METHOD STATEMENT

COLT L4 – Phase 1

Rotary Bearing Piles

Company	**Getjar Ltd**		
Document No	DCS20109-GET-DC-ZZ-00-MS-X-17002	Revision No.	P05
Title	**Rotary Piling**		
Start Date of Works	**August 2022**	Duration	See programme in appendix F

Revision History				
Document No.	Revision No.	Issue Date	Author	Description of Modifications
DCS20109-GET-DC-ZZ-00-MS-X-17002	P00	23/06/22	MC	First issue
DCS20109-GET-DC-ZZ-00-MS-X-17002	P01	06/07/22	MC	ISG comments
DCS20109-GET-DC-ZZ-00-MS-X-17002	P02	28/07/22	MC	ISG comments
DCS20109-GET-DC-ZZ-00-MS-X-17002	P03	31/10/22	MC	ISG comments
DCS20109-GET-DC-ZZ-00-MS-X-17002	P04	10/11/22	MC	ISG comments
DCS20109-GET-DC-ZZ-00-MS-X-17002	P05	15/11/22	MC	ISG comments

This Revision				
	Print Name	Signature	Position	Issued to:
Author	Michael Cook		Construction manager	ISG

Status of This Revision			
Overall Approval Status	Yes	No	Date
Cat A Accepted for implementation. Work may proceed as planned.			
Cat B Not accepted for implementation. Resubmission required.			
Date Returned to Contractor			

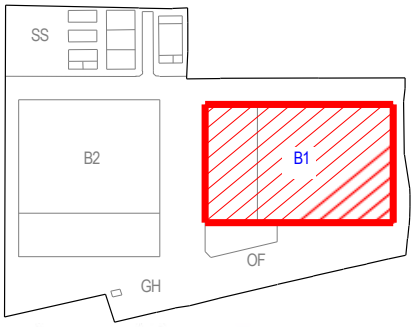
Clients Project Manager sign off	Print Name	Signature	Date

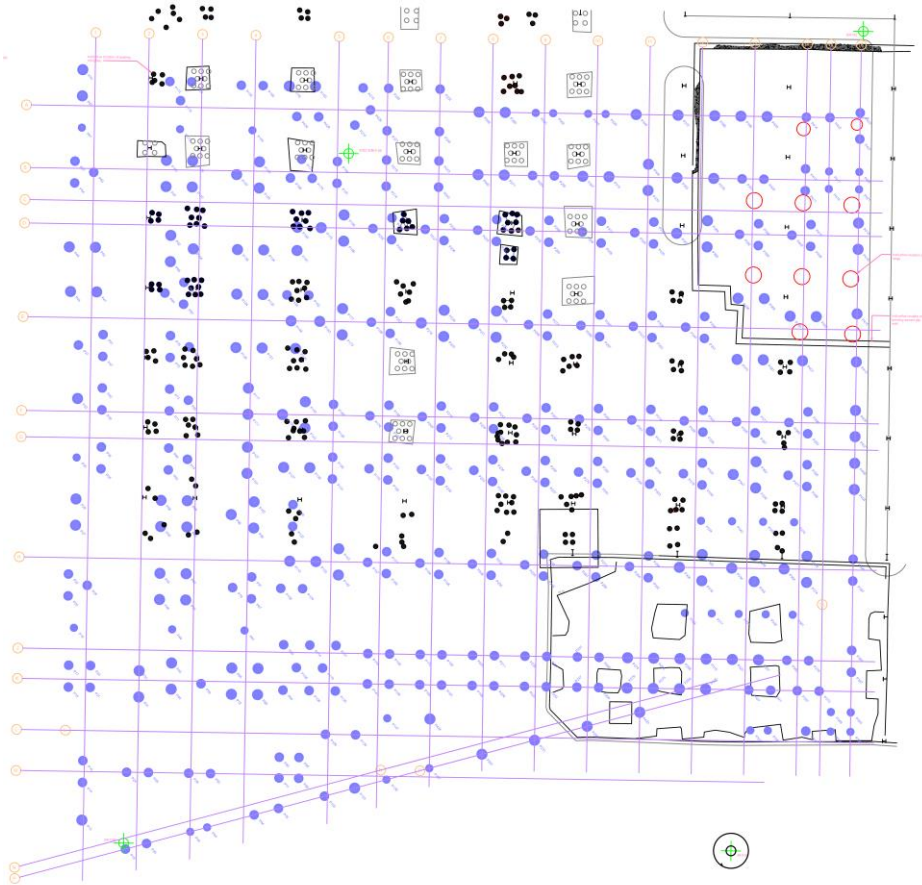
Table of Contents

1. Scope of Works

The piling scope of works for Colt L4 includes:

- Concrete testing
- Setting out
- 1no Trail bore
- Construct 63no 600diameter bearing piles, pile depths range between 15.550m and 32.050m
- Construct 246no 750diameter bearing piles, pile depths range between 27.550m and 36.050m
- Construct 102no 900diameter bearing piles, pile depths range between 32.550m and 35.050m
- Core existing clashing bearing piles / obstructions
- Install PTP and WTP piles (testing under separate RAMS)
- Install required anchor piles
- Integrity testing to be completed on 100% of bearing piles at cut off level.





Piling design is based on the following Arup project specifications

- Project Specification for Piling - DCS20109-ARUP-DC-XX-XX-SP-S-17001
- Project Specification for Structural Concrete - DCS20109-ARUP-DC-XX-XX-SP-S-00003
- Piling schedule - DCS20109-ARUP-DC-01-XX-DR-S-17701

1. Enabling Works

- Establish welfare setup and site logistics (By ISG)
- Probe, remove or highlight surface and underground obstructions (By Others)
- Install piling platform and test (By Getjar)

2. Resources

Management / Supervision

1no Construction Manager – Michael Cook
1no Site Supervisor / First Aider – Scott Kedwell
1no Site Engineer – Bogdan Sturz

Labour

2no Piling rig operator
2no Piling Rig Banksman
2no Slinger/signaller
1no Setting out engineer
2no Excavator operator
1no Dumper driver
2no Crane operator

Plant & Equipment

2no Piling rig (Rotary mode) – Rig LRB23
2no LTR1060 Telescopic Crawler Crane
Pile drilling tools, casings & ancillary equipment
1no MEWP
1no 2000L diesel Bowser
1no Storage container
1no Jet-wash Bowsers
1no Tremmie rack
2no 13t excavator or similar

Materials

Readymix concrete – from an QSRMC registered supplier
Reinforcement cages steel – from a CARES approved supplier
Diesel – to be stored in 110% bunded bowser

Drawing/Specifications

Specifications, drawings, design and schedules will be recorded separately.

3. Training – CPCS/CSCS

Training Certificates Required

	Yes	No		Yes	No
Piling rig	Yes		Slinger/signaller	Yes	
Crawler Crane	Yes		SSSTS	Supervisors	
Dumper	Yes		Banksman	Yes	
Excavator	Yes		Abrasive Wheels	Yes	
MEWP	Yes		Vehicle marshalling	Yes	
Safety harness	Yes		SMSTS	Yes	
Others (Please state):					
Overall Assessment of Risk after the Implementation of Control Measures (tick one)					
Low	**Moderate**	**Substantial**	**High**		
X					

4. Method of Works

The procedure for installing the rotary bored piles is detailed below:

1. Upon arrival to site all operatives are to complete ISG site induction.

2. All operatives will attend a ‘Daily Activity Briefing’ prior to the commencement of every shift, the briefing will include but not limited to; planned activities for the shift, deliveries/collections, site logistics.

3. Boring at each pile location will only start when the correct reinforcement cage has been fabricated on site and has been checked against the fabrication drawings.

4. Piles will be marked on the piling platform with a pin. The pin will have a safety cap with the pile number marked on it.

5. The work area will be segregated with physical barriers with signage, please refer to Appendix D for piling rig setup.

6. Before breaking ground site team to ensure that working platform certificate is in place, and plate load testing has been completed.

7. The piling rig will be tracked to the location of the pile position. The operator will level the mast on both axis with the auger over the pin.

8. Before breaking ground commences the project team will obtain a permit to dig from ISG, this will highlight any potential services on the project, with the scheme using temporary casing this will ensure ground stability is maintain with minimum to no impact on the surround services and subsurface sewage infrastructures.

9. No piling to occur within 1m of any known service or subsurface sewerage infrastructure, this is to ensure no load is applied onto the assets, ISG to issue service drawing showing all live services on the project and termination certificates for anything removed, with the temporary casings being used this will ensure good ground stability with no over flighting of the surrounding ground.

10. Piling layout to be overlaid with the service drawing and to note all potential clashes or pinch points between the surround infrastructure and planned pile locations, this is to be completed ahead of the piling works commencing.

CASING INSTALLATION

11. When the rig is in position and prior to breaking ground, the Banksman will install two off-set pins at 90deg to each other; the pins will be measured from the setting out pin by use of a ranging rod. All reference pins will be fitted with safety caps.

12. With the rig setup vertically and in the correct location pre boring can commence for the casing; the pre bore will be to a maximum depth of 2.5m below the top of the platform, removing material from the ground. During the excavation of the pre bore the ground will be monitored for stability by the rig banksman. Should the ground show signs of instability before the required depth is achieved, the pre bore will not be advanced any further and the casing will be installed from the achieved depth.

13. Casings will be lifted into position by either the attending crawler crane or the piling rig and when placed inside the pre-bore, they will be supported vertically by the pre bore providing stability. When casings are lifted for installation by the crane, quick release shackles will be used.

14. Using a reference rod, the banksman will check the casing position from the 2 offset pins. Once the casing has been correctly positioned, the piling rig operator will begin to screw the casing into the ground. The verticality of the casing shall be checked constantly by the banksman when being installed through the use of a spirit level.

15. The piling rig attaches to the top of the casings by means of a twister bar or top hat. When the is driver attached, the casing is now driven down to the required depth to form a seal into the London clay, when using segmental casing this is installed in smaller sections and connected together using the method mentioned later within this document.

16. While advancing casing it will be necessary for the rig operator to remove the material within the casing. A normal auger or digging bucket will be used, during this process the digging tool will not be advanced deeper than the toe of the casing.

17. If an unknown obstruction is encountered during the casing installation or boring process, works must stop immediately. The pile number, depth of the obstruction and any details about its makeup will be recorded on the pile log. Before works continue a plan is to be agreed with the client regarding coring or moving the pile, should coring be the outcome details are to be recorded on the pile record sheet.

18. As the material is being removed, the attendant excavator will be pulling back and loading the material away either straight into the back of a muck away or dumpered to a stockpile for removal from site, the Spin off area will be segregated by physical barriers.

19. This process will be repeated until the casing is sealed in the London clay and has reached the required toe level, when installation is complete the casing must extend a minimum of 950mm above the platform level. The casing will now be surveyed for position, level and verticality. The survey information will be recorded on the pile record. The casing will also be checked for water tightness, should a leak be found it will be reviewed as to whether the construction of the pile can continue; this will be recorded on the pile log, casing achieving seal into good clay will be monitored by the level is found while installing the casing, if unable to achieve a seal the pile level is to be checked and recorded and site management is to be informed, the pile will be backfilled and another pile will be nominated by the contract engineer, segmental casing will be used at a later date to case deeper to form the required seal within London clay.

20. On completion of casing installation, a final check of the pile verticality at casing toe, position and level will be made. Only when this complies with tolerance, construction of the pile will continue.

BORING

17. Following the casing installation where material has been removed, the remainder of the pile is bored in the same way. The time at which this operation starts must be recorded on the pile record sheet to determine how long the pile shaft was open, once drilling below casing commences the pile is to be completed during the same working shift in line with project ITP to ensure sound shaft friction. The auger will be inserted inside the casing removing material in stages by constant rotation and extraction of the auger.

18. The auger is removed after each cycle and the spoil is discharged onto the piling platform. This will be done by using the spin off motor thus not causing banging of the Kelly bar. If spoil does not become dislodged using the spin off motor, the auger will be drilled into the stock piled material already removed from the bore or attending excavator. The procedure is repeated until the required toe level is reached.

19. As the material is being removed from the bore, the attendant excavator will either load material away using dumpers transporting material to designated stock pile or load directly into the back of muck away wagons. The Spin off area will be segregated by physical barriers. The time excavation starts below the casing toe will be recorded on the pile record.

20. The depth of the pile bore will be constantly measured from the top of the casing by the instrumentation in the rig and periodically by the banksman using a weighted tape measure.

21. The depth of each different strata will be recorded on the pile record with measurements taken by the banksman. Similarly, if wet arisings are observed during boring, the pile will be inspected for leaks.

22. If for any reason the pile has to be stopped or left open for a short period of time, a steel pile cover will be placed over the open casing.

23. Once the bore has reached the required level, the base will be cleaned by use of a crumb bucket.

24. During the base inspections a halogen lights will be lowered into the pile bore unless strong torch sufficiently illuminates the pile base, the shaft of the pile will be inspected for condition and water ingress. Should seepage be found, the level of its origin will be recorded on the pile log, the pile base will be inspected for 90% cleanliness.

25. While installing the preliminary test pile works, 4no anchor pile will be required and of these any one of the four will be used for the trail bore, within the Arup piling specification its noted *"The Piling Contractor shall issue all trial bore pile records and gain approval from the Employer before commencing any permanent piles."* During the trail bore the level and depths of each ground strata will be recorded, at each change in strata the rig banksman will use a dipping tape from the top of casing to accurately record the levels.

REINFORCEMENT

26. For cages being hung inside the open bore the following steps will be followed.

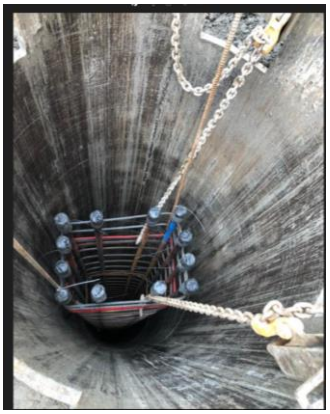
27. The cages have designated lifting points which are marked using spray on the cage.

28. The attendant crawler crane will then lift the cage into the pile bore. The cage will be lifted using chains with safety hooks attached to the designated lifting points. The cage will be trapped off by means of a trapping bar above the casing and below the cage lifting band.

29. Foundry chains are attached to the inside of the lifting band and used while the crane again take the weight of the cage lifting the cage off the trapping bar, once bar is removed the cage is lowered down into the open bore until at the correct level, the cage level is measured by attaching a long tape to the top of the projection bars and measuring back up to top of casing level, once secured to the hanging chains the crane will lower the foundry chains slightly further releasing them from the cage.

30. As the cage section is lowered into the pile bore, clip-on plastic 75mm wheel spacers will added where required to ensure that specified number of spacers are installed at 3m intervals along the cage length.

31. Hanging blocks are installed on top of the casing to take the weight of the cage along with open ended hanging chains as show on the below photo.

32. The engineer will then record the level of the reinforcement cage on the pile log sheet. Where required, reinforcement will have tell-tale bars attached to the top of the cage which will extend to ground level, allowing the level of the cage to be checked following casing extraction.

33. All exposed rebar will be covered by safety caps

Plunging cages

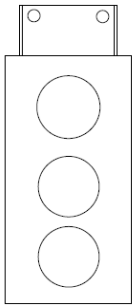
34. Where cages are close or above the PPL, the cages could be plunged into the fresh concrete after the casing has been removed this is to remove the risk of cages dropping after casing extraction.

35. Where cages are to be plunged the pile bore is to be concreted using 10m of tremie to ensure the concrete still falls central within the pile.

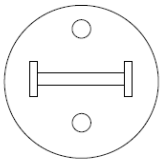
36. Once concrete has been poured to just below top of casing, the casing is to be pulled up roughly 2m, and topped up using the excavator bucket, this is to ensure that concrete finishes around platform level once casing is fully extracted.

37. The nominated slinger/signallers and site engineers will check that the reinforcement complies with the approved fabrication drawings and design. The reinforcement will be lifted and placed into the pile through the fluid concrete, using attending crawler crane to the required level following a separate approved lift plan. An adequate number and rows of spacers will be used on the reinforcement cage. The banksman / slinger will ensure that there is no debris or mud on the reinforcement.

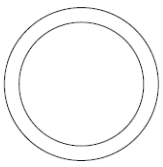
38. Care will be taken to ensure that no contamination is pushed into the concrete by the reinforcement by ensuring the top of the pile is cleaned if debris is present. The reinforcement will generally be pushed in manually but the assistance of the excavator may be used provided that no deformation of the reinforcement occurs, if the reinforcement cage struggles to reach the required depth then an EMV (Excavator mounted vibrator) is to be used along with a cage plunge tool (shown below), no excessive vibrations believed to be exerted on the surround ground, photos below of the plunging tool to be used if EMV is required.



