

Mortlake South Wind Farm Bushfire Mitigation Plan



PLAN

BUSHFIRE MITIGATION

MORTLAKE SOUTH WIND FARM

CONTROL

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RECORD OF CHANGES

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1. PURPOSE

ACCIONA Energía (AE) recognises that there is a risk of fire ignition from electrical assets associated with the MSWF, including the equipment within the wind turbines and substation.

This Bushfire Mitigation Plan (BMP) has been developed by ACCIONA Energy Oceania Construction (AEOC) and adapted by ACCIONA Energía to support the Mortlake South Wind Farm (MSWF) Environmental Management Plan (EMP) and Emergency Response Plan (ERP).

While the overall objective of this BMP is to minimise the risk of bushfires as a result of the operation of the MSWF, the primary objective is to eliminate fire ignition risks in all our operations through the:

- elimination of ignition sources and the maintenance of the necessary separation between potential ignition sources and any flammable material.
- provision of a management framework for the Mortlake South Wind Farm that:
 - reduces the risk of fires and power interruptions
 - protects the health and safety of the local community
 - ensures safe clearances are achieved and maintained, and
 - minimises the environmental impacts of our mitigation activities.

The BMP includes (but is not limited to) the procedures, standards, codes, and guidelines that ACCIONA Energía employs to mitigate bushfire risk.

2. SCOPE

This plan applies to the Mortlake South Wind Farm (MSWF).

3. DESCRIPTION

MSWF is located in an area that is predominantly used for grazing (dairy cattle). There is no forest within the MSWF itself, apart from isolated trees and windbreaks.

The key assets located at the Mortlake South Wind Farm include:

- 35 Nordex N-149 4500 wind turbines generators, 106m nacelle height, 149m rotor diameter
- 33kV MV reticulation system underground to the substation
- 33/220kV Substation
- 3 met masts (105 m height), and
- Maintenance facility located on the Corner of Mortlake Terang Rd & Tapps Lane.

3.1. INFRASTRUCTURE

The site includes internal system of access roads, maintenance facility and substation.

3.2. ACCESS AND EMERGENCY INFORMATION

An Emergency Information cabinet is provided at the main access point to the operating Wind Farm. The cabinet will include the following:

- Detailed site plan clearly identifying all main roads and access points and the internal road network and all static water storage locations,

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- Contact information for site including after-hours contacts,
- Copy of all Safety Data Sheets.

Copies of the site Bushfire Mitigation Plan and Emergency Response Plans will be provided to

- Victoria Police,
- Moyne Shire Council and City of Warrnambool Municipal Emergency Response Coordinators.
- Ambulance Victoria Group Officer.
- Moyne Shire Council Municipal Emergency Resource Officer and Municipal Fire Prevention Officer.
- CFA District 5 Operations Manager

3.3. WIND TURBINES

The wind turbines comprise of a rotor and nacelle mounted on tall, tapered steel towers, 106m above the ground.

The electrical generator itself is located within the nacelle at the top of the tower and the stator operates at 690V. Other control and utility circuits also operate within the nacelle, but at lower voltages. A large mechanical gearbox and associated hydraulic fluids and lubricating greases and oils, are also located within the nacelle.

The wind turbine's high voltage (HV) switchgear is located at the door ground level and is fused and insulated with SF6 gas.

The likelihood of fire ignition from the wind turbine is minimal. In the unlikely event of a fire within the wind turbine tower, the fire would be contained within the tower itself.

All wind turbines are fitted with fire extinguishers, one located in the nacelle, and another located at ground level door entry.

3.4. UNDERGROUND POWER CABLES

The underground power cables are buried in trenches. Protective plates and warning tapes are laid at various depths to protect the cable and warn any ground disturbance activities of the presence of the cable. The cables themselves are heavily insulated, armoured and shielded.

The likelihood of fire ignition from the underground power cables is unlikely as only a mechanical break into a live conductor (e.g., when digging) could present as a fire ignition source.

3.5. SUBSTATION AND CONTROL BUILDING

The Substation collects the underground cables from the wind turbines to a single point, so that it can be stepped up to a higher voltage (220 kV) and then connected to the grid.

