APPENDIX 1: FIGURES

0 50 100 m

building & project consultants
paragon

Paragon Building Conultancy
65 Southwark Street
London
SE1 0HR
020 7125 0112
www.paragonbc.co.uk

Notes:

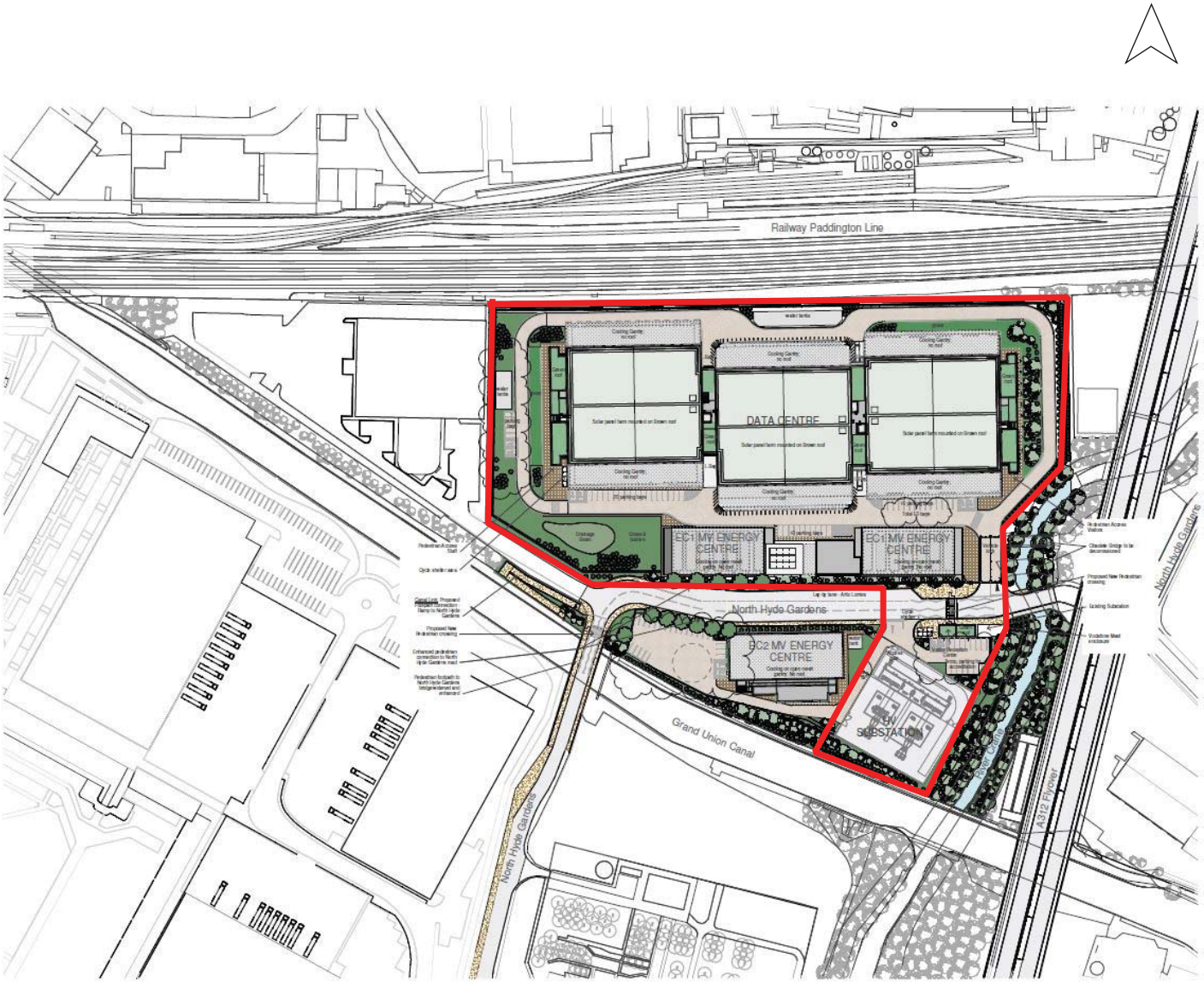
Basemap: Google 2019. Insert Map: Google 2019.

Site Location

Development Area

Rev	Description	Date

Project Bulls Bridge, Hayes	Scale 1:3000
	Drawn by CB
	Approved By CK
Title Site Location Plan	Drawing Number 1
	Date 17/12/2020



building & project consultants
paragon

Paragon Building Conultancy
65 Southwark Street
London
SE1 0HR
020 7125 0112
www.paragonbc.co.uk

Notes:

Drawing based on Nicholas Webb Architects plc, Project Union A90 - External Works Site Plan. Ref: ZZ-DR-A-90-005. P02. Dated 27/03/20.

Development Plot

Rev	Description	Date

Project Bulls Bridge, Hayes	Scale Not to scale
	Drawn by CB
	Approved By CK
Title Proposed Development Plan	Drawing Number 2
	Date 17/12/2020

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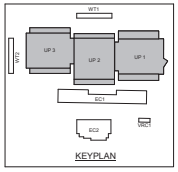
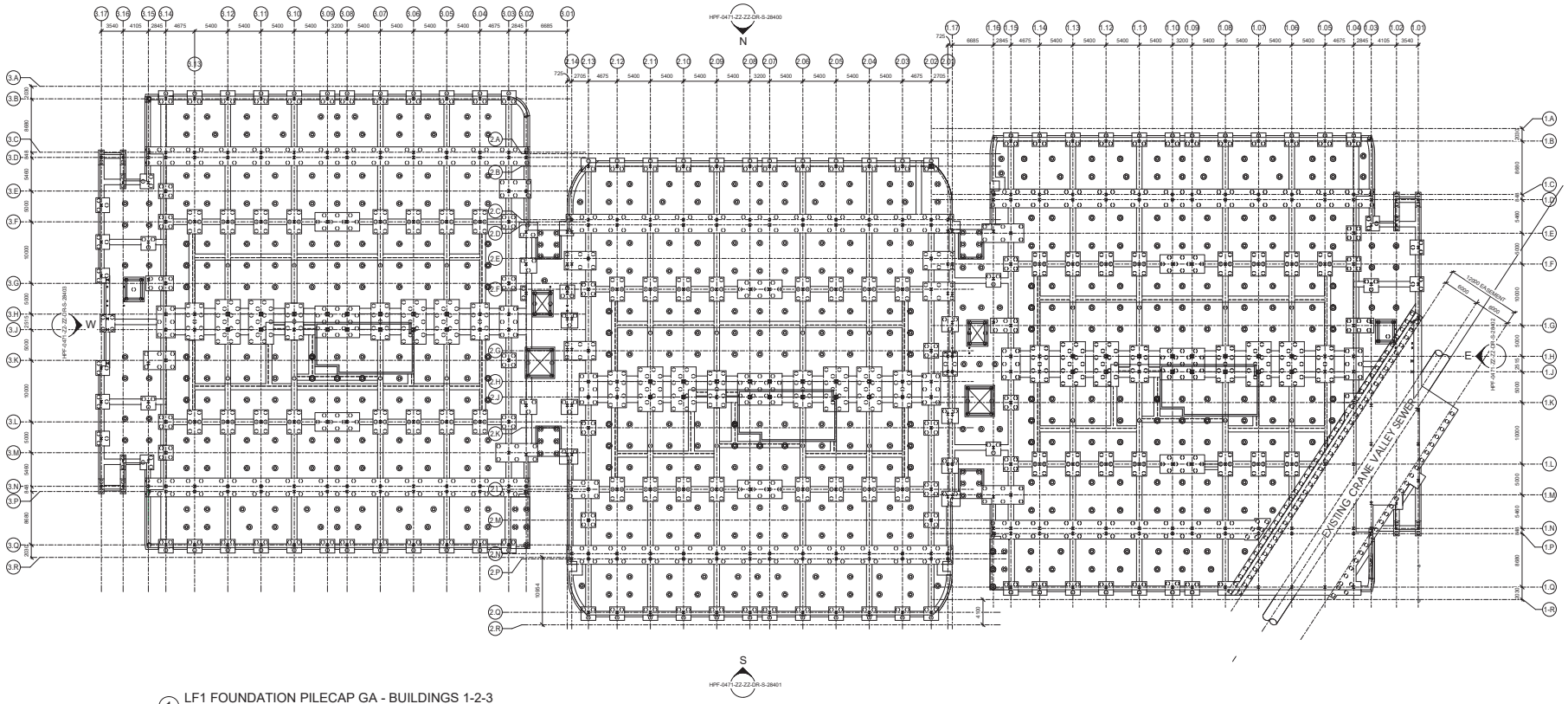


KEYPLAN

NOTES:

1. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION OR INSTALLATION PURPOSES UNLESS EXPRESSLY STATED.
2. DO NOT SCALE OFF THIS DRAWING. ALWAYS WORK TO NOTED DIMENSIONS.
3. ALL DIMENSIONS MUST BE VERIFIED ON SITE BEFORE COMPLETING SHOP DRAWINGS OR SETTING OUT THE WORKS.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SCOPE OF WORKS AS PREPARED BY HDR | Hurley Palmer Flatt
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL ENGINEER'S DRAWINGS AND ASSOCIATED HDR | Hurley Palmer Flatt DRAWINGS.
6. FINAL LOCATION OF FOUNDATIONS SUBJECT TO SEWER SURVEY.
7. FINAL INVERT OF SEWER SUBJECT TO SEWER SURVEY.



1 LF1 FOUNDATION PILECAP GA - BUILDINGS 1-2-3
1 : 250

Rev	Description	Date
P01	STAGE 3 ISSUE	31.07.20

Drawing Status: STAGE 3 — Suitability: S4

Hurley Palmer Flatt
4th Floor
Knollys House
17 Addiscombe Road
Croydon, CR0 6SR
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t: +44 (0)20 8763 5900
e: info@hurleypalmerflatt.com
w: www.hurleypalmerflatt.com

Client: ARK

Architect: NWA

Project: UNION PARK

Title: UNION PARK DATA CENTRE
ALL BLOCKS
LEVEL F1 - FOUNDATION PILE CAPS
GENERAL ARRANGEMENT

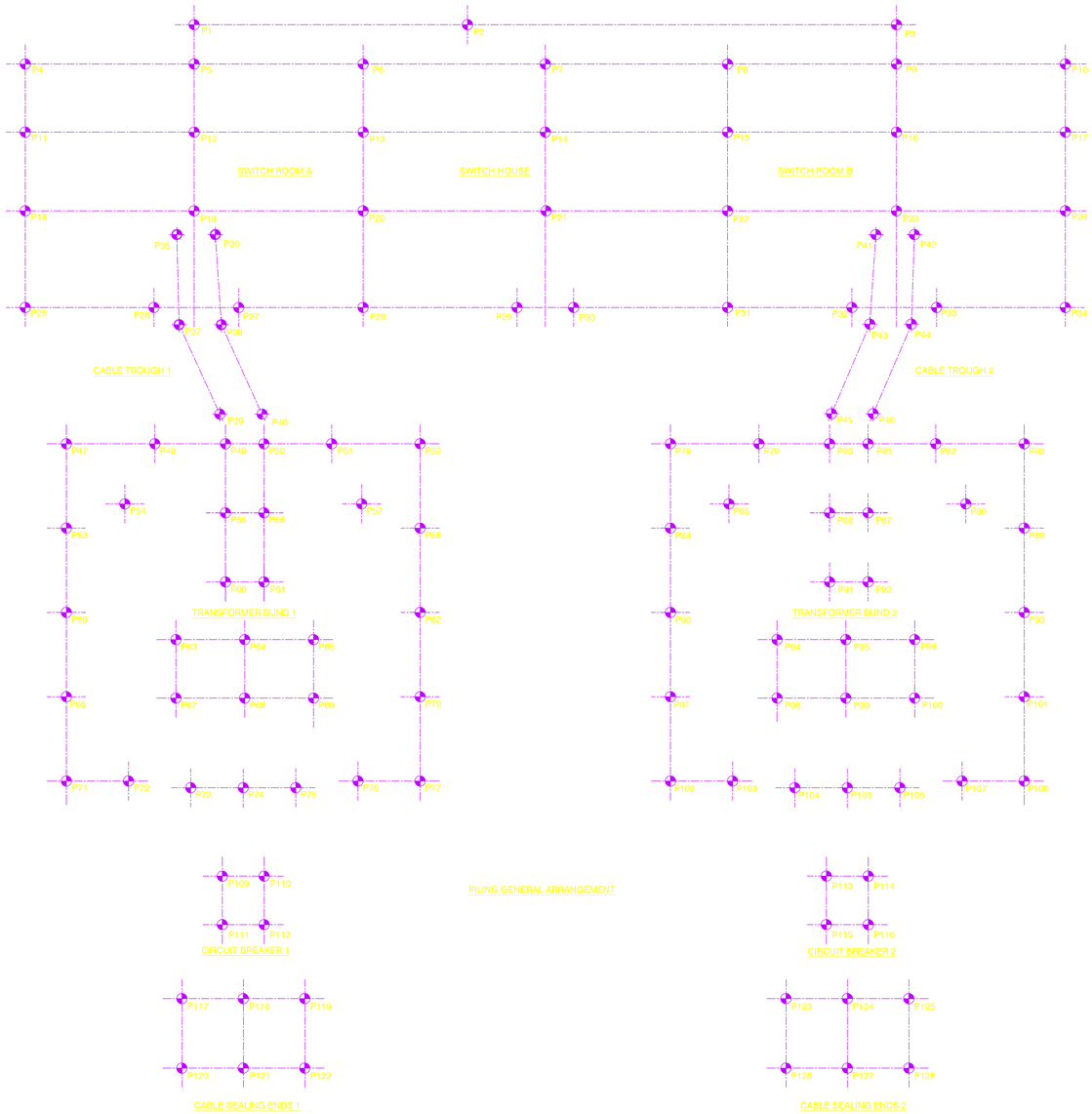
HDR | HPF Project Number: PUR15469

Model Name: HPF-0471-SN-ZZ-MS-S-0001

Drawn:	Checked by:	Date:	Scale @ A3:
DB	RHUB	29/05/20	1:250

Drawing Number: HPF-0471-ZZ-F1-DR-S-18100 — Revision: P01

Plot Check



SWITCH HOUSE

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN (SLS) VERTICAL	LATERAL
P1	510499.340	179211.403	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	25	20
P2	510507.093	179206.390		25	20
P3	510519.261	179198.523		25	20
P4	510493.826	179213.384		100	50
P5	510498.618	179210.286		100	10
P6	510503.410	179207.188		100	10
P7	510508.579	179203.847		125	10
P8	510513.748	179200.505		125	25
P9	510518.539	179197.407		100	10
P10	510523.331	179194.309		100	50
P11	510492.578	179211.453		100	75
P12	510497.369	179208.355		250	10
P13	510502.161	179205.257		325	15
P14	510507.330	179201.915		500	10
P15	510512.499	179198.573		325	15
P16	510517.291	179195.475		250	10
P17	510522.082	179192.377		100	75
P18	510491.132	179209.217		200	100
P19	510495.924	179206.119		300	10
P20	510500.715	179203.021		500	100
P21	510505.884	179199.679		500	10
P22	510511.053	179196.337		500	100
P23	510515.845	179193.239		300	10
P24	510520.637	179190.141		200	100
P25	510489.359	179206.475		100	20
P26	510493.010	179204.114		150	10
P27	510495.415	179202.560		150	10
P28	510498.943	179200.279		275	50
P29	510503.309	179197.456		275	50
P30	510504.914	179196.418		275	50
P31	510509.280	179193.595		275	50
P32	510512.809	179191.315		150	10
P33	510515.213	179189.760		150	10
P34	510518.864	179187.399		100	20

CABLE TROUGH 1

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P35	510494.996	179205.764	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	100	20
P36	510496.093	179205.056		100	20
P37	510493.408	179203.166		150	20
P38	510494.607	179202.391		150	20
P39	510492.922	179199.879		125	20
P40	510494.122	179199.103		125	20

CABLE TROUGH 2

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P41	510513.011	179190.513	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	100	20
P42	510514.192	179189.749		100	20
P43	510513.011	179190.513		150	20
P44	510514.192	179189.749		150	20
P45	510510.282	179188.674		125	20
P46	510511.462	179187.911		125	20

TRANSFORMER BUND 1

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P47	510488.025	179201.852	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	150	10
P48	510490.534	179200.230		150	10
P49	510492.539	179198.934		150	10
P50	510493.630	179198.228		150	10
P51	510495.551	179196.986		150	10
P52	510498.060	179195.364		150	10
P53	510486.478	179199.459		225	10
P54	510488.580	179199.073		375	10
P55	510491.271	179196.973		225	10
P56	510492.363	179196.267		225	10
P57	510495.298	179194.730		225	10
P58	510496.513	179192.971		225	10
P59	510484.930	179197.066		225	10
P60	510490.003	179195.012		225	10
P61	510491.095	179194.307		225	10
P62	510494.965	179190.578		225	10
P63	510487.538	179194.284		500	10
P64	510489.490	179193.022		500	10
P65	510491.443	179191.760		500	10
P66	510483.383	179194.672		225	10
P67	510486.466	179192.626		500	10
P68	510488.418	179191.363		500	10
P69	510490.371	179190.101		500	10
P70	510493.418	179188.184		225	10
P71	510481.835	179192.279		150	10
P72	510483.599	179191.139		150	10
P73	510485.240	179189.810		150	10
P74	510486.717	179188.825		150	10
P75	510488.222	179187.882		150	10
P76	510490.107	179186.931		150	10
P77	510491.871	179185.791		150	10

