



METHOD STATEMENT & RISK ASSESSMENT

Excavation & Earthworks

Document Title	Method Statement & Risk Assessment — Excavation & Earthworks
Project	[Insert Project Name]
Project Number	[Insert Number]
Location / Site Address	[Insert Site Address]
Principal Contractor	[Insert Principal Contractor]
Contractor / Subcontractor	[Insert Contractor Name]
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Reviewed By	[Name / Role]
Approved By	[Name / Role]

1. Introduction & Scope

This Method Statement and Risk Assessment (MSRA) has been prepared to describe the safe system of work for all excavation and earthworks activities on the above-referenced project. It covers bulk excavation, trench excavation, groundworks, dewatering, and backfilling operations.

This document must be read in conjunction with the Construction Phase Plan, site-specific drawings, ground investigation report, temporary works design, and all relevant statutory documents listed in Section 3.

All personnel engaged in the works must attend site induction, receive a briefing on this MSRA, and sign the register in Section 12 before commencing work.

2. Definitions

L (Likelihood): Probability of a hazard causing harm — 1 (Very Unlikely) to 5 (Almost Certain).

S (Severity): Consequence of harm — 1 (Negligible) to 5 (Catastrophic / Fatal).

Risk Score: $L \times S$. Scores 1–4 = Low, 5–8 = Medium, 9–14 = Medium-High, 15–25 = High (see Section 5).

TWC: Temporary Works Coordinator — the competent person responsible for designing and approving all temporary works.

CAT & Genny: Cable Avoidance Tool and signal generator — used to locate buried utilities before excavation.

3. Reference Documents & Legislation

- Health and Safety at Work etc. Act 1974
- Construction (Design and Management) Regulations 2015 (CDM 2015)
- Work at Height Regulations 2005
- Management of Health and Safety at Work Regulations 1999
- Provision and Use of Work Equipment Regulations 1998 (PUWER)
- Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)
- Control of Substances Hazardous to Health Regulations 2002 (COSHH)
- Control of Noise at Work Regulations 2005
- Control of Vibration at Work Regulations 2005
- Environmental Protection Act 1990 / Waste (England & Wales) Regulations 2011
- HSE guidance: HSG47 — Avoiding Danger from Underground Services
- HSE guidance: HSG185 — Health and Safety in Excavations
- BS 6031:2009 — Code of practice for earthworks
- CIRIA C580 — Embedded Retaining Walls (where applicable)
- [Insert Ground Investigation Report Reference]
- [Insert Temporary Works Design Reference]

4. Personnel, Competencies & Training

4.1 Key Personnel

Site Manager: Overall management of excavation works, welfare, and emergency response.

Temporary Works Coordinator (TWC): Design review and approval of all shoring / prop / battering solutions.

Competent Excavation Inspector: Daily inspection and sign-off of excavation before operatives enter. Must hold evidence of competence (e.g., SMSTS, CITB Excavation Competence Award, or equivalent).

Plant Operators: CPCS or NPORS certificate for specific machine category. Valid cards to be checked before commencement.

Banks Person: Trained and briefed. In hi-visibility vest. Positioned with clear sightline to all plant movement.
First Aider: Minimum EFAW certificate. First aid kit on site. Emergency services number posted at welfare.

4.2 Induction & Briefing

All operatives must complete site induction before commencing work. A specific MSRA briefing (toolbox talk) covering excavation hazards must be delivered and attendance recorded. No operative may work in or adjacent to excavations without this briefing.

5. Risk Rating Matrix

Rating	Score (L × S)	Action Required
LOW	1–4	Acceptable risk — maintain existing controls. Monitor.
MEDIUM	5–8	Tolerable — additional controls required before work proceeds.
MEDIUM-HIGH	9–14	Substantial — work must not proceed without written senior approval and additional controls.
HIGH	15–25	Unacceptable — STOP WORK. Redesign activity. Do not proceed until risk reduced to Medium or below.

