Asphalt Paving and Bitumen Spraying

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:

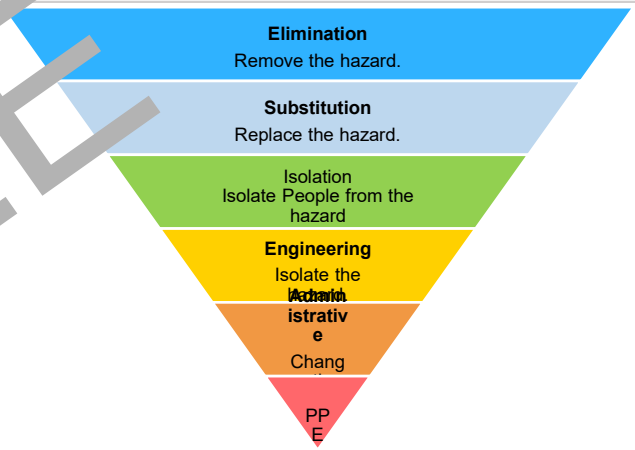
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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 and PCBU Duties	• Inadequate understanding of WHS Act 2011 and WHS Regulations leading to non-compliance across asphalt paving and bitumen spraying operations • Lack of clear WHS roles, responsibilities and accountability for executives, managers, supervisors and workers • Insufficient consultation with workers and Health and Safety Representatives (HSRs) about asphalt and bitumen-related risks • Failure to review WHS performance, incidents and regulatory changes for asphalt plant, paver and resurfacing activities • Multiple PCBUs on shared worksites (client, principal contractor, subcontractors, transport companies) failing to coordinate WHS duties	4A	• Establish a documented WHS management system aligned with WHS Act 2011, WHS Regulations and relevant Codes of Practice covering asphalt paving, bitumen spraying and resurfacing works • Define and document WHS responsibilities for Officers, senior managers, supervisors and workers within position descriptions and WHS governance documents • Implement formal WHS consultation arrangements including HSRs, WHS committees and toolbox meetings specifically addressing asphalt plant, paver and bitumen hazards • Develop a legal register capturing applicable legislation, Australian Standards and guidance material for asphalt production, handling of cold applied bitumen and tar melter operation, and review at least annually • Establish documented processes for due diligence by Officers, including regular WHS performance reporting, audits and management review meetings • Implement procedures and agreements for cooperation and coordination of WHS responsibilities between PCBUs (client, principal contractor, subcontractors, plant hire providers, logistics) on each project • Ensure all contracts and procurement documents specify WHS management system requirements for asphalt and bitumen works • Schedule periodic external WHS audits or gap analyses to verify compliance and effectiveness of WHS governance arrangements	3H
2. WHS Risk Management and Change Management Processes	• Absence of a structured risk management process for asphalt plant operations, asphalt pavers and bitumen handling systems • Risk assessments completed only at task level (SWMS) and not at system or organisational level • Failure to review risks when there are changes to plant, materials, work methods or work locations (e.g. new resurfacing techniques or cold applied bitumen products) • Inadequate hazard identification for combined exposures (heat, fumes, noise, traffic, manual handling) • Poor communication of risk assessment outcomes to supervisors, workers and contractors	4A	• Implement a documented WHS risk management procedure consistent with WHS Regulations, including identify, assess, control and review steps for asphalt paving and bitumen spraying operations • Maintain a register of high-level WHS risks specific to asphalt plant, asphalt pavers, bitumen sprayers, tar melters and resurfacing works, with assigned risk owners and review dates • Require formal risk assessments for introduction or modification of asphalt plant, tar melters, bitumen spray trucks, new binders or additives and significant changes to work methods • Integrate WHS risk assessment into project planning processes, including early design and constructability reviews for resurfacing works • Ensure SWMS for high-risk construction work are supported by this overarching system-level risk assessment and are reviewed for alignment • Establish a Management of Change (MOC) procedure requiring WHS review and sign-off before commissioning new plant, changing bitumen products or altering traffic management methods • Develop a communication process so key risk controls and changes are briefed at pre-starts, toolbox talks and contractor inductions • Monitor implementation of controls through inspections, audits and close-out of corrective actions, with results reported to management	2M
3. Plant and Equipment Design, Selection and Procurement	• Procurement of asphalt pavers, bitumen sprayers, rollers, loaders, asphalt plant and tar melters without	4A		2M

