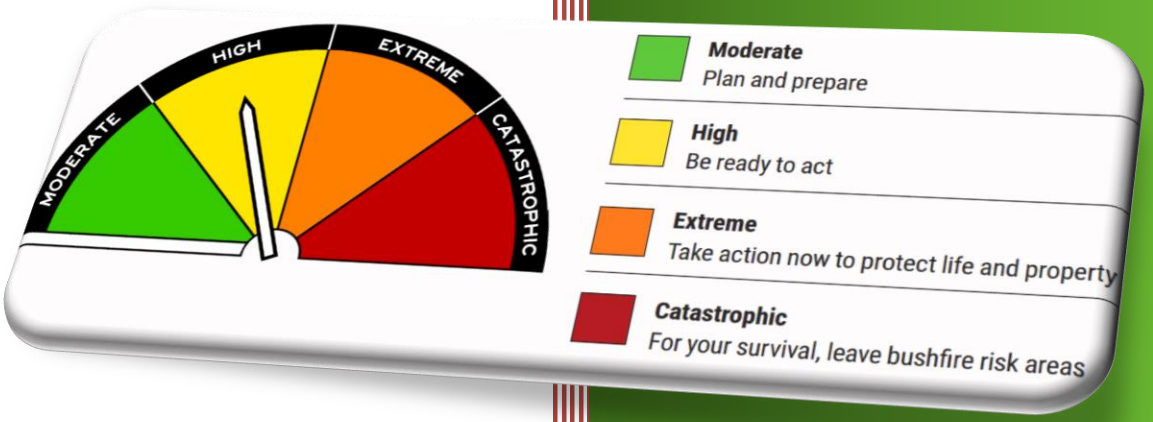
BUSHFIRE PRONE PLANNING

Bushfire Emergency Plan

The Operational Document for Onsite Personnel Responsible for Emergency Management



PREVENT | PREPARE | RESPOND | RECOVER

Lot 9500 Gull Road Keralup

Shire of Murray

Facility/Premises Use: **FOGO (Food Organics, Garden Organics Facility)**

2 October 2023

Associated BMP: **BPP Ref. No. 220666**

ATTENTION

It is important that all relevant persons at this facility/premises receive formal training in the application of this Bushfire Emergency Plan, as established in the associated Bushfire Management Plan.

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

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		-		☐	☐

Limitation of Liability: *The procedures and their associated actions contained in this Bushfire Emergency Plan do not guarantee that, in the event of a bushfire, buildings or infrastructure will not be damaged, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required procedures will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.*

Any representation, statement, opinion, or advice expressed or implied in this document is made in good faith based on information available to Bushfire Prone Planning at the time. Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence, lack of care or otherwise of their consultants, their servants or agents, arising out of the services provided by their consultants.

THE BUSHFIRE EMERGENCY PLAN – ITS PURPOSE AND APPLICATION

The purpose of this Bushfire Emergency Plan (BEP) is to assist persons conduct the operations of the facility/premises that are directed at managing and protecting persons and property from the risks associated with a bushfire event.

To best support the purpose, this BEP is constructed to be used as an **OPERATIONAL DOCUMENT** that facilitates the reliable implementation of required actions at different times of the year, including during the urgent and high pressure conditions of a bushfire event.

The BEP utilises an approach that:

- **Establishes Situational Scenarios as Triggers to Implement an Emergency Procedure:** Each scenario has a corresponding initial bushfire emergency procedure, and associated actions, that is to be implemented. These have been developed considering the specifics of the facility/premises and its use.
- **Facilitates Effective Implementation:** It is structured logically and written concisely. The important reference information in the appendices assists with applying the procedures and their actions, of which the included indicative fire behaviour for the bushfire prone vegetation relevant to the facility/premises is particularly important.
- **Encourages Formal Training in the Application of the BEP:** It is important that persons responsible for actioning this BEP are fully aware of and knowledgeable in the application of the information presented in both the operational sections and the appendices.
- **Presents Supporting Data as Necessary:** This is data that may include identification of the level and types of potential risks to the site and its use and justifies the choice of protection measures incorporated into this BEP to manage those risks.

  The necessity for inclusion (as an addendum) is dependent on the complexity and scale of the facility/premises site/use and when there is a need to explain why certain procedures/actions have been applied to inform relevant persons (managers and decision makers as applicable).

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1. APPLYING THE BUSHFIRE EMERGENCY PLAN

TO DETERMINE THE REQUIRED ACTIONS TO IMPLEMENT

- **At any time of the year;**
- **For any day of operation; and**
- **Whether a bushfire exists or not.**

REFER TO THE *PRIMARY GUIDANCE TABLE* ON THE NEXT PAGE AND

1. **Identify the applicable situational scenario that acts as the *trigger* for implementing an *initial procedure*; and**
2. **Identify the corresponding initial procedure and its page number.**

THEN PROCEED TO THE APPLICABLE *INITIAL PROCEDURE* AND CONDUCT ALL STATED *ACTIONS*.

2. PRIMARY GUIDANCE TABLE – THE TRIGGERS TO IMPLEMENT AN *INITIAL* BUSHFIRE EMERGENCY PROCEDURE

THE IMPLEMENTATION TRIGGERS ESTABLISHED AS SITUATIONAL SCENARIOS RELEVANT TO THE SITE			THE INITIAL PROCEDURE TO IMPLEMENT [1]						
			PREVENT	PREPARE		RESPOND			RECOVER
			NO BUSHFIRE EXISTS			A BUSHFIRE EXISTS			
			PRE-SEASON PREPARE	MONITOR & MAINTAIN	PRE-EMPTIVE	ELEVATED THREAT	SAFE (EARLY) EVACUATION	SHELTER-IN-PLACE	RECOVERY
I.D.			Page 12	Page 17	Page 19	Page 21	Page 24	Page 28	Page 31
DURING THE BUSHFIRE SEASON (OCTOBER TO APRIL) WHEN LARGE PUBLIC EVENTS ARE NOT A PART OF PREMISES OPERATIONS									
A	A BUSHFIRE EXISTS	A bushfire **EMERGENCY** or **WATCH AND ACT** warning has been issued and applies to the site. The highest level response procedure (the primary response), as determined specifically for the site and its use, is triggered.					☒		
B		A bushfire **ADVICE** warning has been issued and applies to the site.				☒			
C		A bushfire warning has not been issued.				☒			
D		The bushfire is either now controlled, or the fire front has moved past the facility/premises. Evacuation or shelter in place procedures may have been implemented earlier.							☒
E	NO BUSHFIRE EXISTS	The forecast Fire Danger Rating (FDR) is Catastrophic; OR The forecast Fire Danger Rating (FDR) is Extreme, and the forecast Fire Behaviour Index (FBI) is 75 or greater (refer to BOM website, see Section 4 'Emergency Information Sources'); AND/OR A Total Fire Ban is declared. A Harvest and Vehicle Movement Ban (HVMB) may also be declared.			☒				
F		The forecast fire danger rating (FDR) is High or Moderate or there is no FDR.		☒					

PROCEDURE IMPLEMENTATION TRIGGERS SITUATIONAL SCENARIOS RELEVANT TO THE SITE		THE INITIAL PROCEDURE TO IMPLEMENT [1]						
		PREVENT	PREPARE		RESPOND			RECOVER
		NO BUSHFIRE EXISTS			A BUSHFIRE EXISTS			
I.D.		PRE-SEASON PREPARE	MONITOR & MAINTAIN	PRE-EMPTIVE	ELEVATED THREAT	SAFE (EARLY) EVACUATION	SHELTER-IN-PLACE	RECOVERY
		Page 14	Page 19	Page 22	Page 23	Page 26	Page 31	Page 33
PRIOR TO THE BUSHFIRE SEASON (MAY TO SEPTEMBER)								
G	For the site location, this is the period of the year during which a bushfire event is considered to have a lower likelihood of occurrence and expected fire intensity will be lower. If a bushfire event does occur, the relevant 'Bushfire Identified' trigger will apply (see below).	☒						

Note [1]: Each trigger will activate an initial single emergency management PROCEDURE. The corresponding ACTIONS can include conducting a re-evaluation of the current situation. This can result in a different PROCEDURE needing to be implemented.

3. EMERGENCY CONTACTS

3.1. EMERGENCY SERVICES

AGENCY/AUTHORITY	SERVICES	CONTACT
Department of Fire and Emergency Services / Police / Ambulance	Will respond to life threatening emergencies. Use to report a fire.	**Phone call: triple zero '000'** **Phone app: EMERGENCY PLUS**
State Emergency Service (SES)	Emergency assistance - securing your property, rescuing persons.	13 2500

3.2. FACILITY/PREMISES PERSONNEL WITH EMERGENCY RESPONSIBILITIES

EMERGENCY ROLE	POSITION HELD AT FACILITY/PREMISES	LOCATION	CONTACT	
Chief Fire Warden	CEO	Offsite	Greg Watts	Phone 0428651009
Deputy Chief Fire Warden	Ops Manager	Onsite	Ross Cullen	Phone 0422643907
Fire Warden	General Manager	Onsite	Jacalyn Hammond	Phone 0412375338

3.3. UTILITIES / MEDICAL / ASSISTANCE

AGENCY/ORGANISATION	SERVICES	CONTACT
Peel Health Campus	Emergency medical services	9531 8000
Murray District Hospital	Emergency medical services	9531 7222
Western Power	Response to electricity supply outages and damage.	13 1351
Crisis Care	Crisis accommodation	1800 199 008
Australian Red Cross	Humanitarian assistance	1800 733 276 redcross.org.au/emergencies
Salvation Army	Social services care	13 72 58 (13 SALVOS) salvationarmy.org.au/need-help/disasters-and-emergencies/

4. EMERGENCY INFORMATION SOURCES

THE IMPORTANCE OF BEING AWARE OF YOUR SURROUNDINGS

Know the types of vegetation that grow on surrounding land. Be aware of the potential behaviour of a fire in this vegetation and the threats it can present under different conditions. Relevant information is included in **Appendix 6**.

Knowledge and awareness of the local environment and immediate past and current conditions is a valuable source of information that will assist with decision making – with hot/dry/windy weather presenting the worst conditions.

Lookout for smoke (i.e., evidence of fire) within your surrounding landscape, for as far as you can see. Be aware of the current and forecast wind direction as any fire will be likely to spread in the direction to which the wind is blowing.

