable towels. Also reminded to catch coughs and sneezes in tissues – Follow Catch it, Bin it, Kill it and to avoid touching face, eyes, nose or mouth with unclean hands.	N	Client / JCE supervisor	During works
PILING GENERAL														
Maintenance of plant & machines	Catastrophic failure of machines could cause major injury or even fatality.	T	Y	4	3	12		O						
				4	1	4	Y		Daily / weekly inspections to be carried out by machine operators.	Inspections not carried out.	Supervisor to check maintenance books & counter sign.	N	JCE Supervisor	Prior to start and During Works
				4	1	4	Y		Regular servicing & checking of critical components to be undertaken.			N	Plant Yard	Prior to start

Risk event and causes	Likely consequences if risk arises	Others at Risk	Significant Risk (I)	Impact (S)	Likelihood (L)	Severity R (SxL)			Typical Options Considered to Mitigate Risk	Residual Risk / Consequence with Option in Place	Further Action and Responsibility	Control Specific to this site? Y or N	By Whom	By When
Pile Integrity Testing	Personnel working in area out of JCE control.	T	Y	2	4	8	Y							
				2	2	4	G		Integrity tester to be inducted and briefed on the days activities prior to commencing works on site.			N	JCE supervisor/Follow on Contractor's Supervisor	Prior to start and during activity
Unauthorised access	Workers or visitors not familiar with risks associated with piling and could suffer injury.	B	Y	4	3	12		O						
				4	1	4	Y		Fences maintained & signage erected.	Unauthorised personnel may still gain access.	Tidy areas and keep stores locked.	N	JCE Supervisor	Prior to start & during works
				4	1	4	Y		No personnel should be permitted onto site unless inducted or accompanied.		Security may be required to monitor.	N	JCE Supervisor	During works
Using electrical equipment	Faulty or poorly maintained electrical equipment could result in fire or electrocution.	T	Y	4	3	12		O						
				4	1	4	Y		All electrical equipment to be installed by a qualified electrician. All electrical equipment to be PAT tested and PAT testing registered maintained.	Equipment damaged during piling works.	Daily / Weekly visual inspections to be carried out and recorded in register. Any damaged equipment/cables to be put our of use and reported for repairs or removal off site.	N	JCE operatives / JCE supervisor / JCE management	During works

Risk event and causes	Likely consequences if risk arises	Others at Risk	Significant Risk (I)	Impact (S)	Likelihood (L)	Severity R (SxL)			Typical Options Considered to Mitigate Risk	Residual Risk / Consequence with Option in Place	Further Action and Responsibility	Control Specific to this site? Y or N	By Whom	By When
Use of Jet Wash	Using jet wash to clean boots can puncture the safety boots and cause serious injury.		Y	4	3	12		O						
				4	1	4	Y		Jet wash not to be used for cleaning boots. Boot washes to be provided.	Operatives unaware of the potential hazards.	Tool Box Talk to be carried out to ensure everyone is aware of the hazards.	N	JCE Supervisor	Prior to start and during works
	Debris can fly into the eyes while using jet wash.		Y	3	4	12	Y							
				3	1	3	Y		Full face protection to be worn when using jet wash.	Operatives not complying with the control measure stated.	Non complying operatives to be reported to management.	N	JCE Supervisor	During Works
Use of compressor	Blast of air caused by the air valves not being closed		Y	3	3	9	Y							
				3	1	3	Y		Operator to ensure valves are closed and hoses are connected before start up.			N	JCE Concrete Pumpman	During Works
	Hose disconnecting striking person.			3	3	9	Y							
				3	1	3	Y		Whip checks to be fitted to all joints in airline. Air compressor to be switch off and all air released before joints are disconnected. Attached air line to equipment to be used before turning on compressor. Air must only be turned off at valve.			N	JCE Concrete Pumpman	During Works

