Construction of Secant Pile Wall at St Pancras Commercial Centre			
Site Name:	St Pancras Campus	Site Address:	St Pancras Commercial Centre NW1 0BY
Scope of Works	• Installation of 750mm diameter secant pile wall		
Document Ref	SPC12	Revision Ref	Rev 01

Contents

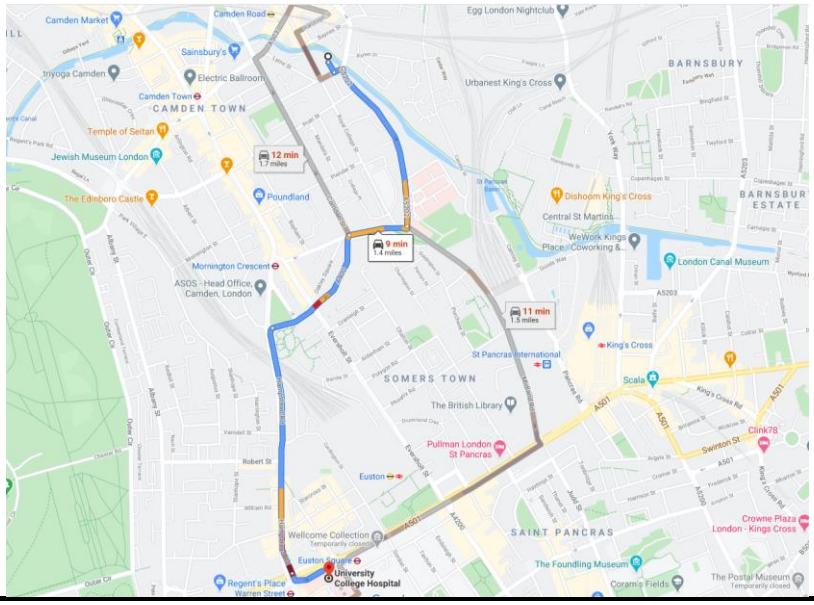
Work Area Safety Management
(Tick the relevant boxes)

Work Area Mechanical Services	Water Supply	Live	✓	Isolated	✓	None		
	Gas Supply	Live	✓	Isolated	✓	None		
	Gases on Site	Live	✓	Isolated	✓	None		
Work Area Electrical Supplies	110 Volt Supply	Live	✓	Isolated	X	None		
	240 Volt Supply	Live	✓	Isolated	X	None		
	415 Volt Supply	Live	✖	Isolated		None		

Services which are to remain Live and Location	**Incoming Heads**						
M & E Services required (tick)	Work Area Water Supply	✓	Work Area Power	✓	Work Area Lighting	✓	
Work area main access location	Pedestrian Access Point	**Pratt Street**		Vehicle access Point	**Pratt Street**		

Means of access to work area	• Ground Level	✓	• Mechanical Plant	X	• Ladders (Permit)	✓	
	• Staircase	X	• Access Tower	X	• Others	✓	
	• Scaffolding	X	• Podium Steps	✓			

Nearest Fire Point Locations to Works	1. Fire extinguishers will be kept at the workface during the activities. Once the site is established, fixed fire points will be put into position	
First Aid	Site First Aiders:	TBC
	First Aid Equipment location:	**Site Office**
Local A & E Hospital	Location: 235 Euston Rd, Bloomsbury, London NW1 2BU. Travel time approx. 9 mins.	



Site Emergency Procedures

Fire:	In the event of a fire on site, switch off all plant, make all equipment, tools and work areas safe, leave the area and raise the alarm by pressing the nearest call point and notify the Project Manager immediately. If safe to do so, advise your neighbouring units to evacuate. **Only the Project Manager shall dial 999 for Fire Service**
First Aid:	In the event of a site accident, the injured party must contact first aiders and get treated. If the injured person cannot move, they should be made comfortable, the area made safe, then notify the first aider and the project manager immediately. All accidents **must** be recorded in the Site Accident Book.
Site Evacuation:	For fire and any site evacuation, leave the work area via the closest fire exit ensuring fire doors are closed behind them and make their way to the assembly point in Paternoster Square.

Introduction

This RAMS will detail the following activities

1. Installation of secant pile wall

Operatives to attend the site induction. Due to known presence of asbestos in the vicinity, all operatives including the plant operators are to have asbestos awareness training.

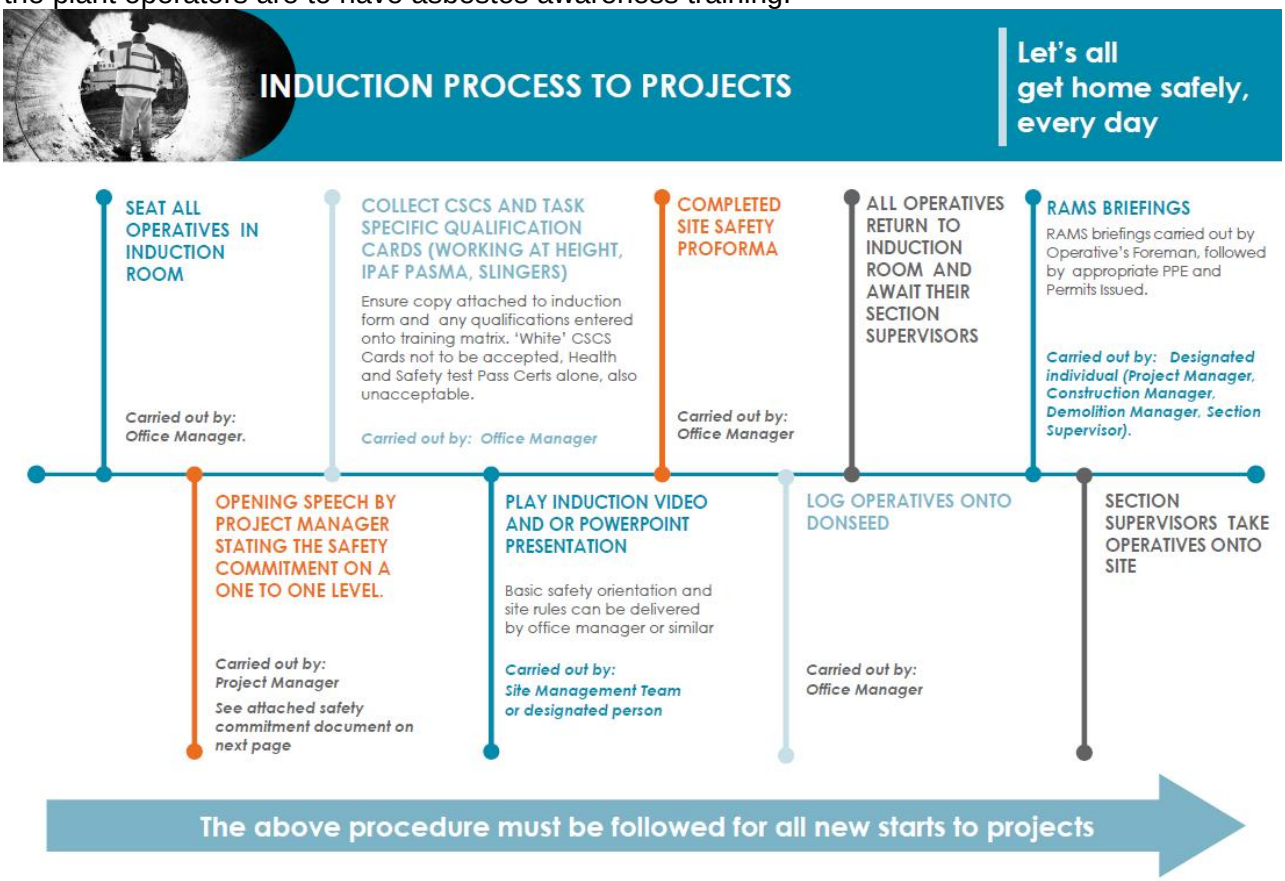


Figure 1 – Induction process

Operatives are to be briefed on Method Statement and the Coronavirus Pandemic Response Plan. Access & egress to be covered in site induction. Site pedestrian access and site deliveries also to be through the entrance at Pratt Street as per the logistics Plan. Operatives to sign in and out and declare their works location daily.

An information board will be placed within the welfare facilities with relevant contact numbers displayed, emergency procedures and safety information displayed.

First aid boxes are to be placed within the site office and Signage displaced for site information. PUWER Inspection Register, through examination certs, lifting certs & PAT tests will be issued and kept in the site office.

Secant Pile Wall Construction

There are four activities associated with the secant piling works at St Pancras Campus

1. Guide wall installation
2. Mobilisation of equipment
3. Installation of CFA secant primary piles
4. Installation of CFA secant secondary piles

Guide Wall Construction

1. A reinforced concrete cast in-situ guide wall will be installed to the proposed secant alignment ensuring compliance to specified tolerances 1 week before the start of mobilization of piling equipment.
2. The construction process is illustrated below and is typically sequenced as follows:
3. Day One - Mobilise plant, equipment and materials - Excavate 20m of trench, place formwork and pour kicker

Figure 2 - Guide wall formation

4. Day Two - Place guide wall formwork and reinforcement - Pour guide wall (20m) - Excavate a further 20m of trench, place formwork and pour kicker

Figure 3 - Guide wall scallop formwork

5. Day Three - Strike guide wall formwork, place timber props within guide wall and backfill to platform level - Place guide wall formwork to next 20m and pour - Excavate next 20m, place formwork and pour kicker The guide walls are typically 1m from the working platform level and lightly reinforced.

Figure 4 - Guide wall constructed

CFA Secant Pile Walls

- The pile is constructed using a continuous auger. This is screwed into the ground to the required depth. Once this is achieved, the auger is extracted whilst concrete is pumped under pressure into the bore via its hollow stem. On completion the spoil is removed, the top of the concrete located, and the reinforcement cage inserted.
- The pile position will be set out, clearly marked and protected with a Cemcap. The pile position shall be set out within 5mm of the design coordinates of the pile centre.
- The rig shall be tracked under the guidance of the rig banksman to the designated pile position.
- The banksman will establish a suitable exclusion zone around the rotating auger of the piling rig. This area will be directly controlled by the piling rig banksman and interface managed by the Contract Supervisor (CS).The bung will be inserted into the bottom of the auger by the rig banksman.
- The auger shall be carefully positioned by the banksman over the steel pin indicating the pile position. The banksman will check the centre of the auger is within the tolerance, in all directions, indicated within the ITPs. The pin will then be removed and safely stored within a container on the rig. Pins shall be reused throughout the project to minimise steel wastage.
- The piling rig and instrumentation shall be set up to commence boring within the specified construction tolerances. The minimum acceptable criteria (unless otherwise specified in the ITP) is as follows:
- At piling platform level:
- Plan position within 25mm within the guidewall
- Vertically within 1 in 125
- The pile will be bored to the designed depth as per the pile schedule.

