Site SWMS & Risk Assessments

WENTWORTH ELECTRICAL
& AIR CONDITIONING

Principal Contractor	Grady Homes
Date Provided to PC	10/01/2024
Revision Due	10/01/2025
Project	QR Code: WWE-432698 Various Projects
Construction Site Location / Address	Various Locations Around Townsville and Surrounds
Person in charge of SWMS: Supervisor (Responsible for Implementing, Monitoring & Ensuring Compliance with SWMS)	James Berryman (07) 4775 7479
After Hours Contact	James Berryman 0401 279 997

Purpose

The purpose of this document is to clearly identify the Hazards and Risks associated in both the high-risk work activities as well as the general construction site tasks. This SWMS must be kept and be available for inspection until the high-risk construction work to which the SWMS relates is completed. If the SWMS is revised, all versions should be kept. If a notifiable incident occurs in relation to the high-risk construction work in this SWMS, the SWMS must be kept for at least 2 years from the date of the notifiable incident.

Evaluation

Evaluation of process effectiveness is carried out using internal audits and site safety inspections. This document in its entirety is relevant between the stated review dates, unless it has been identified that controls are potentially not effective, changes to the workplace has introduced new task(s), hazard(s)/risk(s) or in the event of a notifiable incident then SWMS will be reviewed and, if necessary, revised. Ultimately everyone is responsible for ensuring their duties are upheld with regards to safety in the workplace.

At the end of the SWMS there is a provision to add to or amend the SWMS, if these are used workers must notify James Berryman as soon as practical to ensure the changes are implemented. Once the SWMS are amended and controls are acceptable for the specified hazards all workers must re-sign onto the SWMS to ensure they are made aware of the changes.

Doc Control Details

PCBU Name:	**Wentworth Electrical Pty Ltd**	**ABN:**	**66 897 448 203**	
PCBU Address:	**2/12 Vennard Street, Garbutt Townsville, QLD, Australia**		**Contact Number:**	**0401 279 997**
Document Name	**Grady Homes SWMS WWE05 V1 Jan 24**			
Document Code	**WWE05**			
Document Owner	**Wentworth Electrical Pty Ltd**		**Maintained By**	**Erker Safety**
Consulted By	**James Berryman & Erker Safety**		**Approved By**	**James Berryman**
Created By	**Erker Safety Pty Ltd**		**Date Created**	**10/01/2024**
Version Number	**Modified By**	**Modifications Made**	**Date Modified**	**Review Date**
V1	SH	Document Creation	10/01/2024	10/01/2025

Table of Contents

1 Definitions:

High Risk Work (As defined by WH&S Qld):

Work carried out at a workplace deemed as high risk by WH&S Regulation 2011 (s291):

1. involves a risk of a person falling more than 2m; or
2. is carried out on a telecommunication tower; or
3. involves demolition of an element of a structure that is load bearing or otherwise related to the physical integrity of the structure; or
4. involves, or is likely to involve, the disturbance of asbestos; or
5. involves structural alterations or repairs that require temporary support to prevent collapse; or
6. is carried out in or near a confined space; or
7. is carried out in or nearby—
   (i) a shaft or trench with an excavated depth greater than 1.5m; or
   (ii) a tunnel; or
8. involves the use of explosives; or
9. is carried out on or near pressurised gas distribution mains or piping; or
10. is carried out on or near chemical, fuel, or refrigerant lines; or
11. is carried out on or near energised electrical installations or services; or
12. is carried out in an area that may have a contaminated or flammable atmosphere; or
13. involves tilt-up or precast concrete; or
14. is carried out on, in or adjacent to a road, railway, shipping lane or other traffic corridor that is in use by traffic other than pedestrians; or
15. is carried out in an area at a workplace in which there is any movement of powered mobile plant; or
16. is carried out in an area in which there are artificial extremes of temperature; or
17. is carried out in or near water or other liquid that involves a risk of drowning; or
18. involves diving work.

2 Legislation that relates to this Safe Work Method Statement

Legislation

- Work Health and Safety Act 2011
- Work Health and Safety Regulation 2011
- Electrical safety Act 2002
- Electrical Safety Regulation 2013

Current Codes of Practice – relevant to the task undertaken

https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice

- How to Manage Work Health and Safety Risks Code of Practice 2021
- Hazardous Manual Tasks Code of Practice 2021
- How to Manage and Control Asbestos in the Workplace Code of Practice 2021
- How to Safely Remove Asbestos Code of Practice 2021
- Managing Electrical Risks in the Workplace Code of Practice 2021
- Managing Respirable Crystalline Silica Dust Exposure in Construction and Manufacturing of Construction Elements Code of Practice 2022
- Managing Risks of Hazardous Chemicals in the Workplace Code of Practice 2021
- Managing Risks of Plant in the Workplace Code of Practice 2021
- Managing the Risk of Falls at Workplaces Code of Practice 2021
- Traffic Management for Construction or Maintenance Work Code of Practice 2008
- Welding Processes Code of Practice 2021
- Work Health and Safety Consultation, Co-operation and Co-ordination Code of Practice 2021
- Working Near Overhead and Underground Electric Lines – Electrical Safety Code of Practice 2020

3 PPE Requirements

PPE Requirements will be listed at the beginning of each activity with the recommended requirements using the below Pictograms:

Safety Glasses Medium Impact (Clear indoor use and tinted outdoor use.)

Safety footwear with a steel cap toe or composite toe.

Safety Gloves suitable for the task.

Ear Protection either Plugs or Muffs suitable to the task.

Hard Hat for all work where there is work overhead.

Hi Visibility Clothing, Reflective Tape is only recommended at nighttime.

Respiratory Protection (RPE), specific to the task & as shown on fit test certificate

Protective Clothing, long sleeves and long pants

Clear High impact visor

Wide brim hat or ring worn over Hard Hats.

Height Safety PPE specific to the task

4 Qualifications, Training Requirements

QBCC Licence – Electrical Contractor
HRWL – WP (Knuckle Boom)
EWP (Scissor Lift) – Competently Trained
EWP (Scissor Lift to Access Roof) - Competently Trained
Apprentice Training, if applicable
Industry White Card(s)
Supervision from James Berryman
Spotter for mobile plant, as required. Competently trained for the type of machinery with a full understanding of the tasks being conducted.

5 Hierarchy of Control Measures

Level 1	Level 2	Level 3
• Eliminate the Hazard	• Substitute the Hazard • Isolate the Hazard • Engineer the Hazard out	• Administration Controls • PPE

6 Parties responsible for implementation of Controls

Supervisor

Worker

Operator

Engineer

Management

Spotter

7 Risk Calculator

HOW TO USE THIS RISK TABLE
Step 1: Identify potential hazards.
Step 2: Decide what a possible **Consequence** could be.
Step 3: Decide **How Likely?** it is to happen
Step 4: Line up your choices in the table to get a number
Step 5: Use the Priority table to the right.

Appendix B - Risk Calculator

RISK RATING CALCULATOR			Likelihood		
Consequence What injury/damage could it cause?	**Rare - 3** Could only happen once in 25 years	**Unlikely - 2** Could happen, once in 5 years	**Possible - 1** Could happen each year	**Likely - 0** Could Happen more than once a year	**Almost Certain - 0** Could happen anytime
Catastrophic - 0 Multiple Fatalities	3	2	1	0	0
Major - 0 Death or serious disability	3	2	1	0	0
Moderate - 1 Long term illness or serious injury	4	3	2	1	1
Minor - 2 Medical attention & several days off work	5	4	3	2	2
Insignificant - 3 First aid needed	6	5	4	3	3

Risk Rating	Prioritisation
0, 1 or 2	**Action to rectify must be done immediately before work may commence**
3	**Consider control measure as necessary and implement further controls to reduce risk**
4, 5, 6	**Continue to use correct controls selected and maintain communication**

8 Workers Sign on and Consultation of SWMS

By signing the below I:

- **Acknowledge that I have had input into the development of the SWMS or have had opportunity to comment on the content**
- **Understand and agree to abide by all of the requirements stated within the SWMS**
- **Have appropriate certification, licences and/or training to competently undertake the task or, where permitted, will be directly supervised by persons with appropriate level of certification, licensing, training and competence**
- **Understand that where task changes or the controls stated are ineffective, that I will immediately notify my supervisor and cease work till the controls are modified and I re-sign an updated SWMS**

First & Last Name:	Signature:	Date:

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
1B. Working at Height – Working Around Edge Protection				
PPE Recommended			**Persons responsible for maintaining controls** 	
Working on a platform or structure with edge protection installed.	Hazard: Non-compliant edge protection **Risk: Personal injury**	1	• Edge protection must be erected according to the instructions of manufacturer, supplier, engineer, or competent person • All edge protection must be signed off by a competent person as complete and safe prior to any work occurring • The edge protection must be designed to withstand the impact of a fall against it	5
	Hazard: Fall from height **Risk: Personal injury**	1	• Edge protection will be erected on all sides of the working area. The base of the edge protection must be at least 1,200mm wide—900mm higher than that surface, it must have a mid-rail no greater than 450mm and a kickboard/toe board no greater than 250mm • All edge protection must have adequate secured access available	5
	Hazard: Falling objects **Risk: Personal injury**	1	• Tools and materials may not be leaned against edge protection	5
1C. Working at Height – Edge Restraint (Fall Restraint)				
PPE Recommended			**Persons responsible for maintaining controls** 	
Working on a structure where height safety PPE is used as the main control of falling	Hazard: Exposed edge/ fall from height, **Risk: Personal injury**	1	• The use of a harness system is PPE and is a lower hierarchy of control and should be avoided where possible, however, if this control measure is the only viable option, the following elements must be adhered to • Worker must be competent and has been trained in the safe and correct use of the system • The restraint system must control the person from reaching a position at which there is a risk of a fall • The harness must be connected by a lanyard to an anchorage or horizontal lifeline. It must be set up to prevent the wearer from reaching an unprotected edge. • The anchorage point must be certified to the number of persons connected to it • The anchorage point must be selected for the pitch of the roof, the number of persons that will be connected to anchorage point and in accordance with the manufacturer's specifications	5

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk

			• The length of travel should not allow a pendulum whereby a person could fall from the edge
			• Use an Australian Standards Approved (AS/NZS 5532) Fall Restraint System which has three components:
			  ○ Anchorage system (e.g., a 15kN for single user & 21kN for 2 persons)
			  ○ Connection system with ability to adjust length
			  ○ Harness with a rear attachment point.
			• A harness system should **not** be used:
			  ○ In a position where fall is possible either through or from an edge
			  ○ The slope of the roof is greater than15 degrees
			  ○ The type of surface may be fragile giving rise for a person to fall through the surface
			• In some circumstances it may be necessary to have an emergency retrieval plan for a person falling through or over the edge of work area and have practiced that plan	

1DA. Working at Height – Ladders				
PPE Recommended			**Persons responsible for maintaining controls**	

Performing construction work that involves a ladder	Hazard:
	Unstable ladder
	Risk:
	Injury / death
		1	**Single or Extension Ladders:**
			• The ladder must be set up on firm and stable ground
			• Ladder must:
			  ○ Be rated for industrial use
			  ○ Have a load rating of 120kg
			  ○ Be the correct height for task to avoid reaching or stretching
			  ○ Be no longer than:
			  ▪ Single ladder 6.1m
			  ▪ Extension ladders 7.5m
			  ▪ Extension ladder for electrical work 9.2m
			  ○ For electrical work be an approved non-conductive ladder
			  ○ Be maintained in a sound working condition and be appropriate for the task to be undertaken
			  ○ Not be used to support a weight greater than load rating
				5

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Hazard: Fall from height **Risk:** **Personal injury**	**1**	• Persons using the ladder has 3 points of contact always (i.e., 2 hands and 1 foot or 2 feet and 1 hand or be holding a stable object e.g., gutter, wall frame) • A person's feet should not be higher than 900mm from the top of a ladder • If undertaking high risk work above 2m, single and extension ladders must be secured at the top, bottom, or both • A pre-start inspection of the ladder is performed • Tools requiring two handed operations, or a high degree of leverage force should not be used while on ladders	**5**
	Hazard: Falling objects **Risk:** **Personal injury**	**1**	**Platform Ladders** • Ensure ladder is rated weight of person and equipment tooling. Ensure ladder is set up on stable even surfaces. • All locking devices on the ladder are secure • Never work where your feet are positioned above the 2nd from top tread of the ladder.	**5**
	Hazard: Improper use of ladder **Risk:** **Personal injury**	**1**	**Platform Supported by Trestle Ladders** • The system (including planks) should be assembled according to the manufacturer's specifications using only compatible components • Trestle ladders must be secured to prevent movement • Edge protection must be erected along the complete outer edge of the platform • The distance between the platform edge and working face of the structure must be less than 225mm unless there is a guardrail or mid-rail installed • Planks must be at least: ○ 225mm wide for light work ○ 450mm wide if work is not light work	**5**
1DB. Working at Height – Scaffolds				
PPE Recommended			**Persons responsible for maintaining controls**	
Working in an area where scaffold is implemented	Hazard: Equipment failure /unstable platform **Risk:**		**Scaffolds** • Scaffolding must be erected, altered, and dismantled by competent person(s) • Scaffolding over 4 metres must be erected, altered, and dismantled by person(s) with a scaffolding high risk work licence	

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk

	Injury / death	**1**	• Before use a competent person must inspect the scaffold and provide written confirmation that the scaffold has been completed with the appropriate rating
			• Persons using the scaffolding must have training on the specific type of scaffolding they are using
			• Scaffolding to be of appropriate rating for work that it is being used for, i.e., light – medium – heavy duty
			• Mobile scaffolds:
			  ○ Workers to be trained in their use
			  ○ To be in good working order, serviced in date, pre-checked and operated by a competent/ licenced person
			  ○ To be supported on adjustable and lockable castors to ensure the scaffold is level and not able to move when locked
			  ○ Are to be no greater than 9m high or 3-times the smallest base dimension
			  ○ To be erected with adequate access provisions, edge protection and falling object protection
			  ○ To be accessed using an internal ladder, except for low height platforms where this is not reasonably practicable
			  ○ Before moving, remove all loose items
				5

