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

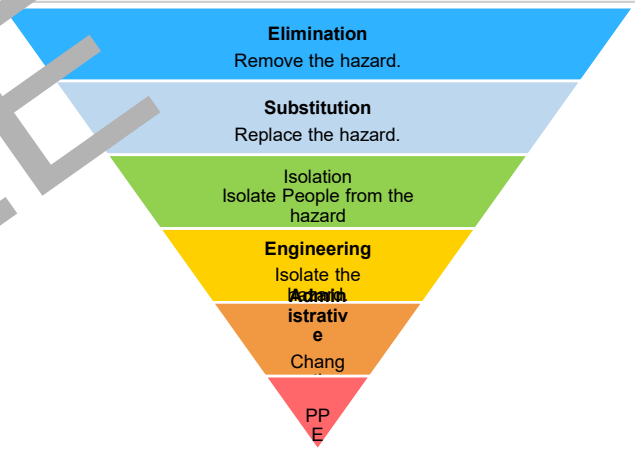
THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT		
Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.		
Full Name:		
Signature:	Title:	Date:

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, Legal Compliance & PCBU Duties	• Lack of clear allocation of WHS responsibilities for underpinning works between PCBU, principal contractor and subcontractors • Failure to identify and comply with WHS Act 2011 and WHS Regulation requirements specific to excavation, shoring and structural alterations • Inadequate consultation, cooperation and coordination between multiple duty holders on complex underpinning projects • No formal process for reviewing and approving structural methodologies that impact existing buildings and neighbouring properties • Insufficient oversight of high-risk construction work obligations, including written SWMS for underpinning and associated excavation • Failure to keep and maintain required WHS documentation, records and licences • Lack of due diligence by officers in monitoring WHS performance of underpinning contra	4A	• Establish a WHS governance framework that clearly defines PCBU, officer, principal contractor and subcontractor duties for underpinning projects with documented role descriptions • Maintain a legal register identifying relevant WHS Act 2011, WHS Regulation, Codes of Practice (Excavation Work, Construction Work, Demolition Work) and applicable Australian Standards for underpinning and shoring • Implement a formal process for WHS legal compliance reviews at project start-up and at key milestones (design freeze, methodology change, staging change) • Require written agreements that define WHS responsibilities, consultation mechanisms and escalation pathways between principal contractor, underpinning specialists and structural engineers • Mandate that all underpinning-related excavation and structural alteration activities are treated as high-risk construction work with approved project-specific SWMS in place before work starts • Implement an internal audit program to periodically verify compliance with WHS legislative requirements, SWMS implementation and documentation standards on underpinning projects • Ensure officers receive periodic WHS due diligence training that specifically addresses structural and excavation risks typical of underpinning work • Require prompt notification, investigation and reporting of notifiable incidents in line with WHS Act 2011, including structural failures, near misses and serious injuries	3H
2. Design Management, Temporary Works & Engineering Verification	• Underpinning design not prepared checked by a suitably qualified a experienced structural en • Inadequate consideration of soil conditions, groundwater and existing foundation performance in the design process • Lack of engineered design for temporary works such as shoring, propping, needle beams and formwork systems • No formal design verification or independent review for complex or high-risk underpinning solutions • Design documentation not adequately coordinated between architect, structural	4A	• Establish a design management procedure requiring that all underpinning, shoring and temporary works designs are prepared, signed and certified by competent structural and, where relevant, geotechnical engineers • Mandate geotechnical investigations and appropriate laboratory testing for underpinning works, with design parameters taken from certified geotechnical reports • Implement a formal design review and verification process, including independent peer review for complex underpinning systems, underpinning of heritage structures and works adjacent to critical infrastructure • Require documented construction staging plans and load transfer sequences to be included in the design package and referenced in SWMS • Ensure that temporary works (shoring, propping, walers, needles, underpinning beams) are designed to recognised Australian Standards and documented with certified drawings and design calculations • Introduce a controlled design change management system requiring written engineering approval, revision control and communication of changes to supervisors and workers	2M

