MS 005/LH

Works on Little Huntingdon Parcel

Client:	Vistry Homes			**Date:** September 2024				
Contract:	Infrastructure/Groundworks	**Job No:**	0465	**Revision:**	**0**	**0**	**0**	**1**
Location:	Edison Bell Way, Huntingdon							

1. Work Activity Details

Stage one works – with piles and ring beams. Works will include:

- Creating an exclusion zone along the rail boundary (inside the site boundary)
- Creating an exclusion zone to demark the HP gas main easement
- Excavate footing, crunching down pile caps
- Installation of internal and external drainage
- Installation of flooring
- Installation of scaffold matts.
- Excavation of service trenches ready for installation of new utility mains, and back fill.
- Emergency contacts

This method statement is only valid after the removal of current overhead HV cables.

All works within 3.5m of the High Pressure gas main to be undertaken with cadent gas under a watch & brief.

2. Significant Hazards, Risks & Environmental Aspects and Impacts

• Pedestrians/Public	• High Risk activity Supervision	• Live railway network
• Plant, Equipment & Materials	• Loading/Unloading	• Utility Services
• Work at Height	• Hazardous Substances	• Noise & Vibration
• Handling/Lifting	• Working Near Water	• Pollution/Silt

3. Public Protection

Define boundaries and install (where necessary) suitable fencing. The type of fencing will reflect the nature of the site and its surroundings. Typically, double clipped 2m heras fence panels will be used to secure the site perimeter and deep excavations. The fence will be used as the primary method to prevent unauthorised access, and construction (Groundworkers only) warning signs will be attached to the heras fence.

4. Supervisory Arrangements

All works on site will be under the supervision of a competent SSSTS Groundworks Supervisor who will ensure that this Method Statement and its associated Risk Assessments are being adhered to. The Site Manager / Supervisor will report directly to the Contracts Manager who will visit the site regularly to monitor and plan works as well as closing out any issues raised on site. The visiting HSEQT Manager / Advisor will visit site at least once a Month to ensure all statutory requirements are being complied with on site.

5. Training

Position	Qualifications
Manager / Supervisor	SSSTS / NVQ 3 / CSCS / CPCS / TW 1 Day
Machine Driver	CPCS / NVQ 2
Groundworker	CPCS / CSCS / NVQ 2
Sub-Contractor	CSCS

Additional Training which may be required:

NRSWA		**Asbestos Awareness**		**Environmental Awareness**	✓
CAT & Genny	✓	**Slinger – signaller**		**Abrasive Wheels**	✓
Confined Spaces Entry		**Banksman**	✓	**Quick Hitch**	✓
Face-Fit test	✓	**Manual Handling**	✓		

6. Plant, Equipment & Materials

All Plant must have the correct, in-date certification and be in good working order. A plant arrival inspection form must be completed and the machine entered onto the quick hitch register for excavators before first use. A designated Bucket changing area to be put in place. All beacons must be working on plant. Daily visual inspections are to be on-going on all items of plant/tools and defects reported to site foreman/plant department.

All materials will be stored in designated areas on site agreed with site management. The materials will not encroach on any protected/public areas and must be fenced off with pedestrian barrier or heras fencing. Materials will be kept at ground level, pipes single stacked and bricks and blocks no more than two pallets high.

- Please ensure housekeeping is to a high standard to promote a good company image.
- This will reduce the risk of slips trips and falls.
- All materials stored on site to be stacked neatly and with pedestrian protection placed.

At completion of works, area to be left clean and tidy and no materials left on site.

Plant and Materials						
	Plant:					
	360 Excavator	✓	Dumper	✓	Roller	
	Whacker plate	✓	Stihl Saw	✓	Trac-air	
	C.A.T & Genny	✓	Heras Fencing	✓	Pedestrian Barriers	✓
	Forklift		Moxy		Bulldozer	
	Diesel Bowser	✓	Spill Kit	✓	Fork Attachment	✓
	Materials:					
	Type 1 Stone		Crushed Concrete (6F2)		Bagged Cement	✓
	Concrete Beams		Re-bar		Pre-cast headwall units	
	Bricks/blocks	✓	Polythene		Concrete/Clay/Plastic pipes	

7. Occupational Health & COSHH

COSHH assessments to be followed and all fuel and chemicals to be in secure containers and kept locked in tool shed when not in use with drip trays and spill kits where required.

COSHH						
	Assessment:					
	Aggregates	✓	Liquid Asphaltic Composition		Agilia Screed	
	Black Bitumen Solution		Natural Aggregates	✓	MasterKure 207wb	
	Brick & Masonry Cleaner	✓	Ready Mix Concrete	✓	Repair Macadam	
	Cement	✓	Sewage		FebMix	✓
	Coated Road Materials		Line Marking Paint	✓	Pipe Lubricant	
	Respirable Silica Dust	✓	Bio Blue	✓	Machine Grease	✓
	Fuel Oil	✓	Expanding Foam		AdBlue	✓
	Gasoline (PETROL)	✓	Silica Sands	✓	Calcium Oxide (Lime)	
	Hot Mix Asphalt		Chryso Cure		Asbestos	
	Leptospirosis	✓	Cemflow			

Always maintain good levels of personal hygiene and wash hands before eating/drinking etc.

Cross check plans to see is the ground is/if contaminated ensuring gloves are worn when working.

Exposure to harmful dust must be minimised wherever possible with suppression of site dust using water bowsers/sprayers and any cutting of silica containing materials must be controlled with water bottles and the correct usage of PPE by face-fit tested, clean-shaven individuals.

PROTECTION FROM DUST IS A MUST!

Noise and vibration are also known hazards and exposure limits must be recorded on HAV form and checked for compliance against the guidance sheet.

Manual handing, refer to task specific manual handling assessments.

8. First Aid

First Aid provisions will be provided by the Principal Contractor and their whereabouts will be pointed out in the site- specific induction. The names of the qualified first aiders on site will also be given out and their contact details will be on display in prominent locations on site. M&J Evans will also have an appointed first aider and a secondary first aid kit in case of an emergency.

9. Personal Protective Equipment (PPE)

Mandatory at all times as per the site rules Head Protection (Hard Hat), High Visibility clothing (Hi Viz Vest/Coat), Foot Protection (Steel Toe Cap Boots/Mid Sole).

Other PPE highlighted in the risk assessments e.g., eye & hearing protection, dust mask, gloves, etc.

Hard Hat EN 397	Boots EN ISO 20345	Hi-Vis Vest EN ISO 20471	Water Bottle	Ear defenders EN 352	Goggles EN166	Dust Mask FFP3	Gloves EN 388	Overalls
								
✓	✓	✓	✓	✓	✓	✓	✓	

10. Environmental Management Arrangements

Fuel / Oil Storage on site:
All refuelling will be undertaken in controlled areas. Oil / Fuel storage on site will not be within 10m of a drain or existing watercourse and will be kept away from the main area of work/watercourses and stored in a double bunded tank with a drip tray/spill kit/Fire Extinguisher present.

All fuel bowsers must be placed within a primary drip tray with a secondary drip tray placed under the piece of plant being re-filled. Any major environmental incidents must be reported immediately.

Material Wastage:
Waste material will be recycled where possible other waste such as wrapping, packaging etc. to be cleared and put into the relevant waste skips provided. An appropriate Waste Transfer Note will be completed for all waste removed from site. Only registered waste carriers and licensed disposal facilities are to be used in accordance with the companies Duty of Care. All Waste Transfer Notes to be signed for by the Supervisor before the driver leaves site.

Environmental Nuisance:

Noise – All plant will only start up during the specified working hours set out in the site-specific induction. All operatives must refrain from verbally abusing members of the public, and generators must not be left running overnight.

Light – All lights and beacons will be switched off on plant overnight.

Silt:
If silty water is produced during construction activities, necessary steps should be implemented prior to full site commencement to eliminate the risk of contamination/pollution of identified. watercourses, which may be affected during the construction phase. **Further Guidance - GPP-5-Works-and-maintenance-in-or-near-water.**

11. Pedestrian access/egress and Traffic Management

Traffic Management:

All delivery wagons shall be brought into site off estate / main roads to avoid any congestion building up and disruption to the local residents. Site delivery times will be restricted to the site opening hours.

Where possible all delivery wagons will be kept on hard standing and mobile plant kept off the roads to avoid mud transfer to the highway. Road sweepers will be used in adverse weather conditions. Gullies are to be protected with terram and/or gully bags.

Designated storage areas will be located away from regular vehicle movements to prevent damage or spillage. In case of spillage, spill kits will be located with the storage containers.

Hierarchy of control for deliveries lorries

Eliminate the need for reversing where possible i.e., if the wagons can drive into site, be loaded and drive out of site by using a one-way system this should be implemented in the first instance.

Prevent If eliminating reversing is not possible then, the site team should prevent any wagons from reversing long distances and prevent any pedestrians or other tradesmen working within the same area as the muck away operations creating a **"No Pedestrian" area** so there is no requirement for a traffic marshal.

Reduce the risk of anyone or any object being struck by the reversing wagons I.E if a **"No Pedestrian"** cannot be Implemented a traffic marshal should be put in place to assist the wagons reversing into position.

Unloading Delivery Lorries

Supervisor to Coordinate deliveries to prevent blocking estate roads and site access/egress. Local Nurseries / Schools / Colleges to be taken into account when coordinating estimated delivery times. All delivery's to be coordinated in consideration of residents living in and around works area. Pedestrian barriers to be used to segregate pedestrians from loading/ unloading operations.

Operatives are to familiarise themselves with the traffic management plan which they will be shown on their site induction. This will highlight the pedestrian routes on site and the designated crossing points. PC will issue an updated plan as the site progresses. Traffic control and marshalling will be managed on and off site where necessary. **Further Guidance – RA 01-005 Managing Vehicles & Plant on site.**

Site Restrictions:

- Strictly no access to site before 8am and after 5pm.
- 10mph speed limit to be adhered to at all times with the orange beacons on.
- Lorry drivers to always give residents right of way. Drivers to be courteous to the local residents.
- Lorry drivers MUST have their reversing beepers / buzzers switched on if reversing is required as well as their reversing lights on.

12. Falls from height

When unloading welfare units / tool sheds if the use of a ladder is required to chain / un-chain the containers the ladder must be footed. Operative on the ladder must maintain 3 points of contact at all times. Unloading delivery wagons – mechanical means to be used where possible.

Hierarchy of control to be taken into account when planning unloading lorries:

Eliminate the need for working at height using plant and mechanical means to unload the wagons I.E quick hitch bar to unload drainage pipes and the hydraulic spider to unload manhole rings etc.

Prevent falls by using work equipment that prevents operatives at risk from falling I.E platforms with slip resistant surfaces, handrails on the sides of the trailers and restraint systems I.E harness and lanyard system that make it impossible for a worker to get to a position where they could fall a great distance.

Reduce the effects of falls by using equipment to minimise the distance and consequences of a fall for operatives at risk I.E fall arrest bags and nets if necessary.

13. Lifting

An approved Lift Plan to be in place. All lifting equipment involved is subject to a thorough visual inspection and hold a valid in date certificate of thorough examination.

Lift Planning	**Plan:**			
	LP01 - Hitachi ZX130 - Groundworks		LP10 - Hitachi 225 - Pond liner	
	LP02 - Volvo EC250D - Culverts		LP11 - Komatsu PC360 - Concrete Headwalls	
	LP03 - JCB JS360 - Culverts & Various		LP12 - Volvo EC140EL - Drainage Equipment & Materials	
	LP04 - JCB 520 - 125 Forklift Telehandler		LP13 - Volvo EC140EL - Tools & Equipment	
	LP05 - ZX225 - R&S & Various Items		LP14 - Volvo EC480E	
	LP06 - Hitachi ZX130 - Tools & Equipment		LP15 - Komatsu PC290	
	LP07 - Hitachi ZX130 - Drainage Equipment & Materials		LP16 - Komatsu PC360	
	LP08 - Komatsu PC360 - Large Concrete Pipes		Common Schedule of Lifts	✓
	LP09 - Komatsu PC490			

14. Permit to work requirements

Permit to Dig	✓	**Hot works Permit**	✓	**Confined Space Entry Permit**	

15. Pre-start Requirements

Site specific induction:	All operatives arriving on site for the first time must receive a site-specific Induction provided by the Principal Contractor.
Site Operatives Qualifications:	All operatives and sub-contractors working for M&J Evans must have a copy of their training records for the site Safety folder.
Existing Service drawings:	Before any excavations take place, existing Utility Drawings must be consulted by all operatives involved. A C.A.T scan shall be carried out if necessary and all services traced & marked up on the ground.
Permit to work:	The necessary permit to work to be completed before work commences.
RAMS:	Before work starts the M&J Groundworks Supervisor is to highlight the risks and brief the operatives on the method of work to be able to complete the task Safely ensuring they all print and sign on the back of this document to confirm an understanding of the safe working methods.

16. Sequence of Operations

Site Briefing

All operatives are to report to the site office to complete relevant inductions and briefed on the works being undertaken.
The induction should cover the welfare facilities, the walkways in place, any high-risk activities being carried out on site, first aid and emergency procedures and all risk assessments / method statements associated with the works being undertaken.

Demarcation of Network railway

Heras fencing to be erected alongside the rail boundary (site side). This will act as the exclusion zone for the excavator to not breach. This is to be set up taking into account that in the event of failure, in a 360-degree arc, the compound collapse radius of jib and load would not fall within 4 metres of the railway boundary.

Demarcation of High Pressure Gas Main

The HP gas main to be demarcated using heras fencing and signing that highlights the exclusion zone.
Under no circumstances will plant, equipment or materials be permitted to be stored or cross the HP gas main.

Site set up

Segregate work area, traffic management plan to be in place, with material storage area to be established, fenced off and signed. Walkways to be established with barriers, crossing hoops and signage. Bucket changing areas to be set up, fenced and signed.

Supervisor to start completing Permit to Dig – for striping off the works area. No excavations are to take place without an M&J Evans Permit to Dig. As part of the permit to dig, operatives involved in the task are to consult the service drawings, carry out a C.A.T scan and look for evidence on the ground of any live apparatus.
Street light cables can only be picked up with the use of a Genny as well, either hooked around the cable inside the cabinet sending a pulse through the cable for the C.A.T to trace or send a signal by laying the Genny upright and in line with the direction of the service.

If any services are present hand digging must be carried out to locate the services, insulated digging equipment to BS8020 Standards (1000v) must be used. Operatives must look out for warning tape, sand, change in the ground conditions / colours and C.A.T scan the area every 300mm.
Use of picks, forks and steel wrecking bars are prohibited when working around live services

Mechanical excavation must not take place within 500mm of a known service. Banksman must be present at all times when the machine is digging where services may be present. Machine driver to stop digging if the banksman is not present.

All services located must be treated as live until confirmation by the client or the service provider that it has been disconnected. A Written instruction must be obtained before the removal of any redundant services takes place.

Compound area to be stripped off with a 360 excavator, removing vegetation and topsoil. This will be stored in a designated area on site via a dumper (Dumper to be switched off, keys removed and operator stood to the side whilst being loaded). Spoil heap to be established away from railway line and high pressure gas main. Spoil to be battered back at a 45 degree angle, sealed (excavator operator must position themselves 1m back from the edge of the batter) and signed. NO DUMPERS ARE PERMITTED ON SPOIL HEAPS.

Delivery lorries dropping off materials such as stone or crush (6F2) to site must be directed into position by a trained banksman when reversing to the agreed off-load point if a segregated “no pedestrian” area cannot be implemented.

360 excavator to spread out and level off the type 1 stone / crushed concrete to the required depth. Compound area to be levelled off and compacted with the ride on roller.

Unloading Delivery Lorries

Site Supervisor to Coordinate deliveries to prevent blocking estate roads and site access/egress. Local Nurseries / Schools / Colleges to be taken into account when Coordinating estimated delivery times.

Hierarchy of control to be taken into account when planning vehicle movements on site:

1) Eliminate the need for reversing where possible I.E if the wagons can drive into site, be loaded and drive out of site by using a one-way system this should be implemented in the first instance.