TRANSFORMER BUND 2

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P78	510505.161	179190.773	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	150	10
P79	510507.670	179189.151		150	10
P80	510509.675	179187.855		150	10
P81	510510.767	179187.149		150	10
P82	510512.688	179185.907		150	10
P83	510515.196	179184.285		150	10
P84	510503.614	179188.380		225	10
P85	510505.716	179187.994		375	10
P86	510508.407	179185.894		225	10
P87	510509.499	179185.188		225	10
P88	510512.434	179183.651		225	10
P89	510513.649	179181.892		225	10
P90	510502.066	179185.987		225	10
P91	510507.139	179183.933		225	10
P92	510508.231	179183.228		225	10
P93	510512.102	179179.499		225	10
P94	510504.674	179183.205		500	10
P95	510506.627	179181.943		500	10
P96	510508.579	179180.681		500	10
P97	510500.519	179183.593		225	10
P98	510503.602	179181.547		500	10
P99	510505.554	179180.284		500	10
P100	510507.507	179179.022		500	10
P101	510510.554	179177.105		225	10
P102	510498.972	179181.200		150	10
P103	510500.735	179108.060		150	10
P104	510502.377	179178.731		150	10
P105	510503.854	179177.746		150	10
P106	510505.358	179176.803		150	10
P107	510507.243	179175.852		150	10
P108	510509.007	179174.712		150	10

CIRCUIT BREAKER 1

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P109	510484.519	179186.715	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	50	10
P110	510485.708	179185.948		50	10
P111	510483.631	179185.336		50	10
P112	510484.820	179184.570		50	10

CIRCUIT BREAKER 2

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P113	510501.656	179175.638	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	50	10
P114	510502.846	179174.871		50	10
P115	510500.768	179174.259		50	10
P116	510501.957	179173.492		50	10

CABLE SEALING ENDS 1

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P117	510481.114	179183.977	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	75	10
P118	510482.858	179182.852		100	10
P119	510484.602	179181.727		75	10
P120	510479.841	179182.002		75	10
P121	510481.584	179180.877		100	10
P122	510483.328	179179.752		75	10

CABLE SEALING ENDS 2

PILE No.	COORDINATES IN METRES EASTINGS	NORTHINGS	CUT OFF LEVEL	LOADING KN VERTICAL	LATERAL
P123	510498.268	179172.925	FINISHED SUBSTATION SUBJECT TO CONFIRMATION	75	10
P124	510500.012	179171.801		100	10
P125	510501.756	179170.676		75	10
P126	510496.995	179170.950		75	10
P127	510498.739	179169.826		100	10
P128	510500.482	179168.701		75	10

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All traffic management will be provided in accordance with the Code of Practice for Safety at Street Works and Road Works, the "Red Book" (a copy of which will be available on site), issued under Sections 65 and 124 of the New Roads and Street Works Act 1991 and Chapter 8 of the Traffic Signs Manual.

1. ALL DIMENSIONS SHOWN IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE IN METRES AND RELATE ORDNANCE DATUM.
3. ALL COORDINATES ARE IN METRES AND RELATE TO ORDNANCE DATUM.
4. DO NOT SCALE OFF THE DRAWINGS. TAKE FIGURED DIMENSIONS ONLY. ALL DIMENSIONS ARE TO BE CHECKED & VERIFIED ON SITE PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES REPORTED IMMEDIATELY TO THE PROJECT ENGINEER BEFORE PROCEEDING
5. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH JSM SPECIFICATION AND DRAWINGS.
6. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT BUILDING REGULATIONS, BRITISH STANDARDS & CODES OF PRACTICE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF SETTING-OUT ON SITE AND THE FABRICATION OF MATERIALS
8. THE CONTRACTOR IS TO ESTABLISH THE LOCATION OF ALL EXISTING SERVICES AND INFORM THE SUPERVISING OFFICER PRIOR TO COMMENCING ANY BUILDING ACTIVITIES.
9. THE CONTRACTOR MUST ASSUME THAT ANY EXISTING UNEXPECTED CABLES AND/OR OTHER SERVICES FOUND WITHIN THE WORKING ZONE ARE LIVE AND MUST SEEK IMMEDIATE ADVICE FROM THE SUPERVISING OFFICER BEFORE PROCEEDING.
10. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL P1152 DRAWINGS.
11. THIS DRAWING IS BASED ON DRAWING EXTRACT ENG1-ARC-SITE PLAN WIP.

EXCAVATION WORKS

12. ANY LOOSE OR SOFT SOILS FOUND DURING EXCAVATION SHALL BE REMOVED AND REPLACED WITH COMPACTED GRANULAR MATERIAL.

PRELIMINARY
NOT FOR CONSTRUCTION

COORDINATES BASED ON PERIMETER OF SUBSTATION FROM HURLEY PALMER FLATT DRAWING HPF-0471-XX-XX-DR-C-92122 P02

FOR MASTER COORDINATES REFER TO DWG P1152_ARK_DWG_2001

Issue	Date	Purpose of Issue	Drawn	Checked
D	14-10-20	NOTE AMENDED, COORDINATES	RP	RS
C	29-09-20	PILE LOADS AND COORDINATES ADDED	MJ	RS
B	21-08-20	PILE LOADS	MJ	RS
A	11-08-20	FIRST ISSUE	TL	RS

JSM Group
Sterling House,
Mutton Lane, Potters Bar,
Hertfordshire, EN6 3AR
T: 01992 788 019

Drawing Title:
ARK SUBSTATION
PILE SETTING OUT

Drawn:	Date:	Checked:	Date:
MJ	11-08-20	RS	

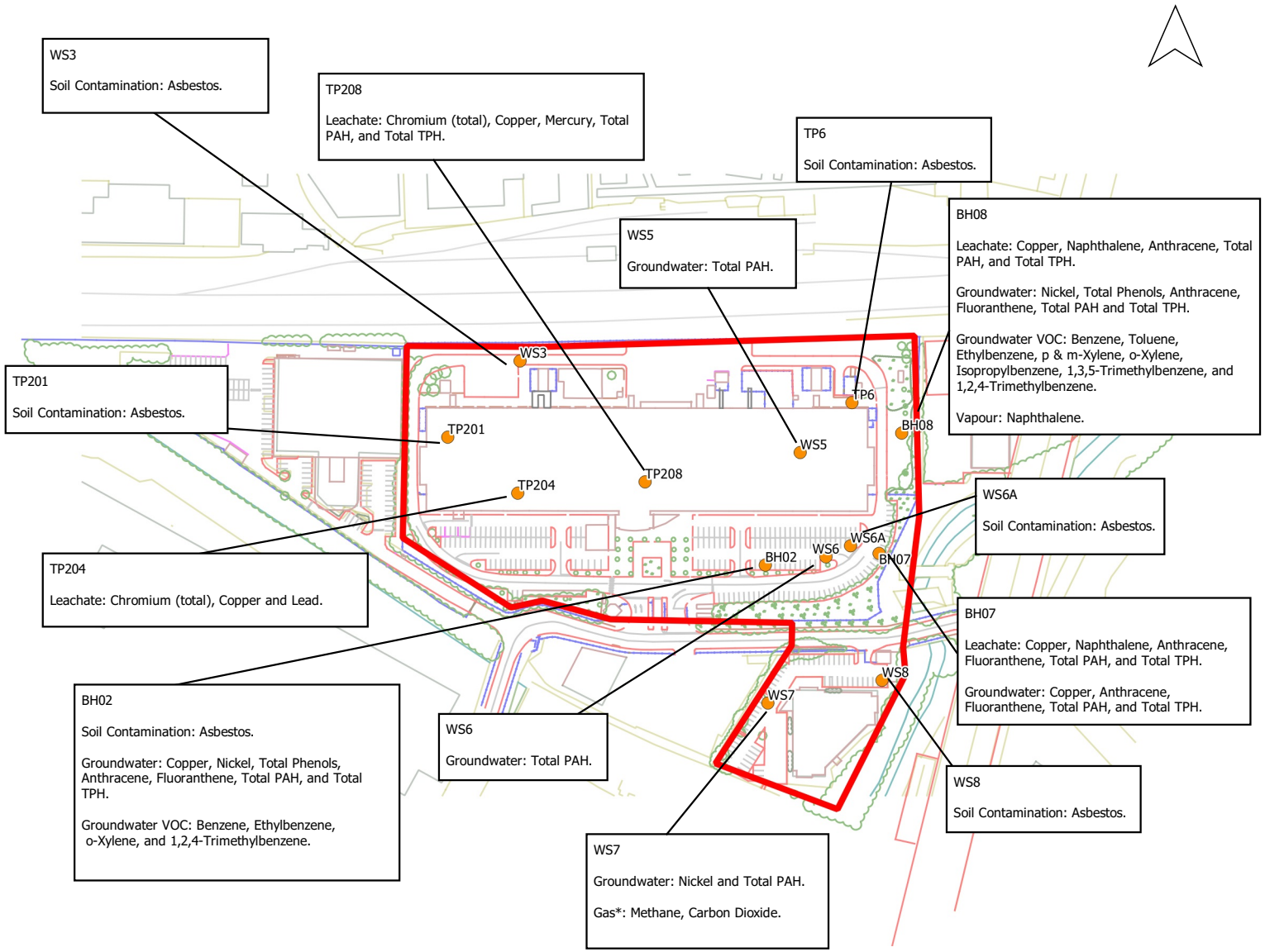
Service Order Number: -

Job Ref: P1152
Scale: NTS

Drawing Number: P1152_ARK_DWG_2003
Page Number:
Issue: D

DO NOT SCALE - UNCONTROLLED WHEN PRINTED

APPENDIX 2: CONTAMINANTS OF CONCERN



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65 Southwark Street
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020 7125 0112
www.paragonbc.co.uk

Notes:

Drawing based on the results from the Ground Engineering Ltd Utility Survey. Ref: 35406. Dated: 19/07/2019.

Boreholes where no elevated contamination was identified have not been presented.

* The gas risk to the site is based on a Gas Screening Value (GSV) calculated based on the worst case which was identified in WS7.

Key

- Site boundary
- Intrusive locations with elevated contamination

Rev	Description	Date

Project: Bulls Bridge, Hayes	Scale: 1:3000
	Drawn by: CB
	Approved By: CK
Title: Contaminants of Concern Plan	Drawing Number: 3
	Date: 17/12/2020

APPENDIX 3: PILING CONTRACTOR METHOD STATEMENT – CENTRAL PILING (BA PLOT)

RAMS for Soilmec SF50:	
	Continuous Flight Auger Piling
Contract No:	**42442A1**
Contractor:	**Sweet Project Holdings**
Site Address:	**Project Alliance, Bulls Bridge, Hayes, UB3 4QQ**
Site Manager:	**TBC**
Mobile No:	**TBC**
Working Hours:	**08:00 – 18:00**
No of Piles:	**2773**
Pile Diameter:	**350/450/600Ø**
Restrictions:	**Network Rail asset at North boundary of site and Grand Union canal to South.**
Contract Start Date:	**TBC**
Scope of Work:	**2773no bearing piles to a max depth of 29.1m**

Rev:	Date:	Prepared by:	Approved by:	Reason for Issue:
A	21/10/2020	Ian Todd Operations Supervisor	Sam Nicole Contracts Manager	Initial Draft for Network Rail, Thames Water and the Canal River Trust.
Signature:				
B				
Signature:				

Contents:

1. **Responsible Persons.**
2. **Site Controls.**
3. **Health & Safety.**
4. **Site Operatives / Training.**
5. **Supplied Plant & Equipment.**
6. **Central Piling Requirements.**
7. **Mobilizing on Site.**
8. **Equipment & Plant Set Up.**
9. **Fabricating Steel Reinforcement:**
10. **Priming & Pumping Concrete**
11. **Piling Procedures.**
12. **Cleaning Concrete System.**
13. **Securing Site Plant & Equipment.**
14. **Plant & Equipment De-Rigging.**
15. **De-Mobilizing from Site.**
16. **Environmental Procedures.**
17. **Quality Procedures.**
18. **Site Specific Information.**

Appendix A: Piling Rig Configuration

19. **Risk Assessments**
20. **RAMS Confirmation Sheet.**

This document has been produced in line with the Central Piling Health & Safety, Environmental and Quality policies.
Central Piling has been assessed and achieved ISO9001, ISO14001 & OHSAS18001 and is a member of the FPS [Federation of Piling Specialists].

Extra Corona Virus precautionary measures

In section 19 Site Specific Information and RA 16 Extra Corona Virus Measures we have put some extra measures in place to safeguard our operatives on site from the Coronavirus Covid-19 these procedures will supersede any other procedures listed in the RAMS.
By following these measures, we will hopefully stop the spread of this pandemic and enable our work force, their family and friends and any vulnerable person who they may come in contact with to stay safe and healthy.
We ask all our clients to ensure they follow the CLC paper on Site Operating Procedures – Protecting Your Workforce and ensure there are ample wash facilities with soap and clean water.

1. Responsible Persons:

Role:	Name:	Tele:	Email:
Managing Director	**Steve Hadley**	01787 474000	stevehadley@centralpiling.com
Responsibilities:	Director of Health & Safety. To implement, co-ordinate and control the administration of Health and Safety matters within the company.		
Contracts Director	**Roger Cox**	01787 474000	rogercox@centralpiling.com
Responsibilities:	To manage all contracts whilst staying abreast of developments in HSE legislation and good working practices. Ensuring that any new developments are communicated both quickly and effectively to all company staff.		
HSQE & Operations Manager	**Colin Newman**	01787 474000 07976 219209	colinnewman@centralpiling.com
Responsibilities:	To ensure all Central Piling employees work safely in line with the companies Health & Safety policy and procedures. To monitor and investigate breaches in health, safety, quality & environmental procedures. To ensure the correct training and Health & Safety information is given to all crews.		
Contracts Manager	**Sam Nicole**	01787 474000 07890 539359	samnicole@centralpiling.com
Responsibilities:	To organise and attend initial site visit and pre-start meeting(s) and liaise with the client prior to the contract starting. To ensure all rig and plant movements are in accordance with the client's needs and site-specific requirements. To ensure that RAMS are produced and approved and relevant to all activities on the specific contract. Monitoring production and progress of all contracts throughout the construction phase.		
Administrator	**Paige Fullgrabe**	01787 474000 07966 401595	paigefullgrabe@centralpiling.com
Responsibilities:	To collate and ensure all contract documentation is in place before the contract starts. Liaise with setting out engineers and ensure all drawings are up to date.		
Operations Supervisor	**Ian Todd**	07976 212218	iantodd@centralpiling.com
Responsibilities:	To liaise with the client ensuring that the site is prepared for the establishment of the piling rig and equipment prior to starting. To ensure that all documentation on site is completed and correct, including the Quality Check Sheet and Working Platform Certificate. Regularly audit the site team based on Health, Safety, Quality and Environmental performance. Monitoring personnel compliance with RAMS and implementing strategies to improve on site performance.		

2. Site Control

2.1. The Site Supervisor is the person in control of the works at site level. Should any problems arise beyond his authority, the Operations Supervisor or Contracts Manager should be contacted.

2.2. All Health & Safety problems or concerns arising on site the HSQE & Operations Manager or Contracts Director should be informed immediately.

3. Health & Safety

3.1. Central Piling employees will operate in a safe and diligent manner, in accordance with their Health & Safety policy & procedures. They will always adhere to the site RAMS.

3.2. Personal Protective Equipment will be worn whilst on site. The company's minimum requirement is: Hard Hat, Safety Boots, Safety Glasses, Rubber Gloves and Hi-Viz clothing. Additional Personal Protective Equipment will be worn for site specific work as required by the risk assessments i.e. overalls, dust mask and ear defenders.

3.3. Health & Safety is monitored daily by the HSQE & Operations Manager and any incidents, accidents or safety concerns are investigated promptly. All employees are encouraged to report any accidents, or incidents to the Site Manager and Operations Supervisor who will inform the HSQE & Operations Manager. Safety concerns are raised on the site tablet and email to the office, the HSQE & Operations Manager will allocate the safety concern and ensure a non-conformance [action log] is raised and completed within the allotted time scale.

3.4. A five-point safe check or site inspection will be completed at least once depending on the size of the contract; the report will be made available to the client and any issues will be passed on to the relevant supervisor or manager to act.

3.5. Central Piling has monthly HSQE & Management Committee meeting, which discuss any relevant issues arising and all non-conformances raised. Any issues requiring immediate attention will be discussed in the weekly contracts meeting.

3.6. All piling operatives and subcontractors working for / under Central Piling will sign and complete the required site documentation in the table below for the contract and undertake the Sweet Project Holdings site induction before commencing work on site.

