Civil Drainage Dewatering and Water Infrastructure			
Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

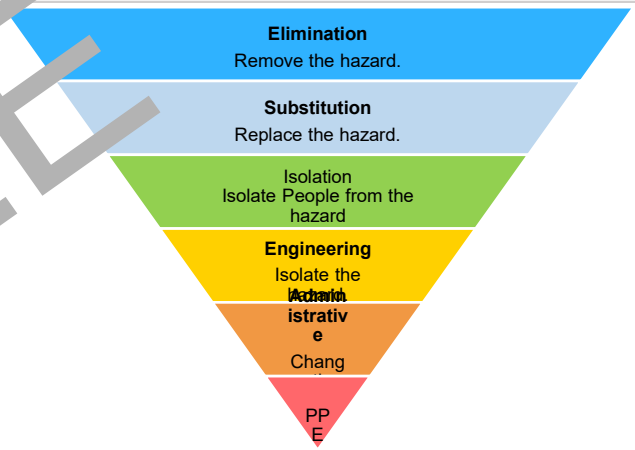
THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT		
Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.		
Full Name:		
Signature:	Title:	Date:

CLIENT OR PRINCIPAL CONTRACTOR DETAILS	SCOPE OF WORKS
Client:	
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 and PCBU Duties	• Inadequate understanding of WHS Act 2011, WHS Regulations, and relevant Codes of Practice for civil construction and excavation • Lack of clear WHS roles, responsibilities and accountability across client, principal contractor, subcontractors and designers • Failure to consult, cooperate and coordinate activities between multiple PCBUs on shared civil drainage and water infrastructure worksites • Insufficient WHS objectives, targets and performance indicators for drainage, dewatering and hydraulic works • Inadequate resourcing (funding, personnel, time) allocated to implement and monitor WHS requirements • Poor integration of WHS governance into broader project management and contract frameworks • Failure to review and u… WHS management arrang…ents when scope changes (e.g. river …versions, sewer realignments, stor…water upg…	4A	• Establish a project-specific WHS Manage…t Plan a…ned with WHS Act 2011, WHS Regulations and applicable Codes of Practice (Excavation, Co…uc…n Work, Confined Spaces, Hazardous Chemicals, Managing the Risk of Falls, etc.) • Define and document WHS r…onsibilities, autho…y and …countabilities for officers, managers, supervisors, engineers and con…tors involved in d…ge, dewatering and hydraulic infrastructure projects • Implement f…al PCBU c…sultatio…and c…dination arrangements including WHS coordination meetings, inte…ce agreem…nts and jo…k reviews for shared worksites • Emb… WHS re…ir…ents, performance standards and reporting obligations into all contracts, work packa…s and serv… agreements (including specialised dewatering and liner installation subcontractors) • Alloca… ex…cit budg…s and resources for WHS personnel, independent audits, training, engineering controls…nd m…itoring…quipment relevant to hydraulic and dewatering risks • M…ntai… a legal…egister capturing all applicable WHS, environmental and water authority requirements, and a… responsibility to monitor and implement regulatory changes • U…ndertake periodic management reviews of WHS performance, legal compliance and resourcing, with co…rective action plans for any identified gaps	3H
2. Design Risk Management for Drainage, Dewatering and Hydraulic Structures	• Design of canal lini…s, culverts, stormwater drains and sewer mains…at does not adequately consider constructability and WHS… • Omission of temporary works design for dewatering systems, cofferdams, shoring and river diversions • Inadequate provision for safe access, egress and fall prevention in pits, culverts, manholes and open channels • Failure to design out confined space entry where practicable in sewer mains, stormwater structures and chambers • Insufficient allowance for inspection, maintenance and cleaning access to	4A	• Implement a formal Safety in Design (SiD) process requiring designers to identify, eliminate or minimise WHS risks across the asset life cycle for canal lining, culverts, sewer mains, stormwater drains and river diversion structures • Require temporary works engineering design and certification for dewatering systems, shoring, sheet piling, canal cofferdams, diversion channels and over-pumping arrangements • Specify design features that provide safe access and egress (ladders, stairs, platforms, handrails, anchor points) and minimise working at height in and around hydraulic structures • Mandate design review workshops with construction, operations and maintenance personnel to identify constructability and maintenance hazards and incorporate safer alternatives • Design to avoid or minimise confined space entry through larger access openings, external valve and control locations, and use of above-ground structures where practicable • Include provision for safe inspection and maintenance of grates, trash racks, headwalls and culverts (e.g. working platforms, lifting points, traffic protection)	2M

