General Excavation and Earthworks

Business Name:	ABN:	
Business Address:		
Contact Person:	Phone:	Email:

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.

Full Name:		
Signature:	Title:	Date:

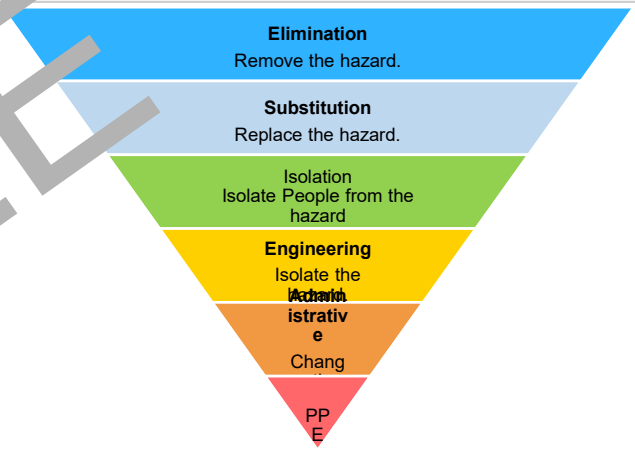
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	

RISK MATRIX

LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE		
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Rev before work
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU	2M MO RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required.
3H	Review and approve additional c rols b ask arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in ace and effe ive. Proceed with caution; monitor conditions.
1L	Proceed, following standard operating procedures Monitor and keep records.

Consequence Scale:

Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
Catastrophic	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
Major	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
Moderate	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
Minor	First-aid only, no lost time	negligible delay	Isolated non-conformance
Insignificant	No injury	no schedule impact	Deviation caught and corrected on site

Notes on Hierarchy of Controls:
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. Substitute
3. Isolate
4. Engineering
5. Administrative
6. PPE

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

aligned with Safe Work Australia's Managing the risk of fatigue at work *(2023) and ISO 45001:2018 clauses 6–8.*

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. WHS Governance, Roles and Consultation for Excavation Projects	• Lack of clear WHS accountability for excavation activities under WHS Act 2011 (PCBU, officers, workers, contractors) • Inadequate WHS policy framework specific to excavation and earthworks (no documented excavation management procedure) • Poor consultation and communication between PCBU, principal contractor, subcontractors and workers on excavation risks • Failure to establish and implement a WHS management plan for complex excavation works (e.g. basement and bulk excavations) • No process for regular review of WHS performance (inspections, audits, lead indicators) relating to excavation hazards • Gaps in officer due diligence (Board / senior management not verifying resourcing and implem of excavation controls) • Inadequate inclu n of unio health and safety c or wo representatives in planning excavati works • Failure to clearly alloca sibility for ground disturbance approvals, excavation permits and sign-off of controls	4A	• Develop and implement an Excavation and G d Disturban WHS Procedure aligned to the WHS Act 2011, WHS Regulations relevant Codes Practice dorsed by senior management • Define and document WHS ro responsibilities a thorities for excavation activities (PCBU, officers, principal c projec manager, supervisors, engineers, HSRs and workers) • Establish a ject-specifi WHS M agem Plan for basement excavation, bulk excavation, pit construction a ground di rbance a s, including consultation, risk management and emergency arran ents • Imple s forma nsultation mechanisms (toolbox talks, pre-start briefings, HSR meetings) that specifi lly ddress avation hazards, changes to staging and interface with other high-risk construction work • trodu a str ured WHS inspection and audit program targeting excavation controls (shoring, acc d marcation, plant–people separation, fire safety in excavations, visitor entry procedures) • Require enior officers to periodically review excavation risk reports, incident trends and audit findings, a to document due diligence actions and resourcing decisions • Implement a permit-to-excavate / ground disturbance approval process requiring sign-off from competent persons (e.g. geotechnical engineer, project engineer, WHS advisor) for all excavation types listed in project scope • Integrate WHS obligations and performance expectations related to excavation into contractor selection, pre-qualification and contract conditions	2M
2. Planning, Design and Engineering of Excavation Works	• Inadequate geotechnical investigation for basement excavation, pit construction, swimming pool excavation and deep foundations • Failure to consider soil type, groundwater, surcharge loads and nearby structures when designing shoring and benching • Poor planning of excavation sequencing leading to unstable batters,	4A	• Require a competent geotechnical engineer to undertake and document soil investigation and classification prior to bulk and basement excavation, strip footings and pit construction • Develop site-specific, engineer-certified designs for excavation support systems, including shoring, batter angles, benching, sheet piling and ground anchors, referencing relevant Australian Standards • Establish a design review and verification process for all temporary works associated with excavations, including independent checking for high-risk or complex excavations • Develop a documented excavation staging and sequencing plan that integrates with overall construction program, crane operations, services installation and post-excavation reparation procedures	2M