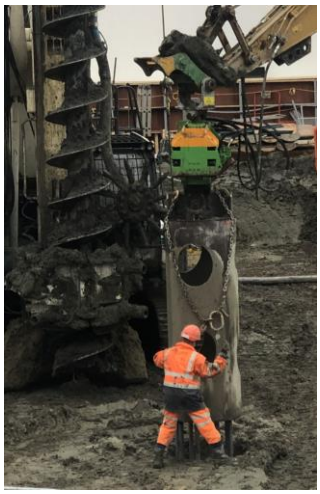
Side view of plunging tool, large holes to allow concrete and air flow ensuring no resistance during plunging, and lifting plate welded to the top with two lifting holes



Top view with air holes and lifting and attachment plate for shackle or EMV



Bottom view with flat plate welded 100mm above the bottom of the plunging tool to catch the projection bars



CONCRETE

26. Prior to the commencement of concreting the base of the bore will be inspected for standing water. Should water be present the depth of the water will be measured and recorded on the pile log. If the depth is greater than 100mm then wet tremmieing technique will be adopted.

27. The concrete centralising pipe will be lifted (by a designed and certified lifting point) by the crane into the pile bore. The centralising pipe will be of sufficient length to ensure that the concrete placed does not free fall more than 10m through a reinforcement cage, for all dry bore piles the tremie pipe to not be imbedded.

28. Prior to any concrete being placed within any pile it must be tested in accordance with the rotary piling ITP. When the concrete wagon arrives on site, the engineers/operatives will check the ticket to ensure it's the correct mix and slump testing has been carried out.

29. Whilst pouring the concrete the level will be checked by Site Operatives using a weighted tape and recorded following every wagon or tremie removal.

30. Conventional tremmie pipe will be used for the concreting of all piles. Sections of tube will be removed as the concrete level rises ensuring the maximum free fall of concrete is less than 10mtrs through reinforcement.

Wet tremmie

31. If wet tremie technique is used, tremie length is to reach the base of the pile when first built up.

32. Concrete is then discharged into the hopper until concrete builds up to the top of the hopper, at this point the hopper is lifted approx. 300mm which allows the weight of the concrete to drop and flow out the bottom of tremie embedding the bottom tremie, concrete is then poured further until tremie is 8m embedded before tremie sections start to be removed.

33. When building the tremies, tape is installed around the joints forming a watertight seal.

34. A "bomb" is placed into the top of the tremie below the hopper which forces any water within the tremie while first installed down through the tremie when concrete is discharged into the hopper, this ensures concrete doesn't mix with the water while initially discharging and surging the pile.

35. Concrete embedment is to be monitored and to remain between 4 and 8m embedded until sound concrete is above top of steel level.

CASING EXTRACTION

36. For dry bearing piles where the cages have been hung inside the bore: After concrete has been poured 1m above the top of steel level and allowed time to begin to set, the pile will be backfilled with pile mat material up to top of casing level.

37. If thin wall / slip casing is used the casing is to be pulled up 2m, the casing is then topped up again before being pulled out completely using either the rig or attending crawler crane, this will allow for any concrete slumping with high cut offs.

38. For segmental casing the piling rig will then attach the casing driver to the casing to loosen it from the clay seal, the casing will be stripped down in 2, 3 or 4m sections depending on the individual casing lengths, belly bands will be used to secure the casing once sections have been removed and casing is free, concrete level to be topped up between casing splits if required.

Belly band holding casing.

39. Casing sections could be removed and either installed directly into another casing string or screwed into the platform in a safe area ensuring deep enough to free stand, with only the casing thickness penetrating the platform and being back screwed out after the platform stability will not be affected.

40. If casing is not required anymore and requires laying down then wire rope slings and shackles will be attached, the service crane will now lift the casing free and lay it down. Quick release shackles will now be fitted to the top of the casing if reinstallation is required at a later time if required.

41. The pile will then be backfilled further in line with the platform design

42. The pile log will be issued for checking and sign off within 24hrs of completion (or next working day if pile is completed on a Friday). This will either be by hard copy or uploaded.

43. When using power tools under 10 minutes monitoring not believed to be required due to being far under the minimum daily allowance, minimum daily allowance is noted within tool assessments in section F, if daily duration exceeds 10 minutes then monitoring to be completed using HSE havs register.

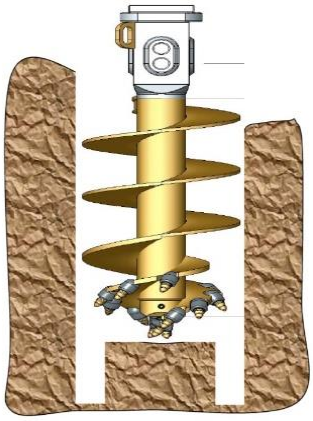
Coring

21. If coring is required, the following steps are to be followed.

22. Casing type to be segmental casing only, which is made up of smaller thicker sections joint together.

23. A lead casing will be installed first and advanced to depth, but remains 950mm above ground level, the casing shall be disconnected from the piling rig. The piling rig operator will then position further sections of casing over the casing lead section where the rig banksman will insert the locating bolts using an allen key. At this time a sealant such as grease, plastic shrink wrap and a rubber “o” ring will be applied in order to provide a water-tight seal between the casing sections. All casing plugs (screws) will be inserted to fix the two sections of casing together. The piling rig operator will again advance the casing following the above-mentioned procedure of digging and spinning off

A. The following equipment could be used:
    a. Segmental casing
    b. Rock auger
    c. Core barrel
    d. Cross cutter



Rock Auger **Cross-cutter core barrel**

B. Using coring equipment, the casing and auger shall advance along the length of the obstruction, once through the obstruction and the casing is sealed into clay where pile will be backfilled with P100 soft concrete.

C. The auger and coring barrel shall not extend more that 1m beyond the toe of the temporary casing at any given time to ensure that they cannot kick off of the pile.
D. Once the obstruction has been encountered, a combination of a cross-cutter, core barrel and a rock auger will be used. If the material is weak enough it can be removed with the auger. If not the cross-cutter - core barrel is used, this method is known as destructively removing obstructions.
E. The core barrel and rock auger will break up the obstruction and bring the pieces to the surface.
F. The toe level of the obstruction could be unknown, the banksman is to record the depth of the coring and report to the supervisor once virgin ground is encountered.
G. The rig banksman must inspect the respective tools every time they emerge from the bore. This is to monitor the wear on the teeth and the condition of the tool. Where necessary the banksman must replace the worn teeth as these protect the tools.
H. Water may also be introduced into the bore to help cool the tools. This may be up to 1m linear of water in the open bore.
I. As the material is being removed the attendant excavator will be pulling the material back and loading into dumper to be transported to stockpile.
J. During this entire operation the auger or core barrel shall not proceed more than 1m ahead of the casing toe level.
K. Where the existing pile has not been fully removed and still remain below the permanent pile locations, this will be recorded on the record sheet.
L. While drilling the front of the rig is controlled by the banksman, no personnel except the banksman to enter this area unless banksman gives the thumbs up.

Subsurface sewerage infrastructure

A. Before breaking ground commences for the planned bearing piles, the pile layout is to be overlaid with the service / infrastructure drawings, this is to highlight any potential clashes
B. Site note that the service layout highlights drainage spurs within the footprint of the planned building, trail holes to be completed to determine any potential clashes with the proposed pile locations.
C. Piles which are highlighted to be within a meter of any underground service will either be redesigned, or the service exposed and as built taken.
D. No piling to take place within 1m of any known service or sewer.
E. Rotary piling technique utilises a temporary casing which ensures no over flighting or load applied to the surround ground around each pile location during pile construction.
F. All redundant sewers are to be capped off at the manhole ahead of piling commencing.
G. Every pile location is to be probed ahead of pile mat construction to highlight any clashes
H. No waste concrete to be discharged onto the piling mat.
I. Before concrete is placed into the piles, temporary casing is to be sealed into London clay, and only removed once concrete has been poured to finish level.
J. Wash out skips are to be kept away from East boundary next to the brook.

Thames water sewer

1. Running along the south elevation of the site is an existing Thames Water sewer, before the piling works take place this sewer is to be surveyed for condition using CCTV, proposed location of planned bearing piles in relation to the sewer is shown within the sketch in Appendix J, no piling works are to be completed within the 3m easement zone of the Thames Water assets on site.

2. No augers are to be drilled into the ground within 15m of the asset unless the site engineer makes out the location using setting out pins.

3. During piling operations, the piling rig is to be setup facing the asset to ensure no surcharge is applied, piling rig is not to setup over the sewer while constructing piles.

4. Closest pile to the Thames water sewer is 11m, no bored piling to occur within the easement zone.

5. Vibration monitors to be installed along the South elevation, monitoring trigger levels shown below

   Green – 0 – 10mm/s (No action)
   Amber – 10 – 30mm/s (Review and monitor)
   Red – 30+ mm/s (Stop works)

   Thames Water emergency contacts:
   a. Thames Water Waste Operational Control Centre on 0800 009 3908
   b. Thames Water 24-hour service number on 0800 316 9800

5. Logistics

- Two site access gates for vehicles, daily co-ordination and DABs to highlight which gate to be used, South gate is off Beaconsfield Road, and North gate is off Bullsbrook Road.
- Pedestrian access is off Beaconsfield Road.
- No deliveries occur before 8am or after 6pm unless they are abnormal loads in which case the neighbouring properties will be advised well in advance.
- Nanaksar Primary School located on Beaconsfield Road which is to be co-ordinated around site deliveries, where possible no deliveries to enter site through Beaconsfield Road between 8am till 9am and 4:30pm and 5:30pm due to school pick up / drop off times and vehicles to access through North gate
- All site and piling works will be between the hours of 8am and 6pm. Where works overrun due to unforeseen circumstances, those affected will be informed with as much notice as possible.
- Saturday working house 8am till 1pm with no noisy work starting before 9am.
- All waste materials, namely pile arisings will be transferred using licensed hauliers to a licensed facility.
- Restricted zones will be formed around piling areas by use of crowd control barriers which will move with the piling plant.

6. Hazards / Risks

Getjar Management having carried out a Risk Assessment and have identified the following

- Piling Rig Operations
- Concreting
- Deliveries/Unloading
- Use of pressure washer
- Use of 360 excavator
- Plant movements
- Refuelling plant and machinery
- Manual handling
- Lifting Operations
- Vehicle movements
- Use of MEWP (working at height)
- Hot Works
- Rotary piling

COSHH

- 2 Stroke
- Adblue
- Concrete
- Engine oil
- Grease
- Hydraulic Oil
- Diesel
- Mould oil
- Petrol
- Spray paint

Temporary Lighting and Power
All task lighting required within work areas to be provided by Getjar.

Housekeeping
Getjar operatives have a duty to maintain a tidy and safe working area. This will apply in both the construction site and the welfare area. Operatives will ensure that they assist in the tidiness of the site by ensuring work area is clear and any rubbish is placed in the designated skips.

Estimated noise levels from the rig at the work face is 111dB and 83dB at 10m

7. Control Measures (Permits, Exclusion Zones, PPE etc)

Permits Required	Yes	No	Permits Required	Yes	No
Hot works	Yes		COSHH		No
Lift plan	Yes		Noise		No
Excavation/dig	Yes		Manual handling		No
Confined space entry		No	Piling platform	Yes	
Vibration		No			

Further Control Measures / Security Requirements / Hazards.
Due to the nature of the works being carried out on the site, no unauthorised personnel are to enter the piling area without permission from the site manager or the supervisor in charge of works. All works on site will not start before 8am and finish before 6pm, where works overrun due to unforeseen circumstances, those affected will be informed with as much notice as possible. Saturday working hours 8am – 1pm with no noisy works commencing before 9am. Daily safe start briefings must clearly identify the daily operations, plant movements, exclusion zones and pedestrian walkway.. Operatives are asbestos awareness trained if any operative believes they find anything the area to be barriered off and site management informed for further advise on how to proceed.
As indicated above prior to the works being carried out a piling platform certificate will need to be signed off before any works commence on site.

Personal Protective Equipment **Appendix G shows PPE to be used**	**Yes**	**No**		**Yes**	**No**
Safety Helmet (with chin straps) Those wearing turban are except due to religious beliefs	Yes		Gloves	Yes	
Protective Footwear	Yes		Hearing Protection	Yes	
High Visibility Clothing	Yes		Overalls		No
Eye protection	Yes		Body Harness	Yes	
Equipment To Be Used	**Yes**	**No**	**Equipment To Be Used**	**Yes**	**No**
Lifting	Yes		Vibrating pack		No
Mechanical hoist		No	Excavation shoring/casings	Yes	
MEWP	Yes		Ventilation Equipment		No
Ladder **(permit must be obtained prior to use)**	Yes		CAT Scan	Yes	
Hoist		No	Mechanical tools	Yes	
Test Equipment		No	Excavation shoring		No
Task Lighting (when required)	Yes		Lifting slings/chains	Yes	
Scaffolding		No	Mechanical plant	Yes	

8. Emergency Arrangements

First Aid Measures required	
Trained first aider on site	All Getjar Piling supervisors
First aid kits on site	In stores cabin and site offices

9. Contractor Monitoring & Compliance

Who is accountable for monitoring compliance with the method statement?	Project Manager, Site Engineer, Site Supervisor			
Will any test / sampling requirements impose compliance standards?	**Yes**	Cubes	**No**	
If yes, who will carry them out and with what equipment?	Cube crushing in UKAS approved lab Testing frequency – Set every 25m2 until Arup approval to decrease ratio			

10. Appendix A – COSHH assessments

See following pages

Assessments
2 Stroke
Adblue
Concrete
Engine Oil
Grease
Hydraulic Oil
Diesel
Mould Oil
Petrol
Spray Paint

Project: Colt L4

HEALTH RISK ASSESSMENT REPORT

Caltex TT Super Two Stroke *Liquid*

THE HAZARD 4+ Extreme **THE RISK 1 Low**

Controls Adopted

Control: Spill kits available., Awarness of risks, People to wear gloves and light eye wear when applying, Well ventilated/ outside area, Ensure to utilise plant nappies when refuelling , Use in well ventilated area, works undertaken outdoors

Respiratory Protection Factor: 20

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
residual oils, petroleum, solvent-dewaxed	64742-62-7	}70-90	5 mg/m3	-
middle distillate	68476-34-6	5-15	-	-
paraffinic distillate, heavy, solvent-dewaxed (severe)	64742-65-0.	}	5 mg/m3	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	
Toxicity	0	
Body Contact	1	
Reactivity	0	
Chronic	3	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Combustible liquid.

May cause cancer.

May be fatal if swallowed and enters airways.

Persons Potentially At Risk are:

- Persons suffering from acute or chronic illness Offspring of and or Pregnant workers or workers who have recently given birth or are breastfeeding Those working in confined spaces Young Persons Those with eye complaints

Respirator is always a last resort!

PERSONAL PROTECTIVE EQUIPMENT

Overalls | Gloves | Boots | Respirator

EMERGENCY

Foam

HEALTH HAZARDS

Lung Damage: SWALLOWED | Vapours: Drowsiness/ dizziness

FIRST AID

Rest | Eye wash | Wash body

Chronic

Precautionary statement(s): Prevention

- Obtain special instructions before use.
- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Use personal protective equipment as required.
- Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s): Response

- IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- IF exposed or concerned: Get medical advice/attention.
- Do NOT induce vomiting.
- In case of fire: Use alcohol resistant foam or normal protein foam for extinction.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**millilitres**	**weekly, <30min**

Code:	10718
JOB NAME:	Colt L4
Date:	13/12/2021
Version number:	3
Reassess:	12/16/2021
No. Persons Exposed:	Operatives

Assessed By: MC
Signed:

Approved By: MC
Signed:

OPERATING PROCEDURE:

As per RAMS

MINI SDS

Caltex TT Super Two Stroke

INGREDIENTS	CAS NO	%	8HR OEL
residual oils, petroleum, solvent-dewaxed	64742-62-7	}70-90	5 mg/m3
middle distillate	68476-34-6	5-15	-
paraffinic distillate, heavy, solvent-dewaxed (severe)	64742-65-0.	}	5 mg/m3

GHS

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

HEALTH HAZARD INFORMATION

Signal word:	**Danger**
Hazard statement(s):	**H227** Combustible liquid. **H350** May cause cancer. **H304** May be fatal if swallowed and enters airways.

PRECAUTIONS FOR USE

Appropriate engineering controls:	General Exhaust Ventilation adequate.
Glasses:	Not normally required
Gloves:	When handling larger quantities: PVC chemical resistant type.
Respirator:	Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area. Dispose of this material and its container at hazardous or special waste collection point. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.
Fire/Explosion Hazard:	Vapours/gas heavier than air. Toxic smoke/fumes in a fire. Dispose of this material and its container at hazardous or special waste collection point.

PROPERTIES

Liquid. Does not mix with water. Floats on water.Combustible.