YOUR FIRE WEATHER DISTRICT (BOM)	**Swan Coastal South**

SOURCE	INFORMATION
Emergency WA emergency.wa.gov.au	This is the primary and most up to date source of information (maps and lists) for: • Current warnings and incidents. • Designated bushfire evacuation centre. • Fire Danger Ratings (FDR) • Total Fire Bans (TFB)
Bureau of Meteorology (BOM) bom.gov.au/wa/forecasts/fire-danger-ratings.shtml	Fire Danger Ratings (FDR) and the corresponding Fire Behaviour Index (FBI).
WA Department of Fire & Emergency Services (DFES) Information Line: 13 3337 (13 DFES) dfes_wa dfeswa dfes.wa.gov.au/hazard-information/bushfire	Republishing of Emergency WA Warnings. General emergency information. Provides overviews of bushfire hazard educational information, including bushfire behaviour and preparation, response, recovery information, and FAQ.
Local Radio Stations ABC (AM/digital) or 6PR (882) abc.net.au/radio/stations	Current bushfire warnings, designated bushfire evacuation centre and other relevant information.
Emergency Alerts – through automated government telephone warning system	Voice messages (landline) and text messages (mobile) can be sent within a defined area under an immediate threat.
Bushfire.IO bushfire.io	Map based bushfire warnings, bushfire incidents and wind forecasts. A visual tool run privately – crosscheck with other sources.
WA Parks and Wildlife Service dpaw.wa.gov.au Website	Bushfire alerts and warnings, current prescribed burns in national parks.
Main Roads WA Phone: 13 8138 travelmap.mainroads.wa.gov.au/Home/Map	Road alerts and closures (incidents and roadworks).

5. RELOCATING PERSONS - IDENTIFIED SAFER LOCATIONS AND TRANSPORT

5.1. RELOCATION ONSITE – ASSEMBLY AND/OR SHELTER IN PLACE

DESIGNATED ON-SITE ASSEMBLY AREA	REFERENCE
Name: Car Park Description: Site Car Park Location: Adjacent to the Crib room	Figure 1 Site Response Map
DESIGNATED ONSITE SHELTER BUILDING or AREA	**REFERENCE**
Name: Office/Cribroom Building Description: Office/ Crib room Location: Southern part of the facility	Figure 1 Site Response Map

5.2. RELOCATION OFFSITE – EVACUATION DESTINATIONS

IDENTIFICATION OF THE OFFSITE SAFER LOCATION(S)

[this will correspond to use of the facility/premises and types of occupants]

IMPORTANT: DECLARATION OF OPERATIONAL BUSHFIRE EVACUATION CENTRES

If the facility/premises has potential Bushfire Evacuation Centres available, the declaration of which centre will become the operational centre will only be made by DFES and/or WA Police and with the involvement the Local Government - once the bushfire exists.

IN THE EVENT OF A BUSHFIRE ⇨ CHECK INFORMATION SOURCES FOR THE OPERATIONAL EVACUATION CENTRE

If this information is not yet available or if it is identified below that a Bushfire Evacuation Centre is not required, then the applicable offsite safer locations are stated on the following page. Multiple types may be applicable.

Safer Location Type	Description	Identified as Relevant to Facility / Premises
Type 1	**Designated bushfire evacuation centres.** Providing a safer location, away from the existing bushfire threats. Provides a temporary habitable space with potable water, toilet facilities, communication and possibly some medical services. Overnight(s) stay is likely required before returning to facility/premises or other arrangements are made.	
Type 2	**Suitable buildings/grounds but not a designated bushfire evacuation centre.** Providing the facilities and level of services required by the evacuees from the facility/premises. In some instances, such as significant health care dependency, these can be high level requirements. Overnight(s) stay may be required before returning to facility/premises or other arrangements are made.	

Type 3	**Established urban/residential centres**. Providing a safer location, away from the existing bushfire threats, that will likely provide some access to potable water and toilet facilities but no overnight stays. The evacuees will typically have no need to return to the facility/premises. From this location, relocation decisions will be made which may include returning home (local persons) or finding alternative accommodation.	✓
Type 4	**A safer location within the public road network to initially head towards.** No facilities or services will exist at this location. The evacuees will typically have no need to return to the facility/premises. From this location options exist for returning home (local persons), returning to local accommodation or otherwise relocating.	
Type 5	**Safer open area.** Providing the necessary reduction in exposure to bushfire threats for the limited period for which the threats will exist. Services and facilities will be non-existent or minimal, dependent on what provisions are possible and have been established by the Bushfire Emergency Plan and associated Bushfire Management Plan.	

SAFER OFFSITE LOCATION NO. 1	
Destination	Description/Name: 7/11 Petrol Station Address: 13 Lakes Road, Greenfields WA 6210 Nearest Cross Street: Stratford Road and Lakes Road Phone No: 9584 8752
Evacuation Route	Head South on Gull Road towards Lakes Road (4km) At the roundabout take the 3rd exit onto Lakes Road and head west over the freeway. At Gordon Road intersection follow Lakes Road left for 3.8km. Turn right onto Stratford Road and 7/11 Petrol Station will be on the left (80m)
SAFER OFFSITE LOCATION NO. 2	
Destination	Description/Name: Del Park Roadhouse Address: 4267 South Western Highway, North Dandalup WA 6207 Nearest Cross Street: Del Park Road and South Western Highway Phone No: 9530 1229
Evacuation Route	Head South on Gull Road towards Lakes Road (4km) At the roundabout take the 1st exit onto Lakes Road and head east towards north Dandalup (14km) Turn right onto South Western Highway and Del Park Roadhouse will be immediately on the left.

5.3. EVACUATION TIME & TRANSPORT – PERSONS AND VEHICLES

ESTIMATED TIME REQUIRED FOR EVACUATION - INITIATION TO COMPLETION

CONSIDERATION	ESTIMATED TIME (minutes)			
	Less Dependent / Lower Care Persons		High Dependency / High Care Persons	
	Own Transport	Provided Transport	Own Transport	Provided Transport
Preparation for evacuation (occupants, visitors/customers, staff)	20	0	0	0
Travel to furthest designated evacuation destination	15	0	0	0
When travelling to the furthest designated evacuation destination, relative safety for persons in vehicles may be attained at an earlier point enroute (refer to map). When applicable, this shorter time is applied.	0	0	0	0
APPLIED TOTAL	**35**	**0**	**0**	**0**

PLANNED MAXIMUM PERSON NUMBERS AND VEHICLE SOURCE

Person Type	Own Vehicles	Facility Transport	Contract Transport	Details
Occupants				
Visitors / Customers	20			Spring season potential for 25-30 approx drivers visiting site. Winter potential 30-40 daily drivers for a 30 min period over the full day
Staff	40			

Figure 1

Site Response Map

Lot 9500 on Plan 414516, Area : 1,608.9031 ha
320 Gull Road,
KERALUP 6182
SHIRE OF MURRAY

SOUTH AND WEST TO 7 ELEVEN
13 LAKES RD MANDURAH 12.7 KM

SOUTH AND EAST TO DEL PARK
ROADHOUSE S.W. HIGHWAY 17.9 KM

OFFICE

WEIGHBRIDGE

OFFICE / CRIBROOM

MUSTER POINT

SHELTER ON SITE

WORKSHOP

FUEL STORE SERVICE BAY

LIQUID WASTE RECEIVAL

RECEIVAL HALL

In Emergency Dial 000
or use EMERGENCY PLUS phone app

EMERGENCY INFORMATION	
emergency.wa.gov.au	13 DFES (13 33 37)
@dfeswa @dfes_wa	Local ABC Radio

BUSHFIRE WARNING SYSTEM

EMERGENCY WARNING
There is a threat to lives or homes.
You are in danger and need to take immediate action to survive.

WATCH AND ACT
There is a possible threat to lives or homes.
You need to leave or get ready to defend – do not wait and see.

ADVICE
A fire has started but there is no immediate threat to lives or homes.
Be aware and keep up to date.

THE AUSTRALIAN FIRE DANGER RATING SYSTEM
DESCRIBES THE POTENTIAL LEVEL OF DANGER SHOULD A BUSHFIRE START

NO RATING	MODERATE	HIGH	EXTREME	CATASTROPHIC
NO ACTION REQUIRED	PLAN AND PREPARE	BE READY TO ACT	TAKE ACTION NOW TO PROTECT YOUR LIFE AND PROPERTY	FOR YOUR SURVIVAL, LEAVE BUSH FIRE RISK AREAS

------ LEGEND ------

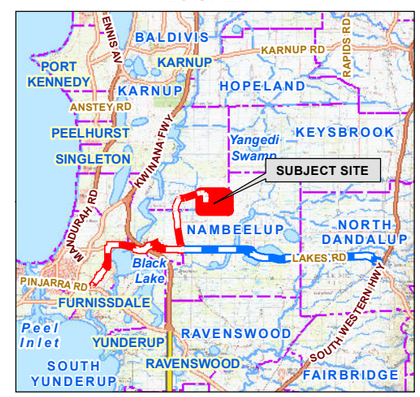
- Shelter On-Site Building
- Muster Point
- Evacuation Routes
- Development Site
- Development

Description

- Office
- Office / Cribroom
- Workshop
- Receival Hall
- Weighbridge
- Liquid Waste Receival
- Fuel Store Service Bay
- Driveway

0 50 100 150 200 250
Metres

------ LOCALITY ------



Aerial Imagery : Landgate/SLIP
Image Date : Feb 2022

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 17/10/2023
Map updated by: Ian 17/10/2023
A3 Scale 1:5,000

BUSHFIRE PRONE PLANNING

Map Document Path / Name: K:\Projects\Jobs 2022\220666 - 320 Gull Road Keralup (BMP)\Mapping\MXD\220666_BEP_Fig1_SITE_320 Gull Road Keralup.mxd

Figure 2

Evacuation Routes and Destinations Map

Lot 9500 on Plan 414516, Area : 1,608.9031 ha
320 Gull Road,
KERALUP 6182
SHIRE OF MURRAY

YOU ARE HERE

7 ELEVEN LAKES RD.

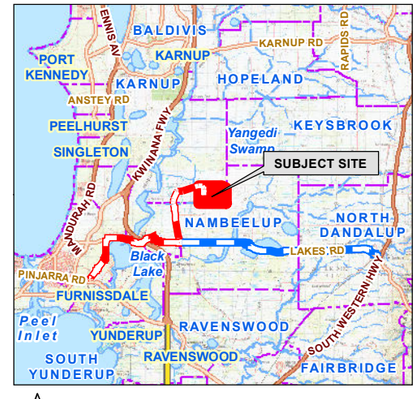
DEL PARK ROADHOUSE

------ LEGEND ------

- You Are Here
- Emergency Evacuation Centre
- Primary Evacuation Route
- Secondary Evacuation Route

0 1 2 3 4 5
Kilometres

------ LOCALITY ------



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Map updated by: Ian 17/10/2023
A3 Scale 1:70,000

BUSHFIRE PRONE PLANNING

BUSHFIRE WARNING SYSTEM

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THE AUSTRALIAN FIRE DANGER RATING SYSTEM
DESCRIBES THE POTENTIAL LEVEL OF DANGER SHOULD A BUSHFIRE START

NO RATING	MODERATE	HIGH	EXTREME	CATASTROPHIC
NO ACTION REQUIRED	PLAN AND PREPARE	BE READY TO ACT	TAKE ACTION NOW TO PROTECT YOUR LIFE AND PROPERTY	FOR YOUR SURVIVAL, LEAVE BUSH FIRE RISK AREAS

Map Document Path / Name: K:\Projects\Jobs 2022\220666 - 320 Gull Road Keralup (BMP)\Mapping\MXD\220666_BEP_Fig2_EVAC_320 Gull Road Keralup.mxd

8. BUSHFIRE EMERGENCY PROCEDURES AND ACTIONS

8.1. PRE-SEASON PREPARE

PRE-SEASON PREPARE PROCEDURE – ACTIONS TO IMPLEMENT

When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

1. STAFF PREPARATION – FORMAL TRAINING

Prior to the bushfire season (June to October), provide, to all staff, induction and refresher training to the degree necessary and corresponding to the scale and complexity of the facility/premises use.