2) Prevent If eliminating reversing is not possible then, the site team should prevent any wagons from reversing long distances and prevent by physical means, any pedestrians or other tradesmen working within the same area as the vehicle movement operations creating a "No Pedestrian" area so there is no requirement for Banksman attendance.

3) Reduce the risk of anyone or any object being struck by the reversing wagons I.E if a "No Pedestrian" zone cannot be established, a traffic marshal (Banksman) should be put in place to assist the wagons reversing into position.

Delivery lorries will be brought into site to a designated lay down area ready to be unloaded.

Hierarchy of control to be taken into account when planning unloading lorries:

4) Eliminate the need for working at height using plant and mechanical means to unload the wagons I.E quick hitch bar to unload drainage pipes etc.

5) Prevent falls by using work equipment that prevents operatives at risk from falling I.E platforms with slip resistant surfaces, handrails on the sides of the trailers and restraint systems I.E harness and lanyard system that make it impossible for a worker to get to a position where they could fall a great distance.

6) Reduce the effects of falls by using equipment to minimise the distance and consequences of a fall for operatives at risk I.E fall arrest bags and nets if necessary.

Unloading of drainage materials (Trained Slinger-signaller MUST be present):

1) Concrete pipes to be unloaded using a quick hitch bar attachment on the 360 excavator thus Eliminating the need for an operative to mount the flatbed to chain up the pipes.

2) Pipes to be unloaded by forklift / forks attachment on the 360 excavator thus Eliminating the need for an operative to mount the flatbed to chain up the pallet of pipes.

3) Concrete manhole rings to be unloaded using the hydraulic spider attachment on the 360 excavator thus Eliminating the need for an operative to mount the flatbed to chain up the rings. Where this is not possible – see point 4 below.

4) If an operative has to work from the back of the lorry to Chain up gully's and Cover Slabs then a suitable fall prevention system should be used I.E harness and lanyard system to Prevent the operative from falling off the trailer if not available then fall arrest bags must be placed around the trailer to Reduce the severity of any injuries sustained if the operative was to fall.

Unloading of steel re-bar (Trained Slinger-signaller MUST be present):

1) Bundles of steel re-bar to be unloaded using strops placed around the bundles by the supplier or chains double wrapped and hooked back onto the chain with locking clasps on the hooks not on the bonds holding the bundle together. Steel mesh to be chained up in the four corners double wrapped around the mesh not the bonds holding the mesh together. Fall prevention system should be used I.E harness and lanyard system to prevent the operative from falling off the trailer if not available then fall arrest bags must be placed around the trailer to reduce the severity of any injuries sustained if the operative was to fall.

2) Bags of the steel links to be lifted with all four handles on the hook with the locking clasps. Fall prevention system should be used I.E harness and lanyard system to prevent the operative from falling off the trailer if not available then fall arrest bags must be placed around the trailer to reduce the severity of any injuries sustained if the operative was to fall.

Unloading of Bricks and Blocks (Trained Slinger-signaller MUST be present):

1) Bricks and Blocks will be unloaded by the supplier's vehicle and driver using the Hi-ab.

2) If the vehicle is not equipped with a Hi-ab, the bricks / blocks will be unloaded by the forklift / fork attachment on the 360 excavator thus eliminating the need for an operative to mount the flatbed to chain up the pallet of bricks / blocks. They will be stacked no higher than 2 packs high in the designated storage area.

Unloading of pallets of bagged cement (Trained Slinger-signaller MUST be present):

1) Pallets of bagged cement to be unloaded by the forklift / fork attachment on the 360 excavator thus Eliminating the need for an operative to mount the flatbed to chain up the pallet of bagged cement.

Housekeeping to be monitored throughout all works.
Once all works have been completed, ensure all tools and equipment have been cleaned and removed. Leave the work area clean & tidy at the end of each working day and that access has been secured for unauthorised access when the site is unattended.
If the above method or anything you are not happy with, STOP works, re-assess with your Manager/Supervisor, ensuring any amendments are documented below.

Roads and Sewers

New Drainage
Segregate working area from other operatives / tradesmen on site, Traffic Management to be in place for dumpers moving the topsoil / vegetation around site. Bucket changing area to be set-up using Heras panels on 3 sides / pedestrian barriers along the front side. Attach 'Bucket Changing Area' signage to the fence.

Site Manager / Supervisor to start completing Permit to Dig for striping off the required area. No excavations are to take place without an M&J Permit to Dig. As part of the permit to dig operatives involved in the task are to consult the service drawings, carry out a C.A.T scan and look for evidence on the ground of any live apparatus. Street light cables can only be picked up with the use of a Genny as well, hooked around the cable inside the cabinet sending a pulse through the cable for the C.A.T to trace.

If any services are present hand digging must be carried out to locate the services, insulated digging equipment to BS8020 Standards (1000v) must be used. Operatives must look out for warning tape, sand, change in the ground conditions / colours and C.A.T scan the area every 300mm.
Use of picks, forks and steel wrecking bars are prohibited when working around live services

Mechanical excavation must not take place within 500mm of a known service. Banksman must be present at all times when the machine is digging where services may be present. Machine driver to stop digging if the banksman is not present.

All services located must be treated as live until confirmation by the client or the service provider that it has been disconnected. A Written instruction must be obtained before the removal of any redundant services takes place.

Construction of Easi Base manholes:

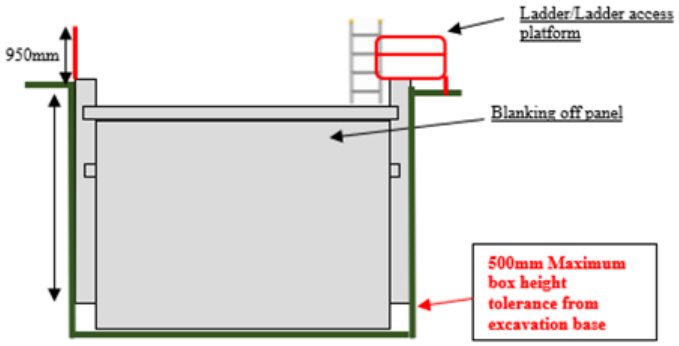
Proposed location of the manhole to be excavated down to allow for the manhole box installation.

Muck being excavated to be stockpiled to the side of the dig at a safe distance or taken away to a designated storage heap on site.

The manhole box will be placed in the excavation hooked on to the excavator in all four corners by the slinger - signaller. The chains will be unhooked to allow the excavator driver to use the same 'cut and lower' technique as for the trench boxes applying downwards pressure evenly in each corner.

The remainder of any excess muck will be excavated inside the manhole box, lowering the box into final position which should be no more than 500mm above the base of the excavation. (For larger pipe dimensions 500mm or more, a separate assessment is required)

Once the required depth has been achieved you can either reduce and batter back the ground at the open end or insert a blanking off panel to be placed down the back end of the manhole box to prevent any muck falling in on operatives working inside the box as below:



If required the top box will be installed now on top of the main box by the excavator placing it on top and connecting all four corners with the extension bolts.

Access / egress into the box will via a secured ladder tied to the ladder access platform.

If the water table is higher than base of the trench then a 2" submersible pump will be used to keep the water down to an acceptable level. Sump hole will be dug in the corner and pump placed in it. The hose will be tied against the box to prevent any movement. The water must be discharged into a silt buster or similar pending authorisation to do so.

The excavator will place the bed of shingle into the box with the banksman then entering to check with the laser level and levelling off with a shovel.

Now the pre-formed manhole base will be lifted into the box and secured into position at the correct level. Then the first pre-surrounded ring will be placed on top with the waterproof membrane in between to ensure water tightness with rockers being connected into the manhole for the drainage runs to be continued up to the box.

The other rings will then be installed with the waterproof membrane in between and the manhole biscuit / lid placed on top.

Then first section of drainage trench will be excavated using one of the below procedures depending on depth. Once the batter / first trench box is installed all safety controls are to be implemented allowing operatives to work back from the rockers from the manhole.

The manhole can then be backfilled with gravel / shingle and the stockpiled muck/ or specified materials can be placed back in the dig and compacted up to the underside of the road formation level.

Note: Where boxes are not 950mm above the ground level offering edge protection then handrails and access/egress platform must be installed.

Construction of traditional manholes:

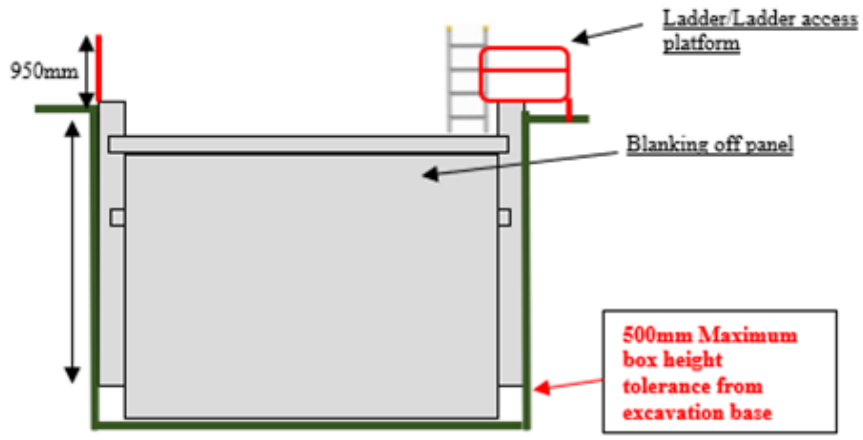
1Proposed location of the manhole to be excavated down to allow for the manhole box installation.

Muck being excavated to be stockpiled to the side of the dig at a safe distance or taken away to a designated storage heap on site.

The manhole box will be placed in the excavation hooked on to the excavator in all four corners by the slinger - signaller. The chains will be unhooked to allow the excavator driver to use the same 'cut and lower' technique as above for the trench boxes applying downwards pressure evenly in each corner.

The remainder of any excess muck will be excavated inside the manhole box, lowering the box into final position which should be no more than 500mm above the base of the excavation. (For larger pipe dimensions 500mm or more, a separate assessment is required)

Once the required depth has been achieved you can either reduce and batter back the ground at the open end or insert a blanking off panel to be placed down the back end of the manhole box to prevent any muck falling in on operatives working inside the box as below:



If required, the top box will be installed now on top of the main box by the excavator placing it on top and connecting all four corners with the extension bolts.

Access / egress into the box will via a secured ladder tied to the ladder access platform.

If the water table is higher than base of the trench then a 2" submersible pump will be used to keep the water down to an acceptable level. Sump hole will be dug in the corner and pump placed in it. The hose will be tied

against the box to prevent any movement. The water must be discharged into a silt buster or similar pending authorisation to do so.

The excavator will place the concrete / lean mix into the box, the benching will be formed with specified channels linking up the inlet/outlet pipes and then the manhole base is to be formed to allow placement of the first chamber ring.

Depending on the size of the pipe, larger dimension runs will have a timber boxed out section with the concrete placed around it to form the base/channel, smaller pipes will have the rough benching formed with the lean mix. At this stage, the first ring can be safely lowered in and placed atop the preformed base with level confirmed. Once cured, the following day the final benching will be completed with a "Granno" mix so a water tight seal can be formed between the construction joint of the benching and the first ring.

Rings will be placed on top as per requirement with waterproof membrane placed in between each section to ensure water tightness. If required, steel shutters (sprayed with mould oil) will be put in place to allow for the rings to be surrounded. Once surrounded and cured, the shutter will be struck and the rings backfilled with specified material compacted in layers up to approximately 200mm below the top of the ring. Further rings will then be installed using the same methods as per requirement.

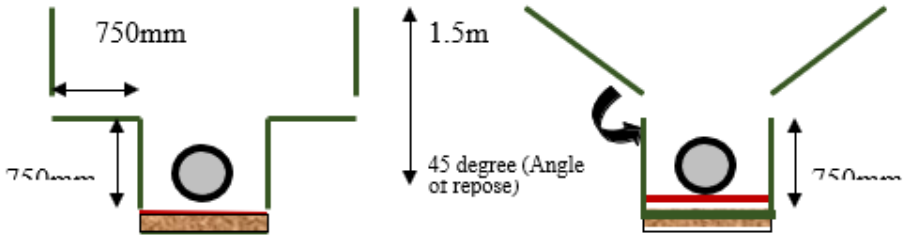
NOTE: the manhole biscuit & steel plate must be placed during each section lift to protect the inside of the chamber.

NOTE: Wide-wall chamber rings do not require shuttering & concrete surround

NOTE: Where boxes are not 950mm above the ground level offering edge protection then handrails and access/egress platform must be installed.

<u>Drainage Depth up to 1.5m deep:</u>

Drainage trenches up to 1.5m deep will be battered back at 45 degrees (angle of repose) or stepped backwards 750mm up and 750mm as below: Current ground conditions to be taken into account, existing services, land drains etc.



Excavator driver to position the machine over centre line of the drainage run under the guidance of the banksman.

Muck being excavated to be stockpiled to the side of the trench or taken away to a designated storage heap on site.

No spoil, materials or plant to be placed into the No point loading zone. No point Loading zone – (depth of the trench = distance back from edge of trench).

Once the trench is excavated to the required depth a bed of shingle will be placed in the trench under the guidance of the banksman and the laser level.

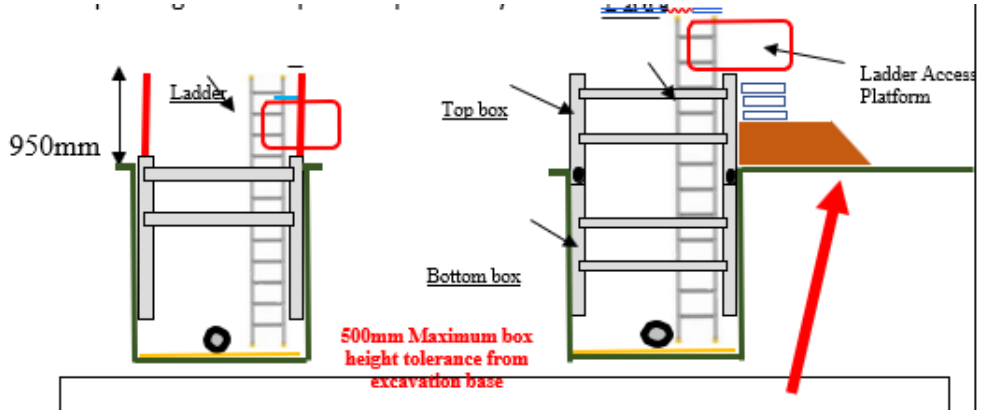
The pipes will then be lifted into the trench under the guidance of the slinger- signaller and pushed home by hand / excavator depending on the size. If they are being pushed in using the excavator it must be done with the pipe lifter attachment.
Do not push them in with the machines arm on a piece of timber across the end of the pipe.

As works progress air tests will be carried out to ensure all pipes / collars have sealed correctly.
Once sections of the run have passed the air tests and been inspected the trench will be backfilled with shingle above the pipe then backfilled with the excavated muck and compacted.

ANY CUTTING OF CONCRETE MATERIALS MUST BE DONE WITH FULL PPE / RPE AND WATER BOTTLE ATTACHED TO THE DISC CUTTER (INCLUDING THE SECOND OPERATIVE PUMPING THE WATER BOTTLE)

Drainage Depth more than 1.5m deep:

For drainage trenches more than 1.5m deep trench / drag boxes will be used depending on the depth. A top box may also be required as below:



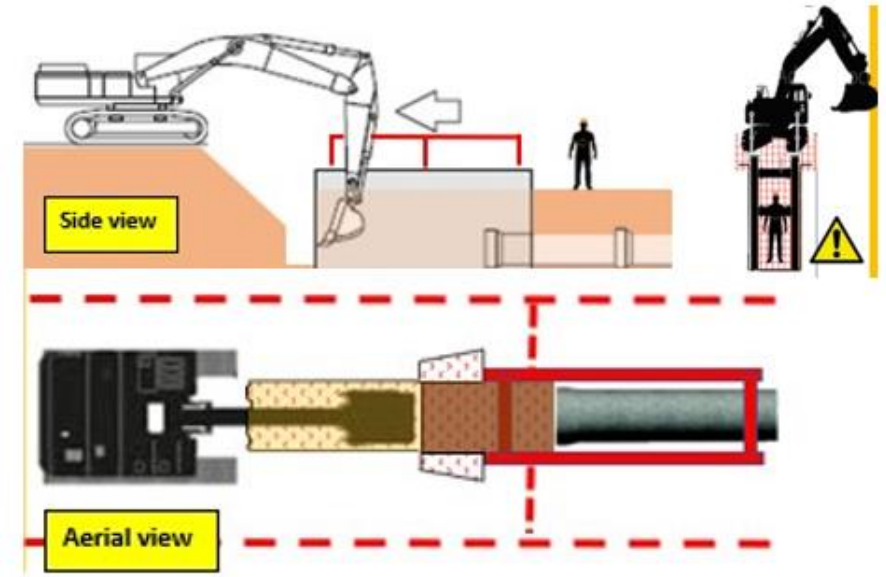
Remember:
Choosing a top box as edge protection instead of hand rails requires additional provision of a suitably compacted platform and steps for entry to the ladder access

Excavator driver to position the machine over centre line of the drainage run ready to excavate under the guidance of the banksman.