EMERGENCY

FIRST AID

Swallowed:	Contact Doctor or Poisons Centre. Give glass of water.
Eye:	Wash with running water.
Skin:	Remove contaminated clothing. Wash with soap & water.
Inhaled:	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
Advice To Doctor:	Emesis generally unnecessary. Debride for subcutaneous injection.
Fire Fighting:	Foam.
Spills and Disposal:	Eliminate ignition sources. Absorb with dry agent. Stop leak if safe to do so. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	o	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

AUSblue AdBlue *Liquid*

THE HAZARD 1 Low **THE RISK 1 Low**

Controls Required
Control: None Required **Respiratory Protection Factor: 4**

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
urea	57-13-6	30-40	-	-
water	7732-18-5	>60	-	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	0	
Toxicity	0	
Body Contact	1	
Reactivity	0	
Chronic	0	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Persons Potentially At Risk are:

- Young Persons Those with eye complaints Persons suffering from acute or chronic illness

Respirator is always a last resort!

PERSONAL PROTECTIVE EQUIPMENT

Lab Coat | Gloves | Glasses | Dust mask | Open Window

FIRST AID

Rest | Eye wash | Wash body

Precautionary statement(s): Prevention

Not Applicable

Precautionary statement(s): Response

Not Applicable

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**litres**	**weekly, 1-4hrs**

Code:	10718	Assessed By	Approved By	**OPERATING PROCEDURE:**
JOB NAME:	Colt L4	MC	MC	As per RAMS
Date:	13/12/2021	Signed	Signed	
Version number:	2			
Reassess:	12/16/2021			
No. Persons Exposed:	Operatives			

MINI SDS

AUSblue AdBlue

INGREDIENTS	CAS NO	%	8HR OEL
urea	57-13-6	30-40	-
water	7732-18-5	>60	-

GHS

Not Applicable

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

HEALTH HAZARD INFORMATION

Signal word:	
Hazard statement(s):	Not Available

PRECAUTIONS FOR USE

Appropriate engineering controls:	General Exhaust Ventilation adequate.
Glasses:	Consider chemical goggles.
Gloves:	1.BUTYL 2.NEOPRENE 3.VITON
Respirator:	Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area.
Fire/Explosion Hazard:	Toxic smoke/fumes in a fire.

PROPERTIES

Liquid. Mixes with water.Does not burn.

EMERGENCY

FIRST AID

Swallowed:	Rinse mouth with water.
Eye:	Wash with running water. For discomfort seek medical advice.
Skin:	Remove contaminated clothing. Wash with soap & water.
Inhaled:	Fresh air. Rest, keep warm.
Advice To Doctor:	Treat symptomatically.
Fire Fighting:	Keep surrounding area cool. Water spray/fog.
Spills and Disposal:	Absorb with dry agent. Stop leak if safe to do so.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	+	+	+	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

Cemex Ready-Mixed Concrete, Mortar And Plaster *Divided Solid*

THE HAZARD 3 High **THE RISK 1 Low**

Controls Adopted

Control: General ventilation, Use in well ventilated area, works undertaken outdoors, Gloves and impact goggles to be worn,

Respiratory Protection Factor: 20

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
limestone	1317-65-3	<=1	10 mg/m3	-
dolerite	Not Available	<=15	-	-
basalt	Not Available	<=5	-	-
chromium(VI) ion	18540-29-9	NotSpec	0.05 mg/m3	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	0	
Toxicity	1	
Body Contact	0	
Reactivity	0	
Chronic	2	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

Persons Potentially At Risk are:

- Those with allergic conditions including asthmatics Young Persons May require special scheduled monitoring by a doctor Offspring of and or Pregnant workers or workers who have recently given birth or are breastfeeding Those with eye complaints Those with respiratory complaints (such as asthma), skin conditions (such as dermatitis) and eye conditions Persons suffering from acute or chronic illness

PERSONAL PROTECTIVE EQUIPMENT

Gloves Glasses Boots General Ventilation

HEALTH HAZARDS **FIRST AID**

Burns | Serious Eye damage | Sensitisation: skin contact | Rest | Eye wash | Wash body | Get to hospital

Corrosive Harmful/irritant

Precautionary statement(s): Prevention

Do not breathe dust/fume.

Wear protective gloves/protective clothing/eye protection/face protection.

Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s): Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Specific treatment (see advice on this label).

Wash contaminated clothing before reuse.

IF ON SKIN: Wash with plenty of water.

If skin irritation or rash occurs: Get medical advice/attention.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**solid**	**tonnes**	**daily, 1-4hrs**

Code:	10718	Assessed By	Approved By	**OPERATING PROCEDURE:**
JOB NAME:	Colt L4	MC	MC	As per RAMS
Date:	13/12/2021	Signed	Signed	
Version number:	2			
Reassess:	12/16/2021			
No. Persons Exposed:	Operatives			

MINI SDS

Cemex Ready-Mixed Concrete, Mortar And Plaster

INGREDIENTS	CAS NO	%	8HR OEL
limestone	1317-65-3	<=1	10 mg/m3
dolerite	Not Available	<=15	-
basalt	Not Available	<=5	-
chromium(VI) ion	18540-29-9	NotSpec	0.05 mg/m3

GHS

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

HEALTH HAZARD INFORMATION

Signal word:	**Danger**
Hazard statement(s):	**H314** Causes severe skin burns and eye damage. **H317** May cause an allergic skin reaction.

PRECAUTIONS FOR USE

Appropriate engineering controls:	Local Exhaust Ventilation recommended.
Glasses:	Consider full face-shield.
Storage and Transportation:	Store in cool, dry, protected area. Dispose of this material and its container at hazardous or special waste collection point. Keep locked up. Keep out of reach of children. Keep away from living quarters.
Fire/Explosion Hazard:	Dispose of this material and its container at hazardous or special waste collection point.

PROPERTIES

Solid.Does not burn.

EMERGENCY

FIRST AID

Swallowed:	Give water (if conscious). URGENT MEDICAL ATTENTION.
Eye:	Wash with running water (15 mins). Medical attention.
Skin:	Flood body with water. Remove contaminated clothing. Wash with water
Inhaled:	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
Advice To Doctor:	Treat symptomatically.
Fire Fighting:	Keep surrounding area cool. Water spray/fog.
Spills and Disposal:	Avoid dust. Sweep shovel to safe place. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	x	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

DIESEL *Liquid*

THE HAZARD 4 Very High **THE RISK 1 Low**

Controls Adopted

Control: General ventilation, Eye Protection to be worn, Use in well ventilated area, works undertaken outdoors, Gloves and impact goggles to be worn, , Use only out doors

Respiratory Protection Factor: 40

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
diesel	68334-30-5	>99	-	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	
Toxicity	1	
Body Contact	2	
Reactivity	1	
Chronic	2	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Combustible liquid.

Causes skin irritation.

Repeated exposure may cause skin dryness and cracking.

May be fatal if swallowed and enters airways.

May cause drowsiness or dizziness.

Toxic to aquatic life with long lasting effects.

Suspected of causing cancer.

Persons Potentially At Risk are:

- Young Persons Persons suffering from acute or chronic illness Offspring of and or Pregnant workers or workers who have recently given birth or are breastfeeding Those with skin conditions including dermatitis Those with eye complaints Those working in confined spaces

PERSONAL PROTECTIVE EQUIPMENT

General Ventilation

EMERGENCY

Foam

HEALTH HAZARDS

Skin irritant

Lung Damage: SWALLOWED

Repeated exposure: Skin

Vapours: Drowsiness/ dizziness

FIRST AID

Rest

Eye wash

Wash body

Harmful/irritant

Chronic

Environmental

Precautionary statement(s): Prevention

Obtain special instructions before use.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Use only outdoors or in a well-ventilated area.

Use personal protective equipment as required.

Avoid breathing mist/vapours/spray.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s): Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see advice on this label).

Do NOT induce vomiting.

Take off contaminated clothing and wash before reuse.

In case of fire: Use alcohol resistant foam or normal protein foam for extinction.

Call a POISON CENTER or doctor/physician if you feel unwell.

Collect spillage.

IF ON SKIN: Wash with plenty of water and soap.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If skin irritation occurs: Get medical advice/attention.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**litres**	**weekly, 30-60min**

Code:	10718	Assessed By	Approved By	**OPERATING PROCEDURE:**
JOB NAME:	Colt L4	MC	MC	As per RAMS
Date:	13/12/2021	Signed	Signed	
Version number:	2			
Reassess:	12/16/2021			
No. Persons Exposed:	Operatives			

MINI SDS

DIESEL

INGREDIENTS	CAS NO	%	8HR OEL
diesel	68334-30-5	>99	-

GHS

DG

UN No: **3082**
Hazchem Code: **•3Z**
DG Class: **9**
Subsidiary Risk: **Not Applicable**
Packing Group: **III**
Poisons Schedule: **S5**

HEALTH HAZARD INFORMATION

Signal word:	**Danger**	
Hazard statement(s):	**H227**	Combustible liquid.
	H315	Causes skin irritation.
	AUH066	Repeated exposure may cause skin dryness and cracking.
	H304	May be fatal if swallowed and enters airways.
	H336	May cause drowsiness or dizziness.
	H411	Toxic to aquatic life with long lasting effects.
	H351	Suspected of causing cancer.

PRECAUTIONS FOR USE

Appropriate engineering controls:	Local Exhaust Ventilation recommended.
Glasses:	Consider chemical goggles.
Gloves:	1.NITRILE
Respirator:	Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area. Restrictions on Storage apply. Refer to Full Report. Dispose of this material and its container at hazardous or special waste collection point. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.
Fire/Explosion Hazard:	Vapours/gas heavier than air. Toxic smoke/fumes in a fire. Dispose of this material and its container at hazardous or special waste collection point.

PROPERTIES

Liquid. Does not mix with water. Floats on water.Combustible.

EMERGENCY

FIRST AID

Swallowed:	Give water (if conscious). Seek medical advice. Do NOT give milk or oil. Do NOT give alcohol.
Eye:	Wash with running water.
Skin:	Remove contaminated clothing. Wash with soap & water.
Inhaled:	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
Advice To Doctor:	Evaluate for respiratory distress. Consider lavage with cuffed tube. NO adrenalin.
Fire Fighting:	Keep containers cool. Foam.
Spills and Disposal:	Eliminate ignition sources. Pollutant. Prevent from entering drains. Contain spillage by any means. Absorb with dry agent. Stop leak if safe to do so. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	o	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

Caltex Volvo Diesel Engine Oil VDS-3 15W-40 *Liquid*

THE HAZARD 2 Moderate | **THE RISK 1 Low**

Controls Required

Control: None Required | **Respiratory Protection Factor:** 10

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
paraffinic distillate, heavy, hydrotreated (severe)	64742-54-7.	>50	5 mg/m3	-
zinc dialkyl dithiophosphate	68649-42-3	0-1	-	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	
Toxicity	1	
Body Contact	2	
Reactivity	1	
Chronic	1	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Causes serious eye irritation.

May cause drowsiness or dizziness.

Harmful to aquatic life with long lasting effects.

Persons Potentially At Risk are:

- Those working in confined spaces May require special scheduled monitoring by a doctor Persons suffering from acute or chronic illness Young Persons Those with eye complaints

Respirator is always a last resort!

PERSONAL PROTECTIVE EQUIPMENT

Overalls | Gloves | Boots | Respirator | Local Ventilation

EMERGENCY

Foam

HEALTH HAZARDS **FIRST AID**

Vapours: Drowsiness/ dizziness | Rest | Eye wash | Get to hospital

Harmful/irritant

Precautionary statement(s): Prevention

Use only outdoors or in a well-ventilated area.

Avoid breathing mist/vapours/spray.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s): Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call a POISON CENTER or doctor/physician if you feel unwell.

If eye irritation persists: Get medical advice/attention.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**litres**	**weekly, 30-60min**

Code:	10718	Assessed By	Approved By	**OPERATING PROCEDURE:**
JOB NAME:	Colt L4	MC	MC	As per RAMS
Date:	13/12/2021	Signed	Signed	
Version number:	2			
Reassess:	12/16/2021			
No. Persons Exposed:	Operatives			

MINI SDS

Caltex Volvo Diesel Engine Oil VDS-3 15W-40

INGREDIENTS	CAS NO	%	8HR OEL
paraffinic distillate, heavy, hydrotreated (severe)	64742-54-7.	>50	5 mg/m3
zinc dialkyl dithiophosphate	68649-42-3	0-1	-

GHS

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

HEALTH HAZARD INFORMATION

Signal word:	**Warning**
Hazard statement(s):	**H319** Causes serious eye irritation. **H336** May cause drowsiness or dizziness. **H412** Harmful to aquatic life with long lasting effects.

PRECAUTIONS FOR USE

Appropriate engineering controls:	Local Exhaust Ventilation recommended.
Glasses:	Consider chemical goggles.
Gloves:	PVC chemical resistant type.
Respirator:	Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area. Dispose of this material and its container at hazardous or special waste collection point. Keep out of reach of children.
Fire/Explosion Hazard:	Toxic smoke/fumes in a fire. Dispose of this material and its container at hazardous or special waste collection point.

PROPERTIES

Liquid. Does not mix with water. Floats on water.Combustible.

EMERGENCY

FIRST AID

Swallowed:	Give water (if conscious). URGENT MEDICAL ATTENTION.
Eye:	Wash with running water.
Skin:	Wash with soap
Inhaled:	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
Advice To Doctor:	Emesis generally unnecessary. Debride for subcutaneous injection. Evaluate for respiratory distress. Consider lavage with cuffed tube. NO adrenalin.
Fire Fighting:	Foam.
Spills and Disposal:	Eliminate ignition sources. Absorb with dry agent. Stop leak if safe to do so. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	o	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

K 42 Ep Grease *Non Slump Paste*

THE HAZARD 1 Low **THE RISK 1 Low**

Controls Required
Control: None Required **Respiratory Protection Factor: 0**

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
zinc dialkyl dithiophosphate	68649-42-3	1-5	-	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	
Toxicity	0	
Body Contact	2	
Reactivity	1	
Chronic	0	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Causes serious eye damage.

Toxic to aquatic life with long lasting effects.

Persons Potentially At Risk are:

- Those with eye complaints Young Persons Persons suffering from acute or chronic illness May require special scheduled monitoring by a doctor

PERSONAL PROTECTIVE EQUIPMENT

Overalls | Gloves | Goggles | Open Window

EMERGENCY

Foam

FIRST AID

Rest | Eye wash

Corrosive | Environmental

Precautionary statement(s): Prevention

Wear protective gloves/protective clothing/eye protection/face protection.

Avoid release to the environment.

Precautionary statement(s): Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

Collect spillage.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**millilitres**	**weekly, <30min**

Code:	10718	Assessed By	Approved By	**OPERATING PROCEDURE:**
JOB NAME:	Colt L4	MC	MC	As per RAMS
Date:	13/12/2021	Signed	Signed	
Version number:	3			
Reassess:	12/16/2021			
No. Persons Exposed:	Operatives			

MINI SDS

K 42 Ep Grease

INGREDIENTS	CAS NO	%	8HR OEL
zinc dialkyl dithiophosphate	68649-42-3	1-5	-

GHS

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

HEALTH HAZARD INFORMATION

Signal word:	**Danger**
Hazard statement(s):	**H318** Causes serious eye damage. **H411** Toxic to aquatic life with long lasting effects.

PRECAUTIONS FOR USE

Appropriate engineering controls:	General Exhaust Ventilation adequate.
Glasses:	Consider chemical goggles.
Gloves:	PVC chemical resistant type.
Storage and Transportation:	Store in cool, dry, protected area. Dispose of this material and its container at hazardous or special waste collection point. Keep out of reach of children.
Fire/Explosion Hazard:	Toxic smoke/fumes in a fire. Dispose of this material and its container at hazardous or special waste collection point.

PROPERTIES

Liquid. Does not mix with water. Floats on water.Combustible.

EMERGENCY

FIRST AID

Swallowed:	Rinse mouth with water.
Eye:	Wash with running water.
Skin:	Wash with soap
Inhaled:	Fresh air. Rest, keep warm.
Advice To Doctor:	Treat symptomatically.
Fire Fighting:	Foam.
Spills and Disposal:	Eliminate ignition sources. Absorb with dry agent. Stop leak if safe to do so. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	x	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

Caterpillar Hydraulic Oil 10W *Liquid*

THE HAZARD 2 Moderate | **THE RISK 1 Low**

Controls Required

Control: None Required | **Respiratory Protection Factor:** 10

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
distillates, petroleum, light, hydrotreated	64742-47-8	65	5 mg/m3	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	
Toxicity	1	
Body Contact	2	
Reactivity	1	
Chronic	0	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Causes skin irritation.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

Persons Potentially At Risk are:

- Persons suffering from acute or chronic illness Those with eye complaints Those with skin conditions including dermatitis Offspring of and or Pregnant workers or workers who have recently given birth or are breastfeeding Young Persons Those working in confined spaces

Respirator is always a last resort!

PERSONAL PROTECTIVE EQUIPMENT

Overalls | Gloves | Boots | Respirator | Open Window

EMERGENCY

Foam

HEALTH HAZARDS

Skin irritant | Lung Damage: SWALLOWED | Repeated exposure: Skin | Vapours: Drowsiness/ dizziness

FIRST AID

Rest | Eye wash | Wash body

Harmful/irritant | Chronic

Precautionary statement(s): Prevention

Use only outdoors or in a well-ventilated area.

Avoid breathing mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s): Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Specific treatment (see advice on this label).

Do NOT induce vomiting.

