

Bushfire Management Plan Coversheet

Site address: Lot 68, 37 Ferguson Street, Middle Swan

Site visit / date: Yes ☒ No ☐ 21 November 2025

Report author or reviewer: Mike Scott (BPAD Level 3 No. 27795)

Not accredited ☐ Level 1 BAL assessor ☐ Level 2 practitioner ☐ Level 3 practitioner ☒

BPAD accreditation number: 27795 Accreditation expiry – month / year February 2027

Bushfire Management Plan - version / date: V1.0 9 June 2026

If one or more of the following responses are yes, then these should be automatically referred to DFES.	Yes No	
	Yes	No
Strategic planning is required to address SPP 3.7 and the Guidelines	☐	☒
The application is a vulnerable land use	☐	☒

If one or more of the following responses are yes, and the decision-maker requires input from DFES, then the application can be referred.	Yes No	
	Yes	No
The BAL rating has been calculated by a method other than Method 1 as prescribed by AS 3959	☐	☐
An outcomes-based approach has been submitted to demonstrate compliance with the bushfire protection criteria	☒	☐

Note: If a subdivision or development application meets all the acceptable solutions and does not otherwise trigger a referral as listed above, seeking advice from DFES on SPP 3.7 or other matters is at the discretion of the decision-maker.

The information provided within this bushfire management plan, to the best of my knowledge, is true and correct:

Dated signature of report author or reviewer:  9 June 2026

Bushfire Management Plan

(PREPARED FOR PLANNING APPLICATION ASSESSMENT PURPOSES)



-31.8649, 116.02153, 22.0m, 77°

Compiled in accordance with State Planning Policy 3.7 Bushfire and the Planning for Bushfire Guidelines

**Lot 4
37 Ferguson Street
Middle Swan**

City of Swan

Development Application - Residential Development

9 June 2026

Job Reference No:

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DOCUMENT CONTROL

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BMP (Master) Template v10.1					

LIMITATIONS AND DISCLAIMER

Management of Risks Associated with Bushfire

For the subject planning proposal, the protection measures to be implemented based on information presented in this Bushfire Management Plan, prepared for land-use planning purposes, are the minimum requirements for management of the relevant risks.

The applied protection measures do not guarantee that during a bushfire event, no buildings or infrastructure will be damaged, persons injured, or fatalities occur - either on the subject site or off the site when evacuating.

This is substantially due to the unpredictable nature of fire weather conditions, bushfire behaviour and the actions of landowners and/or operators – including the correct implementation and ongoing maintenance of required and recommended protection measures (including bushfire resistant construction) and complying with public bushfire warnings and directions from emergency services - over which Bushfire Prone Planning has no control.

Provision of Mapping Data

All maps produced by Bushfire Prone Planning included herein are indicative in nature and are not to be used for accurate calculations. This data has been prepared for bushfire risk management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey.

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When the separate provision of Digital Geographic Data (GIS Files) is an agreed project deliverable, these should be used in conjunction with the relevant information presented in the associated report. Areas and/or Dimensions specified in the report will have priority over digital data transmitted and must correspond to the final 'as-built' location of the applicable buildings, other structures or boundaries.

Bushfire Prone Planning's Liability

All surveys, forecasts, projections and recommendations made in this report by Bushfire Prone Planning, associated with the subject planning proposal, are made in good faith based on information available to Bushfire Prone Planning at the time.

Notwithstanding anything contained therein, 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 of their consultants, their servants or agents, arising out of the services provided by their consultants.

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STATEMENT OF PURPOSE – THE ‘PLANNING’ BUSHFIRE MANAGEMENT PLAN (BMP)

EXPLANATORY INFORMATION

THE PURPOSE OF THE LAND USE ‘PLANNING’ BMP

This BMP is produced to present information necessary for the assessment of a planning proposal against Western Australia state and local government bushfire planning requirements. The information is produced to inform and assist decision-making authorities, referral agencies, planners, and developers (owner, applicant, proponent) in their implementation of requirements. The primary planning requirements are set out by State Planning Policy 3.7 – Bushfire, which states the Policy Intent as:

To implement effective, risk based land use planning and development which in the first instance avoids bushfire risk, but where unavoidable, manages and/or mitigates the risk to people, property and infrastructure to an acceptable level. The preservation of life and the management of bushfire impact are paramount.

The ‘planning’ BMP establishes the requirement and ability for certain minimum bushfire protection measures to be implemented and maintained, and which must be confirmed at the relevant planning stage.

DOCUMENTS ESTABLISHING THE BUSHFIRE PLANNING PROVISIONS IN WESTERN AUSTRALIA VERSIONS APPLIED IN PRODUCING THIS BUSHFIRE MANAGEMENT PLAN.

STATUTORY DOCUMENTS AND SUBSIDIARY LEGISLATION

Planning and Development Act 2005	19/2/2026
Planning and Development (Local Planning Schemes) Regulations 2015 - Schedule 2, Part 10A - Bushfire risk management (note: applicable to development applications only)	3/11/2024

ADMINISTRATIVE POLICY AND GUIDELINES

State Planning Policy 3.7 – Bushfire (SPP 3.7)	November 2024
Planning for Bushfire Guidelines (for the implementation of SPP 3.7)	November 2024 (30/01/25)
Local Planning Scheme and Policies	As current at BMP v1.0 date

NOT THE PURPOSE OF THE ‘PLANNING’ BMP

It is not intended to fully perform the function typically associated with an ‘operational’ BMP which more comprehensively seeks to mitigate bushfire risk (note: the relevant risk being the potential loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss).

An ‘operational’ BMP will apply, where practical and possible, additional site/location/use specific bushfire protection measures to reduce residual bushfire risk levels – and provide ongoing operations guidance.

Bushfire resistant construction to reduce an exposed building's level of vulnerability to bushfire hazard threats, is one example. The ‘planning’ BMP does not establish the requirement to construct certain buildings in designated bushfire prone areas applying the bushfire construction requirements corresponding to the Bushfire Attack Level (BAL) they are subject to.

In WA this requirement is established under the State Building Act 2011/Building Regulations 2012 and the referenced Building Code of Australia (contained in the National Construction Code).

The BCA references the deemed to satisfy requirements for construction design and materials as those contained in AS 3959 - Construction in bushfire prone areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).

1 THE PLANNING PROPOSAL

1.1 Details, Plans and Maps

SUBJECT LAND AND PROPONENT (LANDOWNER)		
Address Details	Lot 4, 37 Ferguson Street Middle Swan	
Applicable Local Government	City of Swan	
Proponent	Land Division	
Entity Commissioning the BMP	Greenstorm P/L c	
THE PLANNING PROPOSAL STAGE AND TYPE		
Strategic Planning Document	☐	N/A
Structure Plan	☐	N/A
Subdivision Application	☐	N/A
Development Application	☒	Construction of a habitable building that is subject to bushfire planning requirements.
DESCRIPTION		
Proposed development includes 14 residential dwellings with a shared driveway arrangement.		
Primary Proposed or Planned Construction		
Note: A habitable building is defined in the <i>WA Planning and Development (LPS) Regulations 2015</i> to mean: A permanent or temporary structure on land that: (a) Is fully or partially enclosed; and (b) Has at least one wall of solid material and a roof of solid material; and (c) Is used for a purpose that involves the use of the interior of the structure by people for living, working, studying or being entertained.		
Primary Type(s)	New Building(s)	
BCA Classification	Class 1a (house)	
Development Type - Establishing the Applicable Bushfire Protection Criteria		
Residential	Construction of, or addition to, a habitable building, including a single house, ancillary dwelling, grouped dwelling, multiple dwelling or mixed used development where the habitable building is subject to a pre-development radiant heat impact exceeding 29kW/m ² . Includes an associated Class 10A building or deck (non-habitable) within 6 m of the habitable building. [Guidelines Section 6 – BPC 6]	
<u>Assessment Supporting Details:</u> The proposal includes habitable Class 1 dwellings and Class 10a buildings with a shared driveway arrangement.		