Risk event and causes	Likely consequences if risk arises	Others at Risk	Significant Risk (I)	Impact (S)	Likelihood (L)	Severity R (SxL)			Typical Options Considered to Mitigate Risk	Residual Risk / Consequence with Option in Place	Further Action and Responsibility	Control Specific to this site? Y or N	By Whom	By When
ACCESS & GROUND														
Steep and unstable ramps due to poor design or construction	Rig falling over. Normally this results in injury, but in rare cases could result in fatalities.	T	Y	4	3	12		O						
				4	1	4	Y		Ramp not to be steeper than 1:10.	Rig may still sink and become unstable.	Visual inspection of the access ramp prior to tracking. Ensure suitable material used and rolled for access ramps.	N	JCE Supervisor / Claritas	Prior to start
Unstable platform due to poor design or construction	Rig falling over. Normally this results in injury, but in rare cases could result in fatalities.	T	Y	4	3	12		O						
				4	1	4	Y		Platform to be designed to carry bearing pressure. Platform certificate to be signed to confirm.	Platform may deteriorate or be disturbed by excavation.	Monitor condition of platform DAILY. Ensure setting out engineer surveys platform levels DAILY. Record blockages and closely monitor platform around blocked piles. Monitor replacement of any excavations in platform. Any modification or maintenance to the working platform must be inspected and signed on platform certificate.	Y	JCE Supervisor	Prior to start and during works
Uneven ground or loose ground in work area and on piling platform	Site operatives could slip or trip over, resulting in injury.	T	Y	3	3	9	Y							
				3	1	3	Y		Site to be maintained to high standard to reduce potential for slips & trips due to uneven/loose ground or obstacles.	Still potential for slips & trips to due lapse in concentration or not paying attention to the environment.	Keep all areas maintained	N	JCE Supervisor	Prior to start of works
Inadequate access & segregation for workmen/staff	Workforce being struck by site traffic causing major injury and in some instances fatalities.		Y	4	2	8		O						
				4	1	4	Y		Segregated walkways across site and designated work areas to be established and briefed in daily briefing.	Walkways get removed by workforce or condition of walkway deteriorates.	Check daily and monitor throughout the working day. Stop work and report if incorrect.	N	JCE	Prior to start and during works
										Drivers may ignore speed limits.	Monitor speeds of vehicles visually and report any incidents of excess speed.	N	JCE Supervisor	During works
Platform material unsuitable and holding water as a result	Risk of injury to operatives if platform is unsuitable for working. Delivery vehicles may also get stuck on site.		Y	3	3	9	Y							

Risk event and causes	Likely consequences if risk arises	Others at Risk	Significant Risk (I)	Impact (S)	Likelihood (L)	Severity R (SxL)			Typical Options Considered to Mitigate Risk	Residual Risk / Consequence with Option in Place	Further Action and Responsibility	Control Specific to this site? Y or N	By Whom	By When
				3	1	3	Y		Clearly communicate the requirements for a suitable platform to the principal contractor who is responsible for installation. On going Platform maintenance throughout piling operations.	Platform not suitably installed and the issue causes unsuitable conditions.	Notify Claritas for platform installation. Daily platform checks to be carried out prior to pile installations	N	JCE Supervisor/ Claritas	Prior to start and during works
Disturbing/removing cement stabilised layer of the platform	Rig falling over. Normally this results in injury, but in rare cases could result in fatalities.	B	Y	4	4	16		R						
				4	1	4	Y		Clearly communicate to all personnel but specially to the excavator operator not to disturb/dig out the cement stabilised platform during clearing of muck from around the piles.	Excavator operator accidently disturbs the cement stabilised layer due to insufficient wearing coarse above the cement stabilised platform.	Monitor platform levels and record for each pile. Maintain the 100mm-150mm of wearing coarse	Y	JCE Supervisor	Prior to start and during works