The main substation has (1) power transformer rated at 185MVA which steps up the voltage from 33kV to 220kV for connection to the Ausnet Network. The main substation also has one switch building, which has separate, adjoining rooms for the 33kV indoor switchgear, the AC/DC power supplies and control equipment.

The substation includes fully bunded foundations, pumping and oil/water separator facilities.

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The HV switchgear within the transformer yard is fully enclosed and insulated with SF6 gas and incorporates lightning protection.

Control and equipment is fully enclosed, and the likelihood of fire ignition is minimal.

4. BUSHFIRE PREVENTION STRATEGIES & PROGRAMMES

4.1. INTRODUCTION

This section lists the preventative strategies and programmes that AEOC will adopt to mitigate the risk of bushfire. The works required for each strategy are outlined below.

The strategies and programmes are guided by ACCIONA Energía HSE Risk Management Procedure.

AE has identified scenarios that could potentially pose a fire ignition hazard if not maintained/controlled:

- Person(s) and/or equipment encroaching into the “No-Go Zone” of the Substation;
- vegetation growth within Substation (potentially encroaching on clearance zones);
- catastrophic failure of the equipment within the Substation (e.g. transformer explosion, circuit breaker explosion etc.);
- wind turbine fire; and
- open air operational activities (e.g., vehicle exhausts welding, grinding and other hot works etc).

Mitigation strategies to minimise the likelihood of fire ignition hazard include:

Engineering

- Designing Substation, the Switching Station and the wind turbine sites according to Australian Standards to have intrinsic fire mitigation strategies built into them, such as clearances from vegetation, aprons around foundations and all-weather access roads.
- Physical barriers and controls to substation access.

Preventative Maintenance and Monitoring

- Substation, the Switching Station inspected every 4 months and wind turbine sites inspected every 6 months by a competent ACCIONA employee.
- Maintenance of access tracks including for emergency vehicles
- Vehicle maintenance, regular inspections/checks, and operational requirements
- Vegetation maintenance and firebreaks around electrical assets
- Preventative maintenance is conducted on electrical assets in accordance with a programmed schedule and manufacturers recommendations.

Administrative Controls

- Hot works permits to restrict open air activities, especially during periods of high risk
- Use of fire-resistant shield and containers for off-cuts, when conducting hot works
- Vehicles are to stick to access tracks
- Restricting smoking to non-vegetated areas
- Access control areas strictly enforced

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- Substation, the Switching Station, and the wind turbine sites kept clear of unnecessary flammable substances such as packaging, rubbish, and other work materials as a requirement of work permits.
- Lighting of fires is strictly prohibited in accordance with site rules.
- AE will annually engage with the local CFA and State Emergency Service to familiarise emergency service providers with the wind farm site and its various assets and to assess and implement the most relevant and applicable mitigation strategies.

4.2. WIND TURBINES

The surrounds of all turbines will be kept clear of flammable substances.

- A two-metre surround for all turbine towers is covered with crushed rock to reduce the growth of vegetation and provide safe step and touch potentials. The reduced growth of vegetation is achieved by annual grass and weed spraying.
- The wind turbines are located on land that is predominantly used for grazing. The grass for grazing is kept short by the livestock.
- Each wind turbine is to be inspected every year before the first of November to ensure the crushed rock/gravel area is clear of vegetation and other flammable items (e.g., packaging, rubbish, oil containers, etc):-
- If items posing a fire risk are noted during such an inspection, then arrangements must be made for their removal as soon as is reasonably practicable.
- At the completion of any work undertaken in a turbine or tower, personnel are to visually inspect the crushed rock/gravel area and remove any flammable non-plant items (e.g., packaging, rubbish, oil containers, etc):-
- If items posing a fire risk are identified during such an inspection, then arrangements must be made for its removal as soon as is reasonably practicable
- The steel towers are approximately 5m in diameter at ground level, thick walled (> 20 mm) and solidly bonded to a comprehensive earth-grid that is buried in the ground around the wind turbine and its foundation.

4.3. UNDERGROUND POWER CABLES

Access to the area around all underground power cables will be restricted and any works in the vicinity of any cable will be controlled through a permit system.