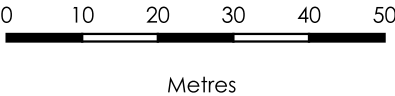


Figure 1.2
Proposed Subdivision

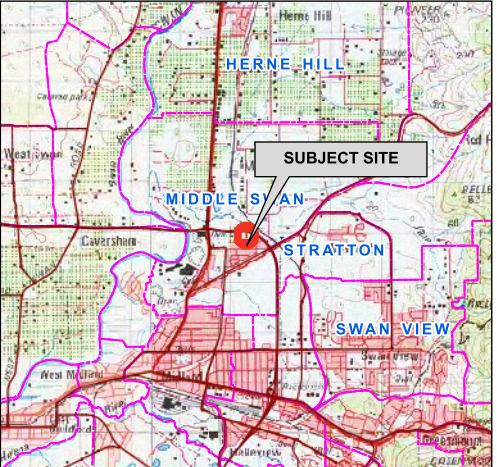
Lot 68
37 Ferguson Street
Middle Swan
City of Swan

----- **LEGEND** -----

- Subject Site
- Cadastral
- Hydrants
- Buildings**
 - Alfresco
 - Car Port
 - Unit
 - SUBDIVISION Boundary



----- **LOCALITY** -----



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map by: 13-05-2026
SCALE (A3): 1 : 1000

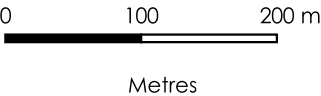
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Figure 1.3
Location Map

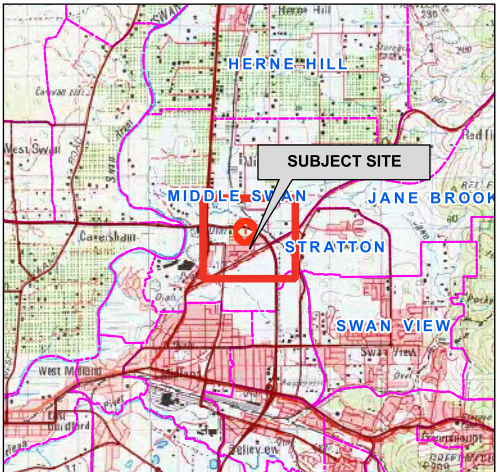
Lot 68
37 Ferguson Street
Middle Swan
City of Swan

----- LEGEND -----

- Subject Site
- Hydrants
- DFES Stations (DFES-023)
 - Bush Fire Brigade
 - State Emergency Service Unit
- Bush Forever Sites
- Reserves



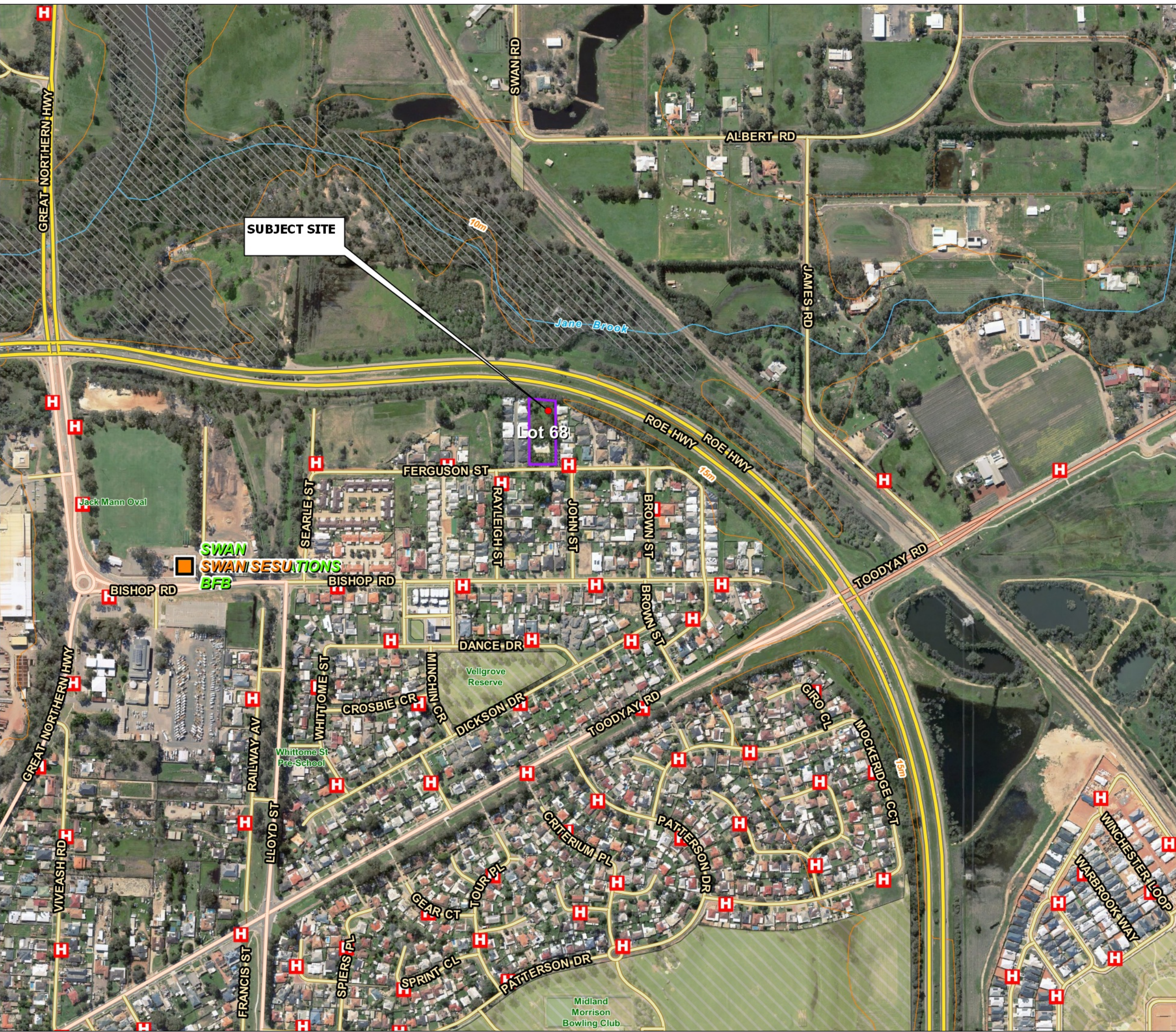
----- LOCALITY -----



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Projection: Universal Transverse Mercator Units: Metre
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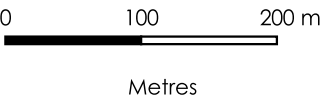
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Figure 1.4
Bushfire Prone Area

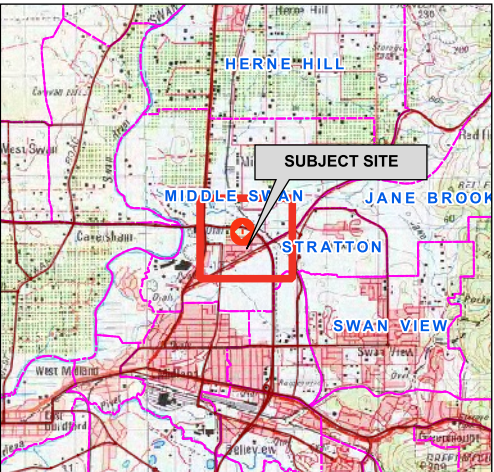
Lot 68
37 Ferguson Street
Middle Swan
City of Swan

----- **LEGEND** -----

-  Subject Site
-  Hydrants
- DFES Stations (DFES-023)**
 -  Bush Fire Brigade
 -  State Emergency Service Unit
-  Bush Forever Sites
-  Reserves
-  Bushfire Prone Areas 2024



----- **LOCALITY** -----



AERIAL IMAGERY: Landgate/SLIP



Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map by: 08-12-2025
SCALE (A3): 1 : 5568



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1.2 Required 'Bushfire Planning' Assessments and Documents