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	undercutting, or unsafe work under crane slews • Lack of engineering review for complex works such as excavation below ground water table or in reactive/clayey soils • Inadequate consideration of adjacent property, retaining walls, public footpaths and underground services in design • No formal design verification or peer review for temporary works (shoring, trench shields, struts, tie-backs) • Design documents not updated when site conditions change (e.g. disturbing previously disturbed material or uncovering voids) • Failure to integrate excavation design with crane location, loading zones, haul roads and spoil stockpile locations		• Include specific engineering controls for excavating under the crane, ensuring compliance with crane manufacturer limits and exclusion zones to prevent overloading or collapse of excavation faces • Incorporate consideration of previously disturbed ground, fill, loose stone and rubble, and potential voids into the design, including contingency measures for unexpected ground conditions • Implement a management of change (MOC) process requiring engineering reassessment and updated drawings when actual ground or water conditions differ from assumptions, or when excavation dimensions change • Ensure the design package includes clear instructions on inspection frequencies, trigger action response plans (TARPs) for ground movement, and hold points for engineer sign-off during excavation	
3. Ground Disturbance, Services Location and Permit-to-Excavate System	• Striking underground electrical, gas, water, sewer or communications services due to inadequate location process • Uncontrolled ground disturbance activity by contractors without permits or approved plans • Inaccurate or outdated Dial-Before-You-Dig / asset owner information relied on as sole control • Poor management of disturbing previously disturbed material, backfill, old foundations or unknown services • Lack of escalation when conflicting service information or anomalies are found in the field • Failure to include temporary services and construction utilities in the services plan • Inadequate verification of service isolation, locking and tagging before mechanical excavation	4A	• Implement a formal Permit-to-Excavate / Ground Disturbance Permit system that is mandatory for all digging activities (mechanical and manual), including grave preparation, swimming pool excavation and post-excavation re-work • Require up-to-date service plans from all relevant asset owners and integrate them into a consolidated site services drawing prior to any excavation • Mandate use of competent locating contractors and approved locating methods (e.g. electromagnetic locating, GPR) and require positive identification (potholing by hand or vacuum excavation) of critical services • Establish clear permit conditions defining safe offsets, no-go zones, depth limits and specific controls for excavating near live services, with sign-off by a competent supervisor or engineer • Include temporary construction services (power, water, data, dewatering lines) in the services register and update the register whenever services are added, removed or relocated • Require verification of isolation and lock-out/tag-out for decommissioned services before allowing mechanical excavation, with documentation retained on the permit • Introduce a process for field workers to halt excavation and escalate for reassessment if uncharted services, previously disturbed material or anomalies are encountered • Maintain a centralised permit register (electronic or controlled hard-copy) and ensure permits, service plans and mark-ups are available to all supervisors, plant operators and HSRs	2M

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	• Inconsistent retention and communication of services plans and permits between shifts and subcontractors			
4. Plant, Equipment and Mechanical Excavation Management	• Use of poorly maintained or unsuitable excavators, loaders, trucks and compaction equipment for specific excavation tasks • Lack of safe systems for operating mechanical plant near open excavations, edges and batters • No system for verifying plant compliance plates, lifting points, ROPS/FOPS and safety features • Inadequate processes for managing plant working under or adjacent to cranes or suspended loads • Failure to control interaction between multiple items of plant on constrained excavation sites or in basements • Inadequate arrangements for pre-sta inspections, defect reporting and maintenance scheduling • No system for ens ng attachments (buckets, augers, k breakers) are compatible and pro rly s d • Poor management of hired-in plant nd subcontractor equipment, includin documentation and inspe	4A	[redacted]	2M
5. Competency, Licensing, Training and Supervision for Excavation Work	• Inadequate verification of operator competency for excavators, loaders, cranes and other earthmoving plant • Supervisors lacking training in excavation risk recognition, shoring requirements and sequencing • Workers unfamiliar with the specific risks of basement excavation, bulk excavation and trenching • Failure to train personnel in excavation permit systems, demarcation requirements and visitor entry rules	3H	[redacted]	1L