	Hazard: Overhead power lines **Risk:** **Electric shock /electrocution**	**1**	• When setting up scaffolding an exclusion zone around power lines needs to be maintained • If not possible to establish an exclusion zone, then the scaffold installer must contact site supervisor and contact made with the power authority to undertake a risk assessment • The scaffolding installer **must not start** until permission is gained from the power company • The power authority's exclusion zone for scaffolding must be maintained • Trades should ensure that materials handled on the scaffold do not penetrate the exclusion zone of the power line	**5**
	Hazard: Falling objects **Risk:** **Personal injury**	**1**	• Scaffold system is to have adequate access provisions, edge protection and falling object protection • Trades to ensure there is a safe means of raising, lowering and storing tools, plant, materials and rubbish • Trades to ensure working decks are kept clear of excess tools, plant, materials and rubbish • Trades prior to accessing working deck to do a visual check of area for excess tools, plant materials or rubbish and if present remove or have items removed • Any hording installed on the scaffold should not be removed.	**5**

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
1DC. Work at Height - Use of an EWP (Knuckle Boom)				
PPE Recommended			**Persons responsible for maintaining controls** 	
Preparing to use knuckle boom, Assign a Spotter	Hazard: Pre-start not completed with potential to use faulty machine **Risk:** **Personal injury**	2	• Workers to be trained/instructed/competent in the safe operating procedures for the brand and type of knuckle boom, as well as safe work procedures to avoid crushing and electrical hazards • Flashing Lights are always on when machine is in use • Logbooks are in date and easily accessible • Operators to be licenced/competent for that plant • Ensure correct operation of movement alarms, emergency stop controls and emergency lowering controls • Remove obstructions or reposition equipment • Do not continue if you cannot confirm the stability of the machinery • Assign a Spotter to remain on the ground in visual contact at all times of the project. To assist when the knuckle boom makes any movements and keep area clean • Never use the knuckle boom lift as a crane for lifting materials • Never try to climb on, sit or stand on platform guard rails **Spotter is responsible for:** • Monitoring activity from around the base of knuckle boom • Activating emergency lowering mechanism if required • Maintaining exclusion zones (Depending on the height 45 degree from the top point down to the ground or 3m from edge of machine, whichever is greater) • Drop Zones • Signage to keep unauthorized person out	**4**

Preparing job site	Hazard: Unauthorised access
	Risk:
	Collision with other workers/ plant
		2	• Only those authorised may access site
			• Ensure relevant site personnel have been consulted and are familiar with plan of work for knuckle boom
			• Ensure work area is barricaded and signed to allow adequate exclusion zone**s**. Depending on the height 45 degree from the top point down to the ground or 3m from edge of machine, whichever is greater.
			• When using a knuckle boom for installing edge protection ensure:
			  ○ Poles/rails are secured individually to the boom
			  ○ Poles/rails are centrally located and evenly balanced
			  ○ Poles/rails are untied one item at a time
			  ○ Edge protection equipment must not exceed the SWL of the boom
				4

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ Any item that is stood up in the boom meets the above requirements.	
Working from a knuckle boom basket with under 11 metres reach	Hazard: Inexperienced operator with potential consequence of rollover/crushing/ falling objects **Risk: Injury, death**	1	• Although there is no high-risk work license to operate a knuckle boom under 11m, workers to be trained/instructed in the safe operation of that brand and type of machine and be supervised by an experienced person • Workers to wear approved EWP safety harness and harness to be attached to the correct harness attachment point, as per manufacturer's specifications • High visibility clothing to be worn • Never get between lift and an immovable object • Make sure there are no overhead obstructions or powerlines • If there is an emergency in any situation release the dead man switch	**4**
Working from a knuckle boom basket with 11 metres or greater reach	Hazard: Fall from height **Risk: Injury, death**	1	• High-risk work license to operate a knuckle boom 11m or greater is required, other workers inside the basket must be competent in working at heights • Provided safety rails and self-closing gates must be in good working condition • Workers to be trained/instructed in the safe operation of the plant, fall arrest equipment and emergency rescue procedures • Workers to wear approved EWP safety harness and harness to be attached to the correct harness attachment point, as per manufacturer's specifications • High visibility clothing to be worn • Never get between lift and an immoveable object. • Make sure there are no overhead obstructions or powerlines • If there is an emergency in any situation release the dead man switch • All operations shall be at a slow speed. • Remove excess personnel from the work area while inspection is being undertaken.	**4**
Rescue of collapsed/ injured/fallen operator	Hazard: Stuck at height while suspended in height safety harness **Risk: Suspension trauma/injury**	**1**	• Workers to be trained in emergency rescue procedures • Clear area of all unnecessary persons • Establish communication with operator if still conscious • Check for hazards in or around the work area, i.e., power lines • Competent person to lower knuckle boom using ground controls if disabled use hydraulic release valves • In the case of operator suspended from harness, instruct operator to place legs into leg straps of harness and take weight off body • If available, use 2nd EWP to retrieve the injured/fallen operator (in the basket)	**4**

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Once retrieved from harness, do not lay the conscious/unconscious person down. Support in sitting knees raised position to prevent suspension trauma for 30 to 40 minutes. Administer first aid if required • Do no attempt to retrieve personnel if it is unsafe or other hazards exist. Contact rescue services immediately	
Contact With Powerlines	Hazard: Contacting powerlines **Risk: Electrocution**	**1**	• Stay calm • Do not climb out of the machine, as it may be 'live' • Warn others to keep clear • Try to move the machine away from the powerlines, if possible • If there is a danger of fire, jump clear from the machine onto dry ground and move away from the machine. Do not step down. • Stay near the machine until help arrives	**4**
Machine shut down	Hazard: Incorrectly secured machine **Risk: Plant obstructing other plant**	**2**	• Shut down machine as per manufacturer's specifications. • Park equipment in designated area. • Plant to be locked and demobilized at end of day with basket elevated and ground controls disabled	**4**
1DD. Working at Height - Use of an EWP (Scissor Lift)				
PPE Recommended			**Persons responsible for maintaining controls**	
Preparing to use scissor lift Assign a Spotter	Hazard: Pre-start not completed resulting in use of faulty machine **Risk: Personal injury**	2	• Operator to be trained/instructed/competent in the safe operating procedures for that type of scissor lift, inexperienced operators are to be always supervised by an experienced person. • Flashing Lights are always on when machine is in use • Logbooks are in date and easily accessible • Exclusion zone established, depending on the height 45 degree from the top point down to the ground or 3m from edge of machine, whichever is greater • Ensure correct operation of movement alarms, emergency stop controls and emergency lowering controls • Remove obstructions or reposition equipment • Do not continue if you cannot confirm the stability of the machine • Assign a Spotter to remain on the ground in visual contact with the operator.	**4**

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Spotter to ensure any sensor type door openings (i.e. truck bay curtain door) are isolated prior to EWP moving towards/through the sensor **Spotter is responsible for:** • Monitoring activity from around the base of scissor lift • Aiding when the scissor lift makes any movements and keep area clean of obstructions • Activating emergency lowering mechanism if required • Maintaining exclusion zone (Depending on the height 45 degree from the top point down to the ground or 3m from edge of machine, whichever is greater) • Drop Zones • Signage to keep unauthorized person out • Isolating sensors on door openings	
Working from a scissor lift	Hazard: Fall from height **Risk:** **Personal injury**	2	• Operator must ensure operation is authorised and in accordance with SWMS • Carry out a prestart inspection, and include how to lower machine in an emergency • When unit is travelling: ○ Always use safe speed ○ Platform is at a safe level and for clear vision in direction EWP is travelling ○ Body is kept fully within the confines of the platform (If a worker leans outside of the handrail, a Harness attached to the labelled anchor point must be used to prevent the fall risk.) ○ Ensure gates of the cage remain closed. • Never jump or swing down from unit while it is elevated, except in an emergency • Always maintain 3 points of contact when exiting EWP • Do not carry loads on the handrails unless specified by manufacturer • Do not climb, sit, or stand on platform guard rails	**4**
Preparing job site	Hazard: Unauthorised access **Risk:** **Collision with other workers or persons**	2	• Only those authorised may access site • Ensure the work area is barricaded and signed to allow adequate exclusion zone. Depending on the height 45 degree from the top point down to the ground or 3m from edge of machine, whichever is greater • Ensure relevant site personnel have been consulted and are familiar with the plan of work for scissor lift • Secure all loose objects. Use a lanyard where appropriate such as carrying hand tools. Maintain control of materials on the work platform. • When using a scissor lift for installing edge protection ensure: ○ Poles/rails are secured individually to scissor lift	**4**

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ Poles/rails are centrally located and evenly balanced ○ Poles/rails are untied one item at a time ○ Edge protection equipment must not exceed the SWL of the scissor lift ○ Any item that is stood up in the scissor lift meets the above requirements.	
Working from basket	Hazard: Fall from height **Risk:** **Personal injury**	1	• Ensure safety rails and self-closing gates are in place • Operators to be trained in the safe operation of that brand and type of machine • Workers to attach harness, if required, to certified anchor points, as per manufacturer's specifications • High visibility clothing to be worn • Never get between lift and an immoveable object. • Make sure there are no overhead obstructions or powerlines • If there is an emergency in any situation release the dead man switch	**4**
Rescue of Injured / distressed operator	Hazard: Stuck at height **Risk:** Distress injury i.e., health issue	1	• Clear area of all unnecessary persons. • Establish communication with operator if still conscious. • Where the normal upper control functions fail, the operator will use the upper auxiliary controls to lower the platform • If the operator is incapable of lowering the raised platform using the upper controls, an appointed person familiarised in the use of the 'ground' controls will lower the platform safely using the normal ground controls. • Where the normal ground controls fail, an appointed person familiarised in the use of the 'ground' controls will use the ground auxiliary controls to safely lower the platform. • If available, use 2nd EWP to retrieve the injured/distressed operator (in the basket). • Administer first aid if required. • Do no attempt to retrieve personnel if it is unsafe or other hazards exist.	**4**
Contact With Powerlines	Hazard: Contacting powerlines **Risk:** **Electrocution**	1	• Stay calm • Do not climb out of the machine, as it may be 'live' • Warn others to keep clear • Try to move the machine away from the powerlines, if possible • If there is a danger of fire, jump clear from the machine onto dry ground and move away from the machine. Do not step down. • Stay near the machine until help arrives	**4**
Machine shut down	Hazard: Incorrectly secured machine	2	• Park equipment in designated area • Shut down machine as per manufacturer's specifications • Make sure work area if left neat and tidy - remove tools and equipment from the basket	**4**

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Risk: Obstruction, Mechanical damage, Theft		• Make sure EWP is secure against unauthorised entry. Plant to be locked and demobilized at end of day/when not in use with basket elevated and ground controls disabled.	
1DE. Working at Height - Use of an EWP (Scissor Lift to access Roof)				
PPE Recommended			**Persons responsible for maintaining controls**	
Roof Access via Scissor Lift	Hazard: Contact with electricity, Fall from height, Falling Objects **Risk: Electrocution/ personal injury**	**1**	• Roof Access via scissor lift will only be considered if access via ladder or scaffolding stairs is impractical due to cost restraints or access restraints. • Any operators in control of the scissor lift shall have been deemed competent via yellow card or other means of training, e.g., high risk work licence to operate boom. **Scissor lift may be used for access in 2 scenarios:** **Scenario #1:** • No Edge Protection Installed: ○ All workers who will be accessing the roof will be additionally trained in working at heights. ○ Once the scissor lift has been situated so the gate can be aligned to the edge of the roof a gap of 150mm or less will be maintained. If practical the platform will be extended over the roof to essentially remove the "Gap". ○ If practical to do so the scissor lift will be either "strapped or clamped to the structure as well and the machine being turned off. ○ Workers will then access the roof via the gate and immediately attach their temporary anchor point as part of their height safety system. ○ Once anchor point is established the worker will attach the height safety system to the anchor point, as per manufacturer's specifications. (Adjustable rope system.) ○ Only when the height safety system "Fall Restraint" is properly set up can the worker grab tools and equipment to begin set tasks ○ Note: Care should always be taken to install a height safety system in a manner that it does not impede the work being undertaken, causing trips or slips. Systems should also be installed to prevent the worker from working in a "fall arrest" situation **Scenario #2:**	**4**

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Edge Protection in Place: ○ If edge protection has been installed prior to work, by a competent installer, workers will not be required to use height safety harnesses ○ Scissor lift gate must be aligned to the gate of the edge protection ○ Once scissor lift is level to the platform a "Gap" of no more than 150mm or less will be controlled by strapping the scissor lift to the edge protection and turning off the scissor lift ○ Once the scissor lift is secured and turned off the gates may be opened to access the roof and work may commence ○ Care should always be taken when lowering the scissor lift: ▪ The straps should be removed to prevent damage to structure ▪ The opening or gate isn't left exposed to put workers remaining on the roof at risk of a fall.	
1E. Working at Height - Fall Arrest				
PPE Recommended			**Persons responsible for maintaining controls**	
Working in an area where a worker uses height safety PPE to prevent a worker striking a lower level or object if they were to fall.	Hazard: Incorrect use and fitting of harnesses and devices **Risk:** **Personal injury**	1	• Fall Arrest PPE is a last resort when controlling falls from height. All other controls will have been considered and deemed unacceptable in this circumstance • Fall arret system will only be comprised of items that are compatible with one another and have negligible risk of accidental release of connections • System must not be used when the person using the system is alone • Only trained and competent workers in WAH will be permitted to use this method: ○ Anchorage identified and secured ○ Lanyard and shock pack will be used and be as short as reasonable, but will not exceed 2m ○ Full body harness with the rear D ring use ○ Some form of rescue system will be applied • The length of travel should not allow 'swing down' whereby a person could hit the ground	5
	Hazard: Exposed edge, **Risk:** **Injury, death,**	1	• System must be installed according to the instructions of manufacturer, supplier, engineer, or competent person • System must be maintained and inspected according to the instructions of manufacturer, supplier, engineer, or competent person • Anchorage points must be able to support: ○ 1 person and could have a limited free fall 12kN	5