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	considering WHS performance and compliance • Use of plant without appropriate guarding, emergency stops, interlocks or fail-safe systems • Imported equipment lacking Australian-compliant controls, guarding, noise limits or emission controls • Inadequate consideration of ergonomics and whole-of-life maintenance when selecting asphalt and bitumen handling plant • Selection of plant unsuitable for specific site conditions (e.g. gradients, confined urban resurfacing works, night works)		• Develop procurement specifications that require compliance with WHS legislation, relevant Australian Standards and manufacturer guidance for all asphalt plant, pavers, sprayers, heaters and associated machinery • Require documented risk assessments and conformity evidence (e.g. design verification, manufacturer compliance statements) prior to purchase or hire of new plant • Specify engineering controls such as guarding, interlocked access panels, emergency stop systems, operator presence controls, ROPS/FOPS where applicable and noise/vibration minimisation features • Include requirements for safe access systems (steps, platforms, handrails, non-slip surfaces) for asphalt pavers, bitumen spray trucks and elevated components of asphalt plants • Ensure procurement processes consider compatibility between different items of plant (e.g. asphalt trucks tipping into pavers, bitumen melters feeding sprayers) • Incorporate evaluation of visibility, camera systems, proximity detection and lighting requirements for plant operating in live traffic and night resurfacing works • Require suppliers to provide full operating manuals, maintenance instructions, training materials and safety information for asphalt and bitumen plant • Implement a formal plant acceptance inspection checklist to verify WHS features before plant is put into service	
4. Asphalt Plant Operation and Process Control Systems	• Uncontrolled temperatures and process parameters during asphalt production leading to burns, fires, bitumen degradation and excessive fumes • Malfunctioning or inadequate level, temperature and pressure monitoring on bitumen tanks and lines • Poor segregation between pedestrian areas and mobile plant/loaders at the asphalt plant • Inadequate dust, fume and emission control systems exposing workers to respirable dust and bitumen fumes • Lack of formal shutdown, start-up and emergency response procedures at the asphalt plant	4A	[redacted]	2M

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5. Bitumen Storage, Heating, Tar Melter and Cold Applied Bitumen Systems	• Overheating of bitumen, cold applied products or tar in melters causing thermal decomposition, fire or explosion • Bitumen tank, pipework or hose failures due to corrosion, overpressure or poor maintenance • Inadequate ventilation around tar melters and bitumen heaters leading to fume accumulation • Incompatible handling of cold applied bitumen products (solvent-based or chemically reactive) creating fire, health or environmental risks • Poor controls for decanting, transferring or loading heated or cold applied bitumen leading to splash, burn or spills	4A	[redacted]	2M
6. Mobile Plant Interaction, Traffic and Pedestrian Interface	• Systemic failure to [redacted] between asphalt pavers, rollers, trucks, bitumen sprayers and public traffic • Insufficient planning for [redacted] environments during resurfacing works resulting in vehicle strikes • Unclear roles between traffic controllers, supervisors and plant operators leading to miscommunication • Inadequate lighting and visibility during night works and low-light conditions • Poor management of public access, cyclists and pedestrians around work zones	4A	[redacted]	2M

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			[redacted]	
7. Worker Competency, Training and Supervision	• Operators of asphalt pavers, sprayers, rollers, tar melters and asphalt plants lacking formal competency or verification of skills • Insufficient supervision of new or inexperienced workers on high-risk pavement resurfacing works • Training limited to on-the-job, undocumented instruction with no assurance of understanding WHS requirements • Failure to provide role-specific training on hazards of hot bitumen, fumes, traffic exposure and heat stress • Inadequate competency in emergency response, spill management and first aid for burns	4A	[redacted]	2M
8. Fatigue, Scheduling and Heat Stress Management	• Extended shifts, night works and consecutive days on asphalt paving and resurfacing projects leading to fatigue-related incidents • Inadequate planning for hot weather conditions, radiant heat from asphalt and tar melters increasing risk of heat stress • Poor rostering, insufficient breaks and unrealistic production targets creating pressure to work while fatigued	4A	[redacted]	2M