3.7. The Site Supervisor will deliver a FPS Tool Box Talk briefing to all Central Piling site operatives and sub-contractors at weekly intervals throughout the contract. A copy will be made available for the client if requested in the Weekly Inspection Register.

3.8. If the Safe System of Work changes for any reason the work must STOP and the HSQE & Operations Manager or the Contracts Manager must be informed. The RAMS must be altered to highlight the new procedures and communicated to the site crew before work can continue.

Site Documentation;	When Completed;	Completed by;
RAMS	Before they start work on site.	Subcontract labour [Steel fixers, setting out engineers] Excavator & Dumper Operators [attendance], Piling operatives.
Digger Driver Briefing	When in attendance.	Excavator Operators
Lift Plan	Before they start work on site.	Piling Operatives, Excavator Operators, Lorry Loaders
Working Platform Certificate	Start of contract, weekly & after alterations to the piling mat	Site Manager
Permit to Excavate /Dig	Weekly / Daily depending on client	Site Manager, Site Supervisor & Excavator Operator.
Daily Pre-Inspection checks. [Rig, Pump, Drum, Compressor & MEWP]	Daily	Competent Person
LOLER Inspection	Weekly	Competent Person
Tool Box Talk / Site Briefing	Weekly	Operations / Site Supervisor

4. Site Operatives Training

4.1. Site operative's matrix below shows the minimum training requirement for a CFA piling rig contract:

	CITB Certificate:			CPCS Tickets					
Site Operatives:	**SMSTS**	**SSSTS**	**CSCS Tested**	**Piling Rig A48**	**Trailer Mounted Concrete Pump A44**	**Slinger/ Signaller A40a**	**IPAF Card**	**First Aid at Work**	**Asbestos Awareness**
Contracts Supervisor:	X		X				X	X	
Site Supervisor/ Rig Driver:		X	X	X			X	X	X
Pump Operator:			X		X		X		X
Banksman:			X			X	X		X
Setting-Out Engineer:			X						
Steel fixer: [Sub-Contractor]			X						

4.2. No site operatives will operate any plant or equipment for which they have not been trained or authorised to do so by Central Piling senior management team.

5. Supplied Plant & Equipment

5.1. Central Piling will supply the following plant and equipment for the contract.

Plant Required:	Machine details:	Pre-inspection	LOLER	PUWER
Piling Rig	Soilmec SF50 SN:	√	√	√
Holding Drum	Serial No:	√		√
Trailer Mounted Concrete Pump	Putzimeister PM1005 Serial No:	√		√
Compressor	Serial No:	√		√
MEWP	Serial No:	√	√	

5.2. **Pre-Inspections:**
All plant will be pre-inspected daily by a competent person and details sent to the office. Any immediate problems are telephoned directly to the Plant Manager or hire company.

5.3. **L**ifting **O**perations and **L**ifting **E**quipment **R**egulations 1998**:**
The MEWP and all lifting equipment are tested every six months and a thorough examination certificate issued. Pre-inspection is completed before each use and record weekly in the inspection register. Plant used for lifting is inspected yearly by a qualified insurance inspector and a Thorough Examination certificate issued. All certificates are held by the site supervisor.

5.4. **P**rovision and **U**se of **W**ork **E**quipment **R**egulations 1998:
All plant will come under the PUWER regs. No certifications are required, but the service history is available when requested.

5.5. The MEWP will be a standard machine without the safety crush bar in the basket, there is a negligible risk that the operator could be crushed.

5.6. A 2000 litre bunded diesel bowser [Wire lifting ropes attached] will be used to store diesel on site, 200ltr bunded drums will be used to move diesel around site. A spill kit [RA11 Environmental Issues] will be positioned next to the re-fuelling area.

5.7. Equipment required for CFA Piling consists of: Set of augers, concrete hoses, blow out drum & skip, barriers, cones, Traffic ramp & a 8' x 10' small container [COSHH store].

5.8. **Concrete Hoses:** A CFA rig has two sets of concrete hoses, the hanging hose and the elevated hoses which are double bagged, these are changed yearly. The placement and delivery hoses are changed, and pressure tested every 30 days on a calibrated machine. A certificate is available on request from Central Piling.

6. Central Piling Requirements

6.1. Sweet Project Holdings will provide the following:

6.2. To provide all site health & safety requirements and welfare facilities in accordance with CDM 2015 Regulations and the CLC paper on Site operating procedures – protecting your workforce.[Corona virus COVID-19]

6.3. A 360° Tracked Excavator [Minimum 20 Tonne] & Qualified CPCS operator [with pick & carry duties] in 100% attendance.

6.4. Install, test and maintain the working platform when required and provide a completed Working Platform Certificate.

6.5. To ensure all pile positions are scanned for services and are clear from overhead and underground obstructions and highlight any service which is in or near the piling platform.

6.6. Provide a clean compacted route to the piling platform for access and egress of the piling rig and delivery vehicles. To be designed as the working platform for the piling rig.

6.7. Provide a mains water supply [protected from freezing].

6.8. If working close to adjacent boundaries, ensure adequate protection is erected and maintained to stop damage or injury occurring outside the site boundary.

6.9. To provide coordinates for 3 stations for the setting out engineer.

6.10. To set out all pile positions with a steel pin and numbered mushroom safety cap.

7. Mobilising on Site

7.1. The low loader will arrive at the entrance of the site and be instructed by the site supervisor where to unload. The unit will be disconnected from the trailer and parked away from the entrance, protection boards will be laid on the road and when ready the banksman will signal to the rig operator to commence unloading the rig. [RA03 Working on Public Highway]. The rig will be banked off the low loader and on to site, to rig up. The Piling rig will be banked while on site by a banksman.

7.2. Hi-ab lorries will arrive through out the contract to deliver the piling equipment. They will be banked by the banksman into a position to unload. Lorry restraints will be placed around the lorry bed before the operator climbs on to the lorry. [RA05 Mechanical Handling Operations] A banksman will assit with the unloading of the lorries and place the equipment in a designated area making sure it is safe and secure. When unloaded the Hi-ab lorries will be banked off site.

7.3. A lorry will arrive to deliver the steel reinforcement which will be in bundles less than 1 tonne; this will be banked on to the site by the banksman. The Piling Operatives will assist in unloading the steel [RA05 Mechanical Handling Operation. RA04 Working with Operating Plant] aided by the 360° Excavator and place it on bearers in the designated area. When unloaded, the lorry will be banked off site by the banksman.

7.4. A Hire Company lorry will arrive with the MEWP [Mobile Elevated Work Platform]; it will be banked into a position to unload. When unloaded it will driven to an area off the plot which is safe, secure and ready for use. When empty the lorry will be banked off site.

8. Equipment Set Up & Plant Set Up

8.1. Before the piling rig can commence rigging up the **Working Platform Certificate [see 6.4]** must be signed by the designated person for the client, to confirm the piling mat has been installed as stated in the pile mat design.

8.2. **Emergency Rescue Procedure**: Before using the MEWP, the pre-inspection sheet and rescue plan need completing in the site inspection file [tablet], an operative will be appointed as the competent person in the rescue plan in the event of an emergency. [RA10 Use of MEWP on Site]

8.3. The MEWP operator will put his safety harness on and attach the lanyard to the rear, he will complete the pre-inspection sheet [RA10 Use of MEWP on Site] on the MEWP before climbing into the basket and attach the lanyard to the designated anchor point in the basket. He will start the machine, then he will move the MEWP into a position where the ground is stable where he can remove the chain from the raised equipment.

8.4. When ready the piling rig will be rigged up by the rig operator and banksman. [RA14 Working at Height, RA02 Working with Wire Rope] The turn buckle will be removed from the travel frame.

8.5. The prop will be placed on the rear of the mast section, once its taken the weight of the mast the securing clip and pin will be removed and the red mast bar will be removed and stored. The prop is then removed from the rear section.

8.6. The upper mast is then swung round by pushing it into place, the prop then holds the upper section and a bolt and pin are placed and tightened at the joint to hold the lower and upper mast sections. The prop is then removed and the electric connectors joined. The two ratchets are then removed from around the mast and the ropes are taken out of the travel hooks.

8.7. The 180˚ bend is then raised to horizortal and the turn bucket attached.

8.8. The rig operator will sit in the cab and instructed by the banksman will raise the mast till the top section of mast fits into the lower foot section, the banksman will stop the operator and place two pins with securing bolts into the joint holes. [RA14 Working At Height]

8.9. Once the bolts are fitted the banksman will open the hydraulic arm on the drill head and signal to the operator to start raising the drill head, he will watch the ropes as they go through the sheaf wheels then take the weight of the drill head and bring the cathead into position. The operator will then raise the drill head to approx 2.0m lower the mast back enough for the travel cradle to be removed.

8.10. Once removed the operator will lower the mast to approx 22° degrees and the tracks will be walked out into working width and travel bars inserted. The slew pin will also be removed. The operator will then raise the mast to level.

8.11. The extension and reaction bar lifting points will be checked before lifting commences.

8.12. **If the extension bar is required:** The chain on the ancillary line will be lowered under instruction from the banksman and attached to the lifting eye on the extension bar. The banksman will instruct the rig driver to raise the extension bar, so it hangs above the drill head. He will then instruct the rig driver to lower the extension while he guides it through the drill head and rests it on the ground. The MEWP operator will then raise the basket of the MEWP into a position to remove the chain, he will remove the chain and pull the electric cable from the reel and lower it down to the banksman to connect the plugs together.

8.13. The banksman will then instruct the rig driver to lower the ancillary line and attach the hook on to the reaction bar, when ready he will instruct the rig driver to raise the bar over the spectacle on the extension bar. The MEWP operator will help guide the reaction bar through the spectacle while the rig driver lowers it; when it has been lowered to the drill head the banksman will guide it into eye sockets on the drill head and down into the final socket where a pin is inserted and secured using an R clip. The MEWP operator will then remove the chain from the reaction bar and slew the basket away from the rig ready for the augers.

8.14. The required size gate guides will be connected into the gates by placing a chain and shackle on the arm of the excavator then completing one gate guide at a time, lift them into place and connect the two bolts through the gates and into the rear of the gate guide.

8.15. **Both bolts must be used on the gate guides. The bolts will be checked throughout the contract.**

8.16. **Safety Procedure: When connecting augers to an auger string the rig operator will always connect the couplings by forward spinning the auger to line up the pin holes at NO TIME WILL THE HEAD BE BACK SPUN. [RA05 Mechanical Handling Operations] While connecting the couplings the MEWP operator will keep his hands well away until signalled by the rig driver that the couplings are together.**

8.17. **Safety Procedure: When using 300mm diameter augers a 600mm extension bar must be fitted to the auger string so the lead auger can't be lifted into the gate guides.**

8.18. A 7.0m exclusion zone will be erected around the front of the piling rig before putting the auger string in place.

8.19. The first of three flights of 6m auger will be connected below the head this is done by a chain sling being placed three flights down the auger and then placed in the swivel hook on the ancillary line, the ancillary line is lifted slowly lifting the flight of auger into place, the auger is shut in the gates guided by the banksman. The rig driver will then lower the head guided by the banksman into the coupling on the auger (which will be cling film and greased), when connected the MEWP operator will slew into the rig and knock two auger pins in the coupling He will then remove the sling chain from around the auger and slew the MEWP away from the rig and wait for the next auger. This procedure is completed until all the flights are connected.

8.20. When all augers have been connected, the MEWP will be driven to an area which is secure, and the operator will remove the lanyard from the anchor point. He will climb down from the basket and go to the ground controls and lift the boom into a raised position and stop the engine and remove the key.

8.21. The holding drum will be put in a position so the concrete pump will be placed in front [RA012 Mechanical Handling Operations] and has good access for the concrete lorries. Metal and rubber hoses will then be attached together [RA06 Manual Handling Operations] using hose clamps and secured using clevis pins until the required length is achieved. The hoses will then be connected to the piling rig via the T-Piece. Large whip checks will be placed on all couplings between metal and rubber concrete hoses which are above ground level.

8.22. **Safety Procedure: A moveable cross over ramp with barriers is provided for protection to the placement concrete hoses on site, if any plant or vehicles need access across the hose the ramp can be placed by lifting it with the excavator, hard core can be place either side of the ramp if required. AT NO TIME IS TRAFFIC TO BE DRIVEN OVER THE PLACEMENT HOSES WITHOUT PROTECTION. Continual traffic movement over unprotected hoses will cause damage to the concrete hose which will result in a severe accident or incident occuring.**

8.23. A wash out bund will be placed under the hopper of the concrete pump and lined with polythene. Concrete lorries will be instructed to wash out into bund. This will be tidied daily.

8.24. At the beginning or end of each day the holding drum water reservoir will be filled with water and a grout will be made up in the half barrel to line the hoses [RA01 COSHH Hazards COSHH Prime-A-Pump]. Mould oil will be sprayed [COSHH 010 Mould Oil, RA013 Use of Mould Oil] onto the concrete pump and holding drum to help stop the concrete sticking.

8.25. All plant and equipment will be checked daily for fluid levels and topped up when necessary [COSHH 006 Gas Oil, COSHH 007 Oils and Greases, RA01 COSHH Hazards]. A spill kit will be position near the topping up procedure. Any defects will be recorded in the daily pre-inspection book.

8.26. The swivel situated on the drill head will be greased daily, if the MEWP is needed to access the drill head **8.3** needs to be followed before using the MEWP.

8.27. When the holding drum requires moving it will be lifted off its bearers using lifting chains. Then, dragging chains will be placed on the excavator and the other end attached to the holding drum. It will then be dragged into the new position (the dragging chains will then be removed) and raised using the lifting chains and the bearers placed under the runners of the holding drum. The concrete pump will be moved by the excavator and placed in front of the holding drum. **AT NO POINT WILL THE DRAGGING CHAINS BE USED FOR LIFTING.**

9. Fabricating Steel Reinforcement

9.1 The cages will be made on site by Sub-Contractor steel fixers.

9.2 The banksman will place a shackle and 2 leg 10mm chain sling on to the arm of the excavator and instruct the machine operator to lower the chains over a bundle of steel, the chains will be wrapped around the steel [See Lift Plan] [or the single use nylon sling will be used to lift the bundle of steel] the banksman will instruct the machine operator to place a bundle of steel reinforcement on to the cage stands. [A safety line will need to be used if moving long steel]. Once the single use slings have been removed from the steel they must be destroyed by cutting in half and putting in the general waste skip.

9.3 The steel fixer will remove the [RA06 Manual Handling Operations] required number of bars from the bundle and feed a helical around them, they will then tie the bars to the helical using tie wire in line with the specification and schedule.

9.4 The site supervisor will inform the steel fixer where to place the lifting point on the cages, the steel fixer will ensure that the designated lifting point is tied correctly and then highlighted for the banksman using marker spray.

9.5 When completed they will remove the cage from the stands and place it on the floor.

9.6 If making heavy cages, [See Lift Plan] chains will be fitted to the excavator and attached to the cage and the cage will be moved off the stands by the machine operator instructed by the banksman and placed in the designated area.

9.7 When moving cages around site 2x flat sling will be threaded through the cages and attached to the 2 leg 10mm chain sling. A guide rope will be attached to one end and the banksman will instruct the excavator operator to move to the designated area. The fabricated cages will then be lowered on to bearers and the flat slings removed.

9.8 Repeat **9.2** to **9.5** till right number of cages are completed.

10. Priming and Pumping Concrete

10.1. Concrete will arrive at intervals throughout the day and be banked on to the pump by the pump operator. The pump operator will check the concrete ticket [Check mix and slump is correct] and slump test one load per day [If concrete mix is poor slump more often might be required] before putting it in to the concrete pump. Any problem with the concrete mix contact concrete batcher and refuse load, then inform contract team.

10.2. The pump operator will make sure that the lorry driver is wearing the correct PPE [Safety Glasses, Hard Hat, Hi-Viz clothing, Safety Boots and water-resistant gloves]. before he starts discharging.

10.3. The pump operator will pour most of the grout into the T-Piece going to the rig then he will attach the blanking end with a clamp and secure with a clevis pin, he will then place 2 buckets of grout into the hopper on the concrete pump. [RA01 COSHH Hazards, COSHH Prime-a-Pump] Whip checks will be placed from all metal to rubber hoses.

10.4. The lorry driver will start discharging the concrete [RA01 COSHH Hazards, COSHH 004 Concrete] into the hopper of the pump when instructed to do so by the pump operator, the pump operator will check the change over valve is open to the holding drum, then he will start the holding drum and place in reverse and then start the concrete pump, he will then instruct the lorry driver to keep the hopper full at all times and then commence pumping 10 strokes into the holding drum, he will then stop and back pump 8 strokes and then change the change over valve to the rig and start pumping to the rig.

10.5. Once the banksman see's concrete exit the bottom of the auger he will signal to pump operator to stop, he will then back pump 8 strokes and change the valve over to the drum and continue pumping until the lorry is empty.

10.6. Repeat 10.4. to 10.5. on each load of concrete delivery through out the day.

10.7. When the concrete lorry is empty the pump operator will stop pumping and instruct the lorry driver to wash out in the bund. When washed out the concrete lorry will be banked off site.