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	engineer, geotechnical engineer and builder • Failure to incorporate construction staging, load transfer sequences and temporary support requirements into the design • Uncontrolled design changes on site without engineering review or updated documentation		• Integrate design risk assessments that explicitly address ground movement, building settlement, collapse potential and effects on adjoining properties • Maintain a design register for underpinning project showing current drawing revisions, engineering certificates and superseded documents	
3. Geotechnical Investigation, Ground Conditions & Monitoring Systems	• Inadequate site investigation leading to unexpected soil profiles, voids, fill or rock conditions during underpinning • Failure to identify groundwater levels, perched water or artesian conditions affecting underpinning stability and constructability • No system for ongoing monitoring of ground movement and building settlement during underpinning activities • Inadequate assessment of the impact of neighbouring excavations, dewatering or vibration on soil stability • Poor communication of geotechnical risks and limitations from consultants to construction and supervision teams • No trigger action response plan (TARP) linked to ground movement / settlement monitoring results	4A	• Implement geotechnical investigation procedure requiring appropriate boreholes, test pits and in-situ tests planned specifically for underpinning and shoring works • Require geotechnical reports to identify soil stratigraphy, bearing capacity, settlement characteristics, shrink-swell potential and groundwater regime relevant to underpinning • Develop and implement a ground and structure monitoring plan, including settlement markers, crack gauges, inclinometers or survey monitoring where significant movement risk exists • Incorporate geotechnical advice into construction staging, underpin spacing, sequence of pours and loading limits for underpinning elements • Establish a TARP for ground and building movement with defined monitoring frequencies, alarm thresholds and mandatory actions (e.g. stop work, engineer inspection, stabilisation measures) • Ensure key findings and limitations from geotechnical reports are communicated to supervisors, engineers and workers via pre-starts, toolbox talks and induction materials • Review potential external influences such as adjacent excavations, traffic loads and nearby construction activities, and include associated controls in the project risk assessment	2M
4. Structural Stability of Existing Buildings & Adjoining Properties	• Loss of structural stability of the building being underpinned due to inadequate temporary support systems • Differential settlement or heave causing cracking, distortion or partial collapse of existing structures • Adverse impacts on neighbouring properties and shared party walls from underpinning activities • Inadequate assessment of load paths and redistribution when excavating below existing footings	4A	[redacted]	2M

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	• Lack of real-time supervision and control during critical stages of load transfer and concrete curing • No systematic documentation of existing defects prior to commencement, leading to disputes and unrecognised progressive damage		[redacted]	
5. Excavation Planning, Shoring Systems & Collapse Prevention	• Inadequate system for identifying and controlling excavation collapse risks under existing structures • Failure to design and install appropriate shoring or underpinning pits in accordance with ground conditions • Uncontrolled excavation sequence leading to undermining of footings or walls • Poor inspection and maintenance regime for shoring, strutting and temporary supports • Lack of coordinatio[redacted]etween excavation plant o[redacted]ations and underpinning pit a[redacted]ess, expos[redacted] workers to collapse[redacted]ment • Inadequate consideration of surch[redacted]ge loads from plant, spoil heaps or b[redacted]ing materials near underpinn[redacted]	4A	[redacted]	2M
6. Concrete Supply, Placement & Curing Management for Underpins	• Use of incorrect concrete mix design or poor-quality materials compromising underpin capacity • Inadequate control of concrete placement sequence leading to voids, honeycombing or incomplete bearing under existing footings • Insufficient curing time or premature load transfer causing cracking or reduced structural performance • Lack of coordination between concrete deliveries, access constraints and pit	3H	[redacted]	2M