High Risk Work Activity: 1. Working at Height 2m+				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ 1 person and could have a free fall 15kN ○ 2 persons 21kN • A person must be attached to an anchorage point prior to the person reaching a position at which there is a risk of a fall • Under work position, make sure adequate fall clearance is available	
	Hazard: Suspension intolerance/trauma **Risk: Injury/death**		• As fall arrest provides no controls to stop the worker from falling, rescue and emergency procedures must be in place • The rescue plan/procedure is job specific and will be attached as a separate document • The emergency and rescue procedures must be tested to ensure that they are effective, and workers must be provided with suitable and adequate information, training, and instruction in relation to the emergency procedures. • The rescue plan will include: ○ Who created the rescue plan ○ Who is responsible for applying the rescue plan ○ All workers who are using fall arrest systems ○ What method will be used for rescue. ○ Equipment required on site	

High Risk Work Activity: 3. Demolition				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
3A. Non-structural Demolition				
PPE Recommended			**Persons responsible for maintaining controls** 	
Plan to demo site structures	Hazard: Fall from height, falling objects, unknown services and structural stability, unexpected collapse, damage to services **Risk: Injury**	**1**	• If appointed, consult with the engineer/principal contractor/client where reasonably practicable, to obtain a written report specifying the hazards associated with the design and the structure in the planning stage of the demolition work • Specific hazards may be outlined in a demolition plan: ○ Asbestos containing materials ○ Lead in paint, old water pipes and other plumbing fittings, solders, etc	**4**
Public protection	Hazard: Falling objects, struck by plant **Risk:** **Injury**	**3**	• Wherever required, make sure the Principal Contractor has provided the following: ○ A heavy-duty scaffold that is fully sheeted with shade cloth & mesh. In accordance with Australian Standards. Only certified personnel can erect scaffolds ○ Signs installed at various locations on the barricades denoting: “Demolition in progress - Keep Out” • **Plant movement**: ○ Do not go beyond specified speed limits. ○ Make sure the flashing light/beeper is on. ○ Use a spotter wherever practical/available. ○ Ensure high visibility PPE is always worn. • Check the work area for other plant before commencing work/movement.	**5**
Strip out of fixtures & fittings and non-fixed items	Hazard: Work at height, manual handling sharp edges **Risk:** **Injury, lacerations, death**	**1**	• Use hand removal techniques for salvaging fixtures and fittings – use handheld tools and equipment. • During this initial work phase, make sure no load bearing components of the structure are demolished. • Wherever possible, provide access for workers above floor level by way of an approved internal staircase or a suitably restrained ladder. • Strictly follow all procedures for working at heights.	**4**

High Risk Work Activity: 4. Asbestos				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
4A. Asbestos - Identification				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Asbestos Identification	Hazard: Suspected asbestos material due for demolition or renovation or removal **Risk: Asbestos removed without being identified/ asbestos exposure**	**1**	• All personnel involved in asbestos work, must have the required competencies and licences to complete the scope of works • Where there is suspicion of the presence of asbestos a current asbestos register will be requested prior to commencing any work activities • Areas which are identified as potential for containing asbestos will be tested with approved methods and verification will be sought before work commences. In most cases this will be conducted in the consultation process before the job ever begins • applicable. • If in doubt, always assume that asbestos is present • For cases where potential asbestos is come upon and not foreseen prior to commencing works, all work will cease • A qualified asbestos removalist will be engaged to complete the removal • When working with asbestos, mandatory PPE must be available and used • An exclusion zone must be clearly delineated and enforced • Only once area has been cleared by a qualified professional by issuing a clearance certificate will normal work duties commence	**5**
4B. Asbestos - Removal Under 10Sq m 'B Class Only'				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Removal 10Sq m and below	Hazard: Bonded asbestos **Risk: Asbestos related diseases**	**1**	• Any removal over 10Sq m will be conducted by a licensed asbestos remover	**4**

High Risk Work Activity: 4. Asbestos				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Sheeting and guttering Bonded only under 10Sq m	Hazard: Bonded asbestos **Risk:** **Asbestos related diseases**	**1**	• All workers directly involved with the removal, and or handling of asbestos B Class will hold a general safety induction card and an approved Bonded Asbestos Removal Certificate, issued by Queensland WHS • Only workers directly involved with the removal will be present in the area where the removal is taking place • Signage and barriers will be erected if other persons are present. • All workers involved in the removal will wear P2 disposable respirators (masks) and disposable coveralls • All asbestos sheeting and gutters will be removed in full pieces where possible. Nails will be punched, and screws removed, along with any trims holding the sheets in position • Power tools will not be used on the sheeting or gutters and no cutting will take place • External sheeting and gutters will be wet down prior to removal • Roof sheeting will not be wet down prior to removal as it will create a slip hazard and put the workers at risk of an injury • Internal sheeting will already be sealed by existing paint, wetting down would be of no benefit and would cause damage to the floors and ceilings. • Once the internal sheeting is removed the area will be vacuumed with an industrial vacuum fitted with a Hepa filter • Vacuum bags will be placed into 200 micrometer polythene bags and disposed of • On completion of the decontamination the area will be accessed by persons who were not directly involved with the removal • Workers will wash any exposed parts of their body, e.g., face and hands, before stopping for morning tea, lunch, afternoon tea and before leaving site.	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
11A. Electrical - Prior to Work (Isolation)				
PPE Recommended 			**Persons responsible for maintaining controls** 	
1. Pre-electrical 2. Pre-Plan 3. Pre-Start at Worksite	Hazard: Inadequate preparation lack of awareness faulty wiring, unidentified power source e.g. (solar/ battery) **Risk: Electrocution, damage to equipment**	**1**	• Prior to commencement of work ensure the following: ○ Locations have been confirmed with the client ○ All workers are competent to carry out work ○ Tools and equipment are suitable to carry out the work and within test date. • Ensure that prior to work commencing a pre-start is carried out that covers, as a minimum ○ Planned activities for the day ○ All hazards for the activities are identified and that control measures for each hazard eliminate the risk or reduce the risk to an acceptable level. ○ Always test prior to touching (THIS IS MANDITORY). The circuitry labelling MAY BE WRONG, do not take chances.	**4**
Turning off power and Isolating prior to work.	Hazard: Inadequate preparation lack of awareness faulty wiring, unidentified power source e.g. (solar/ battery) **Risk: Electrocution, damage to equipment**	**1**	• **The following lock-out process is use:** ○ Shut down the machinery and equipment ○ Identify all energy sources and other hazards ○ Identify all isolation points ○ Isolate all energy sources ○ In the case of electrical equipment 'whole current isolation', such as the main isolator, should be used instead of 'control isolation' by way of the stop button on a control panel ○ Control or de-energise all stored energy ○ Lock-out all isolation points, using padlocks, multi- padlock hasps and danger tags ○ 'Danger tag' machinery controls, energy sources and other hazards. • **'TEST FOR 'DEAD' BEFORE YOU TOUCH'** • Before commencing any electrical work: ○ Consult with management or person who has control of the workplace and notify any other affected persons as appropriate Identify circuit(s) requiring isolation. ○ All electrical cables and assemblies must be disconnected from all sources of electricity supply	**5**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ All live testing must be undertaken by a competent & licenced electrician. With an LVR trained person nearby. ○ Circuits must be proven to be de-energised by a competent & licenced electrician. ○ Fit DANGER TAGS and locks to ensure that circuits cannot be energised inadvertently • **Test for Dead** (Must be undertaken by a competent & licenced electrician): • Even if the electricity supply is believed to have been isolated, it must be assumed that all conductors and electrical components are energised until they have been proven de-energised. • The testing method (including the testing equipment used must be safe and effective. • Volt sticks or similar **are not** an acceptable testing device to confirm that power is OFF • Equipment-mounted voltmeters should not be used as the only method of determining whether an electrical part is de-energised. • Voltage testers are to be tested for correct operation immediately before use and again after use to confirm that the instrument is still working.	
During electrical works (Exposed wires)	Hazard: Hanging wires, exposed wires, running wires **Risk:** **Tripping, eye injury,**	**2**	• During works exposed wires that are left from shift to shift will be twisted and capped to prevent injury. In some cases where work is being conducted on a multitude of systems live power and deadlines will be clearly identified with tags along the lines • Keep the leads and wires off the ground and out of the way of pedestrian traffic onsite. If this is not possible some form of barricading will be required to prevent other trades from interacting with the leads or wires.	**5**
Turning power back on and removing isolation	Hazard: Missed wires, faulty leads **Risk:** **Electrocution, damage to equipment.**	**1**	• Upon completion of all onsite electrical work, supervisor will identify all power sources effected prior to re-energizing a system • A Trades Apprentice will never be solely responsible for re-energizing a system • On completion of job: ○ Make safe - terminate and test all conductors before re-energising - must be undertaken by a competent & licenced electrician ○ Notify all workers working on the electrical equipment and other affected workers at the workplace that electricity is to be restored. ○ Remove tags and locks (each person removes their danger tag and/or lock). ○ Carry out a visual inspection to ensure tools, surplus materials and waste has been removed.	**5**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Once electricity is restored tests must be carried out to confirm that polarity is correct (must be undertaken competent & licenced electrician), actives are switched and, where applicable, phase sequences are correct before electrical equipment is used.	
11B. Electrical - Working On or Near Energised Electrical Installations and Equipment				
PPE Recommended			**Persons responsible for maintaining controls**	
Planning the job	Hazard: Personnel not trained or competent **Risk:** **Physical impairment**	**1**	• Energised electrical work must not be carried out merely because it is more convenient • Energised electrical work is PROHIBITED and can only be undertaken where it is absolutely necessary as defined in the Electrical Safety Regulation 2013 (Qld) • **Must be undertaken by a competent & licenced electrician** • All persons working on or near electrical installations or equipment, shall understand the scope of the work and the potential hazards involved • Conduct a risk assessment in respect of the work • LVR/CPR training will be conducted prior to any work for all staff involved • A minimum of 2 workers will be required for the entire duration of work with one of the workers wearing the PPE from the LVR Kit ready to conduct a rescue if required • A safety observer is appointed who is competent in electrical rescue and cardio-pulmonary resuscitation (CPR) and is trained in the activity. Appropriate rescue and first aid equipment must be available at the worksite. • LVR Kits will be inspected prior to work and be in date as per the manufacturer's instructions. • All work, where practical, will be undertaken when the mains power is not connected • When connecting electrical wires to the meter box, the power will be isolated and tested to prevent electrocution. • When electrical work is to be undertaken when the power is connected, the power will be isolated and tested	**4**
Preparation for the work	Hazard: Lack of understanding by personnel **Risk:** **Contact with electricity**	**1**	• Appropriate test equipment, tools and accessories should be available • Insulated tools and equipment shall be of an approved type and shall be in good order, regularly maintained and tested where required. Tools and equipment shall not be used if any doubt exists that their insulation might not be adequate • Conductive items such as tape measures, reinforced tapes, ladders, elevating work platforms, scaffolding and guards on portable lamps, shall not be used on or near exposed energised conductors or live conductive parts	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Appropriate clothing and personal protective equipment for the work will be available for both the persons doing the work and observing • Approved insulating mats, shrouds, hose (tiger tails), insulating screens or barriers must be used when working on or adjacent to exposed live circuits and equipment in order to insulate / shield the worker's body and equipment from earth and electrical energy. When used, these items shall be securely fixed to prevent their displacement • Have an emergency plan and procedures in place • Work areas shall be provided with lighting that is both adequate and suitable for the work and emergency evacuation • A fully equipped first aid and rescue kit with medical supplies suitable for the treatment of burns and cardiac arrest (defibrillator) must be on hand • The isolation point of the relevant electrical supply must be clearly identified and able to be reached and operated quickly without any need to negotiate or remove obstacles • The work area is to be clear of obstruction to enable entry and exit quickly and safely • Unauthorised persons are prevented from entering the work area by signage or barriers, or both • Consult with the workers and those that might be affected. Instruction is to be given to all workers engaged on the work to enable them to isolate the point of supply should an electric incident occur and follow the correct emergency exit in the event of fusion.	
Undertaking the work	Hazard: Electric shock **Risk:** **Electrocution**	**1**	• Prior to starting any work, check your surroundings and equipment. Increased moisture, including damp situations such as sweating, dew in the air, inclement weather - rain, can make the worker more conductive resulting in electric shock. Workers to ensure they: ○ Wear dry clothing ○ Attempt to prevent moisture by working in shade, turning on air conditioners, drying tools with a dry cloth, postponing work until weather improves - rain stops, etc • Clothing and personal protective equipment for the work must be properly worn and used • Insulation gloves (appropriate type for electrical works only) are to be worn by all workers engaged in the work • Insulation mats are to be installed to isolate workers from earth situations • Test equipment, tools and accessories must be well maintained and properly used • Do the work in accordance with the SWMS, risk assessment and any other instructions – if a difference occurs stop work and review procedures for additional hazards and implement appropriate additional controls • Maintain situational awareness regarding changes to workplace conditions, including possible new safety hazards • Stop work if unsafe and immediately rectify or notify your supervisor • **TEST EVERY TIME BEFORE YOU TOUCH**	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• The Safety Observer shall: ○ Watch and be able to warn and, if necessary, stop the work before the risks become too high ○ Not carry out any other work or function that compromises their role as a safety observer, i.e., the safety observer shall not observe more than one task at a time ○ Be able to communicate quickly and effectively with the electrical workers performing the work ○ Be capable of helping in the case of emergency as well as being competent to perform electrical rescue and cardiopulmonary resuscitation (CPR), as required ○ Be suitably attired in personal protective equipment appropriate to the situation ○ Not have any known temporary or permanent disabilities that would adversely affect their role and performance	
Completion of job	Hazard: Contact with electricity **Risk:** **Electrocution**	**1**	• All relevant persons shall be notified that testing is about to begin or supply is about to be restored • A visual inspection shall be conducted to ensure that all tools, surplus material, and wastes have been removed and the work site has been reinstated • Visual inspection and tests required by AS/NZS 3000 shall be carried out • Applicable work permits shall be cancelled • Applicable personal tags and locks shall be removed • Re-energisation as appropriate is carried out • Functional testing as needed, e.g., phase rotation, are carried out • All guards and covers must be reinstated	**4**
11C. Electrical - Installation of Wiring and Fittings				
PPE Recommended			**Persons responsible for maintaining controls**	
Accessing roof space to undertake works when power is live to the house	Hazard: Electric shock **Risk:** **Electrocution**	**1**	• For isolation process Refer to 11A Prior to Work – Isolation • **Prior to Accessing the Roof Space**: ○ Before starting any work, turn off all electricity to the property at the main switchboard (must be undertaken competent & licenced electrician) and take steps to prevent the electricity from being turned back on while work is in progress (tag/lock-out). • **Accessing Roof Space:**	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ Be aware that heat and humidity may cause heat stress, so make sure fluid intake is sufficient to ensure you do not become dehydrated. Avoid accessing roof space in hot weather conditions (early morning starts better on high temperature days). ○ Take additional lighting (e.g., torch) with you as the lighting is generally poor in ceiling spaces. ○ Take care accessing and traversing the work area, avoiding tripping over debris, material, and the ceiling trusses. ○ Step carefully on ceiling joists or other beams – not the ceiling material (i.e., Gyprock sheeting). To avoid risk of falling or injury maintain three points of contact (foot on each truss and hand on girder). ○ Be aware of the location of electrical cables, fittings and equipment and avoiding contact with them. Solar hot water piping can be very hot if not covered by the insulation. ○ If the roof space is dusty wear a P2 dust mask.	
Cable and ladder tray installation	Hazard: Exposed nails manual handling **Risk:** **Personal injury**	**2**	• Check layout and mark out • Secure fixings and supports using correct size bolts and fixings • Cut ladders or trays to fit using drop saw or 100mm angle grinder with guard attached • Secure ladders or trays to support • Ensure area walkways are clear • Remove sharp edges and protruding fixings.	**5**
Installing light fittings	Hazard: Falling objects, manual handling, electricity, working at heights **Risk:** **Personal injury**	**1**	• For isolation process Refer to 11A Prior to Work – Isolation • Check layout and mark out • Receive lights on site and confirm correct numbers and types • Confirm cabling requirements • Install light fitting base or bracket and terminate cabling or plug into lighting socket • Complete the fitting of any other parts • Confirm fitting is secure and installed to specifications • Test and confirm cables before commencing work. Isolate and fit danger tags as appropriate • Ensure power tools (if applicable) and leads are tagged.	**4**
Installation of Switch boards	Hazard: Falling objects, manual handling,	**1**	• For isolation process Refer to 11A Prior to Work – Isolation • Confirm installation specifications • Prepare installation area and confirm adequate space including door swing for maintenance • Arrange for crane or other mechanical handling equipment if needed	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	electric shock, explosion **Risk:** **Personal injury**		• Receive switchboard on site including test certificates • Transfer switchboards to installation location • Mark out location ensuring coordination with other services • Install switchboard to manufactures and client's specifications • Commission switchboard.	
Installation of pyrotenax (mims) cable	Hazard: Exposed nails, working at height, sharp edges **Risk:** **Personal injury**	**1**	• Check location to drawing and specification layout and mark out • Confirm cable specification and condition • Confirm cable supports on conduits have been installed to specifications • Install rollers or other protection to client's specifications • Install cable stands to client's specifications • Install cable manually with rope or winch as appropriate to client's specification • Cut any excess cable and seal exposed ends to manufacturer's recommendations • Locate/dress cable to fix in position to client's specification.	**4**
Installation of lighting looms	Hazard: Falling object, sharp edges, electricity, unstable ladders **Risk:** **Personal injury**	**1**	• For isolation process Refer to 11A Prior to Work – Isolation • Check drawings to confirm loom locations and specifications • Receive cable and sockets bases on site and confirm correct types, sizes, and numbers • Construct lighting looms to client's specifications • Label each loom with distribution board and circuit number • Install looms to client's specifications • Confirm socket locations and fixings to client's specification • Install circuit feeds and switch wires to client's specifications.	**4**
Installation of cable supports	Hazard: Falling object, sharp edges, electricity, unstable ladders **Risk:** **Personal injury**	**1**	• For isolation process Refer to 11A Prior to Work – Isolation • Check location to drawing and specifications • Receive cable supports on site confirming correct type, size, and number. • Mark out route of cable supports to specifications confirming clearance of other services • Install supports, as necessary, to client's specifications and using correct size bolts • Confirm tightness of fixings • Install cable supports.	**5**
Installation of mains power	Hazard: Electricity,	**1**	• **Must be undertaken by a competent & licenced electrician** • Liaise with Supply Authority to coordinate to supply	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	explosion, incorrect isolation **Risk:** **Personal injury**		• Obtain Supply Authority Certificates and check drawings • Coordinate shutdowns with client • For isolation process Refer to 11A Prior to Work – Isolation • Receive mains on site • Shut down and install 'DANGER TAGS' • Remove existing mains terminations if applicable • Install mains to specifications • Terminate new mains to specifications • Confirm DEAD and identify cables before commencing work • Wear suitable gloves • Confirm installation to drawings and specifications and ensure connections are tight • Clean area • Test installation • Liaise with Supply Authority for inspection and test • Remove 'DANGER TAGS' / locks (each person removes their danger tag and/or lock) • Energise supply • Install signs or labels as required.	
Installation of switchboard connections	Hazard: Falling objects, manual handling, electric shock, explosion **Risk:** **Personal injury**	**1**	• **Must be undertaken by a competent & licenced electrician** • Confirm switchboard meets Australian Standards and has been installed to specifications • Confirm cables to be connected meet specifications and all cables have been installed. Check any specific requirements have been met • For isolation process Refer to 11A Prior to Work – Isolation • Group cables together as they enter switchboard and fix with cable ties • Separate cables into groups of like destination. Seal or plug any unused cable entries • Mark each conductor prior to removing any secondary insulation • Group conductors of like destinations and fix into a loom system • Align and terminate each conductor into its correct location • Check and tighten all terminations and connections • Confirm installations meet specifications • Install labels, signs or markings as required • Clean switchboard	**5**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Confirm all circuits have been completed and DANGER TAG any incomplete circuits • Test and commission switchboard using relevant procedures. Confirm phase rotation of all 3-phase equipment • Complete records.	
Installation of new work in existing switchboards	Hazard: Electricity, explosion, incorrect isolation **Risk:** **Personal injury**	**1**	• **Must be undertaken by a competent & licenced electrician** • Check drawings and specifications • For isolation process Refer to 11A Prior to Work – Isolation • Arrange isolation of section of, or complete switchboard with client • Isolate section of, or complete switchboard, install insulating barriers • Fit 'DANGER TAGS' to isolation devices • Test that works area has been safely isolated • Complete installations to client's specification • Check and tighten all terminations and connections • Confirm installation to client's specifications • Fit 'DANGER TAGS' to any incomplete work • Install labels, signs or markings as required • Clean work area • Test and commission new installation following relevant procedures. Confirm phase rotation of all 3-phase equipment • Complete records.	**4**
Installation of sub-mains	Hazard: Electricity explosion incorrect isolation **Risk:** **Personal injury**	**1**	• **Must be undertaken by a competent & licenced electrician** • For isolation process Refer to 11A Prior to Work – Isolation • Check location to drawings and specification layout and mark out • Plan installation to work towards the main switchboard • Confirm cable specifications and condition • Install cable to client's specifications • Terminate sub mains to specifications • Clean area • Test installation • Remove 'DANGER TAGS' • Energise main switchboard • Install signs or labels are required.	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Installation of power and light cabling	Hazard: Falling objects, manual handling electric shock, explosion **Risk:** **Personal injury**	1	• **Must be undertaken by a competent & licenced electrician** • For isolation process Refer to 11A Prior to Work – Isolation. • Check location to drawings and specification layout and mark out. • Plan installation to work towards the main switchboard. • Confirm cable specifications and condition. • Install cable to client's specifications. • Terminate submains to specifications. • Clean area. • Test installation. • Remove 'DANGER TAGS' (each person removes their danger tag and/or lock). • Energise main switchboard. • Install signs or labels are required.	4
Installation of power points	Hazard: Electric shock, manual handling **Risk:** **Personal injury**	2	• **Must be undertaken by a competent & licenced electrician** • Check layout to drawings and specifications and confirm with client. • Check walls, cavities and ceilings for other services and confirm location of any water pipes, gas lines, power, or telephone cables. • Check equipment is tagged. • Fit power point mounting brackets as required. • Tape or insulate ends of new cable to prevent electrical contact. • Run cables. • Connect power points. • Confirm fittings are secure and installed to specifications. • Clear area and remove Isolation or 'DANGER TAGS' (each person removes their danger tag and/or lock).	4
11D. Electrical - Solar Removal & Installations				
PPE Recommended			**Persons responsible for maintaining controls**	
Preparation for removal of old solar panels	Hazard: Unplanned work,	3	• Site review before removal. Determine the size of the job and condition of existing Solar Panels. • **Before access to the roof isolate the current system and remove all potentials of electrical supply:** ○ **Must be undertaken by a competent & licenced electrician.**	5