- The final depth will be recorded by the Rig Operator in the log book and an as built pile log created using the piling rigs in built data capturing and record producing.

Figure 5 - CFA Pile rig

- The auger gates will remain closed at all times unless it becomes necessary for the rotary table to pass through or spoil pressure starts to build. The banksman must ensure that the exclusion zone is enforced.
- Pile arisings may build up around the base of the augers which assist in preventing any possible entanglement. If the pile arisings are cleared away by the attendant excavator, then the banksman is to ensure that they are in a position of safety away from the proximity to the augers. The following methodology for operating auger gates must be employed.
- Ground sampling will be done prior to works commencing and a classification will be done so as the spoil is sent to the correct treatment facilities.

- When it is required for the auger gates to be opened the driver must stop the augers rotating.
- It is the responsibility of the banksman to direct the rig driver on the opening and closing of the auger gates ram. This is due to line of sight issues the rig driver faces.
- The banksman is to signal for the auger gates ram to be opened.
- The rig driver is to open the ram and confirm to the banksman that he is clear to proceed to the auger gates and that driver is no longer in control of the ram.
- The banksman is to undo the ram clip and then is to signal to the rig driver for the ram to be closed.
- The rig driver is to close the ram and confirm to the banksman that he is now clear to proceed to the auger gates and that he is no longer on the ram controls.
- The banksman is to then pull the gates apart using the handles attached to the gates. The same methodology must be adopted in closing the auger gates

Concreting

- The concrete will be delivered to site in a concrete wagon. These wagons will be banked by the pumpman from a position of safety with line of sight between the driver and pumpman maintained at all times.
- Each wagon driver will be advised of this requirement by the vehicle marshal on entering site. The concrete will be discharged directly into the concrete pump, there will be no agitator on site.
- The concrete lines shall be checked prior to pumping to ensure all necessary checks are made, document filled in for checking concrete line on a daily basis.
- Concrete Checks
- The pumpman will check the concrete ticket (prior to discharge) as directed in the ITP. Once the ticket has been accepted as correct, a visual inspection of the concrete will be carried out. The concrete technician will carry out a workability test and take sets of test cubes as detailed within the ITP.

- Only once all the checks have been completed and accepted that the concrete is compliant will it be discharged into a concrete pump.

- The rig operator will signal, via radio, to the pumpman to commence pumping. The concrete will then be pumped to the base of the pile bore through a series of flexible concrete hoses, rig mounted delivery pipework and the hollow stem of the flight auger.

- Once the initial pressure has built up (as shown on the rig instrumentation) the rig operator will lift the auger (50mm) to blow the bung.
- Once the bung has been blown the tool will be re-inserted to the pile toe level and then extracted, maintaining the concrete over-break within the limits set by the Project Engineer.

- The auger cleaner will remove the spoil from the auger during extraction from the pile and concreting process.
- On completion of concreting to platform level, or a distance below this level that will allow the residual concrete contained with the hollow auger stem to fill the bore to platform level, the rig operator will signal to the pumpman to stop pumping.

Rebores

In the event of a blockage during the concrete process which results of the cessation of the concreting process, the blockage shall be removed, in accordance with the Pumping and Clearing Blockages RAMS. The pile shall be redrilled in accordance with the project specific ITP.

Installation of Steel

Each reinforcement cage will be checked for the following:

- Compliance with design requirements.
- Tags or marks to identify cage type (when more than one type).
- Any loose bars.
- Check there is the minimum number of spacers specified at the size specified, and these are equally spaced around
- The first set of spacers is to be within 300mm below cut off level.
- Once concreted, the rig will then be tracked away from the pile position under the direction of the rig banksman.
- Spoil will be removed from the top of the pile by the attendant excavator.
- The head of the pile will be cleared of any contaminated concrete with a graft or scoop.

UXO attendance and classification of site

BAM have received a detailed UXO desktop survey for the site and the classification of risk of finding UXO is medium. The assessment was undertaken by First Line Defence. The summary of recommended attendance is as follows.

Recommended Risk Mitigation Measures

The following risk mitigation measures are recommended to support the proposed works at the St Pancras Campus, London site:

All Works

- UXO Risk Management Plan
- Site Specific UXO Awareness Briefings to all personnel conducting intrusive works.

Open Intrusive Works (trial pits, service pits, open excavations, shallow foundations etc.)

- UXO Specialist On-site Support

Boreholes and Piled Foundations

- Intrusive Magnetometer Survey of all borehole and pile locations/clusters down to maximum bomb penetration depth.

Figure 6 - UXO classification

BAM have received a risk management plan and this is attached to this RAMS. BAM have also received a site specific UXO awareness briefing and his was undertaken to all personal involved in the activities listed above. For these works, BAM will have a UXO specialist in attendance for the intrusive works.

Personal Protective Equipment Required for Works

(Tick the relevant boxes)

Mandatory		By Risk Assessment	
• Safety Hat	✓	• Eye Protection	✓
• Safety Boots	✓	• Coveralls	✓
• High Viz Jacket (Vest)	✓	• Hearing Protection	✓
• Gloves	✓	• R.P.E. Ori Nasal	X
• Fire resistant overalls when undertaking burning works on the roof			
	✓	• R.P.E. – Full Face	✓
		• Safety harness	✓
		• Wellington Boots	X
		• Waterproof Clothing	X

HEAD PROTECTION

- BS EN 397: Specification for industrial safety helmets.

EYE PROTECTION

- BS EN 166: Specification for personal eye protection.
- BS EN 169: Specification for filters used in eye protection for welding etc.
- prEN 175: Equipment for eye & face protection during welding/allied processes.

EAR PROTECTION

- BS EN 352-1: Specification for earmuffs.
- BS EN 352-2: Specification for earplugs.
- prEN 352-3: Specification for earmuffs attached to safety helmets.
- prEN 352-4: Specification for level-dependent earmuffs.
- prEN 352-7: Specification for level-dependent earplugs.
- BS EN 458: Selection, use, care & maintenance of hearing protectors.

RESPIRATORY PROTECTION

- BS EN 136: Full face masks.
- BS EN 137: Self-contained open-circuit compressed air.
- BS EN 140: Half masks & quarter masks.
- BS EN 149: Filtering half-masks against particles.

HAND PROTECTION

- BS EN 420: General requirements for gloves.
- BS EN 374: Protective gloves against chemicals/ micro-organisms.
- BS EN 388: Protective gloves against mechanical risks (abrasion, cutting, etc.).
- BS EN 407: Protective gloves against thermal risk (heat &/or fire).
- prEN 12477: Protective gloves for welders.

FOOT PROTECTION

- BS EN 345: Specification for safety footwear for professional use

HEAT & FLAME PROTECTION

- BS EN 470-1: Protection clothing for use in welding, grinding and cutting.

CHEMICAL PROTECTION

- BS EN 7184: Selection, use and maintenance of chemical protective clothing.

CLOTHING

- EN 340:2003 - Protective clothing - General requirements.
- BS EN 343: - Protection against rain.
- EN 471:2003 - Specification for high visibility warning clothing.
- EN 531:1995 - Protective clothing for industrial workers exposed to heat.
- EN 533:1997 - Protective clothing - Protection against heat and flame.

Figure 7 - PPE Guidance

Welfare Facilities

Location of site facilities:	**Site Cabins**

The following welfare facilities are available for those undertaking these works (Tick)

Site Toilets	✓	Site Canteen Facilities	✓
Site Shower Facilities	X	Site Changing Rooms	✓
Site Washing Facilities	✓	Site Drying Room	✓

Safety Auditing

To ensure the described work is compliant, the following Safety & Environment Inspections will be undertaken by the following persons: (please tick)

Company Health, Safety & Environment Management Representatives	✓

External Safety Consultants	✓
External Environmental Consultants	✓
Scaffolding Safety Auditor	✓

Plant & People Associated with Works

List Plant to be used	List Equipment & Tools to be used
13t/5t excavator. Wait and load skips Cable percussion borehole rig CFA Piling rig Attendant slave crane Commachio drilling rig UXO intrusive survey rig	Signage, Basic hand tools,Fire extinguishers, reciprocating saw & hand tools. PUWER Inspection Register, through examination certs & PAT tests will be kept in the site office. Cat and Genie, leica laser level. HD2 trench sheets

Trained Personnel associated with the works

(Tick relevant boxes)

Plant Operator(s) (CPCS Card)	✓	Crane Lifting Manager	x
Demolition Operatives (CCDO Card)	✓	Lifting Supervisor	x
Demolition Labourers (CCDO Card)	✓	Slinger / Signaller(s)	✓
First Aider(s)	✓	Traffic Banksman	✓
Fire Marshal(s)	✓	Burner(s)	x
IPAF Trained (Access Plant)	X	PASMA Trained (Mobile Towers)	✓

Subcontract Trades associated with works

Fencing/Hoarding	✓	Designers/Design Requirements	✓
Asbestos Removal Work	✓	Temporary Works Requirements	✓
Mechanical Services-Plumbers etc	X	De-Gassing Service	X
Electrical Services	✓	Tank Cleaning	X
Scaffolding	X	Remediation Works	✓
Craneage	✓	Drainage Work	✓
Demolition Plant Hire	✓	Waterproofing Work	X
Generator Hire	✓	Structural Engineer(s)	X
Access Plant Hire	✓	Environmental Consultants	X

Waste Haulier & Disposal	✓	Asbestos Surveyor/Surveying	✓	

Environmental Management Requirements

Is Environmental Monitoring required? (delete as applicable)		If Yes, tick the relevant box			
Noise Monitoring	✓	Continuous		Spot Checks	✓
Vibration Monitoring	X	Continuous		Spot Checks	
Asbestos Monitoring	X	Continuous		Spot Checks	✓
Dust Monitoring	✓	Continuous	✓	Spot Checks	✓
Confined Space Air Testing	X	Continuous		Spot Checks	
Hand Arm Vibration	✓	Continuous	✓	Spot Checks	✓

Waste Management
(Waste associated with these works)

Hazardous Wastes YES / NO. If yes, Name Hazardous Waste(s)

- **TBC**

Non- Hazardous Wastes YES / NO. If yes, Name Non- Hazardous Waste (s)

- **TBC**

Waste Haulier Name: (Hazardous Waste):
TBC

Waste Haulier Name: (Non- Hazardous Waste):
TBC

Briefing Sign off Sheet			
Safe System of Work			
Document Number:			
Date:		Talk Given By:	
Attendees I have been briefed or read and understood this method statement and will not deviate from it.			
	Name	Signature	Date
1			
2			
3			
4			
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9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
Operative Feedback and Suggestions If there are any comments or ideas on safer methods of working, then write them here and discuss.			