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DELIVERY & STORAGE														
Unsupervised movement of plant and transport	Unsupervised movement of heavy goods vehicles and plant could potentially result in major injury or fatality.	T	Y	4	3	12		O						
				4	1	4	Y		All vehicles to be accompanied by traffic marshals when reversing.	Vehicles may reverse without waiting for traffic marshals.	Pedestrian walkways to be maintained. Supervisor to enforce rules	N	JCE Supervisor	Prior to start and during works
Loads becoming unstable during offloading due to incorrect loading or insufficient strapping.	Heavy loads falling, leading to injury, fatalities or damage.		Y	4	3	12		O						
				4	1	4	Y		Wagon to be sited on firm and level ground whilst loading and unloading. Incorrectly or insufficiently strapped loads to be sent away unless a safe means of offloading can be established.	Equipment may have moved in transit.	Load to be checked before straps are removed.	N	JCE Supervisor	During works
Incorrectly stored materials	Items may become unstable and fall. Items may be stored in areas which could block fire escapes and causing trip hazards.	T	Y	3	3	9	Y							
				3	1	3	Y		Designated storage areas to be established. Site to be kept clean and tidy.	Areas not kept tidy and items not stored in designated areas.	Areas to be checked by supervisors on a regular basis.	N	JCE Supervisor	During works
Delivery & Collection of Plant & Equipment by 3rd Parties. Delivery drivers entering site and moving	Delivery driver exposed to unsafe conditions, poor access, straying from recognised walkways.	T	Y	3	4	12	Y							
				3	1	3	Y		If JCE are on site when driver arrives, ensure drivers are fully briefed and supervised at all times.	Driver disregards instructions.	Supervisor to stop driver and if necessary remove him from site.	N	JCE Supervisor	As required
Delivery of materials through site gates from public highway	Wagons colliding with pedestrians on pavement surrounding the site hoarding, causing injury or death.	B	Y	5	2	10		R						
				5	1	5		O	PC Traffic Marshals to manage all access / egress from all site gates and to stop pedestrians from crossing when vehicles are entering or leaving site.	Pedestrians ignore instructions from vehicle marshals.	Encourage PC to use extendable barriers to be used in order to prevent any pedestrians walking across the gate entrance whilst in use. Suppliers to be informed of the potential risks to allow them to brief any delivery drivers prior to arrival on site.	Y	JCE Supervisor	Prior to start and during works
Risk of fall during access of delivery wagon trailer (where loads are not pre-slung)	Fall from height causing major or minor injury to site operative.		Y	3	3	9	Y							

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				3	1	3	Y	Any materials delivered without being pre-slung to be access with the use of MEWP.	Material/Equipment required urgently.	Ensure edge protection in place prior to accessing the trailer. Point of work risk assessment to be carried out prior to offloading if edge protection is not present.	N	JCE Supervisor	During works

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PLANT & VEHICLE MOVEMENT														
Operatives for other contractors working on site walking through piling area.	Risk of plant coming into contact with operatives who are unaware of the risks associated with the activity resulting in injury to operatives or fatality.	T	Y	4	4	16		R						
				4	1	4	Y		Designated walkways to be in place wherever practicable. Principal contractor to include the topic in their site induction.	Operatives still walking through area.	All JCE staff and operatives to raise this directly with any other operatives spotted at the time, and inform them of the dangers. Also inform supervisor and Principal Contractor.	N	JCE Management / JCE Supervisor / Claritas Management	Prior to start and during works
Entanglement or being crushed by moving plant and equipment	Death or serious injury	B	Y	4	4	16		R						
				4	1	4	Y		Segregation must be in place and maintained by the site teams and minimum of 600mm clearance zone from fixed structures must be kept at all times.	People and other contractors stray in JCE areas of work.	Supervision and the banksman will control the area and JCE will stop work until it is safe to continue.	N	JCE Supervisor	During works
Rig and excavator colliding during drilling and removing spoil from around the pile	Damage to plant and/or people can get injured		Y	4	4	16	R	R				N	Excavator Operator Banksman	During works
				4	1	4	Y		Excavator to be positioned in clear line of sight when mucking away whenever possible.	Excavator cannot sit in sight of rig op	Excavator to be banked	N	JCE Banksman	For every pile position
WORKING AT HEIGHT														
Work at Height	Major injury or fatality		Y	4	4	16		R						
				4	1	4	Y		Access to mast during rigging/derigging using a cherry picker .			N	JCE Fitter	During works
Use of MWEP	Operative falls out of basket	T	Y	4	4	16		R						
				4	1	4	Y		Harness must be worn by operative and hooked to a designated anchor point			N	JCE MEWP operator	During works
	Operator drops items from basket	T	Y	4	3	12		O						
				4	1	4	Y		Set exclusion zone around MWEP	Personal ignored exclusion zone	Banksmen to supervise exclusion zone when MWEP is in use	N	JCE Banksman	During works
	MEWP overturns while traveling which could result in fatality	T	Y	4	3	12		O						