INFORMATION PRESENTED IN THIS ‘PLANNING’ BMP (OR THE BEP) - PROVIDED TO ACCOMPANY THE PROPONENT’S PLANNING SUBMISSION						
The requirements are established by SPP 3.7 cl. 4 & 7, Guidelines s. 1.2, 4.4, 5.5, 6.4, 7.2, 8.3 and A1.2. The green highlighted column identifies the required information for the subject planning proposal.		Strategic Planning		Structure Plan / Subdivision Application		Development Application
Required Information	Details	Map of Bushfire Prone Areas Designation				
		Area 1 (Urban)	Area 2	Area 1 (Urban)	Area 2	Areas 1 & 2
Environment - Identification of environmental, biodiversity or conservation values on subject site(s)	Presented in the BMP. Identifies how proposal siting and design avoids and/or minimises clearing of native vegetation in applying required bushfire protection measures.	BUSHFIRE PLANNING ASSESSMENTS ARE NOT REQUIRED	✓	✓	✓	✓
BLA - Broader Landscape Assessment (see note below)	Presented in the BMP. Considers subject site suitability based on exposure to bushfire hazards, potential for landscape scale bushfire, road network and suitable evacuation destinations.		✓	-	✓	-
BHL - Bushfire Hazard Level Assessment (pre-development)	Presented in the BMP. Can include detail of treatments required to achieve BHL of moderate and/or low.		✓	-	-	-
BAL - Bushfire Attack Level Assessment	Presented in the BMP in BAL contour map format as a requirement and in table format as an additional option.		-	✓	✓	-
	Presented in the BMP in table format and/or BAL contour map format – dependant on which is more efficient and effective at presenting the results (e.g. BAL contour map for multiple buildings).		-	-	-	✓
BPC - Assessment against the relevant Elements (E1 – E4) of the Bushfire Protection Criteria	Presented in the BMP. Can demonstrate compliance using the acceptable solutions and/or an outcomes-based approach. Strategic planning will necessarily focus on Element 1: Location.		✓	✓	✓	✓
				Excluding E1		Excluding E1
BEP - Bushfire Emergency Plan	For vulnerable land uses only. Provided as a separate document or an addition / modification to an existing BEP or site Emergency Management Plan.		-	-	-	-
LMP – Landscape Management Plan	For vulnerable land uses only. When applicable to the planning proposal, this is provided as a separate document or an attachment to the BMP.	-	-	-	-	
Note: Where a relevant planning proposal (e.g. subdivision) was previously assessed and approved under the SPP 3.7/Guidelines 2015, it is likely that a BLA will not be required. Also, if an application (e.g. subdivision) is compliant with a structure plan and/or a local planning scheme amendment, which were assessed and approved under the 2015 SPP/Guidelines, it is likely that a BLA will not be required. Confirmation from a relevant DPLH officer may be required (DPLH advice to BPP 20/2/2025).						

1.3 Other Documents Relevant to Preparing the BMP

EXPLANATORY INFORMATION					
This section identifies any known assessments, reports or plans that have been conducted and prepared previously, or are being prepared concurrently, and are relevant to the subject planning proposal. They may have implications for the assessment of bushfire hazard threats and the identification and implementation of the bushfire protection measures that are established by this BMP.					
RELEVANT DOCUMENTS					
Document	Relevant	Exists	To Be Concurrently Developed	Copy Provided by Proponent / Developer	Title
Structure Plan	No	-	-	-	-
Bushfire Management Plan	No	-	-	-	-
Preliminary bushfire advice (may include a BAL contour map)	No	-	-	-	-
Bushfire Emergency Plan	No	-	-	-	-
Bushfire Risk Report	No	-	-	-	-
Environmental Asset or Vegetation Survey	No	-	-	-	-
Landscape Management Plan	No	-	-	-	-
Revegetation Plan	No	-	-	-	-

2 ENVIRONMENTAL CONSIDERATIONS

2.1 Identification of Environmental, Biodiversity or Conservation Values

2.1.1 ASSESSMENT SUMMARY

EXPLANATORY INFORMATION		
For the planning proposal, the summary: - States the information sources accessed to identify if vegetation subject to environmental, biodiversity or conservation values are impacted by the planning proposal; and - Indicates when native vegetation not identified as subject to environmental values is potentially impacted. <i>Note: Where information regarding potential environmental, biodiversity or conservation values at the subject site is derived from a 'desktop' assessment' (from information current to the date of last modification) - this should not be considered a replacement for a full environmental impact assessment.</i> <i>Refer to guidance in Appendix E regarding the legislated restraints ensuring native vegetation retention.</i>		
IDENTIFICATION OF ENVIRONMENTAL VALUES		
Information Source	Accessed	Applicable to Proposal
Publicly Available State Government Databases	Yes	No
Publicly Available Local Government Information	Yes	No
Environmental Assessment / Survey	N/A	No
THE PLANNING PROPOSAL AND IMPACT ON NATIVE VEGETATION		
Scenario		Applicable to Proposal
Native vegetation identified as <u>being subject</u> to an environmental, biodiversity or conservation value is planned to be cleared and/or modified.		N/A
Implementation of the planning proposal does not require native vegetation identified as <u>being subject</u> to an environmental value, to be cleared and/or modified.		N/A
Implementation of the planning proposal requires native vegetation identified as <u>not being subject</u> to an identified environmental value, to be cleared and/or modified.		N/A
Implementation of the planning proposal does not require any native vegetation to be cleared and/or modified.		N/A

2.1.2 PUBLICLY AVAILABLE STATE GOVERNMENT DATABASES

IDENTIFICATION OF RELEVANT BIODIVERSITY OR CONSERVATION VALUES							
Dataset	Relevant to Subject Planning Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Information Source(s) Applied			Further Action Required by Proponent	
			WA Govt. Agency Dataset (ID)	Landowner or Developer Statements	Environmental Asset or Vegetation Survey Report		
Department of Biodiversity, Conservation and Attractions (DBCA) Datasets							
Conservation Category Wetlands and Buffer (geomorphic wetlands – relevant area)	N/A	No	☒	DBCA-046	☐	☐	None
RAMSAR Sites (wetlands of international importance)	N/A	No	☒	DBCA-010	☐	☐	None
Threatened and Priority Flora	N/A	No	Restricted Scale of Data Available (security)	DBCA-036	☐	☐	None
Threatened Ecological Communities	N/A	No		DBCA-038	☐	☐	None
Legislated Lands and Waters (national/conservation parks, nature/crown reserves, state forest)	N/A	No	☒	DBCA-011	☐	☐	None
Department of Planning, Lands and Heritage (DPLH) Datasets							
Bush Forever Areas 2000	Yes	Yes - Moderate	☒	DPLH-019, 022 and MRS Bush Forever	☐	☐	None
Department of Water and Environmental Resources (DWER) Datasets							
Clearing Regulations – Environmentally Sensitive Areas	N/A	No	☒	DWER-046	☐	☐	None
Swan Bioplan Regionally Significant Natural Areas 2010	N/A	No	☒	DWER-070	☐	☐	None