Training is to consist of:

- Bushfire behaviour awareness specific to the site and its surrounds. Establish the necessity to operate and maintain an environment that mitigates the risks to persons and property from the direct threats of bushfire (flame contact, radiant heat, ember attack) and indirect threats of bushfire threats of bushfire (debris accumulation, consequential fire, wind attack and tree strike);
- Understand the content of this site specific Bushfire Emergency Plan and its application; and
- For staff assigned bushfire emergency management roles, provide the necessary training.

☐ All new and existing staff/employees to complete mandatory training in bushfire awareness and the application of the Bushfire Emergency Plan procedures and associated actions.

☐ Identify and assign the necessary bushfire emergency management roles to appropriate staff and provide training as necessary.

☐ Ensure enough daily rostered staff/employees hold current Senior First Aid Certification. BPP: When relevant to site operations

☐ Conduct simulation drills for evacuation and shelter in place procedures. BPP: When relevant to site operations

2. ANNUAL REVIEW OF THE BUSHFIRE EMERGENCY PLAN

Update and amend the Bushfire Emergency Plan as required. Assistance from a bushfire consultant is advised.

☐ Identify any requirements for reassignment of bushfire emergency management roles for facility/premises personnel.

☐ As necessary, change contact details (names, phone number) of those persons responsible for bushfire emergency management and planning at the facility/premises and any changes in roles.

☐ Make required changes to emergency contacts and emergency information sources. Ensure that any changes are also applied to the bushfire emergency information displayed within the facility/premises.

☐ Ensure the designated assembly area, shelter-in-place building/area and the off-site safer locations and nominated evacuation routes are still the best options. Incorporate any changes into the Bushfire Emergency Plan and the information displayed within the facility/premises.

☐ Where an offsite safer destination is an identified building(s), contact relevant persons to confirm continued availability for potential use during a bushfire emergency.

☐ Contact nominated third party transport suppliers to confirm continued availability and capability for use during a bushfire emergency.

☐ Account for any change to buildings or equipment onsite that has implications for emergency management.

☐ Incorporate any improvements or additions to the emergency management procedures/actions that have been identified by staff and/or emergency services resulting from relevant experience with a bushfire event or changes in best practice bushfire emergency management that are developed over time.

☐ In the event any part of this Bushfire Emergency Plan is amended as part of its annual review, replace old copies and destroy them.

3. DISPLAY & AVAILABILITY OF BUSHFIRE EMERGENCY INFORMATION

The required bushfire emergency information is to be displayed in prominent position/s and readily accessible to all persons.

☐ Ensure the following up to date bushfire emergency information is displayed (framed or laminated) within the relevant buildings (including near an assembly area and inside the designated 'shelter in place' building.

- The Site Emergency Information Map
- The Evacuation Routes Map
- The Emergency Contacts.
- The Bushfire Information Sources to Monitor

Additional information can be displayed when considered appropriate, examples of which are contained within the appendices and are available for download from the DFES website.

☐ Ensure signage for bushfire water supply, emergency assembly area and evacuation routes are in place and legible. BPP: state display locations as relevant or delete.

☐ Have available copies of the current Bushfire Emergency Plan in locations accessible by the facility/premises persons with bushfire emergency responsibilities.

☐ Ensure availability and supply of the record sheets for 'Persons in Shelter-in-Place Building.

4. BUILDING / EQUIPMENT PREPARATION

These actions address the required preparation of the buildings that comprise the facility/premises, prior to and during the bushfire season to ensure:

- Continued compliance with the construction standards that correspond to its Bushfire Attack Level (as determined in the Bushfire Management Plan);

- The vulnerability of buildings and other consequential fire fuels, to the direct and indirect attack mechanisms of bushfire is minimised; and
- The operational readiness of any installed firefighting equipment and infrastructure.

☐ If the facility/premises is constructed to BAL-12.5 requirements or higher, ensure any external gaps continue to be blocked or screened with non-combustible material (e.g. rock wool, sealant, mesh – maximum aperture of 2mm) to prevent ember entry. This includes under eaves, external cladding, roofs, external vents, skylights etc. Otherwise it is recommended that this action is applied.

☐ Check that all required window and door screening is in place. This prevents ember entry to internal spaces and reduces radiant heat load on the glass.

☐ If installed, ensure all installed bushfire shutters are operational.

☐ If there is recent construction or planned construction of attached structures (decks, stairs, patio, carport etc.) or adjacent structures (dwelling, shed, carport etc.), ensure bushfire resistant materials (including non-combustible) have been used to the greatest extent possible.

☐ If an evaporative air cooler is installed ensure it is either constructed to the required BAL rating or is fitted with an appropriate ember protection screen.

☐ Ensure all installed firefighting infrastructure and associated equipment including water storage tanks, pump, valves, pipework, fire hose reels & fire extinguishers are serviced, operating and correctly located.

☐ All gas cylinders to be installed and maintained in accordance with AS 1596. This standard includes requirements for small portable cylinders and larger cylinders used for domestic house supply. These include:

- Safety release valve shall be directed away from the building and persons access/egress routes;
- Metal piping and fittings shall be used on all piping inside the building's cavities and enclosable occupied spaces and the high pressure side of any gas regulators; and
- Tethers securing cylinders are to be non-combustible.

This is to limit the potential for flames and high levels of radiant heat from gas flaring or explosion, to directly impact a building. The heat from the bushfire or a closer consequential fire can cause gas cylinder pressures to reach critical levels beyond which their pressure release valve releases large quantities of LP gas. If these gas cylinders fall over, this pressure release valve may no longer function correctly, and internal pressures continue to rise with continued heating until the cylinder ruptures. The resulting explosion includes a pressure wave and large ball of flame which can threaten nearby life and buildings. Flared or ruptured gas bottles are commonly found in post bushfire surveys.

☐ Remove and maintain at low levels, accumulated vegetation debris (fine fuels) near, on, in and against buildings and structures, including:

- In construction crevices, gaps, on horizontal / shallow angle surfaces and at re-entrant corners in access ways, at wall/floor, wall/ground, roof/wall junctions and around doors, vents, windows;
- In roof gutters and valleys; and
- Adjoining/adjacent drains, culverts and pits.

☐ Around building(s), including verandahs and decks, remove or relocate away from the facility/premises those combustible items that may be seldom used or able to be stored more appropriately in the bushfire season. This includes furniture and mats. Refer to Appendix 7 'LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO

APPLY' for further information regarding consequential fire fuels and recommended separation distances.

☐ Ensure all first aid equipment and supplies are stocked, current and accessible.

☐ Ensure mobile phones are available for facility/premises personnel with emergency management roles.

☐ Ensure the designated Shelter-in-Place Building is stocked with adequate supplies of drinking water.

5. GROUNDS PREPARATION

These actions address the required management of onsite combustible items/materials (fuels) around, on or in buildings. By removing or reducing fuels, the likelihood and intensity of consequential fire is significantly reduced.

Consequential (local) fire which is the most significant cause of building/structure damage/loss in bushfire events.

Fuel management must be completed prior to the start of the bushfire season and maintained during the season.

For additional guidance, refer to:

- The *Guidelines for Planning in Bushfire Prone Areas within the Explanatory Notes for Element 2 of the Bushfire Protection Criteria and Schedule 1: Standards for Asset Protection Zones (WAPC 2021);*
- The DFES *'Bushfire Preparation Toolkit'* publication. Website: publications.dfes.wa.gov.au/?hazard=Bushfire; and
- Where initial or renovation landscaping of grounds surrounding the facility/premises is being conducted, apply the directions and principles of the measures presented in Appendix 7 to the greatest extent possible.

☐ **The Firebreak Notice:** Maintain compliance with the local government's annual firebreak and fuel load notice issued under section 33 of the Bush Fires Act 1954. Where the requirements are additional to or provide a greater level of bushfire protection than those established in this Bushfire Emergency Plan, they must be complied with.

☐ **Accessibility:** Ensure all property access/egress routes are kept clear and easily trafficable.

☐ **The Asset Protection Zone (APZ) Dimensions:** Ensure the APZ dimensions stated below (established by the associated Bushfire Management Plan for the premises/facility), are installed and maintained.

☐ **Asset Protection Zone Management:**

Trees (greater than 6 metres in height):

- Remove branches overhanging buildings and powerlines;
- Remove lower branches to a height of 2m above the ground or any surface vegetation; and
- Remove loose bark (rake) to at least a height of 2m above the ground or any surface vegetation.

Shrubs (0.5 metres to 5 metres in height) and ground covers (greater than 0.5 metres in height):

- Ensure location and clump sizes remain in accordance with guidance in Appendix 7; and
- Remove all dead plant material.

Grass to be reduced and maintained at a height of 50 mm.

Fine Fuels (i.e., less than 6 mm in thickness):

- Ensure combustible dead vegetation matter is reduced to and maintained at less than 2 t/ha on average. Collecting and weighing an indicative 1m^2 of this litter above the mineral earth will indicate

the fuel load (100g/m^2 = 1 t/ha); and

- Remove all debris piles.

Heavy Fuels (i.e., greater than 6 mm in thickness):

- Such as fallen branches, timber, firewood, packaging materials, building materials, outdoor furniture, and garbage bins.
- To be removed from the APZ or be separated from buildings/structures in accordance with guidance in Appendix 7.

Applied mulches:

- Should be non-combustible e.g., stone, gravel and crushed rock. Where wood mulch is used it should be greater than 6mm in thickness.

8.2. MONITOR AND MAINTAIN

MONITOR AND MAINTAIN PROCEDURE – ACTIONS TO IMPLEMENT
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

1. MONITOR BUSHFIRE INFORMATION SOURCES

☐ Be aware of your surroundings:

- High temperatures, wind and low humidity will increase the threat levels of bushfire attack mechanisms and their potential impact.
- Regularly scan the broader landscape in all directions, for any smoke that might indicate the ignition or existence of a bushfire.

If a potential bushfire is noticed and it is not yet been identified by emergency information sources, then report the fire by calling '000'. Refer to the 'Primary Guidance Table' for the relevant procedure to action.

☐ Regularly monitor the applicable 'Emergency Information Sources' for current information regarding Bushfire Warnings, Fire Danger Ratings (FDR), Fire Behaviour Index (FBI), Total Fire Bans (TFB) and Harvest Vehicle Movement Bans (HVMB). For next day forecasts, check after 4.00pm.

