Retaining Wall Construction

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:

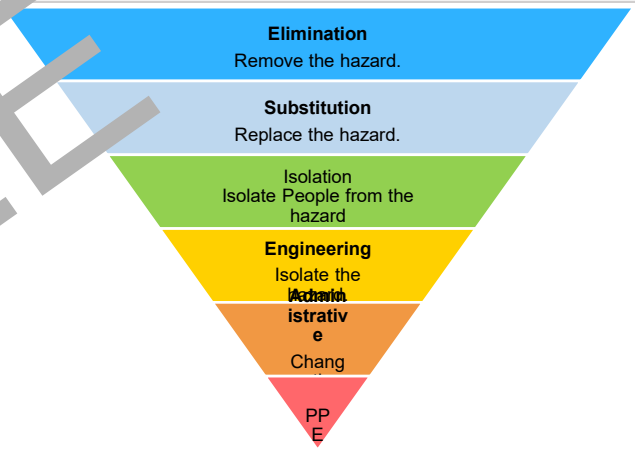
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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. Governance, WHS Duties and Legal Compliance	• Failure to identify and discharge PCBU and officer due diligence duties under the WHS Act 2011 for retaining wall construction • Inadequate understanding of obligations under state and territory WHS Regulations, Building Code of Australia and local council requirements for earth retaining structures • Absence of clear WHS objectives, targets and performance indicators specific to excavation and retaining wall projects • Inadequate allocation of resources (time, budget, competent people) for safe design, planning and supervision of retaining wall works • Poor integration of WHS governance into procurement, design, construction and handover processes • Lack of documented WHS roles, responsibilities and accountabilities for key duty holders (PCBU, principal contractor, supervisors, designers, engineers, subcontractors)	4A	• Establish and document a WHS governance framework that specifically addresses high-risk construction work including excavation and retaining wall construction in accordance with the WHS Act 2011 and WHS Regulations • Define and communicate WHS roles, responsibilities and accountabilities for officers, project managers, supervisors, engineers, contractors and workers in project WHS management plans • Ensure officers demonstrate due diligence by actively verifying that retaining wall projects have adequate resources, competent personnel, and effective WHS systems in place • Integrate WHS legislation and code of practice requirements for excavation and structural work into corporate project management procedures and checklists • Implement a formal legal register capturing applicable WHS laws, Australian Standards and local planning and engineering requirements for retaining walls, with scheduled reviews • Require project-specific WHS management plans for retaining wall works that outline governance arrangements, consultation mechanisms and key risk controls before work commences • Undertake periodic independent WHS and compliance audits on retaining wall projects and track corrective actions to closure through a formal action management system	3H
2. Design Management and Engineering Verification	• Retaining wall or earthworks designed by non-competent or unqualified personnel • Insufficient geotechnical investigation leading to under-designed wall and potential collapse or excessive movement • Omission of drainage design, backfill specifications or surcharge load considerations in design documentation • Lack of independent design review and certification for high or complex retaining walls • Design not considering constructability, sequencing, temporary works and access for plant and people	4A	• Implement a design management procedure that mandates use of suitably qualified structural and geotechnical engineers for all retaining wall designs over defined height or complexity thresholds • Require site-specific geotechnical investigations and soil reports to inform design parameters such as soil type, bearing capacity, groundwater and slope stability • Mandate inclusion of drainage, backfill specifications, surcharge loads, batter/bench details and interface with existing structures in the design brief and drawings • Introduce a formal design verification and independent review process for retaining walls, including documented engineering sign-off prior to construction • Ensure design documentation includes constructability considerations such as construction stages, temporary works, access, craneage and plant loading limits near excavations • Establish a controlled design change process requiring written engineer approval for any on-site variations to wall height, alignment, materials, batter angles or backfill types • Maintain a design records system ensuring current, approved drawings and specifications are controlled, issued and used on site, with superseded versions removed	2M

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	• Design changes on site not re-assessed or certified by a suitably qualified engineer			
3. Geotechnical Risk and Ground Stability Management	• Unidentified ground conditions such as reactive clays, loose fill, soft soils, voids or uncontrolled fill leading to wall or excavation failure • Inadequate assessment of slope stability, existing retaining structures or adjacent excavations • Failure to manage groundwater, seepage or perched water pressures behind or below the retaining wall • Uncontrolled surcharge loads (stockpiles, vehicles, buildings) near the crest of excavations or wall alignment • Absence of a formal system for monitoring ground movement, cracking or wall deflection during and after construction	4A	• Develop and enforce a geotechnical risk management procedure for retaining wall and excavation projects requiring early engagement of geotechnical engineers • Require documented geotechnical assessment for all retaining walls above defined heights or in sloping or unstable terrain, including recommendations for wall type and construction method • Implement engineering controls such as staged excavations, benching, shoring or soil nailing where geotechnical assessment identifies stability concerns • Establish controls restricting surcharge loads near the top of excavations or wall locations, including exclusion zones and load limit plans signed off by an engineer • Introduce a ground and wall movement monitoring regime (e.g. survey points, crack gauges, visual inspection checklists) with trigger action response plans (TARPs) • Include groundwater control strategies such as subsoil drains, temporary dewatering, and filter layers in the design and construction methodology, with engineer oversight • Ensure geotechnical and structural engineers sign off on ground preparation, founding levels and bearing capacity before construction of key retaining wall stages	2M
4. Procurement of Materials, Blocks and Structural Components	• Use of retaining wall blocks, geogrids, reinforcement or drainage materials that do not meet design or manufacturer specifications • Substitution of specified systems (e.g. keystone block retaining wall systems) with cheaper or incompatible products without engineering approval • Inadequate quality control of prefabricated components leading to dimensional errors or material defects • Lack of traceability for structural components and geosynthetic products • Improper storage of blocks, geogrids and drainage materials leading to degradation or damage before installation	3H	[redacted]	2M
5. Contractor, Designer and Engineer	• Engagement of contractors or designers without demonstrated	3H		2M