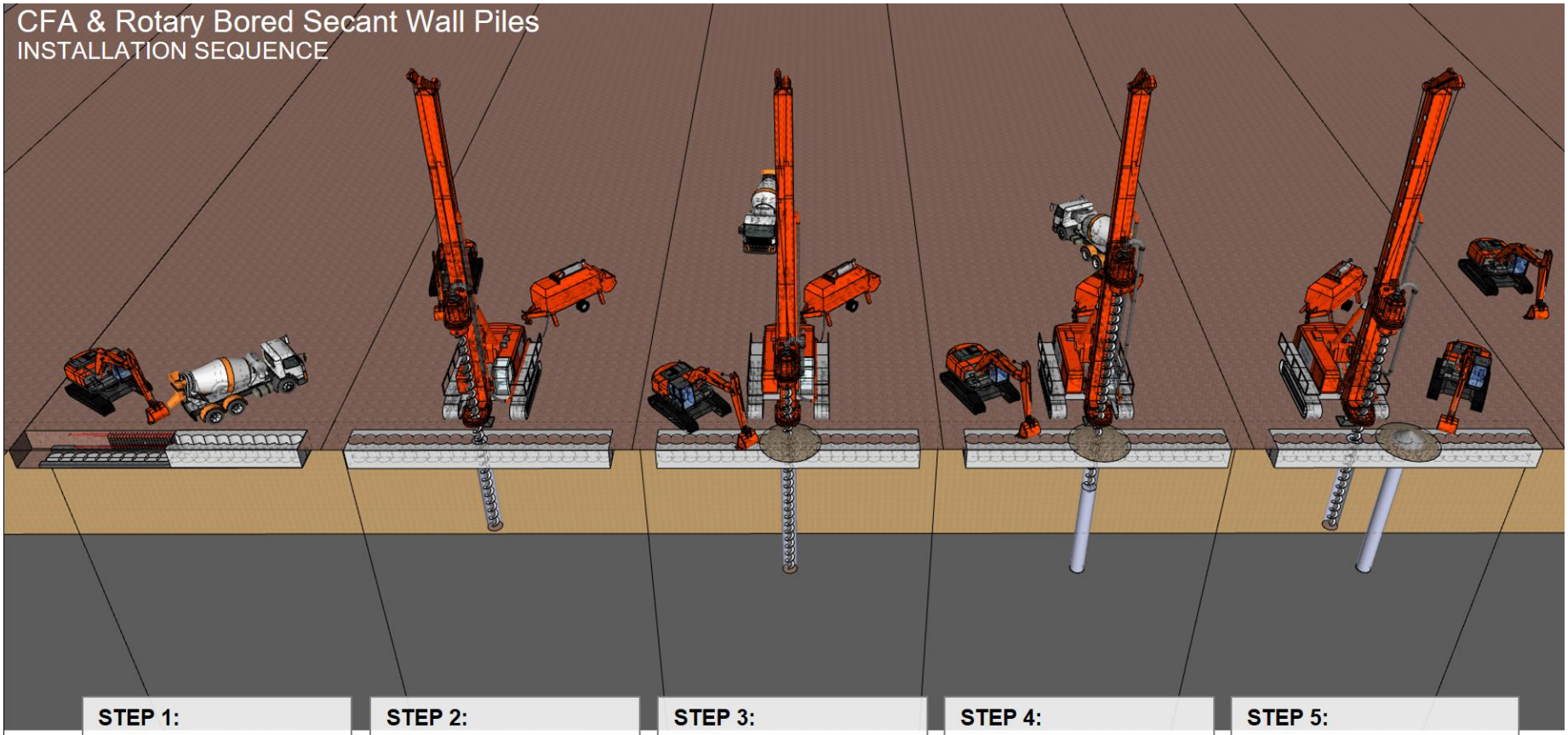
Method Statement Amendment Record
(Task Sheet Record)
(Task sheets to be inserted in Appendix D)

Task Sheet Ref	Date Produced	Task Sheet Author	Task Details	Work Start Date	Works Duration

APPENDIX A – PILE INSTALLATION SEQUENCE

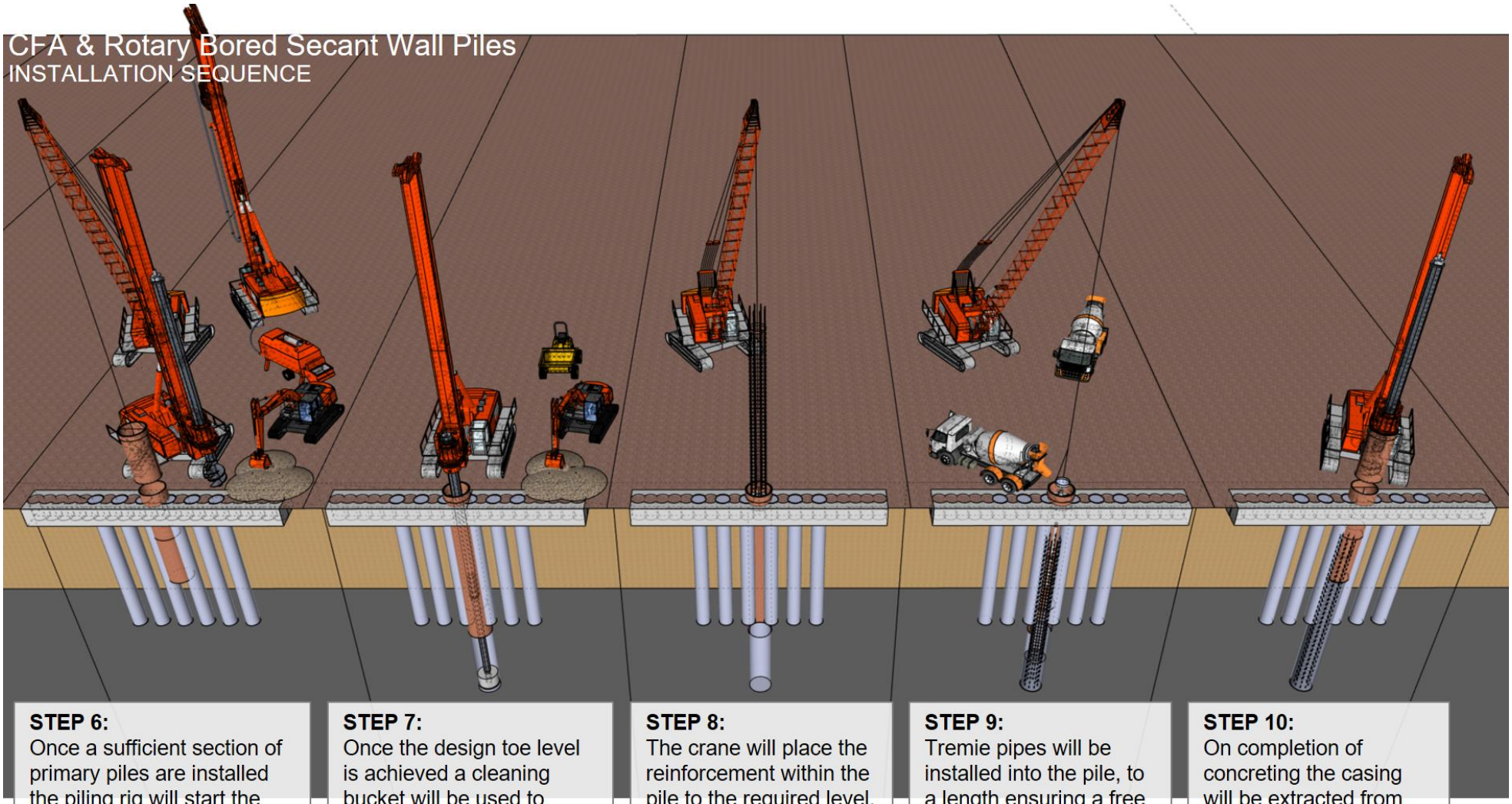
CFA & Rotary Bored Secant Wall Piles

INSTALLATION SEQUENCE



STEP 1:	STEP 2:	STEP 3:	STEP 4:	STEP 5:
A reinforced concrete cast in-situ guide wall will be installed to the proposed secant wall alignment ensuring compliance to specified tolerances.	After setting up on the unreinforced primary pile position the drilling commences with the auger drilling into the ground. The advancement of depth is monitored on the drivers cabin computer screen.	When the auger tip has reached the design toe of the pile the driver or the banks-man signals the pump operator to start pumping concrete. The spoil will be cleared away with the attendant excavator.	The auger is retracted, as and when concrete is pumped and there is a positive pressure recorded. The auger turning clockwise to allow concrete to fill the pile as well as remove the spoil.	The full depth of the pile is concreted till the whole auger string emerges out of the ground. Pumping is stopped and the rig moves to the next primary pile location. Pile head is cleaned out by the attendant excavator.

CFA & Rotary Bored Secant Wall Piles
INSTALLATION SEQUENCE



STEP 6:
Once a sufficient section of primary piles are installed the piling rig will start the installation of the secondary piles. Segmental casing will be inserted into the ground until the primary piles has been cut and a seal has been achieved.

STEP 7:
Once the design toe level is achieved a cleaning bucket will be used to remove all loose crumbs, leaving a clean base for the pile. The final depth will be checked while the piling rigs moves on to the next secondary pile location.

STEP 8:
The crane will place the reinforcement within the pile to the required level, and where necessary to the correct orientation. The final position of the cage in the bore will be checked and recorded.

STEP 9:
Tremie pipes will be installed into the pile, to a length ensuring a free fall of less than 10m through reinforcement. Concrete will be placed by direct discharge, from the ready-mix vehicle, to the tremie hopper.