Be aware of the relevant 'Procedure Implementation Triggers' in the 'Primary Guidance Table' that incorporates these warnings, ratings and bans.

TFB: A TFB can automatically exists when higher Fire Danger Ratings apply, or they are declared by the Department of Fire and Emergency Services (DFES) on days when fires are most likely to threaten lives and property due to adverse weather conditions or when widespread fires are stretching firefighting resources. During a TFB it is illegal to carry out any activity in the open air likely to cause a fire. Refer to the DFES website for ban details.

HVMB: Harvest and Vehicle Movement Bans are declared by the local Bushfire Control Officer and may impose a ban on the use or operation of engines, vehicles, plant, or machinery. They are imposed to restrict activities that are likely to cause a bush fire or contribute to the spread of a bush fire when the expected weather conditions indicate that if a wildfire was to start, it would be dangerous, destructive and difficult to stop once started. They can be issued for any period during a day and in conjunction with a TFB. Refer to the DFES website for ban details.

2. MAINTAIN BUILDINGS AND FIRE FIGHTING EQUIPMENT

☐ During the bushfire season (October to April), refer to Action List No. 4 in the 'Pre-Season Prepare Procedure' and ensure all actions applicable to management during the bushfire season are implemented.

☐ Ensure the designated Shelter-in-Place Building is stocked with adequate supplies of water.

☐ Ensure all mobile phones and any radio communication devices are fully charged.

3. MAINTAIN ASSET PROTECTION ZONES

☐ During the bushfire season (October to April), refer to Action List No. 5 in the 'Pre-Season Prepare Procedure' and ensure all actions applicable to management during the bushfire season are implemented.

4. MONITOR MOVEMENT OF PERSONS

- ☐ For operations where management is required to use 'persons onsite registers', locate and ensure availability of the 'Occupant/Visitor Register'.

- ☐ Record the onsite/offsite movement of all relevant persons (time in / time out) to ensure there is knowledge of the of the number and type of persons onsite at any time.

8.3. PRE-EMPTIVE

PRE-EMPTIVE PROCEDURE – ACTIONS TO IMPLEMENT
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

1. INFORM PERSONS ONSITE

☐ Inform all persons onsite of the current / forecast conditions that have triggered the requirement to initiate the Pre-emptive Procedure.

☐ Ensure all staff are aware of the location of Site Emergency Information (Site Emergency Information Map, Evacuation Routes Map and Emergency Information Sources or copies of the Bushfire Emergency Plan).

☐ Locate and have available the 'Occupant/Visitor Register' to facilitate updating and to identify who is on site (for operations where management is required to use person registers).

2. NON ESSENTIAL STAFF AND VISITORS TO BE KEPT AWAY FROM SITE

☐ Ensure that non-essential visitors and contractors are kept away from the site. Cancel all scheduled school/education visits and other non essential visitors to the facility.

☐ Where a Total Fire Ban (TFB) or Harvest and Vehicle Movement Ban (HVMB) have been issued, ensure banned activities are stopped. Refer to the DFES website for ban details.

TFB: A TFB can automatically exists when higher Fire Danger Ratings apply, or they are declared by the Department of Fire and Emergency Services (DFES) on days when fires are most likely to threaten lives and property due to adverse weather conditions or when widespread fires are stretching firefighting resources. During a TFB it is illegal to carry out any activity in the open air likely to cause a fire.

HVMB: Harvest and Vehicle Movement Bans are declared by the local Bushfire Control Officer and may impose a ban on the use or operation of engines, vehicles, plant, or machinery. They are imposed to restrict activities that are likely to cause a bush fire or contribute to the spread of a bush fire when the expected weather conditions indicate that if a wildfire was to start, it would be dangerous, destructive and difficult to stop once started. They can be issued for any period during a day and in conjunction with a TFB.

3. EVACUATE

☐ For all visitors, it has been determined that a pre-emptive evacuation will be the required risk management measure to be applied. Refer to the Safe (Early) Evacuation Procedure detailed on page 24 and complete the relevant actions.

4. STAFF REMAINING ONSITE

☐ Monitor the local environment and the relevant 'Emergency Information Sources' for updated information. If the situation changes, identify from the 'Primary Guidance Table' if the actions of a different 'Procedure' are triggered.

☐ If practicable, and not recently been conducted as part of the 'Monitor and Maintain Procedure', remove from the APZ:

- Accumulated vegetation debris from the land surface within the APZ, including any stored piles of debris.
- Accumulated vegetation debris from on, in and against buildings/structures.

- ☐ Move heavy consequential fire fuels such building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins and mats at least 6 metres away from buildings/structures and access/egress paths, unless they are enclosed.

- ☐ Move large heavy consequential fire fuels such as vehicles, trailers etc at least 12 metres away from buildings/structures and access/egress paths, unless they are enclosed.

8.4. ELEVATED THREAT

ELEVATED THREAT PROCEDURE – ACTIONS TO IMPLEMENT
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

BE PREPARED TO MAKE AND CHANGE DECISIONS AS NECESSARY

As a person onsite, you are likely to not always have access to expert guidance during different stages of a bushfire event, if at all. Consequently, you must be prepared to take responsibility and make decisions regarding the actions to take, as best as possible.

A bushfire is a dynamic emergency with many variables. However, you have knowledge of the immediate situation regarding local conditions, how the bushfire is impacting the site and the status of persons onsite. This is important information to apply to 'on the ground' practical decision making.

When a bushfire is close to the facility/premises and/or evacuation routes, exercise greater situational awareness, judgement and caution as the margin of safety is less.

Utilise the information provided in this BEP to assist with your decision making, including **Appendix 6 'Indicative Bushfire Behaviour To Impact the Facility/Premises'**. Prior to the bushfire season, training in the use of this BEP is important preparation for an emergency event.

1. CONTINUALLY RE-EVALUATE THE SITUATION TO ENSURE APPROPRIATE PROCEDURE IS IMPLEMENTED

EVALUATION	RESPONSE	
Evaluation No.1: It remains unknown if a bushfire warning has been issued.	YES	Conduct Evaluation No. 2
	NO	A warning is issued. Refer to the Primary Guidance Table and identify if the trigger to implement a different procedure applies and proceed to implement that procedure.
Evaluation No.2: Is the bushfire relatively close, continuing to develop and you are concerned for the immediate safety of persons onsite?	YES	Refer to the Primary Guidance Table and identify the emergency procedure corresponding to **Implementation Trigger A** and implement this procedure.
	NO	Continue the Elevated Threat Procedure.

2. INFORM RELEVANT PERSONS OFF-SITE

☐ If you have identified a bushfire but are unaware if a bushfire warning has been issued, check the bushfire warning status from an information source. Refer to Section 4: Emergency Information Sources. If a warning has not been issued, report it by calling triple zero '000'.

☐ Notify the planned providers of evacuation transport of the elevated threat procedure being activated by the facility/premises and the numbers of persons onsite for which transport may be required at short notice.

3. INFORM PERSONS ON-SITE

☐ Inform all persons that a bushfire warning exists for the location (or a bushfire has been identified) and the requirement to initiate the Elevated Threat Procedure. Advise that you will continue to keep persons informed about the situation including if it becomes necessary to activate a different procedure or when the bushfire threat no longer exists.

☐ Make all persons aware of the location of the displayed bushfire emergency information. This may be displayed in prominent areas of the facility/premises and in a 'Guest Bushfire Emergency Guide'. Encourage to read and take any necessary preparatory actions. These include:

- Having belongings ready to move at short notice.
- Know the designated evacuation destinations and shelter in place building or area.

☐ Advise those persons that may be more vulnerable due to health conditions or impaired mobility, to consider relocating as soon as possible to accommodation outside the higher risk area as a precautionary measure.

4. MONITOR THE BUSHFIRE

☐ Try to locate the position of the bushfire on the Evacuation Routes Map (Section 7):

- Be aware of the local wind and the direction it is blowing to, as this will indicate the direction the flame front is likely to be moving. If an internet connection is available, utilise the maps on the Emergency WA and Bushfire IO websites to locate (refer to Section 4: Emergency Information Sources). A bushfire moving directly away from the facility/premises, or an evacuation route presents a lower threat;
- Identify If the fire is moving towards a designated evacuation route and its proximity to the route. This information will be important in making the correct choice of evacuation route should this become necessary.
- Be aware there may be more than one bushfire.

5. MONITOR BUSHFIRE INFORMATION SOURCES

☐ Continue to monitor relevant information sources for updated information. If a Bushfire Warning is issued or the existing Bushfire Warning is changed to a higher level, this may trigger the implementation of a different bushfire emergency procedure – refer to the 'Primary Guidance Table'.

☐ Check the relevant information sources to determine if a Total Fire Ban (TFB) and/or a Harvest Vehicle Movement Ban (HVMB) has been issued. These will restrict the activities that can be conducted or continued onsite (refer to Action List No. 5 below).

6. PRECAUTIONARY EVACUATION

☐ Commence an early precautionary evacuation by applying the 'Safe (Early) Evacuation Procedure' in the following situations:

- No bushfire warning has been issued and no emergency services are present, but the occupants of the premises/facility are concerned about their safety, and it is considered a practical and desirable action for this facility/premises; or
- When an emergency services authority has ordered an evacuation.

7. SITE OPERATIONS

☐ If a Total Fire Ban (TFB) and/or a Harvest Vehicle Movement Ban (HVMB) has been declared, comply with the relevant operation and activity bans. Refer to the DFES website for additional ban details.

TFB: A TFB can automatically exists when higher Fire Danger Ratings apply, or they are declared by the Department of Fire and Emergency Services (DFES) on days when fires are most likely to threaten lives and property due to adverse weather conditions or when widespread fires are stretching firefighting resources. During a TFB it is illegal to carry out any activity in the open air likely to cause a fire.

HVMB: Harvest and Vehicle Movement Bans are declared by the local Bushfire Control Officer and may impose a ban on the use or operation of engines, vehicles, plant, or machinery. They are imposed to restrict activities that are likely to cause a bush fire or contribute to the spread of a bush fire when the expected weather

conditions indicate that if a wildfire was to start, it would be dangerous, destructive and difficult to stop once started. They can be issued for any period during a day and in conjunction with a TFB.

☐ Ensure that non-essential staff, visitors and contractors are kept away from the site.

8. FACILITY/PREMISES PREPAREDNESS

☐ If practicable, and not recently been conducted as part of the 'Monitor and Maintain Procedure', remove from the APZ:

- Accumulated vegetation debris from the land surface within the APZ, including any stored piles of debris.
- Accumulated vegetation debris from on, in and against buildings/structures.

☐ Move heavy consequential fire fuels such building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins and mats at least 6 metres away from buildings/structures and access/egress paths, unless they are enclosed.

☐ Move large heavy consequential fire fuels such as cars, trailers etc at least 12 metres away from buildings/structures and access/egress paths, unless they are enclosed.