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	gratings, weirs, headwalls and hydraulic structures • Design not accounting for hydraulic loads, scour, uplift and instability during construction dewatering phases • Poor integration of relocated utilities into drainage and water infrastructure design leading to clashes and unsafe work sequences		• Implement formal design change management so that any alterations to alignments, invert levels, utility relocations or dewatering requirements trigger a documented WHS risk review	
3. Project Planning, Staging and Interface Management	• Poor staging of drainage system construction leading to uncontrolled water ingress and flooding of work areas • Inadequate planning for simultaneous operations (e.g. excavation, utility relocation, liner placement and grate installation occurring in the same corridor) • Lack of coordinated planning with road authorities, water utilities and other asset owners for tie-ins and shutdown • Insufficient assessment of upstream catchments, storm events and river flows during construction dewatering • Unplanned chan s to construction methodology impa g d ning, slurry management o iver diversion without risk reassessment • Inadequate planning for laydown areas and plant movements within narrow drainage corridors or canal alignments • Failure to integrate temporary traffic management with drainage excavations, culvert installs and stormwater works	4A	• Deve p detailed construction staging plan that sequences dewatering, river diversion, excavation, pipe lay g, nal lini and backfilling to maintain stable and dry work environments • Condu multi ciplinary planning workshops with engineering, construction, environmental and WHS re sen tives t dentify and control interface risks between work activities • Requi mal interface agreements and schedules with utility owners and road authorities for tdowns, live connections, and temporary diversions affecting drainage and sewer systems • In orporate hydrological assessments and weather data into planning, including contingency capacity for high-flow events during critical works in waterways, culverts and open channels • Establish a documented change management process requiring WHS and engineering review for any change in methodology, staging or river diversion/dewatering strategy • Plan safe access and egress routes, exclusion zones, material stockpile locations and plant routes taking into account narrow corridors, embankments and soft ground near drains and canals • Integrate approved traffic management plans with drainage and culvert works, ensuring protection of workers from vehicles and maintenance of public safety around open excavations	2M
4. Ground Conditions, Excavation and Structural Stability Management	• Inadequate geotechnical investigation for trenches, pits, canals and culvert excavations • Uncontrolled ground movement, trench wall collapse or instability of canal and river banks during lowering of groundwater	4A	[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
	• Failure to consider uplifting pressures and flotation of pipes, culverts or linings due to groundwater or hydraulic loading • Insufficient system for selecting, installing and inspecting trench support, shoring, battering and benching • Lack of engineering controls for excavation near existing structures, utilities and roadways • Inadequate monitoring for ground settlement or heave affecting adjacent assets during dewatering and slurry operations • Poorly managed stockpiles or plant loads placed too close to excavations, culvert edges or lined canals		[redacted]	
5. Dewatering System Design, Operation and Monitoring	• Inadequate capacity or redundancy in dewatering systems for trenches, shafts, canal works and culvert installations • Uncontrolled water inflows leading to rapid flooding of work areas and entrapment of workers or plant • Instability of excavation or canal embankments due to excessive drawdown or uneven dewatering • Lack of systems to manage noise, vibration and diesel emissions from dewatering plant • Insufficient monitoring of pump performance, discharge quality and water levels in wells, sumps and adjacent waterways • Inadequate emergency response planning for pump failure, power outage or extreme rainfall during critical works • Non-compliance with environmental approvals and discharge conditions for pumped water and slurry	4A	[redacted]	2M
6. Slurry Management, Sediment Control and Waste Handling	• Inadequate systems for managing drilling fluids, slurry and contaminated sediments from dewatering and trenching	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
	• Uncontrolled release of slurry or turbid water into waterways, stormwater systems or public areas • Failure to identify and manage contaminated soil, sewage-impacted materials and hazardous waste from sewer main works • Insufficient containment capacity for slurry pits and tanks, leading to overtopping and ground contamination • Poorly planned transport, tracking and disposal of liquid and solid wastes from canal lining, culvert installations and sewer replacements • Lack of procedures for managing exposure to biological hazards (sewage, stagnant water) and chemical treatment additives • Non-compliance with environmental licences and waste classification requirements		[redacted]	
7. Utilities Identification, Isolation and Relocation Management	• Inaccurate or incomplete detection an mapping of underground es near culverts, drains, sew mains and stormwater works • Failure to adequa pl and control work around gas, electric water and telecommunications duri drainage construction • Uncoordinated utility relocation works causing unexpected service strikes or outages • Lack of formal isolation and lockout systems when cutting in to existing sewer and water mains • Service congestion in existing corridors leading to constrained and unsafe excavation or pipe laying • Insufficient communication with utility owners regarding changes in alignment, depth or construction method impacting services	4A	[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
	• Inadequate supervision and competency of personnel undertaking works near critical utilities			
8. Confined Spaces, Sewer and Stormwater Access Systems	• Uncontrolled entry into confined spaces such as manholes, culverts, sewer mains, stormwater pipes and chambers • Build-up of toxic or flammable gases in sewers and enclosed drainage structures • Oxygen-deficient atmospheres in long pipes, culverts and sumps • Inadequate entry permitting, atmospheric testing and standby arrangements for confined space works • Lack of rescue capabilities and equipment for workers in deep pits, manholes and culverts • Misclassification of certain structures (e.g. large box culverts) leading to inappropriate controls • Fatigue and heat stress for workers in confined or poorly ventilated underground space	4A	[redacted]	2M
9. Plant, Mobile Equipment and Traffic Interaction Systems	• Uncontrolled interactions between mobile plant and workers during trenching, pipe laying, grate installation and canal construction • Inadequate systems for supervision, inspection and maintenance of specialised plant used in dewatering, lifting and pipe installation • Poor traffic management around road crossings, culvert installations and stormwater connection points • Failure to implement safe systems of work for cranage of pipes, culvert units, precast structures and canal lining materials • Lack of controls for working near water with mobile plant (e.g. risk of rollover into canals, rivers or deep drains)	4A	[redacted]	2M