10.8. When ready to pump concrete to the piling rig, the pump operator will access the crow's nest on the holding drum [RA 14 Piling Rig – Working at Height], he will ensure the changeover valve is ready to pump to the rig and turn the holding drum ready to discharge into the pump operator.

10.9. When the banksman gives the pump operator the signal to start pumping, he will put the pump in forward pump and start discharging the holding drum to keep the hopper full on the concrete pump and keeping a close eye on the banksman for any signal to stop.

10.10. Once the banksman has signalled the pile is complete the pump operator will back pump 8 times and change the valve over. He will then pump half dozen pumps back into the drum keeping the system moving. He will back pump 8 times again and change the valve back over to go to the piling rig.

10.11. If working in hot weather the concrete system will be moved **every 15 mins**, by pumping concrete through the rig system and holding drum system.

11. Piling Operations

11.1. Sweet Project Holdings will issue a permit to dig. [Make sure services drawing is also attached]

11.2. The piling rig is always banked around site by the banksman.

11.3. All mobile phones are banned while operating any plant or equipment.

11.4. When piling close to the site boundary make sure that the client has provided protection to vehicles and the public by erecting protective barriers. If none has been provided speak with the site manager about the risks involved before work commences.

11.5. If the site supervisor or banksman thinks the piling mat is unsuitable for purpose they must **stop** work and inform the site manager to rectify. If an obstruction is removed from the piling mat, once the piling mat has been reinstated correctly as the piling mat design, the site supervisor will require the site manager to complete the working platform certificate.

11.6. The rig operator will be position over a pile position, when in position the operator will level the rig and wait for instruction.

11.7. The banksman will place a setting out ring over the pin position and then remove the pin.

11.8. He will then position the auger over the setting out ring and signal to the rig driver when it is in position. He will then instruct the operator to raise the head and remove the ring.

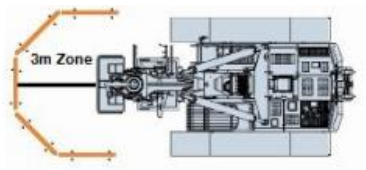
11.9. The rig operator will then lower the foot to stabilise the rig.

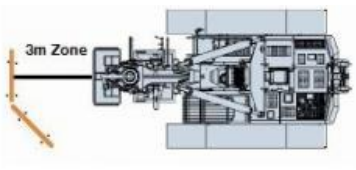
11.10. [First pile of the day only when grouting the system]. The rig operator will then make sure the area in front of the rig is clear and signal to the pump operator to commence pumping when concrete appears out of the bottom of the auger the banksman will signal to the pump operator to stop pumping.

11.11. The banksman will instruct the rig driver to lower the drill head, he will check the teeth of the auger before starting each pile, if they need replacing he will signal the rig operator that they need replacing.

11.12. The banksman and pump operator will prepare a cage by placing de-bonding and a set number of spacers on to the helical and then moving the cage into position for lifting. [RA06 Manual Handling Operation]

11.13. An exclusion zone will be created using pedestrian barriers being positioned approximately 3.0m from the auger on two sides at the front of the rig with 'no entry' signage and the excavator will be positioned to become the barrier for the third side. No site personnel are allowed in the exclusion zone while the auger is rotating. The rig operator will not commence drilling until the exclusion zone is in place.





11.14. Safety Procedure: The gate bar must be removed from the clasp once the gates have been opened or closed it must not be left in the clasp at any time. The correct length bar must always be used. [RA04 Working with Operating Plant]

11.15. The rig driver will check the pile number on his piling schedule then input it into the DMS computer system then he will commence drilling down to the design depth.

11.16. Safety Procedure: When opening or closing the gates the auger will not be rotating. [RA04 Working with Operating Plant] The gates will be opened if the depth of the pile exceeds 15.0m the gate swill be opened once the drill head has reached the top of the star wheel cleaner. The banksman will wait for the operator to stop rotating the auger and signal that he may enter the exclusion zone. He will open the gates then remain on the front of the rig while the gates remain open. He will monitor the concrete hoses and hydraulic hoses as the drill head lowers and raises making sure they do not get snagged and stop all unauthorised personnel entering the area. If the rig driver cannot see the banksman the rig operator will STOP drilling until the banksman is in position.

11.17. When the pile is drill to the design depth the rig operator will then signal to the pump operator via the banksman to commence pumping.

11.18. Nobody is allowed in the exclusion zone while the auger is rotating. If anybody enters the area the rig operator will stop work until they leave the exclusion zone area.

11.19. Safety Procedure: If during the pumping operations a tip blockage should occur in the concrete system, the pump operator will back pump the concrete pump and try pushing the system again. If the blockage does not clear he will then cease pumping and back pump at least 8 times. [RA13 Unblocking CFA Concrete System] The augers will be back rotated out of the bore until the tip can be accessed and the blockage cleared. The pile will be over drilled by approx.500mm beyond designed depth. If the concreting procedure is stopped for any reason, the rig operator will re-drill back into the concrete a minimum off 200mm then start re-forming the pile.

11.20. As the auger is extracted concrete is pumped down the centre of the auger. The augers will be cleaned during extraction by the flail cleaner and the star wheel once the gates have been closed.

11.21. Safety Procedure: No spoil is to be left on the auger above the auger cleaners. If the banksman or pump operator observe spoil remaining on the auger after going through the auger cleaners, they must stop concreting and inform the rig operator. The operator will drill the augers back into the brushes until the spoil is removed. If the spoil is still present on the auger, the auger will be drilled back into the pile to loosen the material, [RA04 Working with Operating Plant] if spoil is still present the excavator operator will be instructed to break the spoil with his bucket under instruction from the banksman. At no time should an operative use his hands to remove spoil.

11.22. When clear the rig driver will signal to the pump operator via the banksman to commence pumping.

11.23. The gates will be shut once the drill head has cleared the star wheel cleaner. The operator will signal to the pump operator to stop pumping. He will then stop rotating the auger and instructed the banksman that the exclusion area at the front of the rig is safe to enter. The banksman will close the gates and leave the exclusion zone, he will then signal the operator that it's ok to continue, the operator will signal to the pump operator to commence pumping, the operator will drill the auger 200mm into the concrete then continue lifting the auger out of the pile.

11.24. When at top of pile, the rig operator will leave the auger 500mm in the pile until concrete is showing at the base of the pile. He will signal to the pump operator via the banksman to stop pumping.

11.25. The rig operator will raise the foot off the ground, slew left and right and jib back the mast 10˚. He will then be instructed to reverse away from the pile position.

11.26. The banksman will then instruct the excavator driver to remove the spoil from on top of the pile. The arisings will be moved away from the piling operation via 360° excavator and dumper to be stored for removal off site.

11.27. The pump operator will clean out the top of the pile [RA01 COSHH Hazards, COSHH Concrete] using a graft, while the banksman attaches a shackle and chain [see Lift Plan] to the arm of the excavator. The banksman will place the chain on the designated lifting point, then instruct the excavator operator to lift the cage and place it over the pile. The banksman will then instruct the operator to lower the cage into the pile assisted by the pump operator until the cage is at ground level. If required, the chain will be removed, and the operator will be asked to tap the cage down to ground level. The cage will then be centralised. Protection will then be place over the constructed pile.

11.28. Repeat **11.6** to **11.27** until job is complete

11.29. The auger pins will be changed every two weeks and the coupling split, cleaned and re-greased.

11.30. The swivel on the swan neck will be greased near the end of every shift. Either by mobilising the MEWP **8.3** or by completing the procedure at ground level. [RA01 COSHH Hazards]

11.31. Straight/Open Bore: Where the ground is found to be dry and stable, the auger will be drilled down to 500mm short of the required depth, it will then be extracted by forward rotating the auger and using the auger cleaners to clean the auger flights. When the auger is out of the pile the rig driver will raise the foot and back off the pile position, the banksman will instruct the machine operator to clear the spoil. Once clear the banksman will signal to

the rig driver to move forward to the pile position, he will set the auger over the pile and instruct the rig driver that its ok to commence drilling, the rig driver will lower the stabilizing foot on to the working platform and commence drilling. Once the required depth has been achieved the rig driver will stop rotating the auger and extract the auger from the pile. If the pile needs the extension the flight catcher will be used to hold the auger flight while the extension is closed. Once out of the pile a cover will be placed over the void to stop spoil falling in, the spoil will be moved away from the top using a shovel and the pile will be measured using a tape.

11.32. The cage will be inserted in the pile as **11.27**. No piles will be left open without protection.

12. Cleaning the Concrete System

12.1. Any remaining concrete will be pumped through the system.

12.2. The compressor will be started and a compressor hoses attached, whip checks will be placed on both connectors.

12.3. The piling rig will be position as reasonably practicable as far from the hoarding or other plant / personnel on site. The blow out drum will be positioned in front of the rig and the operator will drive into the drum and lower the auger insuring the outlet hole is facing away from the foot.

12.4. **When releasing any concrete clamp whether under pressure or not the goggle face mast must be worn by the operative.**

12.5. The pump operator will back pump the concrete pump a minimum of 8 strokes to reduce the pressure in the concrete system, he will then make sure the changeover valve is in the drum pumping position, he will then remove the clevis pin and open the concrete clamp on the delivery hose and rest the concrete hose on a hose stand.

12.6. The pump operator will then place a 5” hard ball in the delivery hose and attach the ball blower to the delivery hose using a rubber and one bolt concrete clamp and tighten. He will then attach a compressor hose to the rear of the ball blower using a whip check between connectors.

12.7. The pump operator will then open the outlet valve on the compressor and wait for the 5” hard ball to exit into the holding drum, he will then close the outlet valve and remove the ball blower.

12.8. Water will then be placed into the delivery hoses once full a 5” soft ball will be inserted into the hoses and the ball blower attached using a rubber and one bolt concrete clamp and tighten. Once ready he will open the outlet valve on the compressor and wait for the soft ball to exit into the holding drum.

12.9. **Safety Procedure:** The site supervisor/ rig operator will assess whether to blow out in 2 or 3 stages depending on amount of concrete hoses, extension bar fitted and concrete consistency.

Two Stage:

12.10. The banksman or rig driver will assist the pump operator in placing a 5” hard ball into the delivery hose and then attach the ball blower using a rubber and one bolt concrete clamp and tighten. The changeover valve will then be changed to the placement hoses going to the rig.

12.11. The piling rig will be banked into a position to blow out and a blow-out drum will be placed under the auger and the auger lowered inside. A board will be placed in front of the opening of the blow out drum and the machine operator will be instructed to place his bucket on the board.

12.12. The rig driver will then position himself in a safe area to stop anyone approaching the rig and signal to the banksman to open the outlet valve on the compressor. [RA12 Cleaning CFA Concrete System]

12.13. When the 5” hard ball has exited the bottom of the auger into the blow out drum and the rig operator has located the ball, the rig driver signals to the banksman to shut the outlet valve on the compressor.

Three Stage:

12.14. The banksman or rig driver will assist the pump operator in placing a 5” hard ball into the delivery hose and then attach the ball blower using a rubber and one bolt concrete clamp and tighten. The changeover valve will then be changed to the placement hoses going to the rig.

12.15. The banksman will sling the concrete hoses on the back of the rig and attach the other end to the chain and shackle on the excavator arm. He will then remove the clevis pin from the clamp and at arm’s length open the clamp. Once the concrete hose has been released he will instruct the excavator operator to move the hose to the blow out skip, once on place the excavator will hold the hose while the banksman attaches the concrete hose to the blow out skip using a rubber and one bolt concrete clamp and tighten.

12.16. The rig operator will then position himself in a safe area to stop anyone approaching the rig and signal to the banksman to open the outlet valve on the compressor. [RA12 Cleaning CFA Concrete System]

12.17. When the 5” hard ball has exited the placement hoses into the blow out butt the rig operator has located the ball, the rig operator signals to the banksman to shut the outlet valve on the compressor.

12.18. The clevis pin and clamp will be removed from the concrete hose attached to the blow out drum and the excavator operator will be instructed to place the placement hose back to the piling rig it will then be attached using a rubber and one bolt concrete clamp and tighten. The sling will then be removed from the chain on the excavator arm and from around the concrete hoses and stored in the container.

12.19. The banksman or rig operator will remove the clamp holding the ball blower and insert a 5” hard ball then reattach the ball blower using a rubber and one bolt concrete clamp and tighten.

12.20. The piling rig will be banked into a position to blow out and a blow-out drum will be placed under the auger and the auger lowered inside. A board will be placed in front of the opening of the blow out drum and the machine operator will be instructed to place his bucket on the board.

12.21. The rig operator will then position himself in a safe area to stop anyone approaching the rig and signal to the banksman to open the outlet valve on the compressor. [RA12 Cleaning CFA Concrete System]

12.22. When the 5” hard ball has exited the bottom of the auger into the blow out drum and the rig operator has located the ball, the rig driver signals to the banksman to shut the outlet valve on the compressor.

Water Wash Out:

12.23. The ball blower is removed from the delivery hose and water is poured into the delivery hose, when full a 5” blow out ball will be placed into the concrete hose, the ball blower will then be attached by rubber and one bolt concrete clamp and tighten to the delivery hose.

12.24. The rig operator will again position himself in a safe area and stop people approaching the rig and signal to the banksman to open the outlet valve on the compressor, when the soft ball has exited the bottom of the auger and been visually located the rig operator will signal to the banksman to close the outlet valve.

12.25. The rig operator will instruct the excavator driver to remove his bucket and the board will be removed and stored off the plot. The blow out balls will be retrieved and cleaned and placed in the water butt.

12.26. The rig operator will raise the auger and be reversed by the banksman away from the area. The blow out drum and skip will be cleaned daily and removed and placed at the side of the plot and the excavator will clean up the blown-out concrete.

12.27. The ball blower will be removed from the compressor hose the valves opened and wash thoroughly in the water butt, the compressor hoses will be coiled up and stored securely.

Blowing Out System Blockage

12.28. If a blockage in the concrete system occurs while blowing out, the compressor will be turned off and the outlet valves opened to release the trapped compressed air, the outlet valve on the ball blower will then also be opened controlling the release of any trapped air. [RA13 Unblocking the concrete system] Once all air has been released a decision will be made as to where the blockage has occurred. An operative will place a full head visor over his face before removing the clevis pin from the clamp and at arm’s length open the clamp arm; all other site operatives will be a minimum of 5 meters away from the blockage area. If air is escaping when the arm is open the clamp will be left until no pressure is heard, again at arm’s length the operative will commence opening the clamp. When the clamp is off the blockage will then be cleared. The pipe will then be reconnected with the clamp and secured with a clevis pin before blowing out can commence. If the placement hose or hanging hose are blocked they will be attached to the blow out skip to stop any whipping when the blockage releases.

12.29. The pump operator will put the holding drum in reverse and wash out all the concrete into the hopper of the concrete pump, when clean the pump operator will place the pump in reverse and wash all the concrete off the concrete pump and metal hoses. The pump operator will tidy up any excess concrete under the concrete pump.

13. Securing Site Plant & Equipment

13.1. The piling rig will be banked in to a designated area to park, he will level the rig, lower the auger on to the ground and then lowered the foot on to the piling mat. The rig operator will turn off the rig and remove the keys and tablet; he will then lock all the doors on the rig making sure everything is safe then turn off the mobiliser lever.

13.2. The pump operator when finished will be assisted by the banksman and place all the metal work on the concrete pump, they will then place all the remote controls, tools, chains and equipment in the container and close and lock the door.

13.3. The 150cfm compressor will be chained and padlocked to the rear of the holding drum.

13.4. All site security fencing will be erected if removed by Central Piling before leaving site.

14. Plant & Equipment De-Rigging

14.1. The rig operator will be banked into a position to de-rig in the middle of a plot and erect a 7.0m exclusion zone in front of the rig. The MEWP [RA10 Use of MEWP on Site] operator will complete the pre-inspection checks on the MEWP put on a safety harness, he will start the MEWP on the ground and lower the boom, when lowered he will climb in the basket and attached the lanyard to the anchor point. The MEWP operator will drive the MEWP into a position on stable ground, so that he can slew the MEWP into the auger string to remove the auger pins and attach the sling chain.

14.2. **Safety Procedure: When disconnecting the auger string at NO TIME WILL THE HEAD BE BACK SPUN. While disconnecting the couplings the MEWP operator will keep his hands well away from the couplings once he has removed the auger pins.**

14.3. The rig operator will lower the auger on to the ground and the banksman will open the gates, the MEWP operator will swing the MEWP into a position to remove the auger pins in the coupling, once removed he will signal to the rig operator via banksman to raise the second line, when in the correct position the MEWP operator will attach a sling chain to the auger and on to the swivel hook, he will then swing the MEWP away from the rig. Under instruction from the banksman the rig operator will raise the drill head, once the augers had come apart he will lift the second line and then lower the auger into a position to be collected.

14.4. Once the auger is on the ground the banksman will remove the sling chain and signal to the operator to raise the ancillary line. The operator will then lower the drill head until the auger is on the ground. This procedure is repeated until all the augers have been removed.

14.5. Once the augers have been removed the banksman will instruct the rig operator to lower the drill head on to the bottom stops. The MEWP operator will slew in and signal to the rig operator via the banksman to raise the ancillary line, when in position he will attached the swivel hook to the lifting eye on the reaction bar and slew away from the rig.