STEP 10:
On completion of concreting the casing will be extracted from the bore using a casing extractor, piling rig, or the attendant crane

APPENDIX B – PILING RISK ASSESSMENTS

Risk Assessment: CFA Piling – Secant Wall Primary Piles

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

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Risk = Likelihood x Severity

Acceptable

Further review

Unacceptable Risk

HAZARD	1 Factors of Harm: Likelihood	2 Factors of Harm: Severity	3 Risk (Multiple of columns 1 × 2)	4 CONTROL MEASURES	5 Factors of Harm: Likelihood	6 Factors of Harm: Severity	7 Residual risk (Multiple of columns 5 × 6)	8 Control measures implemented by (name)	9 Control Frequency Check Rate
Standard Measures (highlight any changes in red)									
Platform / Work area									
Platform failure from lack of maintenance, use and any excavations leading to rig instability and potential for overturning	5	5	25	Daily monitoring of platform performance by banksman, supervisor. Notify PC of issues. Obstructions removed or other anomalies noted to be reinstated to original design, tested & platform certificate renewed.	1	5	5	Banksman	Daily
Untidy work area causing slips, trips or falls	4	3	12	Maintain work area clear of obstructions. Utilise attendant excavator to maintain work area clear of spoil / slurry.	1	3	3	Contract Supervisor	Daily

Reversing Auger causing removal of spoil undermining the platform stability – potential for rig to overturn	4	5	20	• Operation ONLY to be carried out under direct supervision of the Contract Supervisor. • Rig operator to back screw in a slow controlled manner ensuring the majority of spoil remains within the pile bore, so as not to create voids in the ground. • Observe ground performance and rig mast foot pressure during the process. • As auger cleaner may be less efficient additional measures may be required to remove spoil from the auger. • Backfilled pile positions clearly marked and cordoned off.	1	5	5	Contract Supervisor	When required
Unexpected Spoil contamination with potential to cause unknown hazard to health	3	4	12	• Stop work immediately. • Review and revise working procedures, ensuring appropriate controls / disposal measures are implemented and correct PPE is worn	1	4	4	Banksman	When required
Boring									
Spoil falling from the Auger causing impact to operatives and personnel	5	5	25	• Remove spoil at low level – never allow spoil to travel to height. • Use auger cleaner to maintain efficiency – a star or brush system dependant on ground conditions. • In difficult ground conditions the attendant excavator may be utilised, using a plate welded to the bucket of the machine. Excavator operators to be briefed as they may not have performed this task before. • Exclusion Zone 7.5m around the auger demarcated by barriers set to demarcate the zone (not contain it) – no person to enter when auger rotating – banksman to marshal. • Only the excavator operator (within the confines of his cab) is allowed to work in the exclusion zone when the auger is rotating. (Preferably window closed but if open appropriate PPE to be worn). • If spoil is noted at height on the auger – clear the area, rotate the auger until it is clear.	1	5	5	Banksman Excavator operator	Daily

Spoil falling from the Auger causing impact to third party personnel / public	5	5	25	• IF Exclusion zone cannot be fully implemented - STOP.
				• SPECIFIC RISK ASSESSMENT TO BE CARRIED OUT with suitable additional control measures assessed including (as a minimum):
				  ○ Position and height of hoarding,
				  ○ Relocation of walkways
				  ○ Covering to walkways
				• At end of shift rig is removed as far as practicable away from hoarding.
					1	5	5	Contract Supervisor/ Banksman	Daily

Falling augers due to loose / unrestrained auger connections	4	4	16	• Banksman to check visually at the start of boring every pile and during the boring process – that auger pins are in position. • Stop work and refit loose pins at earliest opportunity – preferably at ground level.	1	4	4	Banksman	Daily
Entrapment in rotating augers	3	5	15	• Keep auger gates closed at all times or until such a time as the rotary table must pass through the gates or excess spoil pressure builds up within the gates. • Banksman to maintain exclusion zone 7.5m from auger in this respect	1	5	5	Banksman	Daily
Trapping hand tools in rotating auger	4	5	20	• Under no circumstances is spoil to be removed from the auger manually by graft whilst the auger is rotating.	1	5	5	Banksman	Daily
Trapping or crushing in the operation of the auger gates	4	5		• If auger gates are opened then the banksman must enforce the exclusion zone. • Pile arisings will build up around the auger which will help prevent entanglement. If the attendant excavator clears the arisings with the open auger gates then the banksman must retreat to a position of safety. • If any 3rd parties enter the exclusion zone then the rig driver is to cease works immediately. • The purpose built handles must be used when handling the auger gates. • The banksman must control the opening and closing of the hybrid auger gates ram by directing the rig driver.	2	5	10	Banksman	Daily
Augers rotating or spoil falling as banksman beneath	4	3	12	• Rig operator to ensure that the augers cannot turn – engage dead man's handle.	1	3	3	Banksman / Rig Operator	Daily

augers to insert bung or change teeth				• Make sure auger is free from spoil which could fall as bung / teeth hammered home. Rotate auger in a controlled manner to clear if necessary. • Ensure correct bung, teeth pins and locks are being used. • Check surface conditions, if required to kneel on floor. • Use purpose-designed tools in a good state of repair, to change teeth.					
Flying Debris from using Auger Cleaner	4	4	12	• Banksman to ensure Exclusion Zone is set up around the affected area. • Fit shroud around cleaner if flying debris is a problem. • Excavator operator to work from safe position if possible. Windows closed or appropriate eye protection worn. • Specific assessment if working close to hoarding and members of public /other contractors etc.	1	4	4	Banksman Engineer	Daily When manifest
Concreting									
Concrete delivery causing crushing to pumpman.	3	5	15	• The pumpman's safe position for directing the reversing concrete truck to the pump • Concrete trucks shall not reverse without the instruction of the pumpman	1	5	5	Pumpman	Every load
Falling debris or splashing while clearing spoil (from concreted pile)	3	4	12	• Attendant excavator to be under strict control by the banksman – all persons to be clear of operation. • Wear PPE to protect from splashes.	1	4	4	Banksman	Daily
Pumping Concrete / clearing blockages / compressor use causing injuries to personnel	4	4		• See separate RAMS for pumping concrete / blockages.	1	4	4	Pumpman	Daily
Inserting Cages									

Lifting a reinforcement cage – falling components, dropped or collapsed cages	4	5	20	• Comply with any specific lifting plans • Ensure cage has been designed to be lifted and lifting points are communicated to operatives. • Check for loose cage bars / spacers etc. before lifting the cage. • Attach tag lines to control the load if moving long distances or high lifts.	1	4	4	All operatives	Daily
Strike by Bucket of excavator	3	5	15	• Never stand beneath the excavator bucket, when inserting cage. • Keep clear of slew zone. • Bucket fastened and checked in accordance with manufacturer's instructions. • Clear line of vision between operator and personnel.	1	5	5	All operatives Excavator operator	Daily
Insertion of cages into wet concrete avoiding over exertion and slipping	4	4	16	• Identify and expose the full diameter of pile by removing any spoil contamination using a graft. • Clear spoil water & debris from immediate vicinity. • Insert into wet concrete using mechanical devices (single line/crane/excavator). • Excavator to remove the bucket at all times when lifting. • Operatives may push cage in with their feet only if cage insertion is easy, use mechanical means at all other times with purpose-designed placing bar.	1	4	4	Banksman	Daily
Protruding Steel /and fresh concrete - impaling on steel and falling in bores.	5	3	15	• At all times any exposed steel shall be covered with Cemcaps • Unset piles to be covered or suitably protected.	2	3	6	Banksman	Daily
Site Specific Measures									
Impact on Royal Mail Tunnel under Henrietta Street	2	4	8	•Mark out the extent of the exclusion zone on the ground on site •Use drill depth restrictor on rig instrumentation •Reduce the number of auger sections on the rig when drilling in this area to physically limit maximum drill depth	1	4	4	CSL Engineer/ Contract Supervisor / Rig Operator	Daily

				•Monitor and record auger verticality during the installation using total station and rig instrumentation					
Damage to party wall structures and existing assets	2	3	6	•Carry out point could survey and clash detection to check that the required clearance (1m) is guaranteed and to minimise the risk of any damage to existing assets during the piling operations •Temporary works support structure on the North elevation will be suitably designed to safely carry the load of the operating piling rig by •Prior to commencing work, all utilities and services will have been identified, removed, diverted or suitably protected by the Client. •Pile positions will have been probed, existing piles identified and accurately surveyed, obstructions removed and voids backfilled with suitable compacted fill. •Any protection to party walls and scaffold will be provided before and during the piling works.	1	3	3	CSL Engineer Client Client Client Client	Prior Start
Pedestrian traffic and traffic management	3	4	12	•All deliveries to enter the site by using the ramps on Welbeck Street and/or Marylebone Lane •No construction traffic is allowed on Marylebone Lane beyond the site entrance gate.	1	4	4	CSL Engineer/ Contract Supervisor	Daily

Hierarchy of Risk Reduction:

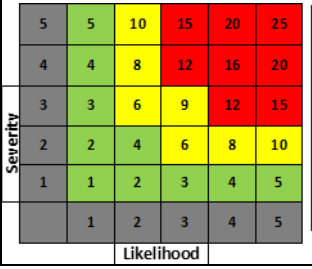
Elimination > Substitution > Engineering Controls > Signage / Warnings and / or Administrative Controls > PPE

APPENDIX C – SITE RISK ASSESSMENTS

SITE RISK ASSESSMENTS
(TO BE INSERTED AFTER THIS PAGE)

Site/Location:		Activity
St Pancras Campus		Manual Handling - Moving Site Materials and Manual Work
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA05	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)



Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

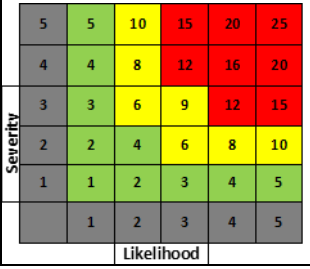
Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x S**
• Injury to operatives through manual handling of load. • Contamination from substances contained within loads.	**E**	• Pulled muscles, strains, torn ligament, back injuries etc.	2	3	6	Site management and operatives	Continuously monitored by a competent person	1	3	3

Precautions & Controls

- All manual handling requirements shall be fully assessed, and a safe system of work developed.
- Load weight must be reduced to the minimum possible.
- If any site material load is determined to be too heavy for any one person, then mechanical aids must be employed, or team lifts employed.
- Ensure operatives are competent in the manual works and have had training in manual handling principals.
- Any operative undertaking manual handling shall be physically fit and capable to undertake the work and do not have any adverse medical history.
- If manual handling requirements are repetitive ensure operatives are allowed regular breaks from the manual work or implement job rotation scheme.
- Ensure the load has no sharp edges or points that could cause injury.
- All manual handling routes shall be free from obstructions, slipping or tripping hazards, are well lit and are designated for those operations only.
- Ensure no other personnel are working on routes during manual handling.
- All operatives shall have a manual handling safety talk by the Site Project Manager, where the manual handling proposals shall be discussed with those undertaking th works.
-

Site/Location:		Activity
St Pancras Campus		Working with Hand Tools
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA09	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)



Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x S**
• Impact with the tool • Falling material • Condition of Tools	**E**	• Personnel injury from falling material • Personnel injury from tool i.e. cuts, grazes, puncture wounds.	**3**	1	**3**	Site management and operatives	Continuously monitored by a competent person	1	1	1

Precautions & Controls

- All Tools shall be the correct for works to be undertaken.
- All Tools should be in good working order and are fit for their purpose and free from any defect.
- No tool shall have improvised repairs, tool shall be replaced if damaged.
- Operatives shall be instructed on how to use tools safely.
- Ensure Task area Lighting is sufficient and gives no shadows.
- Work area free from any Slip, Trips, and Fall Hazards.
- Standard PPE shall be worn for all work and when appropriate eye protection and gloves shall be worn.
- Recip saws and all tools used for cutting cables shall be done so from the cut end or otherwise instructed by the electrical AP/Engineer.