- All underground cables are accurately surveyed, and routes marked with delineator posts.
- Any work involving excavations is controlled by work permit system in accordance with the Permit to Work Procedure are in place to further control any work within 6.4 m of any underground cable route.
- The underground assets have been registered with Dial Before You Dig (DBYD).

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4.4. SUBSTATION

The transformer bunds within the Substation will be kept clear of flammable substances, except during maintenance periods being undertaken by work order permit. An example of this exception is during transformer maintenance for oil replacement or top up.

- The Substation yard is covered with crushed rock to reduce the growth of vegetation.
- A reduced fuel area, 4m wide, is maintained around the exterior of perimeter fence. This is achieved by annual grass and weed spraying.
- Grass is kept to a height of no more than 100mm in height
- Substation screening vegetation has been planted with sufficient clearance to perimeter fences.
- Lightning protection poles are installed to control strikes inside the switchyard.
- Substation is to be inspected 3 times per year to ensure the transformer yard is clear of vegetation and other flammable non-plant items (e.g., packaging, rubbish, etc).
- If items posing a fire risk are noted during these inspections, then arrangements are made for their removal as soon as is reasonably practicable.
- At the completion of any work undertaken within the Substation, personnel are required to visually inspect the yard and remove any flammable non-plant items (e.g., packaging, rubbish, oil containers, etc).

4.5. OPERATION & MAINTENANCE FACILITY

The following controls apply in the Operations and Maintenance facility:

- Access and egress designed and built-in accordance with National Construction Codes.
- Building equipped with fire protection system and equipment including:
- Fire extinguishers and exit lighting
- Chemicals are stored in accordance with legislative requirements and ACCIONA Dangerous Goods and Hazardous Substances Procedure PAU01_GAE07007
- Vegetation management, weed spraying surrounding buildings
- to ensure grass is kept to a height of no more than 100mm in height
- Firebreaks maintained from potential flammable materials

4.6. FIRE FIGHTING EQUIPMENT

Firefighting equipment adequate to enable small fires to be extinguished is provided in all vehicles, temporary/ permanent buildings, and the substation.

- This includes:
- Two 22500 litre water supplies are installed at locations shown on plans endorsed under the planning permit.
- Both tanks will have CFA approved outlets and connections available for CFA connection if required.
- The substations will hold (as a minimum): One 5 kg ABE powder-type, stored pressure fire extinguisher.

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Equipment is inspected and maintained in accordance with Australian Standards

4.7. VEHICLES

All permanent site vehicles are to be equipped with the following items during fire danger periods:

- Passenger Vehicles – 1Kg 2A:40B:E Dry Chemical extinguisher
- Trucks & Plant – 4.5Kg 2A:40B:E Dry Chemical extinguisher
- Trucks & Plant – 9Lt Stored Pressure Water Extinguisher with a minimum rating of 3A
- Appropriately equipped First Aid Kit.
- Wheel changing equipment.
- Tow rope or snatch strap
- A pair of wire cutters.
- A torch.
- Sufficient fire blankets to cover all passengers (at least 2).

Vehicles are checked weekly during the Fire Season to ensure the mandatory equipment and records maintained.

4.8. TRAINING

Firefighting is only to be attempted by personnel after they have reported the fire and then only if it is safe to do so.

Personnel shall have completed the following training, which shall be refreshed every 2 years.

- ‘Fire Awareness’ training which comprises of the following competencies: -
 - Legislation
 - Risks & hazards
 - Fire combustion and fire spread
 - Fire extinguishing
 - Fire prevention
 - Firefighting equipment in a wind turbine
 - Fire extinguisher usage
 - Scenario-based practice exercise, and
 - Compare identified defects with the known defects and reassess the priority of the known defects.

5. OPERATIONAL CONTINGENCY ARRANGEMENTS

This section sets out the way in which the wind farm O&M activities will be undertaken in various contingencies.

Emergency Management roles and responsibilities, minimum equipment requirements, training and exercises are outlined in the Emergency Management Procedure PAU01_GAE0700.