6. Risk Assessment

L = Likelihood (1–5), S = Severity (1–5), Risk Score = L × S

Hazard	Who at Risk	Existing Control Measures	L	S	Risk Score	Additional Controls / Actions
Trench / excavation collapse	Operatives, visitors	Ground investigation report reviewed. Battering or shoring designed by Temporary Works Coordinator. No working in unshored trenches >1.2 m. Daily inspection by competent person. Exclusion zone maintained.	2	5	10 – MEDIUM-HIGH	Geotechnical engineer sign-off. Shoring inspection records retained. Welfare facilities ≥20 m from excavation lip.
Contact with buried services (gas, electric, water, telecom)	All site personnel	CAT & Genny survey before any excavation. Service drawings obtained from all utilities. Trial holes excavated by hand ≥500 mm either side of known service. Safe digging practice briefing.	2	5	10 – MEDIUM-HIGH	Independent utility search. Services marked with spray paint & pins. No mechanical excavation within 500 mm of services.
Plant / vehicle over-run of excavation edge	Operatives in trench	Exclusion zone ≥2 m from excavation edge with Heras fencing & signage. Wheel stops placed. Banks person on all reversing plant. Plant inspection records checked.	2	4	8 – MEDIUM	Banksmen trained and in hi-vis. Pre-start briefings to all plant operators. Edge protection checked after each shift.
Flooding / ingress of water — trench collapse	Operatives	Water table assessment from GI report. Dewatering pump on standby. Sumps installed. Work suspended if water level rises uncontrollably. Emergency evacuation route established.	2	4	8 – MEDIUM	Pump maintenance log. Standby pump available. Environment Agency permit if dewatering to watercourse.
Falling objects into excavation (tools, spoil, materials)	Operatives in trench	Spoil kept ≥0.5 m from excavation edge. Exclusion zone during loading. Operatives wear hard hats. Ladder access only at designated points. No work below suspended loads.	2	4	8 – MEDIUM	Toe boards fitted to all shoring. Toolbox talks on dropped objects. Personal arrest lanyards if working near edge.
Struck by excavating plant / machinery	Operatives, public	Segregated pedestrian routes. Banks person for all reversing. Speed limit 5 mph on site. All plant fitted with reversing alarm & camera. Exclusion zones enforced.	2	5	10 – MEDIUM-HIGH	Zero lift policy — no personnel lifted in bucket. All plant operators CPCS certified. Daily plant pre-use inspection.
Manual handling — pipes, shoring panels, timbers	Operatives	Mechanical aids used wherever possible (crane, telehandler, blocks & tackle). Safe system of work for two-person lifts. Manual handling assessment completed. Team lift briefing.	3	3	9 – MEDIUM-HIGH	Manual handling training records current. Work rotation to avoid prolonged postures. Physio referral process communicated.
Noise & hand-arm vibration (HAV)	Operatives	HAV and noise risk assessment completed. Trigger time calculated. RPE and hearing protection at ≥85 dB(A). HAV exposure below	3	2	6 – MEDIUM	HAV register maintained. Health surveillance for regular users.

Hazard	Who at Risk	Existing Control Measures	L	S	Risk Score	Additional Controls / Actions
		ELV 5 m/s ² A(8). Quieter plant selected where possible.				Anti-vibration gloves provided. Exposure time rotation.
Dust (silica, general) inhalation	Operatives, public	Water suppression on all mechanical cutting/breaking. RPE (FFP3 minimum) where LEV not practicable. Downwind monitoring. Dusty works not in high winds. Welfare facilities for washing.	2	4	8 – MEDIUM	Face fit testing records. Air monitoring for prolonged operations. COSHH assessment for silica reviewed.
Ground contamination / hazardous ground	Operatives	Desk study and GI reviewed for contamination. Site investigation results assessed. Contaminated soils classified and segregated. PPE upgraded in suspect areas. Sharps protocol.	2	3	6 – MEDIUM	Wash facilities on site. No eating/drinking near works. Contamination response procedure issued. Waste consignment notes retained.
Working in confined spaces (deep trenches, manholes)	Operatives	Confined space risk assessment separate. Gas monitoring before entry and continuous. Trained confined space team. Rescue equipment at entry. No solo entry.	1	5	5 – MEDIUM	Permit to Enter issued for each confined space entry. Rescue team on standby. Calibrated gas monitor with audible alarm.
Adverse weather — flooding, storm, frost, heat	All site personnel	Daily weather checks. Work suspended during lightning, high winds, or heavy rain. Shoring checked after storms. Site lighting for early/late working. Cold weather — no frozen ground excavation without assessment.	3	3	9 – MEDIUM-HIGH	Welfare — cool/warm areas provided. Dehydration / heat stress monitoring in summer. Site shut-down procedure for extreme weather.
Collapse of adjacent structures / undermining	Public, operatives, third parties	Structural survey of all adjacent structures before works commence. Temporary propping where required. Settlement monitoring pins installed. Building owner notified.	1	5	5 – MEDIUM	Monitoring frequency agreed with Structural Engineer. Threshold trigger levels set. Emergency stop procedure if movement detected.
Fuel / oil spills from plant	Environment, third parties	Drip trays under all plant during refuelling. Spill kit on-site at all times. Refuelling away from watercourse / drains. COSHH data sheets available.	2	2	4 – LOW	Environment Agency pollution incident line posted. Bunded fuel storage. Spill kit training given to all plant operators.
Fire	All site personnel	Hot works permit if any cutting required. Fire extinguishers accessible. Assembly point marked. No smoking on site. Fuel stored in bunded compound.	1	4	4 – LOW	Fire risk assessment ref FRA-001. Emergency evacuation drill quarterly. Site emergency number displayed prominently.