14.6. The securing clip and pin will be removed by the banksman at the base of the bar, he will then signal to the rig operator to lift the ancillary line, when the reaction bar is clear of the spectable on the extension bar, he will signal to the rig operator to lower the bar on to the ground into a position for loading. He will then remove the swivel hook.

14.7. The MEWP operator will slew into the extension bar and signal to the rig operator via the banksman to raise the ancillary line, when in a position to connect the hook to the lifting hook on the extension bar and then slew away.

14.8. The banksman will signal to the rig operator to raise the ancillary line and when the extension bar is clear of the drill head the operator will jib forwards, then left, once clear he will lower the reaction bar and jib back. He lower the extension bar so the coupling is up against the track and then lower the bar to the ground, in a postion for loading.

14.9. The bankmans will remove the hook from the lifting eye and instruct the operator to lift the ancillary line and once in position will instruct him to lower the second line through the centre of the drill head.

14.10. The rig operator and banksman will start de-rigging the piling rig, under instruction from the banksman the rig operator will lower the mast to approximately 22˚. The travel bars will be removed and stored on the rig, the tracks will be walked in and when in closed position, the track pins will be inserted.

14.11. The bankmans will instructed the operator to straighten the body of the rig and once in the correct postion he will insert the slew pin and secure.

14.12. The operator will then level the mast and the banksman will remove the pin on the hydraulic arm and push into transport position then replace thepin in the arm.

14.13. The travel frame is then connected behind the lower mast section and pins clips inserted. The operator will then jib back until the weight of the top section of mast is taken on the two springs on the travel frame. The two masts pins will then removed and stored on the rig.

14.14. The operator will feed out the main line rope off the drum until 3 rings are left on the drum, the banksman will pull the ropes out in equal length through the sheaf wheels. Once ready the operator will lower the mast down on to the cradle. Then push the override button to finish off the mast lowering. The banksman will ensure no ropes or hoses get snagged. [RA14 Working at Height, RA02 Working with Wire Rope]

14.15. The banksman will make sure all ropes are positioned on the top and bottom of the mast and the MEWP operator will place two ratchets straps either side of the top mast joint and tighten.

14.16. A mast prop will then be place at the rear of the mast and the rig operator will reverse on to the prop to take the weight of the rear mast pins. The MEWP operator will remove the mast bolt and pin and disconnected the electrics, the banksman will the instruct the rig operator to track forward and remove the prop.

14.17. The turnbuckle on the 180˚ concrete pipe will be removed and the pipe will be pushed down ready for the rear section of mast to be pushed round until the mast bar can be positioned and the operator again reverses back taking the weight on the rear section and the red travel bar is then inserted through the two mast sections and a auger pin is inserted secured with a clevis pin, the mast prop will then be removed and stored on the rig.

14.18. The turnbuckle is then connected and tightened on the travel frame.

14.19. The MEWP operator when finished will drive the MEWP into a position ready for collection; he will then release his lanyard from the anchor point and climb out of the basket and remove the key.

14.20. All the holding drum and concrete pump equipment will be taken apart by the pump operator will either be placed around the pump ready for loading or in the container.

15. De-Mobilizing from Site

15.1. The low loader will arrive at the entrance of the site and be instructed by the site supervisor where to disconnect the trailer. The unit will be disconnected from the trailer and parked away from the entrance, protection boards will be

laid on the road and when ready the banksman will signal to the rig driver to commence loading the rig. [RA03 Working on Public Highway]. The rig will be banked onto the low loader.

15.2. Hi-ab lorries will arrive on site to collect the concrete pump, holding drum, small container, ramp, compressor, augers and other equipment. It will be banked by the banksman into a position to load. Lorry restraints will be placed around the lorry bed before the banksman climbs on to the lorry. The pump operator will assist [RA05 Mechanical Handling Operations] with the loading. When loaded the Hi-ab lorry will then be banked off site by the banksman.

15.3. A hire company will arrive on site and collect the MEWP; The MEWP will be parked into a position for loading before the crew leaves site.

15.4. Before leaving site, the site supervisor will check around site to ensure the test pile is highlighted and has bunting attached. He will ensure everything has been collected and the site has been left in good order, he will then speak to the site manager before he leaves site. If items are left on site, he will take photos of the items and check with the transport manager when it is being collected and inform the site team.

16. Environmental Procedures

16.1. Central Piling has achieved **ISO14001 Environmental Management Standard** and have developed a Environmental policy. We are committed to achieving good environmental practices and operating in a sustainable manner.

16.2. We will endeavour to minimise concrete wastage, prevent pollution and continually improve our environmental activities whilst operating on site.

16.3. We will work closely with Sweet Project Holdings to ensure any environmental issues are managed quickly and efficiently.

16.4. Spill kits will be kept on the piling rig and near the diesel bower. Blankets will be used to catch any spillages when refuelling.

16.5. Drip trays will be placed under all static plant, and any spillages will be collected in spill blankets and returned in blue contaminated bags to our yard for disposal.

16.6. All contaminated liquids will be placed into waste oil drums and returned to the yard for disposal.

16.7. COSHH material containers will be kept in the COSHH store, in the site container or in drip trays while not in use.

16.8. Any drains or water courses which are situated close to the piling works will need to be managed by the client to ensure there is no contamination, we will endeavour to prevent any contamination resulting from the piling operations. [RA11 Environmental Issues]

16.9. Tree branches/bushes need to be trimmed approximately 1.0m back from any pile positions; we will not drill through foliage to construct a pile as this could result in damage to the tree/bush and piling rig.

16.10. Any environmental issues [safety concerns, spillages, leaking/burst hydraulic hoses] will be recorded as a non-conformance and be discussed in the monthly HSQE management committee meeting.

17. Quality Procedures

17.1. Central Piling have achieved **ISO 9001 Quality Management Standard**, which demonstrates the necessary skills required to quality manage our activities, products and services. It is also a measure of reliability, consistency and commitment to supply quality to our existing and potential customers.

17.2. A pile design and working platform design will be sent to the client prior to the piling rig arriving to site.

17.3. A member of the contract team will visit site and complete a site visit and produce the RAMS for the contract.

17.4. On commencement of the contract the operations supervisor will be on site to sign up a Quality Check sheet before drilling commences. He will make sure all drawings, pile loadings, mat levels, debonding levels, cubes and test pile information is correct and complete a handover to the Site Supervisor.

17.5. The site supervisor will be given a contract information file, with all required information for the contract. All safety information and pile schedule are uploaded to the site tablet. These are recorded on the daily record sheet in the cab and on the on-board computer. After each shift the daily record sheet is sent to the office for booking in.

17.6. The information is collated with the information on the DMS system [onboard rig] and checked with the CP logistics system before being booked in, these checks make sure drilled information is correct [depth, reinforcement and wastage] on all piles.

17.7. If Central Piling are contracted to provide a setting out engineer, the engineer will set out all pile positions required daily, check the piling mat level and instruct the operator if details have changed and once constructed will complete an as-built survey. They will speak to the operator immediately if the pile is 100mm out of position, he will also compile and send in file to the office weekly with all the as-built surveys.

17.8. Cubes are taken (if requested by the client) by a UKAS accredited company. These cubes are tested at 7 and 28 days to confirm the strength of concrete, if required a 56-day cube can be taken. Results are released after testing.

17.9. Integrity testing takes place if requested by the client at a minimum of 7 to 10 days after the piles were installed. The client needs to ring the Central Piling office giving a minimum of 3 days' notice and inform when they will be ready ensuring no reinforcement beams are in place; a specialized company arrives on site and tests the integrity of the pile. Results are released after testing.

17.10. Any problems with the quality of our works will be logged as a non-conformance report [Action Log] and this will be discussed in our weekly and monthly meetings.

17.11. Members of the contract team will monitor the production and quality daily

18. Site Specific Information

18.1 Prior to breaking ground, the client is to confirm that up to date service drawings have been checked against the proposed pile positions and ensure that no underground services exist close to the proposed pile locations [RA15 Site Specific Information].

Working in Close Proximity to Network Rail Asset

18.2 It is acknowledged that the site is bounded by a Network Rail asset, this is shown on Appendix D.

18.3 All the piling mats will be designed by a Central Piling engineer with information from the Soilmec SF65 loading criteria datasheet. [See Soilmec SF65 spec Sheet]. Timber baulks will be provided at the perimeter of the piling mats to stop the rig tracking off the edges.

18.4 Any pile positions further than approx 33m (see fall diagram for Soilmec SF65 in Appendix D) from the boundary of the live railway track will be piled as stated in Section 12 Piling Operations. The 33m zone is based on the rig being 30m tall plus a 3m allowance.

18.5 When working within the 33m restricted zone the following extra measures will be followed by Central Piling at all times. A Soilmec SF65 will be used as a specialist piling rig in this area.

18.6 The piling mat will be visually inspected by Rig Driver/ Site Supervisor and the banksman before the rig enters the restricted area. Any problems will be rectified to the rig driver's satisfaction before the rig moves.

18.7 The rig driver will jib the mast back 10 degree and wait for instruction from the banksman.

18.8 The banksman will bank the rig into a position so that when it enters the restricted area the rig will always be perpendicular to the live railway tracks, the rig will not sprag when it is in the restricted area (See Appendix C).

18.9 The Banksman will bank the rig over the pile position and advise the driver to level the mast, when level the banksman will bank the rig by signalling to the rig driver to track or slew the rig so the auger is over the pile position.

18.10 When set up on the pile position procedures in section 12 Piling Operations will be followed.

18.11 Before moving off the pile position the rig driver will raise the foot and jib the mast back 10 degrees then wait for instruction from the banksman.

18.12 The banksman will visually check the piling mat before banking the piling rig straight back on to the next pile.

18.13 Procedures 18.6 to 18.12 will be followed until the piling rig comes out of the restricted area.

18.14 When out of the restricted area the banksman can bank the rig by spragging the rig into a position that it can enter the restricted area and be banked in a straight line to the next line of pile.

18.15 The piling rig when moving in the restricted area will have the mast jibbed back 10 degrees at all times.

18.16 The NR emergency procedures must always be available within the site office and are shown in Appendix B. The Network Rail Emergency Number is 03457 114141.

18.17 Sweet Project Holdings will provide a physical and visual barrier on site to mark the extent of the Network Rail boundary. At no point will any plant be permitted to oversail this zone including the attendant excavator.

18.18 All piles will be installed with a reinforcement cage. The typical length for these is 8-10m and they will be installed with the Excavator.

18.19 When installing pile cages the Excavator will be positioned at the front of the piling rig in a similar position to its location when clearing spoil. It will not be permitted to slew or oversail the Network Rail boundary [RA15 Site Specific].

18.20 Appendix D shows the location of the plant to be used on site and indicates the working area for the MEWP whilst in use. The location of the excavator whilst installing steel reinforcement is also indicated.

Working Close to Thames Water Asset

18.21 It is acknowledged that the site is crossed on the South Eastern corner by the Crane Valley sewer, a Thames Water asset.

18.22 The pile layout drawings from Hurley Palmer Flatt (HPF-0471-EC1-F2-DR-S-181 50/60/112/115) show the location of the piles and the Thames Water assets. A 12m exclusion zone is marked on the drawings, pile positions must be

outside of this exclusion zone and no plant shall be permitted to operate within the area. A typical example of these drawings is shown in Appendix E for clarity.

18.23 Where the sewer runs through the site, Sweet Project Holdings will need to place a physical barrier on the piling mat at the edge of the exclusion zone to ensure that the rig does not encroach within the area.

18.24 The owner of the specific asset will be consulted by Sweet Project Holdings to determine the necessary exclusion zone and conditions to be followed whilst working in the area.

18.25 All proposed pile positions must be undertaken with consideration for the requirements set by the Thames Water Guidance for working near their assets.

18.26 The piling rig will not be positioned over the asset at any point during the operation. CFA piling causes negligible vibration and soil displacement, therefore creating negligible PPV impact on the asset. Frictional capacity will not be considered in the top 3m of the pile, further reducing impact on surrounding strata and any services it may contain.

Working in Close proximity to a Canal or River

18.27 It is acknowledged that the site is bounded to the South/South West by the Grand Union Canal and all site activities must be undertaken with mitigation measures to ensure that the watercourse is protected (the location of the Canal is shown in Appendix D). Any works within 9m of the canal must be compliant with the following.

18.28 At no point will the Piling Rig be positioned in such a way that it can surcharge the canal wall. Sweet Project Holdings will advise on the extent of the exclusion zone and mark on site.

18.29 A fence will have to be emplaced at the canal edge to ensure that no personnel or equipment can fall into the canal. Debris netting will have to be emplaced by Sweet Project Holdings at a height of 3m along the canal edge.

18.30 Extra vigilance will be taken by the Rig Driver when removing spoil from the auger string with the auger cleaner to ensure that none is flicked over the debris netting.

18.31 Sweet Project Holdings will need to emplace a bund formed from sandbags and polythene to stop waste water from entering the canal at any stage. Removal of this waste water will have to be undertaken by Sweet Project Holdings in a safe and controlled manner to reduce risk of breaching the bund.

Central Piling cannot be held responsible for any damage or incident relating to the Thames Water Sewer, Network Rail asset or Grand Union Canal.

CORONAVIRUS EXTRA SITE PRECAUTIONARY MEASURES

18.1 **Travelling to site –** Site employees where possible will travel to site in separate vehicles, arrangements will be made for parking on site [if possible]. Travelling to site by public transport should be avoided.

18.2 If multiple members of staff need to share the same vehicle they should ensure that they only share with the same individuals, the number of people in the vehicle must be kept to a minimum.

18.3 Try to ensure that good ventilation is maintained by keeping windows open, even if only slightly. Always make sure that the fans are not set to re-circulate air in the vehicle.

18.4 If using a vehicle it should be cleaned on a regular basis using gloves and standard cleaning products, always ensure that a packet of antibacterial wipes and a bin bag are available. Any items used for cleaning must be disposed of immediately after use.

18.5 If travelling to site via public transport cannot be avoided, all persons must ensure that they wear a face covering, avoid touching their faces and wash their hands with soap and water for 20 seconds before and after travel. Always ensure that you have antibacterial gel available.

Site Working

18.6 All entry systems that require skin contact will be removed, If required to sign in/out of site this will be done by one crew member and will be situated close to a sink or toilet block so hands can be washed and sanitised immediately afterwards.

18.7 When entering or leaving site ensure you keep a minimum distance of two metres from other operatives.

18.8 Operatives must wash hands regularly with soap and fresh water. Hands needed to be dried using disposable hand towels which should be immediately placed in a bin after use.

18.9 If you do need to use the canteen facilities make sure you keep 2 metres away, ensure that the area is sanitised before and after use.

18.10 The toilet or drying room facilities should only be used one at a time, ensure you wash your hands once finished.

18.11 When working on site make sure you keep a minimum distance of 2.0m from other site operatives, use the excavator where possible to lift equipment. If required to working at 1.0m distance, full face covering shield must be worn. Do not work closer than 1.0m apart.

18.12 If any situation arises where the excavator cannot be used and two operatives are required to work within the 1 metre with a full-face covering shield, work must cease, and a manager informed immediately.

18.13 Do not share PPE, telephones or the tablet, one person to complete the tasks on the tablet. [Pre-inspections and weekly checks]

18.14 Working platform certificate will be accepted by an email from the principle contractor stating the mat has been installed as stated in the design.

18.15 If any of the operatives have any symptoms of the coronavirus [See www.nhs.uk/conditions/coronavirus-corvid-19/ or phone 112 for advise] they must stay at home and self-isolate for 7 days. If someone in their house has symptoms, they must self-isolate for 14 days.

18.16 Delivery tickets will not be signed, inform the Procurement Manager who will confirm with the delivery company.

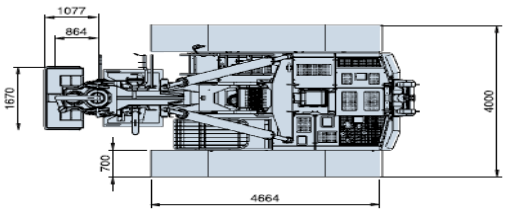
18.17 There should only be one Operative driving the rig, there should not be changes in roles throughout the works. If the driver needs to be changed the cab should be wiped down with disinfectant wipes.