Take off contaminated clothing and wash before reuse.

Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN: Wash with plenty of water and soap.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If skin irritation occurs: Get medical advice/attention.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	medium	litres	weekly, 30-60min

Code:	10718	Assessed By	Approved By
JOB NAME:	Colt L4	MC	MC
Date:	13/12/2021	Signed	Signed
Version number:	2		
Reassess:	12/16/2021		
No. Persons Exposed:	Operatives		

OPERATING PROCEDURE:

As per RAMS

MINI SDS

Caterpillar Hydraulic Oil 10W

INGREDIENTS	CAS NO	%	8HR OEL
distillates, petroleum, light, hydrotreated	64742-47-8	65	5 mg/m3

GHS

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

HEALTH HAZARD INFORMATION

Signal word:	**Danger**
Hazard statement(s):	**H315** Causes skin irritation. **H336** May cause drowsiness or dizziness. **H304** May be fatal if swallowed and enters airways.

PRECAUTIONS FOR USE

Appropriate engineering controls:	General Exhaust Ventilation adequate.
Glasses:	Consider chemical goggles.
Gloves:	PVC chemical resistant type.
Respirator:	Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area. Dispose of this material and its container at hazardous or special waste collection point. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.
Fire/Explosion Hazard:	Toxic smoke/fumes in a fire. Dispose of this material and its container at hazardous or special waste collection point.

PROPERTIES

Liquid. Does not mix with water. Floats on water.Combustible.

EMERGENCY

FIRST AID

Swallowed:	Give water (if conscious). Seek medical advice. Do NOT give milk or oil. Do NOT give alcohol.
Eye:	Wash with running water.
Skin:	Remove contaminated clothing. Wash with soap & water.
Inhaled:	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
Advice To Doctor:	Evaluate for respiratory distress. Consider lavage with cuffed tube. NO adrenalin.
Fire Fighting:	Foam.
Spills and Disposal:	Eliminate ignition sources. Absorb with dry agent. Stop leak if safe to do so. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	o	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

Mould Oil *Liquid*

THE HAZARD 4 Very High | **THE RISK 0 Minimum**

Controls Adopted

Control: General ventilation, Eye Protection to be worn, Long sleeves required, Care must be taken to avoid contact with eyes , Avoid contact with skin

Respiratory Protection Factor: 20

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
diesel	68334-30-5	30-60	-	-
mineral oil	Not Available	30-60	5 mg/m3	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	1	
Toxicity	1	
Body Contact	2	
Reactivity	1	
Chronic	2	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Causes skin irritation.

Suspected of causing cancer.

May cause drowsiness or dizziness.

May be fatal if swallowed and enters airways.

Toxic to aquatic life with long lasting effects.

Persons Potentially At Risk are:

- Young Persons Those working in confined spaces Offspring of and or Pregnant workers or workers who have recently given birth or are breastfeeding Persons suffering from acute or chronic illness Those with skin conditions including dermatitis Those with eye complaints

Respirator is always a last resort!

PERSONAL PROTECTIVE EQUIPMENT

Overalls | Gloves | Boots | Respirator | General Ventilation

EMERGENCY

Foam

HEALTH HAZARDS

Skin irritant | Lung Damage: SWALLOWED | Repeated exposure: Skin | Vapours: Drowsiness/ dizziness

FIRST AID

Rest | Eye wash | Wash body | Get to hospital

Harmful/irritant | Chronic | Environmental

Precautionary statement(s): Prevention

Obtain special instructions before use.

Use only outdoors or in a well-ventilated area.

Use personal protective equipment as required.

Avoid breathing mist/vapours/spray.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s): Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see advice on this label).

Do NOT induce vomiting.

Take off contaminated clothing and wash before reuse.

Call a POISON CENTER or doctor/physician if you feel unwell.

Collect spillage.

IF ON SKIN: Wash with plenty of water and soap.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If skin irritation occurs: Get medical advice/attention.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**millilitres**	**weekly, 30-60min**

Code:	10718	Assessed By	Approved By
JOB NAME:	Colt L4	MC	MC
Date:	13/12/2021	Signed	Signed
Version number:	2		
Reassess:	12/16/2021		
No. Persons Exposed:	Operatives		

OPERATING PROCEDURE:

As per RAMS

MINI SDS

Mould Oil

INGREDIENTS	CAS NO	%	8HR OEL
diesel	68334-30-5	30-60	-
mineral oil	Not Available	30-60	5 mg/m3

GHS

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

HEALTH HAZARD INFORMATION

Signal word:	**Danger**
Hazard statement(s):	**H315** Causes skin irritation. **H351** Suspected of causing cancer. **H336** May cause drowsiness or dizziness. **H304** May be fatal if swallowed and enters airways. **H411** Toxic to aquatic life with long lasting effects.

PRECAUTIONS FOR USE

Appropriate engineering controls:	General Exhaust Ventilation adequate.
Glasses:	Consider chemical goggles.
Gloves:	1.NITRILE
Respirator:	Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area. Dispose of this material and its container at hazardous or special waste collection point. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.
Fire/Explosion Hazard:	Toxic smoke/fumes in a fire. Dispose of this material and its container at hazardous or special waste collection point.

PROPERTIES

Liquid. Does not mix with water. Floats on water.Combustible.

EMERGENCY

FIRST AID

Swallowed:	Give water (if conscious). URGENT MEDICAL ATTENTION.
Eye:	Wash with running water.
Skin:	Remove contaminated clothing. Wash with soap & water.
Inhaled:	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
Advice To Doctor:	Evaluate for respiratory distress. Consider lavage with cuffed tube. NO adrenalin.
Fire Fighting:	Foam.
Spills and Disposal:	Eliminate ignition sources. Absorb with dry agent. Stop leak if safe to do so. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	o	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

PETROL *Liquid*

THE HAZARD 4+ Extreme **THE RISK 1 Low**

Controls Adopted

Control: Use in well ventilated area, works undertaken outdoors, Gloves and impact goggles to be worn, **Respiratory Protection Factor: 40**

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
petrol	Not Available	-	-	-

Respirator is always a last resort!

ChemWatch Hazard Ratings

	Min	Max
Flammability	3	
Toxicity	3	
Body Contact	3	
Reactivity	1	
Chronic	4	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Extremely flammable liquid and vapour.
Toxic if swallowed.
Toxic in contact with skin.
Toxic if inhaled.
Causes skin irritation.
Harmful to aquatic life with long lasting effects.
May cause cancer.
May damage the unborn child.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.
May cause genetic defects.

Persons Potentially At Risk are:

- May require special scheduled monitoring by a doctor Offspring of and or Pregnant workers or workers who have recently given birth or are breastfeeding Those with skin conditions including dermatitis Those with eye complaints Those working in confined spaces Fertile individuals Young Persons Women of childbearing age Persons suffering from acute or chronic illness

PERSONAL PROTECTIVE EQUIPMENT

Overalls | Gloves | Goggles | Boots | Half-Face Respirator

EMERGENCY

Evacuate | Foam

HEALTH HAZARDS

Toxic: Inhalation | Toxic: Skin | Toxic: Swallowed | Cumulative effects | Skin irritant | Lung Damage: SWALLOWED | Vapours: Drowsiness/ dizziness

FIRST AID

Rest | Eye wash

Wash body

Flammable | Toxic | Chronic

Precautionary statement(s): Prevention

Obtain special instructions before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not breathe mist/vapours/spray.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting /intrinsically safe equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid release to the environment.

Precautionary statement(s): Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see advice on this label).
Specific measures (see advice on this label).
Rinse mouth.
Do NOT induce vomiting.
Take off contaminated clothing and wash before reuse.
In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
IF ON SKIN: Wash with plenty of water and soap.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation occurs: Get medical advice/attention.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**litres**	**weekly, <30min**

Code:	10718	Assessed By	Approved By	**OPERATING PROCEDURE:**
JOB NAME:	Colt L4	MC	MC	As per RAMS
Date:	13/12/2021	Signed	Signed	
Version number:	2			
Reassess:	12/16/2021			
No. Persons Exposed:	Operatives			

MINI SDS

PETROL

INGREDIENTS	CAS NO	%	8HR OEL
petrol	Not Available	-	-

GHS

DG

UN No: **1203**
Hazchem Code: **3YE**
DG Class: **3**
Subsidiary Risk: **Not Applicable**
Packing Group: **II**
Poisons Schedule: **S5**

HEALTH HAZARD INFORMATION

Signal word:	**Danger**	
Hazard statement(s):	**H224**	Extremely flammable liquid and vapour.
	H301	Toxic if swallowed.
	H311	Toxic in contact with skin.
	H331	Toxic if inhaled.
	H315	Causes skin irritation.
	H412	Harmful to aquatic life with long lasting effects.
	H350	May cause cancer.
	H360D	May damage the unborn child.
	H336	May cause drowsiness or dizziness.
	H373	May cause damage to organs through prolonged or repeated exposure.
	H304	May be fatal if swallowed and enters airways.
	H340	May cause genetic defects.

PRECAUTIONS FOR USE

Appropriate engineering controls:	Local Exhaust Ventilation recommended.
Glasses:	Safety Glasses. Consider chemical goggles.
Gloves:	1.PE/EVAL/PE 2.PVA 3.TEFLON
Respirator:	Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area. Restrictions on Storage apply. Refer to Full Report. Not recommended for interior use on large surface areas. Take precautionary measures against static discharges. Dispose of this material and its container at hazardous or special waste collection point. Keep locked up. Keep out of reach of children. Keep away from living quarters. Keep container in a well ventilated place. Keep away from food, drink and animal feeding stuffs. Keep away from sources of ignition. No smoking.
Fire/Explosion Hazard:	HIGHLY FLAMMABLE. Vapours/gas heavier than air. Toxic smoke/fumes in a fire. Not recommended for interior use on large surface areas. Take precautionary measures against static discharges. Dispose of this material and its container at hazardous or special waste collection point. In case of fire and/or explosion, DO NOT BREATHE FUMES.

PROPERTIES

Liquid. Does not mix with water. Floats on water.Highly flammable.

EMERGENCY

FIRST AID

Swallowed:	Give water (if conscious). Seek medical advice. Do NOT give milk or oil. Do NOT give alcohol.
Eye:	Wash with running water (15 mins). Medical attention.
Skin:	Wipe-off with clean/dry cloth. Remove contaminated clothing. Wash with water & soap. MEDICAL ATTENTION.
Inhaled:	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
Advice To Doctor:	Evaluate for respiratory distress. Consider lavage with cuffed tube. NO adrenalin.
Fire Fighting:	Keep containers cool. Foam.
Spills and Disposal:	Spilled liquid has low boiling temperature and evaporates quickly. Eliminate ignition sources. Consider evacuation. Prevent from entering drains. Contain spillage by any means. Control vapour with water spray/ fog. Absorb with dry agent. Stop leak if safe to do so. Not recommended for interior use on large surface areas. Take precautionary measures against static discharges. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	x	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

Location: Colt L4

HEALTH RISK ASSESSMENT REPORT

Zeus Ultracolor Aerosol Survey Marking Paint *Liquid*

THE HAZARD 4+ Extreme **THE RISK 2 Moderate**

Controls Adopted

Control: Containment, Use only out doors, Operatives to fully cover skin **Respiratory Protection Factor: 20**

INGREDIENTS	CAS NO	%	8HR OEL	15 MIN OEL
toluene	108-88-3	10-30	191 mg/m3	574 mg/m3
hydrocarbon propellant	68476-85-7.	30-60	1800 mg/m3	-
calcium carbonate	471-34-1	30-60	10 mg/m3	-
kaolin	1332-58-7	<10	10 mg/m3	-

ChemWatch Hazard Ratings

	Min	Max
Flammability	3	
Toxicity	2	
Body Contact	2	
Reactivity	1	
Chronic	3	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme

Hazard statement(s):

Highly flammable liquid and vapour.
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
Suspected of damaging the unborn child.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways.

Persons Potentially At Risk are:

- Persons suffering from acute or chronic illness May require special scheduled monitoring by a doctor Those with eye complaints Those working in confined spaces Offspring of and or Pregnant workers or workers who have recently given birth or are breastfeeding Young Persons Fertile individuals

Respirator is always a last resort!

PERSONAL PROTECTIVE EQUIPMENT


Overalls


Gloves


Boots


Respirator

EMERGENCY


Foam

HEALTH HAZARDS


Harmful: Swallowed


Eye irritant


Respiratory irritant


Skin irritant


Cancer by inhalation


Lung Damage: SWALLOWED


Repeated exposure: Skin


Vapours: Drowsiness/ dizziness

FIRST AID


Rest


Eye wash


Wash body


Flammable


Harmful/irritant


Chronic

Precautionary statement(s): Prevention

Obtain special instructions before use.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Do not breathe mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting /intrinsically safe equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not eat, drink or smoke when using this product.

Precautionary statement(s): Response

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see advice on this label).
Do NOT induce vomiting.
Take off contaminated clothing and wash before reuse.
In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN: Wash with plenty of water and soap.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

OPERATING TEMPERATURE:	VOLATILITY/DUSTINESS:	SCALE OF USE:	FREQUENCY OF USE:
20 C°	**medium**	**microlitres**	**daily, <30min**

Code:	10718
JOB NAME:	Colt L4
Date:	13/12/2021
Version number:	2
Reassess:	12/16/2021
No. Persons Exposed:	Operatives

Assessed By: MC
Signed:

Approved By: MC
Signed:

OPERATING PROCEDURE:

As per RAMS

MINI SDS

Zeus Ultracolor Aerosol Survey Marking Paint

INGREDIENTS	CAS NO	%	8HR OEL
toluene	108-88-3	10-30	191 mg/m3
hydrocarbon propellant	68476-85-7.	30-60	1800 mg/m3
calcium carbonate	471-34-1	30-60	10 mg/m3
kaolin	1332-58-7	<10	10 mg/m3

GHS

DG

UN No: **Not Applicable**
Hazchem Code: **Not Applicable**
DG Class: **Not Applicable**
Subsidiary Risk: **Not Applicable**
Packing Group: **Not Applicable**
Poisons Schedule: **Not Applicable**

PROPERTIES

Liquid. Does not mix with water.Highly flammable. Combustible.

EMERGENCY

FIRST AID

Swallowed:	Give water (if conscious). Seek medical advice. Do NOT give milk or oil. Do NOT give alcohol.
Eye:	Wash with running water.
Skin:	Remove contaminated clothing. Wash with soap & water.
Inhaled:	Fresh air. Rest, keep warm. If breath shallow, give oxygen. Medical attention.
Advice To Doctor:	Evaluate for respiratory distress. Consider lavage with cuffed tube. NO adrenalin.
Fire Fighting:	Foam.
Spills and Disposal:	Eliminate ignition sources. Absorb with dry agent. Stop leak if safe to do so. Not recommended for interior use on large surface areas. Take precautionary measures against static discharges. Dispose of this material and its container at hazardous or special waste collection point. This material and its container must be disposed of in a safe way. To clean the floor and all objects contaminated by this material, use water and detergent.

HEALTH HAZARD INFORMATION

Signal word:	**Danger**	
Hazard statement(s):	**H225**	Highly flammable liquid and vapour.
	H302	Harmful if swallowed.
	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H350	May cause cancer.
	H361d	Suspected of damaging the unborn child.
	H335	May cause respiratory irritation.
	H336	May cause drowsiness or dizziness.
	H373	May cause damage to organs through prolonged or repeated exposure.
	H304	May be fatal if swallowed and enters airways.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS

+	x	+	x	+	+	+

x — *Must not be stored together*
0 — *May be stored together with specific preventions*
+ — *May be stored together*

PRECAUTIONS FOR USE

Appropriate engineering controls:	Local Exhaust Ventilation recommended.
Glasses:	Consider chemical goggles.
Gloves:	1.PE/EVAL/PE 2.PVA 3.VITON
Respirator:	Type AX Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)
Storage and Transportation:	Store in cool, dry, protected area. Not recommended for interior use on large surface areas. Take precautionary measures against static discharges. Dispose of this material and its container at hazardous or special waste collection point. Keep out of reach of children. Keep container in a well ventilated place. Keep away from food, drink and animal feeding stuffs. Keep away from sources of ignition. No smoking.
Fire/Explosion Hazard:	HIGHLY FLAMMABLE. Vapours/gas heavier than air. Toxic smoke/fumes in a fire. Not recommended for interior use on large surface areas. Take precautionary measures against static discharges. Dispose of this material and its container at hazardous or special waste collection point. In case of fire and/or explosion, DO NOT BREATHE FUMES.