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				4	1	4	Y	Travel route must be inspected prior to moving MEWP. Rough terrain MEWP only to be used. Operator must wear harness (clipped onto designated anchor points) when in basket. MEWP operations must seize when wind speeds exceed 12.5 m/s			N	JCE MEWP operator	During works

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LIFTING OPERATIONS														
Failure of lifting equipment and accessories	Failure of Lifting Equipment or accessories could have potentially fatal results.	T	Y	5	3	15		R						
				5	1	5		O	Thorough examination of all equipment to be carried out prior to use.	Equipment and accessories may become damaged between thorough	Lifting equipment to be checked weekly and lifting accessories before every use for any sign of damage.	N	JCE Slinger	Prior to start
				5	1	5		O	Competent driver to operate lifting equipment and Slinger to use lifting accessories (CPCS qualified).	Use of poor slinging techniques.	Slinging techniques as laid down in the lift plan should be used.	N	JCE Slinger	Prior to start
				5	1	5		O	Ensure driver can see signals provided by his Slinger.	Blind lifts may be required.	If blind lifts are likely e.g. loading over hoarding then other methods of communication such as radios should be considered.	N	JCE Slinger	During works
				5	1	5		O	Use appropriate lifting equipment for the lift.	The wrong equipment may be selected inadvertently.	Refer to Lift Plan for Project.	N	JCE Slinger	During works
				5	1	5		O	If Hi-ab is to be used, a lift plan for the hi-ab must be in place prior to lifting. Certs for the lifting equipment must be checked prior to use.			N	JCE Slinger	Prior to start
				5	1	5		O	Lift Plan for project to be prepared taking into consideration working area & equipment available.	Operatives not aware.	Lift plan to briefed to all site personnel prior to commencement of works.	N	JCE Supervisor	Prior to start
				5	1	5		O	Ensure working area is clear of operatives or third parties prior to lifting.	Operatives or third parties may walk into work area during a lift.	Slinger to monitor lifting area.	N	JCE Slinger	During works
				5	1	5		O	Working area to be clear of obstructions.	Working area changes.	Lift plan to be reviewed to reflect changing conditions.	N	JCE Supervisor	Prior to start & During Works
Lifting single bars could result in bar/bars falling	Falling bars could result in major injury or fatality.		Y	4	3	12		O						
				4	1	4	Y		Use designed lifting eye or appropriate lifting techniques			N	JCE Slinger	During works
Reinforcement cages can drop during lifting and placing	Load dropped causing damage. Major injury or Fatality could occur.		Y	4	3	12		O						

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				4	1	4	Y	Lift Plan to be in place before commencing any lift. Cage to be lifted from designed lifting points only. Designated lifting points to be shown on cage fabrication drawing. Loads only to be slung by a competent Slinger/signaller.			N	JCE Slinger	Prior to start & During Works

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DRILLING														
Machinery & pinch points	Major injury or fatality is possible particular risks are crush and/or amputation.		Y	4	3	12		O						
				4	1	4	Y		Rig Banksman is responsible for maintaining an exclusion zone around the machine. Barriers must be erected if any pinch points exist which are less than 600mm.	Unauthorised personnel enter exclusion areas.	Rig frontman should stop all works.	N	JCE Rig Frontman	During works
Spoil heaps may become unstable especially if items are placed on them	Could result in injury to personnel.		Y	3	3	9	Y							
				3	1	3	Y		Spoil heaps should be kept to a minimum height.	Spoil may build up.	Increase number of vehicles.	N	JCE Supervisor / Claritas	During works
				3	1	3	Y		Items of equipment should not be placed on top or on side slopes of spoil heaps.	Items may be misplaced.	Monitor, if spoil is to be used for changing tools then they should be screwed into the spoil.	N	JCE Rig Banksman	During works
Striking underground services	Striking gas, electric, fibre optic, water services or sewers causing loss of time and/or environmental hazard.	T	Y	4	2	8		O						
				4	1	4	Y		Obtain permit to work & Permit to Dig before starting work.	May hit unidentified service.	Stop work and report to management team immediately	N	JCE supervisors/ JRL	Prior to start & During Works
Spoil falling from auger	Injury to operatives, Site personal		Y	3	3	9	Y							
				3	1	3	Y		Auger to be clean of spoil above head height using mechanical auger cleaner.	Spoil not properly clean off auger.	Exclusion zone around auger	N	JCE Banksman	During works
REINFORCEMENT CAGE INSTALLATION														
Loose items from within the cage falling during lifting	Major injury or fatality is possible and/or damage to property.		Y	4	3	12		O						
				4	1	4	Y		Cage to be checked for any loose materials prior to lifting.			N	JCE Slinger	Prior to Lifting