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5.1. IN THE EVENT OF A BUSHFIRE

In the event of a bushfire in the area, ACCIONA Energía will, where appropriate, bring all staff back from the wind farm site to the Site O&M Facility and potentially send them home (i.e., evacuate the site). The procedure is covered in the Mortlake South Emergency Response Plan.

5.2. FIRE DANGER RATING – CATASTROPHIC

In the event of a Fire Danger Rating of Catastrophic being declared for the area, ACCIONA Energía will instruct staff to remain at the Mortlake South Wind Farm O&M Facility.

Activities will cease and instructions by emergency services, including the evacuation of site will be followed.

5.3. TOTAL FIRE BAN DECLARED

The operation of the MSWF will continue as normal during days of Total Fire Ban, with activities altered such that:

- Vehicle travel will be confined to defined access tracks, and
- Hot works are not permitted (except where required in emergency circumstances such as catastrophic plant failure).

Mitigation procedures described in this BMP ensure that all activities can be undertaken without significantly increasing the risk of starting a bushfire.

6. FIRE INVESTIGATION

6.1. BUSHFIRE INCIDENTS OR NEAR MISSES

Following a bushfire event, including near miss events, in the area of MSWF, AE will cooperate with the CFA and other fire control authorities to investigate the cause of the fire. Following an event, AE will:

- Identify the cause/source of the ignition or potential ignition
- Investigate and document: -
 - the circumstances leading up to the ignition or potential ignition; and
 - Reasonably practicable changes that can be made that will mitigate similar events recurring, i.e.:-
 - To the design of the item of plant involved in the ignition or potential ignition (e.g., intrinsic design changes, clearance requirements, vegetation control requirements etc)
 - To the procedures that led to the ignition or potential ignition, and
 - Implement the appropriate combination of plant/procedural changes that will mitigate similar events recurring.

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Where applicable - Identify and document where firefighting efforts were hindered by the activities of the MSWF, and

- Based on an analysis of that hindrance, implement changes to:-
 - Methodologies, and/or
 - Design to reduce the impact on the firefighting effort in future fires.

6.2. ASSISTANCE WITH FIRE INVESTIGATIONS

AE will provide assistance to fire control authorities investigating bushfires in the vicinity of the MSWF, including technical details relating to Wind Farm assets.

7. COMPLAINTS AND MONITORING OF THE PLAN

The primary mechanism for monitoring conformance with this plan will be through regular scheduled compliance inspections and the Internal audit program.

Upon the identification of non-conformances or where further actions may be necessary, items will be managed as per ACCIONA Energy's Event Reporting & Management Procedure (PAU01_GAE07021).

7.1. IDENTIFYING DEFICIENCIES AND REVISING THE PLAN

This BMP shall be reviewed if there are significant changes or deficiencies identified by a variety of means such as:

- Regular review of this BMP by the Site Manager on a 3 yearly basis.
- Reviews or recommendations by Regulators
- Audit findings
- Incidents and Investigations
- Changes in legislation, Standards, or industry practice, and
- Operational changes.

7.2. TABLE OF INSPECTION

TASK	FREQUENCY	
Switching Station Inspection	4 monthly	
Turbine Site Inspections	6 Monthly	Includes weed & grass spraying
Turbine Rock Coverage	Annually	2m crushed rock zone around base
Engage with local CFA	Annually	
Fire Awareness Training	Annually	

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8. DEFINITIONS

TERM	DEFINITION
AE	ACCIONA Energía
Act	Electricity Safety Act 1998
AER	Australian Energy Regulator
BMP	Bushfire Mitigation Plan
Bushfire	A generic term for an unplanned fire which includes grass fires, forest fires and scrub fires. Used interchangeably with “wildfire”.
CFA	Country Fire Authority
EMP	Environmental Management Plan
ERP	Emergency Response Plan
ESV	Energy Safe Victoria
Fire Season	CFA declared Fire Danger Season https://www.cfa.vic.gov.au/warnings-restrictions/fire-danger-period-restrictions
HSEQ	Health Safety Environment Quality
MSWF	Mortlake South Wind Farm
Regulations	Electricity Safety (Bushfire Mitigation) Regulations 2013