11. Appendix B – Rotary Bored Action Plan

Description	Action
What if breakdown of rig occurs during pile construction?	Depending on the type of breakdown it may still be possible to extract the auger and remove the piling rig to a safe distance to allow assessment and fitting works to take place. If the breakdown is beyond quick repair the pile will be backfilled to save design capacity of the shaft.
Obstructions are not able to be penetrated by piling rig.	In the very unlikely event that an obstruction is encountered then the Engineer and Client would need to be notified and a course of action to be agreed to with move the planned pile location of core through the existing obstruction to form the new planned bearing pile.
Concrete supply not available after boring is complete or if time period between placing successive concrete batches exceeds 2 hrs.	In the first instance the back-up plant would be contacted to arrange delivery and every attempt would be made to continue concreting the pile within the specified placement timescales and contract working periods. In the event that concrete was completely unavailable for the remainder of the day, a decision would be made to withdraw the cage from the pile, with the pile then subsequently being backfilled with a suitable weak concrete mix. The following day after assessment and discussion between all parties, the pile would be re-bored including likely allowance for a slightly deeper pile the second time around. Reinforcement cages would need to be adjusted as appropriate and this would also be discussed prior to the commencement of the re-boring of this pile.
Water collects in bottom of bore.	After review of the site investigation it is likely that any water in the bore will be as a result of minor seepages in the London Clay. In the event that a reasonable amount of water (i.e. more than a 100mm) lay in the bore then the pile would be concreted through the use of tremie pipe placed at the bottom of the bore and fully embedded during concreting works.
Casing Seal not preventing Water seepage	If the casing seal does not prevent water seepage and is confirmed by the piling banksman, pile boring is to be ceased immediately with attempts made to form a new seal into the London clay by driving the casing down to a greater depth. Alternatively, part backfill (approximately 4m inside the casing) with weak concrete, P100 backfill mix. Surge casing up and down forcing grout around the casing. Leave to set overnight and drill out on the following morning. Where the water seepage has been eliminated or deemed to be at a manageable level (minor seepage) then boring will continue. Any standing water on completion of the bore will be noted on the piling log and every attempt will be made to complete the pile as swiftly as possible. In the event that a reasonable amount of water (i.e. more than a 100mm) lay in the bore then the pile would be concreted through the use of tremmie pipe placed at the bottom of the bore and fully embedded during concreting works. Upon removal, the casing sections shall be inspected and not used again until repaired or replaced.

	Support fluid can be utilised if on site at the time.
Individual Dry Pile Construction Duration >12hrs	The installation sequence is based on pre-bored piles being completed within a single shift. In the event of major plant breakdown and where the bore is unable to be backfilled with a suitable weak concrete mix (if bore is past the toe of the casing) the Engineer and designer is to be consulted as to the most appropriate means forward. In many cases it is likely that upon recommencement of boring the pile can be completed within the same working shift. However, it is possible that the bore may have been open for a period of 24-48hrs (or greater depending on the magnitude of the breakdown) The Engineer and designer is to be consulted as to the most appropriate course of action which may involve some or all of the following: 1. Pile back-fill pending additional design 2. Completion of pile bore to a greater depth 3. Completion of pile bore with installation of a heavier steel cage. 4. Increase bored length / steel of adjacent piles 5. Place support fluid in the bore

12. Appendix C – Plant details

LDP - Large Diameter Piles - WCS version		
Operating weight c/w 4x10,5 kelly bar	**97000 kg**	*213848 lb*
Max pile diameter	**1900 mm**	*74.80 in*
Max pile diameter - special configuration*	**3000 mm**	*118 in*
Max pile depth - friction kelly	**89 - 106,5 m**	*292 - 349.4 ft*
Max pile depth - locking kelly	**70 m**	*229.66 ft*

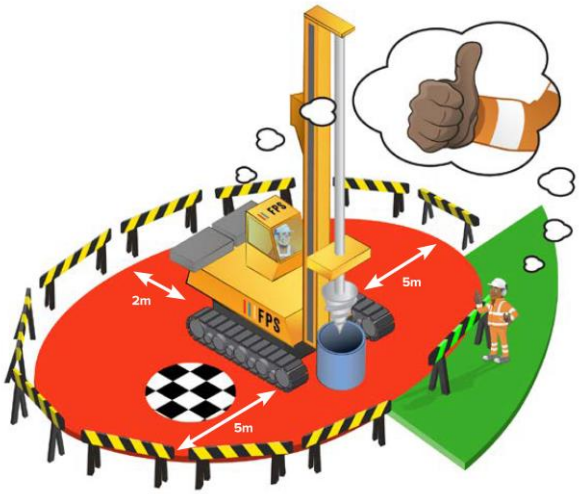
** lower mast section removed, tool below mast*

LDP – Large Diameter Piles – **WCS version**		
Operating weight c/w 4x10,5 kelly bar	**75700 kg**	*166889.7 lb*
Max pile diameter	**1750 (2500)* mm**	*68.9 (98.43)* in*
Max pile depth – friction kelly	**77 m**	*252.62 ft*
Max pile depth – locking kelly	**62,5 m**	*205 ft*

** tool below mast*

13. Appendix D – Piling Rig Setup

LDA
RESTRICTED ZONE



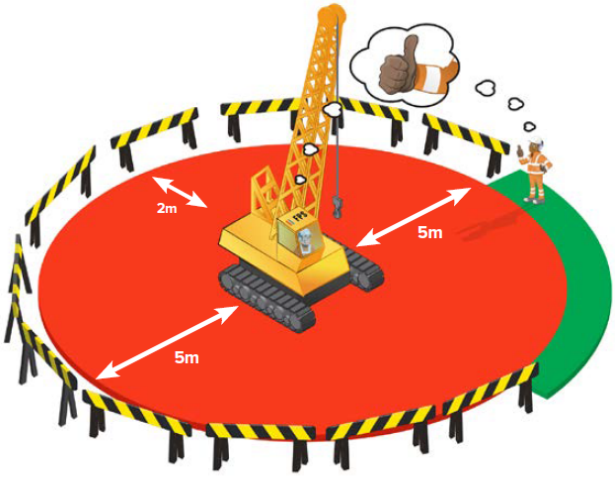
Red Zone: The Rig Operator must ensure the rig is placed in a safe condition before an Authorised Person enters the Red Zone. The operator must give a 'Thumbs up' to the Authorised Person wanting access confirming it is safe to enter before they enter the Red Zone.

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

Black and White: Auger spin off area/Tipper loading area (this can be on either side of the rig).

Note: People entering the Red Zone must be aware of and consider loads being lifted above height and other plant movements in this area.

CRAWLER CRANE
RESTRICTED ZONE



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

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

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

14. Appendix E – Risk Assessments

Key to Risk Assessment

Risks are assessed by making a judgement about the severity and likelihood of an event occurring which constitutes the risk associated with the task. The following risk assessment has been carried out using the following descriptions for Severity and Likelihood.

Severity:

No Injury	1
Minor Injury	2
3-day Injury	3
Major Injury	4
Death	5

Likelihood:

Almost Never	1
Seldom	2
Possible	3
Probable	4
Frequently	5

Risk Assessment Matrix:

The product of the severity and likelihood equates to the risk as per the table below. Low, Medium and High risk are defined as:

Low	1-6
Medium	7-12
High	13-25

		Severity				
		5	**4**	**3**	**2**	**1**
Likelihood	**5**	25	20	15	10	5
	4	20	16	12	8	4
	3	15	12	9	6	3
	2	10	8	6	4	2
	1	5	4	3	2	1

RISK ASSESSMENT - PILING OPERATIONS - GENERAL												
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**	
General Lifting Operations Risks		**1**		16/07/2022			**Michael Cook**	**LC**			17/06/2022	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**				**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**	
			HR	**LR**	**RR**			**HR**	**LR**	**RR**		
Lifting Operations	Falling objects	Operatives, public	5	3	15		Site Specific Lift Plan to be written and approved by trained and competent appointed person. Operations to be managed by Lifting Supervisor and as per the lift plan. Only use trained operatives for slinging operations, ensure suitability of lifting equipment. Ensure lifting plan is appropriate and piling platform is designed to accommodate any loads imposed. Ensure an exclusion zone is in place beneath the load under control by the slinger/piling team.	5	1	5		
	Failure of lifting equipment	Operatioves, public	5	3	15		Site Specific RA to be written. Ensure lifting equipment is tested and certified to carry the loads imposed. Weekly LOLER checks to be carried out and recorded. Follow the lift plan.	5	1	5	Good practice is to review and rebrief specific, individual lift plans periodically to remind all of the process and risks involved	
	Damage to crane and operatives due to crane overturning	Operatives, public	5	3	15		Lift Plan to be developed by Appointed Person. WPC to be in place and inspected daily and recorded weekly.	5	1	5		

RISK ASSESSMENT - PLANT MAINTENANCE - GENERAL													
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**		
General Plant Maintenance Risks		**1**		16/06/2022			**MC**	**LC**			17/06/2022		
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**			**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**			
			HR	**LR**	**RR**		**HR**	**LR**	**RR**				
Maintenance & Repair	Crushing when moving machine to work area or when unloading machine from transport	Fitter and Site Operatives	5	3	15	No lone working during unloading operations. Plant shall be under the guidance of a banksman at all times who shall maintain line of sight with driver. Consult the Operating Manual relevant to the rig for unloading and loading of plant. Driver of Rig and any other plant shall be experienced and certificated. Valid Working Platform Certificate shall be in place	5	1	5			
	Contact with rotating pulleys, fans, shafts, belts and other moving mechanical parts	Fitter and Site Operatives	4	3	12	Ensure no loose clothing is worn, ensure correct specific PPE is worn for the task. Hands and feet to be kept well clear of working and/or moving parts. Engine and power source to be isolated/turned off during maintenance/inspections and repairs. No loose jewellery to be worn around the neck or hands/wrists. Ensure all fitted guards are in place and are operable	4	1	4			
	Burns from contact with hot machine components	Fitter and Site Operatives	4	3	12	Ensure engine components and exhaust manifolds are allowed to cool Ensure leather gloves are worn if hot surfaces cannot be avoided	4	1	4	Ensure combustible materials are kept away from machine compartments to prevent fire		
Maintenance & Repair	Crushing injuries when installing/removing large components such as engine blocks, transmissions, masts, augers etc	Fitter and Site Operatives	5	3	15	Ensure Lift Plan is written and specific to task. Stay clear of components when being lifted. Use correct chains/strops and lifting points. Do not remain underneath load when being lifted. Crane shall be operated by experience and certificated and trained operator	5	1	5			
	Muscoskeletal Injuries due to Manual Handling	Fitter and Site Operatives	4	2	8	Use mechanical lifting aids where possible. Review lifting operations and ensure Manual Handling Assessment carried out before commencing work. Consider the shape and composition of the item to be lifted	4	1	4			
	Struck by High water jet when cleaning machine	Fitter and Site Operatives	3	3	9	Correct PPE to be worn. Only point lance at the object to be cleaned. Ensure equipment is fully chekced as per PUWER requirements. Stand a suitable distance from object being cleaned to ensure minimal splasback	3	1	3			
Maintenance & Repair	Struck by high pressure hydraulic and other fluids when removing hoses, testing or running the machine	Fitter and Site Operatives	5	3	15	Ensure all pressures from hoses are released prior to replacing/repairing. Ensure lines are capped/plugged or connected. Keep hands away from high pressure leaks. Wear correct and appropriate PPE including eye protection. Ensure hydraulic lines are tied back and secured when removed	5	1	5			
	Struck by Guards/Panels and doors when working in compartments	Fitter and Site Operatives	4	2	8	Ensure guards and panels are adequately supported during removal and gaining access to compartments Ensure all doors and panels that remain fixed and hinged are adequately secired and fixed back	4	1	4			
	Struck by falling debris	Fitter and Site Operatives	4	3	12	Ensure engine compartments are cleaned and the work area is clear and visible. Remove spoil from augers and clean mast before attempting maintenance and repairs. Segregate the working area with pedestrians barriers.	4	1	4			
Maintenance & Repair	Contact with site materials such as contaminated waste or soil, landfill waste, leachate, asbestos, metals and chemicals - Risk of burns or serious injury	Fitter and Site Operatives	4	3	12	Ensure the working area on the plant is cleaned thoroughly prior to commencing maintenance and or repairs. Wear appropriate PPE for prevailing site conditions or as defined in any Risk Assessment in relation to environment.	4	1	4			
	Fall from height from plant - Resulting in injury or death	Fitter and Operatives	5	4	20	Ensure edge protection is complete and secured, such as guard railings and chains above fitted ladders Use MEWPS to access high external areas of plant Harness to be worn when using MEWPS Rescue plan to be developed and brief No lone working Ensure adequate lighting is available	5	1	5			
Maintenance & Repair	Use of MEWPS	Fitter and Operatives	5	3	15	Only trained, certificated and competent persons to use MEWPS Ensure working area is clear from obstacle and on stable ground Ensure MEWP is inspected and maintained correctly. Ensure appropriate restraint harness is well maintained and worn correctly by trained operatives Do not store tools inside the basket Do not stand on the guard rails to reach distant objects Ensure rescue plan is written and communicated Podium steps to be considered on an individual site wide basis only.	5	1	5			

RISK ASSESSMENT - PILING ATTENDANCE - GENERAL													
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**		
GENERAL PILING ATTENDANCE RISKS		**1**		16/06/2022			**Michael Cook**	**LC**			17/06/2022		
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**				**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**		
			HR	**LR**	**RR**			**HR**	**LR**	**RR**			
Excavator attendance to Piling Rig	Debris projectiles. Impact type injury.	Persons in close proximity when excavator is operating	3	2	6		Exclusion zones to be suitable considered and adhered to. Full 5 point PPE to be worn.	3	1	3			
	Slewing / tracking of excavator. Crush, impact or entrapment type injuries. Collsion with Plant	Any persons on site. Other items of plant, vehicles or infrastructure resulting in damage.	4	3	12		Plant/Pedestrain exclusion zones to be established or site specific risk assessment required. Excavator only to be operated by trained and competant person. Where the situation arises where an operative has to work within the slew radius of an excavator, if banksman needs to approach the excavator driver they are to (here to thumbs up rule. Adequate warnging signage to be displayed.	4	1	4	Specific operations of excavator to be briefed during DABs		
	Unauthorised use of plant causing damage to plant, equipment or infrastructure. Serious/fatal injuries	Site personnel/plant, equipment/structures or buildings. Trespassers on site outside of working hours	4	3	12		Door to be kept locked, keys to be kept locked away/secure when not in use. Plant only to be used by trained and authorised persons under the control of a trained and competant person.	4	1	4			
Local Excavations by attending machine	Collision with other plant, vehicles, infrastructure or site personnel causing damage or serious/fatal injuries	Site personnel/plant, equipment/structures or buildings	5	3	15		Machines to be operated by qualified and experienced operatives (In date CPCS for type and size of machine with correct endorcements as required). Machine only to track under guidance/instruction of qualified attendant or within designated plant routes. Working area to be clearly defined/segregated where practicable. Traffic routes/plans to be followed. Machines to be regularly inspected and recorded.	5	1	5			
	Failure of tools or attachments resulting in them falling from machine causing damage to plant, equipment or serious/fatal injuries	Site personnel/plant, equipment/structures or buildings	4	3	12		Only qualified operatives to control plant and machinery. Regular inspections of PUWER and LOLER equipment to be conducted and recorded. Exclusion zones to be established if practicable. Attendants to monitor works at all times. Area to be segregated if practicable. 5 point PPE to be worn by all site personel. All works to be overseen by piling supervisor.	5	1	5			
Moving materials and aggregate around the site. Loading and unloading (muck away)	Falling debris causing damage to plant/equipment or causing serious/fatal injuries to attending operatives	Site personnel/plant, vehicles and equipment	4	3	12		Works to be undertaken as per TMP. Loading/tipping areaa to be segregated and kept clear of site personel where practicable. Operation to be conducted under guidance from a trained and competant attendant. Loading to take place on firm level ground where possible. Size and type of vehicle / plant to be suitable for to the environment.	4	1	4			
	Overturning of plant resulting in damage to plant/equipment or structure or serious/fatal injuries	Site personnel/plant, equipment	5	2	10		Muck-a-way area to be kept clear of site personnel. Operation to be conducted under guidance from a banksman. Max capacity of vehicles not to be exceeded. Loading to take place on firm level ground. Vehicle & excavator to be suitable for the load and site environment. Actvitiy to be supervised. Dumpers to tip at base of stock piles, attending excavator to manovere spoil and maintain stockpile. Seatbelts to be worn whilst plant is operating	5	1	5	Size of stockpile to be managed appropriately with site conditions.		
Use of excavator to conduct construction and maintenance of Pile Mat	Unstable ground causing plant/machinery to tip/overturn resulting in damage to plant, equipment or serious injuries	Site personnel/plant, equipment and/or buildings/structures	5	3	15		Ground to be assessed daily for suitability of plant movement. Plant only to be operated by trained and competant personnel. Exclusion zones/segregation to be established where practicable. Works to be conducted under supervision at all times.	5	1	5			
Use of jet wash	Injury / damage from projectiles	Operator, site / 3rd party personael, memebers of the public.	4	3	12		Operation to take place away from normal operations. Only competent persons to operate the plant. Correct use of PPE (gloves, goggles). Lance to be in the stowed position prior to starting ignition. Operatives to seek assistance when hitching / unhitching toe hitch. Brakes to be applied and checked where necessary	4	1	4			
	Injury / damage from pressurised water		4	4	16			4	1	4			
	Manual handling / muscoskelatol disorders, dropping of toe hitch.		3	3	9			3	1	3			
	HAV related disorder.		4	1	4			4	1	4			
Fueling of plant & equipment. Hydraulic / road sweeper content spills.	Polution or contamination. Spillage, fumes orfire.	Site personal. Water, sewer system, ground.	4	3	12		COSHH assessment to be carried out for all substances in use. Task to be carried out by suitably trained and competant persons. 5 point PPE to be worn. Spill kits / plant nappies to be made available. Works to take place away from sources of heat.	3	2	6			
Decanting flammable fuels and gasses	Death. serious injury. respiratory / skin disporders . Fire, explosion, repeated / over exposure of fuels or gasses. Skin disorders from prolonged contact with substances.	Operatives	4	4	16		Fuels to be stored as per manufactures instructions in a designated, vented and bunded COSHH store. No refuelling to take place in the vicinity of sources of heat or source of ignition. No Smoking, eating or drinking whilst handling. Engines must be switched off when refuelling takes place. No material or equipment is to be used as an improvised container or funnel. A fire extinguisher must be present during the operation. AFFF foam powder or carbon dioxide must be available.	4	1	4	COSHH assessment must be conducted for the storage as well as use of all fuels.		
Spillage of Fuels	Skin disorders from prolonged contact with substances. Polution or contamination. Spillage, fumes orfire.	Operatives Site personal. Water, sewer system, ground.	4	3	12		Fuel to be stored within capacity of the specified limits of the approved container. Large storage tanks to be double bunded. All refuelling accessories to be kept within the bund walls when not in use. Any spillage to be reported immediately to a supervisor.	4	1	4			