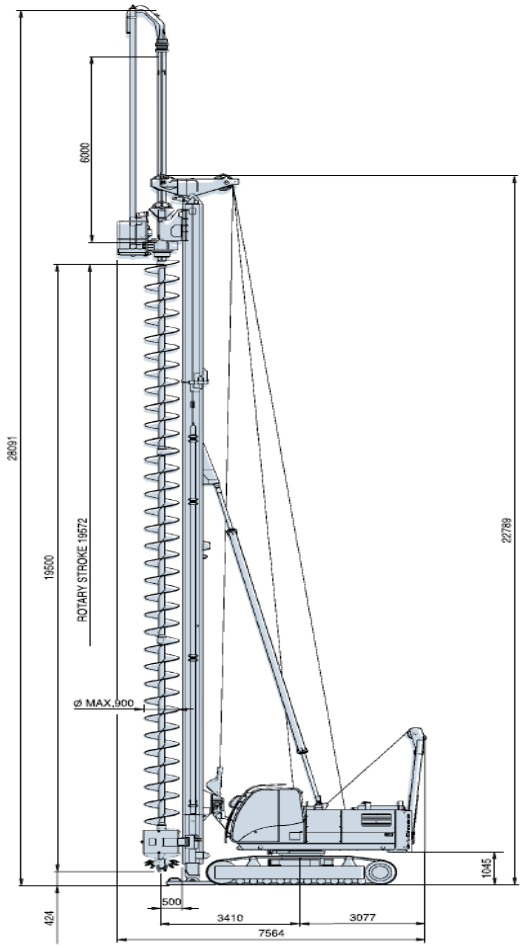
Appendix A:

SF-50

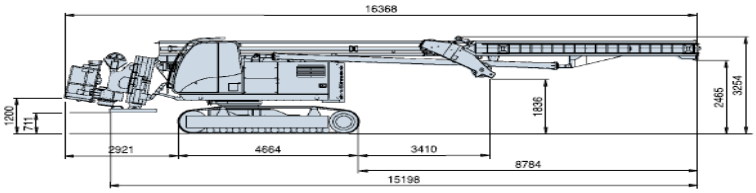
HYDRAULIC CFA ROTARY RIG

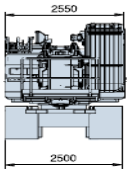
Working Condition





Transport Condition





Appendix B:

HS032 V1.2 April 2020

CentralPiling
www.centralpiling.com

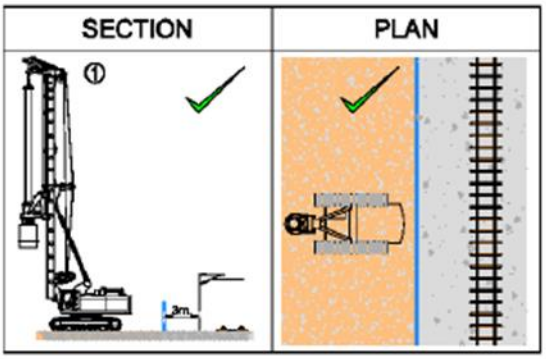
Site Emergency Procedures

After every emergency and when the site is safe contact senior management and inform them of the incident.
Take photos and record times of events for reference when completing a report.

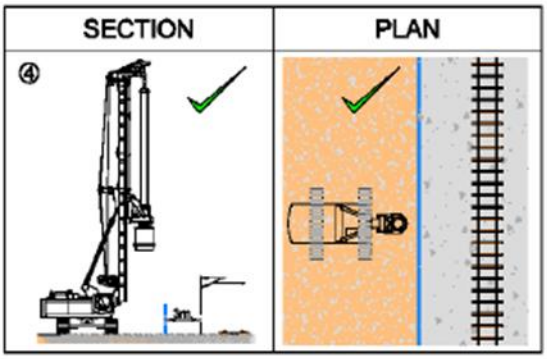
Emergency	Response
Severe Injury	Seek First Aider. Call Ambulance by dialling 999. Inform the Site Manager [PRINCIPAL CONTRACTOR].
Fire	Raise the Alarm. Go to muster point. Inform the Site Manager [PRINCIPAL CONTRACTOR]. Call Fire Brigade by dialling 999.
Uncovering Asbestos or other dangerous substance.	**STOP WORK.** Inform the Site Manager [PRINCIPAL CONTRACTOR]. Wait for Instructions.
Suspect unexploded ordinance	**STOP WORK.** Clear the immediate area. Inform the Site Manager [PRINCIPAL CONTRACTOR].
Underground or overhead Electric cable strike	**STOP WORK.** Driver to stay in cab. Other Operatives DO NOT TOUCH RIG. Inform the Site Manager [PRINCIPAL CONTRACTOR] immediately.
Gas main Strike	**STOP WORK.** Switch off ALL plant. Prohibit smoking. Inform the Site Manager [PRINCIPAL CONTRACTOR] immediately.
Data cable or BT cable strike	Stop work. Inform the Site Manager [PRINCIPAL CONTRACTOR].
Sewer strike	Stop work. Inform the Site Manager [PRINCIPAL CONTRACTOR].
Water main strike.	**STOP WORK.** Use bunding to keep water from vulnerable areas and guide flow towards drainage or waterway. Inform the Site Manager [PRINCIPAL CONTRACTOR].
Uncovering suspected archaeological or human remains	**STOP WORK.** Inform the Site Manager [PRINCIPAL CONTRACTOR].
Gross pollution Incident	**STOP WORK.** Inform the Site Manager [PRINCIPAL CONTRACTOR]. Contact Environmental Agency on 03708506506 to advise if working near a watercourse.
Failure of piling platform threatening rig stability	Attempt to stabilize the rig immediately by: • Use available excavators to hold down the tracks. • Lean the mast back 20° maximum. • Put foot down on to working platform • Drill the augers into the ground. • Track away from subsiding area. Inform the Site Manager [PRINCIPAL CONTRACTOR] of working platform failure.
NR Details	Railway ELR and mileage: HHH 2m40-42ch Up Holborn Slow NR Control: 0207 9793730 NR Asset Protection: Mike Bradford (07796614477)

Appendix C:

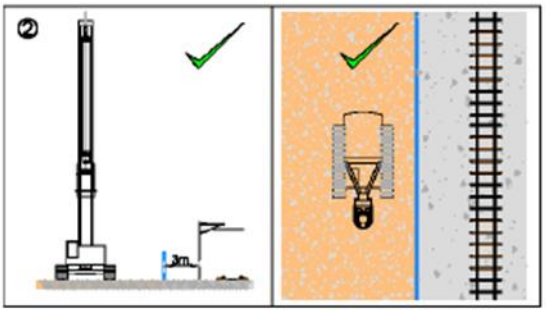
ORIENTATION OF PILING RIG ADJACENT TO THE RAILWAY INFRASTRUCTURE DURING NORMAL RAILWAY OPERATIONS.



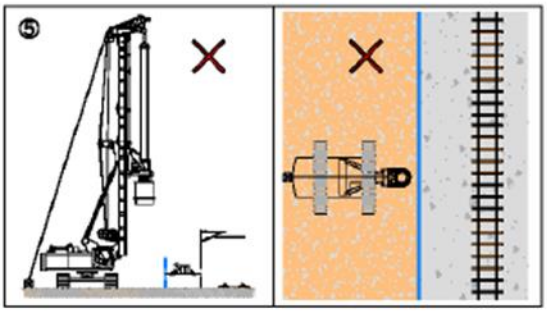
RIG MAY SIT AT
THIS ORIENTATION



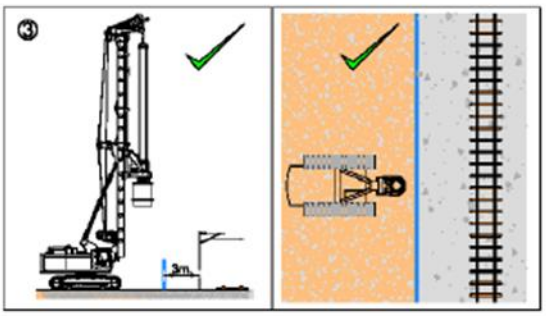
RIG MAY SIT AT
THIS ORIENTATION
(SUBJECT TO MANUFACTURERS SPECIFICATION)



RIG MAY SIT AT
THIS ORIENTATION



INDEPENDENT TIE BACKS OR ANY OTHER
ARTIFICIAL STABILITY AIDS
MUST NOT BE UTILISED



RIG MAY SIT AT
THIS ORIENTATION

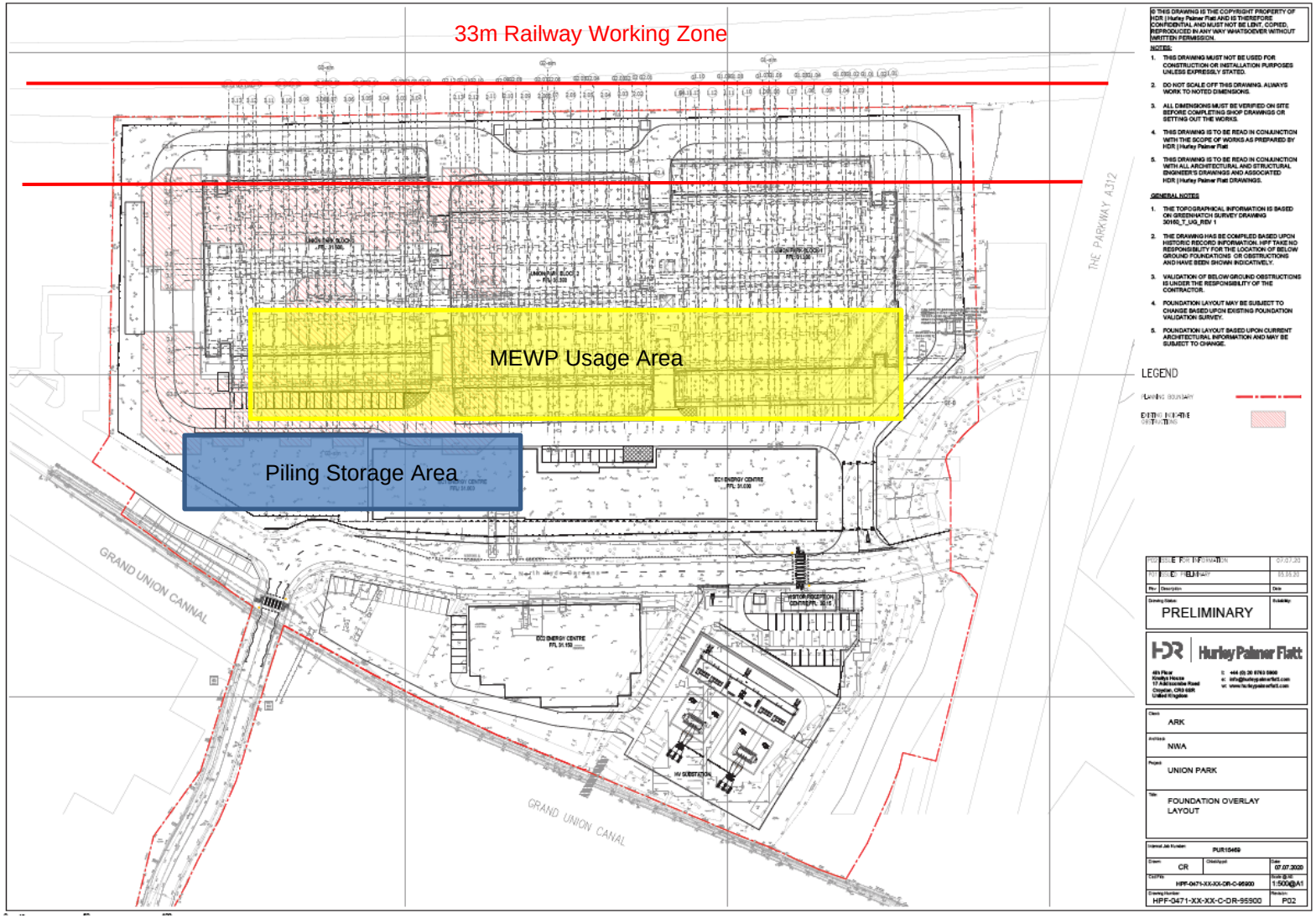
NOTE :-

1.) IN ALL CASES APPROPRIATE MITIGATION MEASURES SHOULD BE IMPLEMENTED - PARTICULARLY WITH REGARD TO THE PILING PLATFORM CONSTRUCTION.

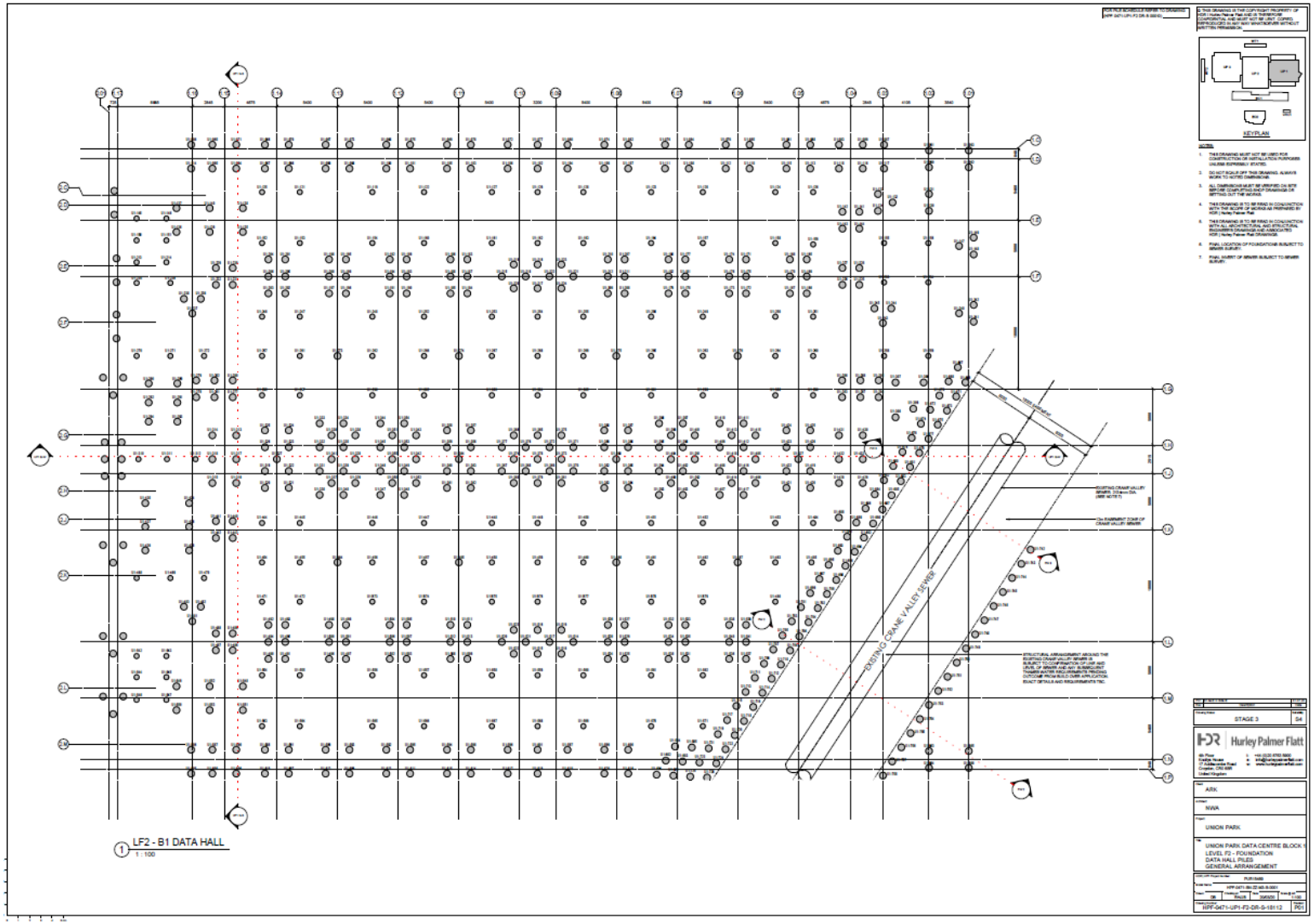
2.) PLATFORM TO BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATION.

3.) NO ARTIFICIAL AIDS ALLOWED TO INCREASE STABILITY - REFER TO DIAGRAM 5.