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	• Lack of systems to manage commute times and remote area travel for crews • Limited understanding among supervisors of fatigue indicators and heat illness signs		[redacted]	
9. Hazardous Chemicals, Bitumen Fumes and Health Exposure Management	• Chronic exposure to bitumen fumes, diesel exhaust, solvents in cold applied bitumen and other hazardous chemicals without adequate controls • Inadequate implementation of the hierarchy of controls, relying primarily o PPE for chemical and fu posures • Incomplete or out- date chemical registers and Safe Data Sheets (SDS) • Lack of health mo where required for specific substances (e.g isocyanates, solvents in some cold applied systems) • Insufficient ventilation planning for enclosed or partially enclosed areas (under bridges, tunnels, deep cuttings) during asphalt laying	4A	[redacted]	2M
10. Manual Handling, Ergonomics and Equipment Design	• Systematic use of poor manual handling practices for tools, hoses, traffic control devices and materials associated with asphalt and bitumen works	3H	[redacted]	2M

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	• Design of equipment, storage and work areas that requires awkward postures and repetitive movements • Inadequate provision of mechanical aids for loading, unloading and handling of drums, bags and other materials (including cold applied bitumen containers) • Lack of consideration of vibration exposure from compactors and other powered hand tools over extended periods • Insufficient training on ergonomic risks specific to asphalt paving crews and asphalt plant workers		[redacted]	
11. Emergency Preparedness, Incident Response and First Aid	• Inadequate emergency plans for bitumen burns, fires, chemical spills and traffic incidents at paving and resurfacing sites • Insufficient first aid coverage, equipment and training for remote or dispersed work crews • Lack of coordination with emergency services for large or high-risk resurfacing works on major roads • Poor incident reporting and investigation systems leading to repeat events • Failure to test and review emergency response arrangements at asphalt plants and project sites	4A	[redacted]	2M

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12. Contractor and Subcontractor WHS Management	• Contractors engaged for asphalt paving, bitumen spraying, transport or traffic control operating under inconsistent WHS standards • Lack of clarity about which PCBU controls particular WHS risks on multi-contractor resurfacing sites • Inadequate pre-qualification of subcontractors regarding WHS systems, competency and incident history • Poor integration of contractor SWMS and procedures with the principal contractor's WHS management system • Limited oversight of contractor compliance with agreed WHS requirements during works	4A	[redacted]	2M
13. Environmental Conditions, Site Planning and Public Safety	• Inadequate site p[redacted]nning leading to uncontrolled public[redacted]ccess t[redacted]eas during asphalt laying[redacted]esurfacing works • Poor consideration of weather i[redacted]pacts (rain, wind, extreme heat, l[redacted]visibility) on asphalt quality and worker safety • Insufficient management of noise, dust, odour and run-off affecting nearby residents, businesses and road users • Lack of integration between environmental and WHS controls, causing conflicting or ineffective measures • Limited planning for work near services, structures, bridges or confined sections of road	3H	[redacted]	2M

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			[redacted]	
14. Maintenance, Inspection and Asset Management of Plant	• Breakdown of asphalt pavers, asphalt plant, rollers, sprayers and tar melters due to inadequate preventive maintenance, creating sudden high-risk situations • Use of plant with unreported or unrepaired defects (e.g. leaking bitumen lines, faulty brakes, inoperative safety devices) • Lack of standardised pre-start inspections and defect reporting for mobile and fixed plant • Inaccurate or incomplete maintenance records leading to missed safety-critical inspections • Reliance on unqualified personnel to conduct repairs or modifications to safety systems	4A	[redacted]	2M
15. Information, Communication, Consultation and Reporting	• Critical WHS info[redacted]halt and bitumen risks [redacted] front[redacted] workers, night crews or contractors • Inadequate mechanisms for wo[redacted]rs to raise WHS concerns or i[redacted]ent ideas without fear of reprisal • Poor communication between shifts and between asphalt plant, transport and site crews leading to coordination failures • Incomplete or delayed reporting of incidents, near misses and hazards • Lack of feedback loops so workers are unaware of investigation outcomes and corrective actions	3H	[redacted]	2M

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			[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