RISK ASSESSMENT - RIGGING/DE-RIGGING - GENERAL												
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**	
General Rigging / De-Rigging Risks		**1**		16/06/2022			**Michael Cook**	**LC**			17/06/2022	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**				**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**	
			HR	**LR**	**RR**			**HR**	**LR**	**RR**		
Loading / Unloading of rigs onto flatbed trailers	Major damage to rig and/or trailer, fatal/serious injuries caused to operatives caused by rig slipping/rolling off trailer if not centrally aligned during loading/unloading.	Attending operatives/driver - plant & equipment	5	3	15		Suitable trailer selected for weight of the load. Trailer will be inspected for serviceability before use. Rig to be operated by qualified and experienced driver only (In date CPCS for type of rig). Rig to be guided by qualified banksman. Rig to have in date inspection certificate. Loading/unloading activity to be conducted on firm level ground. Exclusion zones to be established to restrict access in loading/unloading area where practicable.	5	1	5	All visitors to site must receive a Site Visitor Induction where they will be informed of site / location specific hazards prior to commencing loading / unloading.	
	Trailer/tractor unit lifting from the ground during weight transfer of rig onto trailer causing damage to plant/trailer or banksman to fall from trailer casuing serious injuries or fatality.	Attending operatives/driver - plant & equipment	5	2	10		Experienced operatives to conduct loading activity only. Rig to be guided by qualified banksman . Rig to be operated by qualified and experienced driver only (In date CPCS for type of rig). Rig to embark at slow speed onto trailer ramps. Load bearing pressure mats to be utilised where required. Activity to be conducted on firm level ground. Exclusion zones to be established if practicable.	5	1	5	Consult Operating Manual or relevant Procedure Document for specific Rig	
Transportation of rig	Rig falling from trailer/ trailer tipping due to adjustment of load. Trailer colliding with other vehicles or street furniture/pedestrians causing serious damage or fatal/serious injuries	Operatives, third parties, plant/equipment, thrid party vehicles, buildings or structures.	5	3	15		Route to be preselected and to meet all local authority and legislative requirements. Rig to be transported during agreed timings to avoid heavy traffic and creating congestion. Rig to be suitably secured with chains, stop blocks etc prior to being transported. Suitable signage to be dispalyed on trailer and amber beacons to be utilised where required. Prior to entering public roadways, supervisor to check all securing points and ensure lights and signage is clearly visable.	5	1	5		
Loading / Unloading the rig on public highway. Tracking rig in and out of the site entrance.	Collision with road vehicles	Collision with road vehicles coasing damage or injury to member of public.	5	2	10		Plant movements must be controlled and carried out in compliance with requirements stipulated in the project Traffic Management Plan and as agreed with the City of London.	5	1	5		
	Plant contact or overloading	Damage to the highways, footpaths, buried serives or street furniture.	4	3	12		A site specific Risk Assessment must be made prior to aranging delivery to survey for signs of underground services and to check load bearings on manhole covers etc.	4	1	4	Positioning of delivery vehicle should be considered to reduce the distance rig has to travel. Steel road plats should be used to protect manhole /drain covers. Two sheets of ply should be used to protect surfances when spragging.	
Rigging Up / De-Rigging	Falling parts of machinery/tools causing damage or serious/fatal injuries	All persons on site in particular assisting operatives/fitters	5	3	15		Rigging up procedure documented in manufacturers instructions to be strictly followed. Only trained, qualified fitters and experienced operatives to conduct rigging up/de-regging procedure. Tools to be tethered where appropriate when working at height. Lifting activities to be conducted in accordance with associated lift plan. All lifts to be conducted by qualified slinger/signaller. All equipment to be inspected before use and necessary inspections to be recorded. Exclusion zones to be established where appropriate and practicable. All works to be conducted under supervison.	5	1	5		
	Manual handling injuries related to lifting of parts/tools and equipment	Fitters and assisting operatives	3	3	9		Where possible mechanical means to be utilised to transport, lift or pull equipment or materials. Operatives only to undertake manual handling activities if fit and healthy. Seperate assessment to be made prior to activity taking place to ensure appropriate resources are available and activity is suitably planned. Appropriate PPE to be worn at all times.	3	1	3		
Rigging Up / De-Rigging	Falls due to working at height resulting in fatal or serious injury	Fitters, Operatives Third Parties	5	3	15		Avoid working at height where possible. Use suitable means of access such as MEWP to gain access to areas at height. Use MEWP or similar for any working at height. Safety harness to be worn and attached to anchorage point in the MEWP. Exclusion zone in place around the MEWP. Ensure harness' are utilised where required. All PUWER and LOLER equipment to be visually inspected before use. Regular recorded inspections of PUWER and LOLER equipment to be recorded. Only trained and qualified operatives to operate MEWP's with suitable harness training.	5	1	5		
	Crushing/traping injuries of body or body parts whilst fitting/adjusting moving parts	Fitters, Operatives Third Parties	4	3	12		Rigging/de-rigging procedure to strictly follow manufacturers guidance and instructions. Only trained qualified fitters and operatives to undertake rigging/de-rigging procedure. Supervisor to undertake briefing with all parties involved detailing sequence of events. Signage to be displayed on trapping areas. Activity to be supervised at all times. 6 Point PPE to be worn at all times.	4	1	4		
Accessing / egressing and working on top of the rig	Slips, trips and falls from height	Sprains, strains, trauma related injuries or fractured limbs	3	3	9		Use designated fitted ladder access routes only. Ensure gloves and ladders are both free from grease or oils. Ensure the upper edge protection system is complete protecting all leading edges. Avoid carrying tools or equipment up or down ladders	3	2	6	Visually inspect fitted ladder access points prior to use to ensure they are good working order. In the event where upper edge protection system is incomplete, a harness with either an inertia or fall restraint lanyard must be worn and fastened to either a designated or permanent / welded anchor point.	
Dressing winch rope onto cable drum	Exposure to moving / mechanical parts, pinch points, drawing, entanglement or entrapment	Pinch, crush, severing, amputation or broken bones.	5	4	20		Stand opposite side of drum to rig operator. Avoid handing rope by utilising copper hammer or bench bar to guide / manipulate the rope into position. Avoid wearing loose clothing or PPE which could become snagged or entangled by moving parts. All operatives involved should be briefed and familiar with requirements defined within Winch Rope Replacement Procedure	5	1	6	Ensure underfoot surface is clean and free from slippery substances. Ensure to take a knee or firm stance prior to commencing. Maintain communication with rig operator and ensure he can view drum via on board camera	
Handling or un-coiling twists or bird nesting in winch rope	Sudden loss of control / jerking of kelly bar whilst uncoiling resulting sudden tightening of the rope	Abrasion, tear, puncture, entrapment or crush type injuries. Rope striking or snagging sensors protruding from the mast	3	3	9		Avoid sliding rope through palm of hand. Always use hand over hand technique whilst feeding the rope. Use rigger (leather) type glove.	3	2	6	Avoid use of rubber type gloves. Stay vigilant of rope condition to avoid handling frays or burs	

RISK ASSESSMENT - RIGGING/DE-RIGGING - GENERAL										
Generic Piling		**Risk Assessment Number**		**Date**		**Prepared By**	**Reviewed By**			**Next Review By**
General Rigging / De-Rigging Risks		**1**		16/06/2022		**Michael Cook**	**LC**			17/06/2022
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**			**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**
			HR	**LR**	**RR**		**HR**	**LR**	**RR**	
Routine maintenance or during piling works (drilling / extracting)	Rotating parts of rig, kelly bar, auger, winch drums, trapping/striking operatives causing crushing/trapping injuries	Piling operatives and other site personel	4	3	12	Only qualified, experienced piling operatives to be in working area. Rig to be operated by qualified individual only. Rig to operate under guidance of qualified attendant. All maintenance to be conducted by qualified fitter, in accordance with operators manual and piling procedures. Exclusion zone to be established around working area with adequate safety signage displayed. Banksman only to approach the auger/bucket or kelly bar after clear communication between himself and the rig driver. 6 point PPE to be worn. (Hard hat, hearing protection, eye protection, gloves, hi-viz, safety boots).	4	1	4	

GENERAL RISK ASSESSMENT - ROTARY BORED PILING													
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**		**Reviewed By**			**Next Review By**	
General Rotary Construction Risk Assessment		**Rot - 001**		20/10/2022			**MC**		**LC**			18/04/2023	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**				**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**				**FURTHER ACTION**	
			HR	**LR**	**RR**			**HR**	**LR**	**RR**			
Slewing / Movement of large piling plant on/across the platform	Integrity of platform and stability of plant causing them to overturn	Crushing injury or fatality - Operatives, Site personnel & general public	5	4	20		Piling plant to be banked at all times. Platform to be constructed as per design. Platform loading inspection and certificates to be recorded. Weekly visual inspections to be conducted and recorded. Plant only to move under guidance from qualified banksman. Where visual contact/communication can not be maintaind, additonal controls must implemented such as a second banksman. Casings to be stored horizontally on the ground where space permits. When stored vertically, casings to be drilled a minimum of 1.0m into the piling platform and to be stored in segregated areas sufficient distance away from the rig and outside of the "red zone". Site traffic management plan to be followed. Maiaintain 1m clearance around the entirtrty of the plant, where this can not be achieved, a second banks,man must be appointed to assist.	5	2	10		Site specific risk assessments must be completed when working in close proximity to adjacent contractors or within restricted working areas. Communication of Red, Amber, Green Zones to be outlined within Site Induction.	
	Plant coming into contact with large equipment or material items such as vertically stored casings or reinforcement cages causing them to fall from height	Operatives and site personel	5	4	20			5	2	10			
	Plant coliding with other plant or fixed objects such as buildings or barriers leading to property damage or potential for crushing piling operatives	Operatives, site personel and plant or buildings	5	4	20			5	2	10			
Operation and movement of tall plant, including Rigs, Cranes, MEWP	Plant/ Crane Instability due to inadequately designed, constructed or maintained platform	Operatives, Plant, Buildings, Services & Public	5	2	10		Piling Plant to be banked at all times. Pile mat to be constructed as per the design and installation requirements. Platform verification testing to be in place as well as signed FPS working platform certificate issued by PC prior to any works starting on site. Supervisor to conduct daily visual checks with weekly recorded checks as per FPS requirements. Regular maintenance to be carried out particularly after a significant weather event or any local excavation works within the platform area. Extents of piling mat to be agreed and communicated to the worforce and should extend 2.0m longer/wider than needed. Do not track over recently cast piles. No piling works to take place under/on a waterlogged platform	5	1	5			
Attaching / detaching rig tools	Failing to attach lifting accessories correctly resulting in load falling and potentially striking operatives or equipment	Attending piling operatives and/or damage to plant	4	3	12		All lifts to be conducted in accordance with relevant lift plan using correctly sized equipment for the task. Only qualifed, experienced slinger/signaller to attach lifting accessories. Only certified lifting accessories to be used. Lifting accessories to be checked prior to use. Only qualified rig driver to operate rig. Rig only to be operated under instruction from slinger/signaler or rig attendant. Operatives to stand clear whilst equipment is being lifted into place. Hand tools to be used to secure locking pins etc. Exclusion zones to be established around the rig. Casings and tools to be drilled into ground minimum 1.0m to prevent them from falling over or laid horizontal. Segregation to be in place. Warning signage to be displayed. 6 point PPE to be worn (Hard hat, eye protection, hearing protection, hi-viz clothing, gloves, safety footwear)	4	2	8			
	Trapping of fingers/hands during connection causing amputation/cuts/ crushing/brusing injuries		4	3	12			4	2	8			
Auger Drilling & Extraction	Rotating parts leading to trapping/crushing injuries or death	Operatives, Plant	5	3	15		Works to take place under experienced supervision and direction of rig banksman. No operatives to be within the exclusion zone whilst the auger is rotating. Full 6 point PPE to be worn at all times	5	1	5			
	Debris falling or projecting from Auger leading to striking injury, severe head injury or death	Operatives, Plant, Public	5	2	10		Exclusion zone to be in place around the spin off area. Exclusion zone to be controlled by the rig banksman. Attendant excavator to assist in cleaning the auger where required.	5	1	5			
Auger Drilling & Extraction	Service strike	Operatives, Plant	5	4	20		Excavation permit and permit to pile to be in place and procedure to be followed prior to piling. Do a visual survey of the area prior to piling. Only excavate within the area specified under the permit and follow the controls specified. Any excavation works to be carried out under supervision	5	2	10		If a service strike has been suspected, works to be stopped immediately and area made safe. Further guidance is to be sought from the principle contractor.	

GENERAL RISK ASSESSMENT - ROTARY BORED PILING												
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**	
General Rotary Construction Risk Assessment		**Rot - 001**		20/10/2022			**MC**	**LC**			18/04/2023	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**			**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**		
			HR	**LR**	**RR**		**HR**	**LR**	**RR**			
Prebores and digging ahead of casing during casing installation	Service strike resulting in explosion/electricution/burns to operatives, flooding or gas release.	Operatives, plant and equipment	5	3	15	Permit to pile process to be adopted. Remaining services to be re-routed/disconnected and termination certificates to be supplied. Close proximity services to be marked where applicable. Depth of pre-bore to be documented and planned prior to commencement of works. Pre-bore depth to be continually monitored for compliance throughout construction programme. Segregation to be in place and any open bores are to be suitably covered or barriered off immediately . Warning signage to be displayed. Operator must hold CPCS endorced with Rig opeator. Pile mat test certificate and weekly inspection records to be in place.	5	2	10	Pre-bore depths to be specifically risk assessed for each individual project. Rig driver to maintain an adequate plug in the casing during installation and notify Supervisor/Engineer if "blowing in" occurs.	
	Collapse of unsupported ground/excavation resulting in rig becoming unstable/overturning		4	3	12		4	2	8			
Joining / seperating segmental casing.	Installation/removal of grub screws during seperation or joining of casing causing crushing, trapping, cuts to hands or fingers.	Attending operatives / Banksman	3	3	9	Only CPCS piling operatives to work within piling area. Rig operator must hold CPCS endorced with Rig opeator. Rig only to operate under instruction from CPCS rig attendant. Exclusion zones to be established. Works to be supervised at all times. 6 point PPE to be worn (hard hat, eye protection, hearing protection, hi-viz clothing, gloves, safety footwear). Hand tools to be checked prior to use. Electrical tools to have in date PAT test. HAVS assessment, exposures recorded and monitored whilst using any vibrating tools.	3	2	6		
	Installation and extraction of grub screws on segmental casing using impact wrenches, risk of hand injury		3	3	9		3	2	6			
Using hanging blocks to hang cages within piles.	Hanging blocks failure or incorrect use resulting in cage falling within bore	Piling Operatives	3	3	9	Hanging blocks to be checked before use. Blocks to be used for all cages. 6 point PPE to be worn (Hard hat, eye protection, hearing protection, hi-viz clothing, task specific gloves, safety footwear). Exclusion zones to be established. Safety signage to be displayed.	3	2	6			
	Trapping fingers/hands whilst securing chains causing possible amputation, crushing, bruising injuries		4	3	12		4	2	8			