Site/Location:		Activity
St Pancras Campus		Laying out 110v/415v power supply cables from supply point to work area
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA15	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x S**
• Exposed cables • Low visibility • Overhead cables • Damaged cables • Working at height	**E, C, V,CL**	• Personal Injury- Electrocution, burns. • Possible fatality.	**3**	**5**	**15**	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

Once the site power supplies have been confirmed at SPC, the following controls are to be adhered to when managing site cables.

- Installation of temporary cable systems must follow routes that do not encroach upon areas where a trip hazard can occur.
- Trip hazards must be identified using luminous tape and local lighting.
- Cable bridges must be used to enclose cables that cross pedestrian thoroughfares.
- Sufficient lengths of cable must be used to ensure that cables are routed directly to the floor from equipment interfaces.
- Cables must be routed where overhead hazards cannot occur, and clear indication of such areas should be made with luminous tape and local lighting.
- HV cables to be marked with warning tape.
- Cables should be reliably attached to structures using cable ties.
- Power cables must be PAT or Induction tested prior to use and again every 3 months.
- Cables, and all plugs, particularly within hazardous areas shall be inspected daily whilst in service.
- Defective cables or those showing signs of wear must be removed from site and returned to supply point with a defect notice attached.
- Where any cable crosses a walk way or across a doorway then that cable shall be protected by rubber bridges placed either side of cable.
- Any required work on a power cable or electrically operated plant shall be carried out by a competent person only.
- All electrically operated plant shall have in date PAT certification and shall be capable of being isolated.

- All plant guards shall be in place at all times the plant is operated
- All plant shall be operated in accordance with the manufacturer's instructions
- When it is required to work on any electrical plant then the power supply shall firstly be turned off and the means of isolation locked off. The source of supply shall be clearly identifiable.
- All power supply cabinets shall be kept shut and locked at all times.
- All electrically operated plant shall be only operated by a competent operator who understands how to maintain and the inspection procedures for the plant.
- All electrical cables and plant shall have electrical fault protection equipment within the power circuits.
- For 240 Volt supplies additional protection shall also be provided by the use of installed RCD, which shall be tested on a weekly basis.
- When installing the power supply for the dust monitors, electrical operatives may be required to work off a ladder, this will be assessed by the Project Manager prior to works commencing and also once the height of the monitors is confirmed.

Site/Location:		Activity
St Pancras Campus		Dust Control on Site
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA28	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

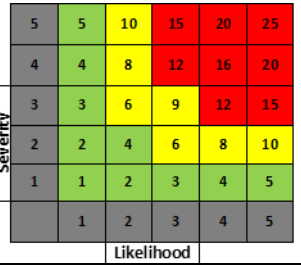
Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x S**
Dust emissions	E,C,P,V, CL	• Possible eye injury • Inhalation of silica dust. • Environmental pollution.	4	2	8	Site management and operatives	Continuously monitored by a competent person	1	2	2

Precautions & Controls

- As the works are internal, there is no anticipated dust levels however, the following best practice will be followed
- All works areas shall be damped down with continuous water sprays as the debris and wastes are generated causing dust to prevail. There shall be no water run off any time from these works.
- The most suitable work methods will be used to prevent the minimum amount of dust
- Sweeping up activities will be accompanied by an operative constantly damping down the floor before the sweeping motion.
- All debris stock areas shall be kept damped down to prevent any dust migration.
- Constant surveillance of waste areas and dust levels shall be required to prevent a generated dust nuisance to all site neighbours and local community.
- All control measures shall be complying with BAM Environmental Management Plan and this Soft-strip method statement.

Site/Location:		Activity
St Pancras Campus		Site First Aid Requirements
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA70	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)



Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk** L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation** L	S	L x
• Hazardous demolition techniques. • Site Areas of risk. • Use of various plant, equipment and tools.	**E,C,P,V, CL**	• Lack of Compliance with legislation.	2	3	6	Site management and operatives	Continuously monitored by a competent person	1	3	3

Precautions & Controls

- One F.A.W trained person (Trained First Aider) shall be provided for every 25 (or number of) persons working or visiting the site at any time. This includes a subcontractors. Additional or replacement (FAW) trained persons shall be provided when holidays or site absence occurs. At no time shall there be no such absence o site.
- A suitable number of E.F.A.W trained person (Ex Appointed Persons) shall be provided in support of the Trained First Aiders.
- A combination of the above First Aiders shall be available on site at all times during the working day. If a F.A.W trained person has to leave site, then the absolu minimum of 1 E.F.A.W trained person shall be available on site at all times but for the minimum period only. The absence of a F.A.W trained person shall be kept to th minimum time possible.
- All First Aiders shall be identifiable by either specific markings on their construction hats (Green Hats) or high visibility vests.
- All First Aiders shall be in continuous radio communication with the Site Project Manager.
- Names of all site First Aiders shall be posted in all site management and welfare facilities.

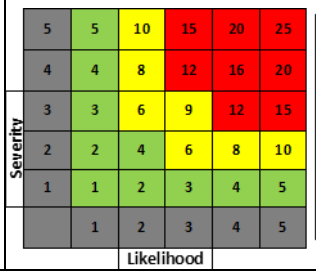
<u>First Aid Provisions</u>

- All First Aid provisions shall be made in accordance with the health and Safety (First Aid) Regulations 1981.
- All First Aid equipment shall be provided on site, adequate for the maximum number of persons anticipated to be on site at any one time. This equipment shall b continuously maintained by a designated E.F.A.W trained person.

- The First Aid equipment, as a minimum, shall consist of a suitable number of First Aid Boxes and Eye Wash Bottles. All located within a designated First Aid Room or area, which is fitted out with chairs, tables etc.
- The First Aid Book shall be kept with the First Aid equipment and all entries shall be made by the Site Project Manager.
- The location of all First Aid equipment shall be indicated by the appropriate signage on the door of the facility.
- All accidents, no matter how minor, including those to any visitor shall be reported to the Site Project Manager who will enter it into the Site Accident Book and all such accident injuries shall be treated.
- Details of the nearest hospital with Accident and Emergency facilities shall be posted within all management and welfare facilities.
- In the event of a site emergency the Site Project Manager shall be immediately informed, who will assess the situation and, if necessary, summons the emergency services.
- Site security shall be made fully aware of the required procedures to be implemented when a site emergency occurs and emergency vehicles will need to attend site.
- A designated area adjacent to the site entrance shall be kept clear at all times to enable emergency vehicles to park on site.
- The location of all First Aid Equipment shall be clearly identified.
- All identified primary routes, particularly those to the site facilities shall be kept clear at all times to provide clear access in the event of a site emergency.
- In the event of a site Notifiable Accident, the Company Safety and Environment Manager and responsible Project Director shall be notified immediately, and devised company procedures implemented.
- All accident book entries shall be photocopied and sent to the company safety manager as soon as possible

Site/Location:		**Activity**
St Pancras Campus		Wearing PPE/RPE on Site
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
29/01/2021	RA71	
Revision No.	**Supervisor**	
2	J. Fitzpatrick	
Assessor	**Assessment Review Date**	
J Fitzpatrick	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)



Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

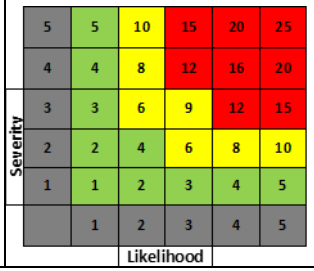
Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk** L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation** L	S	L x S
• Failure to wear PPE or RPE. • Improper use of PPE or RPE. • Damaged PPE. • In appropriate PPE for specific Job or task.	**E,C,P,V, CL**	Personal Injury caused by the failure to wear PPE	4	5	20	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

- All site operatives and visitors will be issued with the appropriate PPE i.e. Construction safety hat, hi vis vest or jacket, safety boots, gloves and impact glasses. See visual guidance
- All site operatives will be trained in the use, care, maintenance and storage of all such equipment
- All equipment shall be maintained in a clean condition and shall be fit for its purpose at all times.
- All PPE shall be worn in the correct manner and not in any other way other than its intended purpose.
- All equipment shall comply with the latest Regulations and British Standards and bear Kite Marks.
- No PPE shall be marked with any unauthorised markings or stickers.
- All safety hats shall be free of any stickers other than the company name, and shall be defect free, and examined on a regular basis. Any defect found no matter how small shall mean the hat being disposed of.
- All issued PPE shall be signed for by all site operatives in the PPE register.
- A supply of Safety Hats and Vests and safety footwear shall be kept on site for all visitors.
- All Subcontractors operatives shall arrive on site with their own issued PPE.
- All High Viz vests shall have the company name on them.
- Due to heat issues in the summer months – PPE will be assessed continuously to ensure that operatives are comfortable undertaking their works

Site/Location:		**Activity**
St Pancras Campus		**Uncovering or Damaging Materials that may Contain Asbestos During Demolition**
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA112	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)



Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x**
Finding or Inadvertent Exposure to asbestos fibres	**E, C, P, V, CL**	Asbestos related diseases – mesothelioma, asbestosis, Plural plaques, Lung Cancer	**3**	**5**	**15**	Site management/Operatives	During activity	**1**	**5**	**5**

Precautions & Controls

Finding Unrecorded Asbestos Containing Materials

If during work on site materials are discovered which are suspected to contain asbestos, then the following control measures shall be instigated:

- Stop work immediately and get everyone else out of the area
- Report the finding to the person in charge as soon as possible
- Display warning sign 'possible asbestos contamination'
- Get the material sampled and analysed by an UKAS accredited laboratory
- Does it contain asbestos? If it is Notifiable Asbestos get the material recorded within the Asbestos Refurbishment & Demolition Survey and get licensed asbestos removal contractor to remove the asbestos and dispose of as Hazardous Waste
- If it is Non-Notifiable asbestos remove it by competent NNLW trained operatives and dispose of as Hazardous Waste

Inadvertent Exposure to Asbestos Containing Materials

If during work on site operatives are inadvertently covered in asbestos, then the following control measures shall be instigated