Figure 2.1
Environmental Considerations

Lot 68
37 Ferguson Street
Middle Swan
City of Swan

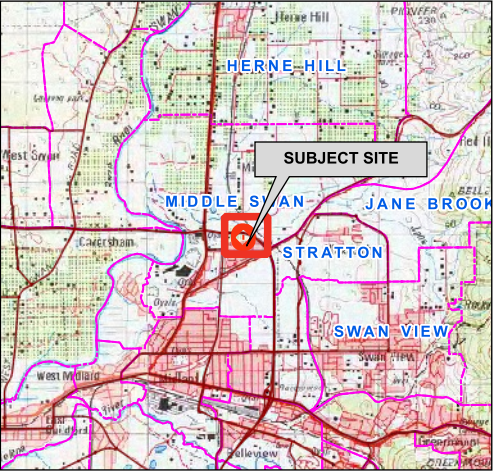
----- LEGEND -----

-  Subject Site
-  Hydrants
-  Bush Forever Sites
-  Reserves

0 50 100 m

Metres

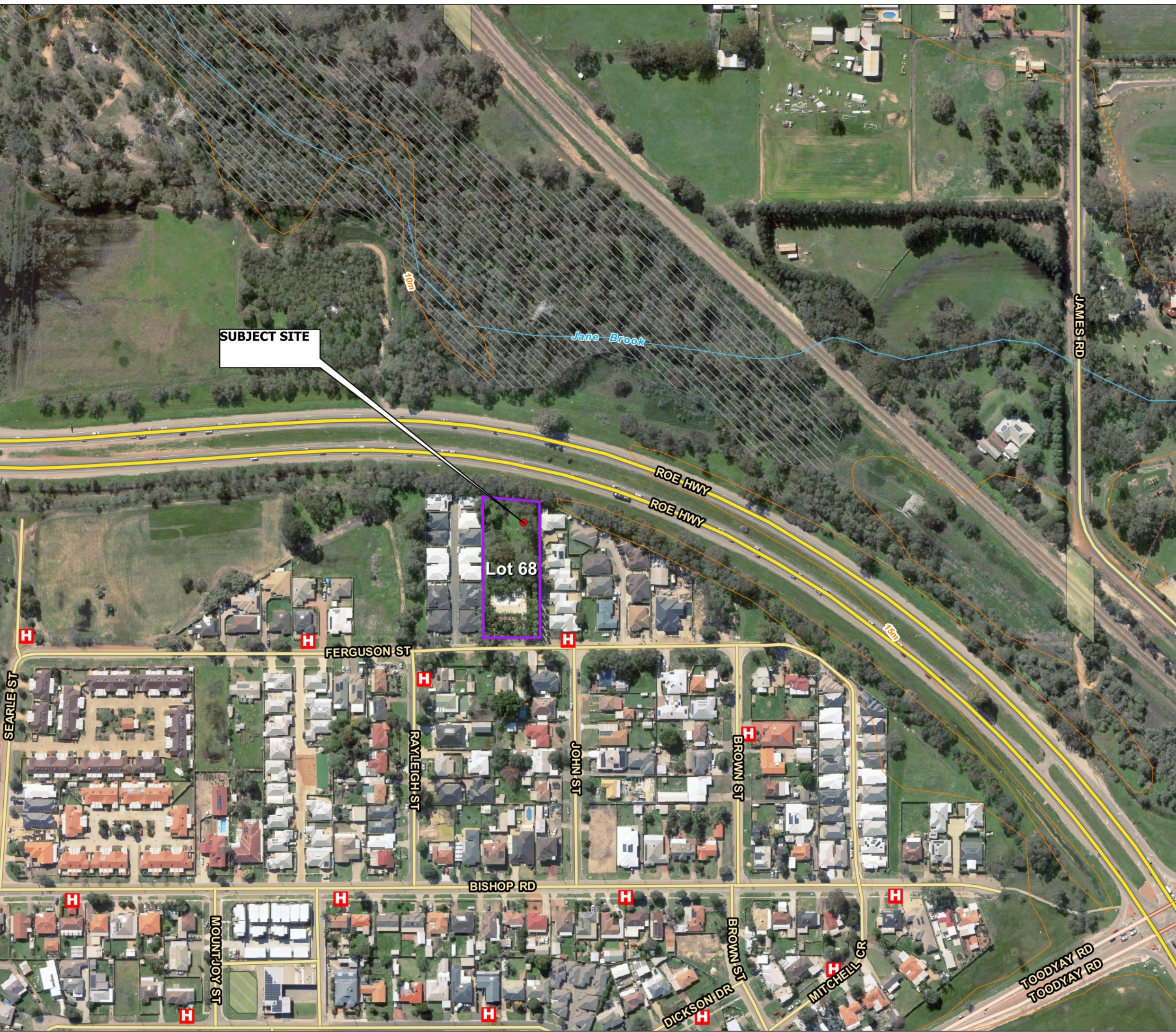
----- LOCALITY -----



AERIAL IMAGERY: Landgate/SLIP



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Map by: 18-05-2026
SCALE (A3): 1 : 2599



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2.2 Assessment Against SPP 3.7 Native Vegetation Retention Objective

EXPLANATORY INFORMATION

Objective 5.4 of State Planning Policy SPP 3.7 Bushfire (SPP 3.7) is “Prioritise the retention of native vegetation for biodiversity conservation, environmental protection and landscape amenity”.

The Guidelines (Section 3.9 Biodiversity and Environment) establishes the following for consideration in determining how a planning proposal addresses the retention requirements for native vegetation existing on the subject site:

1. Avoid areas that would require clearing or modification of native vegetation, specifically for the purpose of bushfire mitigation. Bushfire mitigation and management should not be a stand-alone reason for the clearing or modification of native vegetation.
2. Where the clearing or modification of native vegetation cannot be avoided, the bushfire management plan (BMP) should demonstrate how this will be minimised.
3. The extent of clearing and/or modification of native vegetation, specifically for the purpose of bushfire mitigation, will be an important consideration for the decision-maker when determining the suitability of the development.

2.2.1 PROPOSED NATIVE VEGETATION CLEARING AND/OR MODIFICATION

CLEARING OF NATIVE VEGETATION	
The planning proposal includes the clearing of native vegetation:	No
MODIFICATION AND ONGOING MANAGEMENT OF NATIVE VEGETATION	
The planning proposal includes the modification and management of native vegetation:	No

3 POTENTIAL BUSHFIRE IMPACT ASSESSMENT

3.1 Bushfire Attack Level (BAL) Assessment Summary (Contour Map Format)

EXPLANATORY INFORMATION

The Bushfire Attack Level (BAL) contour map is a diagrammatic representation of the outcome of the bushfire attack level assessment that has been conducted.

When a BAL contour map is being used for planning assessment purposes, (as opposed to a building assessment purpose), a 'determined' BAL rating is typically not able to be derived from the map.

The BAL ratings identified from a BAL contour map produced for a planning assessment are typically only 'indicative' of what can be achieved – with planning compliance being achieved when BAL-29 or below is indicated.

Deriving the required 'determined' BAL rating for building application purposes requires assessed building site conditions to be in a known and final state (e.g. the building location is fixed and/or the location of classified vegetation is known post approved modification/removal). A separate BAL assessment report will likely be required for each such building works. Refer to Appendices B1 and B2 for additional information.

3.1.1 BAL ASSESSMENT RESULTS (DERIVED FROM THE BAL CONTOUR MAP)

BUSHFIRE ATTACK LEVEL FOR FUTURE BUILDINGS/STRUCTURES ON STATED LOT		
Proposed Building on Lot No.	Future Building / Structure	
	Indicative BAL	Determined BAL
1-5, 10-14	N/A	BAL-12.5
6 and 9	N/A	BAL-19
7 and 8	N/A	BAL-29

3.1.2 BAL ASSESSMENT DATA APPLIED TO CONSTRUCT THE BAL CONTOUR MAP(S)

BAL DETERMINATION METHODOLOGY APPLIED ¹					
Method 1 (Simplified Procedure) AS 3959:2018 Section 2	Yes	Method 2 (Detailed Procedure) AS 3959:2018 Appendix B	No	Method 1 & 2	-
CLASSIFIED AREAS OF VEGETATION APPLIED TO PRODUCTION OF THE BAL CONTOUR MAP(S)					
IDENTIFICATION OF RELEVANT CLASSIFIED VEGETATION					MAP
The relevant vegetation will be all areas of classified vegetation that exist at the time of the site assessment – both within the subject site (on-site) and external to the subject site (off-site).					Figure No.3.1
The relevant vegetation is the classified vegetation external to the lot boundaries. All identified classified vegetation areas, or portions of areas, within the subject lot are excluded. This approach is applied to indicate the achievable bushfire attack levels within the specified lot and the resultant area of developable land where buildings will be subject to BAL-29 or less. It is based on the following assumptions: Any classified vegetation within a lot can potentially be managed or removed by the landowner to meet asset protection zone standards; and					Figure No.3.1

- | | |
|--|--|
| 2. Future development and consequent removal/management of vegetation that may take place on any adjoining lot cannot be part of considerations for the subject lot. | |
|--|--|

Supporting Assessment Details:

The subject site is managed to a low threat state.

Table 3.2: Calculation inputs applied to deriving the vegetation separation distances corresponding to different levels of potential radiant heat transfer.

DATA APPLIED TO CALCULATE THE SITE SPECIFIC VEGETATION SEPARATION DISTANCES CORRESPONDING TO POTENTIAL RADIANT HEAT TRANSFER LEVELS ¹												
Applied BAL Determination Method			METHOD 1 - SIMPLIFIED PROCEDURE (AS 3959:2018 CLAUSE 2.2)									
The Calculation Input Variables - Corresponding to the Applied BAL Determination Method ²												
Methods 1 and 2			Method 1		Method 2							
Vegetation Classification		FDI	Effective Slope		Site Slope	FFDI or GFDI	Flame Temp.	Elevation of Receiver	Flame Width	Fireline Intensity	Flame Length	Modified View Factor
			Applied Range	Measured								
Area	Class		degree range	degrees	degrees							
1	(A) Forest	80	Upslope or flat 0	flat 0								
2	(B) Woodland	80	Upslope or flat 0	flat 0								
3	(G) Grassland	80	Upslope or flat 0	flat 0								
4	Excluded cl 2.2.3.2(e & f)	N/A	N/A	-								
Note 1: The values used to indicate levels of potential radiant heat transfer (from fire in bushfire prone vegetation to exposed elements at risk), will be stated in subsequent tables as either as a bushfire attack level (BAL) and/or as kilowatts per square metre (kW/m2), as relevant to the application of the value and the type and use of the element at risk. Note 2: All data and information supporting the determination of the classifications and values stated in this table is presented in Appendix A. Where the values are stated as 'default' these are either the values stated in AS 3959:2018, Table B1 or the values calculated as intermediate or final outputs through application of the equations of the AS 3959:2018 BAL determination methodology. They are not values derived by the assessor.												

Table 3.3: Vegetation separation distances corresponding to the stated levels of potential radiant heat transfer.