Muck being excavated to be stockpiled to the side of the trench at a minimum distance of the excavation depth or taken away to a designated storage heap on site.

Once the trench is excavated to the required depth, the drag box will be hooked on and placed in the trench under the guidance of the slinger-signaller. The drag box can be sat on a small shelf just up from the bottom of the trench but must not be higher than 500mm from the excavation base (taking into account the current ground conditions). Once lifted into the trench the chains will be unhooked and the surrounding ground bladed level to give a safe walking area at the top of the box. If required the top box will be installed now on top of the main drag box by the excavator placing it on top and connecting all four corners with the extension bolts. The 360 will excavate the muck inside the boxes under the guidance of the banksman ensuring the boxes do not get knocked or damaged.

BOXES CAN REMAIN 950mm ABOVE GROUND LEVEL OFFERING EDGE PROTECTION PROVIDING CONDITIONS MEET THE CRITERIA AS DETAILED IN THE DIAGRAMS ABOVE. IF THIS IS NOT POSSIBLE THEN HANDRAILS MUST BE INSTALLED ON EITHER SIDE OF THE BOX TO PREVENT ANY FALLS FROM HEIGHT.



Over-dig the trench slightly and batter back towards the machine tracks, thus eliminating any sheer faces on ground yet to be excavated.
Remove the sections of ground from either side of the trench excavation immediately in front of the box and batter back to a safe angle of repose.
Pipe layers, keep any time spent close to the end of the box to a minimum and remember no material should be lifted overhead. Keep to the rear of the box or ideally out of the excavation all together if you don't need to be in there.
Take the time to do it right – DIG IT- MAKE IT SAFE- INSTALL IT

Access / egress into the boxes will be via a secured ladder tied to the top of the access platform.
UNDER NO CIRCUMSTANCES SHOULD ANY OPERATIVES BE INSIDE THE BOXES WHEN BEING INSTALLED / MOVED BY THE EXCAVATOR

If the water table is higher than base of the trench then a 2" submersible pump will be used to keep the water down to an acceptable level. Sump hole will be dug in the corner and pump placed in it. The hose will be tied against the box to prevent any movement. The water must be discharged into a silt buster or similar pending authorisation to do so.

Banksman working with the excavator driver will stand in the safe zone at the far end of the box whilst the excavator places the bed of shingle into the opposite end of the box and vice versa until the correct level is achieved checking with the laser level.

The pipes will then be hooked on by the slinger-signaller and lowered inside the drag box by the excavator and then pushed home by hand / excavator depending on the size. If they are being pushed in using the excavator it must be done with the pipe lifter attachment.
Do not push them in with the machines arm on a piece of timber across the end of the pipe.

When the sections of pipe are up to the end of the drag box this section will be backfilled with shingle to stop the pipes moving.

The next section can start to be excavated, once the required depth is reached the drag box will be pulled along the by the excavator.

Once the sections of pipe have been backfilled with gravel / shingle, specified material can then be placed in the trench and compacted in layers to the underside of the road formation level.

As works progress air tests will be carried out to ensure all pipes / collars have sealed correctly.

When sections are completed between manholes laterals will be pulled from the main run for the roadside gully's using the above excavating procedures depending on the depths. If working at depth, bring the pipework up for any gully connections to a level roughly level with the depth of the base of the gully and mark with a wooden peg for future reference.
IF GROUND CONDITIONS DURING THIS OPERATION ARE VERY POOR OR BECOME VERY POOR I.E RUNNING SAND ETC. CONTACT THE CONTRACTS MANAGER AND HEALTH & SAFETY MANAGER FOR FURTHER ADVICE.

Where gully's are to be installed, laterals to be uncovered from previously left connection points from new road drainage. Excavate hole to install the road gully pot to the specified position/height, place concrete to the base and carefully lower the gully into position using 360 excavator. Connect drainage laterals from the existing pipework to the gully's, backfill with specified material around the pipe (Gravel) and surround any pipework above the base height of the gully with concrete. Gully pots to have steel plates/ timber cover plates over to prevent slips, trips and falls.

Road Construction

Segregate working area from other operatives / tradesmen on site, Traffic Management to be in place for dumpers moving the type 1 around site. Bucket changing area to be set-up using Heras panels on 3 sides / pedestrian barriers along the front side. Attach 'Bucket Changing Area' signage to the fence.

Supervisor to start completing Permit to Dig – for digging for road crossings and gully pots. No excavations are to take place without an M&J Permit to Dig. As part of the permit to dig operatives involved in the task are to consult the service drawings, carry out a C.A.T scan and look for evidence on the ground of any live apparatus. Street light cables can only be picked up with the use of a Genny as well, hooked around the cable inside the cabinet sending a pulse through the cable for the C.A.T to trace.

If any services are present hand digging must be carried out to locate the services, insulated digging equipment to BS8020 Standards (1000v) must be used. Operatives must look out for warning tape, sand, change in the ground conditions / colours and C.A.T scan the area every 300mm.
Use of picks, forks and steel wrecking bars are prohibited when working around live services.

Mechanical excavation must not take place within 500mm of a known service. Banksman must be present at all times when the machine is digging where services may be present. Machine driver to stop digging if the banksman is not present.

All services located must be treated as live until confirmation by the client or the service provider that it has been disconnected. A Written instruction must be obtained before the removal of any redundant services takes place.

Proposed road location will be pegged out by the engineer and the road cut by the excavator to the required dimensions

360 Excavator will reduce the ground level to the required depth loading dumpers with the spoil to a designated area or side -casting. (Dumper to be switched off, keys removed and operator stood to the side whilst being loaded) Muck to be stockpiled in the agreed designated area.

Once the road is cut to formation level service ducts will be laid across the width of the road and backfilled with specified materials. Place wooden marker pegs at the end of the ducts to highlight their location and cover with sand or gravel. Engineer/ Supervisor to mark as-built drawing so that road crossings can be found easier when excavating for house connections in footpath later on in the project or locations to be stored in the GPS system.

Dumpers/ wagons to deliver type 1 / hogging etc. For the 360 excavator to spread and level within the road, typically to the level of the underside of the kerb brace.

Sub-base to then be levelled and compacted with the roller. No pedestrians will be permitted in this area whilst the roller is at work. Only trained operators to use the ride on roller.

Engineer/operatives will then Pin the kerb line and mark levels for kerb brace to follow. The pins will only go into the formation level not the virgin ground thus eliminating the risk of a live service being struck. A permit to work is required for breaking of the ground.

The kerb brace can then be formed using timber shutters/steel kerb brace formers working to the lines and levels specified. Once formed, the brace can be filled with specified concrete mix, vibrated using a poker and trowelled to finish. (its recommended to place markers for any duct crossings into the brace for future reference) Allow concrete to cure prior to striking the shutters.

Once all shutters have been carefully removed, it is advisable to backfill behind the kerb brace and blade the ground level to the height of the brace to further protect/ strengthen the brace to avoid damage when constructing the road and using the Roller in proximity of the kerb brace.

The required depth of sub-base material will then be laid and compacted by the Roller to the underside of Tarmac base course. Road to be dipped to ensure the correct gradient / fall is on the road. Final trim with the excavator and men on rakes will get the road to within a 6mm tolerance.

NOTE: The road will need to pass the specified CBR tests for the works to progress and prior to asphalt being laid.

Tarmacadam

Segregate working area from other operatives / tradesmen on site to ensure there is no interaction between Tarmac gangs and other operatives on site. Traffic Management to be in place for delivery wagons bringing asphalt to site and lay down / parking areas for them to minimise disruption to the surrounding estate roads. Tarmac gangs to provide a competent traffic marshals to direct the wagons into position.

When working within the Highway, Chapter 8 signage MUST be used, this includes sites where residents have moved in even where the road has not yet been adopted I.E men at works, road narrows etc.

Supervisor to Coordinate deliveries to prevent blocking estate roads and site access/egress. Local Nurseries / Schools / Colleges to be taken into account when Co-ordinating estimated delivery times.

For all tarmacadam works operatives must wear long sleeve tops, trousers and gloves in addition to the minimum PPE required of hard hats, hi-vis vest and steel toe capped boots.

Base Course:

Tarmac supervisor will arrange a competent traffic marshal to direct the delivery wagon to the front of the blornox paver ready to load the front up to start laying the base course behind it

When asphalt is placed by the blornox paver, the placement will be controlled by the operator of the machine and the screwman at the rear who will control the direction and discharge speed ensuring an even / level base course is applied.

Once a large section is complete a ride on roller will be used to compact the asphalt, with a water system to cool the tarmac allowing it to harden quicker. Areas around gully's and tight corners will be compacted with a whacker plate. (operatives must wear ear defenders and gloves when on the whacker plate)

Wearing Course:

Supervisor to ensure residents vehicles are not parked on the proposed area being tarmacked.

All haunching to be broken out around raised manholes, gully's and drop kerbs before commencing.

Operatives will prep the base course for the wearing course to be applied by spraying bonding onto the surface

to help the two courses bind together.

Once there are no obstructions on the road and all haunched sections have been broken out, the traffic marshal will reverse the delivery wagons up to the front of the blornox paver ready to load the front up to start laying the wearing course behind it.

Once a large section is complete a ride on roller will be used to compact the asphalt, with a water system to cool the asphalt allowing it to harden quicker. Areas around gully's and tight corners will be compacted with a whacker plate (operatives must wear ear defenders and gloves when on the whacker plate)

Housekeeping to be monitored throughout all works.
Once all works have been completed, ensure all tools and equipment have been cleaned and removed. Leave the work area clean & tidy at the end of each working day and that access has been secured for unauthorised access when the site is unattended.
If the above method or anything you are not happy with, STOP works, re-assess with your Manager/Supervisor, ensuring any amendments are documented below.

Stage one works – working with piles and ring beams

Service Mains Installation

Segregate working area from other operatives / tradesmen on site, Traffic Management to be in place for dumpers moving the spoil around site. Bucket changing area to be set-up using Heras panels on 4 sides and 3 sides / pedestrian barriers along the front side for the mini diggers. Attach 'Bucket Changing Area' signage to the fence.

Supervisor to start completing **Permit to Dig** for the excavation. No excavations are to take place without a M&J / PC Permit to Dig. As part of the permit to dig, operatives involved in the task are to consult the service drawings, carry out a C.A.T scan and look for evidence on the ground of any live apparatus.
Street light cables can only be picked up with the use of a Genny as well, hooked around the cable inside the cabinet sending a pulse through the cable for the
C.A.T to trace.

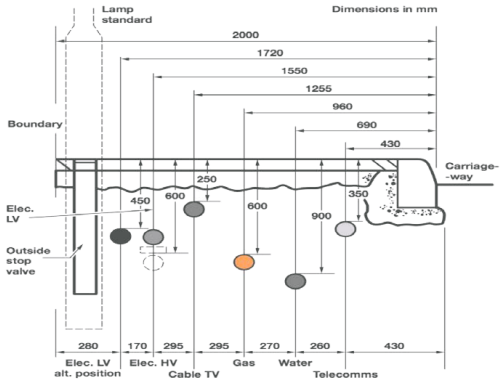
If any services are present hand digging must be carried out to locate the services, insulated digging equipment to BS8020 Standards (1000v) must be used. Operatives must look out for warning tape, sand, change in the ground conditions/ colours and C.A.T scan the area every 300mm.
Use of picks, forks and steel wrecking bars are prohibited when working around live services

Mechanical excavation **must not** take place within 500mm of a known service. Banksman must be present at all times when the machine is digging where services may be present. Machine driver to stop digging if the banksman is not present.

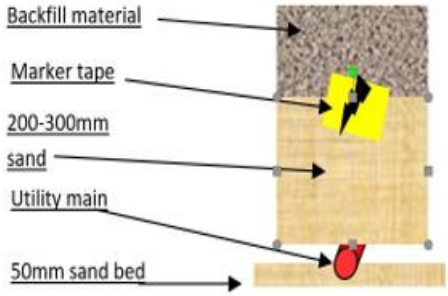
360 Excavator will commence digging under the guidance of the banksman either stockpiling the spoil to the side of the service trench or loading the spoil into a Dumper to be stockpiled in the agreed designated area on site.
(Dumper to be switched off, keys removed and operator stood to the side whilst being loaded)

Once dug to the required depth a bed of sand will be laid ready for the utility mains to be installed by the mains utility contractor.

All trenches for utility mains to be installed to the correct depth and measurement from the carriageway as specified on the drawings. Typical detail below:



Once installed, operatives will allow sufficient time for joint resins to harden / electro fusion joints to cool before backfilling the service trench. There must be at least 200 - 300mm of sand above the main then the warning marker tape on top and backfilled with the specified material.



After being backfilled the trench will be compacted with the whacker plate. (operatives must wear gloves and ear defenders when on the whacker plate)

ENSURE ALL SERVICE MAINS ARE INSTALLED TO THE CORRECT DEPTH/ MEASUREMENTS AND BACKFILLED WITH THE CORRECT AMOUNT OF SAND AND WARNING TAPE AS ONE OF YOUR COLLEAGUES COULD BE EXCAVATING AROUND THEM FOR CONNECTION HOLES IN THE FUTURE.

Pilling Mat Construction (For reinforced footings)

The engineer to mark out the area and set profiles up for the area to be striped.

360 excavators to strip the proposed area to the required depth, loading the muck into a dumper to be stockpiled in the designated area on site. (Dumper to be switched off, keys removed and operator stood to the side whilst being loaded)

Once the required level is reached, the area will be lined with Terram ready for backfilling. Crushed material / hard core or limestone will then be placed into the area to the specified formation level. The mat will be compacted with the roller and handed over to the client ready for the piling contractor.

Once the area is handed back over to M&J, if there are any piles left higher than 1m above the pile mat, then a heavy duty 2 jaw pile cropper is to be used to crop the high piles down in 1m sections to 200mm above the existing pile mat level. Concrete sections to be placed into a tidy heap ready for removal at a later date.

Steel reinforced footings

Excavator driver to position the 360 excavator over the centre line of proposed foundation under the guidance of the Banksman. Excavator to load spoil into the dumper to be taken to the designated stockpile. (Dumper to be switched off, keys removed and operator stood to the side whilst being loaded)

Once the foundation is excavated to the required depth, a 50mm of lean mix blinding will be placed in the bottom of the foundation for the ground beams to sit on. The blinding will be levelled off using rakes / tamps.

The operative will then mark the cut-off level on the concrete piles. Operatives will then cut around the base of the pile where marked with the disc cutter (Full PPE / RPE to be worn as highlighted in the risk assessments) ready for them to be cropped down by the light weight pile cropper attached to the 360 excavator.

Machine driver will lower the cropper over the top of the piles engaging the teeth with the button in the cab and apply upwards pressure to pull the concrete off the pile leaving the steel pile bars exposed. When the cropping is complete the banksman will place mushroom caps on each pile bar, break out the last remaining pieces with a pneumatic breaker and the trench cleaned out by hand. The pile bars will then be cut down to the required depth with the mushroom caps then placed back on.