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	• No process for competency assessment when workers are promoted into supervisory roles on excavation projects • Limited induction for specialist tasks such as trimming and scaling loose rocks or trimming excavation edges • Insufficient training on emergency response in excavations, including fire safety regulations and rescue from depth • Poor supervision ratios on high-risk activities such as excavating below ground level or under the crane		[redacted]	
6. Excavation Stability, Shoring and Ground Control Systems	• Ground collapse due to inadequate shoring, benching or batter design for shallow or deep excavations • Uncontrolled movement of previously disturbed material, fill or loose stone and rubble into excavations • Failure to implement and monitor engineer-specified excavation support systems for basements and pits • Inadequate control of groundwater, dewatering or surface water leading to erosion and instability • Insufficient inspection regime for excavation walls, shoring, props, tie-backs and trench shields • No formal triggers for stopping work when ground movement, cracking or slumping is observed • Unsafe manual trimming of excavation edges and scaling of loose rocks without system safeguards • Lack of control measures for excavation under crane outrigger pads or near heavy structure footings	4A	[redacted]	2M

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7. Access, Egress, Falls and Demarcation of Excavation Areas	• Uncontrolled access to open excavations, pits and trenches by workers, visitors or the public • Falls into excavations due to inadequate edge protection, barriers or lighting • Poorly designed access and egress (ladders, stair towers, ramps) for deep or basement excavations • Non-compliant demarcation of excavation edges during different project stages and after hours • Inadequate control of visitor entry procedures to excavation sites, including delivery drivers and inspectors • Obstruction or removal of designated access/egress points during pit construction or bulk excavation • Insufficient way-finding signage to identify hazards and routes in complex multi-level excavations • No system for periodic verification of barriers, covers and guardrails around open excavations	3H	[redacted]	1L
8. Traffic Management, Haulage and Interfaces with Public Areas	• Vehicle–pedestrian interactions on haul roads servicing bulk excavation and spoil removal • Reversing trucks and plant near open excavations without defined traffic routes • Uncontrolled public interface where excavation activities are adjacent to streets, footpaths or neighbouring properties • Inadequate management of delivery vehicles and visitors entering excavation work zones • Poor coordination between on-site traffic management and external road conditions or council requirements	3H	[redacted]	1L

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	• No process for addressing changing traffic patterns as pit construction and excavation depths progress • Inadequate controls for loose rubble, spoil and debris spilling onto traffic routes and public areas • Insufficient signage and communication regarding heavy vehicle movements linked to excavation works		[redacted]	
9. Environmental and Hazardous Materials Management in Excavation	• Encountering unexpected hazardous materials such as asbestos, contaminated soil or buried waste during ground disturbance • Uncontrolled dust, noise and vibration from mechanical excavation impacting workers and neighbours • Inadequate management of groundwater, run-off and sediment from excavations causing environmental harm • No system for classifying and managing spoil from basement and pit excavations for off-site di[redacted] • Failure to manage[redacted]ammable liquids, gases or ignition s[redacted]rces in relati[redacted]to fire safety regulatio[redacted] • Poor control of diesel emissions an[redacted] plant exhausts in deep or confined[redacted] excavations (e.g. baseme[redacted]mming pools) • Lack of procedures for handling buried objects or remains encountered during grave preparation or historic site work • Non-compliance with environmental approvals or council conditions linked to excavation and earthworks	3[redacted]	[redacted]	1L
10. Emergency Preparedness, Fire Safety and Rescue from Excavations	• Delayed rescue of workers following trench or excavation collapse due to lack of planning and resources	4A	[redacted]	2M