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	unforeseen hazards **Risk:** **Falls From height, electric shock**		○ For isolation process Refer to 11A Prior to Work – Isolation. • Determine the amount of work required to remove the current system: ○ Are the bolts seized/ rusted bent or damaged? ○ Can they be removed by conventional means or will the need to be drilled or cut off? • Once the correct course of action has been chosen, ensure appropriate tools are available along with PPE (e.g., face guards when using grinders etc).	
Removal of old Solar Panels	Hazard: Falls from heights, sharp edges, strains **Risk:** **Personal injury**	**2**	• Ensure all workers are connected to a suitable height safety system if required: see Working at heights section. • Determine a suitable, 'Drop Zone' where solar panels will be carefully lowered. This area shall be signed and flagged off to prevent anyone entering the area who is not supposed to be there. • Panels will never be dropped or thrown. • Area will be completely cleared and cleaned prior to any new panels being installed.	**5**
Preparation for installation of solar panels to roof	Hazard: Unplanned work, unforeseen hazards **Risk:** **Personal injury**	**3**	• Site review before work commences. • Ensure the job is to specifications and all work have been approved by the proper authority. • Engineering drawing(s) have been consulted, where applicable. • When accessing roof where there is an exposed edge that has the potential for a worker to fall, the following controls will be used: ○ Working at Heights PPE. ○ Edge Protection. ○ Visual Barrier Tape. ○ Clear Fall Zones. • If any of these controls are required, refer to the Working at Heights Section of this SWMS for greater detail.	**5**
Install inverter/ isolator	Hazard: Electricity explosion incorrect isolation **Risk:** **Personal injury**	**1**	• Wire inverter to manufacturer's specifications and instructions. • Check For: ○ Obvious damage or defects to electrical wiring. ○ Flexible cords are effectively anchored to equipment, plugs, connectors, and cord extension sockets. ○ Damage to flexible cords. ○ Operating controls are in good working order. ○ Covers, guards, etc. are secured and working in the manner intended by the manufacturer or supplier. ○ Electrical hazards in inverter are identified, return unit to supplier to assess. ○ Switchboard in clearly and permanently marked with warning information (dual energy).	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ Location of isolation switches to solar panels, inverter unit, mains etc. • Ensure the area is adequately barricaded off at least 1m from the work (signage to be prominently displayed). • Notify other trades in the immediate area.	
Lifting panels/ material onto roof	Hazard: Falling objects, manual handling, electric shock, explosion contact with electricity **Risk:** **Personal injury**	**2**	• Use mechanical means to lift panels and heavy materials and equipment onto roof e.g., EWP, solar panel hoists/lifters, slings/pulley systems. • Always check for overhead wires or obstructions e.g., branches, prior to raising panels. • Check lifter/hoist for loose parts. • Always follow operating/setup instructions. • Always use two people to setup and raise hoists/lifters. • Ensure hoists/lifters are fixed securely to support structure at top of run. • Keep hands clear of hinges when opening hoists/lifters. • Erect a safety barrier to prohibit access through underside of hoists/lifters. • Never climb ladders while carrying panels or another awkward/heavy item. • Check overhead for powerlines or other electrical installations before lifting panels. • Check power cables (electrical models) are in good condition. • Check extension leads are in good condition and placed to avoid damage.	**5**
Install mounting rails	Hazards Falling objects, manual handling, electric shock, explosion **Risk:** **Personal injury**	**2**	• Check for nearby power installations in proximity to workspace. e.g., overhead power attached to building (assume all electric lines are energised). • Develop an **Exclusion Zone** for electrical installations. • Provide immediate and direct notice/warning should the mounting rails or other materials start to breach the no-go zone. • Stop the work immediately, if necessary, e.g., safety clearances compromised. • Locate and maintain awareness aware of any extension leads while trimming or cutting mounting rails.	**4**
11E. Electrical - Installing Mains Board				
PPE Recommended			**Persons responsible for maintaining controls**	
Work area preparation	Hazard: Set up, untidy work area, non-	**4**	• **Must be undertaken by a competent & licenced electrician.** • Authority and empowerment to Stop the Job. • Follow all site rules and procedures.	**6**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	competent workers **Risk:** **Personal injury**		• Ensure correct manual handling techniques are followed. • Wear all mandatory PPE and task specific PPE. • Communicate task clearly with all work crew members. Ensure a thorough understanding of expectations. • If a hazard is identified in the work area – fix it immediately or if unable to do so, isolate the hazard and inform you supervisor. • Work on flat surface where practicable • Secure all tools and/or equipment by lanyard or store in a toolbox/basket when on the work platform.	
Obtain Supply Authority Certificates and check drawings.	Hazard: Non-competent workers **Risk:** **Damage to work area, electrocution**	**3**	• Ensure all latest revision plans, diagrams etc. are on site. • Ensure plans and diagrams are reviewed by entire work crew prior to work commencing.	**4**
Coordinate shutdown and isolations followed by installation of DANGER Tags	Hazard: Non-competent workers **Risk:** **Damage to work area, electrocution**	**3**	• Confirm **Not Live** • Obtain work approval and confirm any client site/safety instruction. • Check scope of works to confirm whether work be re-scheduled so it may be isolated. • Confirm with client that works meet the requirements regarding work on energised equipment and apparatus and the risk of harm would be greater if the circuits were de-energised before work commenced. • Confirm that person/s carrying out the work are appropriately qualified, competent, confident, and trained for the task.	**4**
Remove existing mains terminations if applicable	Hazard: Non-competent workers **Risk:** **Damage to work area, electrocution**	**2**	• **Must be undertaken by a competent & licenced electrician.** • Identify the electrical equipment to be worked on and the appropriate points of supply. • Isolate the equipment from sources of supply, if possible. • Secure the isolation by such means as lock-out to prevent inadvertent re-energisation and attached a danger tag. For isolation process Refer to 11A Prior to Work - Isolation. • Prove that the exposed conductors are de-energised (i.e., 'test for dead'). • Working persons shall confirm rescue procedures and have attended LVR training.	**4**
Confirm installation to drawings and	Hazard: Non-competent workers, sharp	**4**	• Confirm **Not Live.** • Ensure appropriate test equipment is being used. • Appropriate tools for the job are available.	**5**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
specifications and ensure connections are tight	edges, manual handling **Risk:** **Damage to work area, personal injury**		• Ensure all appropriate barricading is in place to isolate the area. • Working kits are used and maintained, and first check operation of test apparatus. • Visual inspection shall include: ○ Basic protection (protection against direct contact with live parts). ○ Fault protection (protection against indirect contact with exposed conductive parts). ○ Protection against hazardous parts (guarding/screening). ○ Protection against spread of fire (fire blanket / fire extinguisher). ○ General condition of equipment. • Ensure the busbar has been covered appropriately and that all blanks have been re-inserted.	
Liaise with Supply Authority for inspection and test	Hazard: Non-competent workers **Risk:** **Damage to work area, electrocution**	**2**	• Obtain work approval and confirm any client site/safety instruction. • Check scope of works to confirm isolations are in place prior to test commencing. • Confirm with client that the work meets the requirements regarding work on energised equipment. • Confirm that person/s carrying out the work are appropriately qualified, competent, and trained for the task.	**4**
Remove DANGER Tags and Energise supply	Hazard: Non-competent workers **Risk:** **Damage to work area, electrocution**	**2**	• Obtain work approval and confirm any client site/safety instruction. • Confirm with client that works meet the requirements regarding work on energised equipment and • Sequence the energising and test & check, by sections (e.g., polarity). • Confirm operational and safe prior to handover. • Complete Certificate of Electrical Safety and other paperwork. Provide relevant paperwork to client and submit to authorities, as required. • Locks and Danger Tags to be removed by person who placed and signed tag.	**4**
11F. Electrical - Installing Temp Site Power				
PPE Recommended			**Persons responsible for maintaining controls**	
Installing Temp Site power to Power Pole or secure stand.	Hazard: Non-competent workers **Risk:**	**1**	• **Must be undertaken by a competent & licenced electrician.** • Choose a suitable area for Temporary Main Power to be located. (Liaise with Site Authority or Supervisor). • Once a suitable location has been selected ensure the area is clean and ready with no housekeeping issues.	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk

	Damage to work area, electrocution		• If the Mains power Board is to be installed onto a stand the structure must be secured so that is cannot be tipped over. Bolted to the ground or to a suitable base (e.g., large timber pallet in good condition).
			• Once the above has been completed then:
			  ○ Coordinate shutdown and isolations (for isolation process Refer to 11A Prior to Work – Isolation) followed by installation of DANGER Tags.
			  ○ Confirm cables to be connected meet specifications and all cables have been installed.
			• Cabling:
			  ○ Group cables together as they enter switchboard and fix with cable ties.
			  ○ Separate cables into groups of like destination. Seal or plug any unused cable entries.
			• Conductors:
			  ○ Mark each conductor prior to removing any secondary insulation.
			  ○ Group conductors of like destinations and fix into a loom system.
			  ○ Align and terminate each conductor into its correct location.
			• Check and tighten all terminations and connections.
			• Confirm installations to manufacturers and client's specifications.
			• Clean switchboard.
			• Confirm all circuits have been completed and DANGER Tag any incomplete circuits.
			• Test and commission switchboard. Confirm phase rotation of all 3-phase equipment.
			• Install signs or labels as required.
			• Complete appropriate documentation (switchboard schedules, update drawings and workbook).	

11GA. Electrical - Aircon Removal & Installation of Existing Units				
PPE Recommended			**Persons responsible for maintaining controls**	

Air conditioner replaced or to be relocated	Hazard: Leakage of refrigerant
	Risk: Affixation, skin irritation
		2	• **Must be undertaken by a competent & licenced electrician.**
			• **Before removal of the unit isolate the current system and remove all potentials of electrical supply.**
			  ○ For isolation process Refer to 11A Prior to Work – Isolation.
			• **Must be undertaken by a worker who is competent & licenced in refrigerant handling.**
			• If done prior to power isolation:
			  ○ Switch air conditioner on (cooling).
			  ○ Reclaim all refrigerant from all parts of the system at the time of decommissioning.
				5

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ Ensure that receiving cylinder is appropriate for the pressure of the system and type of refrigerant and complies with Australian Standards. ○ Inspect receiving cylinder for damage such as dents or corrosion before using and confirm that it is within certification date. ○ Once reclaim process is complete clearly label cylinder. • Reclaimed refrigerant to be recycled or returned to an authorised refrigerant supplier.	
Disconnect unit	Hazard: Possible gas (refrigerant) leakage **Risk:** **Affixation, skin irritation, explosion**	**2**	• Visually check all fitting and hoses for damage. • Leak test fittings and hoses prior to opening isolation valves at the ends of each hose. • Follow the equipment manufacturer's instructions for evacuation and charging of a system, unless the instructions specify an action that would lead to refrigerant escaping from the system or contradicts Australian Standards and Regulations. • Take outdoor unit dust caps off liquid line and suction line (use pressure gauge until pressure is negative value). • Close liquid line. • Close suction line. • Switch air conditioner off	**4**
Remove unit from walls	Hazard: Awkward lift, working at heights, sharp edges **Risk:** **Falls from heights, falling objects, electrocution**	**2**	• **Must be undertaken by a competent & licenced electrician.** • **Before removal of the unit isolate the current system and remove all potentials of electrical supply.** ○ For isolation process Refer to 11A Prior to Work – Isolation. • Access external air conditioner position by scaffolding erected / barricades, using appropriate PPE & equipment. • Switch power off at power source. Use electrical meter to ensure power off. • Mark cabling (if air con being relocated) & disconnect cabling and copper pipes • Replace dust caps • Move air conditioner to required location / or dispose of air conditioner if required • Be mindful of the presence of snakes or spiders	**5**
Reinstallation of relocated air conditioners:	Hazard: Fire, leakage of refrigerant **Risk:** **Burns, environmental damage,**	**1**	• Extend copper pipes, expand existing pipes, and neaten; braze copper piping together, ensuring that the hot work is monitored to ensure adequate cooling & inspect for faults. • Extend cables – use junction box to connect extra cabling. • Competent and licenced electrician to inspect for waterproofing and correct connections. • Move outdoor unit to desired location and install on rubber feet, concrete slabs, or wall brackets (customer choice). • Reconnect copper pipes and cables to outdoor unit.	**5**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	eye damage		• Use vacuum pump and gauge to evacuate lines to check for impurities and leaks. • Wait 30 minutes to ensure vacuum holds. • Slowly open liquid line. • Slowly open suction line. • **Must be undertaken by a competent & licenced electrician.** • Turn air con on (cooling) in accordance with manufacturer's instructions. • Test air con. • Check gas level. • If necessary, re-gas air con using appropriate gas as per manufacturer specifications.	
Refrigerant handling Transporting refrigerant	Hazard: Damage to cylinder, leaking refrigerant during charging of equipment **Risk:** **Affixation, skin irritation, explosion**	**2**	• **Must be undertaken by a worker who is competent & licenced in refrigerant handling** • Ensure cylinders are kept secure and vertical. • During transport firmly secure cylinders with strapping against a roll cage. • Ensure cylinders are kept away from heat sources, this includes the sun. When cylinders are in a vehicle secure them on side of vehicle that is in a cool, shady area.	**5**
11GB. Electrical – Aircon Installation of New Units				
PPE Recommended			**Persons responsible for maintaining controls**	
Installation of air conditioners	Hazard: Fire, electric shock, leakage of refrigerant **Risk:** **Personal injury, environmental damage**	**1**	• **Must be undertaken by a competent & licenced electrician** • As required for isolation process refer to Section 11A Prior to Work – Isolation • Pre-job toolbox talk shall be conducted by the supervisor to discuss identified hazards and control measures to be implemented for the activity • Prior to use equipment shall be inspected by competent person i.e., calibrated equipment • All installation and construction work required will be undertaken in accordance with manufacturer's instructions and project requirements • Connecting power cables/wires shall be as per manufacturer's instructions	**5**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Install copper pipes, and neaten; braze copper piping together, ensuring that the hot work is monitored to ensure adequate cooling & inspect for faults • Extend cables – use junction box to connect extra cabling • Competent and licenced electrician to inspect for waterproofing and correct connections • Access external air conditioner position by scaffolding erected / barricades, using appropriate PPE & equipment • Install supports or brackets for AC units as per specification i.e., rubber feet, concrete slabs, or wall brackets (customer choice) • Connect copper pipes and power cable to outdoor unit • Test all the valves and joints for leaks. • **Must be undertaken by a competent & licenced electrician** • Turn air con on (cooling) in accordance with manufacturer's instructions • Test air con • Check gas level • If necessary, re-gas air con using appropriate gas as per manufacturer specifications • Commission the equipment with a calibrated instrument • Certificate of testing and safety shall be provided to customer	
Refrigerant handling Transporting refrigerant	Hazard: Damage to cylinder, leaking refrigerant during charging of equipment **Risk:** **Personal injury**	2	• **Must be undertaken by a worker who is competent & licenced in refrigerant handling** • Ensure cylinders are kept secure and vertical • During transport firmly secure cylinders with strapping against a roll cage • Ensure cylinders are kept away from heat sources, this includes the sun. When cylinders are in a vehicle secure them on side of vehicle that is in a cool, shady area.	5
11H. Electrical - Operation Around Overhead Powerlines				
PPE Recommended			**Persons responsible for maintaining controls**	
Working in proximity to	Hazard:	1	• Check for nearby power installations in proximity to workspace, e.g., overhead power attached to building (assume all electric lines are energised)	4

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
overhead powerlines	Electric shock, explosion **Risk: Electric shock, death**		• Contact energy provider for requirements for working near their assets • To obtain written Safety Advice (i.e. Ergon Energy Safety Advice on Working near Electric Lines) where it has been identified as being required, complete and submit or return by email the applicable Safety Advice Request Form which is accessible via the electricity entity website: https://www.ergon.com.au/network/safety/business-safety/the-outdoor-workplace/working-near-powerlines • Establish a minimum 3 metres exclusion zone from actual power source before work commences • A restricted access zone is to be established and sign posted in areas where larger plant must not enter (as per Safety Approach Distances - SAD). This area is only to be accessed by smaller plant which does not have the potential to enter SAD • No part of a worker, operating plant or vehicle should enter an exclusion zone while the overhead electric line is energised (live) • Spotter to be put in place with direct communication with operator • Spotter to provide immediate and direct notice/warning should equipment, tools, machinery, or personnel start to breach the exclusion zone • Stop the work immediately, if necessary, e.g., safety clearances compromised	
Where vehicle may reach into the 3 metres **Exclusion Zone**	Hazard: Contact with electrical cable **Risk: Electrocution, fire**	**1**	• For works that have the potential to enter the exclusion zone, controls such as isolation of the line to remove energy (this will require liaison with the asset owner); use of smaller plant that does not have the ability to enter safety approach distances will be utilised • Spotter to be put in place with direct communication with operator • Ensure the mobile equipment and its attachment (design envelope) is positioned so that it is unable to penetrate the exclusion zone of the overhead power line. i.e. the mobile equipment and its attachment are not required during the work to swivel underneath or into the 3m exclusion zone • The mobile vehicle and any attachment in relation to the mobile vehicle when disposing/unloading of a load is positioned so that it does not penetrate the exclusion zone around the overhead power line	**4**
Works more than 6.4m however design envelope could penetrate 3 metre **Exclusion Zone**	Hazard: Contact with electrical cable **Risk: Electrocution, fire**	**1**	• For works that have the potential to enter the exclusion zone, controls such as isolation of the line to remove energy (this will require liaison with the asset owner); use of smaller plant that does not have the ability to enter will be utilised • A restricted access zone is to be established and sign posted in areas where larger plant must not enter (as per Safety Approach Distances - SAD). This area is only to be accessed by smaller plant which does not have the potential to enter safety approach distances • Plant is not permitted within the Safe Approach Distance (SAD) as defined in the Electrical Safety Regulation or where they have the potential to encroach on the SAD (such as the boom of an excavator):	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			○ Up to 132kV - 3m ○ Up to 330kV - 6m ○ Over 330kV - 8m • Where the works to be undertaken are more than 6.4 metres from the electrical asset, however, if the design envelope of the vehicle and attachments (Hiab, boom, tip tray, excavator arm) may still reach into the 3 metres exclusion zone, the use of a spotter maybe omitted where all the following apply: ○ The works are designed and set so that no part of the vehicle and attached equipment or its load is required to come within 6.4m of the electrical assets e.g., working forward of the power lines or the vehicle is positioned where the attachment will not enter this zone ○ The operator agrees to this SWMS and abides by its requirements ○ A person is assigned responsibility to ensure compliance with the above	
Works which may penetrate the 3 metres **Exclusion Zone** around the power line	Hazard: Contact with electrical cable **Risk:** **Electrocution, fire**	**1**	• For works that have the potential to enter the exclusion zone, controls such as isolation of the line to remove energy (this will require liaison with the asset owner); use of smaller plant that does not have the ability to safety approach distances • A restricted access zone is to be established and sign posted in areas where larger plant must not enter (as per Safety Approach Distances - SAD). This area is only to be accessed by smaller plant which does not have the potential to enter safety approach distances • Where operations cannot comply with the permit or works will require the vehicle equipment or load to penetrate the exclusion zone a spotter is to be engaged and contact made with the site supervisor prior to works commencing • No one is permitted to work within the 3 metres exclusion zone e.g. any height above the cable or 3 metres either side unless they: ○ Are given 'permission' to work by the asset owner and permit issued ○ Have first done a site-specific risk assessment; and ○ Have a trained spotter at the site • Permits to Work near Exclusion Zones: ○ A permit is issued by the relevant power authority when work may breach the exclusion zone ○ This permit will be located either on the site sign, sites meter box, toilet, or fence ○ The site sign will give guidance to trades as to whether a permit exists • Trades should review this permit & abide by the limitations placed by the power authority	**4**
Use of spotter when required by SWMS or	Hazard: Contact with electrical cable	**1**	• Use of spotter when plant or cranes are in close proximity to power lines: ○ A spotter must be used when works may penetrate the 3 metres red exclusion zone ○ Such works require a Permit to Work from the local Power Supply Company	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk

where works may penetrate the 3 metres **Exclusion Zone**	**Risk: Electrocution, Fire**		• Spotters need to:
			  ○ Be Competent
			  ○ Have a full understanding of the machinery used, and task being undertaken	