7. Sequence of Works — Method Statement

The following sequence of works must be followed for all excavation and earthworks activities. Deviations require written approval from the Site Manager and, where temporary works are affected, from the TWC.

Step	Activity	Method / Key Requirements	Responsible
1	Pre-commencement — site preparation	Obtain all required permits (excavation permit, confined space permit where applicable). Confirm utility searches complete (CAT scan + service drawings). Conduct site induction for all operatives. Establish site welfare, first aid, and emergency arrangements. Set up Heras fencing and exclusion zones.	Site Manager / HSE Advisor
2	Setting out & trial holes	Set out excavation to engineer's drawings. Mark all known services with spray paint. Excavate trial holes by hand ≥ 500 mm either side of every known service. Confirm or update service drawings. Photograph and record trial hole findings.	Setting Out Engineer / Supervisor
3	Temporary works design	Temporary Works Coordinator (TWC) to design and approve shoring or battering before excavation commences. Shoring supplier to provide calculations. Designer sign-off obtained. Method briefed to operatives.	TWC / Structural Engineer
4	Topsoil strip & bulk excavation	Set up exclusion zones (≥ 2 m). Position banks person. Begin machine excavation — JCB / 360° excavator as plant schedule. Spoil to designated stockpile area ≥ 0.5 m from edge. Manage traffic — one-way system where possible. Monitor groundwater.	Plant Operator / Supervisor
5	Trench / deep excavation (if applicable)	Install shoring / trench box progressively as excavation advances. Competent person to inspect excavation at start of each shift and after any change (rainfall, frost, vibration). Inspection records signed. Access by ladder at designated points only.	Supervisor / Competent Inspector
6	Dewatering (where required)	Operate submersible pump / wellpoint system per dewatering design. Discharge to approved location (settlement tank, watercourse with EA consent). Monitor groundwater levels daily. Keep standby pump on site.	Dewatering Technician
7	Excavation to formation level	Machine trim to within 150 mm of formation. Final trim by hand to avoid disturbance. Formation inspected and approved by engineer / clerk of works before any further works. Level checked by survey. CBR test or plate bearing test if specified.	Site Engineer / Supervisor
8	In-trench works	Install pipework / foundations / services per separate method statement. Operatives use full PPE. No solo working in trench. Gas monitoring where confined space conditions may exist. Confined space permit if applicable.	Trade Operatives / Supervisor
9	Backfilling & compaction	Backfill with approved material in layers per specification (typically 150–300 mm loose). Compact each layer using vibrating plate/whacker or vibrating roller as specified. Test compaction per spec (e.g. Proctor density). No heavy plant over shoring until removed.	Supervisor / QA Engineer
10	Shoring removal	Remove shoring progressively as backfill advances, per TWC-approved sequence. Never remove ahead of backfill. Operatives out of trench during panel extraction. Complete withdrawal recorded.	TWC / Supervisor
11	Reinstatement & clearance	Reinstate surface to match existing / drawing (tarmac, concrete, topsoil). Remove all waste from site and complete waste	Site Manager

Step	Activity	Method / Key Requirements	Responsible
		transfer notes. Remove Heras fencing and signage. Final inspection by Site Manager. Handover documentation compiled.	

8. Plant, Equipment & Inspection

Plant / Equipment	Use	Operator Certification	Inspection Frequency
360° Tracked Excavator	Bulk dig, trench excavation, loading	CPCS A59 / NPORS N003	Daily pre-use check + weekly
JCB / Wheeled Loader	Topsoil strip, material handling	CPCS A57 / NPORS	Daily pre-use check
Dumper (site / road)	Spoil removal, material delivery	CPCS A09	Daily pre-use check
Trench Boxes / Shoring Panels	Excavation support	N/A — TWC designed	Each shift, after weather events
Vibrating Plate Compactor	Layer compaction in trench	Trained operator	Before each use
Vibrating Roller	Surface / bulk layer compaction	Trained operator	Daily
Submersible Pump / Wellpoint	Groundwater control	Trained operator	Daily
CAT & Genny	Service location survey	Trained operatives (C&G 2393)	Calibration certificate current
Gas Monitor (4-gas)	Confined space / air monitoring	Trained operatives	Before each use, bump tested
Mobile Lighting Tower	Night / poor visibility works	Trained operative	Before each use

All plant must have a current insurance certificate, LOLER/POWER inspection (where applicable), and a completed daily pre-use inspection sheet before use. Defective plant must be taken out of service immediately and tagged 'DO NOT USE' until repaired.