8.5. SAFE (EARLY) EVACUATION

SAFE (EARLY) EVACUATION PROCEDURE – ACTIONS TO IMPLEMENT
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.
DO NOT EVACUATE LATE Analysis of past events identify that most people who die in bushfires are caught in the open, either in vehicles or on foot, because they have left their property too late. Being in vehicles on roads when a bushfire is close is a high risk action. For evacuation to be the safest response, it must be conducted early. Otherwise, sheltering-in-place is likely to provide greater protection to persons than a vehicle, particularly when a suitable onsite shelter building or area has been identified in the Bushfire Emergency Plan.

1. DIFFERENT 'CLASSES' OF PERSONS PRESENT ONSITE REQUIRING DIFFERENT INITIAL PROCEDURES

In developing the Bushfire Emergency Plan for the subject facility/premises, it has been determined that two different classes of persons will exist on the site and require different initial procedures to be implemented.

'CLASS' OF VULNERABLE PERSONS	PROCEDURE TO IMPLEMENT
Class 1: Highly Dependent. Persons whose health is highly dependent on continuance of the services being provided and/or there are other physical reasons that result in excessive time being required to mobilise for evacuation. Includes those staff essential to the caring of these persons.	Commence the Shelter-in-Place Procedure for these persons and the caretaker staff required to support them. This may be all persons onsite or only some.
Class 2: Less or Not Dependent. Persons who are not medically dependant on services, are easily able to be mobilised for evacuation. Includes those staff who are not essential to the caring of the Class 1 type of persons.	Continue the Safe (Early) Evacuation Procedure for these persons. Be aware that if the continued availability of a safe evacuation route becomes less certain, the evacuation will need to stop, and the Shelter-in-Place Procedure activated for the remaining persons.

2. CONTINUALLY RE-EVALUATE THE SITUATION TO ENSURE APPROPRIATE PROCEDURE IS IMPLEMENTED

EVALUATION	RESPONSE	
Evaluation No.1: Is the controlling agency of the emergency services in contact with you or are emergency services personnel in attendance at your facility/premises?	YES	Conduct Evaluation No.2.
	NO	Conduct Evaluation No.3.
Evaluation No.2: Have the attending emergency services specifically instructed you to either evacuate or shelter in place?	YES	Implement the Procedure they have instructed.
	NO	Conduct Evaluation No.3.
Evaluation No.3: Does a safe evacuation route remain available to use? The route must not be impacted or likely to be imminently impacted by the bushfire, including by smoke. This condition can be met if: • Any effects of the bushfire will be a sufficient distance away from the evacuation route; or • The route will require driving directly away from the existing bushfire; or • The bushfire is moving away from the evacuation route.	YES	Commence the Safe (Early) Evacuation Procedure. Be aware the procedure may have to be stopped for some persons if the continued availability of a safe evacuation route is threatened.
	NO	Commence the Shelter In Place Procedure

3. TRANSPORT - ORGANISE FACILITY/PREMISES AND/OR CONTRACT TRANSPORT

☐ Arrange for the facility/premises onsite vehicles planned to be utilised in evacuation, to be moved near assembly area. Keep all driveways clear for emergency vehicles.

☐ Contact pre-arranged transport operators and instigate the delivery of evacuation vehicles. Refer to Section 5.1 'Evacuation Time and Transport – Persons and Vehicles'.

4. INSTRUCT ALL (OR RELEVANT) PERSONS ON-SITE TO MOVE TO THE DESIGNATED ASSEMBLY AREA

☐ Inform all persons onsite of the conditions (FDR, Bushfire Warning etc.) that exist and have triggered the requirement to initiate the Safe (Early) Evacuation Procedure.

☐ Instruct all persons onsite to move to the Designated Assembly Area (except those with specific bushfire responsibilities). Communicate instructions loud and clearly. Inform that briefing will take place once assembled.

☐ Instruct all persons onsite to bring their vehicles to. Keep all driveways clear for emergency vehicles.

☐ Account for all persons onsite. Do not assume any building on site is empty – check!

5. AT ASSEMBLY AREA - INSTRUCTIONS

☐ Inform persons at the Assembly Area of the possible evacuation routes and that the decision regarding which route/s to use will be made shortly after conducting a current situation check including an assessment of evacuation route continuing availability.

6. CEASE FACILITY/PREMISES OPERATIONS

☐ Cease all indoor and outdoor activities.

Any onsite processing should cease, and employees operating machinery should make their way to the muster point or on site shelter.

☐ Ensure any flammable materials are stored in the dangerous goods store or a designated storage area.

☐ If time permits - check perimeter of all buildings and store inside all combustible, easy to move outdoor mats and furniture otherwise move them well away from buildings.

7. CURRENT SITUATION CHECK

BE PREPARED TO MAKE AND CHANGE DECISIONS AS NECESSARY

As a person onsite, you are likely to not always have access to expert guidance during different stages of a bushfire event, if at all. Consequently, you must be prepared to take responsibility and make decisions regarding the actions to take, as best as possible.

A bushfire is a dynamic emergency with many variables. However, you have knowledge of the immediate situation regarding local conditions, how the bushfire is impacting the site and the status of persons onsite. This is important information to apply to 'on the ground' practical decision making.

When a bushfire is close to the facility/premises and/or evacuation routes, exercise greater situational awareness, judgement and caution as the margin of safety is less.

Utilise the information provided in this BEP to assist with your decision making, including **Appendix 6 'Indicative Bushfire Behaviour To Impact the Facility/Premises'**. Prior to the bushfire season, training in the use of this BEP is important preparation for an emergency event.

☐ Try to locate the position of the bushfire on the Evacuation Routes Map (Section 7):

- Be aware of the local wind and the direction it is blowing to, as this will indicate the direction the flame front is likely to be moving. If an internet connection is available, utilise the maps on the Emergency WA and Bushfire IO websites to locate (refer to Section 4: Emergency Information Sources). A bushfire moving directly away from the facility/premises, or an evacuation route presents a lower threat;
- Identify If the fire is moving towards a designated evacuation route and its proximity to the route. This information will be important in making the correct choice of evacuation route should this become necessary.
- Be aware there may be more than one bushfire.

☐ Confirm the current Bushfire Warning level and its advice, through the relevant bushfire emergency information sources (refer to Section 4).

☐ Consider variations in the facility/premises operational routines that can impact the length of time to initiate and complete the evacuation procedure – including informing and preparing occupants. Refer to Section 5.3 'Evacuation Time and Transport – Persons and Vehicles'.

☐ Consider that you may not have enough time to initiate and fully complete the evacuation procedure, depending on the bushfire's direction and speed of movement and its location relative to the facility/premises and the evacuation routes.

Evacuating a proportion of occupants with the remainder sheltering in place may be a necessary outcome. The decision to evacuate and continuing to evacuate must be continually evaluated.

- ☐ Re-evaluate the correct response procedure to be applying by using Action No. 1 in this list. In particular, Evaluation No.3 - Does a safe evacuation route remain available to use?

- ☐ Follow the specific direction/advice of emergency services personnel if they are present on the site and providing directions.

8. LEAVING THE FACILITY/PREMISES/PREMISES CHECKS

- ☐ Notify emergency services by calling triple zero (000) that the decision has been taken to evacuate the facility/premises. State the intended destination, numbers of persons and the means of transport.

- ☐ If the offsite safer destination is a building, notify relevant persons informing them of impending arrival. State the numbers of persons and the means of transport.

- ☐ Shut down all air conditioning and any mechanical ventilation.

- ☐ If gas is plumbed into the building, turn off at the meter or bottles.

- ☐ Ensure all doors and windows of all buildings are closed but left unlocked. Close fire shutters where installed.

9. AT THE EVACUATION DESTINATION (THE OFFSITE SAFER PLACE)

- ☐ Account for all persons using the persons on site/ visitor register.

- ☐ Call triple zero (dial 000) to notify emergency services of arrival at the evacuation destination and the status of all persons.

8.6. SHELTER IN PLACE

SHELTER IN PLACE PROCEDURE – ACTIONS TO IMPLEMENT	
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.	
DESIGNATED ONSITE SHELTER BUILDING	**LOCATION**
Office / Crib room	Southern part of lot near workshop (shown on the Site Response Map -Figure 1)

1. CONTINUALLY RE-EVALUATE THE SITUATION TO ENSURE APPROPRIATE PROCEDURE IS IMPLEMENTED

EVALUATION	RESPONSE	
Evaluation No.1: Is the controlling agency of the emergency services in contact with you or are emergency services personnel in attendance at your facility/premises?	YES	Conduct Evaluation No. 2
	NO	Continue the Sheltering-in-Place Procedure.
Evaluation No.2: Have the relevant emergency services specifically instructed you to evacuate despite being made aware that Shelter-in-Place is the designated procedure to implement according to the Implementation Trigger in this Bushfire Emergency Plan?	YES	Commence the Safe (Early) Evacuation Procedure.
	NO	Continue the Shelter-in-Place Procedure.

2. INSTRUCT ALL PERSONS ON-SITE TO MOVE TO THE DESIGNATED ASSEMBLY AREA

☐ Inform all persons onsite of the conditions that have triggered the requirement to initiate the Shelter in Place Procedure.

☐ Instruct all persons onsite to move to the Designated Assembly Area (except those with specific bushfire responsibilities). Communicate instructions loud and clearly. Inform that briefing will take place once assembled.

☐ Assemble on foot- do not bring vehicles or luggage. Only bring mobile phone, other communication devices, required medicines, health/mobility aids and water.

☐ Account for all persons onsite. Do not assume any building on site is empty – check!

3. CEASE FACILITY/PREMISES OPERATIONS

☐ Cease all indoor and outdoor activities. Any onsite processing should cease, and employees operating machinery should make their way to the muster point.

☐ Ensure any flammable materials are stored in the dangerous goods store or the designated storage area.

☐ If time permits - check perimeter of all buildings and store inside all combustible, easy to move outdoor mats and furniture otherwise move them well away from buildings.

4. NOTIFY EMERGENCY SERVICES

- ☐ Notify emergency services by calling triple zero (000), that the decision has been taken to shelter in the designated Shelter-in-Place Building.
- ☐ Describe the designated Shelter-in-Place Building and state its location (street address and site position as relevant).
- ☐ State the number of persons sheltering and if any special needs persons.
- ☐ Describe current bushfire observations – distance / direction / flames / embers / smoke / spot fires.
- ☐ Notify emergency services by calling triple zero (000) if the situation changes regarding conditions being experienced, number of persons sheltering and when the bushfire is no longer presenting a threat.

5. MANAGEMENT OF PERSONS

- ☐ Locate and have available the 'Occupant/Visitor Register' to identify who is on site (for operations where management is required to use person registers).
- ☐ Direct persons with health issues or mobility impairments, to enter the designated shelter-in-place building.