- If there is a very little amount of dust or debris on clothing, then summons help from site management, but do not leave the area
- Prevent others coming into area except for assistance
- Put on provided RPE
- Do not brush clothing
- Wipe down clothes and clean shoes with damp rags and/or use an asbestos vacuum cleaner if its available nearby
- Wipe hair
- Dispose of rags as asbestos waste
- Change clothing and dispose of as contaminated waste-DO NOT TAKE CONTAMINTED CLOTHING HOME
- Management to provide clean coveralls for operative to wear and arrange to get them transported home
- Record incident on the appropriate record and place a copy of report on employees personal file
- If there is a significant amount of dust or debris on clothing and person, then summons help from site management, but do not leave the area
- Site management to take charge of the incident
- Prevent others coming into area except for assistance
- Do not brush contaminated clothing or touch hair
- Where possible site management to photograph the operative's contamination and location of the asbestos
- Put on provided RPE and coveralls over contaminated clothing and pull hood over hair

- Wipe down shoes with rags and dispose of rags as contaminated waste
- Contaminated operative(s) to be escorted from contaminated area and if an asbestos DCU is on site then operatives shall use facility undertaking normal decontamination procedures
- If normal showers are on site, then close off showers to everyone then contaminated operative(s) to decontaminate using facilities
- All used coveralls and contaminated clothing shall be placed into asbestos RED waste bags and disposed of as Hazardous waste
- DO NOT TAKE CONTAMINTED CLOTHING HOME
- Management to provide clean coveralls for operative to wear and arrange to get them transported home
- Notify HSE as a reportable incident under RIDDOR
- Record incident on the appropriate record and place a copy of report on employees personal file
- Arrange for UKAS Lab to air test the shower unit used for the decontamination
- Arrange for Asbestos Licensed Contractor to come to site and clean up incident area and remove any remaining asbestos containing materails
- Arrange for UKAS Lab to air test the incident area

Site/Location:		**Activity**
St Pancras Campus		Processing and Loading excavated debris by Mechanical Means
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA06	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x**
• Fly off of demolition debris • Potential Loading of vehicles • Impact with plant movements on site • Noise and dust from process	**E, P, V**	Crushing injuries. Possible fatality. Noise induced hearing loss. Inhalation of silica dust causing respiratory problems.	4	5	20	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

- Plant Operator (s) to be competent and have CPCS Demolition Plant Operators ticket.
- During impact breaking for trial pits and excavations, plant operator shall wear the correct hearing protection as determined by noise monitoring
- Access to processing and loading work area shall be restricted to those involved with the work only.
- All work to be managed by competent supervision who is on site
- All lorry movements collecting waste to be controlled by a designated Banksman particularly during reversing and loading procedures.
- All Lorries shall be compliant with the road traffic act and have a working reversing alarm and lights.
- All waste vehicles coming on site shall be fitted with working yellow revolving lights.
- Lorry Drivers must not remain inside vehicles whilst they are being loaded with demolition debris.
- Lorry drivers must wear safety hats, high viz vests, and footwear while on site.
- There shall be a Minimum clearance of 600mm between slewing part of machine and any fixed installation
- All waste lorries shall be sheeted over before leaving site
- Waste lorries shall be loaded by competent plant operator ensuring the quietest loading technique is used
- To mitigate dust emissions all wastes shall be damped down before being loaded
- All operatives shall have a work package safety talk by Site Manager

Site/Location:		**Activity**
St Pancras Campus		Lifting Operations Using Waste Skips
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA96	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x**

• Risk of materials falling out of skips.	E	• Personnel injury to operatives. • Possible fatality.	3	5	15	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

- All lifting operations associated with the use of waste skips shall be recorded within a Lifting Plan devised by an Appointed Person-Crane Manager which when complete shall be handed over to his appointed Lifting Supervisor who will oversee the daily waste skip operations and his Banks men.
- Access to the work area during lifting operations shall be restricted to those involved in the works and that exclusion zone clearly indicated by barriers etc.
- Only an appointed competent banks man is to ensure that the lifting signals given to the crane operator are clearly understood, also radios are to be used as the means of communication.
- For all waste skip lifting operations there shall be a Banks man at ground level supervising the lifting up of the waste skip then a Banks man at the waste skip destination area supervising the loading of the skip and returning it down to ground level.
- The waste skips to be used shall be in a good condition with no damage or holes in them and the lifting lugs on the skip have been tested and the current test certificate is available on site. If the skip is damaged that damage shall be repaired before it is used again.
- The area below the waste skip lifting operation shall to be kept clear at all times.
- All waste skips shall be lifted in the vertical plan only. The method of lifting the waste skips shall be so far as is reasonably practicable that the chains are lifted and maintained in as near as the vertical plane as possible by a safe system of work designed for that purpose, i.e. by the use of spreader beams to ensure the chains are vertical, or the chains are long enough to produce the effect of a vertical lift between the crane hook and the skip.
- All skips shall be lifted and lowered with all lifting chains connected to all four corners lifting lugs, at no time shall a skip be lifted or lowered with less than this requirement being achieved. No skip shall ever be lifted where the skip is hanging down in the vertical plane and with chains attached to the end of the skip.

Site/Location:		**Activity**
St Pancras Campus		**Use of Plant and Equipment including Excavators for trial pits and trenches**
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA31	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x**

Misuse of equipment	**E, C, V**	Possible or potential death, Possible physical injury, Crushing. Collision, Property or plant damage Possible damage to hearing Possibility of striking underground services Over tipping of Vehicles or plant	4	5	20	Site management and operatives	Continuously monitored by a competent person	1	5	5	

Precautions & Controls

1. Only trained operatives to CPCS standard to use machinery.
2. Ensure machinery guarding is in place at all times.
3. Each machine to be inspected prior to use and entered in to the PUWER or LOLER register as applicable once a week.
4. Ensure that all devices to keep the operator safe in place on machinery are used i.e. Seat belts.
5. Establish hearing protection zone if necessary.
6. Machines to be banked at all times.
7. Mirrors or CCTV to be in place on machine to allow for 360º vision for machine operator.
8. Obtain drawings where possible.
9. Carry out CAT scan of area to be excavated.
10. Engineer to mark out the area where the trial pit is to be located on site
11. Assume all services are live at all times.
12. Excavator driver to check for overhead services and in tight working spaces, all walls to be checked on both sides
13. Work in accordance with HSG47 ‘Avoiding Dangers from Underground Services’.
14. Pipes found via surveys are to be marked on the floor.
15. Where possible, move trial pits to locations where the ground has been scanned and no services have been flagged.
16. Service drawings to be appended to the permit to work.
17. Mechanical excavators are not to be used within 50mm of a gas pipe
18. Only tip or operate on firm level ground to ensure centre of gravity at all times.
19. Driver and supervisor to ensure that all permits to work are in place and the PM/Engineer has authorised the works to commence.
20. Excavator to stay as far as reasonably possible away from edges.
21. Excavator driver is to not lift buckets over operatives heads at any stage
22. Local residents to be given notice of works outside of building footprint

Site/Location:		Activity
St Pancras Campus		Breaking Out Re-inforced Concrete Using Excavator
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA11	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk** L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	**Residual Ri Evaluation** L	S	L x
• Impact Noise. • Vibration • Debris Fly Off	**E, C, V, CL**	Noise induced hearing loss. Whole body vibration. Injury from flying debris.	**3**	**4**	**12**	Site management and operatives	Continuously monitored by a competent person	1	4	4

Precautions & Controls

- All works shall be supervised by competent supervision at all times.
- The work area shall be barriered off to an area size to prevent risk of injury from concrete or rebar fly off.
- During the plant breaking operations access to the work area shall be to the plant operator only.
- The plant operator and all adjacent site employees shall be given a toolbox talk on the dangers of noise and work risks and the requirements for wearing hearin protection.
- The required hearing protection shall be determined by the noise monitoring
- The Plant operator shall be competent in this work and hold a Demolition CPCS Plant Operators ticket.
- Where possible alternative breaking methods shall be employed such as using a pulverising attachment.
- Where there is excessive generated dust levels then that area shall be wetted down on a continuous basis.
- In accordance with PUWER the plant and attachments shall be in a fully serviced condition therefore fit for its purpose.
- All other site persons shall be advised of the noise level risks and kept out of the risk area.
- All noisy breaking periods shall be agreed with all affected parties prior to any such work commencing.
- Plant operators shall also wear the standard required safety PPE.

- Ground to be scanned prior tow works commencing.

Site/Location:		Activity
St Pancras Campus		Locating Underground 'LIVE' Services
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA30	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk** L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation** L	S	L x S
• Striking underground live electric cables, water mains, gas pipes or drains or sewers	E,C,P,V,CL	• Personal injury or damage or property and loss of supply. • Possible fatality.	4	5	20	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

- Work to be undertaken in accordance with HSG47Avoiding Dangers from Underground Services.
- Location and route of underground services to be determined from site plans, implemented site surveys, local knowledge, and local service utilities.
- Route of underground services to be determined by the location of any lamppost or drain cover etc.
- C.A.T and genny to be used for the search of underground electric cables, operated by trained and experienced personnel, with any identified location and route clear marked with spray paint.
- All identified underground services and routes of all services shall be clearly marked and signposted as to whether they are Live or not.
- All potential work areas shall be fenced off to prevent unauthorised access.
- When breaking ground to locate services only, any concrete coverings shall be broken by air powered mechanical tools, and then all earth shall then be removed b hand digging works only if working around a known live cable or asset. At no time shall mechanical excavators or equipment be used to dig out the possible route any service.
- When digging works are carried out operative(s) shall wear appropriate PPE i.e. Hard Hats, Goggles, Rubber Gloves, Rubber Boots, and RPE (Dust Mask or similar)
- Only Experienced operatives, managed by competent supervision, shall undertake all such digging works.
- All ground excavation works shall only commence once a Permit to Dig (or excavate) has been issued by a competent person.

- A ‘No Smoking’ policy shall be implemented on site particularly where Gas may be located.
- Where any concern is raised about the location or condition of any service, all works shall cease until a competent person has resolved the problem.
- At all times there must only be the minimum number of operatives carrying out the excavation works.
- Any uncovered, moved or damaged, live or operational service shall be reported immediately to the local service provider and all works in the locality stopped.
- All works shall be undertaken in accordance with a site-specific method statement and risk assessments.
- The Project Manager, using this risk assessment and devised method statement, shall give all operatives associated with the works a specific toolbox talk to explain the dangers and required control measures.
- A Trained First Aider must always be available on site when such work is in progress.
- A phone shall always be available when such work is in progress.
- All works to be continuously monitored by competent supervision to ensure no dangers prevail from the ‘live’ services.