11I. Electrical - Working Around Underground Services				
PPE Recommended			**Persons responsible for maintaining controls**	

Establish and complete excavation permit	Hazard: Incorrect information identified Incorrect scope of works **Risk: Damage of services Death or serious injury**	**1**	• Do not dig unless necessary
			• All reasonable steps will be taken to obtain current underground essential services information about any of the areas requiring excavation before directing or allowing the excavation work to commence
			• Contact Dial Before You Dig to request information about the infrastructure networks at the planned project site
			  ○ Online via the Dial Before You Dig website www.1100.com.au
			  ○ Mobile website or iPhone app
			  ○ By phone call 1100 (toll free, during business hours)
			• Use water pressure excavation over machines or shovels
			• Never drive star pickets in without knowledge of what is below
			• Plans to be attached to excavation permit if required
			• Obtain all relevant services plans by calling Dial before you Dig (1100). Allow 2 working days for plans
			• Examine Plans and assess all possible impacts on the services assets
			• Book appointment for certified locator to meet on site
			• Examples of services to consider:
			  ○ Oil, Gas, Water, Sewage, Electrical, Stormwater, Traffic Signals & Telecommunications
			  ○ All existing services to be potholed and marked for future reference
			  ○ Ensure all overhead services such as powerlines have been identified
			• Select the appropriate machinery to use around services
				4

High voltage underground cables and sub-stations	Hazard: Contact with electrical cable **Risk: Electrocution**	**1**	• Underground High Voltage Cables & Sub-Stations: ○ Most ‘green field’ work sites will not have underground services located on them. However, some sites which are located near electrical sub-stations or ‘keys’ do have areas which are covered by an exclusion zone which restrict excavation	**4**

High Risk Work Activity: 11. Electricity				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Fire		○ On any site where a sub-station or 'kiosk' is located on the block or a neighboring block determine where the power cables from the sub-station are running. This can be achieved by contacting Dial Before You Dig ○ If excavation work is to occur within the exclusion zone, then a permit needs to be obtained from the relevant power authority. This permit to work needs to be communicated with the relevant trades and all trades need to review and abide by the permit prior to commencing works. To obtain written Safety Advice where it has been identified as being required, complete and submit or return by email the applicable Safety Advice Request Form which is accessible via the electricity entity website: https://www.ergon.com.au/network/safety/business-safety/the-outdoor-workplace/working-near-powerlines • In some cases, it may be necessary to hand dig to identify the location of the cable and/or the protective covering.	
Excavations and digging near underground power	Hazard: Contact with electrical cable **Risk: Electrocution**	**1**	• Trades to inspect site plans prior to the commencement of digging • Contact dial before you dig prior to undertaking excavation works on the nature strip and common areas of the site. Dial before you dig will only be able to identify power cables of the electrical distributor asset owner and are to be considered as a guide only • Plans outlining the location of the underground power lines within residential construction site can be found in the meter box once installed • Where underground power lines within a site cannot be identified the services of a cable locator will need to be engaged • Prior to the commencement of any digging examine these plans & determine if the intended excavation will impact these underground lines • Work can occur near live power lines if the powered mobile plant is 500mm from the underground power lines. Work in closer proximity should be undertaken via hand digging around the power lines if the cabling is live • The location of underground power cables also has warning tape installed mid-way between the cable and the surface. If discovered the trade should cease all operations & contact is to be made with the site Supervisor	**4**
Installing electrical conduit	Hazard: Contact with electrical cable **Risk: Electrocution**	**1**	• Electrical companies installing electrical conduit must post a plan showing the location of underground cabling in the meter box of the site & identify distances to the underground conduit • Electrical companies are required to install warning tape at approximately mid-way between the underground conduit and ground surface • It is a requirement that the cable does not pass underneath the proposed location of the concrete slab. If site condition prevents this from occurring, contact must be made with the supervisor	**4**

High Risk Work Activity: 12. Contaminated or Flammable Atmosphere				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
12A. Crystalline Silica - Wet Cutting & Wet Drilling				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Creation of crystalline silica dust through cutting, sawing, drilling, abrasion of cement type products, using wet methods	Hazard: Exposure to crystalline silica dust vapor in water **Risk: Respiratory diseases**	1	• No person at the workplace will be exposed to RCS at a level above the workplace exposure standard (WES). WES of RCS2 is 0.05 milligrams per cubic metre (mg/m3) averaged over an eight hour period as described on page 9 of Managing respirable crystalline silica dust exposure in construction and manufacturing of construction elements Code of Practice 2022 • Complete a pre-work risk assessment of the expected work activities to identify hazards that may pose risks, i.e. projectiles, noise, vibration, dust contact or entanglement with cutting equipment • Products which are containing or suspected to contain crystalline silica dust will be used in areas away from other workers with consideration to neighbors or adjacent buildings where the public could be affected • All workers to be adequately trained/competent for the tasks they perform including use of respiratory protection equipment (RPE) • Use tool equipped with integrated water delivery system that supplies water to cutting surface/blade/grinding surface • Operate and maintain tool in accordance with manufacturer's instructions to minimise dust emissions • All plant and equipment fitted safety devices to be in working order. Servicing up to date • **Wetting technique:** ○ Ensure enough water is available (hose tap mains water or reservoir). ○ Ensure equipment has been tested and tagged and the correct RCD is used, if applicable ○ Ensure water supply to tool is turned on and operational before starting tool ○ Ensure water supply is flowing to cutting area prior to blade making contact with material being worked on ○ Ensure spray guards are in place before commencing work ○ All users in vicinity will use RPE as the water vapor will contain crystalline silica. ○ As the cutting or drilling is being conducted careful consideration will be given as to where the wet slurry runs. ○ Ensure the slurry is captured and not put into drains ○ Scoop up slurry and either place in buckets or bins which are to be removed from site before slurry dries into a dust, re-wetting may be required depending on the task. ○ Rinse all equipment and tools post work to remove all silica • If possible, workers should change out of their work clothes at the site to prevent the spread of silica dust	4

High Risk Work Activity: 12. Contaminated or Flammable Atmosphere				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Designated wet cutting areas	Hazard: Exposure to crystalline silica dust **Risk: Respiratory diseases**	1	• **When cutting, grinding, or drilling in large quantities:** ○ An area will be chosen to hold a slurry inside a pit. Depending on the volume of slurry, pits can be 500mm deep, or less, by 500mm x 500mm square ○ A sheet of black builders' plastic will be placed on top of pit with an x cut into the center to allow the slurry to flow into the pit ○ A pallet may be used on top to keep the plastic from blowing away and allow a cutting bench or area for wet cutting to occur ○ Once work has been completed the area can be washed down and allowed to drain into pit ○ If the area will be used for a concrete slab the slurry will be appropriately covered up and filled over ○ If this method is not suitable the slurry will be scooped into a bucket and removed from site. • RPE will be required – P2 Respiratory at a minimum will be used, fit tested to each worker, see register for individual workers requirements • Persons in the area will also be asked to leave while the work is undergone	4
12B. Crystalline Silica - Dry Cutting & Dry Drilling with M Class Vacuum				
PPE Recommended			**Persons responsible for maintaining controls**	
Creation of crystalline silica dust through cutting, sawing, drilling, abrasion of cement type products, using dry cut and M or H Class vacuum method	Hazard: Exposure to crystalline silica dust vapor in water **Risk: Respiratory diseases**	1	• Uncontrolled dry cutting of materials that contain 1 per cent or more crystalline silica is prohibited • Use of any material with >1 per cent crystalline silica for abrasive blasting is prohibited • Products which contain or are suspected to contain crystalline silica, so far as is reasonably practicable, will be used, cut, sawed or sanded in areas away from other workers with consideration to neighbors or adjacent buildings where the public could be affected • No person at the workplace will be exposed to RCS at a level above the workplace exposure standard (WES). WES of RCS2 is 0.05 milligrams per cubic metre (mg/m3) averaged over an eight hour period as described on page 9 of Managing respirable crystalline silica dust exposure in construction and manufacturing of construction elements Code of Practice 2022 • All workers to be adequately trained/competent for the tasks they perform • Plant and equipment to be used in accordance with manufacturers recommendations/specifications • All plant and equipment to be fitted with on tool dust extraction and fitted safety devices and to be in working order with servicing up to date	4

High Risk Work Activity: 12. Contaminated or Flammable Atmosphere				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk

			• **Dry cut with M or H Class vacuums technique:**
			  ○ Tools which can be connected to an M or H Class vacuum only will be used
			  ○ Hepa Bags will be used on all dry cutting to allow for ease of emptying vacuums
			  ○ Continual maintenance and cleaning of M or H Class vacuums will occur on each bag change as per manufacturers recommendations/specifications
			  ○ RPE will be used as the vacuum does not eliminate all crystalline silica in the air
			• If possible, workers should change out of their work clothes at the site to prevent the spread of silica dust	

Clean up of exposed silica dust	Hazard: Exposure to Silica Dust **Risk: Respiratory diseases**	**1**	• End of shift clean-up requires careful consideration as to the method used • Sweeping or use of dust blowers will be strictly prohibited as the ability to contain the silica dust is impractical • When M or H Class vacuums are used, PPE respirators are required. Cleaning vacuums with water and sponge also require use of PPE respirators • Tipping vacuum waste directly into bins is strictly prohibited. For this reason, Hepa bags will be chosen to aid in the cleanup process • Persons in the area will also be asked to leave while the work is undertaken • Where small use of dust pans and brushes are used RPE will always be worn	**4**
12D. Crystalline Silica - Post Work Clean-up				
PPE Recommended			**Persons responsible for maintaining controls**	

Cleaning areas contaminated with crystalline silica dust	Hazard: Exposure to crystalline silica dust vapor in water
	Risk: Respiratory infection
		1	• Where crystalline silica containing products have been used careful consideration must be given to neighbors or adjacent buildings where the public could be affected
			• **Cleanup using M or H Class Vacuums Technique:**
			  ○ M or H Class Vacuums only will be used
			  ○ Hepa Bags will be used to allow for ease of emptying vacuums
			  ○ Continual maintenance and cleaning of M or H Class vacuums will occur on each bag change as per manufacturers recommendations/specifications
			• Where small use of dust pans and brushes are used PPE respirators will always be worn, extra care will be taken as to not stir up dust
				4

Clean up of exposed	Hazard:	**1**	• End of shift clean-up requires careful consideration as to the method used • Sweeping or use of dust blowers will be strictly prohibited as the ability to contain the silica dust is impractical	**4**

High Risk Work Activity: 12. Contaminated or Flammable Atmosphere				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
crystalline silica dust	Exposure to crystalline silica dust **Risk: Respiratory infection**		• When M or H Class vacuums are used, PPE respirators are required. Cleaning vacuums with water and sponge also require use of PPE respirator. • Tipping vacuum waste directly into bins is strictly prohibited. For this reason, Hepa bags will be chosen to aid in the cleanup process • Persons in the area will also be asked to leave while the work is undertaken • If a wetting down method is used to control crystalline silica dust, then the slurry will be removed before it dries. While slurry is still wet scoop it into a bucket and seal bucket • Used filters will be vacuumed out with new clean ones. Once filters have been vacuumed and have no damage, they may be safely stored for use next time	
12E. Hazardous Substances Used Onsite				
PPE Recommended			**Persons responsible for maintaining controls**	
Hazardous substances used	Hazard: Untrained workers, inappropriate selection, access & egress, unknown substances **Risk: Personal injury**	**4**	• Ensure workers are trained in the safe use of the hazardous substances they are to handle • Before using hazardous substances, ensure SDS is current, read the SDS and comply with the requirements within • Make sure containers have clearly marked warning labels indicating the hazards of the substance • Where required, make sure exhaust ventilation is operational at the point where the substance is being used • Visual risk assessment will be conducted prior to commencing work activity • Choose the most suitable substance approved for the purpose with the least toxicity and risk • Screen the work area to protect workers and others from exposure, so far as is reasonably practicable • Use warning signs, barricaded or restrict access and provide an alternative route when required • Check and eliminate all potential sources of ignition (including spark producing switches, electrical equipment, open flames, pilot lights) within and near the work area • Identify and take specific precautions if using solvents in confined spaces such as wearing adequate RPE and providing ventilation • Only prepare enough chemical to do the job • Never decant chemicals into food or drinking containers • Never use chemicals that are in unmarked containers • Ensure spill kit available and follow manufacturer's instructions when managing spills	**5**