  Inform others that while conditions remain tenable it will likely be more comfortable to assemble in the area near to the building entry but remain outside.
- ☐ When conditions outside the designated shelter-in-place building are no longer tenable, all persons must move inside.
- ☐ Shelter in areas furthest from the fire front but ensure some visibility to what is happening outside is available, that two ways of accessing the outside is available if conditions inside become untenable and if possible, a water supply is available (e.g. laundry).
- ☐ Drink water to avoid becoming dehydrated.
- ☐ Shelter within the building for as long as possible.
- ☐ Once everyone is inside the designated shelter-in-place building, compile a record of persons by using the recording sheets stored within the building. This is to inform emergency services.

6. MANAGEMENT OF THE DESIGNATED SHELTER IN PLACE BUILDING

- ☐ If gas is plumbed into the building, turn off at the meter or bottles.
- ☐ Move furniture/combustible materials as far away from windows as possible. Fill any available containers, (e.g. sinks, baths, bins) with water. Wet materials (e.g. towels, sheets, woollen blankets) and place alongside doors/windows to block any gaps.
- ☐ If an evaporative cooler is installed, keep the water running and turn off the fan if possible
- ☐ If possible, ensure there is access (e.g. ladder) through manhole to monitor the roof space for spot fires.

- ☐ While conditions outside are not subject to excessive radiant heat, embers or smoke (i.e. tenable), keep accessible doors and windows open as necessary to manage internal conditions.

  Close all doors, windows, vents, blinds, curtains and bushfire shutters (if fitted) once all persons are required to be within the designated shelter-in-place building.

- ☐ While conditions outside are still tenable, two persons, if wearing appropriate protection from bushfire, are to make regular exterior inspection for embers and ignition of small local fires and extinguish where possible.

7. MONITOR

- ☐ Continue to monitor the progress of the bushfire through windows. Be aware of what is happening to assist with decision making and informing emergency services.

- ☐ Monitor the relevant Emergency Information Sources for updated information.

- ☐ Monitor the health condition of any 'at risk' persons.

8. AFTER PASSAGE OF THE FIRE FRONT

- ☐ Be aware of any embers or fires starting in materials against or close to the building. Designated onsite responsible persons to use available water supplies to douse the embers/fires if necessary.

- ☐ If necessary, cautiously begin to open windows to maintain tenable conditions inside.

- ☐ If necessary, move to an area that has already burnt if the building catches fire and conditions inside become untenable.

8.7. RECOVERY

RECOVERY PROCEDURE – ACTIONS TO IMPLEMENT
When these actions are to be conducted by the facility/premises personnel with designated emergency responsibilities, ensure the Chief Fire Warden is informed of their completion.

1. FOR PERSONS SHELTERING ONSITE AND THE BUSHIRE IS CONTROLLED OR THE FRONT HAS PASSED

- ☐ Always follow the directions of emergency services personnel.
- ☐ If you have been sheltering in a building and if necessary, cautiously begin to open windows to maintain tenable conditions inside.
- ☐ If the shelter building catches fire and conditions inside become untenable, move to the designated 'Post Fire Front Shelter Area' (or an area that has already burnt).
- ☐ If persons are in discomfort, consider evacuation if a route is available. Seek medical assistance for those requiring it e.g. smoke inhalation.
- ☐ Monitor building/s and surrounds for any ignition of combustible material. Be prepared to initiate the Evacuation Procedure if necessary and an evacuation route is available.
- ☐ Be aware of any embers or fires starting in materials close to the building. Use available water supplies to douse the embers/fires if necessary.

2. FOR PERSONS EVACUATED TO A SAFER OFFSITE DESTINATION

- ☐ Always follow the directions of emergency services personnel.
- ☐ Seek medical assistance for those requiring it.
- ☐ No person is to re-enter any evacuated building or site until advised by the relevant emergency service that it is safe.
- ☐ The facility/premises management is to arrange inspection of the site to ensure a safe environment before return of any persons.
- ☐ The facility/premises Fire Warden (fire emergency manager) is to arrange the movement of occupants back to the facility/premises.
- ☐ Inform emergency services (Dial 000) of the status of persons returning to the facility/premises.
- ☐ All occupants/visitors must be accounted for on their return using the 'occupant/Visitor Register' procedure used by the facility/premises.

APPENDIX 1: BUSHFIRE WARNINGS – WHEN A BUSHFIRE IS IDENTIFIED

APPENDIX 2: FIRE DANGER RATINGS - FORECAST BUSHFIRE RISK

THE HIGHER THE RATING, THE MORE DANGEROUS THE CONDITIONS AND THE GREATER THE CONSEQUENCES IF A FIRE STARTS.

APPENDIX 3: FIRE BEHAVIOUR INDEX - FORECAST BUSHFIRE RISK

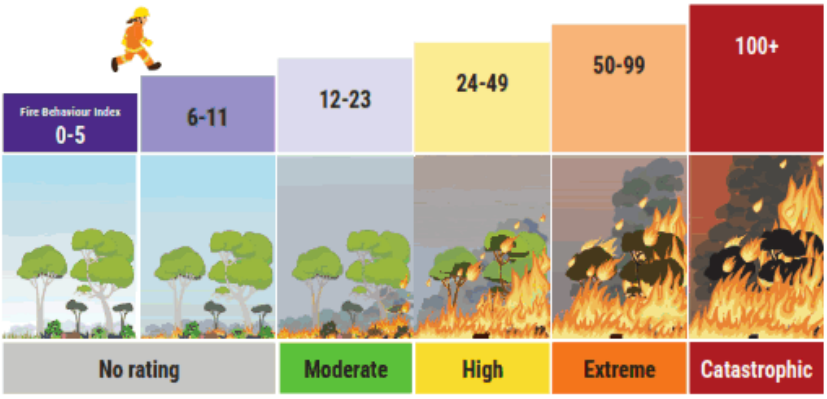
While the AFDRS Fire Danger Ratings are primarily intended for community messaging, the Fire Behaviour Index is intended to support operational fire management decision making.

Features of the FBI:

A Fine Scale of Fire Behaviour	The FBI is expressed in whole numbers from 0 to100+. As the FBI rises, the more dangerous a fire that stars will become.	Takes advantage of decades of improved understanding of fire behaviour, fuels and fire weather.
Stepped Categories	Links transitions in fire behaviour to implications for operational decision making.	Turns the FBI into a powerful operational tool and takes advantage of improved understanding of relationship between fire behaviour, fire spread, suppression and impacts.
Fuel Type Specific	Eight different Fire Behaviour Indexes based on eight different fire behaviour models.	Takes advantage of decades of improved knowledge of fire behaviour in different fuels to produce more specific results.
Nationally Consistent	The index is the same anywhere in Australia.	Supports cross border operations and resource sharing.

The Stepped categories are controlled by tables that define FBI thresholds. The thresholds represent changes in the underlying fire behaviour that have consequences for fire operational decision making, including:

- Indicative fire behaviour and fire weather.
- Implications for prescribed burning.
- Fire suppression and containment strategies that are appropriate.
- Potential for impact on life, property and infrastructure.



For more information visit afac.com.au/initiative/afdrs or email AFDRS@dfes.wa.gov.au

DFES
HOW FIREPROOF IS YOUR PLAN?
AFDRS

APPENDIX 4: BUSHFIRE RISKS AND DANGERS

BUSHFIRE RISKS AND DANGERS

BUSHFIRES HAPPEN EVERY SUMMER; THEY CAN START SUDDENLY AND WITHOUT WARNING.
If you live in or near bushland you need to understand the risks and dangers that bushfires cause.
Remember that flames are not the only risk you face in a bushfire.

EMBER ATTACK

Ember attack occurs before, during and after a fire front passes.

Embers are pieces of burning bark, leaves or twigs that are carried by the wind around the main fire creating spot fires.

Spotting can be carried over half a kilometre from a fire.

Embers can land in areas around your home such as your garden, under or in the gutters of your home and on wooden decks.

If not extinguished, your house could catch fire.

RADIANT HEAT

The hotter, drier and windier the day, the more intense a bushfire will be and the more radiant heat it will generate.

Radiant heat can cause injury and death from burns and cause the body's cooling system to fail, leading to heat exhaustion and possible heart failure.

It is important that you include water and appropriate clothing in your emergency kit and consider where you will shelter during a bushfire to protect yourself from radiant heat.

SMOKE

Lung injuries and suffocation can occur where the body is exposed to smoke and super-heated air.

It is important to seek shelter when heat and smoke are most intense.

Your nose and mouth should be covered with a dust mask, wet towel or scarf.

A special filter mask should be included in your survival kit for people in your family who suffer respiratory conditions such as asthma.

For more information visit
dfes.wa.gov.au/bushfire
or contact DFES Community Preparedness:
Community.Preparedness@dfes.wa.gov.au
or **9395 9816**

GOVERNMENT OF WESTERN AUSTRALIA
DFES Department of Fire & Emergency Services

HOW FIREPROOF IS YOUR PLAN?

APPENDIX 5: GUIDELINES FOR TRAVELLING IN CARS DURING A BUSHFIRE

TRAVELLING DURING A BUSHFIRE

BUSHFIRES CAN START WITHOUT WARNING. People have been killed or seriously injured during bushfires. If you are travelling or staying near bushland, fire is a real risk to you. Pack an emergency kit including important items such as woollen blankets, drinking water and protective clothing.

IF THERE IS A LOT OF SMOKE

- ◯ Slow down as there could be people, vehicles and livestock on the road.
- ◯ Turn your car headlights and hazard lights on.
- ◯ Close the windows and outside vents.
- ◯ If you can't see clearly, pull over and wait until the smoke clears.

For more information visit **dfes.wa.gov.au/bushfire**

or contact DFES Community Preparedness: **Community.Preparedness@dfes.wa.gov.au**

or **9395 9816**

IF YOU BECOME TRAPPED BY A FIRE

Sheltering inside a vehicle is a very high risk strategy. It is unlikely that a person will survive in all but the mildest circumstances.

- ◯ Park the vehicle off the roadway where there is little vegetation, with the vehicle facing towards the oncoming fire front.
- ◯ Turn the engine off.
- ◯ Close the car doors, windows and outside vents, and call 000.
- ◯ Stay in the car until the fire front has passed. Stay as close to the floor as possible and cover your mouth with a damp cloth to avoid inhalation of smoke.
- ◯ Stay covered in woollen blankets, continue to drink water and wait for assistance.
- ◯ Once the front has passed and the temperature has dropped, cautiously exit the vehicle.

IMPORTANT INFORMATION

- ◯ Find the local ABC radio frequency in the area. Stay up to date in a major emergency, when lives and property are at risk, ABC radio will issue broadcast warnings at a quarter to and a quarter past the hour.
- ◯ Main Roads provides updated information on road closures throughout WA. Call 138 138 or www.mainroads.wa.gov.au
- ◯ Check the weather forecast and current fire restrictions. Be aware of the Fire Danger Rating for the area you are travelling to and be prepared to reassess your plans.
- ◯ Download the Bushfire Traveller's Checklist at www.dfes.wa.gov.au

GOVERNMENT OF WESTERN AUSTRALIA

DFES Department of Fire & Emergency Services

HOW FIREPROOF IS YOUR PLAN?