Site/Location:		**Activity**
St Pancras campus		Unloading Plant or Equipment from a Hi-Ab Lorry
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA21	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x S**
• Plant or Equipment Slipping or Falling from lorry. • Failure of lifting equipment.	**E**	Personal Injury. Possible fatality.	3	5	15	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

- All items must be loaded/unloaded by mechanical means only using the Hi-Ab Crane.
- The Standard Loading/Unloading procedures shall be recorded and held by the driver in his cab.
- Driver must be competent in the use of the loading/unloading procedures of the vehicle.
- Lifting zone to be segregated from personnel.
- Driver to determine the route and final resting place of item to be moved before lift commences.
- Driver to ensure lift route is clear of hazards, obstructions, restrictions etc.
- Ancillary vehicle equipment such as outriggers shall be in place before any lifting operations commence, these outriggers must be on road plates or boarding or other suitable means.
- Ensure lift is within Hi-Abs crane capability and all equipment is fit for its purpose.
- The SWL must be clearly identifiable on the lifting arm.
- Copies of all test certification shall be carried in a folder in the lorry cab.
- Driver must hold the appropriate category of CSCS card.
- When loading the lorry the load must be secured before the vehicle moves.

Site/Location:		**Activity**
St Pancras Campus		Dealing with Unexploded Ordnance
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
	RA91	
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

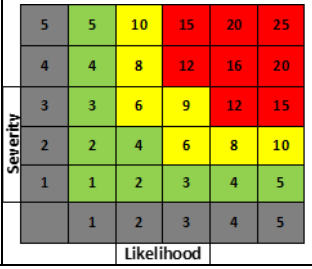
Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk** L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	**Residual Evaluation** L	S
• Uncovering Unexploded Ordnance or Bombs.	E,P	• Detonation of Ordnance or Bombs. • Personnel Injury to operatives and persons in surrounding areas. • Possible fatality	4	5	20	Site management and operatives	Continuously monitored by a competent person	1	5

Precautions & Controls

- BAM will carry out a UXO survey on site. In the interim, the site excavation will be limited in the rial pits until a desktop study has been received. Depth to be agreed with PM and issued on the permit to work.
- Staff carrying out excavation to have UXO briefings.
- All areas of risk shall be covered by information provided by the Client which will include wartime bombing records for the area.
- All suspect soil removal and ground remediation works areas shall be carried out to a pre-determined plan which is in grid form, managed by competent persons, and undertaken by competent and experienced plant operators.
- Prior to commencing ground works the whole suspect work area shall have been surveyed by specialist engineers using ground radar techniques to detect the potential location of all ordnance risks on site, which when identified are then clearly marked on a squared grid line site ground survey.
- This site survey shall then detail the level of ordnance risks within each of those squares and form the plan of remediation.
- The high level of ordnance risks locations on site shall not only be marked on a grid survey but also clearly indicated out on site by a flag system.
- Prior to any work commencing on site every person working on site including site management shall be provided with a safety talk by the bomb disposal facility or other competent persons, who shall provide information on procedures for dealing with ordnance risks found on site and the type of ordnance likely to be found. All such procedures shall then be recorded and issued to every person on site and displayed within all the appropriate site facilities.
- As the soil removal and ground remediation works progress any area which provides a concern before any further work is progressed shall be ground swept by a competent person using a metal detector.
- Any area where Unexploded Ordnance or Bombs are discovered, then that area shall be fully cordoned off, all work on site shall stop, and site management shall inform the bomb disposal facility. No further work on site shall progress on site until it has been confirmed safe to proceed by the bomb disposal facility.

Site/Location:		Activity
St Pancras Campus		Site Excavation Works (shallow non supported excavations)
Date	**Assessment No.**	**People at Risk:** Employees = **E** Contractors = **C** Public = **P** Visitors = **V** Client **= CL**
Revision No.	**Supervisor**	
Assessor	**Assessment Review Date**	
	After any change to work activity	

Evaluation of Risk = Likelihood (L) x Severity (S)



Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed **E,C,P,V, CL**	How will they be harmed **Risk**	**Evaluation of Risk**			Precautions & Controls Implemented by	Frequency Check Rate	**Residual Risk Evaluation**		
			L	**S**	**L x S**			**L**	**S**	**L x S**
• Open excavation • Support to sides of excavations • Access/egress	E,P	• Falls from height • Collapse of excavation • Slips and trips	4	5	20	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

- All work within excavations shall be planned and adequately resourced and only competent and experienced supervision and employees shall undertake the works within excavations.
- All excavation work to be undertaken in accordance with a specifically developed method statement and this risk assessment.
- Employees to have a safety induction talk to be given by the site Project Manager using this Risk Assessment and method statement.
- SG4a barrier system or other standard industry barriers to be placed around work area, at a safe distance from excavation. (min 1 metre)
- Appropriate safety signage to be applied to barrier warning of the dangers within the work area.
- Excavations will be stepped or bartered at either 1m x 1m steps or at an angle of 45 degrees. If step or batter cannot be achieved then a hold point is to be carried out to allow for a designed support system and a revision to the safe system of works. Excavations open for a short period of less than 24 hours may have steeper sides but this must be assessed based on the site charactheristics
- There shall be no siting of any plant near the excavation, where there is a risk of exhaust fumes seeping into the excavations
- There shall be no plant sited adjacent to the excavation which could cause a side collapse.
- There shall be no siting of spoil or materials near the excavation sides. It must be kept as a minimum the same distance away as the depth.
- There shall be continuous surveillance of the excavation for any water ingress.
- All areas of the excavation shall be adequately lit at all times.
- Any site traffic route shall not pass near the excavation. Where wheel plant and vehicles pass changes in levels then stop blocks must be employed to ensure that overrun is prevented.

- All operatives working in the excavations shall wear the appropriate PPE i.e. construction hats, rubber Wellington boots and gloves at all times.
- All excavations shall be inspected on a daily basis and weekly by a competent person and that inspection recorded within the site diary and or appropriate register.

Access & Working in Excavation

- All hand digging to be supervised, with employees taking regular breaks and job rotation.
- Access to the excavation shall be via a combisafe step system secured in place and complete with a inspection tag.
- Blinding will be installed to the surface to provide a firm level working area trip hazard free for operatives to work from.

Working with excavators and plant:

- All work equipment provided, supplied or hired shall be maintained in a safe, clean and defect free condition therefore 'fit for its purpose' at all times, and used on site for its designated purpose only, and no other.
- Be of a required type and standard suitable for the work to be undertaken.
- All plant, equipment and tools shall be regularly inspected, maintained, serviced in compliance with current health and safety legislation, supplier's data and manufacturers recommendations and service periods.
- All such plant, equipment and tools shall be uniquely identified, and maintenance and service records kept by the owner of all such provided equipment.
- All defects shall be repaired by using the manufacturers recommended parts only. An authorised and competent person shall undertake the repairs.
- All defective plant and equipment shall be removed from the work areas to ensure it is not available for work.
- Only Employees who are experienced, competent shall only operate all plant and hold the relevant training C.P.C.S 'ticket' issued by a CITB recognised competent training authority.
- All noise and exhaust level emissions shall be maintained in as low a level as is reasonably practicable.
- All plant shall give clear indication of the maximum noise level it will generate.
- Any area where there is a risk from a source of noise, which cannot be controlled by other means, then that area shall be, clearly identified by the appropriate warning safety signs.
- All major plant movements and operations on site shall be controlled by a designated Banksman who is in contact with the plant operators at all times.
- Permission to enter any Plant operation area must be gained from the Banksman or Site Manager before any entry is made to such an area.
- All Plant operation areas shall be fenced off to prevent any unauthorised access to such areas.
- During any loading of dumpers, the driver shall leave the cab of his vehicle, and not return to it until the loading operation is complete.
- Any plant that is to be used where an identified risk of that plant rolling over shall only be operated if it is fitted with a suitable and adequate Roll Over Protection (R.O.P) system.
- Where there is a risk to personnel from moving site plant, that plant shall be fitted with working revolving yellow warning lights. All such plant movement shall be supervised by a designated Banksman, and such plant movements shall be along pre-planned traffic routes which are identified with barriers etc.
- At no time shall keys be left in the ignition of plant when it is left unattended, and no plant shall be left ticking over unattended.
- All engines driven plant shall comply with the requirements of the Company Environmental Management Policy.
- All plant and equipment shall have control measures in place to stop the motive power immediately in the event of an emergency. Thus the plant and equipment shall be in a fully safe and operational condition at all times.
- All plant, equipment and tools shall only be operated by persons over 21 years of age, experienced in its use, competent, and hold the appropriate current CPCS operator 'ticket'. Copies of this, are to be taken by the Project Manager.
- Prior to the operation of any new Company plant, equipment and tools the proposed operatives will receive the appropriate training from the manufacturer and/or recognised training authority advising them on the following:

- What its designed purpose is
- Safe Working Methods
- Where to use it, and the conditions required
- Inherent hazards or risks from the machine, and to others in its use
- Means of protection to the operator and to others
- Any Emergency Procedures
- Personal Protective Equipment to be used
- How to check it, what to look for, and defect reporting procedures

- So far as is reasonably practicable no plant or equipment shall generate a risk to the operator from its use, or by its operation to others by noise, fumes, dust or vibration.
- Where a residual risk remains it shall be controlled by the appropriate means such as the provision of personal protective equipment, and job rotation for the operator, along with devised control measures for the environmental effects.
- All provisions made to protect the operative, during the use of any plant or equipment i.e. guards, protective screens etc. shall be in place at all times.
- No person shall ride on any plant unless it is specifically designed to allow passengers.
- No plant or equipment shall be operated near any risk of danger from any hazards such as:

  - Overhead power lines
  - Adjacent railways
  - Rivers etc.
  - Excavations
  - Concealed or buried services
  - Exposed edges, shafts, tunnels etc.
  - Near fixed structure

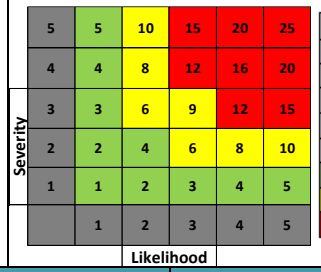
- All risk of danger shall be clearly identified with the appropriate signage.
- So far as is reasonably practicable there will be separate devised site access and egress for vehicles and pedestrians. Also separate traffic routes will be devised within the site to segregate moving vehicles from site persons.
- All such access and egress points and traffic routes will be clearly identified by the appropriate means and safety signage. Where possible to prevent the need of site vehicles reversing, one-way haul routes shall be established on site.
- An appointed competent Banksman shall manage all site vehicle operations.
- All plant and equipment left unattended shall have the ignition keys removed to prevent any unauthorised use.