High Risk Work Activity: 12. Contaminated or Flammable Atmosphere				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Always wash hands thoroughly after using hazardous substances and before eating, drinking, smoking or going to the toilet • All hazardous chemicals and their containers are to be disposed of as per SDS requirements	
Hazardous substances brought to site by other trades	Hazard: Unknown hazardous substances **Risk: Personal Injury**	**3**	• No substances to be brought on site by subcontractors without notification provided to PC • Hazardous substances register and SDS to be readily available • Discussion with other trades: If other trades are present on site, notify them of the hazardous substances being used obtain from them details of any hazardous substances they are using.	**5**
12I. Generators Used Onsite - Carbon Monoxide				
PPE Recommended			**Persons responsible for maintaining controls**	
Working around active generator	Hazard: Fumes **Risk: Carbon Monoxide Poisoning**	**1**	• Ensure that generator is secure from unauthorised persons • Ensure that generator is set up on a firm, level surface with adequate airflow • Limit downwind work of generator wherever feasibly possible • Ensure that tools to be used are compatible with the output of the generator • Ensure that generator output is sufficient to operate tools effectively	**4**
Refuelling generator	Hazard: Fuel **Risk: Personal harm, environmental contamination**	**1**	• Avoid physical contact and wash hands after the action completed in ventilated areas or in areas where the fumes cannot build up • Do not refuel generator while motor is running • Allow unit to cool down before refuelling • Take care when refuelling to not spill fuel or overfill fuel tank • When refuelling via jerry can, ensure that safe manual handling practices are in place • Ensure adequate spill kit is readily avaiable1	**4**
Moving of generator	Hazard: Manual handling **Risk:**	**1**	• Ensure correct lifting techniques are in use • If weight exceeds 25-30Kg, lift with extra workers • Keep walkways clean of debris and other potential trip hazards • When the generator has only recently stopped, prevent physical contact with hot exhaust	**4**

High Risk Work Activity: 12. Contaminated or Flammable Atmosphere				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Musculoskeletal injuries			

High Risk Work Activity: 14. Working near a roadway				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
14A. Working on or Near a Roadway				
PPE Recommended			**Persons responsible for maintaining controls**	
Working on or near a roadway	Hazard: Road traffic **Risk: Contact between persons and vehicles**	**2**	• If setting up roadside, comply with State road rules, local laws and permits - keep the disruption to traffic at a minimum • Effective reliable communications must be available on site • Erect any barriers & signage necessary to keep others safe and aware • Ensure vehicle travel paths are clearly identified • If pedestrian access impacted ensure: ○ Safe pedestrian access is always provided past the work areas - must comply with MUTCD3 ○ Alternative pedestrian safe laneways are clearly marked ○ If necessary, alternative pedestrian footpath includes ramps • Ensure any control device does not become a potential hazard and does not obstruct permanent road signage • Restrict access to work area. Ensure: ○ Exclusion zones surrounding work area using barricades and signage is in place ○ Any other workers within the exclusion zones are wearing PPE as required ○ Traffic control is in place - standby person (or spotter) should be allocated and used if required • If required, contact a traffic management company to supply a traffic management plan and licensed traffic management personnel	**5**
Ongoing monitoring and inspections	Hazard: Road traffic **Risk:** **Struck by vehicle**	**2**	• Conduct risk assessments regularly during the work task/project • Hold daily prestart toolbox meetings to discuss changes to the workplace and identification of any new hazards/risks	**5**

High Risk Work Activity: 15. Mobile Plant				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
15BA. Mobile Plant - Driving Work Vehicles Onsite				
PPE Recommended			**Persons responsible for maintaining controls**	
Mobile Plant and Vehicles	Hazard: Traffic **Risk:** **Uncontrolled contact between vehicles and people**	**1**	• Driver is responsible for conducting prestart vehicle checks • Only licensed drivers are permitted to drive vehicles • Driver to be aware of site instructions and any specific hazards/risks that may be relevant • Flashing lights are always used on mobile plant • Adherence to site safety plan, exclusion zones, communication, consultation. • Follow the site safety plan relating to traffic control safety • Do not work within 3m of live traffic unless: ○ A Traffic Management Plan is in place ○ A Traffic Control system is in place – under the direction of ticketed traffic controllers ○ There is a safety barrier in place (such as concrete new jersey curbs), water filled Triton barriers and or a shadow vehicle • Increase awareness of pedestrians if works are adjacent to the existing footpath • All pedestrians to be diverted around work area	**5**
Mobilize and demobilize to site	Hazard: Obstruction Unauthorised access **Risk:** **Crush death** **Inadequate PPE** **Crushing**	**2**	• Remove obstructions or reposition equipment • Ground condition and slope must be assessed prior to loading/unloading • Do not continue if you cannot confirm the stability of the machinery • Only those authorised may access site • Ensure work area is barricaded and signed to allow adequate exclusion zones. Depending on the height 45 degree from the top point down to the ground or 3m from edge of machine, whichever is greater • High visibility clothing to be always worn • Transport driver shall be responsible for tie down of load and removing tie downs, straps etc • Maintain visual contact between plant operators and other personnel at all times. Spotters to be used where required for reversing operations, tight areas etc. • Avoid unloading/loading plant under power lines	**4**
Unloading of plant	Hazard:	**1**	• Qualified and competent operator to always unload vehicle	**4**

High Risk Work Activity: 15. Mobile Plant				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Plant and equipment falling off deck uneven ground **Risk:** **Damaged equipment, crush death**		• Align machinery with ramps prior to unloading • Using a spotter when reversing • Adjust ramps to suit wheel width • Use winch cable and remote where possible • Remove excess personnel from the work area • Always choose suitable surface to unload on level ground	
Moving machinery around site	Hazard: Obstruction (Overhead, at ground level or underground), faulty equipment, plant tipping or rolling over **Risk:** **Crush death**	**1**	• Remove obstructions or reposition equipment • Do not continue if you cannot confirm the stability of the machinery • Check all electrical systems are operational • Check all warning systems and devices are operational • Only authorised personnel shall carry out maintenance checks • Only qualified person shall carry out repairs and maintenance • Check tyre tread and pressure are satisfactory (where applicable) • Provide tilt alarm system to advise operator of machine operating beyond safe working angles • Ensure the machine is an “outdoor rated” machine if operating where there is a risk of external wind • Operator is responsible to not exceed the safe working load and wind rating of the plant • Operator to be trained and competent in the safe operation of the plant	**5**
Stationary Equipment	Hazard: Accidental movement of plant **Risk:** **Crush death**	**1**	• Ensure tools and equipment are stored appropriately • Ensure emergency stop switch is pushed in when equipment function completed and work to commence • Ensure shutdown procedures are followed as per the manufacture’s manual	**5**

High Risk Work Activity: 15. Mobile Plant				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
15BB. Working Near Onsite Mobile Plant				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Working near onsite mobile plant. (Under or beside)	Hazard: Road traffic **Risk: Contact between persons and vehicles**	**2**	• When establishing work areas consider mobile plant onsite has right of way • All personnel to have undergone site specific familiarisation • Erect any barriers & signage necessary to keep others safe and aware of the work being undertaken • Designated pedestrian routes to be established where required • Personnel not to enter the swing zone of equipment without positive communications with operator • Restrict access to work area. Ensure: ○ Exclusion zones surrounding work area using barricades and signage is in place ○ Any other workers within the exclusion zones are wearing PPE as required ○ Communicate with onsite mobile plant operators to get an understanding of their tasks and areas they need to access as well as times they operate. Work in with onsite operators and ensure tools, equipment and work doesn't unnecessarily block their work areas or travel paths • When new workers come to site ensure they understand the movements of onsite mobile plant as it may not be consistent and start up without notice • Mobile phones or personal entertainment devices (PEDS) are not to be used while working around mobile plant. If necessary to use such a device, move to a safe area. • **Never work under a load being lifted by any type of crane.**	**5**
15H. Working Around Cranes and Lifting Operations				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Public protection, Staying clear of Other	Hazard: Mobile Plant, Poor	**1**	• Exclusion zones surrounding work area to be established by crane operator • During the erection of any object via a crane, public/other workers will remain out of the designated lift area which is the area below or adjoining where persons could be struck by falling equipment / materials • Area is to be either barricaded or sign posted to prevent unauthorised entry	**4**

High Risk Work Activity: 15. Mobile Plant				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Workers and General awareness of activity	communication, Pedestrian traffic **Risk: Falling objects, Personal Injury to public or other workers**		• Safety helmets must be worn always when working in vicinity of loads being lifted • Workers will remain out of the lifting area and ensure no pedestrians or bystanders enter the area while the lifts are being conducted • The crane operator and rigger will always remain in control of the lift. In the event where workers may be required to assist in the placement of loads all workers involved will sign onto the Crane Operators SWMS and any additional hazards will be managed through that document. This SWMS does not cover these tasks. • Take all directions from Crane Crew	

High Risk Work Activity: 16. Artificial Extreme Temperatures				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
16A. Hot Work - Welding				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Task preparation for welding with Tig, Stick or Meg	Hazard: Wrong personnel and/or equipment to complete task **Risk: Personal injury**	**1**	• Ensure only competent & trained personnel conduct welding • Notify anyone nearby who may be affected by the work • Ensure valid hot work permit is in place • • Adopt good posture and manual handling techniques • All workers who use oxy/acetylene equipment are to be aware of the safety procedures associated with the use of this equipment • Appropriate fit for purpose equipment • Ensure tool is in good repair and tagged in date. Check equipment prior to starting work. Any defects noted equipment must not be used • Ensure any required compliance inspections have been completed. i.e. flashback arrestors etc. • Remove flammable materials from hot work areas • Conduct hot works in clear areas where possible away from others and potential flammable materials	**4**
	Hazard: Injuries to personnel within operating areas **Risk: Flash burns**	**1**	• Control sparks and other ignition sources from hot works by using barriers and screens where practical • Exclusion zones to be delineated and barricaded if necessary • Signage to be established if necessary • Ensure all isolation points are in place prior to hot works commencing	**4**
Conducting hot works	Hazard: Incompetent welding, explosion, fire **Risk: Personal injury**	**1**	• Pre-start on equipment • Spotter/Standby person to be in place if required • Screens to be put in place to control sparks and welding flashes • Where possible sparks are to be directed away from personnel and ‘or infrastructure. • Use of gas detection should always be considered in areas where a flammable atmosphere is a potential, (e.g., near fuel tanks or drums, bulk flammable storage or unknown substances are present). • NEVER leave hot work unattended	**4**

High Risk Work Activity: 16. Artificial Extreme Temperatures				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• All hot items are to be cooled or clearly identified as hot, so as not be picked up by personnel without appropriate PPE • All oxy-acetylene bottles are to be restrained on approved trolleys • All bottles which are not in daily use to be stored in an upright position away from welding activities where reasonably practical • No hot work is to be conducted in the vicinity of flammable or combustible materials or storage facilities, without a risk assessment being conducted • Work area to free of debris or any combustible material or vegetation • Ensure no uncontrolled ignition sources can be introduced into the area • Ensure a plan is in place to control any outbreak of fire resulting from the hot works activities. Have appropriate firefighting equipment on hand	
16BA. Hot Work - Grinding				
PPE Recommended			**Persons responsible for maintaining controls**	
Preparing to use a grinder to cut or grind steel	Hazard: Slips, trips and falls **Risk:** **Personal injury**	**2**	• Ensure only competent & trained personnel use a grinder • Never leave an inexperienced worker alone to use a grinder • Notify anyone nearby who may be affected by the work • Ensure valid hot work permit is in place • Remove flammable materials from areas • Ensure tool is in good repair and tagged in date • All hose and equipment to be checked for defects prior to commencing work. Any defects noted equipment must not be used • Always ensure blades are correctly fitted • Check work is properly supported and won't slide or move. • Check cut will be clear of supports	**5**
Using a grinder to cut or grind Steel	Hazard: Hot sparks, loose pieces of material **Risk:** **Personal injury**	**2**	• All hose and equipment to be checked for defects prior to commencing work. Any defects noted equipment must not be used • Always ensure blades are correctly fitted • Control sparks and other ignition sources from hot works by using barriers and screens where practical. • Always secure material in a vice or clamp. Never hold the object you are using the grinder on.	**5**

High Risk Work Activity: 16. Artificial Extreme Temperatures				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Maintain 2 hands on grinder • Ensure all guards are left on grinder, (if the guard is in the way of the task, re-think and use a different tool as this means the grinder is not suitable) • Check cut-off will fall safely or will be supported • NEVER leave hot work unattended	
16D. Hot Work - Soldering and De-Fluxing				
PPE Recommended			**Persons responsible for maintaining controls**	
Use of Soldering and De-Fluxing	Hazard: Incompetent user, faulty equipment, explosion, fire **Risk:** **Personal injury**	**1**	• Ensure personnel trained and competent for respective area of hot works • Ensure valid hot work permit is in place • Exclusion zones with signage set up around work zone • Place the soldering iron back in the stand immediately following each use • Avoid positioning your head directly over the soldering process. Soldering creates flux fumes that can irritate the lungs and eyes and may cause sensitisation • Avoid breathing solder flux fumes • When trimming leads, contain the lead with a finger to prevent the cut lead becoming a projectile • Tin and switch off soldering iron before de-fluxing • Close the lid of the isopropanol bottle when not in use • Avoid flicking isopropanol on people or objects when scrubbing circuit boards. Always cover board with a lint free wipe to absorb dissolved resin flux and minimise isopropanol spatter • Ensure a plan is in place to control any outbreak of fire resulting from the hot works activities. Have appropriate firefighting equipment on hand	**4**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Ladders – Under 2m				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Using Ladders	Hazard: Using Ladders **Risk: Falling**	3	• Tie offs, base support, gutter anchors, levelers to be considered • All ladders used on site will be rated 'Industrial' with 120kg (minimum) load rating • Persons using the ladder must have 3 points of contact always (i.e., 2 hands and 1 foot or 2 feet and 1 hand or be holding a stable object e.g., gutter, wall frame) • Ladders are to be maintained in a sound working condition and be appropriate for the task to be undertaken • Tools requiring two handed operations, or a high degree of leverage force should not be used while on ladders • A ladder is not a work platform.	5
Manual Handling				
PPE Recommended 			**Persons responsible for maintaining controls** 	
Manual Handling	Hazard: Locations of the loads and distances to be moved **Risk: Musculoskeletal strain, Fatigue**	**3**	• Use mechanical handling equipment where possible • Correct lifting technics learnt in their construction induction will be used whenever a lift is required • **Preparation**: The first step in any lifting operation is preparation. Plan how you will carry out the lift and clear away any obstacles. By visualising the lift, you will automatically make your stomach muscles contract. These muscles brace your back and will significantly contribute to injury prevention • **Size up to load**: By moving the load sideways and forwards you will be able to ascertain whether it is within your capacity. Always imagine that the object you are about to lift is much heavier than it is • **Proper foot position**: As a general rule the front foot should be beside the object. The back foot should be slightly behind and be hip width from the front foot. This achieves a stable base and allows for even distribution of weight • **Proper hold**: Ideally with the proper hold the hands should be diagonally opposite for security and comfort. Use the full length of the fingers and where possible the palms to avoid fatigue • **Bend at the knees**: Bend your knees to get down to the load and use the legs to lift it. This way thigh and leg muscles are used, and these are the strongest part of your body (your back muscles are only for bracing) • **Straight back**: Keep your back as near to straight as possible, raise your head, keeping your chin in. This will keep your spine straight and enable you to see where you are going	**5**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• **Keep the load close to you**: During the lift, keep the arms as straight as possible, and the elbows into the side. Don't change your grip while carrying and directly face the spot on which the load will rest. Never combine lifting with the twisting of your body. If you must turn, do it by moving your feet. Twisting causes the worst type of back injuries • **When a team lift is required, good communication will be used to co-ordinate the lift**: Whenever team lifting is used, it is essential to co-ordinate and carefully plan the lift. When organising a lift, ensure: ○ An adequate number of employees are chosen to help in the lift. ○ Team members are of similar height. ○ One person is appointed "leader" of the team to perform the lift. ○ There is enough area for the team members to maneuver as a group. ○ Team members know their roles and responsibilities. ○ Training in team lifting has been provided and the lift is rehearsed.	
Power Activated Tools - Explosive & Gas				
PPE Recommended			**Persons responsible for maintaining controls**	
Plan & prepare	Hazard: Poor planning, operator not competent **Risk:** **Puncture wound, sever injury**	**3**	• Ensure the work area is well lit • Work instructions, including plans, specifications, quality requirements and operational details, are obtained, confirmed, and applied from relevant information for planning and preparation • Safety requirements are followed in accordance with safety plans and policies • Signage and barricade requirements are identified and implemented • Plant, tools, and equipment selected to carry out tasks are consistent with job requirements, checked for serviceability, and any faults are rectified or reported prior to commencement • Use tool only as intended by manufacturer • Never point the tool at yourself or any bystander • Never press the muzzle of the tool against your hand or other part of body • Material quantity requirements are calculated in accordance with plans and specifications • Ensure services will not affect the work area. Check Plans or consult owner or authority • Materials appropriate to work application are identified, obtained, prepared, safely handled, and located ready for use • Environmental requirements are identified for the project in accordance with environmental plans and statutory and regulatory authority obligations are applied	**4**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Set out Fasteners	Hazard: Not planned, operator not competent **Risk:** **damage building, sever injury, electrocution**	**3**	• Minimum distances for set out from edge of substrate material are adhered to in accordance with legislation, regulations, and codes of practice • Material is located and temporarily held or fixed into designed position according to detailed drawings • Ensure services are not near where work area will impact. Check Plans.	**4**