APPENDIX 6: INDICATIVE BUSHFIRE BEHAVIOUR TO IMPACT THE FACILITY/PREMISES

Information Relevance: This information is included in the Bushfire Emergency Plan to inform and assist the decision making of those persons onsite who have the responsibility to manage a bushfire emergency for the subject facility/premises.

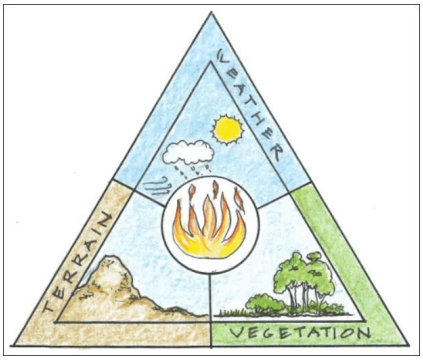
The information establishes the key factors to be considered in understanding the types and scale of key bushfire behaviours that can be expected to impact the facility/premises on a given day. These factors are the type of vegetation that exists on the land surrounding the subject premises/facility, the relevant surrounding terrain, and the forecast Fire Danger Rating (FDR) that applies to the locality.

Information Source: The information is taken from the bushfire behaviour modelling applied within the **Australian Fire Danger Rating System (AFDRS).** Within this system, eight accepted bushfire behaviour models, describing mathematically the way fire moves and spreads through different vegetation types, are currently available and are applied to twenty two different vegetation types across Australia.

The modelling is used to derive the Fire Behaviour Index (FBI) that assists firefighting operational decision making. From the FBI, Fire Danger Ratings (FDR) are derived which provide the broad categories needed to communicate fire danger to the community. The determination of the daily FDR considers the vegetation types present and the forecast fire weather conditions. The higher the rating, the more dangerous the conditions and the greater the consequences if a fire starts. (Source: AFDRS project led by NSW RFS, Australian Bureau of Meteorology and AFAC).

The Fire Behaviour Triangle

The behaviour of a bushfire, including the types of threats, intensity and how quickly it moves, depends on the three factors of vegetation, weather and terrain.



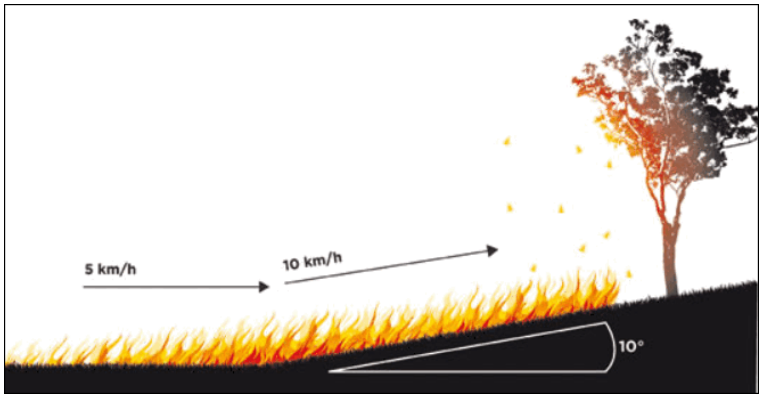
This is known as the fire behaviour triangle – because all three factors combine to shape the characteristics of the bushfire (source: CSIRO 'Bushfire best practice guide' at … research.csiro.au/bushfire/).

The influence of fire weather (FDR) and vegetation types (as per AFDRS) on the potential bushfire impact to the subject facility/premises, can be derived from the tables presented on the following page(s). Greater fuel loads will result in behaviours at the higher end of stated values.

The influence of terrain can be derived by considering the existence and degree of sloping ground and changes in changes in relief (e.g., flat, undulating or rugged land), surrounding the subject facility/premises and particularly under the vegetation.

The Influence of Terrain (topography)

A fire will burn faster uphill. This is because the flames can easily reach more unburnt fuel in front of the fire. Radiant heat pre-heats the fuel in front of the fire, making the fuel even more flammable.



For every 10˚ slope, the fire will double its speed. For example, if a fire is travelling at 5 km per hour along flat ground and it hits a 10˚ slope it will double in speed to 10 km per hour up the hill. By increasing in speed the fire also increases in intensity, becoming even hotter.

The opposite applies to a fire travelling downhill. The flames reach less fuel, and less radiant heat pre-heats the fuel in front of the fire. For every 10˚ of downhill slope, the fire will halve its speed. Fires tend to move more slowly as the slope decreases

(source: Country Fire Authority, Victoria).

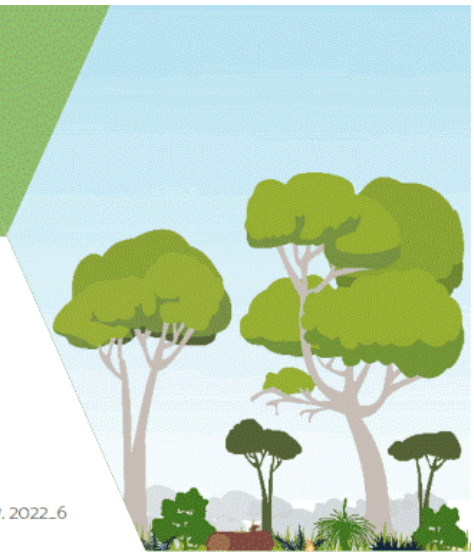
Terrain should be considered for its potential to increase adverse fire behaviour including flame heights, forward rates of spread and ember production (in relevant vegetation i.e., primarily bark fuels). Essentially, where vegetation exists on sloping land near your site, assume that the higher end of adverse fire behaviours is much more likely to apply.

BPP: Identify the relevant fire behaviour models and associated indicative fire behaviour information. Delete non-relevant rows of the table and non-relevant indicative fire behaviour posters.

VEGETATION TYPES IDENTIFIED SURROUNDING THE SUBJECT FACILITY/PREMISES		
As Applied in the AFDRS		Vegetation Location Relative to the Facility/Premises
Fire Behaviour Model (short name)	Fuel Types / Description	
Forest	Dry eucalypt forests, shrubby understorey/litter surface fuel. Forests with high moisture content due to structure, topography or inundation.	Low lying creek areas north of site.
Grassy Woodland (Savanna)	Woodland and shrubland with a continuous grass understorey.	Broader surroundings to the North of the development.
Shrubland	Temperate shrublands and heathlands of varying heights. Includes wet heathlands.	Surrounding the southern facility to the east and west
Grassland	Continuous/tussock grasslands. Modified/native pasture (grazing). Non-irrigated cropping. Low shrublands (wet or arid) with no overstorey.	Surrounding all buildings

FOREST

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)



Source: AFDRS v. 2022_6

FDR	INDICATIVE BUSHFIRE BEHAVIOUR			
NO RATING	MAX FLAME HEIGHT <1 m	0-5	RATE OF SPREAD 0-40 m/hr	Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish.	**SPOTTING POTENTIAL** Potential for any spotting is very limited and likely **<150 m**
	<4 m	6-11	20-110 m/hr	Slow spreading fires, typically involving surface and near-surface fuels and sometimes bark and elevated fuels. Spotting is sporadic and limited to short-distances.	Potential for spotting is limited with short distance spotting possible up to **400 m**
MODERATE	2-8 m	12-23	60-600 m/hr	Actively spreading fires typically involving surface, near-surface, elevated and bark fuel layers and occasionally canopy fuels. Low-moderate spotting frequency; isolated medium range spotting can occur.	Short distance spotting occurring with increasing frequency with possible medium distance spotting up to **2 km**
HIGH	7-14 m	24-49	0.3-1 km/hr	Rapidly spreading fires with potential for development into large burn areas within burning period. Fires typically involving most fuel layers. Short-range spotting is prevalent, with possibility of medium range and occasional long-range distance spotting.	Short and medium distance spotting occurring with increasing frequency with possible long distance spotting up to **4 km**
EXTREME	11 m - approx. double forest	50-99	0.7-3 km/hr	Fires likely to quickly transition to crowning. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	High ember density in short and medium range with possible long distance spotting up to **12 km**
CATASTROPHIC	>30 m (approx. double forest height)	100+	>2 km/hr can be expected, possibly >3 km/hr	Fires likely to quickly transition to crowning. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	High ember density in short and medium range with possible long distance spotting occurring **20-30 km** ahead of the main fire front

SAVANNA
(GRASSY WOODLAND)

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

Source: AFDRS v. 2022_6

FDR	INDICATIVE BUSHFIRE BEHAVIOUR		
NO RATING	MAX FLAME HEIGHT <0.5 m; 0-5; RATE OF SPREAD 0-50 m/hr	Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish.	**SPOTTING POTENTIAL** Potential for any spotting is extremely limited
NO RATING	<0.5-1.5 m; 6-11; <1.5km/hr	Fire easily sustained. Typically wind driven fires that can spread quickly. Fires mostly only partially consuming fuels, typically creating a mosaic of burnt and unburnt patches (decreasing patchiness with increasing intensity).	Potential for spotting is limited
MODERATE HIGH	1.5-2.5 m; 12-49; 1-8 km/hr	Wind driven, rapidly spreading fires with potential for development into large fire area/size and with the potential for short distance spotting and long flame lengths. Fires typically consuming all available fuel. Increasing scorch height of tree canopy (up to 20-25 m) and char height (up to 3-4 m).	Possible short distance spotting occurring
EXTREME CATASTROPHIC	>2.5m; 50+; >5 and likely >8 km/hr	Extremely rapid fire growth and increasing likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times. Fires consuming all available fuel.	Likely short distance spotting