THE CALCULATED (SITE SPECIFIC) VEGETATION SEPARATION DISTANCES CORRESPONDING TO THE STATED LEVEL OF POTENTIAL RADIANT HEAT TRANSFER (METRES) ¹									
Vegetation Classification		Maximum Radiant Heat Transfer (Flux)						10 kW/m ²	2 kW/m ²
		>40 kW/m ²	40 kW/m ²	29 kW/m ²	19 kW/m ²	12.5 kW/m ²	N/A ²		
		Bushfire Attack Levels							
Area	Class	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL12.5	BAL-LOW		
1	(A) Forest	<16	16-<21	21-<31	31-<42	42-<100	>100		
2	(B) Woodland	<10	10-<14	14-<20	20-<29	29-<100	>100		
3	(G) Grassland	<6	6-<8	8-<12	12-<17	17-<50	>50		
4	Excluded cl 2.2.3.2(e & f)	-	-	-	-	-	-		
Note 1: The calculated results are illustrated in Figure 3.2 as a BAL Contour Map and/ or additional defining lines as necessary. All applied calculation input variables are presented in Table 3.2. A copy of the radiant heat calculator output for each area of classified vegetation is presented in Appendix A3.									
Note 2: The BAL-LOW rating does not represent a maximum level of radiant heat transfer. The rating is applied when the separation distance is at least 100m from all classified vegetation except Grassland, for which 50m applies.									

Figure 3.1

Classified Vegetation & Topography (Existing)

Lot 68
37 Ferguson Street
Middle Swan
City of Swan

----- LEGEND -----

Subject Site

Cadastral

Photos and Direction

H

Hydrants

150m Assessment Area

100m Assessment Area

Classified Vegetation

Forest

Woodland

Grassland

Excluded 2,2,3,2 (e)

020406080100

Metres

----- LOCALITY -----

SUBJECT SITE

HERNE HILL

MIDDLE SWAN

JANE BROOK

STRATTON

SWAN VIEW

AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map by: 29-05-2026
SCALE (A3): 1 : 1500

BUSHFIRE PRONE PLANNING

251107 - FIG3.1 VEG 37 Ferguson Street Middle Swan.qgz

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

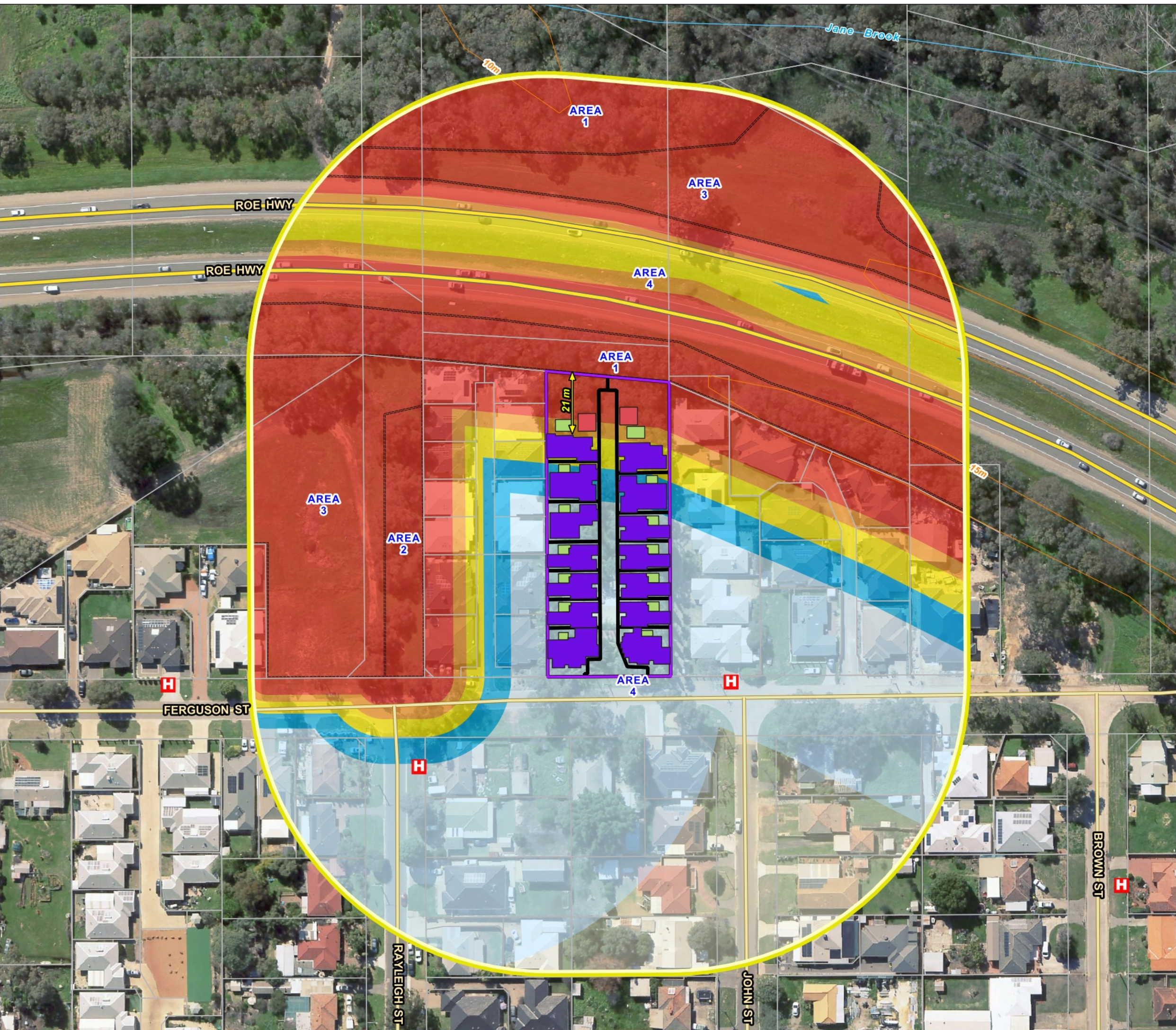


Figure 3.2
BAL Contour Map

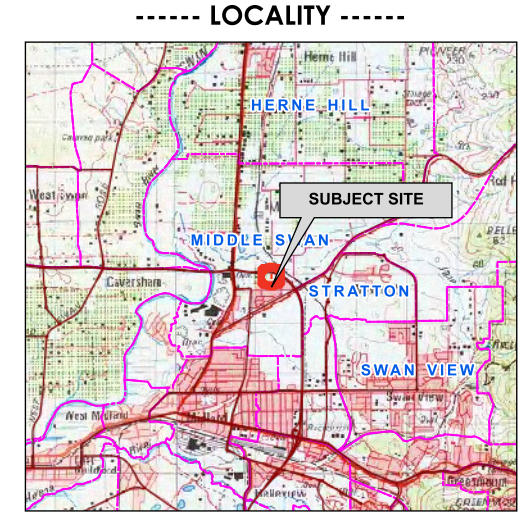
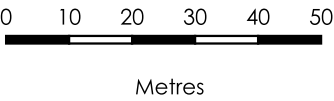
Lot 68
37 Ferguson Street
Middle Swan
City of Swan

----- **LEGEND** -----

Subject Site
 Cadastral
 Hydrants

Buildings
 Alfresco (Non Habitable in Lot 7 & 8)
 Car Port (Non Habitable)
 Unit
 APZ Distance (m)
 100m Assessment Area

Bushfire Attack Levels
 BAL-FZ
 BAL-40
 BAL-29
 BAL-19
 BAL-12.5
 BAL-LOW
 BAL VEG Edge and Label



AERIAL IMAGERY: Landgate/SLIP

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map by: 09-06-2026
SCALE (A3): 1 : 1200

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

4 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (BPC)

EXPLANATORY INFORMATION

TO SATISFY THE OBJECTIVES AND POLICY OUTCOMES OF SPP 3.7, A PLANNING PROPOSAL IN A DESIGNATED BUSHFIRE PRONE AREA IS REQUIRED TO DEMONSTRATE THAT COMPLIANCE WITH THE BUSHFIRE PROTECTION CRITERIA CAN BE ACHIEVED.

State Planning Policy 3.7 Bushfire (SPP 3.7) establishes policy outcomes that “specify the role of planning and development in contributing to the overall objectives” of the policy. The policy outcomes are incorporated into the four elements of the bushfire protection criteria (BPC) established in the Planning for Bushfire Guidelines (Guidelines).