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
	• Insufficient management of plant working on or near embankment edges, open channels and dewatered excavations • Inadequate plant operator competency verification for complex hydraulic and dewatering operations		[redacted]	
10. Waterways, River Diversions and Public Interface Controls	• Uncontrolled changes to river flow paths or canal diversions leading to erosion, bank collapse and flooding of downstream or adjacent areas • Public access to or interference with open excavations, diversion channels, dewatering discharges and temporary structures • Inadequate communication with stakeholders (residents, businesses, landowners) regarding changed water levels, access restrictions and construction activities • Failure of temporary river diversion structures (bunds, cofferdams, bypass pipes) during high flow events • Impact on recreational water users near construction zones in rivers, creeks or canals • Non-compliance with approvals and licence conditions from water authorities, local councils and environmental regulators • Inadequate emergency planning for overtopping, breach or failure of diversion works	4A	[redacted]	2M
11. Health, Hygiene, Hazardous Substances and Biological Risk Management	• Exposure to sewage, contaminated water and biohazards during sewer main replacement and stormwater works • Inadequate management of hazardous substances used in canal lining, concrete works, coatings and water treatment (e.g. resins, admixtures, grouts)	3H	[redacted]	2M

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
	• Poor hygiene facilities and practices for workers handling slurry, sewage-impacted materials and stagnant water • Lack of health surveillance and vaccination for workers regularly exposed to biological contaminants • Inadequate assessment of chemical compatibility and interactions between treatment agents, ground conditions and sewer/stormwater flows • Insufficient systems for controlling dust, noise and vibration in populated areas along drainage corridors • Failure to manage heat stress, UV exposure and fatigue in outdoor, water-adjacent work environments		[redacted]	
12. Competency, Training and Supervision for Hydraulic and Dewatering Works	• Insufficient technical competency of supervisors and workers undertaking dewatering, canal lining and complex drainage construction • Lack of understanding of excavation stability, confined space, hazardous substances and environ[redacted] obligations specific t[redacted]ater infrastructure proje[redacted]s • Inadequate supe[redacted] for [redacted]h-risk activities such as [redacted] trenching, sewer tie-ins and river diversions • Poor induction processe[redacted] workers and subcontractors joining the project mid-phase • Failure to verify licences, tickets and competency for high-risk work and specialist plant operations • Limited ongoing training and communication regarding changes to procedures, design or staging • Language and literacy barriers affecting comprehension of WHS instructions and procedures on multi-cultural workforces	3H	[redacted]	2M

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
13. Documentation, Permits, Change Control and Communication Systems	• Work proceeding without approved plans, permits or engineering verifications for dewatering, excavations or confined spaces • Use of superseded drawings or specifications for drainage and utility relocation works • Informal change of construction method (e.g. from open cut to microtunnelling) without WHS review • Inadequate communication of design changes, temporary works requirements or revised dewatering strategies to field teams • Poor record keeping of inspections, test results and monitoring data for hydraulic and structural elements • Lack of systematic handover of WHS information between shifts, contractors and project phases • Permit processes that are overly complex or poorly understood, leading workarounds and non-co nce	3H	[redacted]	1L
14. Emergency Preparedness, Incident Response and Recovery	• Delayed or ineffe e response to flooding of excava ns, culverts nals or pits due to storn ent dewatering failure • Inadequate rescue capabilities fo workers in confined spac d trenches or water-adjacent works • Lack of coordinated response to service strikes, sewage spills or hazardous material releases • Poor communication with emergency services and regulators during significant incidents (e.g. river diversion breach, sewer overflow) • Insufficient drills and practice of site-specific emergency procedures for hydraulic and dewatering scenarios • Inadequate recovery and business continuity planning following major	4A	[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
	incidents affecting drainage and water infrastructure projects • Failure to learn from incidents and near misses, leading to recurrence of systemic issues		[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