SHRUBLAND

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

Source: AFDRS v. 2022_6

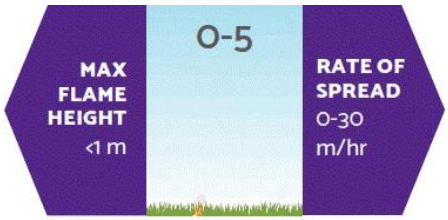
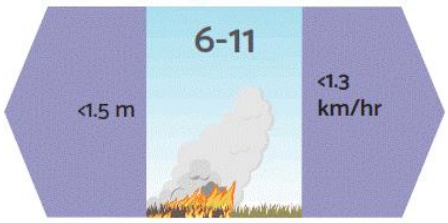
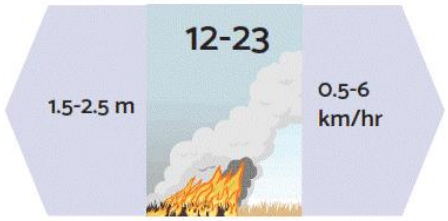
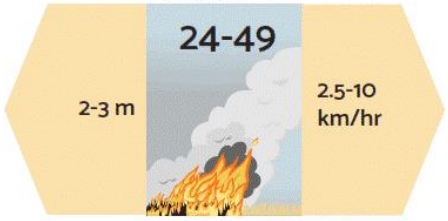
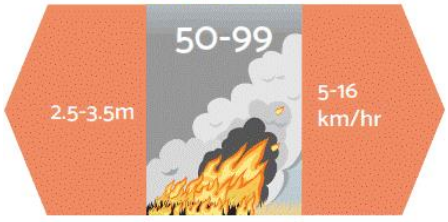
FDR	INDICATIVE BUSHFIRE BEHAVIOUR			
NO RATING	MAX FLAME HEIGHT <0.5 m	0-5	RATE OF SPREAD 0-20 m/hr	Flame dimensions are generally insufficient to breach sparse and discontinuous fuels or inter-hummock gaps.
	<0.5-1.5 m	6-11	20-150 m/hr	Sustained spread of fire.
MODERATE	1-4 m	12-23	150-1300 m/hr	Fast moving, wind-driven fires that are mostly actively crowning.
HIGH	2-8 m	24-49	up to 6.5 km/hr	Fast moving, wind-driven, crown fires with high potential for large fire areas. Mostly complete combustion of fuels and few unburnt patches.
EXTREME	>4m and likely >8m	50+	>1.5 and likely >6.5 km/hr	Rapid fire growth, extremely fast moving, wind-driven fires. High potential for large fire areas with complete combustion of fuels and few unburnt patches.
CATASTROPHIC				

SPOTTING POTENTIAL
Potential for any spotting is extremely limited
Potential for spotting is limited
Potential for spotting is limited except where eucalypt/mallee trees are present where spotting is likely to be minimal and limited
Possible short distance spotting mostly <20 m or where eucalypt/mallee trees are present where spotting is likely to be minimal and limited to short distances (<100 m). Any spot fires are typically overrun by the main head fire
Possible short distance spotting mostly <40 m except where eucalypt/ mallee trees are present where spotting may be up to 200 m with spot fires typically quickly overrun by the main head fire

GRASSLAND

THE INDICATIVE FIRE BEHAVIOUR CORRESPONDING TO THE FIRE BEHAVIOUR INDEX (0-100) AND THE ASSOCIATED FIRE DANGER RATING (FDR)

Source: AFDRS v. 2022_6

FDR	INDICATIVE BUSHFIRE BEHAVIOUR			
NO RATING		Fire difficult to ignite and sustain. Fires generally unlikely to spread and likely to self-extinguish.	**SPOTTING POTENTIAL** Potential for any spotting is very limited.
		Fire easily sustained. Typically wind driven fires that can spread quickly.	Potential for spotting Potential for short distance spotting is limited.
MODERATE		Typically wind driven and rapidly spreading fires with the potential to gain size quickly.	Possible short distance spotting occurring.
HIGH		Wind driven, rapidly spreading fires with potential for development into large fire area/size and with the potential for short distance spotting and long flame lengths.	Short distance spotting occurring with increasing frequency.
EXTREME		Extremely rapid fire growth and increasing likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	Likely short distance spotting occurring with increasing frequency.
CATASTROPHIC		Extremely rapid fire growth and high likelihood of large final fire area/size. Possibility for fire behaviour to become erratic and plume driven. Strong convective column formation. Wind speed and direction likely to be erratic at times.	Likely short distance spotting occurring with increasing frequency.

APPENDIX 7: LANDSCAPING DESIGN & CONSTRUCTION PRINCIPLES TO APPLY

Where initial or renovation landscaping of grounds surrounding the facility/premises is being conducted, apply the directions and principles of the following measures to the greatest extent possible.

For additional guidance, refer to:

- The *Guidelines for Planning in Bushfire Prone Areas within the Explanatory Notes for Element 2 of the Bushfire Protection Criteria and Schedule 1: Standards for Asset Protection Zones (WAPC 2021); and*
- The DFES *'Bushfire Preparation Toolkit'* publication. Website: publications.dfes.wa.gov.au/?hazard=Bushfire

☐ **Use of Non-Vegetated Areas and/or Public Open Space:**

Reduce the exposure of the facility/premises to the direct and indirect threats of bushfire by incorporating low threat uses of land adjoining the facility/premises and/or the bushfire hazard. These uses create robust and easier managed asset protection zones and include:

- Non-vegetated areas e.g. footpaths, paved areas, roads, driveways, parking, drainage, swimming pools;
- Formally managed areas of vegetation (public open space and other recreation areas), including irrigated areas; and
- Services installed in a common section of non-vegetated land.

☐ **Landscaping – Non-Combustible Construction:** Ensure non-combustible materials are used for fencing and any other landscaping construction, including retaining walls.

☐ **Landscaping – Tree and Plant Species Selection**

Utilise trees and plants with characteristics that are more resistant to burning. Refer to *Guidelines for Planning in Bushfire Prone Areas, Appendix 4 'Explanatory Notes E2: Plant Flammability' (WAPC 2021) for initial guidance.*

Avoid planting trees with ribbon or stringy barks (ember/firebrand production). Preference for smooth bark.

☐ **Landscaping – Tree and Plant Separation from the Facility/Premises (Location):**

Trees (greater than 6 metres in height: Minimise the potential for tree strike damage (falling or blown) to the facility/premises (allowing flame, radiant heat and ember entry to internal spaces), and debris accumulation on, in and around the facility/premise. Principles to apply are:

- Ideally trees will be separated from buildings/structures by a distance of at least 1.5 times the height of the tallest tree;
- As a minimum, trunks at maturity should be at least 6 metres from all elevations of the building, branches at maturity should not touch or overhang a building or powerlines. Mature tree canopies should be separated at least 5m with total canopy cover not exceeding 15% and not connected to tree canopy outside the APZ;
- Species of trees that produce significant quantities of debris (fine fuels) during the bushfire season should be located a sufficient distance away from vulnerable exposed elements to ensure debris cannot drop and accumulate within at least 4m of buildings/structures or be likely to be relocated by wind to closer than 4m to buildings / structures.

Shrubs and scrub (0.5 metres to 6 metres in height):

- Should not be located under trees or within 3 metres of buildings;
- Should not be planted in clumps greater than 5m^2 in area;
- Clumps of shrubs should be separated from each other and any exposed window or door by at least 10

metres (unless they can be classified as low flammability plants); and

- Shrubs greater than 6 metres in height are to be treated as trees.

Ground covers (less than 0.5 metres in height):

- Can be planted under trees but and no closer than two metres from a structure but 3 metres from doors or windows if greater than 100 mm in height; and
- Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: Where possible utilise irrigated perennial species.

Mulches should be non-combustible e.g., stone, gravel and crushed rock. Where wood mulch is used it should be greater than 6mm in thickness.

☐ **Separation Between the Facility/Premises and the Consequential Fire Fuels of Stored Flammable Products (Fuels / Other Hazardous Materials):**

If applicable. establish sufficient separation distance between the consequential fire fuels and the facility/premises. The required separation distance will be dependent on the fuel and storage type and will need to be determined.

☐ **Separation Between the Facility/Premises and the Consequential Fire Fuels of Stored and Constructed Combustible Items:**

These consequential fire fuels include:

- Stored Combustible Items - Heavy Fuels (greater than 6mm diameter) e.g. building materials, packaging materials, firewood, branches, sporting/playground equipment, outdoor furniture, garbage bins etc:
- Stored Combustible Items – Large Heavy Fuels e.g. vehicles, caravans, boats, trailers and large quantities of dead vegetation materials stored as part of site use.
- Constructed Combustible Items – Heavy Fuels e.g. landscaping structures including fences, screens, walls, plastic water tanks.
- Constructed Combustible Items – Large Heavy Fuels e.g. adjacent buildings/structures including houses, sheds, garages, carports. (Note: If the adjacent structure is constructed to BAL-29 requirements or greater and can implement a significant number of additional bushfire protection measures associated with reducing exposure and vulnerability, these minimum separation distances could be reduced by 30%).

Apply the rule of thumb "assume flames produced from a consequential fire source will be twice as high as the object itself … where the consequential fire source is a structure, then the maximum eave height is a reasonable measure of maximum height".

Apply the following separation distances from the subject building/structure as a multiple of the height of the consequential fire source and dependent on the bushfire construction standard applied to the building/structure:

- At least six times the height when the facility/premises construction incorporates design and materials that is only intended to resist low levels of radiant heat up to 12.5 kW/m^2 and no flame contact (BAL-12.5);
- Between 4 and 6 six times the height when the facility/premises construction incorporates design and materials intended to resist radiant heat up to 29 kW/m^2 and no flame contact (BAL-29).
- Between 2 and 4 times the height when the facility/premises construction incorporates design and materials intended to resist up to 40kW/m^2 and potential flame contact (BAL-40).
- Less than 2 times the height when the facility/premises construction incorporates design and materials intended to resist extreme levels of radiant heat and flame contact (BAL-FZ).

- Zero separation distance is required if the facility/premises is separated by a non-combustible FRL 60/60/60 rated wall, or the potential consequential fire source is fully enclosed by the facility/premises.

☐ **Constructed Barriers to Shield Facility/Premises from Bushfire:** Where applicable, install walls, fences and/or landforms to shield the facility/premises (or any identified consequential fire fuels – refer to previous item) from direct and indirect bushfire attack mechanisms and reduce the potential impact of these threats.

These barriers should be constructed using appropriate fire resistant / non-combustible construction materials (e.g. masonry, steel, earthworks). These are to withstand the impact of direct bushfire attack mechanisms for the required period.

☐ **Constructed Barriers to Shield Facility/Premises from Consequential Fire:** Applicable to all identified consequential fire fuel sources. Install a non-combustible barrier (including complete enclosure when appropriate), of required robustness, that will reduce the exposure of the facility/premises to the threats of consequential fire.

☐ **Planted Vegetation Barrier to Shield Facility/Premises:** Use appropriate species (lower flammability) of hedges and trees strategically to reduce the facility/premises exposure to radiant heat, to filter/trap embers and firebrands, and to lower wind speeds (prevailing synoptic and/or fire driven).

☐ **Shield Non-Structural Essential Elements:** These are vulnerable elements essential to the continued operation of the facility/premises which are potentially exposed to the fire attack mechanisms of both bushfire and consequential fire. They include electricity cabling and water plumbing and also applies to any installed firefighting equipment / water storage.

When the use of fire rated materials to the degree necessary is not possible or practical, the application of non-combustible shielding can be applied to reduce exposure to the bushfire threats. Shielding includes underground installation.

☐ **Constructed Barrier to Shield Persons on Pathways to Safer Onsite Area/Building:** Where possible, alongside the relevant pathways, utilise walls / fences / landforms as shielding structures constructed using fire resistant / non-combustible construction materials (e.g. masonry, steel, earthworks).

These are to withstand the impact of direct bushfire attack mechanisms for the required period and provide the required reduction in threat levels to persons (including firefighters) traversing the pathway.