The Guidelines in Section 2.2.1 establish two assessment pathways to demonstrate compliance:

1. The deemed to comply pathway - in which compliance is able to be demonstrated with all relevant acceptable solutions associated with each Element, for a specific planning stage or use; or
2. An alternative pathway when all relevant acceptable solutions cannot be fully achieved, which utilises either:
 - (a) The outcomes-based approach alone (established by SPP 3.7 cl. 7.5); or
 - (b) A combination of the outcomes-based approach and the acceptable solutions.

The assessment applying the deemed to comply pathway assessment is presented in Section 4.1.

4.1 Bushfire Protection Criteria - Assessment Pathway Applied

ASSESSMENT PATHWAY APPLIED TO DEMONSTRATE ACHIEVEMENT OF SPP 3.7 REQUIREMENTS			
DEVELOPMENT – RESIDENTIAL			
Acceptable Solutions Pathway		Alternative Pathway ²	
The Bushfire Protection Criteria ¹	Compliance Status	Outcomes-Based Approach Only	Combination of Pathways
ELEMENT 2: SITING AND DESIGN:	Fully Compliant	-	-
A2.1a Siting and design – pre-development BAL-29 exists	Fully Compliant		
A2.2 Asset protection zone – post-development BAL-29 achieved	Not Applicable		
A2.1b Post-development acceptable BAL-40/FZ exposure is applied	Not Applicable		
A2.3 Clearing of native vegetation	Not Applicable		
ELEMENT 3: VEHICULAR ACCESS:	Not Compliant	-	-
A3.1 Private Driveways	Not Compliant		
ELEMENT 4: WATER SUPPLY:	Fully Compliant	-	-
A4.1 Water supply	Fully Compliant		
Note 1: Each element corresponds to a policy outcome of SPP 3.7 Bushfire.			
Note 2: When required, the outcomes-based assessment is presented in Section 5.5 of this BMP.			

4.2 BPC 6: Development – Residential - Acceptable Solutions Assessment

4.2.1 ELEMENT 2: SITING AND DESIGN

ELEMENT 2: SITING AND DESIGN (DEVELOPMENT - RESIDENTIAL)

EXPLANATORY INFORMATION

Refer to Appendices B1 and B3 of this BMP for additional information and to the *bushfire protection measure implementation checklist in Section 6 for the APZ dimensions applicable to this planning proposal.*

The Planning Assessment and the APZ

This assessment is a 'planning assessment' being conducted for planning approval purposes only. All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended).

Note the assessment is not conducted for building approval purposes. The derivation of 'determined' BAL ratings for building permit applications is not the intended outcome of this planning assessment. However, in limited situations, the presented indicative BAL rating might also be the 'determined' rating.

To comply with the relevant acceptable solutions contained in the 'Bushfire Planning Guidelines', the subject planning proposal must demonstrate that the required minimum sized asset protection zone (APZ) - subject to location constraints and allowances established by the Guidelines - can be installed surrounding a habitable or specified building.

Approved BMP's and the APZ Dimensions to be Implemented

An approved BMP, unless stated otherwise, is only approving the installation of an APZ comprised of:

- The minimum dimensions that ensure the radiant heat impact of a bushfire (on building works) does not exceed 29 kW/m² (BAL-29); or
- For specific 'vulnerable' land uses, the minimum dimensions that ensures the radiant heat impact of a bushfire (on building works) does not exceed the level of radiant heat exposure stated in the applicable acceptable solution; or
- The specific minimum dimensions that may be applied through the application of an outcomes-based approach.

Consequently, when installation of the APZ will require the clearing / modification of native vegetation, the 'minimum' dimensions of the APZ that achieves BAL-29 is also the maximum dimensions permitted under the Guidelines.

Installing a larger dimensioned APZ, to lower the determined BAL rating below BAL-29 is beyond what can be reasonably achieved within a BMP.

Additional clearing / modifying of native vegetation to establish a larger APZ will likely require separate approval from the relevant planning authority prior to the preparation of a BMP (refer to Attachment 3 for further details and required information).

The following bushfire planning policy and guidance potentially limit installed APZ dimensions:

- SPP 3.7 Bushfire, Policy Objectives, cl. 5.5 states – "Prioritise the retention of native vegetation for biodiversity conservation, environmental protection and landscape amenity.
- SPP 3.7 Bushfire, Policy Outcomes, cl. 6.2 - establishes that clearing of native vegetation is to be avoided or minimised in managing or mitigating bushfire risk.
- The Guidelines, Appendix B2, B.2.1 states - "clearing or modification of native vegetation to reduce the radiant heat impact below 29 kW/m² is generally not supported."

The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved

O2	Ensure siting and design solutions: • Manage or mitigate the bushfire risk to people, property and infrastructure; and • Avoid, or where unavoidable, minimises the clearing of native vegetation. (SPP 3.7, 6.2)				
E2	The Acceptable Solutions Pathway – Subject Proposal's Compliance Statement				
	The planning proposal achieves the required outcomes of this element through the acceptable solutions ('deemed to comply') pathway alone. All applicable acceptable solutions can be complied with.				
	The Alternative Pathway – Subject Proposal's Ability to Demonstrate Achievement of SPP 3.7 Outcomes				
	N/A				
ASSESSMENT OF COMPLIANCE WITH THE <u>APPLICABLE</u> ACCEPTABLE SOLUTIONS					
'ASSESSMENT STATEMENTS ANALYSIS' (RELEVANCE & STATUS) USED TO DETERMINE APPLICABILITY AND COMPLIANCE					
A2.1a SITING AND DESIGN – PRE-DEVELOPMENT BAL-29 EXISTS					
THE STATED ASSESSMENT OUTCOME (OPPOSITE) IS DERIVED AFTER CONSIDERATION OF THE FOLLOWING ASSESSMENT STATEMENTS AND ADDITIONAL SUPPORTING INFORMATION.		Applicable:	Yes	Compliant:	Yes
Relevant and Met	Every residential habitable building achieves a radiant heat impact not exceeding 29 kW/m ² (BAL-29) <u>pre-development</u> .				
Not Relevant	Where A2.1a is complied with <u>pre-development</u> , an indicative BAL-29 APZ is not required to be provided.				
Not Relevant	When A2.1a cannot be complied with <u>pre-development</u> , the Guidelines establish two alternative acceptable solutions that can be applied to the proposed development: 1. A2.2 that requires a compliant asset protection zone (APZ) to be provided that ensures radiant heat exposure does not exceed 29 kW/m² (BAL-29) <u>post-development</u>; or 2. A2.1b which: i. Establishes that a higher level of radiant heat exposure (BAL-40/FZ) will be considered for planning approval, where it can be satisfactorily demonstrated that the allowable conditions apply to the proposed development; and ii. References the technical requirements for management of vegetation surrounding the building (i.e. Guidelines Appendix B2, Table 9). Consequently, when either A2.2 or A2.1b are applicable to the proposed development, A2.1a is not applicable.				
<u>Assessment Supporting Information:</u> All proposed buildings are sited in BAL-29 or lower. No native vegetation removal is required. See Figure 3.2.					
A2.2 ASSET PROTECTION ZONE – POST-DEVELOPMENT BAL-29 ACHIEVED					
THE STATED ASSESSMENT OUTCOME (OPPOSITE) IS DERIVED AFTER CONSIDERATION OF THE FOLLOWING ASSESSMENT STATEMENTS AND ADDITIONAL SUPPORTING INFORMATION.		Applicable:	No	Compliant:	-
Relevant and Met	Where a residential habitable building(s) cannot be wholly located within an area with a radiant heat impact not exceeding 29 kW/m ² (BAL-29) in its <u>pre-development</u> state, an APZ is to be provided and meet the following requirements for width, location and management:				