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CONCRETING													
Operatives coming in contact with concrete	Sensitisation of skin & development of dermatitis.		Y	3	3	9	Y						
				3	1	3	Y	Long sleeves and rubberised gloves to be worn by pump man.			N	JCE pump man	Prior to start and during works
				3	1	3	Y	Ensure all operatives have been briefed on the COSHH assessment and follow the required instructions.			N	JCE Supervisor	Prior to start
	Damage to eyes and skin from concrete splashes.		Y	3	3	9	Y						
				3	1	3	Y	Eye protection to be worn at all times.			N	All Operatives	Prior to start and during works
				3	1	3	Y	Ensure sufficient eye washout facilities are available and close to the working area.			N	JCE Supervisor / JCE Management	Prior to start and during works
				3	1	3	Y	Ensure there are sufficient hygiene/washing facilities available nearby.			N	JCE Supervisor / JCE Management	Prior to start and during works

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Cube Making	Error in cube making could result in piles being condemned unnecessarily			3	4	12	Y							
				3	1	3	Y		Ensure person undertaking test has been trained to carry out sampling and cube making.	Error may still occur	Process to be monitored	N	JCE Supervisor	Prior to start and During Work
BACKFILLING														
Platform not reinstated as per design after pile installation causing localised soft spot	Potential for rig to track on to the soft spot making it unstable and potential of rig overturning		Y	4	3	12		O						
				4	1	4	Y		Monitor condition of platform. Monitor condition of any excavations on Platforms	Sequence / procedure not followed.	JCE Supervisors / management to regularly check as-built records to ensure piles are backfilled correctly.	Y	JCE Site Supervisor	During works
HOTWORKS														
Welding	Fire, metal burns, arc eye	T	Y	3	3	9	Y							
				3	1	3	Y		Welder to be competent. Correct PPE to be worn. Work area to be established, no combustible materials should be present around the work area.	Third party exposure.	Hot Works permit to be used either JCE or Use screens to protect personnel from injury. Refer to SSOW#7	N	JCE Supervisor / JCE Welder	Prior to start
				3	1	3	Y		Competent welder	Welder not familiar with JCE requirements.	Welder to be briefed on the requirements prior to commencing any works.	N	JCE Supervisor / JCE Management	Prior to start
				3	1	3	Y		Ensure welding screens are erected and there is sufficient ventilation.	Ventilation or screening may not be adequate.	No work to commence until adequate screening and ventilation is in place and adequate PPE is worn for the task.	N	JCE Welder	Prior to start
Cutting and Grinding with Abrasive Wheels	Sparks setting fire to adjacent flammable material.	T	Y	3	3	9	Y							
				3	1	3	Y		All flammable materials to be moved from the area.			N	JCE Supervisor/JCE Welder	Prior to start & During Works
				3	1	3	Y		Direction of spark flight to be taken into account when setting out material to be cut.			N	JCE Supervisor / JCE Welder	During works
				3	1	3	Y		2nr Fire extinguishers to be kept adjacent to the workplace.			N	JCE Supervisor / JCE Welder	Prior to start & During Works
	Wheel is mounted incorrectly and bursts causing injury.		Y	3	4	12	Y							
				3	1	3	Y		Loose clothing to be removed or tied back.			N	JCE Operator	Prior to start
	Fuel is spilt during refuelling activity causing fire risk.		Y	3	3	9	Y							