GENERAL RISK ASSESSMENT - ROTARY BORED PILING													
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**		**Reviewed By**			**Next Review By**	
General Rotary Construction Risk Assessment		**Rot - 001**		20/10/2022			**MC**		**LC**			18/04/2023	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**			**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**			
			HR	**LR**	**RR**		**HR**	**LR**	**RR**				
Using Hand Held Cutting Wheels and Grinders	Bursting and fragmenting of the wheel causing flying particles & sparks of molten metal. Burns, soft tissue or Eye injuries, penetration of foreign object into skin.	Operatives	4	3	12	Cutting wheels must be stored correctly as manufacturer recommendation. Correct wheels must be fitted to the tool ensuring RPM of the wheel always exceed that of the tool. Never fit a damaged wheel. Ensure damaged wheels are disposed of. Operators must be trained in both how to operate the tool in additonal to changing the wheel. Operators must wear suitable PPE for the task **including impact goggles**, avoid using with loose fitting clothing. Check wheel guards are fitted and secure. Ensure area of work is barriered off with restricted access. Erect screens to control the spark trace if required. Hot works permit must be issued with appropraite fire extinguishers positioned close by.	4	2	8	Employ best practice such as raising / positioning materials being cut off the ground to alllow the cut end to fall away, avoid bumping the wheel or applying too much pressure. Ensure wheels are changed regulary.		
Assembly / Disassembly and Lifting of Tremmies	Slipping on tremmie rack ladder causing operatives to fall from height	Piling operatives	4	3	12	**Keep hands above the joint when joining tremmies.** Only experienced operatives to undertake work involving tremmie pipes. Operatives to be fit and healthy and able to work at height. Tremmie rack to be located on a firm and level base. Tremmie rack ladder to be kept clean from mud/slurry/concrete by use of jet washer. Operative to have three points of contact when climbing ladder. Gate/chain to be closed when on platform. 6 point PPE to be worn (Hard hat, eye protection, hearing protection, hi-viz clothing, safety footwear). Lifting to be conducted in accordance with lift plan. Only qualified slinger signaller to control lifts with clear lines of sight available for communication. Lifting accessories to be inspected prior to use. Weekly recorded inspection of all LOLER equipment to be conducted. Lifting zone to be kept clear. No lifting over individuals or plant. Exclusion zone to be established. Safety signage to be displayed.	4	2	8			
	Working on tremmie rack platform, slip/trip/fall resulting in fall from height		4	3	12		4	2	8				
	Trapping/catching fingers when joining tremmie pipes causing crushing/amputation/cut injuries to fingers or hands		3	3	9		3	2	8				
Use of jet washer to clean tremmie pipes or plant/equipment	Flying debris - Eye damage / body damage from splashes	Site personnel, Operatives and passers by Blocking / contaminating drains, canals etc.	5	4	20	Ensure that cleaning takes place in an area away from normal operations and other workers. Only competent persons to carry out the work. Correct use of PPE (gloves, goggles, full sleeved overalls, no bare arms). Protect drain covers with use of triple layed geotextile or purpose designed matting. Inspect / clean out regulary to prevent build up of slurry	5	1	5			
	Slips, Trips and Falls		3	3	9		3	1	3				
	Slurry run off		4	4	16		4	1	4				
Walking around and working on the piling platform	Slips, Trips and Falls	Site Personnel, Piling operatives	3	3	9	Pile mat to be maintained regularly. Inspections of pile mat to be conducted periodically as work progresses by supervisor. Visual inspection to be conducted before work commences. Weekly recorded inspection to be conducted. Pile mat to be segregated from all over working areas with fencing and safety signage to be displayed. Protruding pins/rebar to have caps fitted. Cones to be placed on protruding pile locations or fenced off accordingly. Pile covers to be placed on freshly poured piles. Pile cover to be painted to aid visual detection.	3	2	6			
	Setting out pins protruding above plaform level		3	3	9		3	1	3				
	Wet concrete at ground level or open bore down to concrete		3	2	6		3	1	3				
Using abrasive wheel to modify cages / cutting rebar	Incorrect/old disc for task fitted causing disc to shatter resulting in injuries to face/body	Operatives or damage to plant or property	3	3	9	Only abrassive wheels trained operative to operate / use equipment, hot works permit in place prior to start of works,fire prevention equipment available at work location	3	2	6				
	Sparks and shards causing ignition to materials/clothing resulting in fire or burns		4	3	12		4	1	4				
Working with Fluid concrete	Cement Burns	Operatives	3	2	6	CoSHH assessment to be briefed to all operatives. 6 point PPE to be worn (Hard hat, eye protection, hearing protection, hi-viz Long sleeved clothing, gloves, safety footwear).	3	1	3				
	Eye damage from spashes		2	4	8		2	1	2				
Slumping of backfill or concrete during casing extraction	Cement Burns from submersion into fresh concrete	Operatives & site personnel	4	3	12	CoSHH assessment to be briefed to all operatives. 6 point PPE to be worn. Piling works to take place within segregated areas with adequate signage. Bore to be inspected immediately after the temporary casing has been extracted and topped up or backfilled accordingly. Where pile bores are unsupported, ensure that suitable cover or barriered protection over/around the bore is in place immediately. Sequence of the works are to be planned to ensure that risk of fresh concrete slumping is minimised during boring of adjacent piles. Rescue plan to be put in place and communicated to all site operatives.	4	2	8	Pile boring process to be controlled to minimise risk of voids opening up underneath the platform, see standard risk above.		
	Fall from height, operative falling into unsupported bore		4	3	12		4	2	8				

GENERAL RISK ASSESSMENT - ROTARY BORED PILING												
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**	
General Rotary Construction Risk Assessment		**Rot - 001**		20/10/2022			**MC**	**LC**			18/04/2023	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**			**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**		
			HR	**LR**	**RR**		**HR**	**LR**	**RR**			
Working around deep, open bores	Fall from height, operative falling into unsupported bore leading to serious injury or death	Operatives & site personnel	5	4	20	Ensure the temporary casing is installed a minimum of 950mm above piling platform level. Steel covers to be in place over open bores whenever drilling or concreting works are not taking place. Piling works to take place within segregated areas with adequate signage. Area around the pile bore to be kept clear of spoil to prevent the build-up of the working area level at all times.	5	2	10			
Clearing a blockage in the Lines	Working at height to access blockage, fall from height leading to serious injury or death	Operatives	4	4	16	Ensure the process is suitably planned and communicated. Wear suitable body harness when working above ground, choose appropriate MEWP (Cherry picker) , Harness inspected regularily, MEWP to comply with PUWER.	4	1	4			
	High pressure contained in the lines / uncontrolled release leading to flying debris & personal injury	Operatives & Public	4	4	16	Ensure the clearing process is suitably planned and communicated. Work in accordance with company procedure	4	2	8			
	Hammering /striking injury & risk of flying objects (pins, tools etc)	Operatives	3	3	9	Ensure that tools are tethered. For risk of any objects flying from height ensure that suitable barriered exclusion area is in place	3	2	6			

RISK ASSESSMENT - SITE LOGISITCS - GENERAL												
Generic Piling		**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**	
General Site Logistics Risks		**1**		16/06/2022			**Michael Cook**	**LC**			17/06/2022	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**		**INITIAL RISK HR x LR= RR**			**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**	
				HR	**LR**	**RR**		**HR**	**LR**	**RR**		
Controlling delivery vehicles in/out of site	Collision with pedestrians/cyclists causing serious/fatal injuries	Members of the public and public/company vehicles		5	3	15	Traffic routes to be communicated to all suppliers. Traffic marshalls to control entrance/exit to site. Traffic management plan to be followed. Warning signage to be displayed. Footpath barriers to be utilised where appropriate. Suitable lighting to be in place. All deliveries to be booked in via datascope, between hours of 8am to 9am and 2:30pm to 3:30pm the south gate is to be avoid to avoid school drop off and collection times	5	1	5		
	Contact with staff, plant, or structures.			5	3	15		5	1	5		
	Colliusion with public vehicles causing damage to vehicle and injury to occupants			5	3	15		5	1	5		
Plant Movement/Site Traffic	Plant/vehicles coming into contact with site operatives casuing serious/fatal injuries	Site operatives, plant and machinery, existing structures or buildings		5	3	15	All plant and site vehicles to be banked by qualified banksman at all times. Amber beacons to be fitted and warning devices as per site requirements. Site traffic management plan to be followed at all times. Segregation to be in place around working areas, stored materials and walkways. Safety signage to display site speed limit. Machines plant, vehicles only to be operated by qualifed experienced operatives. Piling area to be controlled by supervisor or delegated person at all times. Operatives never to place themselves between static/moving objects and guided plant/site vehicles.	5	1	5		
	Collisions with other plant/vehicles causing serious/minor damage			4	3	12		4	1	4		
	Collisions with existing buildings/structures causing serious/minor damage or collapse			5	3	15		5	1	5		
Storage of materials	Access/egress to stores area uneven or protruding objects causing trips/falls resulting in minor/serious injury	Site operatives, plant and machinery, existing		4	3	12	Clear access/egress routes to be maintained at all times. Cages to be stacked no more than 2 high. Stores areas to be segregtaed. Safety signage to be displayed. 6 Point PPE to be worn at all times. (Hard hat, eye protection, hi-viz clothing, gloves, safety footwear). Only piling operatives to be within piling works area. All works to be supervised at all times. Lifting	4	1	4		

RISK ASSESSMENT - SITE LOGISITCS - GENERAL											
Generic Piling	**Risk Assessment Number**		**Date**			**Prepared By**	**Reviewed By**			**Next Review By**	
General Site Logistics Risks	**1**		16/06/2022			**Michael Cook**	**LC**			17/06/2022	
ACTIVITY	**IDENTIFIED HAZARD**	**WHO OR WHAT COULD BE HARMED**	**INITIAL RISK HR x LR= RR**			**CONTROL MEASURES**	**RESIDUAL RISK HR x LR= RR**			**FURTHER ACTION**	
			HR	**LR**	**RR**		**HR**	**LR**	**RR**		
Storage of Materials	Failure of lifting equipment whilst materials are being moved causing objects to fall onto working areas casuing serious/fatal injuries or serious damage	machinery, existing structures or buildings	5	3	15	be within piling works area. All works to be supervised at all times. Lifting only to be conducted/controlled by qualified in date slinger/signaller. No lifting overhead of site operatives or manned plant. Lifting equipment to be inspected prior to use. Weekly LOLER inspection to be conducted and recorded.	5	1	5		

Appendix F – Tool assessments

See below

MASTERSON HOLDINGS

GETJAR LIMITED | ATLANTIC CONTRACTS | GLENCOE PLANT SERVICES

Assessments

ISG – Colt L4

TOOL ASSESSMENT

Hilti TE 80-ATC-AVR Combihammer

Sound Pressure Level	102 dB(A) Select hearing protection with SNR value of 30+ (HSE guidance).		
Vibration	• Vibration Level: 7.5 m/s^2 • Exposure Action Value: 53 minutes • Exposure Limit Value: 3 hours and 33 minutes		
Additional PPE Required When Using This Tool	 Safety Glasses	 Hearing Protection	 FFP3 Dust Mask* **If general ventilation is poor*
• This tool must be checked by the user before use. If found to be damaged or missing components, do not use the tool, isolate it and report to the site manager/foreman. • This tool is subject to a 3 monthly P.A.T. (Portable Appliance Testing) regime. • This tool is to be inspected and recorded in the Masterson Holdings 'Weekly Inspection' file.			

Note: These documents are to be read in conjunction with our Method Statements and Risk Assessments.

TOOL ASSESSMENT

Makita 4.5" Angle Grinder

Sound Pressure Level	85 dB(A) Select hearing protection with SNR value of 20 or less (HSE guidance).	
Vibration	• Vibration Level: 7.5 m/s^2 • Exposure Action Value: 53 minutes • Exposure Limit Value: 3 hours and 33 minutes	
Additional PPE Required When Using This Tool	 Safety Goggles  Hearing Protection	 FFP3 Dust Mask* **When grinding/cutting concrete or if general ventilation is poor (cutting steel)*
• This tool must be checked by the user before use. If found to be damaged or missing components, do not use the tool, isolate it and report to the site manager/foreman. • This tool is subject to a 3 monthly P.A.T. (Portable Appliance Testing) regime. • This tool is to be inspected and recorded in the Masterson Holdings 'Weekly Inspection' file.		

Note: These documents are to be read in conjunction with our Method Statements and Risk Assessments.

TOOL ASSESSMENT

Makita 9" Angle Grinder

Sound Pressure Level	89 dB(A) Select hearing protection with SNR value of 20 or less (HSE guidance).		
Vibration	• Vibration Level: 5.5 m/s^2 • Exposure Action Value: 1 hour and 39 minutes • Exposure Limit Value: 6 hours and 37 minutes		
Additional PPE Required When Using This Tool	 Safety Goggles	 Hearing Protection	 FFP3 Dust Mask* **If cutting concrete or if general ventilation is poor (when cutting steel)*
• This tool must be checked by the user before use. If found to be damaged or missing components, do not use the tool, isolate it and report to the site manager/foreman. • This tool is subject to a 3 monthly P.A.T. (Portable Appliance Testing) regime. • This tool is to be inspected and recorded in the Masterson Holdings 'Weekly Inspection' file.			

Note: These documents are to be read in conjunction with our Method Statements and Risk Assessments.

TOOL ASSESSMENT

Makita 9" Circular Saw

Sound Pressure Level	95 dB(A) Select hearing protection with SNR value of 20-30 (HSE guidance).
Vibration	• Vibration Level: 3 m/s^2 • Exposure Action Value: 5 hours and 33 minutes • Exposure Limit Value: 22 hours and 13 minutes
Additional PPE Required When Using This Tool	 Safety Glasses  Hearing Protection  FFP3 Dust Mask* **If general ventilation is poor*
Accessories / Attachments	 Dust Bag

- This tool must be checked by the user before use. If found to be damaged or missing components, do not use the tool, isolate it and report to the site manager. If riving knife is missing do not use the tool.
- This tool is subject to a 3 monthly P.A.T. (Portable Appliance Testing) regime.
- This tool is to be inspected and recorded in the Masterson Holdings 'Weekly Inspection' file.

TOOL ASSESSMENT

Stihl Cutquick Saw

Sound Pressure Level	98 dB(A) Select hearing protection with SNR value of 25-35 (HSE guidance).		
Vibration	• Vibration Level: 3.9 m/s^2 • Exposure Action Value: 3 hours and 17 minutes • Exposure Limit Value: 13 hours and 9 minutes		
Additional PPE Required When Using This Tool	 Safety Goggles	 Hearing Protection	 FFP3 Dust Mask* **If cutting concrete or when general ventilation is poor (when cutting steel)*
• This tool must be checked by the user before use. If found to be damaged or missing components, do not use the tool, isolate it and report to the site manager/foreman.			