Not Relevant	APZ Width: The APZ, when measured from any external wall or supporting post or column, is of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m ² (BAL-29) to any part of the building, in all circumstances.
Not Relevant	APZ Location – Option 1: The indicative 'Planning BAL-29' APZ can be contained solely within the boundaries of the lot.
Not Relevant	APZ Location – Option 2: The indicative 'Planning BAL-29' APZ cannot be contained solely within the boundaries of the lot. However, the relevant vegetation on the adjoining land / lot(s) is, and will continue to be, on an ongoing basis in perpetuity, low threat as per: • Clause 2.2.3.2 of AS 3959 (including non-vegetated land such as a sealed or unsealed road, or a water body); or • The requirements of the Guidelines Appendix B.2, Table 9 – APZ technical requirements; or • The alternative standard in the local planning scheme (when it exists).
Not Relevant	APZ Management: The APZ can and will be managed in accordance with the requirements established in the Guidelines, Appendix B.2 or the alternative standard in the gazetted local planning scheme (when it exists).
Not Relevant	Where A2.2 cannot be fully complied with <u>post-development</u>, the Guidelines establish A2.1b as an alternative acceptable solution that can be applied to the proposed development which: - Establishes that a higher level of radiant heat exposure (BAL-40/FZ) will be considered for planning approval, where it can be satisfactorily demonstrated that the allowable conditions apply to the proposed development; and - References the technical requirements for management of vegetation surrounding the building (i.e. Guidelines Appendix B2, Table 9) Consequently, for the proposed development, when A2.1b is applicable, A2.2 is not applicable.
<u>Assessment Supporting Information:</u> None required.	
A2.1b POST-DEVELOPMENT ACCEPTABLE BAL-40/FZ EXPOSURE IS APPLIED THE STATED ASSESSMENT OUTCOME (OPPOSITE) IS DERIVED AFTER CONSIDERATION OF THE FOLLOWING ASSESSMENT STATEMENTS AND ADDITIONAL SUPPORTING INFORMATION.	
Relevant and Met	A2.1b is not applicable to the subject planning proposal because A2.1a or A2.2 can be complied with.
Not Relevant	The residential habitable building(s) is sited with a radiant heat impact exceeding 29 kW/m ² (BAL-40 or BAL-FZ). However, meeting all the following requirements allows for planning approval to be considered:
Not Relevant	• The lot was created prior to 2015; and
Not Relevant	• There are demonstrated site characteristics and/or biodiversity or conservation values that prevent the achievement of a radiant heat impact not exceeding 29 kW/m² (BAL-29); and
Not Relevant	• It is demonstrated that the reduction of the building footprint or a redesign to manage or mitigate the risk, is not practical or appropriate.

Not Relevant	The provision of an APZ in accordance with A2.2 cannot be achieved. The vegetation immediately surrounding the building(s) is (or can and will) be managed as defendable space in accordance with the Guidelines Appendix B.2, Table 9 – APZ technical requirements.				
<u>Assessment Supporting Information:</u> None required.					
A2.3 CLEARING OF NATIVE VEGETATION THE STATED ASSESSMENT OUTCOME (OPPOSITE) IS DERIVED AFTER CONSIDERATION OF THE FOLLOWING ASSESSMENT STATEMENTS AND ADDITIONAL SUPPORTING INFORMATION.		Applicable:	No	Compliant:	-
Not Relevant	The development avoids, or where unavoidable, minimises the clearing of native vegetation.				
<u>Assessment Supporting Information:</u> The subject site does not contain any native vegetation and has been cleared.					

4.2.2 ELEMENT 3: VEHICULAR ACCESS

ELEMENT 3: VEHICULAR ACCESS (DEVELOPMENT - RESIDENTIAL)				
All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended). When relevant, the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (DPLH, 2021 Rev B), is also referenced. The technical construction requirements for access types and components are established in the Guidelines Appendix B.3, Table 10 (certain information is copied and presented in Appendix C of this BMP). The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply. These are included as an appendix if requested by the local government. Note: The following understanding of what constitutes a 'road', and the stated definitions can be important considerations for assessments against an acceptable solution for Element 3. - Guidelines Appendix B3: Vehicular Access, identifies a 'road' as being either a public road (that includes a no-through road) or a perimeter road. All other access types (i.e. emergency access ways, fire service access routes, battle-axes and private driveways) are considered a different class of access i.e. they are not roads. - SPP 3.7 defines 'no-through road' as "a cul-de-sac or dead end road". - SPP 3.7 defines 'two-way access' as "vehicular access from a site in two different directions to at least two different suitable destinations". This allows for required access to potentially be provided by an emergency access way.				
O3	The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved			
	Ensure the design and capacity of vehicular access and egress provide: - For efficient and effective evacuation to a suitable destination(s); and/or - As a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option. (SPP 3.7, 6.3)			
E3	The Acceptable Solutions Pathway – Subject Proposal's Compliance Statement			
	The planning proposal cannot achieve the required outcomes of this element through the acceptable solutions ('deemed to comply') pathway alone. All applicable acceptable solutions cannot be fully complied with.			
	The Alternative Pathway – Subject Proposal's Ability to Demonstrate Achievement of SPP 3.7 Outcomes			
	The outcomes-based approach is applied (refer to Section 5.4) to demonstrate (to the decision maker) that the relevant risks can be appropriately managed and/or mitigated to a tolerable or acceptable level and the element outcomes are achieved.			
ASSESSMENT OF COMPLIANCE WITH THE <u>APPLICABLE</u> ACCEPTABLE SOLUTIONS				
'ASSESSMENT STATEMENTS ANALYSIS' (RELEVANCE & STATUS) USED TO DETERMINE APPLICABILITY AND COMPLIANCE				
A3.1 PRIVATE DRIVEWAYS THE STATED ASSESSMENT OUTCOME (OPPOSITE) IS DERIVED AFTER CONSIDERATION OF THE FOLLOWING ASSESSMENT STATEMENTS AND ADDITIONAL SUPPORTING INFORMATION.		Applicable:	Yes	Compliant: No

Relevant and Not Met	The subject lot is serviced by reticulated water, and the private driveway is no greater than 70 metres in length between the most distant external part of the habitable building and the public road. For these conditions, no private driveway technical requirements are prescribed by the Guidelines.
Relevant and Met	In circumstances where the above conditions are not met, the private driveway is to meet the following requirements: The private driveway meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum horizontal clearance (6 metres) or where not required to comply with the Guidelines width, it meets (or can and will meet) the requirements of the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision; and
Relevant and Met	The private driveway meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for minimum vertical clearance (4.5 metres), minimum weight capacity (15 tonnes - includes bridges, culverts) and minimum inner radius of road curves (8.5 metres); and
Relevant and Met	The private driveway meets (or can and will meet) the technical requirements (Guidelines Appendix B3, Table 10) for the gradients of different surfaces and dips; and
Not Relevant	Passing bays are (or can and will be) installed every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of 2 metres i.e. the combined carriageway width of the passing bay and constructed private driveway will be a minimum 6 metres; and
Relevant and Not Met	The turnaround area/head meets (or can and will meet) the design and location (within 30m of main habitable building) requirements established by the Guidelines (refer to Figures 30 and 38).
<u>Assessment Supporting Information:</u> The proposal is grouped dwellings within an existing suburb. The proposed driveway is overlength, and turnaround point cannot be constructed due to site constraints. An Outcomes-Based Approach has been applied. See Section 4.3	

4.2.3 ELEMENT 4: WATER SUPPLY

ELEMENT 4: WATER SUPPLY (DEVELOPMENT - RESIDENTIAL)					
All details of acceptable solution requirements are established in the Planning for Bushfire Guidelines (Guidelines) – WA Department of Planning, Lands and Heritage (DPLH, as amended). When relevant, the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (DPLH, 2021 Rev B), is also referenced.					
O4	The Outcome of State Planning Policy 3.7 Bushfire (and the BPC) to be Achieved				
	Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire. (SPP 3.7, 6.4)				
E4	The Acceptable Solutions Pathway – Subject Proposal's Compliance Statement				
	The planning proposal achieves the required outcomes of this element through the acceptable solutions ('deemed to comply') pathway alone. All applicable acceptable solutions can be complied with.				
	The Alternative Pathway – Subject Proposal's Ability to Demonstrate Achievement of SPP 3.7 Outcomes				
	N/A				
ASSESSMENT OF COMPLIANCE WITH THE <u>APPLICABLE</u> ACCEPTABLE SOLUTIONS					
'ASSESSMENT STATEMENTS ANALYSIS' (RELEVANCE & STATUS) USED TO DETERMINE APPLICABILITY AND COMPLIANCE					
A4.1 WATER SUPPLY		Applicable:	Yes	Compliant:	Yes
THE STATED ASSESSMENT OUTCOME (OPPOSITE) IS DERIVED AFTER CONSIDERATION OF THE FOLLOWING ASSESSMENT STATEMENTS AND ADDITIONAL SUPPORTING INFORMATION.					
Relevant and Met	Evidence is provided that a reticulated water supply, available for firefighting purposes, exists or can be provided. Hydrant connection(s) will be provided in accordance with the specifications established by the relevant water supply authority (refer also to hydrant location information in Appendix D of this BMP).				
Not Relevant	The provision of or the specifications of a reticulated water supply cannot be met. Evidence is provided that a sufficient, sustainable and accessible non-reticulated water supply, dedicated to firefighting purposes, can and will be provided in accordance with the following specifications established in the Guidelines, Appendix B4: Water Supply:				
Not Relevant	A 10,000 litre water supply tank per habitable building, dedicated to firefighting purposes, is or will be installed within each lot; and				
Assessment Supporting Information:					
The subject site has access to reticulated water. The nearest hydrant is just 5m from the subject site boundary along Ferguson Street.					