Appendix D:


33m Railway Working Zone
MEWP Usage Area
Piling Storage Area
GRAND UNION CANAL
GRAND UNION CANAL
THE PARKWAY A312
LEGEND
PRELIMINARY
Hurley Palmer Flatt
ARK
NWA
UNION PARK
FOUNDATION OVERLAY LAYOUT
HPF-0471-XX-XX-C-DR-95900
P02

Appendix E:


LF2 - B1 DATA HALL
1 : 100
EXISTING CRANE VALLEY SEWER
KEYPLAN
STAGE 3
Hurley Palmer Flatt
UNION PARK
UNION PARK DATA CENTRE BLOCK
LEVEL F2 - FOUNDATION
DATA HALL PILES
GENERAL ARRANGEMENT

19. RISK ASSESSMENTS

Contents

RA Number	Activity
RA01	COSHH Hazards
RA02	Working with Wire Ropes
RA03	Working on Public Highways
RA04	Working with Operating Plant
RA05	Mechanical Handling Operations
RA06	Manual Handling Operations
RA07	Working with Pressurised Water
RA08	Working with an Arc Welder
RA09	Use of Lorry Loaders
RA10	Use of MEWP on Site
RA11	Environmental Issues
RA12	Cleaning CFA Concrete System
RA13	Unblocking CFA Concrete System
RA14	Piling Rig – Working At Height
RA15	Site Specific Risk Information
RA16	Extra Coronavirus Measures

Assessment Rating

Severity - Value	Probability - Value
Negligible Injury - 1	Very Unlikely - 1
Minor Injury - 2	Unlikely - 2
Moderate injury - 3	Possible - 3
Major injury - 4	Likely - 4
Severe / Fatality - 5	Very Likely - 5

Severity

Probability

	Marginal	Minor	Moderate	Major	Severe
Very Likely	5	10	15	20	25
Likely	4	8	12	16	20
Possible	3	6	9	12	15
Unlikely	2	4	6	8	10
Very Unlikely	1	2	3	4	5

Hazard	Hazard Effect	Factors of Harm		Degree of Risk	Control Measures	Residual Degree of Risk:	Control measures implemented/ monitored by	Control frequency check rate
		S	P					
RA01 COSHH Hazards								
Antifreeze:	Minor Irritant to skin Intense smarting to eyes Affects central nervous system if swallowed	**4**	**4**	**16**	Addition PPE requirements: water resistant gloves to be worn when handling. Do not siphon and ensure that hands are wash before eating. Wash any spills of skin immediately. Store in the COSHH box. See COSHH 001 Data Sheet for information.	**LOW**	All Operatives	When Required.
Concrete (Wet):	Severe irritation to skin from concrete burns.	**3**	**5**	**15**	Addition PPE requirements: water resistant gloves & Hi-Viz overalls. Wash contact area on skin immediately if in contact with concrete. See COSHH 004 Data Sheet for information.	**LOW**	All Operatives	When Required.
Gas Oil:	Minor irritation to skin on contact. Gastric irritation if swallowed.	**3**	**5**	**15**	Addition PPE requirements: water resistant gloves and Hi-Viz overalls to be worn when refuelling. Do not siphon and ensure that hands are washed before eating. Store in the COSHH box. See COSHH 006 Data sheet for information.	**LOW**	All Operatives	When Refuelling.
Oil & Greases:	Moderate irritation to skin, mist may cause irritation to nose & throat if inhaled.	**3**	**3**	**9**	Addition PPE requirements: water resistant gloves to be worn when refuelling. Clear up any spillages immediately and dispose of in hazardous waste bag. Wash hands before eating. Store in the COSHH box. See COSHH 007 Data Sheet for more information.	**LOW**	All Operatives	When Required.
Prime-A-Pump:	Slight Irritation to eyes & skin. Slip trip & fall on spilt liquid.	**3**	**3**	**9**	Addition PPE requirements: water resistant gloves when working with. Clear up spillages by diluting spilt liquid away. Wash hands before eating. Store in the COSHH box. See COSHH 008 Data Sheet for more information.	**LOW**	All Operatives	When mixing and pouring.
Mould Oil:	Avoid contact with skin irritant	**3**	**3**	**9**	Addition PPE requirements: water resistant gloves & Hi-Viz Overalls when refuelling. Do not use near hot exhaust or naked flames, make sure fire extinguisher and spill kit are present when refuelling. Do not siphon and ensure that hands are washed before eating. Store in the COSHH box. See COSHH 010 Data Sheet for more information.	**LOW**	All Operatives	When Applying.
Delvo:	Avoid contact with skin irritant	**3**	**3**	**9**	Addition PPE requirements: water resistant gloves. Throw whole sachet into holding drum and mix. Store in a sealed container in the COSSH box. Wash hands before eating. See COSHH 012 Data Sheet for more information.	**LOW**	All Operatives	When Required.
RA02 WORKING WITH WIRE ROPES								
Broken Wires / Rope:	Laceration and amputation injuries to the hands, arms and legs. Personal injury from contact with moving ropes.	**4**	**4**	**16**	Always wear chrome leather gauntlets when handling wire ropes. Keep hands, arms and legs protected. Don't allow rope to slip through hands when feeding onto sheaf wheel. Always be aware and alert when working close to moving ropes, keep fingers, arms and legs protected. Secure any loose clothing and keep contact with rig operator when feeding the rope.	**LOW**	Banksman	When Required.

Uncoiling Wire Rope:	Personal injury and injury to others nearby from being struck due to release of inherent springiness of rope.	**3**	**3**	**9**	Be aware of coil's springiness, keep the coil vertical whilst coiling or uncoiling, do not allow the coil to unwind when it is flat on the ground, when fastening or unfastening ties take care and restrain whilst coiling/uncoiling and ensure that all other personnel have been directed to stand clear.	**LOW**	All Operatives	When Required.
RA03 WORKING ON PUBLIC HIGHWAYS								
Danger to General Public:	Personal injury from being struck by moving plant and vehicles.	**4**	**3**	**12**	When moving vehicles on to the public highway ensure that a banksman is used for all movements. The banksman needs to stop all people in the surrounding area before instructing the plant/vehicle to move.	**LOW**	Banksman	When Required.
Danger of Traffic Accident:	Personal injury from being struck by moving traffic. Injuries to road users caused by collisions with other traffic or our plant.	**5**	**4**	**20**	Give clear signals to stop traffic when safe to do so, ensure that all traffic has stopped before walking onto the highway. Make sure to be alert and maintain the stop signal whilst standing on the highway, when safe and clear to do so signal clearly for the traffic to proceed but only do this once you have exited the highway and it is clear of plant and equipment.	**MEDUIM**	Banksman	When Required.
Unloading equipment with Hi-ab:	Injury and damage caused by being struck by lifted equipment.	**5**	**4**	**20**	Only certificated lifting equipment is to be used, erect exclusion barriers to stop any personnel from entering the lifting area whilst and when the lift is taking place and ensure that all loads are secure before lifting. Stop the lift if anyone enters the exclusion zone.	**LOW**	Banksman	When Unloading.
Unloading the piling rig:	Injury to public from being struck by moving piling rig. Damage to vehicles and surrounding buildings from collision with moving plant.	**5**	**4**	**20**	Place protection boards on the road, path and kerbs if required before unloading the piling rig. All general public and traffic need to be stopped by the banksman. One banksman always needs to bank the piling rig. Once the rig has been unloaded all protection boards and any debris must be cleared.	**LOW**	Banksman	When Required.
RA04 WORKING WITH OPERATING PLANT								
Being struck by the excavator:	Severe or possibly fatal injuries from impact or entrapment from rotating the excavator base machine or digging bucket.	**4**	**5**	**20**	Ensure that the operator is trained and competent. Ensure he signs the digger briefing sheet. Make eye contact before you enter his swing area. When the excavator is working be sure to stand clear and never approach whilst it is working, wait for the driver to acknowledge your presence and then approach when it is safe to do so.	**LOW**	Banksman	When Required.
Rig Instability	Severe or possibly fatal personal injury and injury to others from overturning rig.	**5**	**3**	**15**	Before works commence ensure that a valid working platform certificate has been signed by the client. Always asses the suitability of the ground before moving into any area, when assessing you need to check that the ground is firm level and unobstructed. If you find that the ground is unstable then report this to the client and do not move until the ground is stable. All other personnel need to be alert and directed to stand clear. When tracking up and down slopes the rig should drive down a	**LOW**	Banksman	When Piling.

					slope and reverse up a slope, the slope should be no more than a 20:1. [See Manufactures Operation Manual].			
Trapped by slewing base of plant.	Severe, possibly fatal injury due to entrapment from slewing base.	**4**	**4**	**16**	Ensure that the operator is aware of you, make eye contact and acknowledgement before entering the slew area. Stop any unauthorised entry into the area.	**LOW**	Banksman	When Piling.
Injury from falling spoil CFA Piling	Sever or possibly fatal injuries from spoil falling on personnel.	**5**	**5**	**25**	Ensure that the spoil is completely removed from the auger flights using the mechanical auger cleaners provided. The banksman needs to keep close observation of the auger flights while completing the concreting stage. He must stop all operators if spoil is not removed. The rig driver must then re-drill the augers into the cleaners until clean. All personnel must remain outside of the exclusion zone. Ensure the brushes are in good order, replace if worn.	**LOW**	Banksman	When Piling.
Danger of trapped fingers	Lacerations or crushing injuries and possible amputation of fingers.	**3**	**5**	**15**	Use visual means to check pin hole alignment, DO NOT put fingers into the pin holes. Use the palm of your hands when moving the augers in to place when coupling together.	**LOW**	Banksman	When Required.
Working on the front of the Piling Rig	Severe, possibly fatal injury due to impact from falling spoil or entrapment in the rotating augers.	**4**	**4**	**16**	Barriers must be erected around the front of the rig at approx. 3.0m from the auger, if the excavator is in place this will act as a barrier on one side. No personnel are allowed inside the exclusion zone while the augers are rotating. If anyone enters the exclusion zone while the auger is rotating the rig operator will stop until the exclusion zone is clear.	**LOW**	Rig Operator/ Banksman	When Piling.
Opening the auger gates.	Severe, possible fatal injury from entanglement in rotating auger.	**4**	**4**	**16**	**No personnel** are allowed in the exclusion zone while the auger is rotating. When opening or closing the gates the rig operator will stop rotating the auger and signal to the banksman to enter the exclusion zone, once the banksman has exited the exclusion zone the operator will commence drilling. If anyone enters the exclusion zone while the auger is rotating the operator will stop until the exclusion zone is clear. The gates will not be opened until the drill head needs to pass the auger cleaner at approx. 15.0m depending on length of auger string. Once open a banksman must stay near the exclusion zone to stop any unauthorised entry. Once the gates have been opened or closed the gate bar will be removed from the gate clasp.	**LOW**	Rig Operator/ Banksman	When Piling.
Greasing the Concrete Swivel	Personal injury, possibly fatal from crushing from falling swan neck.	**4**	**4**	**16**	Follow the operations manual on greasing the concrete swivel, complete the task daily on the first pile of the day and the last pile. If the swivel fails to take any grease, grout is seen around the check hole, oil residue is seen around the base of the swivel and there has been several tip or stem blockages when pumping and if the reaction bar starts to twist when you are rotating the office must be advised immediately.	**LOW**	Rig Operator/ Banksman	When Piling.

RA05 MECHANICAL HANDLING OPERATIONS								
Overloading excavator	Severe, possibly fatal injuries caused by impact or entrapment from overturning excavator or from sudden uncontrolled movement of load.	**5**	**3**	**15**	Understand that 360° excavators are not cranes. Do not exceed the maximum permitted 1t SWL. Any load above 1t the Excavator Operator must except the lift. **[See Lift Plan]** The banksman will bank the excavator when lifting the load. Before completing the lift check that the Operator has the relevant competence card and that the card is in date.	**LOW**	All Operatives	When required.
Being hit by suspended load	Severe, possibly fatal personal injuries from impact or entanglement when movement or unexpected lowering of suspended load.	**5**	**3**	**15**	Follow the **Lift Plan**. Do not stand under the suspended load, keep your distance and ensure to make other site personnel aware of the suspended load. The banksman will always bank the excavator. If long lengths of steel reinforcement are being suspended, safety lines will be needed to control the load.	**LOW**	All Operatives.	When required.
Excavator bucket free falling to the ground	Severe, possibly fatal injuries from being struck by falling excavator bucket.	**5**	**4**	**20**	Ensure that the excavator operator is competent and completes the digger driver briefing sheet. Before any lift takes place get the operator to complete a shake, rattle and roll with his bucket, then connect the chain to the shackle. When the lift has been completed make sure to remove the chain.	**LOW**	Banksman/ Pump Operator	When required.
Lifting reinforcement and augers with excavator	Severe injuries from being struck by swinging load or trapping fingers.	4	4	16	Follow the **Lift Plan**. Use only the correct lifting equipment, make sure that it has been tested within 6 months and that it is tagged with SWL. Do not exceed an angle greater than 45˚. Before attaching the chain make sure that the excavator has stopped before attaching the chain/sling. Ensure that the chain is attached before starting the lift and always ensure that hands are away from the chain when the load is lifted. Attach a tag line to one end of the item being lifted. Do not stand under a raise item that is being lifted. **Do not exceed 1000kg.**	**LOW**	All Operatives	When required.
Connecting and Dis-connecting the auger string.	Severe injury to all personnel from falling augers.	4	4	16	Ensure that when possible the extension bar is unlocked and hanging through the rotary table when connecting or disconnecting the auger string. Always forward rotate the augers when connecting or disconnecting. Never back spin when the extension is in locked position.	**LOW**	Rig Operator/ Banksman	When required.
Moving holding drum with excavator	Injury from dragging the holding drum over uneven site. Severe injury from trapping fingers.	3	3	9	Make sure the dragging chains are used and that a competent person banks the excavator whilst the dragging is taking place. Before attaching chains to the anchor points make sure that the excavator has stopped and then correctly attach on the front or rear of the holding drum. Make sure the operator keeps his digger arm low while dragging not to damage the frame work of the holding drum.	**LOW**	All Operatives.	When required.

RA06 MANUAL HANDLING OPERATIONS								
Lifting cages and concrete hoses.	Temporary or permanent disability due to back strain from adopting the incorrect posture during manual lifting, pulling or pushing.	3	4	12	Assess the load that needs to be lifted by taking into consideration the ground and weather conditions, the route to take and if you should pull or push the load. Adopt the correct posture; straight back, one foot slightly in front of the other and bent knees. Always use mechanical means when possible, ask for help if too heavy.	**LOW**	All Operatives.	When required.
Trapping Fingers	Crushing injuries to the fingers which can possibly lead to amputations.	3	4	12	Lower the loads slowly and ensure that hands are positioned to avoid entrapment. Use palm of hand when moving suspended load.	**LOW**	All Operatives.	When required.
Hand Abrasions	Minor hand injuries from contact with abrasive substances or sharp, rough or abrasive machine parts or tools.	3	3	9	Gloves must be worn when handling material, rubber gloves to be used when working with concrete or COSHH liquid, gauntlets should be worn when working with ropes, augers and sharp/rough items.	**LOW**	All Operatives.	When required.
RA07 WORKING WITH A PRESSURISED WATER								
High pressure water jet.	Personal injury and injury to others from the impact of a pressurised water jet.	3	3	9	Warn others who are working in the vicinity before using the jet washer and put barriers in place when necessary. Wear addition PPE [waterproof clothing & rubber safety boots].	**LOW**	Pump Operator	When required
Back spray.	Eye and skin injuries to self and others from over/back spray and impact from dislodged objects.	3	3	9	Choose a working area which is isolated from others, if this is not possible then warn the others who are in the vicinity before operating the washer. Wear addition PPE [waterproof clothing & rubber safety boots] and where necessary put barriers in place to protect others from over/back spray.	**LOW**	Pump Operator	When required
Slipping on wet surfaces	Personal injuries and injuries to others from slip trips and falls due to wet surfaces.	3	4	12	Anticipate the direction of flow of any waste water before operating the washer and choose an isolated area where possible. Make provisions for directing flow to a suitable area and warn others who will be affected. Work area must be tidy.	**LOW**	Pump Operator	When required
RA08 WORKING WITH ARC WELDER								
Temporary Eye Damage	Eye damage to self & others from intense glare & ultra violet radiation. Radiation burns to exposed skin of self & others from ultra violet radiation.	4	3	12	Do not look directly at welding arc, especially at close quarters. Use welder's headset or facemask for eye and face protection. Warn others to look away before striking arc. Be aware that reflected arc can be equally as hazardous. Erect barriers or use opaque screens to shield passers-by and others from sight of arc. Have a fire extinguisher in close proximately	**LOW**	Plant Fitter	When Required.
RA09 USE OF LORRY LOADER (Hi-ab) ON SITE								
Collapse due to poor ground conditions. [Set-Up]	Major injury to operator and/or other personnel from overturning vehicle.	3	4	12	Before starting work complete the lorry loader site risk assessment sheet with the site manager ensuring all potential underground/overhead hazards have been identified. Make sure the pads are placed under every stabilizer and ensure that any excavation is approx. 2:1 away.	**LOW**	Lorry Operator/ Banksman	When Required.