9. RESPONSIBILITIES

POSITION	RESPONSIBILITIES
Business Area Leader	Ensuring that bushfire mitigation activities are resourced and completed Requirements in this plan a regularly reviewed as per document control and internal audit processes
Site Manager	Ensuring that bushfire mitigation monitoring, and compliance activities are performed

10. RELATED DOCUMENTATION

CODE	TITLE
PAU01_GAE07021	Event Reporting & Management Procedure
PAU01_GAE07006	Emergency Management Procedure
PAU07102	Permit to Work Procedure
PAU01_GAE07007	Dangerous Goods and Hazardous Substances Procedure
TBC	MSWF Emergency Response Plan
PLN12_PAU01_GAE07016_MS	MSWF Environmental Management Plan
Legislation	Electricity Safety Act 1998

NOTE: Complete the table with the documentation, legislation, regulations, etc. that is relevant to the document.

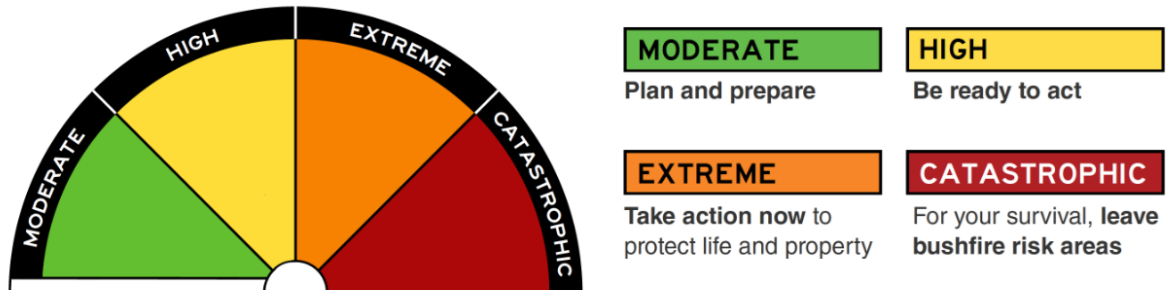
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APPENDIX A – CFA RATING EXPLAINED