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Competency Management	competency in retaining wall construction or earth retaining structures • Supervisors lacking technical understanding of retaining wall systems, geogrids, drainage and backfill requirements • Inadequate verification of licences, registrations and professional indemnity insurance for engineers and specialised contractors • Insufficient resources for competent supervision during critical construction stages such as founding, reinforcing and backfilling • Reliance on ad-hoc labour hire without appropriate induction or verification of skills		[redacted]	
6. Planning and Integration with Adjacent Structures and Services	• Retaining wall alignment conflicting with underground or overhead service leading to service strikes or compromised footing design • Inadequate assessm[redacted]pact on nearby buildings, p[redacted]ements, fences and existing retai[redacted]g walls • Lack of coordinati[redacted]ther construction activities resulting in overloading, undermining or dama[redacted]to newly built walls • Poor planning for access, laydown areas and traffic movements around excavations and wall construction zones	3H	[redacted]	2M
7. Excavation, Temporary Works and Shoring Systems Management	• Systemic failure to identify excavations associated with retaining walls as high risk construction work under WHS Regulations • Lack of engineered design for deep cuts, benching, shoring or soil nail systems required for wall construction • Inadequate inspection and maintenance regime for temporary	4A	[redacted]	2M

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	works supporting cuts and adjacent structures • Absence of procedures controlling access to excavation edges for plant, vehicles and pedestrians • Poorly communicated limitations on excavation depth, batter slopes and benching arrangements		[redacted]	
8. Plant, Equipment and Lifting Systems Governance	• Selection of inappropriate plant for excavation, lifting and placing heavy wall blocks or reinforcing elements • Inadequate plant maintenance systems leading to mechanical failure near excavations and retaining walls • Absence of engineered lifting plans f handling large keystone blocks, panels or precast units • Poor control of plant nts near excavation edges, l ding to ground collapse or wall ins bility • Lack of operator c y verification and high-risk work licenc where required		[redacted]	2M
9. Safe Systems of Work, Procedures and Documentation	• Absence of project-specific safe work procedures for retaining wall and earth retaining structure activities • Over-reliance on generic SWMS that do not reflect site-specific geotechnical, design or access constraints • Failure to integrate design assumptions and limitations into operational procedures used by supervisors and crews	3H	[redacted]	2M

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	• Poor control and communication of revisions to procedures and work instructions • Insufficient documentation of critical hold points, inspections and sign-offs for retaining wall stages		[redacted]	
10. Training, Induction and Competency Development	• Workers and supervisors not trained in the specific risks associated with retaining wall and excavation projects • Inadequate induction covering ground instability, wall collapse, plant-person interface and emergency response • No structured competency assessment for key tasks such as block placement, compaction and drainage installation • Limited understanding of manufacturer installation requirements for proprietary keystone block systems • Failure to provide refresher training following incidents, near misses or design changes	3H	[redacted]	2M
11. Consultation, Communication and Change Management	• Poor communicat[redacted]sign deta[redacted], limitations and critical stages betwee[redacted] engineers, supervisors and work cr[redacted]s • Lack of formal consulta[redacted]th workers on practical issues affecting safe retaining wall construction • Uncontrolled changes to methods, sequencing or materials not communicated to all stakeholders • Language, literacy or cultural barriers leading to misunderstanding of critical safety instructions • Inadequate handover communication between shifts or different contractors working on the same wall	3H	[redacted]	2M

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12. Site Access, Public Safety and Traffic Management	• Unauthorised access by public or non-essential workers to excavation and retaining wall construction areas • Vehicle and plant interaction with pedestrians near wall alignments and excavation edges • Insufficient separation between public roads, footpaths, neighbouring properties and construction activities • Inadequate lighting, signage and barriers around partially completed walls and open excavations after hours	3H	[redacted]	2M
13. Environmental, Drainage and Stormwater Risk Management	• Inadequate management of stormwa leading to erosion, scouring or undermining of retainin foundations • Clogging or failu of drainage stems behind walls causi hydr tic pressure build-up and potential colla e • Uncontrolled discharge of sediment-laden water fro ations affecting downstream areas or public infrastructure • Lack of maintenance planning for long-term performance of subsoil drains, weep holes and surface drainage	3H	[redacted]	2M
14. Health Risks, Fatigue and Psychosocial Factors	• Fatigue arising from extended work hours, high physical workload and exposure to weather during excavation and wall construction	3H	[redacted]	2M

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	• Heat stress or cold exposure affecting decision-making and physical capability in outdoor retaining wall works • Psychosocial stressors including time pressure, conflicting priorities with other trades and community complaints • Manual handling injuries from repetitive handling of smaller blocks, tools and drainage components without adequate task design		[redacted]	
15. Emergency Preparedness, Wall Failure and Incident Response	• Lack of planning for sudden wall movement, collapse or excavation failure involving workers or the public • Inadequate emergency access for rescue services around excavations ar retaining wall sites • Poor communicatio ystems for raising the alarm a coordinating response in remot r dispersed ork locations • Absence of scenario-based emerg cy drills addressing wall collapse, engulfment or plant rollo excavations	A	[redacted]	2M
16. Monitoring, Inspection, Audit and Continuous Improvement	• Failure to detect early signs of wall distress, ground movement or drainage problems during and after construction • Inconsistent or informal inspections of critical retaining wall construction stages • Lack of structured WHS performance monitoring for retaining wall projects	3H	[redacted]	1L

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	• Inadequate follow-up on non-conformances, incidents, near misses or audit findings		[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 FOR 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