Appendix G – Programme

See following pages

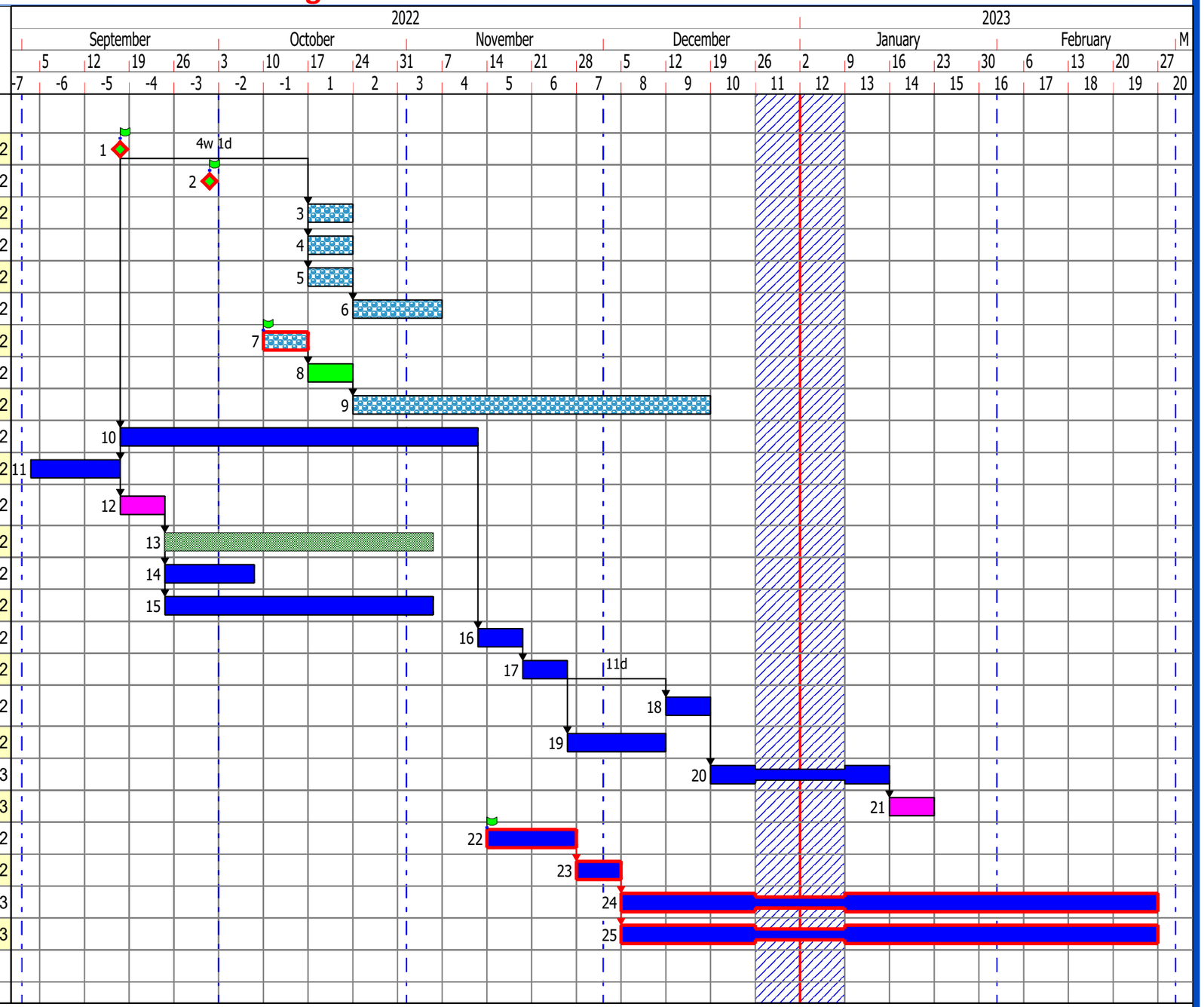
Colt L4 Piling & Enabling Works

ISG

Tender Programme 10718

GETJAR LIMITED
A MASTERSON HOLDINGS COMPANY

Line	Name	Duration	Start	Finish
1	ISG Letter of Comfort to Getjar		16/09/2022	16/09/2022
2	Getjar Order		30/09/2022	30/09/2022
3	Cone Penetration Testing (CPT)	1w	17/10/2022	21/10/2022
4	WAC Testing	1w	17/10/2022	21/10/2022
5	Trial Pits	1w	17/10/2022	21/10/2022
6	Pile Probing	2w	24/10/2022	04/11/2022
7	Plate Load Testing (CBR)	1w	10/10/2022	14/10/2022
8	Pile Matt Design Confirmation	1w	17/10/2022	21/10/2022
9	Pile Matt Installed (By Getjar)	8w	24/10/2022	16/12/2022
10	Place Rig Order	8w	16/09/2022	10/11/2022
11	A2 Design - Prelim Test & Concrete	2w	02/09/2022	15/09/2022
12	ARUP Design Approval - Prelim Test & Concrete	1w	16/09/2022	22/09/2022
13	Lead time for Strain Gauges and Frame	6w	23/09/2022	03/11/2022
14	Procure Steel Cages for Test	2w	23/09/2022	06/10/2022
15	Concrete Trial Mixes	6w	23/09/2022	03/11/2022
16	Mobilise (External) Rig 1 to Site & Rig Up	1w	11/11/2022	17/11/2022
17	Install Test Pile and Anchors (Prebore)	1w	18/11/2022	24/11/2022
18	Set Up Test Frame & Conduct Preliminary Load Test	1w	12/12/2022	16/12/2022
19	Carry out Pile Removal - 22 Piles	2w 1d	25/11/2022	09/12/2022
20	A2 Test Pile Analysis & Final Pile Design	2w	19/12/2022	13/01/2023
21	Design Approval (ARUP)	1w	16/01/2023	20/01/2023
22	Procure Steel Cages for Production Piling	2w	14/11/2022	25/11/2022
23	Mobilise Rigs to Site	1w	28/11/2022	02/12/2022
24	Rig 1 Production Piling	10w	05/12/2022	24/02/2023
25	Rig 2 Production Piling	10w	05/12/2022	24/02/2023



Trades Contractor,Procurement Stages

ISG | Piling | ARUP | Groundworker

Milestone Appearances

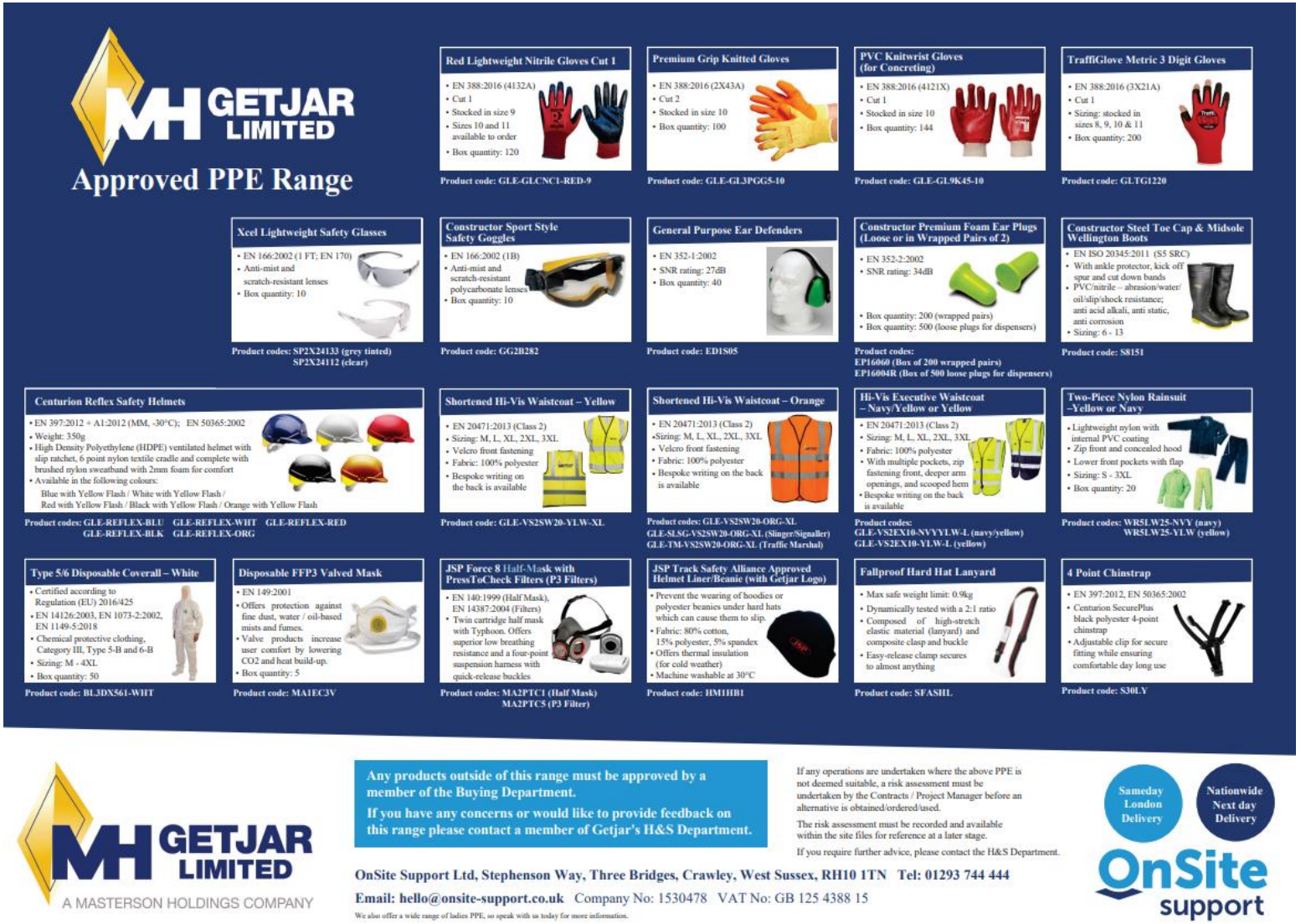
Start Milestone

Drawn by: B. Smith	Prog No: Prog 1	Date: 16/09/2022	Revision No: Rev 1	Rev. Date: 08/09/2022	Notes:

Project Ref. C:\Users\ben.smith\Masterson Holdings Ltd\Piling Team Site - Documents\Tenders\01 Won\10718 Colt L4 Data Centre\Precon\Piling.220916 (Hybrid Prelim Test) (Rev1).pp

Planned using Powerproject

1. Appendix H – PPE Assessments



1 PPE ASSESSMENT

Project: Colt L4	
Assessor: Michael Cook	Date: 31/10/22
Task/ Work Activity: Rotary Piling	

PPE Risk Assessment Process

(1) Hierarchy of Controls have been applied to identify PPE as a control measure of last resort:	**Yes/ No**
(2) Compulsory ISG Issue PPE has been provided on site or at the workplace:	**Yes/ No**
(3) Hazards associated with the work activity have been assessed to identify the requirement to provide specialist PPE as below:	**Yes/ No**

Specialist PPE Requirements

	Hazards associated with the Work Activity	Typical Specialist PPE Consideration	Yes/ No
A	Falls of Materials	1 + 2	NO
B	Carrying material	1 + 2 + 5	YES
C	Working at Height	13 + 15	YES
F	Moving Vehicles/Plant	4	YES
G	Noise	6	YES
H	Vibration	5	YES
I			
J			

Specialist PPE Requirements

1	2	3	4	5	6	7	8	9	10
 Head	 Foot	 Body	 High-Vi Clothing	 Hand/Arm	 Hearing	 Safety Goggles	 Safety Glasses	 Face Shield	 Welding Mask
11	12	13	14	15	16	17	18	19	20
 Life Jacket (Buoyancy Aid)	 Overall	 Fall Restraint Equipment	 Fall Arrest Equip	 Harness	 Full Face Compressed Air Breathing Apparatus	 Half Mask Respirator	 Full Face Respirator	 Dust Mask	 Apron

PPE Selected	Type	Make	Model
Hardhat	EN397	Safety Source	Aero
Hi-vis	EN471 CLASS 2	Safety Source	Class 2
Eye protection	EN166	Iris Eye protection	Zodiac
Ear Plugs	EN352-2	Ultimate Industrial	EN352-2
Safety boots	EN345	DEWALT	ISOEN20345
Gloves	EN388	S T GLOVES	Nitro Touch
Dust Mask	EN149	UVEX	FFP3
Safety Harness	EN361	Kratos Safety	FA 10 107 00

*All PPE selected must take account of Individual Requirements; Nature of the Work; Environmental Conditions & Design features/ Design limitations of the PPE.

(5) Training/ Instruction Required in Safe Use of PPE - ✓ Where Required

Verbal Instruction	✓	Written Instruction	
Tool Box Talk	✓	Practical Training	

Appendix I – Manual handling assessment

Manual Handling Assessment Record Form			
Job Title	Colt L4	**Job Number**	10718
MS/RA Ref	Rotary Piling operations	**Date**	20/10/2022
Job/Task description – Piling operations			

Section A - Preliminary	**Yes**	**No**
Do operations involve significant risk of injury?		√
Can the operations be avoided/mechanised/automated at a reasonable cost?		√
Are the elements of the tasks clearly identified?	√	
Section B: More detailed assessment	**Yes**	**No**
The Loads are they?		
Heavy	√	
Bulky		√
Unwieldy		√
Unstable		√
Sharp/Hot/Cold/Rough?	√	
Is it a problem for those with Health Problems		√
Is it hazardous to those who are pregnant		√
Require special information or training		√
Does the task involve?		
Holding loads away from trunk		√
Twisting/ Stooping	√	
Stretching/ Bending	√	
Large vertical movement/reaching upwards		√
Long carrying distance		√
Strenuous pushing / pulling	√	
Unpredictable load movement		√
Repetitive handling/continuous	√	
Insufficient rest or recovery		√
Constraints on posture/confined		√
Poor floors		√
Variations in levels/rough surfaces		√
Does the task involve?		
Hot / Cold / Humid conditions		√
Strong air movements		√
Poor Lighting		√

SECTION C – Remedial action	Comments/Actions
Review potential for use of mechanical plant relative to site conditions, for example: Materials hoist.	Where possible mechanical means to be used
If manual handling is unavoidable, ensure operatives are trained in basic lifting techniques.	Before works commence
Ensure all redundant material is cut into sections as small as possible to ease carrying. Rubbish should be removed from sites in suitable containers, preferably with handles.	None
Team lifting should be considered for the movement of all loads where loads are not manageable by a single person.	Where too heavy for operative mechanical means to be used
Plan your route, ensure there are no obstructions	To be briefed
Provide and maintain suitable personal protective equipment on site. These are to include: Safety footwear, suitable gloves, hard hat.	In place / M Cook

<table>
<tr><th colspan="5">SECTION D – Risk Summary</th></tr>
<tr><td>Are existing controls satisfactory</td><td>Yes</td><td>No</td><td colspan="2"></td></tr>
<tr><td>Degree of risk</td><td colspan="2">Low</td><td>Medium</td><td>High</td></tr>
<tr><td colspan="4">Further action to be taken</td><td>Responsible person</td></tr>
<tr><td colspan="4">• Ensure that all operatives are briefed on task to be completed before works commence.
• All operatives are to work as a team where required.
• No operatives are to undertake work too difficult for them to handle.
• Operatives to take rest if tired and fatigue</td><td>Michael Cook</td></tr>
<tr><td>Are controls satisfactory</td><td>Yes</td><td>No</td><td colspan="2"></td></tr>
<tr><td>Degree of risk</td><td colspan="2">Low</td><td>Medium</td><td>High</td></tr>
<tr><td>Assessor’s Name</td><td colspan="2">Michael Cook</td><td>Signature</td><td>  </td></tr>
</table>

Note: These documents are to be read in conjunction with our Method Statements.

Manual handling assessment record

Appendix 1

Mark boxes as appropriate. Every activity must be marked

premises / contract : _____ **assessor:** _____ **date:** _____

activity: _____ **materials to be handled:** _____ **location:** _____

hazardous contents: _____ **can manual handling be eliminated** **Yes** ☐ **No** ☐

TASK

YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐

LOAD

YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐

ENVIRON

YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐

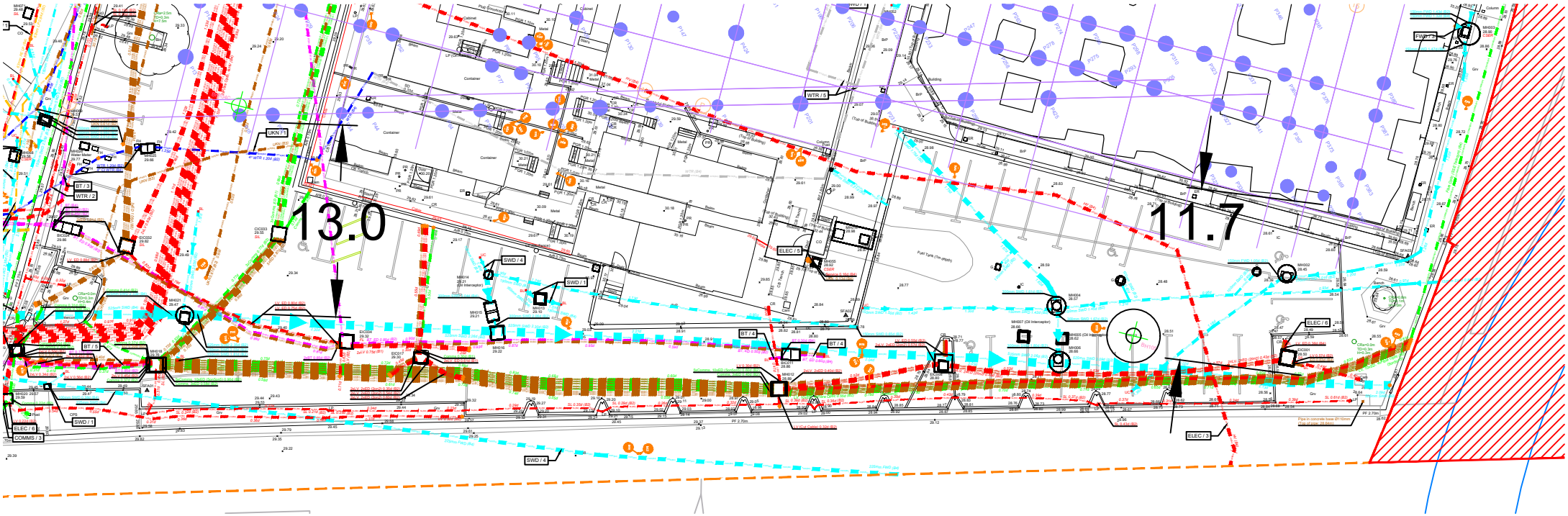
PERSON

YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐ | YES ☐ NO ☐

Control measures [see overleaf]

Courtesy of Mace Ltd and HSE

Appendix J – Thames Water Asset


13.0
11.7

Method Statement & Risk Assessment
Induction Record Sheet

Project Name	Colt L4
RAMS Title & Revision No.	Rotary Piling – Rev P05

I confirm that I fully understand the contents of the above titled Method Statements and associated Risk Assessments. The content of those documents have been explained to me in detail and I have questioned any items that were unclear to me. I will comply with the requirements contained within these documents and, if at any time I encounter difficulty with complying, I will stop work and seek advice from my supervisor. I consider myself to be fit and healthy for work in general and in particular for the operations that were covered within my briefing.

No.	Full Name of Person Being Inducted	Signature	Induction Date	Name of Person Providing Induction
1				
2				
3				
4				
5				
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