Ground beams will be prefabricated on site in a designated prefabing area which will be fenced off for segregation from plant movements on site. Steel fixers will prefab the cages on trestles and lifted off by hand / excavator depending on the size & weight of the cages. Once the footing is ready, the cages will be dropped in one by one into the footing by the 360 excavator hooked up by the slinger- signaller with spacer blocks underneath for the required cover off the blinding. (mushroom caps to remain on the pile bars until all cages are in place and beams are being spliced together)

Once all the beams are spliced together spacer blocks will be clipped onto the sides of the beams and shuttering tied on either side. Either side will then be backfilled a bit at a time to prevent the beams moving off the centre line.

When completed, concrete delivery wagons will be guided by the Traffic marshal whilst reversing up to the footings to either pour them straight out of the wagon with the shute or the concrete will be placed with the bucket of the 360 excavator to the required level checking with the laser level.

Sub-structure work to DPC

Engineer to mark out external corners of sub-structure on the foundation using setting out equipment, using a claw hammer Hilti nails will be hammered into the concrete and sprayed.

Pegs to be placed on external corners with sub-structure brickwork finish level clearly marked.

360 Excavator with fork attachments or forklift to collect Bricks/Blocks from the storage area and place on level ground around foundation.

Hod carrier and Brick layers to stack Bricks/Blocks, lintels and wall ties close to working area and place muck boards in relevant positions. Packaging and banding to be cleared away to prevent any potential trip hazards.

Hod carrier to start Diesel mixer add water and Mortar Plasticizer, add sand and cement as required to site specific mortar mix. Hod carrier will use a drip tray when refuelling mixer. Gloves, goggles and FFP3 dust mask must also be worn whilst mixing.

Muck bin to be placed close to Diesel mixer ready for mix to be poured. Once mix is at the correct consistency the Hod carrier will release the safety pin on the mixer wheel and carefully pour the mix into the muck bin. Hod carrier to wear safety goggles to prevent splashes to eyes.

The muck bin will then be taken to the foundation by the 360 with the forks attachments so the Hod carrier can shovel mortar onto spot boards for brick layers and continue to load out bricks/blocks as necessary.

Brick layers to build external corners to sub-structure level ensuring perps are fully filled and mortar kept clean from brick/block work. Check with client to see if they require joints to be pointed.

Once the corners have been constructed and checked for the correct level a string line will be tensioned between the corners to level of each course, the bricks/blocks will then be laid to line.

Bricklayer to ensure area is clean and tidy before handing area over to ground workers for drainage and duct works.

Internal Drainage and Service ducting

Concrete lorry to be directed into position on site (if a “no pedestrian” area cannot be implemented) and to unload lean mix concrete as close to sub- structure as possible.

Using the excavator bucket under the guidance of a banksman, concrete will be positioned close to the brickwork walls, operatives to shovel concrete into brickwork cavity’s level and tamp to site specification. Eye protection must be worn at this point.

Under the guidance of a banksman the excavator will then level the over-site between the brickwork walls incorporating falls to drainage run areas. Then shingle will be placed along the runs by the excavator and levelled by hand

Drainage will be laid on the shingle to falls; 90° bends will be concreted to prevent movement. Place caps over 90° bends to prevent other materials entering the drainage runs. Plastic pipes to be cut using the Stihl saw/ hand saw, ensure correct PPE is worn.

Service ducts will be laid as per drainage but without the need for falls. Place caps over 90° bends to prevent other materials entering them. Ducts to have pull rope placed within them, rope to be tied at either end.

Jet Flooring/Block and Beam Flooring

Lay DPC and set out first beams as per the approved issued drawing.

Position remaining beams using full depth spacer blocks, bedded on mortar. Ensure beams are placed tightly against the spacer block.

Install polystyrene infill blocks. Blocks can be cut by hand saw to suit service holes and other gaps.

Install edge blocks as denoted on the layout drawing and overlay with polystyrene sheet.

Ensure insulation strips are pinned to the underside of the beams where required. Refer to standard layout drawings details.

Bed split course blocks between beams ends for staggered bearings on internal walls.

Create screed rail / formwork using either timber batten, soleplate or bedded brick course.

Lay structural concrete topping. Use grade 25 concrete reinforced with polypropylene fibres or grade 30 concrete with mesh. Do not pour concrete from a height greater than 300mm.

Float to final finish.

Block & Beam Flooring

Lay DPC onto masonry brickwork.

Slinger-signaller to hook chains on to the first beam and lift with the aid of a 360 Excavator and place onto DPC on masonry walls as near as possible to final resting position.

Lay second beam in a similar manner and separate the two beams laid placing concrete infill block at either ends. Use steel bar to fine adjust beams into place.

Only lift one beam at a time with the chains to prevent beams squeezing together with operatives’ fingers possibly getting caught or use the technique in the lift plans.

Infill between beams with blocks, leaving blocks out above structural walls

Repeat procedure until whole footprint of the building is completed.

Mix gage of mortar using cement mixer and bed slip blocks onto structural walls and place infill block over.

Cut blocks as required. Any concrete cutting must be carried out under suitable dust suppression, full PPE / RPE and by operatives who have received a face fit test.

Once the floor is completely filled in mix sharp sand with cement whilst adding water and brush over floor.

Scaffold Mat

Once drainage has been completed and connected to external drainage crushed concrete / TYPE 1 will be placed around the substructure by a dumper into heaps.

The excavator will then level the crushed concrete. A ride on Roller will then compact the area. The area will be handed over to the client on completion. If a whacker plate is used operatives MUST wear ear defenders and record usage time in the HAVS records.

Once completed hand the plot over to the client and complete a plot handover sheet.



Housekeeping to be monitored throughout all works.

Once all works have been completed, ensure all tools and equipment have been cleaned and removed. Leave the work area clean & tidy at the end of each working day and that access has been secured for unauthorised access when the site is unattended.

If the above method or anything you are not happy with, STOP works, re-assess with your Manager/Supervisor, ensuring any amendments are documented below.

Stage 2 finishing works

Plot utility connections

Segregate working area from other operatives / tradesmen on site, Traffic Management to be in place for dumpers moving the spoil around site. Bucket changing area to be set-up using Heras panels on 4 sides and 3 sides/ pedestrian barriers along the front side for the mini diggers. Attach 'Bucket Changing Area' signage to the fence.

Supervisor to start completing Permit to Dig for striping off the tarmac. No excavations are to take place without

a Permit to Dig. As part of the permit to dig operatives involved in the task are to consult the service drawings, carry out a C.A.T scan and look for evidence on the ground of any live apparatus. Street light cables can only be picked up with the use of a Genny as well, hooked around the cable inside the cabinet sending a pulse through the cable for the C.A.T to trace.

If any services are present hand digging must be carried out to locate the services, insulated digging equipment to BS8020 Standards (1000v) must be used. Operatives must look out for warning tape, sand, change in the ground conditions / colours and C.A.T scan the area every 300mm. Use of picks, forks and steel wrecking bars are prohibited when working around live services

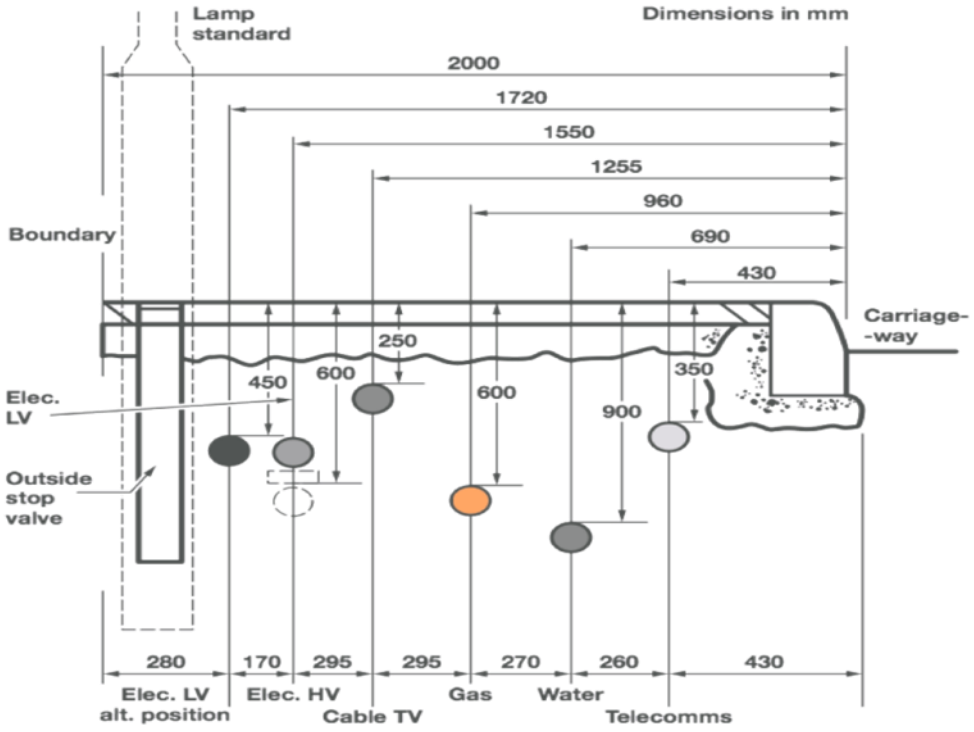
Mechanical excavation must not take place within 500mm of a known service. Banksman must be present at all times when the machine is digging where services may be present. Machine driver to stop digging if the banksman is not present.

All services located must be treated as live until confirmation by the client or the service provider that it has been disconnected. A Written instruction must be obtained before the removal of any redundant services takes place.

360 Excavator will commence digging under the guidance of the banksman either stockpiling the spoil to the side of the hole or loading the spoil into a Dumper to be stockpiled in the agreed designated area on site. (Dumper to be switched off and operator stood to the side whilst being loaded)

Once the tarmac has been removed with the excavator the banksman must carry out hand digging to locate and services traced with the CAT or that are present on the drawings.

Once located the connection hole must be fenced off for protection for pedestrians and segregation from any plant movements. Typical detail below:



After the connection has been completed and the sufficient time allowed for the resin to cure, the hole will be backfilled with the specified material and will be compacted with the whacker plate ready for reinstatement. (operatives must wear ear defenders when on the whacker plate)

Block Paving

Proposed area to be ready for block paving to have a layer of sharp sand spread over it and then compacted with the whacker plate. Sub- contractors using the whacker plate MUST wear ear defenders.

Place screed rods into sand and re-level using a screed timber to the height of the rods.

Place blocks on top of the sand to the desired pattern; cut blocks to the edge to suit. Block cutter to be used to cut the blocks or blocks being cut with the Stihl saw must be conducted under suitable dust suppression whilst wearing full PPE/RPE.

Sub-contractors to ensure the working area is tidy and all wrapping and wire banding is put into a skip.

Brush in Kiln dried sand and compact the blocks so that the Kiln dried sand filters into the grooves of the blocks.

Brush in further Kiln Dried sand until no gaps are left.

Tidy all materials and work equipment away.

Where raised ironworks are present, ensure that a sand and cement mortar mix is utilised to haunch the exterior of the ironworks to mitigate the risk of slip, trips and falls. Further to this highlight the edges by using line marker spray paint.

Where leading edges are present where block paving is to be continued, distribute sharp sand along this edge to form a ramp, again this will significantly mitigate the risk of slip, trips and falls.

It is important to remember whilst in the process of constructing the block paving, we have to maintain safe access and egress at all times for any third parties including pedestrians. Access should be clear and concise with signage, this must also be monitored for suitability periodically ensuring the traffic management plan is updated and communicated.

Slab Laying

Excavate for formation level, load dumper and deposit surplus material to an agreed location. Banksman must be present watching the bucket/ground for evidence of any shallow services.

Compact layer of Type 1 Road stone to proposed slabbed area with the whacker plate. Operatives on the whacker must record their usage time and wear ear defenders at all times. Lay a layer of sharp sand and cement mix together using hand tools.

Place screed rods into sand cement mix and re-level sand cement mix to the height of the rods. In cognisance of installing screed rods, please also ensure that no steel pin is penetrated with 1m of any known service.

Lift slabs on top of the sand to the desired pattern using 2 man lift for large slabs i.e.600mm x 600mm x 50mm, small slabs 450mm x 450mm x 50mm and below can be laid by hand dependant on thickness and weight, level using rubber/wooden mallet, cut slabs to the edge to suit desired pattern. Slabs being cut with the Stihl saw must be conducted under suitable dust suppression whilst wearing full PPE/RPE.

Brush in Kiln dried sand between joints if close butted or point as necessary.

Top soiling front / rear gardens

Ensure no other sub-contractors working in the house can access the mini diggers working area before commencing.

Dumper to bring topsoil to or as close to the gardens for the mini digger to spread the top soil evenly over the garden.

Only competent CPCS registered driver to drive the excavator.

Ensure all scaffolding has been dropped before commencing these works on the front and rear gardens.

Kerb Laying on pre poured kerb brace

Materials are to be collected from designated area by the Forklift / Excavator and placed on level ground as close to the work area as possible.

Engineer to mark out line and level using non-intrusive road pins if possible.

A thin layer of sand/cement mix will be laid on top of kerb brace.

Lay kerbs to the line and level on the pins. Kerbs to be laid by mechanical Kerb lifter attached to excavator or if unable to use excavator use 2 -man kerb lifter.

Kerbs to be fine adjusted by hand and backed up with Lean Mix concrete. Kerb cutting must be carried out under suitable dust suppression whilst wearing full PPE / RPE.

Once the kerbs are at the correct level, they will be backed up using a lean mix concrete.

Tarmacking driveways / footpaths

Segregate area of works with Pedestrian Barriers. (When working within the Highway Chapter 8 signage must be used, this includes sites where residents have moved in even where the road has yet to be adopted).

Tarmac company to deliver tarmac and deposit in an agreed location under guidance from the M&J Traffic marshal.

360 Excavator will then load a Forward Tipping Dumper; the Dumper will take the load to the work area and tip its load.

Another 360 Excavator will start to level the tarmac using the bucket and follow the guidance of their banksman.

Operatives will use rakes to fine finish the levelling of the tarmac and fill in around awkward iron works and paving slabs etc.

A ride on roller will be used to compact the tarmac, the roller will have a water system to cool the tarmac allowing it to harden quicker. Beacon must be switched on.

Where the roller can't reach operatives are to use a Whacker plate to compact. Operatives on the whacker must record their usage time and where ear defenders at all times.

When work has been completed the area is to remain fenced off until the tarmac has hardened sufficiently to allow plant and pedestrians access.

Excess materials will be utilised wherever possible.

If Tarmac needs cutting (for joints) with Petrol Saw dust suppression must be used and full PPE worn by the operative as per Abrasive Wheels Risk Assessment and operatives training.



Housekeeping to be monitored throughout all works.

Once all works have been completed, ensure all tools and equipment have been cleaned and removed. Leave the work area clean & tidy at the end of each working day and that access has been secured for unauthorised access when the site is unattended.

If the above method or anything you are not happy with, **STOP** works, re-assess with your Manager/Supervisor, ensuring any amendments are documented below.