9. Personal Protective Equipment (PPE)

The following PPE is mandatory for all personnel working on or adjacent to excavation activities. PPE must be inspected before each use and replaced when damaged.

PPE Item	Standard / Specification
Safety helmet (hard hat)	EN 397 — class suitable for site conditions
Hi-visibility vest / jacket	EN ISO 20471 Class 2 minimum (Class 3 when near live traffic)
Safety footwear	EN ISO 20345:2011 — S3 rated (steel midsole & toecap)
Eye protection	EN 166 — safety glasses / goggles during breaking, cutting, drilling
Respiratory protective equipment (RPE)	FFP3 minimum for dust / silica exposure; full-face in contaminated ground

PPE Item	Standard / Specification
Hearing protection	EN 352 — SNR ≥ 25 dB when noise at source ≥ 85 dB(A)
Gloves — general purpose	EN 388 — cut / abrasion resistant for manual handling
Gloves — anti-vibration	EN ISO 10819 for prolonged HAV exposure (>2.5 m/s ² A(8))
High-visibility waterproof trousers	Required during rain / low visibility
Fall arrest harness	EN 361 — when working at excavation edge >2 m where edge protection impracticable
Waders / waterproof overalls	When working in contaminated or wet ground

10. Emergency Procedures

10.1 Trench Collapse

1. STOP all work immediately. Do NOT enter the collapsed area — secondary collapse is likely.
2. Call emergency services: 999. State nature of emergency, site address, nearest postcode and access point.
3. Site Manager to take control. Establish safe cordon ≥ 5 m from collapse.
4. Provide emergency services with site plan, trench drawings, and information on persons buried.
5. Cooperate fully with emergency services. Preserve evidence — do not disturb unless to save life.
6. Incident reporting: Notify HSE under RIDDOR if person is buried / injured. Complete internal incident report.

10.2 Contact with Buried Service

7. If a service is struck, stop all works immediately. Evacuate the area.
8. If gas — call National Gas Emergency: 0800 111 999. Keep ignition sources away.
9. If electric — call Distribution Network Operator emergency number.
10. If water — call relevant water company emergency number.
11. Do not resume work until the service owner has attended and made the service safe.

10.3 General Emergency

Emergency assembly point: [INSERT LOCATION]. First aid kit location: [INSERT LOCATION]. Nearest hospital with A&E: [INSERT NAME & ADDRESS].

Emergency contact: Site Manager — [INSERT NUMBER]. HSE Incident Contact Centre: 0345 300 9923.

11. Environmental Controls

- All excavated material will be classified (inert / non-hazardous / hazardous) in accordance with the waste classification assessment and ground investigation findings.
- Waste transfer notes will be completed for all materials leaving site. Carrier registration details to be recorded.
- Silt runoff prevention: perimeter berms, silt fences, or settlement lagoons to be installed before bulk excavation commences.
- Refuelling to take place ≥ 20 m from any watercourse. Drip trays mandatory. Spill kit (minimum 50L capacity) to be accessible at all times.
- Any unexpected contamination encountered must be reported to Site Manager immediately. Works to stop pending assessment.
- Dust suppression: water bowser on site for dry conditions. No burning of site waste.
- Noise: comply with BS 5228 — hours of noisy works as agreed with local authority. Noise monitoring if near sensitive receptors.

12. MSRA Briefing Register — Signatures

By signing below, I confirm I have read / been briefed on this Method Statement and Risk Assessment and understand the safe system of work required for excavation and earthworks activities on this project.

Name	Role / Company	Signature	Date

13. Document Control & Review

This document will be reviewed and updated whenever there is a significant change to the works, plant, personnel, or site conditions — and as a minimum every 4 weeks. Revised versions will be re-briefed to all operatives before commencement.

Document owner: Site Manager. Distribution: Principal Contractor, HSE Advisor, Temporary Works Coordinator, all supervisors.

END OF DOCUMENT — UNCONTROLLED IF PRINTED