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	availability leading to rushed or unsafe practices • Inadequate inspection and testing regime to verify concrete strength prior to jacking or load transfer		[redacted]	
7. Contractor Competency, Licensing & Training Systems	• Engagement of underpinning contractors or workers without demonstrated competency or experience in underpinning existing structures • Lack of verification of high-risk work licences, tickets and qualifications for plant operators and riggers involved in shoring and lifting • Inadequate training on project-specific underpinning procedures and design intent and risk controls • No formal competency assessment for supervisors managing complex underpinning staging and temporary works • Reliance on informal on-the-job learning without structured training for new workers or labour-hire personnel	3H	[redacted]	2M
8. Project Planning, Staging & Interface Coordination	• Underpinning works not adequately integrated into the overall construction program and staging plan • Conflicting activities (demolition, heavy lifting, concrete pours) occurring concurrently above or adjacent to active underpin pits • Inadequate planning for access, egress and materials handling in constrained spaces under existing structures	3H	[redacted]	2M

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	• Poor communication and handover between shifts or subcontractors working on different stages of the underpinning sequence • Failure to plan for service diversions, isolation and relocation prior to underpinning beneath existing utilities		[redacted]	
9. WHS Consultation, Communication & Document Control	• Workers and subcontractors not adequately consulted on underpinning risks and proposed controls • Key underpinning information (design changes, monitoring results, TARPs) not effectively communicated to those who need it • Use of obsolete or superseded drawings, SWMS or procedures in the field • Language barrier or low literacy levels preventing proper understanding of underpinning requirements • Insufficient signage and visual aids at underpinning zones and shoring systems	3H	[redacted]	2M
10. Plant, Equipment & Maintenance Systems for Underpinning	• Use of unsuitable or poorly maintained plant for excavation and handling in constrained underpinning environments • Failure of jacks, props, needles or shoring equipment due to lack of inspection and maintenance • Inadequate selection or configuration of plant leading to excessive vibration or surcharge on existing structures • Lack of systems for verifying rated capacities and compatibility of	3H	[redacted]	2M

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	components in temporary works assemblies • Ad hoc modification of equipment on site without engineering approval		[redacted]	
11. Health, Fatigue, Psychosocial & Competency Support	• Worker fatigue due to extended hours or high concentration demands during critical underpinning stages • Stress and anxiety related to perceived collapse or structural failure risks, impacting decision-making • Inadequate management of occupational health risks such as silica dust, noise and manual handling during underpinning works • Insufficient supervision or mentoring of less experienced workers dealing with complex underpinning tasks • Poor culture where workers are reluctant to stop work or report concerns about structural stability		[redacted]	2M
12. Traffic, Public Protection & Neighbouring Property Risk Management	• Uncontrolled interaction between construction traffic and public areas near underpinning works • Inadequate hoarding, fencing or exclusion zones to protect the public from excavation and structural risks • Failure to manage vibrations, noise and settlement impacting neighbouring properties and infrastructure	3H	[redacted]	1L

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• Lack of emergency access routes for emergency services in congested underpinning work zones • Inadequate communication with neighbours and local authorities about underpinning risks and monitoring arrangements		[redacted]	
13. Emergency Preparedness, Structural Incident & Collapse Response	• Lack of clear emergency procedures for partial collapse, sudden movement or failure of underpinning systems • Workers not trained in recognising early warning signs of structural distress or excavation failure • Insufficient emergency equipment an resources for prompt stabilisation of minor failures • Poor coordination with emergency services regarding te access and structural hazards • Failure to preserve incident scenes nd critical information for investigation d learning	4A	[redacted]	2M
14. Monitoring, Inspection, Audit & Continuous Improvement	• Infrequent or inconsistent inspections of underpinning pits, shoring and existing structures • Failure to act on monitoring data showing adverse trends in settlement or movement • Audits focusing only on paperwork rather than physical verification of underpinning controls	3H	[redacted]	2M

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	• Lack of systematic review of underpinning incidents and near misses across projects • No feedback loop to update designs, procedures and training based on actual performance		[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