Activity		01. General Groundworks								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Traffic and pedestrians	Traffic and pedestrians	Injury to site personal. Injury to members of the public	5	4	20	Site specific traffic management plans Cone off and sign off working area with Heras fencing and signs. Exclude from working area all persons not involved with the working contract, ensure entrance door is locked at all times. Provide separate entrance to and from site. Delivery vehicles must stop at designated point and report to site office for further directions. Mobile plant and vehicle routes across site to be free of obstructions, unfenced excavations and steep sides.	5	2	10
2	Moving plant and machinery	Striking members of the public (road users)	All Workers	5	4	20	Visibility aids on plant and equipment (Camera's, Mirrors etc). Segregation of plant and pedestrians. No reversing where possible. (reversing warning systems/beepers). Plant movements to be controlled by a nominated banksman. **(Refer to Risk Assessments 21 Use of Mobile Plant and 56 Banking Vehicles and Plant).**			10
3	Mobile Plant	Overturning	Driver	5	4	20	Only trained drivers to operate plant Plant to be fitted where necessary with ROPS. Plant to be equipped with hazard warning lights. (amber beacons). **(Refer to Risk Assessments 20 Use of Dumpers and 35 Using Ride on Rollers).**	5	2	10
4	Underground / Overhead Utilities	Striking cables Contact with obstructions Arcing or contact with overhead power line or underground services Other	Operators / Groundworkers	5	5	25	Utility plans to be consulted. Permit to Excavate to be in Before excavations take place, a ground survey will be undertaken to locate any underground services. CAT/Genny to be used in marking services before breaking ground. No mechanical excavation within 500mm of known service locations. Toothless buckets to be used in suspected utility areas. No mechanical breaking of concrete surrounds without on-site inspection by the utility company. All overhead power cables will be clearly identified. Excavators must not operate within 6 metres of overhead power lines unless a permit to work is issued. **(Refer to Risk Assessment 28 Working Around Live Services).**	5	2	10

5	Cutting/Breaking out Various	Rotating blades Entrapment during use. Lacerations	Injury to site personal	4	4	16	Ensure blade only lowered during cutting. Constant vigilance by operator. Secure locking pin/bracket when raised and not in use. Well maintained equipment with all guards in place. Provision and use of eye protection (impact resistant). **(Refer to Risk Assessment 16 Working with Petrol Disc Cutters).**	4	2	8
		Excavator mechanical peckers - Machine overturning, materials or equipment falling from machine	Persons being endangered by machine operator	5	4	20	Operators will be competent, trained and authorised to use, written evidence will be given, machine to be equipped with hazard warning lights, a minimum clearance of 600mm must be maintained between any slewing or travelling, gain permit to break ground before any works commences.	5	2	10
		Using hand-held hydraulic breakers and Kangos	Weight of breaker when moving	3	3	9	Good handling technique use reasonably practicable breaker to do the work effectively. **(Refer to Risk Assessment 18 Break Out Concrete – Asphalt).**	3	2	6
		Noise from plant / Hearing loss	Driver and Operatives	3	3	9	Regular servicing of vehicles and noise surveys to be conducted. Selection of the correct hearing protection, considering noise reduction factors. Hearing protection issued where necessary. **(Refer to Risk Assessment 29 Noise Control).**	3	1	3
		Vibration - Hand/arm vibration syndrome	Injury to site personal	3	3	9	Establish m/s^2 level and prevent users exceeding recommended time limits. Daily monitoring using HAVS exposure sheet. Anti-vibration handles fitted to breakers. **(Refer to Risk Assessment 16 Working with Petrol Disc Cutters).**	3	2	6
6	Excavation / Excavators	Machine Overturning Materials or equipment falling from machine	Persons being endangered by machine operations	5	4	20	Operators will be competent, trained and authorised to use. Written evidence will be required and filed. Copies of the excavator manufacturer's operator manual will be kept with the machine. Excavators will not be used without a current certificate of thorough examination. The operator will be responsible for ensuring the machine is not misused, is properly maintained in accordance with manufacturer's instructions and reporting of defects. A competent person (normally the operator) will inspect the excavator according to the manufacturer's instructions; the results of the inspections to be recorded. Excavators may only be used as cranes if they comply. The machine operator will ensure that operations do not endanger any person.	5	2	10

							A minimum clearance of 600 mm must be maintained between any slewing or travelling excavator body and any obstruction. Lesser gaps must be fenced. Where members of the public may be affected, the area should be clearly cordoned off, clearly signed to prevent access. **(Refer to Risk Assessment 02 General Excavators).**			
7	Spoil	Spoil collapsing on to road users or excavations	Operators	5	4	20	Operators and plant drivers to ensure that spoil is positioned correctly.	5	1	5

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Provide suit able signage and barriers where necessary.	Prior to works commencing	Contract Manager
1	Site workers to park at designated locations.	Prior to works commencing	Site Foreman/Groundworkers
2	Site specific traffic management plans to be produced by site management team prior to works commencing.	Prior to works commencing	Contracts Manager/Site Foreman
2	All plant and equipment to be assessed and adequate visibility aids to be fitted	Prior to works commencing	Contract Manager/Plant Department
2	Adequate segregation of third parties from work areas and pedestrian routes to be established.	Prior to works commencing and during works	Contract Manager/Site Foreman
3	All mobile plant operators are to show licences before use of plant. Plant to be fitted with appropriate ROPS.	Prior to works commencing	Site Foreman
4	Overhead services are to have accurate cable drawings available. Where possible these areas to be made dead before works commence. If not, then no work is to be carried out in the vicinity without appropriate measures being taken to prevent equipment hitting cables or safe routes being established to travel.	Prior to works commencing	Contract Manager/Site Foreman
5	Competent and authorised operator.	Prior to works commencing	Site Foreman
5	Correct choice and fitting of blades.	Prior to works commencing	Groundworkers
5	Where members of the public may be affected, the area should be clearly cordoned off and clearly signed to prevent access.	Prior to works commencing	Site Foreman
5	Noise surveys are to be regularly conducted and plant serviced at correct intervals. Hearting protection to be issued where necessary as advised by Safety Advisor.	During works	Site Foreman and Plant Manager
5	Limit use/exposure by rotating working.	During works	Site Foreman
6	A banksperson to be appointed to mitigate persons encroaching into the slew/danger zone(s).	Prior to works commencing and during works	Site Foreman
7	Spoil heaps to be positioned away from excavation edges and the sides battered sufficiently to prevent collapse.	During works	Site Foreman

Activity		02. General Excavators								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Lack of Operative Training and Familiarity with Machine	Serious injury or death due to crushing or overturning	Operators Others in the vicinity	5	5	25	Operators to be properly trained in the operation of 360 excavators and hold the relevant CPCS/NPORS card for category of plant. Operators must be over the age of 18 years. When driving on Public roads the driver should have the correct DVLA Driving Licence entitlement to drive vehicles of the weight been driven. All operators are to read and familiarise themselves with the operating instructions supplied with the machine.	5	2	10
2	Lack of Operative Training and Familiarity with using a Machine for Lifting Operations	Serious injury or death due to crushing or overturning	Operators Others in the vicinity	5	5	25	For lifting operations, operators must also provide proof of both training and competence for using excavators as cranes. This will include knowledge and skills relating to: pre-lift checks; differences between various lifting accessories or machine attachments (e.g. quick hitches); load connection procedures; interpreting the machine's lifting duties limitations at varying radii, over the front, side and rear of the machine (dozer blade up or down); travelling with a load; and load disconnection procedures. **(Refer to Risk Assessments 25 Use of Quick Hitch Devices and 51 Use of an Excavator as a Crane).**	5	2	10
3	Defects and Maintenance to the excavator	Serious injury or death due to defects	Operators	5	4	20	Carry out service checks and adjustments at the start of each working day with the engine shut down and the boom lowered to the ground. CHECK that all guards and covers are secure before starting. NEVER operate the excavator with missing guards or covers. If warning lights show or gauges register outside normal limits, switch off the engine.	5	2	10
4	Moving plant and machinery	Striking members of the public (road users)	All Workers	5	4	20	Site specific traffic management plans. Visibility aids on plant and equipment. Segregation of plant and pedestrians. No reversing where possible. All vehicle movements to be controlled by a	5	2	10

							banksman. **(Refer to Risk Assessment 56 Banking Vehicles and Plant).**			
5	Overhead & buried services	Utility strike	Operators	5	5	25	No working/passing beneath cables without cables being dead or safe routes being established. Underground utility risk to be controlled by use of Permit to Break Ground **(Refer to Risk Assessment 28 Working Around Live Services).**	5	2	10
6	Mobile Plant	Overturning	Driver	5	4	20	Plant to be fitted with FOPS.	5	1	5
7	Noise from plant	Hearing loss	Driver and Operatives	3	3	9	Regular servicing of vehicles and noise surveys to be conducted. Hearing protection issued where necessary. **(Refer to Risk Assessment 29 Noise Control).**	3	1	3
8	Spoil	Spoil collapsing on to pedestrians or excavations	Operatives	5	4	20	Operators and plant drivers to ensure that spoil is positioned correctly.	5	1	5
9	Excavations	Falling into excavations	Operatives	4	3	12	Excavations are clearly marked and segregated.	4	2	8
10	Excavations	Excavation collapse	Operatives	5	4	20	Appropriate excavation control measures to be employed.	5	2	10
11	Excavations	Suffocation	Operatives	5	4	20	Atmosphere to be tested where appropriate.	5	1	5

Additional Control Measures or Action Required Prior to Activity Commencement

No	Control or Action Required	Time Scales	Person to Complete Action
1	Before starting an engine, the operator to familiarise himself on how to stop it.	Prior to works commencing	Operator
3	Ensure the Excavator is serviced as per manufacturers recommendations or hired from a reputable company.	Prior to and During works	Site Foreman/Operator
4	Site specific traffic management plans to be produced by site management team prior to works commencing.	Prior to works commencing	Contract Manager/Site Foreman
4	All plant and equipment to be assessed and adequate visibility aids to be fitted.	Prior to works commencing	Site Foreman/Plant Department
4	Adequate segregation of third parties from work areas and pedestrian routes to be established.	Prior to works commencing	Contract Manager/Sie Foreman
5	Overhead services are to have accurate cable drawings available. Where possible these areas to be made dead before works commence. If not, then no work is to be carried out in the vicinity without appropriate measures being taken to prevent equipment hitting cables or safe routes being established to travel.	Prior to works commencing	Contract Manager/Site Foreman
6	All mobile plant operators are to show licences before use of plant. Plant to be fitted with appropriate FOPS.	Prior to works commencing	Site Foreman
7	Noise surveys are to be regularly conducted and plant serviced at correct intervals. Hearting protection to be issued where necessary as advised by H&S Advisor.	During works	Site Foreman/Plant Department
8	Spoil heaps are to be positioned away from excavation edges and the sides battered sufficiently to prevent collapse.	During works	Site Foreman
9	All excavations are to be segregated where possible and clearly identified with signs/fencing/other measures suitable.	During works	Site Foreman
10	Excavations are to be assessed for soil type, weather conditions, depth of excavation, proximity to buildings etc. and appropriate measures taken to ensure sides of excavation are protected from collapse from either battering, shoring or benching.	Prior to works commencing	Site Foreman
11	Gas checks are to be taken where appropriate before entering excavations. No petrol- or diesel-powered equipment to be used in excavation. Vehicles and plant not to be positioned next to excavations.	Prior to and during works	Site Foreman/Operators

Activity	04. Vehicle Access to Site									
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Moving plant and machinery	Striking members of the public (road users)	All Workers	5	4	20	Site specific traffic management plans. Visibility aids on plant and equipment. Segregation of plant and pedestrians. No reversing where possible. Banksman to control access/egress.	5	2	10
2	Excavations and uneven ground	Overturning of vehicles	Public	5	4	20	Site specific transport plan to be adapted.	5	1	5
3	Traffic Management	Working with live traffic.	Public/workers	5	4	20	A traffic management system will be employed to all areas of work on the public highway.	5	1	5
4	Entrance to site compound	Mud and debris on public highway	All road users	5	4	20	Routes to be carefully positioned to prevent this. Vehicle wheel washes to be employed where necessary.	5	1	5
5	Vehicles/deliveries	Blocking public highway or site entrance	All road users	3	4	12	Site rules and monitoring.	3	1	3

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Site specific traffic management plans to be produced by site management prior to works commencing.	Prior to works commencing	Contract Manager/Site Foreman
1	All plant and equipment to be assessed and adequate visibility aids to be fitted.	Prior to works commencing	Site Foreman/Plant Department
1	Adequate segregation of third parties from work areas and pedestrian routes to be established.	Prior to works commencing	Site Foreman
2 & 3	Fencing should be erected around excavations and site areas to prevent access to the area. Fencing should be minimum of 2m high with appropriate warning signs displayed.	Prior to works commencing	Contract Manager/Site Foreman
4	Routes to be carefully positioned to prevent this. Vehicle wheel washes to be employed where necessary.	Site set up	Contracts Manager & Site Foreman
5	Site rules to state no stopping/deliveries at entrance & monitoring by site team to enforce rules.	During works	Site Foreman

Activity	05. Use of Power Tools									
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Hand-held power tools	HAVS	Operator	4	4	16	HAVS surveys and pre-use tool assessments and usage times determined and briefed to operatives. Daily monitoring using HAVS exposure sheet.	4	1	4
2	Hand-held power tools	Dust and debris	Operator	4	3	12	Dust suppression systems to be used Appropriate PPE/RPE eye, face and FFP3 masks to be used. Operatives must be face fit tested into the make and model of mask being worn. Dust masks to be disposed of after use. **(Refer to Risk Assessment 26 General PPE).**	4	1	4
3	Hand-held power tools	Noise induced hearing loss	Operator	4	3	12	Assessment made on noise levels and appropriate hearing protection to be worn if required. **(Refer to Risk Assessment 29 Noise Control).**	4	1	4
4	Hand-held power tools use in cold climate	Increased risk of HAVS	Operator	4	3	12	Thermal gloves to be worn.	4	1	4
5	Hose/cables	Tripping	Pedestrians	3	3	9	Hoses/cables to be visible, hose runs to be positioned appropriately and shortest run used possible.	3	1	3

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
0	Refer to Risk Assessment 16 Working with Petrol Disc Cutters.	Prior to works	Site Foreman/Operatives
1	Equipment must be assessed. Time limits must be defined, and operators informed.	During works	Site Foreman
2	Dust suppression systems to be used. Appropriate eye, face, ear and mouth PPE to be used.	During works	Site Foreman and operator
3	Regular noise surveys will be conducted by Site Foreman. Appropriate hearing protection to be used where surveys show necessity.	During works	Site Foreman & Operator
4	Thermal gloves to be issued and worn during use.	During works	Site Foreman and operator
5	Hoses/cables to be visible, hose runs to be positioned appropriately and shortest run used possible.	During works	Operatives

Activity		07. Excavation & Underground Services								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Excavating near buried services	Striking buried services	Operator	5	4	20	Utility plans to be consulted. Permit to Break Ground to be in place before breaking ground. No mechanical excavation within 500mm of known service locations. Toothless buckets to be used in suspected utility areas. No mechanical breaking of concrete surrounds without on-site inspection by the utility company. CAT/Genny to be used in all modes. The line of all services marked out before breaking ground. **(Refer to Risk Assessment 28 Working Around Live Services).**	5	2	10
2	Collapse of trench on to service	Service damage	All	4	3	12	Ensure excavations are adequately supported and marked. **(Refer to Risk Assessment 31 Temporary Works (Excavations)).**	4	1	4

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Full scan of area prior to excavating and drawings obtained from service providers. Services to be made dead where possible. Permit to Dig to be issued by the Site Foreman and used. If any suspect services are identified, hand dig around services with insulated tools.	During works	Site Foreman
2	Excavations to be securely supported and marked.	During works	Site Foreman

Activity		12. Site Materials Storage								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Site boundary	Access by Public	Public	5	4	20	Adequate warning signs and segregation systems to be employed.	5	1	5
2	Pallets of materials	Items falling	All	4	4	16	Store on level surfaces. Unload to avoid loose items. Double check before leaving the pallet that there are no unsafe items. Use suitable equipment to move the pallets i.e. pallet forks. Palletised materials to be fenced off with fencing set back at a distance greater than the height of the stored materials. **(Refer to Risk Assessment 49 Storage of Loose & Palletised Materials on Sites).** Manual lifting should only be carried out if the individual has properly assessed the lift and has taken into consideration the risks associated. Heavy items such as kerbs or ironworks should involve mechanical lifting or multiple persons – Seek advice. **(Refer to Risk Assessment 08 General Manual Handling).**	4	2	8
3	Pallets of materials	Vehicles/plant/ pedestrian impact	All	4	4	16	Fence off materials. No materials to be left within live highways or footpaths. Main material storage to be sited in the compound. Only materials required for the immediate work in hand should be stored at the workface providing that there is enough room.	4	2	8
4	Fluid materials	Environmental spillage	All	4	5	20	Fuels to be stored in lockable bowser/container suitable for that fuel. Bunded bowsers are to be used for gasoil storage. COSHH materials to be stored in a lockable COSHH cabinet within the steel stores. Spill kits and COSHH data to be kept with material.	4	1	4
5	Aggregates	Loose materials	Workplace	3	3	9	Tipped aggregates should be fenced off to avoid contact with highway & pedestrian areas. Loose materials should be swept up as usage occurs. Finer materials at risk of generating windblown dust (not envisaged) may need to be covered.	3	1	3
6	Waste	Refuse contamination of site	Site	4	3	12	Office/canteen waste to be disposed of in sealed bin liners to licensed refuse tip. Spoil/aggregates etc to be disposed of should be	4	1	4

							stored as (5) above. There will be limited storage available, so regular disposal is to take place.			