Use of Power Activated Tools	Hazard:
	Operator not competent
	Risk:
	Puncture wound, sever injury, electrocution
		3	• Follow the steps listed in the crystalline silica component of this SWMS for specific controls of respirable crystalline silica
			• Tools are checked for operation according to manufacturer specifications
			• Fastener is selected according to requirements of job
			• Charge is selected to assessed requirements for material, base, and penetration
			• Attachments and accessories are installed to Tool in accordance with manufacturer specifications and safety requirements
			• Fastener and charge in tool are located to manufacturer specifications
			• Work from a secure stance and stay in balance at all times
			• Before using the tool, make sure that no one is standing behind or below the point where fasteners are
			• to be driven
			• Tool operation is carried out and fastener is fixed into place in accordance with manufacturer recommendations, legislation, regulations, and codes of practice
			• Never exceed the recommended maximum fastener driving rate (number of fastenings per hour)
			• Fastening penetration is checked and appropriate depth into material is applied
			• Power regulating device is adjusted for conditions
			• Misfire procedures are carried out according to manufacturer recommendations, legislation, regulations, and codes of practice i.e.
			  ○ Keep the tool pressed against the working surface for 30 seconds.
			  ○ If the cartridge still fails to fire, withdraw the tool from the working surface, taking care that it is not pointed towards your body or bystanders.
			  ○ Manually advance the cartridge strip one cartridge. Use up the remaining cartridges on the strip. Remove the used cartridge strip and dispose of it in such a way that it can be neither reused nor misused
			• Never attempt to pry a cartridge from the magazine strip or the tool
				4

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
			• Keep the arms flexed when the tool is fired (do not straighten the arms) • Never leave the loaded tool unattended • Temporary holding and fixings are removed without damage to material.	
Secure/ Storage of Equipment & Charges	Hazard: Equipment not secured or stored correctly **Risk: Damage to equipment, theft**	**4**	• Always unload the tool before beginning cleaning, servicing, or changing parts and before storage • Charges are stored in designated container in accordance with legislation, regulations and codes of practice and used charges are recorded • Unused fasteners, tool and attachments are stored in a carry case in line with manufacturer recommendations • Logbook is checked and maintenance recorded according to manufacturer recommendations.	**6**
Maintaining Equipment	Hazard: Equipment not maintained **Risk: Damaged equipment, sever injury, tools not functioning correctly**	**2**	• Work area is cleared, and materials disposed of, reused, or recycled in accordance with legislation, regulations, codes of practice and job specification • Tools and equipment are cleaned, checked, maintained, and stored in accordance with manufacturer recommendations and standard work practices • Any damage to equipment is reported immediately and tagged out of service.	**5**
Use of Hand and Power Tools				
PPE Recommended			**Persons responsible for maintaining controls**	
Prestart check at site	Hazard: Site hazards may impair works **Risk: Personal injury**	**3**	• Undertake pre-site inspection verify conditions on site will enable works to be carried out in accordance with the SWMS. • Discuss site specific works with the Site Supervisor reviewing site signage, Safety Management Plan, for site specific hazards • Ensure all employees are made aware of any site specific hazards to works and these SWMS • Construction Inducted employees are only allowed to undertake construction works • Ensure all leads tagging & testing are up to date, if applicable	**5**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Use of drills, saws, planner, sander, hand tools	Hazard: Untrained workers **Risk: Personal injury**	**3**	• Workers are to use the right type and right size of tool for the job • Workers to follow the correct procedure for using every tool • Worker to check the condition of tool prior to use • Always carry pointed tools by your side with the points and heavy ends down • Never carry tools in your pockets • Keep cutting tools sharp and in good condition • Cut away from yourself when using chisels and other edged tools • Handle sharp-edged and pointed tools with care • Handles must have no sharp edges or areas that dig into the fingers or palm of the hand • Do not use tools which are loose or cracked • When power tools are used follow the manufacturer's instructions for the correct PPE to be worn and the safe use instructions • Workers to be competent in the use of the PPE and risk assessments must be undertaken prior to using PPE to show that the hierarchy of control was used in determining if to use PPE • If an item of plant or equipment creates excessive noise, that is where you need to raise your voice to talk, wear appropriate hearing protection • If there is a risk of injury to the head by falling objects then wear hard hats	**5**
	Hazard: Contaminated atmosphere **Risk: Respiratory illness**	**3**	• If worker doesn't know or suspects area being worked on may contain crystalline silica, then follow the steps listed in the crystalline silica component of this SWMS for specific controls of respirable crystalline silica • Assess whether to wet down areas to reduce dust emission from works conducted • Where the risk of dust production, worker will wear appropriate PPE	**5**
	Hazard: Flying debris **Risk: Personal injury**	**3**	• Guards on tools and equipment will be maintained and working effectively before being used on site • Guarding on tools will not be removed to perform any work activity • All tools and equipment will be inspected prior to work activity for any faults or defects • If a fault or defect is found the item will be removed from services and reported to the supervisor as soon as practicable • All persons performing work where there is a risk of a foreign object striking the eye, eye protection must be worn	**5**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Hazard: Poorly maintained electrical tools **Risk:** **Electrocution**	**3**	• All corded tools will be tested and tagged in accordance with current legislation and conducted every **three months** on construction sites • All corded tools will be connected directly to an RCD switch box which is also inspected and tagged in accordance with current legislation	**5**
Powered tools with discs: grinders	Hazard: Incorrect disc or fragmented disc resulting in flying parts striking people **Risk:** **Personal injury**	**3**	• If worker doesn't know or suspects area being worked on may contain silica then follow the steps listed in the crystalline silica component of this SWMS for specific controls of respirable crystalline silica • Grinders will always be inspected before use • If a cutting or grinding disk has been left on, carefully inspect disc prior to use • If damage to disc is noted, swap out for a new one • Never change any type of disk on a grinder without unplugging or removing battery • Checking for dead is also essential to prevent accidental operation during disk change • Never over tighten disk as this may also damage them • Guards are always manditory on a grinder. If the guard is in the way, the grinder is the wrong tool for the job • Do not remove guards for any reason while grinder is in use	**4**
Use of Trestle and Planks				
PPE Recommended			**Persons responsible for maintaining controls**	
Working on trestles 2m or greater	Hazard: Working at heights **Risk:** **Falling**	**3**	• Installation from work platforms 2 metres or above should only be performed off 2 planks (450mm) • Work performed from work platform 3 metres or above will be fitted with suitable edge protection • Materials should not be stored on the work platform • To avoid pivoting planks should be lashed or clamped • A visual inspection will be undertaken to check to see if the platform is suitable for the work activity prior to use • The height of the work platform should not exceed 5 metres	**4**
Working on trestles 2m or less	Hazard: Working at heights **Risk:** **Falling**	**3**	• If working below 2 metres maintain a clear fall zone of at least 1.5 metres free from excessive rubbish, materials, and other hazards • If a clear fall zone of 1.5 metres cannot be achieved and the risk of falling is high, suitable edge protection should be installed to the platform	**5**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities

Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Working in Hot/ Humid Environments (Excess 30°or +60% Humidity)				
PPE Recommended			**Persons responsible for maintaining controls**	
Working in excessively hot environments or during a heat wave (i.e., working on open fields, concrete structures, etc.	Hazard: Heat and high humidity on the body, Radiant heat, High humidity, Hot objects, or Strenuous physical activity **Risk:** **Heat stress,** **Dehydration,** **Headaches,** **Nausea**	**2**	• Extended working hours, excessive heat and more strenuous activities will be carefully monitored • Have in place emergency procedures for heat stress • Supervisors to consider: ○ Length of shifts - depends on physical and mental load of the work ○ Previous hours and days worked ○ Type of work being performed ○ Level of physical and/or mental effort required to complete tasks ○ Time of the day when the work is being performed. ○ Rotating workers • Supervisors to implement, as far as is reasonably practicable: ○ Increased supervision/monitoring of workers and regular communication with them ○ Work to be carried out under shade/portable shade structure ○ Increased work to rest ratio i.e., 1 hour work to 15 minutes, minimum, rest period ○ Buddy system where workers keep an eye on each other for signs of heat effects ○ Where possible schedule work for early morning, late afternoon or at night ○ Utilize 5 min hydration breaks away from sun and work ▪ Hydration Stop: Is a controlled break facilitated by the supervisor or safety rep to bring the work crew together and re-hydrate, (water, sqwincher or hydrolytes.) will be used. This is not a normal break as the sole purpose of this is to re-hydrate • Shaded or cool area(s) for rest breaks with good ventilation - use fans if needed	**4**
Hot/ Humid environments - Emergency Response Procedures	Hazard: Unidentified heat stress or exhausted worker **Risk:** **Dehydration,** **Collapse,**	**1**	• Workers will: ○ Look after each other and ensure that there is drinking water, co-workers are taking breaks and not showing signs of heat stress ○ Ensure they have plenty of cool water to drink - not icy water ○ Use electrolyte icy blocks if not contra indicated ○ Take regular rest breaks in shade • If a worker shows symptoms: ○ Remove the worker from the heat or work area	**4**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities

Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Permanent disability, Death		○ Loosen their clothing, remove PPE including shirts and masks ○ Have them rest in a cool, well-ventilated area ○ Encourage them to drink cool (not cold) fluids ○ If symptoms do not reduce quickly, seek medical help immediately • As far as is reasonably practicable, sites to have available ice towels (i.e., esky, ice, water, and towels) as part of a first aid response. Ice towels have been shown to be an effective cooling method for heat related illness • To relieve acute symptoms, such as painful muscular cramps, hydrolytes may be used in the single serve • **DRSABCD** – Implement basic first aid • **See site First Aiders** • Each day ensure workers know who the onsite first aiders are	
Working With Lasers				
PPE Recommended			**Persons responsible for maintaining controls**	
Using Class 1, 2, 3 3B restricted lasers	Hazard: Exposure to lasers **Risk:** **Eye injuries**	**4**	• Users trained in safe lases use in accordance with AS 2397 (Safe use of lasers in the building and construction industry) • Use Class 1 laser where possible • Erect laser warning signs if pedestrians are in proximity • Isolate persons from laser beam if possible • Ensure the laser is not set up at eye level • If using the laser above ground, use a beam stop • Do not stare directly into beam • Avoid specular reflection (laser beam shining off metal surfaces.) • If working close to beam use appropriate safety glasses rated (ANSI Z136 and CE Certified Laser Safety Glasses) • Continually monitor the work.	**6**
End of Shift				
PPE Recommended			**Persons responsible for maintaining controls**	
Clean up and re-packing.	Hazard: Loading vehicle **Risk:**	**3**	• When cleaning up and repacking good manual handling techniques will be used, e.g., such as bending the knees and not the back, team lifts where possible and avoid carrying very heavy items	**5**

Site Risk Assessments – Listed Alphabetically by Non-High-Risk Activities				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
	Muscular strains			
Leaving Site	Hazard: Environmental **Risk: Environmental damage**	**4**	• When leaving site, make sure to take away any of the left-over materials • When cleaning ensure that all environmentally sensitive products are disposed of correctly • Any leftover hazardous substances will be taken off site and disposed at the correct facility	**5**

Site Risk Assessments – Additional Tasks or Activities to be Added				
Activity	Hazards & Risks	PRE-Risk	Work Method Used	POST Risk
Additional Tasks to Add to Job				
Task 1:	Hazard: **Risk:**	 **0-6**	What did you do to make it safe?	 **4-6**
Task 2:	Hazard: **Risk:**	 **0-6**	What did you do to make it safe?	 **4-6**
Task 3:	Hazard: **Risk:**	 **0-6**	What did you do to make it safe?	 **4-6**