Collapse due to poor ground conditions. [During lifting].	Major injury to operator and/or other personnel from over turning vehicle.	5	4	20	Ensure the ground is suitable, firm and level to carry stabiliser loads and vehicle weight together. Get confirmation from Site Manager before completing any lifts. Ensure there is adequate space to safely rig and operate lorry/crane.	**LOW**	Lorry Operator/ Banksman.	When Required.
Slinging and lifting loads.	Major injury to slinger/signaller and other personnel from load movement.	5	4	20	Work to **Lift Plan** when lifting equipment. All lifting equipment will be visually checked before any lift and have a current certificate and correct identification. Banksman to complete test lift on all items before lifting fully. Always double wrap chains / slings when lifting a cylindrical material. Lorry Operator to lift smoothly without any abrupt movement.	**LOW**	Lorry Operator/ Banksman.	When Required.
Unauthorised entry during lift.	Major injury to other personnel from lifted load.	4	4	12	Barrier off an exclusion zone to restrict access. Cease lifting operations if unauthorised personnel enters exclusion zone.	**LOW**	Lorry Operator/ Banksman.	When Required.
Overhead obstructions during lifting procedure.	Danger to banksman and Lorry Operator of electrocution from contact with power lines.	5	4	20	Ensure that the lorry operator checks for any overhead obstructions before setting up. If they are unable to set up anywhere else, use shortened chains and get banksman to watch load as it moves under overhead obstructions. If a damp wet day do not complete lifts in case of arcing.	**LOW**	Lorry Operator/ Banksman.	When Required.
Load becoming unstable whilst slewing into position.	Contact or crushing injury to operator and/or other personnel.	4	4	16	Make sure the operator slews smoothly with no abrupt movements. Use guide ropes where appropriate, two persons and two guide ropes might be necessary. Enlist help where needed. Keep the load close to the ground when possible.	**LOW**	Lorry Operator/ Banksman.	When Required.
Failure of lifting points during lifting.	Contact or crushing injury to operator and/or other personnel from falling load.	5	3	15	Ensure all lifting points are inspected before attaching chains. Report concerns when necessary. If in doubt do not lift. Remain clear of the lift area and instruct all other nearby personnel.	**LOW**	Lorry Operator/ Banksman.	When Required.
Falling from lorry bed.	Severe, possibility fatal injury from falling from height.	5	4	20	Two Lorry restraining straps need placing around the bed of the lorry. One at 470mm from bed and the second at 950mm. Use a Ladder to access bed.	**LOW**	Lorry Operator/ Banksman.	When Required.
Lone working during lifting operation.	Possibility of long delay before discovery of injured operator.	5	5	25	The operator must not work alone. Unless the following guidelines are followed: A designated person must be appointed to keep in communication with the operator. Whilst carrying out the operation they must keep their mobile phone on them at all times and when the operation is complete notify the designated person.	**Medium**	Lorry Operator	When Required.
Vehicle reversing into or from loading or unloading position.	Possibility of contact and crushing injuries to other personnel due to restricted rearward visibility access routes and physical barriers.	5	4	20	**No reversing without a banksman.** Use the provided wide angle mirrors and ensure that the reversing lights and audible warning systems are operational as additional safeguards.	**LOW**	Lorry Operator/ Banksman.	When Required.

RA10 USE OF MEWP ON SITE								
Working in basket on MEWP when at height.	Severe or possibly fatal impact or entrapment injuries from falling from basket.	5	5	25	Ensure that only competent personnel operator the MEWP. When working at height a safety harness and lanyard must be worn and attached to anchor point in basket. You must not leave the raised man basket at any time or unclip the lanyard. Follow rescue plan in case of emergency.	**LOW**	MEWP Operator	When Required.
Travelling around site.	Severe or possibly fatal impact or entrapment injuries from overturning MEWPs.	4	4	16	Ensure that only IPAF qualified personnel drive machinery. Read and understand the MEWP's operator's safety guide and perform pre-inspection before commencing, Report any defects. Before moving ensure that the route is clear from obstacles and any excavations. Do not raise boom too high if the route is uneven and do not speed over uneven surfaces. Make sure to check for any overhead hazards. Additional PPE [Safety Harness and Lanyard] must be worn.	**LOW**	MEWP Operator	When Required.
Position of MEWP for use on site.	Severe or possibly fatal impact or entrapment injuries from overturning MEWP and crushing on overhead hazards when raising the boom.	4	4	16	Ensure that only qualified personnel drive the MEWP. Read and understand the MEWP operator's safety guide. Check that the working area is level and that there are no excavations. Position MEWP close enough to the rig to work. Erect barriers and create an exclusion zone around base of MEWP when working at height.	**LOW**	MEWP Operator	When Required.
Emergency procedures when MEWP has engine or hydraulic failure.	Machine failure while boom is at height.	4	4	16	Before works commence ensure the rescue plan is signed by a competent person this is found on the Foreman's Tablet. The rescue plan highlights how an operative is rescued when working at height. If the piling rig is required for the rescue HSQE Manager will give authorisation, as the operative climbs down the auger. Follow rescue procedures in case of emergency.	**LOW**	MEWP Operator	When Required.
RA11 ENVIRONMENTAL ISSUES								
Major spillage of oil or diesel into a drain or watercourse.	Severe or possibly fatal impact on the surrounding environment.	4	4	16	If a spillage occurs, then stop work and try to stop it by using the spill kit provided before it enters any drain/watercourse. Inform the client, office and ring the environmental incident hotline [if required] on **0800 807060**, this is a 24-hour service.	**Medium**	All Operatives	When Required.
Major spillage of grout or concrete into a diesel or watercourse.	Severe or possibly fatal impact on the surrounding environment.	4	4	16	Stop work and stop the grout or concrete from entering the drains or watercourse using the spoil or crushed concrete which is available on site to create a bund. Inform the client, office and ring the environmental incident hotline on **0800 807060**, if required, this is a 24-hour service.	**Medium**	All Operatives	When Required.
Washing out from concrete pump and holding drum.	Severe or possibly fatal impact on the surrounding environment.	4	4	16	Place the wash out bund under the hopper of the concrete pump and line with polythene, Clean out daily by emptying waste on to piling mat. Any spillages of concrete or grout will be cleaned up immediately.	**LOW**	All Operatives	When Required.

Storing COSHH containers on site.	Severe or possibly fatal impact on the surrounding environment.	4	3	12	Ensure that all COSHH containers are kept in a COSHH store on site and once used they are returned. Always keep spill kits next to the COSHH store. Diesel is to be kept in 110% bunded containers. When refuelling or topping up oils be sure to use a spill kit absorbent mat in case of spillages.	**LOW**	All Operatives	When Required.
RA12 CLEANING CFA CONCRETE SYSTEM								
Concrete Splash	Can cause irritant contact dermatitis and cement burns to skin. Personal injuries from flying debris. Damage to nearby buildings & vehicles.	4	5	20	Place the blow out drum under the auger, place 1 sheet of ply [8"x 4"] vertically behind the drum up against the mast. Ensure that a competent person keeps all other personnel at least 10m away from the front of the piling rig. Ensure that any splashes are washed away immediately using cold water. If buildings or vehicles get splashed wash with clean water and don't scrub.	**LOW**	All Operatives	When Required
Cleaning the holding drum	Can cause irritant dermatitis and cement burns to skin. Falling from height and entanglement can cause personal injuries that could possibly be fatal.	4	5	20	When working at height place the chain/bar over the exit point on crow's nest. Ensure all guards are fitted correctly. Keep hands clear of rotating parts and if concrete encounters skin, wash off immediately with clean water. Additional PPE must be worn. [Hi-Viz Waterproof clothing & rubber safety footwear].	**LOW**	Pump Operator	When Required
Concrete Clamp Failure	Clamps failing, Severe, possible fatal impact to unsupported concrete hose.	4	5	20	Place whip checks on every coupling which is at height on the piling rig and the pump/holding drum set up. Replace faulty whip checks. Ensure all concrete clamps are in good condition and have a clevis pin inserted.	**LOW**	All Operatives	When Required
Cleaning the concrete pump	Entanglement injuries in moving parts, slip, trips and falls. Personal injuries and possibly fatal incidents.	5	4	20	Ensure that the work space is kept tidy. Do not put hands near any moving parts. Make sure that all guards are fitted to the concrete pump and if any concrete encounters skin it is to be washed off with clean water immediately. Additional PPE must be worn. [Hi-Viz Waterproof clothing & rubber safety footwear].	**LOW**	Pump Operator	When Required
Blowing out concrete system	Severe, possible fatal from contact with flying debris & concrete hose	4	5	20	Site Supervisor/ Rig Driver to decide whether to blow out in 2 or 3 stages depending on amount of placement hose, auger extension and concrete consistency. Must only use no smaller than 5" hard ball or 6" soft ball when blowing out. Blow out skip to be use if blowing out in 3 stages to hold placement hose from whipping. Blow out drum to be placed at the base of the auger. All personnel to be kept out of the vicinity when blowing out [min 10m]. All clamps to be opened at arm's length. The one bolts concrete clamp to be used as the ball blower clamp.	**LOW**	All Operatives	When Required
Explosive release of compressed air	Penetration of skin by compressed air. Personal injury and possibly fatal from flying hoses or debris.	5	5	25	Ensure to turn off air valve on compressor and open valve on ball blower, then make sure all trapped air is released before disconnecting any concrete hose clamps. The cleaning ball needs to be blown through the concrete system and located before opening any the hose clamps at arm's length. Additional PPE required [full face shield].	**LOW**	All Operatives	When Required
RA13 UNBLOCKING CFA CONCRETE SYSTEM								

Explosive release of concrete from jammed auger cap.	Personal injuries from impact of wet concrete jet. Irritant contact dermatitis and cement burns to skin. Personal injuries from flying debris.	**3**	**4**	**12**	Understand that there is always concrete under pressure in a blocked auger. Anticipate the direction of movement of concrete when cap or obstruction is removed and stand in the safest place. Erect boards and direct side opening auger towards boards. Ensure that all personnel and machinery are clear of the area. Use a long bar or shovel to remove cap or obstruction at arm's length, Do NOT remove by hand. If concrete encounters the skin, then wash off immediately with clean, cold water.	**LOW**	Banksman	When Required
Blockage in concrete system [Concreting].	Personal injuries from impact of wet concrete jet. Irritant contact dermatitis and cement burns to skin. Eye irritation. Personal injuries (possibly fatal) from flying hoses, clamps, pipework and debris.	**4**	**5**	**20**	When blockage in concrete system occurs do not attempt to continue pumping [2 attempts max]. Back pump 8 times to try and remove pressure from the concrete system. Locate blockage by watching concrete hoses pulsate. Place an exclusion zone around the blocked area at approximately 5.0m to ensure all personnel and machinery stay clear of the area. Connect placement hose or hanging hose to blow out skip. Use long bar or shovel to release joint clamps at arm's length. If pressure is found when clamp is released leave the clamp until pressure (hissing) stops. Always stay vigilant around a block concrete system. Additional PPE [Full face mask]. Inform management when blocked do not use compressed air attempt to push blockage in opposite direction with concrete pump.	**Medium**	All Operatives	When Required
Blockage in concrete. [Blowing -out]	Personal injuries from impact of wet concrete jet. Irritant contact dermatitis and cement burns to skin. Eye irritation. Personal injuries (possibly fatal) from flying hoses, clamps, pipework and debris.	**5**	**5**	**25**	Understand that there is always concrete under pressure in a blocked pipe. Ensure that the compressor is switched off and all air release valves are opened, erect boards around the joint to act as a shield. Additional PPE [Full face mask] to be worn. Make sure whip checks are fitted and left in place until hoses clamp is opened and pressure released. Anticipate the direction of movement of the concrete and pipework when joint is released under pressure and ensure to be standing in the safest place. Place an exclusion zone around the blocked area at approximately 5.0m ensure all personnel and machinery stay clear of the area. Attach the placement hose or hanging hose on to the blow out skip always secure the clamp with a clevis pin. Use a long bar or shovel to release joint clamps at arm's length. If pressure is found when clamp is released leave the clamp until pressure (hissing) stops. Always stay vigilant around a blocked concrete system. Never release the 2.8m side rubber concrete hose when blocked.	**Medium**	All Operatives	When Required

Unblocking a blocked concrete hose at height.	Personal injuries from impact of wet concrete jet. Irritant contact dermatitis and cement burns to skin. Eye irritation. Personal injuries (possibly fatal) from flying hoses, clamps, pipework and debris.	**5**	**5**	**25**	When blockage in concrete system occurs do not attempt to continue pumping [2 attempts max]. Back pump 8 times to try and remove pressure from the concrete system. Locate blockage by watching concrete hoses pulsate. Place an exclusion zone around the blocked area at approximately 7.0m ensure all personnel and machinery stay clear of the area. Additional PPE [Full face mask] required. MEWP Operator will position the MEWP basket at height close to the clamp on the hanging hose. He will attach a nylon sling around the concrete hose and attach to the second line, the rig operator will take the slack up and the MEWP Operator will remove the coupling at arm's length. If pressure is found when clamp is released leave the clamp until pressure (hissing) stops. Always stay vigilant around a blocked concrete system. Once released the Rig Operator will lower the hose to ground level for the blockage to be removed.	**Medium**	Banksman	When Required
Release of augers under pressure	Personal injuries from impact of wet concrete jet. Irritant contact dermatitis and cement burns to skin. Personal injuries from flying debris.	**4**	**4**	**16**	Be aware of the probability of concrete under pressure in an auger string and stay vigilant. When the pins have been removed ensure that the MEWP Operator clearly signals to the rig driver and moves the MEWP to a safe distance. Erect barriers to form an exclusion zone around the front of the rig keeping all personnel out of the area. Rig Operator must wait for the signal and ensure that all personnel are standing clear before separating the auger joint.	**LOW**	All Operatives	When Required
RA14 WORKING AT HEIGHT								
Rigging and de-rigging auger string	Severe, possibly fatal injuries banksman from falling from height.	**5**	**5**	**20**	Use MEWP. Before putting on inspected safety harness and extendable lanyard, make sure there is a valid certificate. Complete Pre-Inspection checks on MEWP before using. Once in the basket attach lanyard to anchor point. Never get out of a raised basket or un-attach the lanyard while at height. Place a 7.0m exclusion zone around the front of the piling rig.	**LOW**	MEWP Operator	When Required.
Access to rear maintenance area	Personal injury, possibly severe from impact with ground, materials, buildings and machinery.	**4**	**4**	**16**	Inspect safety harness and lanyard and make sure there is a valid certificate. Once you have climbed the permanent ladder on side of the rig attach the lanyard to the second line. Stand only on flat anti slip surfaces which are provided and do not go near the edges.	**LOW**	Rig Operator	When Required.
Standing on track	Personal injury, possibly severe, from impact with ground and machinery.	**4**	**4**	**16**	Ensure that only supervisor, trainer or maintenance personnel stand on the rig while it is drilling. Do not stand on track whilst it is moving, dismount and stand away from rig. When dismounting go backwards stepping down to ground level.	**LOW**	All Operatives	When Required
Greasing Cathead	Personal injury, possibly severe, from impact with ground, materials, buildings and machinery.	**4**	**4**	**16**	Use MEWP if on site, if not use industrial steps and make sure that the steps are footed while being used.	**LOW**	Rig Operator	When Required.

Attaching and removing pins and bolt on hinged section of the mast	Personal injury, possibly severe, from impact with ground, materials, buildings and machinery.	**4**	**4**	**16**	Use MEWP if on site, if not use industrial steps and make sure that the steps are footed while being used.	**LOW**	Rig Operator/ Banksman	When Required
Attaching and removing pins from drill head section	Personal injury, possibly severe, from impact with ground, materials, buildings and machinery.	**3**	**3**	**9**	Lift drill head above pins on foot section. Use MEWP if on site, if not use industrial steps and make sure that the steps are footed while being used to remove pins.	**LOW**	Rig Operator/ Banksman	When Required
Greasing the Concrete Swivel	Personal injury, possibly fatal from crushing from falling swan neck.	**4**	**4**	**16**	Complete pre start checks on the MEWP and wear the certified full body harness and lanyard. Make sure exclusion zone is erected around the MEWP when you are working at height and ensure the grease drum is left in the basket when pumping grease, else use a hand grease gun.	**LOW**	MEWP Operator	Twice Daily
RA15 SITE SPECIFIC RISK INFORMATION								
Underground services	Personal injury, possible fatal impact from striking underground services, particularly electric and gas. Potential major disruption to on-site and off-site personnel from damage to utilities.	4	5	20	Prior to piling the Client should check up to date service drawings against the proposed pile positions. Where services exist within close proximity to proposed pile positions, the relevant asset holder should be contacted to confirm the safe distance for piling based upon the type of service present. Services should be clearly marked at ground level to ensure protection of the asset.	**LOW**	Client	Prior to piling
RA16 EXTRA CORONA VIRUS MEASURES								
Travelling to site	Site Operatives; Catching coronavirus and putting vulnerable people at risk.	5	5	25	Where possible go to work in separate vehicles, ensure you wash regularly with soap and water before travelling home and avoid using public transport.	**LOW**	Site Operatives	Travelling
Working on site	Site Operatives; Catching coronavirus and putting vulnerable people at risk.	5	5	25	Do not work closely with other operatives, make sure you keep a minimum distance of 2 metres. Wash your hands frequently with soap and water and dry with paper disposable towels. Reduce working hours so breaks do not need to be taken, if they do use the minimum 2 metre rule or use their vehicle for a break. Only use the toilet or drying room units one at a time. Read Health and safety information and send an email to accept, only one person uses the tablet and completes inspections and weekly checks. Don't share PPE, mobile phones or the tablet.	**LOW**	Site Operatives	When on site
Cannot complete task without excavator help.	Site Operatives; Catching coronavirus and putting vulnerable people at risk.	5	5	25	If any task or procedure cannot be completed with one operative and an excavator, the work must cease, and the supervisor must ring a manager for guidance. DO NOT have two operatives working within the 2 metre safe zone.	**LOW**	Site Operatives	When working.
Felling unwell with symptoms	Site Operatives; Catching coronavirus and putting vulnerable people at risk.	5	5	25	Operatives to stay at home, check the NHS website or call 112. If possibility infected self-isolate for a minimum of 7 days, if person in the same house has symptoms self-isolate for a minimum of 14 days. DO NOT COME TO WORK AND PUT OTHERS AT RISK.	**LOW**	Site Operatives	When felling unwell.

21. RAMS CONFIRMATION SHEET

All site operatives [including Sub-Contractors] working for or with the piling team will sign the confirmation sheet below to confirm they will conform to the written RAMS:

~~Name:~~	~~Date:~~	~~Occupation:~~	~~Signature:~~