Site/Location:	Activity
St Pancras Campus	Vehicle movements on site

Date	Assessment No.
	RA17
Revision No.	**Supervisor**
	TBC
Assessor	**Assessment Review Date**
	After any change to work activity

People at Risk:
Employees = **E**
Contractors = **C**
Public = **P**
Visitors = **V**
Client **= CL**

Evaluation of Risk = Likelihood (L) x Severity (S)



Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed E,C,P,V, CL	How will they be harmed Risk	Evaluation of Risk L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	Residual Risk Evaluation L	S	L x S
• Crush injury / damage following impact from truck • Driver/others crushed by overturned dumper • Dumper falling into excavation / trench • Accident due to mechanical failure • Operatives exposed to excessive noise levels • Injury due to moving parts. • Operatives exposed to diesel and lubricants (COSHH) during filling and daily maintenance checks. • Lack of correct training in its use e.g. manual or automatic gears. • Vehicle or material striking personnel • Vehicle striking property	E, C, P, V	• Fatality, broken bones, crush injuries, damage to property. • Fatality, broken bones, crush injuries. • , damage to property. • Noise induced hearing loss. • Fatality, broken bones, entanglement. • Exposure to hazardous substances reaction or causing illness. • Accidental operation of controls, erratic movement of dumper, possibility of dumper becoming out of control causing major and minor injuries and damage to property. • Lorry tipping or striking materials which could fall onto personnel. Vehicle striking personnel. Fatal or life changing injuries. Broken bones, cuts, grazes and bruises. Crush injuries. • Damage to property.	3	5	15	Site management and operatives	Continuously monitored by a competent person	1	5	5

Precautions & Controls

- All lorry movements to site shall be planned to consider local restrictions such as school opening and closing times.
- Also there shall be a designated haul route to the site which shall avoid all community concerns and other sensitive areas.
- At no time shall vehicles be parked in any residential areas, and particularly left with engine ticking over.
- All Lorry movements shall be to set times and under strict control of a designated Traffic Banks man on arrival at site.
- All Banks man to wear Orange Hi-Visibility jackets or vests.
- All Vehicles shall enter site via their own access and follow a designated site haul route which are clearly marked.
- All pedestrian site routes shall be clearly separate from site traffic routes.
- All Site gates to be closed and secured after lorry access and egress.
- The need for Vehicles to reverse on site shall be kept to minimum, and where required shall reverse in designated areas under the control of a Traffic Banks man.
- All Vehicles shall be fitted with working revolving yellow lights, reversing alarms and lights.
- The Banks man shall ensure all Vehicles etc. leaving site shall safely integrate with passing traffic and present no risk to passing members of the public.
- During any lorry loading with debris etc. drivers shall not remain in vehicle cab, and when on site drivers must wear appropriate PPE, hard hats, safety footwear and high vis vests at all times.
- When delivering material by tipper or via RORO skips, no one is to stand to rear of the vehicle. All pedestrians to be segregated from the offloading process and to be located at a safe area behind barriers until process is complete. Banksmen to control movement.
- All site haul routes shall be damped down to prevent dust migration.
- All those involved in the use of dumpers are to observe the information provided in the HSE in the document CIS52 ‘Safe Use of Dumpers’ http://www.hse.gov.uk/pubns/cis52.pdf

- Correct selection of dumper for the task e.g. size, capacity and stability.
- Daily pre-use checks for defects to be conducted and weekly inspections to be recorded by a competent person.
- Banksmen to be in place during movement.
- Suitable segregation between moving plant and pedestrians.
- Only suitably trained drivers are permitted to operate dumpers having the correct training for the type of dumper to be used.
- Site speed limits to be strictly observed.
- Avoid slopes or gradients, including slopes across the direction of travel. If slopes cannot be avoided, check with the vehicle supplier that the dumper can negotiate the slopes safely.
- Ensure flat level ground when tipping.
- Routes to be maintained to prevent potholes and ruts.
- Requirements of whole body vibration controls to be adhered to.
- No passengers to ride on dumper (unless designed to do so).
- Keys to be removed from ignition when not in use and left unattended.
- Stop blocks to be installed at a safe distance to open edges and excavations when tipping.
- No operator is to remain on the dumper whilst loading is in progress.
- Flashing amber beacon, reversing alarm and other safety features to be used and in good order when in operation.
- Roll-over protection system (ROPS) fitted and seat belt worn and do not remove.
- PPE to include hearing protection if necessary and high visibility clothing.
- Dumper not to be overfilled as to restrict drivers view when travelling forward.
- Do not drive with the skip in an elevated position as this reduces the dumpers stability.

- Driver to observe appropriate COSHH assessments when maintaining dumper e.g. Diesel, engine oil, grease.

Site/Location:	Activity
St Pancras Campus	Pile attendance and pile mat repair

Date	Assessment No.
Revision No.	**Supervisor**
Assessor	**Assessment Review Date**
	After any change to work activity

People at Risk:
Employees = **E**
Contractors = **C**
Public = **P**
Visitors = **V**
Client **= CL**

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed E,C,P,V, CL	How will they be harmed Risk	Evaluation of Risk L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	Residual Risk Evaluation L	S	L x S
• Moving plant	E,C	• Struck by moving plant	4	5	20	Site management and operatives	Ongoing monitoring by competent person	1	5	5
• Working with other contractors.		• Poor coordination of works leading to accident								
• Muck rising up auger		• Pile arising falling from height and striking operative.								
• Moving Auger components		• Trapping of operatives limbs								
• Works on piling mat		• Failue of piling mat causing plant to be unstable or tip.								

Precautions & Controls

- All plant movement and operations must be excluded from pedestrian movements and other works areas where possible.
- Where this is not possible movement will be strictly controlled via vehicle banksman and traffic marshals.
- The pile mat must be continuously monitored. If excavated or removed in an area for any reason such as obstruction removal then it must be reinstated to the same design and specification. For significant repairs a re-test of the bearing pressure must be carried out,
- The pile mat must be compacted and rolled at the agreed levels as per the TW design
- Excavators will be used to move pile arisings from the area to dumpers for removal from site. All controls stipulated within the excavator and dumper task briefings apply.

- Excavator drivers will take instruction from the rig banksman. Of an excavator is required to carry out lifting operations such as cages then this must be carried out under an excavator lifting operations plan.
- All operatives attend the piling contractors daily briefing ensuring that operatives in the attendance role are fully briefed on the days activities and fully coordinated with the piling team
- Spider cleaner to be fitted to the auger and in good working order. Muck must not be allowed to rise up the auger.
- Entry into the rig exclusion zone prohibited unless the machine is completely isolated, the engine is switched off and a specific safe system of work is in place that prevents the machine being operated either inadvertently or deliberately.
- Auger to be fitted with a guard preventing any possible contact with the moving parts.
- All operatives working on attendance to piling contractor must be additionally briefed on piling contractor RAMS.

Site/Location:	Activity
St Pancras Campus	Ground Remediation by Mechanical Plant

Date	Assessment No.
	RA 29
Revision No.	**Supervisor**
2	
Assessor	**Assessment Review Date**
	After any change to work activity

People at Risk:
Employees = **E**
Contractors = **C**
Public = **P**
Visitors = **V**
Client **= CL**

Evaluation of Risk = Likelihood (L) x Severity (S)

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

Likelihood (L)	Severity (S)
Rating 1 = Very unlikely	Rating 1 = Trivial injuries. No lost time, Cuts, grazes
Rating 2 = Unlikely	Rating 2 = Minor injury or illness, requires treatment
Rating 3 = Likely	Rating 3 = Serious Injury or illness, Over 7 day
Rating 4 = Very likely	Rating 4 = Major injury or illness - notifiable
Rating 5 = Almost certain	Rating 5 = Fatality, disabling injury, etc.
	= Low Risk
	= Medium Risk
	= High Risk

Hazard	Who might be harmed E,C,P,V, CL	How will they be harmed **Risk**	Evaluation of Risk L	S	L x S	Precautions & Controls Implemented by	Frequency Check Rate	Residual Risk Evaluation L	S	L x S
• Biological risks from any identified or found contaminants and their levels of contamination.	E	• Biological and chemical risk to operatives. • Migration of contaminants into adjacent water courses. • Atmospheric pollution through dust migration.	2	4	8	Site management and operatives	Throughout operation e.g every 300mm	1	4	4

Precautions & Controls

- Levels of any contaminants to be identified and recorded in a written survey by a competent person employed by the Client prior to work.
- Survey to identify any contaminated area and what type they are and any risks to the operating plant such as hidden basements and other obstructions above or below ground.
- Survey to identify the biological risks to persons and the control measures needed.

- All works shall be undertaken to a predetermined plan of work.
- Where necessary the works shall be carried out in accordance with the Site Excavation Works Risk Assessment.
- A system for the measuring any potential hazardous emissions from the disturbed ground shall be implemented prior to and during the works.
- A system for taking spot readings of the contaminants and the level and location of contamination shall be implemented during the works.
- All works shall be undertaken in accordance with a developed method statement and this risk assessment.
- A site toolbox talk shall be given by the Project manager to the site operatives carrying out the works.
- If contaminated are found on site then plant operators and other operatives carrying out the ground works shall wear the following PPE: White Disposal Coveralls, Wellington Boots, Rubber Gloves, Goggles, and Half Face Masks fitted with the correct Filtration (Normally P3Filters)
- Operatives required to wear Half Face Masks shall undergo Face Mask Fit Tests prior to using them on site.
- All operatives working in any contaminated ground areas shall undertake full decontamination procedures by showering in provided facilities at the end of each working day.
- Operatives shall not eat, drink, smoke, or handle food unless they have carried out full hygiene requirements paying particular attention to the cleanliness of the hands.
- Full welfare facilities shall be provided on site for the duration of these works and used by the site operatives.
- All washing facilities shall have an adequate supply of soap, scrubbing brushes, towels, etc. at all times and provide barrier cream.
- Where there is any substantial level of work with lead then a Medical Surveillance programme shall be implemented to ensure the operators Exposure limits or WEL are not exceeded.
- All work areas shall be fenced off with Heras fencing to prevent any unauthorised access to the contamination areas. This fencing shall have warning notices applied to it.
- Any contaminated soil shall be removed and stocked piled without any risk to any watercourse, or allowed to become dry which then allows contamination to become airborne.
- Any contamination being moved off site by Lorries shall be to a developed plan which includes de-contamination procedures for vehicles.
- When clearing the ground areas the mechanical plant shall work within pre-determined areas and working in predetermined routes across the ground removing the wastes etc.
- As the top coverings are removed the generated waste material shall not be stockpiled in high amounts but loaded into waste Lorries on regular daily intervals.
- If the ground clearance works are creating high levels of dust then the appropriate dust suppression techniques shall be employed.

All the plant operations shall be under the control of a designated competent person who will make decisions on any concerns found and will keep unauthorised persons out of the work areas.