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				3	1	3	Y		Tool to be turned off and plant nappy to be in place during refuelling.			N	JCE Operator	Prior to start
Storage & Use of gases	Explosion		Y	5	3	15		R						
				5	1	5		O	Mobile welder, nothing stored on site.			N	JCE Welder	during works

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OCCUPATIONAL HEALTH & WELFARE													
Use of hazardous materials	Exposure could lead to a health hazard.		Y	3	3	9	Y						
				3	1	3	Y	Ensure COSHH assessments on site and relevant PPE is provided.	Incorrect disposal.	Dispose of according to manufacturers instructions	N	JCE Supervisor	Prior to start
Noise	Excessive noise in the workplace could cause hearing loss to employees.		Y	3	3	9	Y						
				3	1	3	Y	Hearing protection to be provided as per noise assessment for machine & usage to be monitored.			N	JCE Supervisor	Prior to start
Dust	Dust generated which could cause harm to health.	T	Y	3	3	9	Y						

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				3	1	3	Y		Dust to be controlled by damping down using water.	May still be excessive dust	Spoil heaps etc. to be kept to a minimum to avoid nuisance dust.	N	JRL	During works
Smoking, Drugs and Alcohol	Recognised health risks for the individual and for others in the vicinity. Risk of Fire, increased risk of injury or loss of life.	T	Y	4	3	12		O						
		T		4	1	4	Y		Refer to Company Policy for D&A limits & testing procedures.		When working adjacent to areas of significant public risk e.g. major roads lower limit for testing should be used.	N	All personnel	During works
Lack of proper welfare	Unsanitary conditions presenting a risk to health.			2	3	6	Y							
				2	1	2	G		Principal contractor to provide suitable number of toilets with hot running water. Clean messing facilities and drying room.	Suitable facilities not available.	If suitable facilities are not available work should not commence until they are.	N	Principle Contractor	Prior to start
ENVIRONMENT														
Installation of piles to support structure	Contaminating water courses	P		2	3	6	Y							
				2	1	2	G		CFA method is the preferred option as this technique replaces and extracts soil, as opposed to driven piling which would drag contaminants down.			Y	JCE Management	Prior to start
Spillage of waste water from site activities or striking drains	Contaminating water courses	P		2	2	4	G							
				2	1	2	G		Ensure permit to work is in place. Spill kit to be on site. Gullies to be sand bagged off. Bunding or tanks to be checked daily.			N	JCE Supervisor	Prior to start
Transfer of mud and waste onto public roads and pavements	Third party accidents and complaints	P	Y	3	3	9	Y							
				3	1	3	Y		Wheel washing to be carried out by the client at site entry point in order to ensure there will be no transfer of mud and waste out of site.			N	JRL	Prior to start & during Works
Disposal of Waste/service oils	Fly tipping, improper segregation	P		2	2	4	G							
				2	1	2	G		All waste oils to be stored in COSHH stores prior to sending to licensed and audited waste collector.	Waste oils may not be segregated properly.	Containers containing waste oils must be clearly marked to ensure segregation.	N	JCE Supervisor	During works
Leakage of oils or Fuel	Environmental incident	P	Y	3	3	9	Y							

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				3	1	3	Y		Store fuels in double bunded bowsers.			N	JCE Supervisor	Prior to start
				3	1	3	Y		Spill kits to be made available.	Spill kits may be used or disposed of incorrectly.	Carry out tool box talks on use of spill kits.	N	JCE Supervisor	During works
Washing out of concrete wagons on site	Washing out of concrete wagons on site on the piling platform creates an environmental hazard.	P	Y	3	3	9	Y							
				3	1	3	Y		Washing out of concrete wagons will not be allowed on site. Wagons will only be allowed to brush down their chutes after the concrete has been poured.	Concrete wagon drivers not complying with the site rules.	The concrete supplier will be told that washing out facilities are not available.	Y	JCE Management / JCE Supervisor	Prior to start and during works
EMERGENCIES														
Unforeseen event occurs requiring emergency assistance	Injury or loss of life	T	Y	4	3	12		O						
				4	1	4	Y		Ensure first aider cover is available.	Injury requires more than first aid.	Call 999. Inform HSEQ advisor ASAP.	N	All Personnel	Prior to start & during Works