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	• Inadequate fire safety arrangements in excavations where flammable materials, plant or hot work are present • No site-specific emergency response plan for deep or complex excavations (e.g. basements, pits, enclosures) • Limited access for emergency services vehicles and equipment to basement or remote excavation sites • Workers and supervisors unfamiliar with evacuation routes and assembly areas for excavation incidents • Insufficient equipment and training for rescue from depth, including retrieval of injured workers from excavations • Poor communication capability (e.g. radio dead zones) in deep or shielded excavation areas • Lack of coordination of emergency procedures across multiple contractors and site visitors		[redacted]	
11. Contractor Management, Procurement and Interface of Multiple Trades	• Engagement of excavation contractors without adequate WHS systems or experience in complex ground disturbance • Conflicting work activities (e.g. excavation, crane operations, service installation) leading to uncontrolled interfaces • Inadequate review of contractor SWMS, excavation risk assessments and permits before work commences • Poor communication of changes in excavation staging, depth or design to all affected contractors • Subcontractors working to different standards for demarcation, edge protection and visitor entry procedures • Insufficient supervision of small crews or short-term contractors undertaking critical excavation tasks	3H	[redacted]	1L

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	• Lack of clarity over responsibilities for post-excavation reparation procedures (backfilling, compaction, reinstatement) • Failure to include excavation safety performance in contractor evaluation and commercial decision-making		[redacted]	
12. Fatigue, Work Scheduling and Human Factors in Excavation Operations	• Fatigue among plant operators and supervisors due to extended shifts or night work on excavation programs • Rushed decision-making caused by schedule pressure, program delays or weather-related interruptions • Inadequate consideration of human factors (visibility, noise, heat, confined conditions) in deep excavations • No formal process for managing high-risk periods such as simultaneous basement excavation and major concrete pours • Poor housekeeping and clutter in excavation work areas contributing to slips, trips and impacts with plant • Inattention and com[illegible]cency in routine tasks such as digg[illegible] footings and foundations or sha[illegible]w excavati[illegible] • Lack of structured [illegible]ver betwe[illegible] shifts leading to miscommunication [illegible] hazards and control status • Insufficient rest areas and [illegible]cilities for workers operating in extreme temperatures or enclosed excavation environments	3H	[redacted]	1L
13. Documentation, Recordkeeping and Continuous Improvement for Excavation Safety	• Incomplete or inaccurate records of permits, inspections, engineering certifications and training related to excavations • Loss of critical information during project transitions, contractor changes or handover to subsequent construction phases	2M	[redacted]	1L

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	• Failure to analyse excavation-related incidents and near misses to identify systemic issues • Out-of-date excavation procedures and risk assessments not reflecting current legislation or lessons learned • Inadequate control of as-built information, including final location of services and underground structures • Lack of verification that corrective actions from audits or incidents have been implemented and are effective • Poor traceability of decisions regarding changes to excavation design, staging or support systems • Limited organisational learning across multiple projects involving excavation and earthworks		[redacted]	

EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES ANY STATE THAT ARE NOT APPLICABLE

Queensland & Australian Capital Territory
Work Health and Safety Act 2011
Work Health and Safety Regulations 2011
Legislation QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws
Codes of Practice QLD: https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice
Legislation ACT: https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations
Codes of Practice ACT: https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice

New South Wales
Work Health and Safety Act 2011
Work Health and Safety Regulations 2025
Legislation NSW: https://www.safework.nsw.gov.au/legal-obligations/legislation
Codes of Practice NSW: https://www.safework.nsw.gov.au/resource-library/list-of-codes-of-practice

Northern Territory
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/codes-of-practice

South Australia
Work Health and Safety Act 2012 (SA)
Work Health and Safety Regulations 2012 (SA)
Legislation for SA: https://www.safework.sa.gov.au/resources/legislation
Codes of Practice for SA: https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs

Tasmania
Work Health and Safety Act 2012
Work Health and Safety (Transitional and Consequential Provisions) Act 2012
Work Health and Safety Regulations 2012
Work Health and Safety (Transitional) Regulations 2012
Legislation for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations
Codes of Practice for TAS: https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.

Victoria
Occupational Health and Safety Act 2004
Occupational Health and Safety Regulations 2017
Legislation VIC: https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations
Codes of Practice VIC: https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice

Western Australia
Work Health and Safety Act 2020
Work Health and Safety Regulations 2022
Legislation Western Australia: https://www.commerce.wa.gov.au/worksafe/legislation
Codes of Practice WA: https://www.commerce.wa.gov.au/worksafe/codes-practice

Safe Work Australia Links
Law and Regulation (All States): https://www.safeworkaustralia.gov.au/law-and-regulation
Model Codes of Practice: https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice

Model Codes of Practice

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work