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Fencing should be erected around excavations and site areas to prevent access to the area. Fencing should be minimum of 2m high with appropriate warning signs displayed.	Prior to works commencing	Contract Manager/Site Foreman
2, 3 & 4	The site compound is positioned and laid out so that materials are stored in an appropriate manner in dedicated areas. Site management teams are to inspect these areas daily to ensure conformity with site set up plan. Materials are to be locked away where possible. Security systems and services to be employed in addition, if required.	Site set up	Contract Manager/Site Foreman
5	Skips are to be covered and secured, emptied on a regular basis.	Site set up & during works	Site Foreman & Operatives

Activity	14. Using Plate Compactors (Wacker Plate)									
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Lack of operatives training experience and competence	Crushing and manual handling injuries, occupational deafness & inability to hear instructions, vibration white finger.	Operatives	4	4	16	Operators must ensure they are familiar with the type/make/model of before use. Use PPE as necessary when operating, including boots, goggles & hearing protection. Dust mask or respirator. No lose clothing. **(Refer to Risk Assessment 26 General PPE).**	4	2	8
2	Inspecting vibrating plate compactor	Equipment damage, equipment will not start. Burns to hands. Spill fuel or oil to ground, or equipment damage.	Operatives	4	4	16	Operators must carry out visual pre-start checks daily and record weekly checks. To prevent caught/crush injuries, maintain guards on moving parts and at pinch points. Inspect pull cords and handles for damage or wear before each use. Defects must be reported to Supervisor. Check the fuel level. Check the engine oil level. Inspect the fuel lines, the air filter and replace it if needed. Check and tighten the external hardware.	4	2	8
3	Transport and storage	Loss of load related accidents. Possible fire. Damage to equipment and the environment.	Employees and the general public	4	4	16	Plate Compactor must be secured during transport and fuel tanks protected against rupture. Transport fuel only in approved, labelled containers. Store in upright position only. Compactors should be mechanically or tandem lifted when loading and un-loading, use loading ramps, integrated wheels, or get help when loading and unloading machines. Allow equipment cool before transport and storage.	4	2	8
4	Use of fuelled equipment	Inhalation of petrol vapour, fire/ explosion risk	Employees and the general public	4	3	12	Do not smoke. Do not refuel with engine running, near water courses, or while engine is hot.	5	1	5

							Always use correct fuel. Ensure you use a funnel or fuel spout when re fuelling. Do not over fill.			
5	Operation	Various injuries including broken bones, cuts and bruises	Employees	4	4	16	Choose machines with safety bars or switches that stop the machine if the operator lets go. Stand the machine on a level surface before starting the engine. Practice good starting techniques. Keep a firm grip on the handle when pulling. Pull with just enough force to start the machine. Do not pull excessively. Ensure oil level is correct or the machine will not start. Look where you place your other hand while pull starting. Do not place it on hot surface of plate compactor or near any pinch point areas. After starting the engine, hold the handle firmly and adjust the revs until an even operation is achieved. End of task - Throttle machine down and idle for about 3 minutes. Do not leave the machine unattended with the engine running. Turn equipment off.	4	2	8
6	Handling	Manual handling injuries and musculoskeletal disorders,	Operatives	3	4	12	Know your own strength do not operate if you think that it is beyond your capability. To avoid strains and sprains, maintain proper posture and a straight back when walking behind the compactor. Adjust steering handles/wheels to fit your height and arm length without hunching over or reaching up. Keep equipment controls close to your body with your arms at about waist height. **(Refer to Risk Assessment 08 General Manual Handling).**	3	2	6
7	Noise	Occupational deafness & inability to hear instructions. Vibration white finger,	Employees and the general Public	3	4	12	Look for noise hazard warning labels/tags. Use hearing protection when operating noisy machines. You MUST wear approved ear defenders. i.e. **Ear plugs or muffs** (issued by your supervisor).	2	4	8
8	Vibration Levels	Hand Arm Vibration Syndrome	Operatives	4	3	12	Extended use of a vibrating compactor can lead to HAV syndrome, an ergonomic injury causing damage to finger circulation and nerves. Symptoms include numbness, pain, and blanching (light skin colour). Ensure modern HAVS suppressed equipment is procured and used. Review compactor instructions for vibration level ratings and maximum usage times. Operatives should be aware of any vibration time limits for the breaker being used. Keep clear records of what tools you have used and record daily usage times – these will be monitored, and work	4	2	8

							patterns may change. Rotate labour on work activities to prevent prolonged exposure. Job share to ensure operators do not exceed stated duration. Gloves to be worn to keep hands warm and reduce vibration damage.			
9	Environment issues	Environmental damage	Environment	3	4	12	Fuel spills must be contained and cleared using proprietary spill kits or approved absorbent material. Training/guidance of spill kits.	3	2	6

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Look for the important data found on the plate located on the machine	Prior to works commencing	Site Foreman & Operator
2	If inspecting a previously used compactor the engine and other components may be hot. Wear leather gloves and do not touch any hot surface. If any leaks are detected, do not use the machine. Place it out of service and contact your supervisor.	Prior to works commencing	Operator
3	General purpose gloves should be worn to protect hands from cuts, abrasions and burns from hot exhausts and engines.	Prior to works commencing	Operator
4	Ensure COSHH information is available, understood, and the proposed controls are in place	Prior to works commencing	Site Foreman & Operator
5	Be aware of the surrounding work environment avoid being trapped or crushed against trench sides, solid objects, etc. Look where you are walking. Look where you place your feet. Do not walk in front of compactor while it is on. Avoid working across steep slopes always work up or down slopes	During Works	Operator
6	Compactors are HEAVY. Don't lift, wiggle, or force their movement	During Works	Operator
7	Make sure there is a noise assessment for that type of tool. Check surrounding area for other operatives.	Prior to and During Works	Site Foreman & Operator
8	Always confirm with the manufacturer guidance to ascertain the Vibration Magnitude of the particular model of compaction plate	Prior to works commencing	Site Foreman & Operator
9	When operating, be aware of effect on adjacent buildings and underground apparatus.	During Works	Operator

Activity		20. Use of Dumpers								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Un-trained person driving dumper	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	4	20	Only trained or suitably qualified personnel will be allowed to drive or use the dumper. Personnel will ensure that people operating the dumper are trained.	5	1	5
2	Defects and Maintenance	Serious injuries from work equipment defects including death	Members of the public (road users) Operatives Drivers	5	4	20	Carry out defect inspections and adjustments at the start of each working day and complete inspection records Ensure the Dumper is serviced as per manufacturers recommendations or hired from a reputable company	5	1	5
3	Access and Egress	Broken bones, cuts, abrasions, and bruises	Drivers	4	3	12	Drivers must use the hand and footholds when mounting and dismounting plant. Drivers should ensure footwear is in a clean fit state (i.e. not covered in mud) before mounting and operating a dumper	4	1	4
4	Starting a Dumper	Various injuries from Site Accidents including death	Members of the public (road users) Operatives Drivers	4	4	16	CHECK before starting the dumper that the gear lever is in neutral with the hand brake on. Only start and operate the machine when sitting in the driver's seat.	4	2	8
5	Driving around site Driving too fast	Hitting vehicles Causing death	Members of the public (road users) Operatives Drivers	5	4	20	The dumper must be driven at a speed that allows complete control of the vehicle at all times. Traffic routes to be obeyed. Flashing light to be on whilst in use Audible reverse tone to be operational DO NOT carry passengers on the dumper. Lap belts to be worn by operators at all times Extreme care must be taken when driving on or across slopes The hand brake must be applied whenever the dumper is parked. DO NOT get off a dumper when it is still in motion. DO NOT alter tyre pressures in an attempt to improve traction. DO NOT drive with the skip in the tipped position.	5	2	10
6	Loading/Projecting Loads	Various injuries from RTC's or Site Accidents including death	Members of the public (road users) Operatives Drivers	5	4	20	When the dumper is being loaded by an excavator or loader, the operators must dismount and stand well clear. Where possible, load the dumper on level ground with the parking brake on and the gear in neutral. DO NOT obscure the line of sight from the driving position with the load. When loading the skip, ensure that the load is not overloaded above the skip, evenly distributed and levelled. DO NOT load a partially tipped skip.	5	2	10

							Projecting loads MUST be securely fixed, and flags should be attached. Special care should be taken to avoid these loads touching obstructions and the ground.			
7	Tipping objects	Crush injuries Impact injuries Spill incidents	Members of the public (road users) Operatives	5	3	15	Operatives will not stand in front of the dumper during tipping operation. Driver will ensure that all personnel are clear of the tipping area. Use STOPBOARDS and SUPPORT walls on trenches. Drivers SHOULD NOT operate the site dumper's controls unless seated in the driving position. Hard hat, Safety Boots and High viz vest/jacket to be worn at all times on site.	5	2	10
8	Moving objects around	Crush injuries Impact injuries Falling objects	Members of the public (road users) Drivers	5	4	20	Hands, arms, limbs and feet will be kept clear of any tipping procedures.	5	2	10
9	Leaving keys in dumper	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	3	15	Keys will be removed from the dumper when it is not in use. Dumper will not be used unless the correct key is available to operate the machine.	5	1	5
10	Un-authorised person driving dumper	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	2	10	Dumper to be kept in secure area when not in use. Keys to be removed when not in use. Ensure that only approved people are driving the dumper.	5	1	5
11	Plant Rolling Over Slopes and inclines	Death from Crushing	Drivers	5	4	20	Roll-over protection (ROP) is required. Lap belts are required and are to be worn by operators at all times. Drivers SHOULD NOT drive on gradients steeper than those specified as safe for the specific dumper in the manufacturer's instructions. DO NOT exceed maximum stated gradients DO NOT turn across gradients DO NOT run downhill with controls in neutral	5	2	10
12	Driving whilst under the influence of alcohol or drugs	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	3	15	No person known or suspected of being drunk whilst on site will be tolerated. Personnel known or seen to be under the influence of alcohol will sent from site and may result in dismissal. Drug use can be difficult to detect but should a person be suspect inform Operations Manager of his conduct.	5	1	5
13	Driving with undue care and attention	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	4	20	Drivers will be aware of their surroundings. Attention will be paid at all times to traffic routes, loading areas, unloading areas and general driving. Mobile communication and other portable listening devices are not to be used when operating a dumper. Drivers seen not to taking due care and attention whilst	5	2	10

							driving will be banned from using the dumper and possibly dismissed.			
14	Refuelling	Fire and resultant damage and burns/Slips and Trips on spillages	Drivers Operatives	4	4	16	DO NOT smoke when refuelling. NEVER refuel with the engine running. Replace the fuel caps securely on the engine and fuel container. Drip trays must be located at refuelling points. Spill kits must available at refuelling points.	4	1	4
15	Use on public highway	Crush injuries Impact injuries	Members of the public (road users) Drivers	4	3	12	For use on public highway must be taxed and registered.	4	1	4

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Only trained personnel will be allowed to drive the dumper. They should be able to provide evidence of such training.	Prior to driving	Site Foreman and dumper driver
2	Plant will be checked on arrival to ensure that reverse tone is working, flashing light is working and that the dumper is in good working order. Any problems or faults will be reported immediately to the Operations Manager. If numerous faults are recorded the item should be sent back to the supplier	Immediately on arrival to site	Site Foreman and dumper driver
3	Signs displaying the speed limit will be erected. Ensure drivers are aware of the speed limit for the site	Prior to driving	Site Foreman to ensure signs are erected
5	All personnel will ensure that they obey the speed limit for the site. 5 mph at all times. Lapbelts must be worn.	All times	Dumper driver
6	DO NOT overload, this can damage the vehicle and its tyres, and make it dangerous to drive	All times	Dumper driver
7	Personnel will make note of the loading and unloading area, stores, traffic routes and general site layout.	Prior to driving	Dumper driver
7	Ensure that no one stands in front during the tipping operation.	During works, ongoing	Dumper driver
7	Ensure view is clear and unobstructed	All times	Dumper driver
9	Never leave keys in an unattended Forklift and always ensure that a key is used to operate the Dumper.	All times	Dumper driver and Site Foreman
11	Drivers need to take extra care when moving on sloping ground and particularly if the ground is rough or uneven. Avoid slopes that exceed the vehicle's capability. When travelling with the skip loaded, reverse down slopes to ensure good stability and traction. If turning is unavoidable when travelling across slopes, turn uphill, not downhill.	All times	Dumper driver
11	Drivers to be briefed into HSE Publication Construction Information Sheet No 52 Construction site transport safety: Safe use of site dumpers.	Prior to driving	Site Foreman
13	Whilst Dumper is in use monitor on occasions the attitude and skill of the driver	Ongoing	Site Foreman
14	Contain and Wipe up any spillages immediately.	During works, ongoing	Dumper driver
14	Notify Site Manager immediately of any spills or leaks.	During works, ongoing	Dumper driver
1-15	Refer to Risk Assessment 21 Use of Mobile Plant.	Prior to driving	Site Foreman and dumper driver

Activity		21. Use of Mobile Plant								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Driving around site	Hitting vehicles Causing death	Members of the public (road users) Operatives Drivers	5	4	20	Speed limit to be obeyed. Traffic routes to be obeyed. Flashing light to be on whilst in use Audible reverse tone to be operational	5	2	10
2	Storage areas	Crush injuries Impact injuries Spill incidents	Members of the public (road users) Operatives	5	3	15	Personnel will ensure that all personnel are clear of the storage area(s). Operatives will not stand in front of the mobile plant.	5	2	10
3	Moving objects around	Crush injuries Impact injuries Falling objects	Members of the public (road users) Drivers	5	4	20	Hands, arms, limbs and feet will be kept clear.	5	2	10
4	Leaving keys in plant	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	2	10	Keys will be removed from the plant when it is not in use. Mobile plant will not be used unless the correct key is available to operate the machine.	3	1	3
5	Un-trained person operating mobile plant	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	3	15	Only trained or suitably qualified personnel will be allowed to drive or use the plant.	5	1	5
6	Un-authorised person operating mobile plant	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	2	10	All mobile plant to be kept in secure area when not in use. Keys to be removed when not in use. Ensure that only approved people are operating mobile plant.	5	1	5
7	Driving too fast	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	4	20	All personnel will ensure that they obey the speed limit for the site. 5 mph at all times. Seatbelt will be worn at all times.	5	2	10
8	Driving whilst under the influence of alcohol or drugs	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	2	10	Personnel known or seen to be under the influence of alcohol will sent from site. Will result in dismissal. Drug use can be difficult to detect but should a person be suspect inform Operations Manager of his conduct. No person known or suspected of being drunk whilst on site will be tolerated.	5	1	5
9	Driving with undue care and attention	Hitting vehicles Causing death Crush injuries Impact injuries Falling objects	Members of the public (road users) Operatives Drivers	5	4	20	Drivers will be aware of their surroundings. Attention will be paid at all times to traffic routes, loading areas, unloading areas and general driving. Drivers seen not to taking due care and attention whilst driving will be banned from using mobile plant and maybe dismissed.	5	2	10

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Signs displaying the speed limit will be erected.	Prior to driving	Site Foreman to ensure signs are erected
1	Personnel will make note of the loading and unloading area, stores, traffic routes and general site layout.	Prior to driving	Operator
1	Plant will be checked on arrival, to ensure that reverse tone is working, flashing light is working and that the plant is in good working order. Any problems or faults will be reported immediately to the Operations Manager. If numerous faults are recorded the item should be sent back to the supplier	Immediately on arrival to site	Site Foreman and Operator
2	Ensure that no one stands in front during the tipping operation.	During works, ongoing	Operator
3	Ensure view is clear and unobstructed	All times	Operator
4	Never leave keys in an unattended plant.	All times	Operator and Site Foreman
5	Only trained personnel will be allowed to operate mobile plant. They should be able to provide evidence of such training.	Prior to driving	Site Foreman and Operator
7	Ensure drivers are aware of the speed limit for the site	Prior to driving	Site Foreman and driver
9	Whilst mobile is in use monitor on occasions the attitude and skill of the driver	Ongoing	Site Foreman