The new Fire Danger Ratings

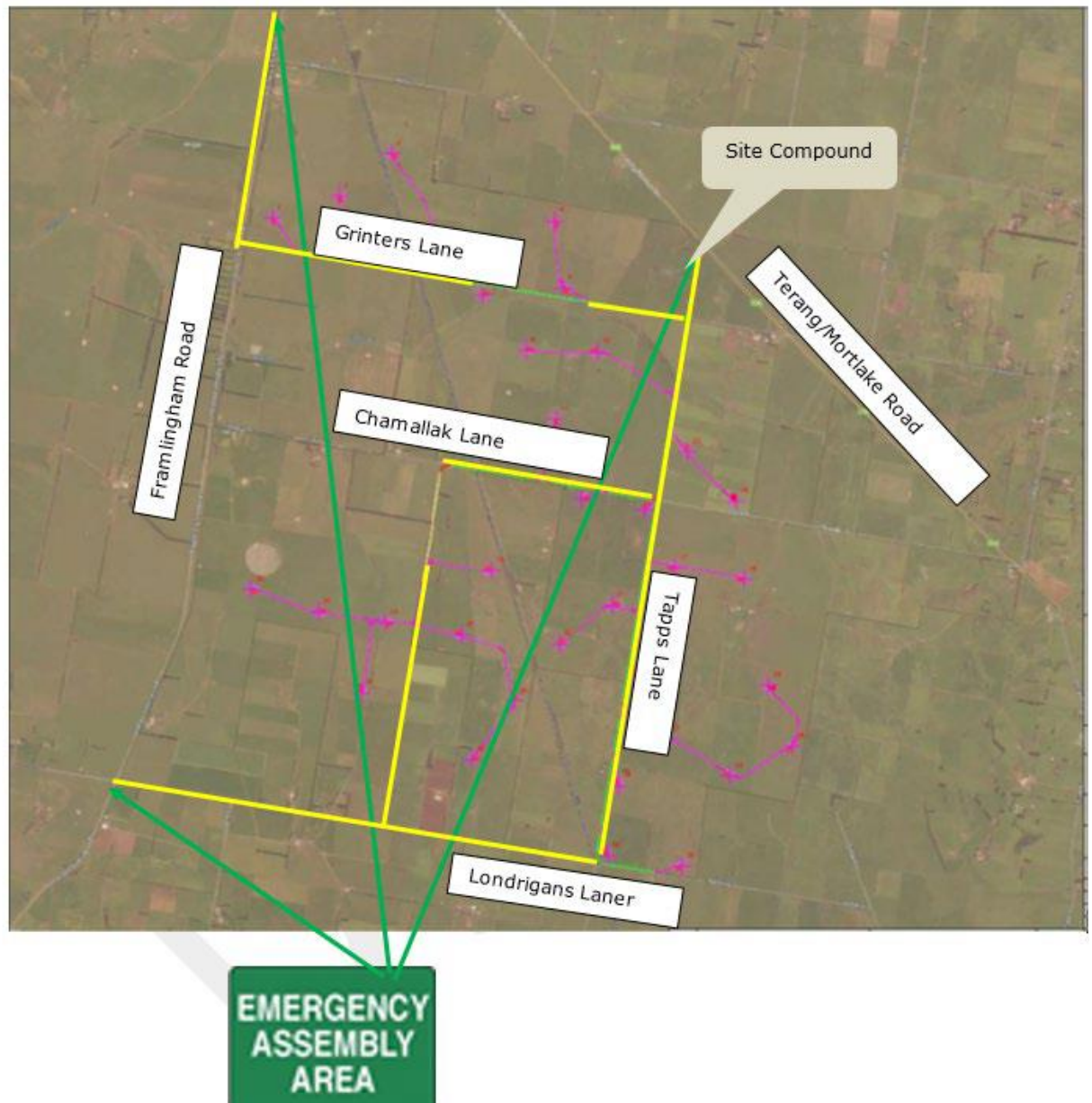


There are four levels of fire danger in the new system:

- **Moderate** - Plan and prepare
- **High** - Be ready to act
- **Extreme** - Take action now to protect your life and property
- **Catastrophic** - For your survival, leave bushfire risk areas

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APPENDIX B – MSWF EVACUATION ROUTES



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EVACUATION DIAGRAM

EMERGENCY INFORMATION



IN AN EMERGENCY CALL 000

13 14 44

POLICE ASSISTANCE LINE

LEGEND



FIRE HOSE REEL



FIRE EXTINGUISHER



DRY CHEMICAL



FIRE EXTINGUISHER



CO2



FIRE BLANKET



EMERGENCY EXIT



FIRST AID KIT



AED



AUTOMATED EXTERNAL

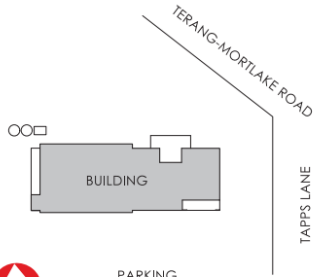


DEFIBRILLATOR



ASSEMBLY POINT

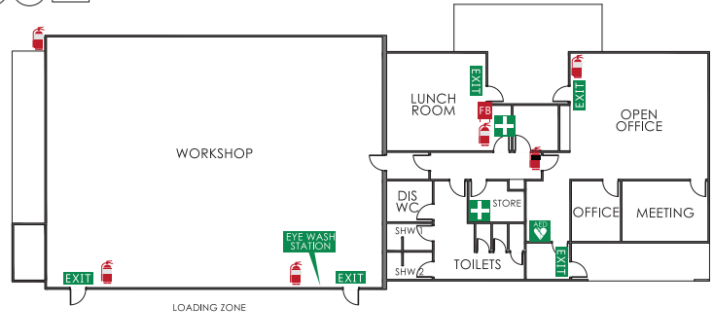
ASSEMBLY AREA



NORTH

VALID FROM MARCH 2022

GROUND FLOOR



NORTH

EMERGENCY PLAN & FIRE SERVICES BY ACCIONA
EVACUATION DIAGRAM PREPARED BY DIMA DESIGN STUDIO PTY LTD