Activity	25 Use of Quick Hitch Devices									
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Manual Handling	Personnel injury	Operator	5	4	20	All handling carried out using mechanical plant where possible, with team lifting and manual handling training to be carried out.	5	1	5
2	Replacing safety pins detritus from interface with grease and oils	Dermatitis and hand injuries	All	4	3	12	Good personnel Hygiene PPE gloves to be worn at all times when handling securing pins and safety pins.	4	1	4
3	Failure to replace safety pin	Death serious injury, property damage	All	5	5	25	Training in the use of quick hitches for all operatives with the possibility of working with. Management checks to be carried out daily to ensure that safety pins are replaced at all times.	5	2	10
4	Lifting bucket of machine over operatives	Death serious injury from failing quick hitches	All	5	5	25	Work not to be carried out without a method statement to ensure that works never have to go directly over the heads of operatives. Training for operators and ground workers on the importance of not traversing over the heads with suspended loads or buckets	5	2	10
5	Failure of quick hitches from lack of maintenance	Death serious injuries and property damage	All	5	5	25	Daily checks to be carried out by the operator with weekly documented checks to be handed in to site management. Operatives trained to maintain and spot problems with the quick hitches	5	2	10
6	Working in the vicinity of an excavator	Death & serious injury	All	5	5	25	Operatives to be briefed not to work in and around excavators without prior planning. The site management need to ensure that only trained operators work in and around machines.	5	2	10
7	Impact	Failure of quick hitch leading to death & serious injury	All	5	5	25	Remove persons from the area ensure that correct work method is adopted with management checks carried out daily.	5	2	10
8	Untrained operators using quick hitches	Death & serious injuries	All	5	5	25	All operators need to be trained in the safe usage of quick hitches with management checks and close supervision of newly trained operatives	5	2	10

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Daily checks to be carried out to ensure that securing pins and safety pins are replaced at all times with any pins found to be missing to be replaced immediately with excavators stood until fit for purpose.	During works	Site Foreman
2	Operator checks to be carried out with any defective equipment stood.	During works	Site Foreman /driver
3	Defective hired in machines shall be stood until such time as defects are remedied.	During works	Site Foreman

Activity		26. General Personal Protective Equipment								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Falling objects or contact with solid objects 	Head Injuries	Operatives Other Contractors & Visitors	5	4	20	Safety helmets to be worn at all times by all personnel. - **Head protection to EN397.** Safety Helmets to be secured with chin straps when works are carried out at height. Operatives to inspect helmets daily for signs of wear and damage. Compliance to be monitored and re-briefing undertaken where necessary.	5	1	5
2	Injuries to Feet / ankles – from slips / trips and falling objects 	Broken bones, Cuts, abrasions and bruises	Operatives Other Contractors & Visitors	4	4	16	Wear high ankle boots with toe protection and good treads on soles. Boots to have steel toe cap, mid sole protection and oil and heat resistant soles – **Foot Protection to EN ISO 20345.** 'Shoe' type safety footwear only to be issued on medical grounds to personnel undertaking low risk activities.	4	2	8
3	Collision with moving vehicles and Sun Exposure 	Serious injury or death, / Skin Cancer	Operatives Other Contractors & Visitors	5	4	20	All operatives to wear clean Hi-Viz vest or coat at all times – **EN ISO 20471 Class 2/3.** when working. Vests and Coats to be always fastened at the front. A 'T' Shirt must be worn as a minimum under High Vis vests. No Bare Chests.	5	2	10
4	Leg Injuries 	Cuts and Grazes Concrete Burns Sun Exposure / Skin Cancer	Operatives Other Contractors & Visitors	4	5	20	All operatives to wear trousers at all times to protect the lower legs and help guard against the risks from cuts, grazes, splinters, concrete burns and UV Radiation etc.	4	2	8
5	Loose flying materials 	Eye Damage Injuries to eyes	Operatives Other Contractors & Visitors	4	5	20	Wear eye protection - **EN166-B** where there is a risk of flying fragments or ejected material when operating power tools such as Stihl Saws and adhere to Method Statements. Do not enter zones where others are carrying out works where there is a risk of loose flying materials.	4	2	8
6	Excessive noise levels 	Hearing Damage	Operatives Other Contractors & Visitors	4	4	16	Wear ear defenders - **Ear muffs EN 352-1: 2002 & Ear plugs EN 352-2:2002**, when you cannot hear a colleague speak from 2m away or when advised that background noise levels exceed First action level 80db(A) which is advisory or Mandatory over 85dB(A) and adhere to Method Statements.	4	2	8

7	Damage to mouth and lungs from exposure to dust or fumes 	Breathing difficulties / Silicosis	Operatives Other Contractors	4	5	20	Wear a dust mask – **EN 149 (minimum FFP3),** where you or persons close to you are carrying out tasks that create dust. Wear a chemical mask and filter if specified in the COSHH assessment and adhere to Method Statements. Everyone who wears Respiratory Protective Equipment (RPE) must be face fit tested to make and model of mask being worn.	4	1	4
8	Contact with sharp edges and harmful substances 	Cuts, abrasions and dermatitis	Operatives Other Contractors	3	5	15	Wear leather rigger gloves for abrasive works. Wear PVC gloves for works with chemicals. - **Protective gloves to EN420 (basic protection), or EN388 (mechanical hazards).** Keep forearms covered to avoid exposure. Change gloves if contaminated with chemicals.	3	2	6
9	Electrical service damage when undertaking trial holes 	Flash Burns	Operatives	5	5	25	In potential high-risk environments e.g. when working around live electric cables, wear flame retardant overalls - **EN ISO 11612.**	5	1	5

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Safety Helmets must comply with EN397 2012, ensure mandatory signage is displayed. Compliance to be monitored and re-briefing undertaken where necessary.	Prior to and during works commencing	Site Foreman
2	Safety Boots must comply with EN ISO 20345:2004, ensure mandatory signage is displayed. Compliance to be monitored and re-briefing undertaken where necessary.	Prior to and during works commencing	Site Foreman
3	High Vis garments must comply with EN 471:2003 – As Amended 2007, ensure mandatory signage is displayed. A suitable sunscreen should be applied to exposed areas in Hot Sunny weather. Compliance to be monitored and re-briefing undertaken where necessary.	Prior to and during works commencing	Site Foreman
5	Eye protection to EN 166:2001, Refer to and brief specific COSHH Assessments. Compliance to be monitored and re-briefing undertaken where necessary.	Prior to and during works commencing	Site Foreman
6	Hearing protectors - Ear muffs EN 352-1: 2002 & Ear plugs EN 352-2:2002, Compliance to be monitored and re-briefing undertaken where necessary	Prior to and during works commencing	Site Foreman
7	Filtering facepieces against particles EN 149:2001 - Amended 2009. Minimum FFP3 Dust Mask and must be face fit tested. Refer to and brief specific COSHH Assessments. Compliance to be monitored and re-briefing undertaken where necessary.	Prior to and during works commencing	Site Foreman
8	EN 420:2003 - General requirements for gloves. Corrected 2007, Amended 2009. Refer to and brief specific COSHH Assessments. Compliance to be monitored and re-briefing undertaken where necessary.	Prior to and during works commencing	Site Foreman
9	Appropriate layering of flame resistant (FR) garments - EN ISO 11612, can give optimal protection, buying wearers critical extra seconds to react in hazardous situations. Compliance to be monitored and re-briefing undertaken where necessary.	Prior to and during works commencing	Site Foreman

Activity		28. Working Around Live Services								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Buried apparatus	Burns, injury from explosion	All	5	4	20	Consideration should be given to the use of alternative methods before working around live services, such as Vacuum Excavation or Soil Pick. Consult the utility owner before undertaking the work. A GPRS scan is preferable as a reference document but cannot be relied upon for ultimate surety. Service plans consulted prior to works commencing, Permit to Break Ground system in operation, area CAT scanned in all modes including: - Avoidance - Induction and/or direct connection with the Genny. - Power and; - Radio; Ensure all services are clearly marked on the ground with colour spray, chalk or pegs. Hand dug trial holes (every 5meters where practicable) to locate exact position and line of apparatus.	5	2	10
2	Buried apparatus	Burns, injury from explosion	All	5	3	15	Protection measures to be put in place to protect apparatus from vehicles traversing their location; Fencing to be erected to ensure that vehicles cross in the designated locations. No mechanical excavation within 500mm of known or suspected service locations. Do not dig directly over the line of the services, dig to the side. Excavation outside of service zones may be by mechanical means but equipped with toothless buckets. No breaking plant to be used adjacent to service locations. No breaking of concrete protection unless under the supervision of the utility company.	5	1	5
3	Collapse of trench onto service	Service damage	All	4	3	12	Ensure excavations are adequately supported. Where services require support, timber members are to be used with ropes or cable ties. **(Refer to Risk Assessment 31 Temporary Works (Excavations)).**	4	1	4

4	Overhead Cables	Striking cables	Operators	5	5	25	No working/passing beneath cables without cables being dead or safe routes being established; Contact utility apparatus owner to determine safe working clearances. Goalposts with pictorial signs to be erected at the correct height and lateral clearances.	5	2	10

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Refer to Risk Assessment 33 Hand Excavation and Trial Holes.	Immediate	Site Foreman
1-3	HS(G) 47 to be consulted where power cables are present.	Immediate	Site Foreman
4	GS6 to be consulted where overhead power cables are present.	Immediate	Site Foreman

Activity	29. Control of Noise Pollution									
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Noise from delivery vehicles	Nuisance	Neighbouring properties	2	3	6	All suppliers and trade contractors informed that all deliveries will be made 0930 to 16.00 Monday to Friday or 0900 to 13.00 Saturdays. There will be no deliveries Sundays or Bank Holidays.	2	1	2
2	Noise from plant	Nuisance	Neighbouring properties	2	4	8	All activities likely to cause a noise nuisance (such as use of hydraulic breakers) shall be carried out – wherever possible – during periods not likely to be disruptive.	2	2	4
3	Noise from plant	Nuisance	Neighbouring properties	2	3	6	No plant will be used (including warm up and warm down periods) outside of 07.30 to 18.00 Monday to Friday and 07.30 to 14.00 Saturdays. No plant will be used on Sundays or Bank Holidays.	2	1	2
4	Noise from plant	Nuisance	Neighbouring properties	2	3	6	Any plant (such as generators) that may be required to be operated overnight shall be of a low-noise emission type and/or shrouded where possible; they shall also be placed as far from neighbouring properties as is possible.	2	1	2

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**

Activity		31. Temporary Works Design for Excavations								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Design	Inadequate design	Ground workers	4	4	16	Appoint a suitably qualified and experienced designer.	4	2	8
2	Coordination	Lack of co-ordination and communication between all parties.	Ground workers	4	4	16	Appoint a responsible person or a Temporary Works Coordinator (TWC)	4	2	8
3	Excavation Relocation	Excavation is re-located after design has been submitted.	Ground workers	4	3	12	Check: • If appropriate borehole log has been used. • If access and lifting requirements have changed. • If surcharge details have changed. • If depth has changed.	4	2	8
4	Contaminated ground	Human health	Ground workers	4	3	12	• Check with Principal Designer if contaminated ground is to be expected in location of excavation. Method of work to be specified to accommodate contamination. • Soil investigation or similar reports to be consulted and appropriate precautions taken.	4	1	4
5	Soil profile	Soil profile encountered different to that used in temporary works design	Ground workers	4	3	12	Continually monitor soil profile.	4	1	4
6	Groundwater	Groundwater characteristics and control	Ground workers	4	3	12	Continually monitor and record groundwater characteristics, i.e. rate of flow, strike levels.	4	1	4
7	Excavation.	Change in depth of excavation.	Ground workers	4	4	16	Do not exceed design depth without design being re-worked.	4	1	4
8	Excavation	Change in plan dimension (or trench width) of excavation	Ground workers	4	4	16	Do not exceed stated dimensions without design being re-worked.	4	1	4
9	Surcharge	Change in surcharge / Introduction of new surcharge.	Ground workers	5	4	20	Ensure that surcharge assumptions are correct, e.g. weight of excavator; Position of spoil; Position of adjacent roads and batters. Immediately inform temporary works designer of change so design can be re-worked.	5	1	4
10	Structures and Services	Unknown structures/services encountered.	Ground workers	4	4	16	Note the position and nature of the structure and services and inform temporary works designer to assess impact on design.	4	1	4
11	Ground Reduction	Ground reduction details.	Ground workers	4	4	16	Ensure all ground reduction details (batters, etc) as specified in temporary works design are complied with. If not, inform temporary works designer to re-work design.	4	1	4

12	Shoring System	Stability of shoring system during use.	Ground workers	4	4	16	Ensure that the system has been installed as per the temporary works design. If in doubt refer to the equipment supplier.	4	1	4

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Essential to provide the designer with a comprehensive design brief including representative borehole or trial pit.	Prior to works commencing	Contracts Manager
2	Compile the design brief; Check submitted temporary works design; Monitor and assess risk; Ensure compliance with temporary works design; Ensure kit is assembled and installed as per the manufacturer's installation instructions; Monitor changes in site conditions when compared to the design brief.	Prior to works commencing	Temporary Works Coordinator
3	Refer to temporary works designer to re-work design.	Prior to works commencing	Temporary Works Coordinator
4	If excavation is known to be in contaminated land check with shoring supplier that structural integrity of shoring equipment will not be compromised through contact. Operatives to be warned to report any discovered residues at induction.	Prior to works commencing	Site Foreman
4	Continually monitor by sight, smell and use of gas detection equipment of excavated profile and excavated material for possible contamination. If suspected contaminated ground is encountered cease work immediately and inform Site Manager.	During works	Site Foreman
5	Check 'actual' profile against 'design' profile. If 'actual' varies from design immediately, inform temporary works designer to check design stability. If variance in profile is deemed to be significant stop work until, design has been re-checked.	During works	Site Foreman
6	Check 'actual' groundwater regime is consistent with 'design' assumptions. If 'actual' varies from design immediately, inform temporary works designer to check design stability. Ensure the proposed method of groundwater control is as per that used in the 'basis of design', i.e. do not sump pump when well point de-watering has been specified. If variance in characteristics is deemed to be significant cease work until design has been re-checked.	During works	Site Foreman
7	If depth is to be varied, immediately inform temporary works designer to re-work design based on altered depth.	During works	Site Foreman
8	Immediately inform Temporary Works Designer of change so design can be re-worked.	During works	Site Foreman
9	Monitor if new surcharges are introduced, e.g. New haul road adjacent to dig; Large plant positioned near dig; Spoil dumped near excavation. If dimensions are to be varied immediately inform temporary works designer to re-work design based on altered dimensions.	During works	Site Foreman
12	Continually monitor equipment for signs of overloading e.g. deflection, deformation. Do not use the shoring system as a work platform for storage of materials. Keep shoring equipment clear of spoil and debris.	During works	Site Foreman

Activity		33. Hand Excavation and Trial Holes								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Lack of operatives training experience and competence.	Manual handling injuries and musculoskeletal disorders; slips, trips and falls; damage to underground apparatus; excavation collapse	Operatives	4	4	16	Operatives carrying out ground penetration should be trained in the use of Cable Avoidance Tools, safe digging techniques, be familiar with permits to break ground and procedures and be competent to read statutory undertakers plans.	4	2	8
2	Lack of Maintenance of equipment.	Damage to underground apparatus.	Operatives	4	4	16	Cable avoidance tool operators must carry out pre-use checks and ensure that the periodic service & calibration label is within date. Select the correct hand tools for the job including insulated hand digging tools to BS8020:2002 when working around live electrical services.	4	2	8
3	Excavating near buried services	Striking buried services	Operatives	5	4	20	Utility plans to be consulted. Drawings obtained from service providers. Services to be made dead where possible. Locate services indicated on undertakers plans and other unknown services. Full scan of area prior to excavating. CAT/Genny to be used in marking services before breaking ground. Permit to Dig to be issued by the Site Manager and used. If any suspect services are identified, hand dig around services. No mechanical excavation within 500mm of known service locations. **(Refer to Risk Assessment 28 Working Around Live Services)**	5	2	10
4	Lack of PPE	Injury to unprotected body parts	Operatives	5	4	20	PPE to be worn at all times when hand digging includes: - Protective gloves to EN420 (basic protection), or EN388 (mechanical hazards); - Eye protection to EN166-B where there is a risk of flying fragments or ejected material; - Boots with steel toe cap and mid-sole to EN ISO 20345; - Head protection to EN397; - Hi-viz jacket/vest to EN471 Class 2/3; - Flame Retardant Overalls to EN ISO 14116 when hand digging around live electrical services. **(Refer to Risk Assessment 26 General PPE).**	5	2	10

Additional Control Measures or Action Required Prior to Activity Commencement

No	Control or Action Required	Time Scales	Person to Complete Action
1	The level of supervision must reflect the risks involved with the excavation. Consideration should be given to Supervisor and on-site operative training to the New Roads and Street Works Act standards. Other relevant training consists of contract and site induction as well as on site practical training. Operatives involved in excavation and drainage works should carry a leptospirosis card.	Before Works Start	Site Foreman
2	Report all defective equipment promptly and ensure that it is quarantined and not used.	Before Works Start	Site Foreman
3	• A competent person carrying out a visual survey of the area to identify any surface features • Carrying out a Cable Tool Avoidance survey and mark out any services located • Contact the Statutory Authorities to assist in finding and marking services • Excavate trial holes under the 'Permit to Dig' management system issued by authorised person, complete with statutory undertakers' plans (where required) and specified risk control measures • Use of careful hand digging techniques to confirm location and depths of services consisting of: - Digging to one side of the marked position and then digging sideways to expose the service - Using insulated spades and shovels (preferably with curved edges) eased in with careful foot pressure rather than being thrown or spiked into the ground - Using powered tools only for breaking the upper hardened surface and only to the side of the marked position. Bound layers above services can be broken up if the service has been exposed from the side and is at a lower level. • Picks should not be used in soft material near to buried services • Picks, bars and forks may be used to free lumps of stone and to break up hard layers • Where services are found to be encased in concrete. Stop work and contact your supervisor. • Once exposed, services should be assumed to be live, may need to be supported and should not be used as hand or footholds	During works	Site Foreman
4	Flame retardant overalls/boiler suit, complying with EN ISO 11612 must be worn when hand digging around live electrical services.	During works	Site Foreman

Activity	44. Delivery Loading & Unloading of hired plant

Hazards Identified	Associated Risk	Who is at Risk	Severity	Likelihood	Risk Rating	Control Measures	Post-Severity	Post-Likelihood	Overall Risk Rating
Plant tipping or sinking	Crushing from equipment overturning.	Operatives Other Contractors & Visitors	5	4	20	The unloading area should be inspected to ensure it is suitably level and firm for the movement and operation of vehicles and plant.	5	1	5
Personnel being run over	Potential serious injury, or death, to site operatives and third parties.	Operatives Other Contractors & Visitors	5	4	20	Plant should be unloaded or loaded from the delivery lorry or trailer only when all non-essential personnel are clear of the area. Site pedestrian/vehicle segregation to be in place. Site access to be controlled.	5	1	5
Plant slipping off ramps	Potential serious injury, or death, to site operatives and third parties. Damage to nearby property	Operatives Other Contractors & Visitors	4	4	16	All timber baulks & packings used for loading/unloading ramps should be securely stacked and aligned with the tracks by experienced operatives. The plant should be driven off the low-loader and to the working area under the supervision of an experienced banks man. Any Roll Over Protection Systems (ROPS) must be deployed before plant is unloaded.	4	1	4
Failure during site operations	Potential serious injury, or death, to site operatives and third parties.	Operatives Other Contractors & Visitors	4	3	12	During assembly and preparation of work a further mechanical check should be made to check all moving parts are sound and operate freely.	4	1	4
Injury to operative(s)	Potential serious injury, or death, to site operatives	Operatives	5	3	15	Other equipment and materials should be unloaded by experienced slingers and stacked on hard standing areas in a neat and tidy manner.	5	1	5

Additional Control Measures or Action Required Prior to Activity Commencement

Control or Action Required	Time Scales	Person to Complete Action
Driver lifting/loading/unloading risk assessment to be completed before the activity is carried out	Prior to works commencing	Foreman
Drivers to ensure 360 vision of area or implement use of Banksperson	Prior to works commencing	Foreman
It is the responsibility of the hire company delivery driver to load and unload all plant and equipment and Regular maintenance of delivery vehicles.	Prior to works commencing	Driver
Plant and all associated equipment must be visually checked to ensure no damage or mishap has occurred during transport.	Prior to works commencing	Foreman
All ROPS and working at height protection to be implemented before loading/unloading	Prior to works commencing	Foreman

Activity	46. First Aid

Hazards Identified	Associated Risk	Who is at Risk	Severity	Likelihood	Risk Rating	Control Measures	Post-Severity	Post-Likelihood	Overall Risk Rating
Insufficient number of first aid personnel/Availability of Resources.	Individual not being given sufficient first aid treatment when required.	Operatives Other Contractors & Visitors	5	4	20	All activities are to have adequate First Aid Cover If no Principal Contractor First Aider available, All projects are to have as a minimum: 'An Appointed Person' and 'A First Aid at Work First Aid Box' as per assessment of Number and type of people	5	1	5
Proximity to First Aid cover First Aid Requirements require assessment of:	Insufficient first aid facilities on site.	Operatives Other Contractors & Visitors	4	4	16	Montel to be notified by Principal Contractor of nearest A&E details. First aid boxes/facilities to be positioned in sire manager's office and / or welfare.	4	1	5
FIRST AID	Risk of further injury to casualty Risk of injury to First Aider / other operatives/ emergency services Disease transmittal by bodily fluids	Operatives Other Contractors & Visitors	4	4	16	All first aiders to be trained and competent with certification. Casualty only to be treated by qualified First Aider. First aid should only be administered when area and situation assessed and found safe to do so. Do not move casualty unless it is necessary and safe to do so. Ensure the area is free from all dangers prior to anyone treating injured person.	4	1	1

Additional Control Measures or Action Required Prior to Activity Commencement		
Control or Action Required	**Time Scales**	**Person to Complete Action**
25 people or more on site or location requires minimum of 1 first aider with additional dependent on level of site risk.	Prior to works commencing	Contract Manager
First aid kits should be checked they have all the available items and for stock level checks.	Weekly	Site Foreman / H&S Advisor / First Aider
Use sterile medical gloves when treating casualty.	Prior to administering First Aid	First Aider

Activity		48. Lifting Equipment and Lifting Accessories								
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	Lack of Operator training, experience, competence	Crushing from load drop or equipment overturning. Arcing or contact with overhead power lines	Operatives & Other Contractors	5	4	20	All Operators must be certified by an approved organisation. Operators must be over the age of 18 years. Operators must ensure they are familiar before use. Slingers and signallers must be trained and competent to sling and signal safely.	5	1	5
2	Lack of Maintenance	Crushing from load drop or equipment overturning	Operatives & Other Contractors	5	4	20	Lifting Attachments must be thoroughly inspected every six months and when first taken into service. The EC Declaration of conformance for lifting accessories and copies of through inspections of lifting equipment must be kept for record purposes. A register should be kept and reviewed regularly by a competent person. Operators must carry out and record daily pre-start checks. In addition, weekly checks must be recorded on LOLER form. Everything must be visually inspected prior to use. Do not use defective equipment.	5	1	5
3	Use of Lifting Equipment & Lifting Accessories	Crushing from load drop or equipment overturning. Arcing or contact with overhead power lines	Operatives & Other Contractors	5	4	20	Everything must be marked with the safe working load (SWL) and must not be used to lift loads heavier than the indicated. Only purpose made and designed equipment shall be used for carrying people and should be clearly marked as to the number of persons it can carry. Do not use a machine if a crane is required. Lifting Equipment should always be de-rigged after use, before transport and storage. Before using check for overhead obstructions such as power cables. Do not work within 6m of overhead power lines. When lifting heavy weights, the load should be lifted initially only a few inches from the ground to check the safe condition of the lifting apparatus and the security of slings, etc., before hoisting. Ensure chains or slings are not twisted or knotted. Ensure the load is balanced and will not slip out. Be aware that the load on each leg of a multi-leg sling increases as the angle between the legs gets wider. The angle should not exceed 30 degrees. Keep hands, fingers, toes away from chains or slings when lifting or landing the load.	5	1	5

							Co-ordinate use by means of a lead persons' instructions when carrying out mechanical and vacuum clamping and de-clamping of loads. Never stand under a suspended load, stand well clear and use a guide rope to steady the load where required. Do not use lifting gear for other purposes, for example towing.			
4	Poor practices	Crushing from load drop or equipment overturning	Operatives & Other Contractors	5	4	20	**Hooks & eyebolts:** • Check both hooks & eyebolts carefully for cracks, cuts, dents and corrosion pits; • Hooks should be Type 'G' or have a sprung retainer across the mouth. Swivel hooks should rotate freely; • If the spring retainer sticks or fails, the hook should be removed from service; • When slinging with hooks ensure the open face of the hook points away from the centre of gravity of the load. **Slings:** • Select the correct sling and type for the load to be lifted • Check the SWL on the sling against the weight of the load to be lifted; • Check for chafing, broken ends in wires and the condition of any splices, rings and thimbles – remove & destroy if defective; • Rope slings need not be marked with the SWL if a certificate of test is available and the SWL is known; • Protect slings from damage from sharp edges with suitable packing; • Position the sling so that the load is spread uniformly over its width; • Never attempt to shorten or tie knots in slings; • Avoid damage to slings by landing loads onto suitable bearers. **Chains:** • Select the correct chain for the load to be lifted; • Ensure chains are not kinked, knotted, or twisted; • Hook free legs up on the master link to prevent uncontrolled movement. **Shackles:** • Select the correct type of shackle for the job in hand; • Ensure the load acts through the centre line of the shackle and not side loaded; • Ensure the pin is free, but not loose in tapped hole. Nut and bolt pins allow the pin to rotate when the nut is tight;	5	1	5

							• Never use shackles with bent or deformed pins or bodies.			
5	Lack of PPE	Injury to unprotected body parts	Operatives & Other Contractors	4	4	16	PPE to be worn during lifting operations: Head protection to EN397; Boots with steel toe cap and mid-sole to EN345; Hi-Viz jackets/vests complying with EN471; and Protective gloves to EN388. **(Refer to Risk Assessment 26 General PPE).**	4	2	8

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	All lifting operations must be carried out by, and under the control of, a trained and competent person.	Prior to works commencing	Foreman & Operatives
2	Any Lifting Attachments removed from service and destroyed must be notified to the competent person.	Prior to works commencing	Operatives
3	Be aware of oncoming thundery conditions or high wind speeds making lifting operations unsafe.	Prior to works commencing	Foreman & Operatives
4	Never lift on the point of a hook.	During Task	Operatives
4	Never attempt to shorten or tie knots in slings.	Before and During Task	Operatives
4	Never lengthen a chain by joining pieces together	Before and During Task	Operatives
4	Never replace pins with a bolt	Before and During Task	Operatives
6	Do not lubricate chains – oil can pick up abrasive grit.	Before and During Task	Operatives
6	Chains and slings should be hung up during long term storage	After Task Completion	Operatives

Activity	56. Banking Vehicles and Plant									
No	**Hazards Identified**	**Associated Risk**	**Who is at Risk**	**Severity**	**Likelihood**	**Risk Rating**	**Control Measures**	**Post-Severity**	**Post-Likelihood**	**Overall Risk Rating**
1	No identification of appointed banksman on site.	Machine operator and site personnel will be unable to clearly identify appointed banksman.	Members of the public Operatives	4	4	16	All trained banksmen to wear an armband or vest with **BANKSMAN** in black letters, to identify their appointed role.	4	1	4
2	Lack of communication between operator and banksman.	Misinterpretation or poor communication may occur, causing wrong manoeuvre to take place and subsequent accidents.	Members of the public Operatives	5	4	20	The appointed banksman must communicate and brief the mobile plant or vehicle operator, on what signals or verbal communication system are to be used throughout the movement, prior to any movement commencing.	5	1	5
3	Injury to banksman from being struck by machine or vehicle	Possible death or serious injuries	Banksman	5	4	20	Banksman to stand in a position of safety, clear of machine/ vehicle, but in permanent view of plant machine/ vehicle operator or driver.	5	1	5

							If controlling any reversing movement, the appointed banksman must not stand behind the plant/ vehicle movement. The appointed banksman must stand to the side of such movement in the operator or drivers view.			
4	Poor visibility due to insufficient lighting when controlling plant/ vehicle movements/ operations.	Danger of contact with property/ public and operatives. resulting in death, serious injury / damage	Banksman Members of the public Operatives	5	4	20	The appointed banksman must ensure: - Adequate lighting is available; - Operators to maintain clean mirrors; - Operations stop immediately when visual contact is lost with the banksman; - High visibility PPE must to be worn. An assistant may be arranged where necessary, to assist the appointed banksman with the operations/ movement.	5	1	5
5	Poor visibility due to poor weather conditions.	Danger of contact with property/ public and operatives. resulting in death, serious injury / damage	Banksman Members of the public Operatives	4	4	16	The appointed banksman must assess the weather conditions prior to working with mobile plant equipment or controlling vehicle movements, if visibility is poor and prevents good sighting, work must be suspended until adequate visibility returns.	4	1	4
6	Machine Operator loses sight of banksman	Potential for striking banksman during operation	Banksman	5	4	20	The movement/operation must **STOP** immediately if sight contact is lost between the appointed banksman and plant machine/ vehicle operator or driver.	5	1	5
7	Collision with property and vehicles	Substantial damage to vehicles and property	Members of the public Operatives	3	4	12	Operating or movement area of plant machine or vehicle to be segregated using barriers, where possible to prevent unauthorised access and monitored by banksman though out the operation.	3	2	6
8	Contact with overhead power cables.	Death or serious injury from electrocution. Damage to service provisions for properties.	Banksman Drivers	4	4	16	Use of goalposts where such cables exist to create a height limit. The goal post cross section pole is to be erected using red and white painted plastic tubing, not bunting. This created a more robust height barrier and enables sound to be heard if the cross section is caught.	4	2	8
9	Members of the public or other operatives in area of plant or vehicle movements/	Public or personnel injuries or death.	Members of the public Operatives Drivers	5	5	25	The appointed banksman must segregate the plant machine/ vehicle area using suitable barriers and warning signage, to prevent unauthorised access.	5	1	5

	operations.									
10	Members of the public or other operatives in area of plant or vehicle reversing movements.	Possible life changing injuries or death.	Members of the public Operatives	4	5	20	The appointed banksman must separate the area in which the reversing movement is to take place and use suitable barriers and warning signage to prevent unauthorised access and warn the public or other persons in the area of the movement. The banksman must warn any persons in the area by verbal mean prior to such movements. An assistant may be required to assist the banksman with warning and control of the reversing movement, but the appointed banksman **ONLY** must give the signal/ verbal communications to the operator/ driver.	4	1	4

Additional Control Measures or Action Required Prior to Activity Commencement			
No	**Control or Action Required**	**Time Scales**	**Person to Complete Action**
1	Competencies to be maintained in the site file.	Prior to operation	Foreman
2	Constant communication must be available throughout any movement between the appointed banksman and plant/ vehicle operator/ driver.	During operation	Banksman
3	Where practicable the banksman must be at least 3 metres from the plant/ vehicle at all times.	At all times	Banksman
4	The appointed banksman ONLY must give the signal/ verbal communications to the operator/ driver.	Prior to operation	Foreman
8	The appointed banksman will check that sufficient clearance is available prior to passing with plant/ vehicles under the goal posts.	Prior to operation	Banksman
10	No banksman or assistant must walk behind any plant/vehicle that are reversing; the appointed banksman must be in constant communication with the plant/ vehicle operator or driver.	Prior to and during operation	Banksman and/or assistant

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