4.3 Applying the Outcomes-Based Approach (OBA)

EXPLANATORY INFORMATION

Note: This section is included in the BMP because the assessment against the relevant bushfire protection criteria acceptable solutions (in the preceding Section 5.3), has determined that full compliance with all relevant acceptable solutions cannot be achieved for the subject planning proposal.

For decision maker consideration, an assessment applying the expert opinion of the bushfire consultant is applied to demonstrate how the subject planning proposal may satisfy the policy outcomes of State Planning Policy 3.7 Bushfire (SPP 3.7) and restated in the Bushfire Protection Criteria (BPC)..

The Alternative Pathway to Demonstrate Compliance

Clause 7.5 of SPP 3.7 establishes the ability to apply an outcomes-based approach. It "recognises that some sites are unable to fully comply with the acceptable solutions of the Guidelines due to complex site characteristics and/or environmental values, but through the use of innovative, alternative bushfire risk management measures may be able to satisfy the outcomes of this policy."

The Outcomes-Based Approach

The approach involves the development of a justifiable merit based case by the bushfire consultant, to assist and inform the decision-maker in making their discretionary decision.

This may include, as necessary, assessing the residual level of relevant risks associated with a bushfire event, post the application of required and recommended bushfire protection measures.

Also, the following guidance is incorporated into the relevant assessments conducted in this section of the BMP as necessary and applicable:

1. Clause 7.5 of SPP 3.7 establishes that in conducting an outcomes-based approach, an assessment is to be undertaken in accordance with the stated criteria, referenced as criterion (a) to (g).
2. Appendix B (Guidelines) provides the following additional guidance for undertaking an outcomes-based approach for specific components of the bushfire protection criteria:
 - (a) Element 1: Location (Appendix B1.2)
 - (b) Element 3: Vehicular Access – No-through roads - length (Appendix B3.3.1)
 - (c) Element 3: Vehicular Access – Emergency access way – width and/or length (Appendix B3.4.1)

Establishment of Additional Bushfire Protection measures

Any additional bushfire protection measures developed applying the alternative pathway will also be stated in:

- Section 5.5 'Required Additional Bushfire Protection Measures' and therefore also in Section 6 'Responsibility Checklists' - when essential to the outcomes-based assessment outcome; and/or
- Section 5.6 'Recommended Additional Bushfire Protection Measures' – as consultant suggestions to be considered for implementation by the proponent.

4.3.1 ASSESSMENT AGAINST THE SPP 3.7 OUTCOMES-BASED APPROACH (OBA) CRITERIA

The following assessment against the OBA Criteria is conducted in accordance with SPP 3.7 cl. 7.5 and the Guidelines Part 2.2.1(b).

When additional detailed assessment demonstrating the proposal's ability to achieve SPP 3.7 Policy Outcomes have been developed - and presented elsewhere in the BMP - the data is referenced, and the summary information is included below.

4.3.1.1 OBA Criterion A

The BMP is to address the acceptable solutions to the greatest extent possible.

ASSESSMENT DETAIL

For the subject planning proposal, the detailed assessment against each relevant element and each corresponding relevant acceptable solution is presented in Section 4.2. The assessment result is summarised in Section 4.1.

4.3.1.2 OBA Criterion B

The BMP is to identify any non-compliance with the relevant acceptable solutions and why compliance cannot be achieved.

ASSESSMENT DETAIL

For the subject planning proposal, the detailed assessment that identifies the non-compliance against any relevant acceptable solution is presented in Section 5.4.

Identification of those relevant acceptable solutions for which compliance is not achieved is presented in the following table, along with a summary of why compliance cannot be achieved.

DEVELOPMENT – RESIDENTIAL	
THE RELEVANT ACCEPTABLE SOLUTIONS THAT CANNOT BE FULLY COMPLIED WITH	
The Bushfire Protection Criteria (BPC) Elements and Acceptable Solutions	Reasons for Inability to Achieve Compliance
E3: VEHICULAR ACCESS	Proposal contains overlength driveway with no turnaround area due to site constraints.
A3.1 Private Driveways	

4.3.1.3 OBA Criterion C

Detail how the design addresses bushfire risk and where additional bushfire risk management measures have been deemed necessary and included to minimise the risk.

ASSESSMENT DETAIL

The proposal is located at the edge of an established subdivision and borders Roe Highway. The main bushfire threat to the buildings comes from a Bush Forever site to the north. In the event of a bushfire, all residents would travel south on the proposed driveway away from the bushfire threat.

Firefighting crews are unlikely to use this access driveway as it does not give direct access to the bushfire prone vegetation. Roe Highway provides direct access to the bushfire prone vegetation and would be used for asset protection.

4.3.1.4 OBA Criterion D

Detail if there are any community net-benefits. Note these are benefits resulting from:

- The additional management of bushfire risk (i.e. those risks to persons, property and infrastructure that are associated with a bushfire event), due to the implementation of bushfire protection measures associated with the subject planning proposal that otherwise would be unlikely to exist; and/or
- Environmental benefits.

ASSESSMENT DETAIL

No community net-benefits are identified.

4.3.1.5 OBA Criterion E

Include any fire engineering solutions or written evidence such as publications and State Administrative Tribunal decisions to support the proposal (where available).

ASSESSMENT DETAIL

Not applicable to the subject development application.

4.3.1.6 OBA Criterion F

Outline how the SPP 3.7 policy outcomes have been achieved. (	
The SPP 3.7 Policy Outcome Not Satisfied by the Deemed to Comply Pathway (Acceptable Solutions)	Assessment Detail - How the Policy Outcome is Achieved (as the expert opinion of the bushfire planning practitioner)
SPP 3.7, 6.1: Avoid broader landscapes that present an unacceptable bushfire risk to people, property and infrastructure.	Most proposed lots and residential dwellings are outside of the bushfire prone area. The primary threat to the buildings will be embers.
SPP 3.7, 6.2: Ensure siting and design solutions: • Manage or mitigate the bushfire risk to people, property and infrastructure; and • Avoid, or where unavoidable, minimises the clearing of native vegetation.	All proposed buildings are within BAL-29 or lower.
SPP 3.7, 6.3: Ensure the design and capacity of vehicular access and egress provide: • For efficient and effective evacuation to a suitable destination(s); and/or • As a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort option.	The design of the grouped dwellings is similar to existing surrounding suburbs and evacuation is straightforward.

SPP 3.7, 6.4: Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire.	The subject site is reticulated, and hydrants have been established along Ferguson Road.
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4.3.1.7 OBA Criterion G

Outline why approval is warranted by the decision-maker in this instance.

ASSESSMENT DETAIL

The subject site is a minor subdivision within an existing built out suburb. The shared driveway is 95m in its entirety and only 2 of the proposed lots are in the bushfire prone area. This driveway is only going to be used as egress in the event of a bushfire. The shared driveway meets the intent of Element 3 in the Guidelines.

5 PROTECTION MEASURE IMPLEMENTATION CHECKLISTS (RESPONSIBILITIES)

EXPLANATORY INFORMATION

This section of the BMP sets out the responsibilities of the relevant entity or person for:

- The initial implementation of the required bushfire protection measures and their timing; and
- The ongoing maintenance of the required bushfire protection measures to ensure their continued effectiveness.

Note: Protection measures recommended by the bushfire consultant in the section titled "Recommended Additional Bushfire Protection Measures" are not included in the Responsibility Checklists. Primarily this is because these have been identified as additional risk management advice to the proponent and it is up to them to choose to apply. Should these measures become part of planning approval conditions, the BMP will require updating.

5.1 Protection Measure Implementation Checklist

TABLE 6.1									
PROPONENT/LANDOWNER RESPONSIBILITIES PRIOR TO SALE/OCCUPANCY/OPERATION									
No.	IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established by the Acceptable Solutions of the Bushfire Protection Criteria (Guidelines)								
1	Install an Asset Protection Zone (APZ) surrounding habitable buildings in accordance with the City of Swan Fire Hazard Reduction Notice.								
2	THE MINIMUM (SITE SPECIFIC) VEGETATION SEPARATION DISTANCES ESTABLISHING APZ DIMENSIONS ¹								
	Relevant Building / Structure		Vegetation Classification ²		Minimum Distances (metres) Corresponding to Potential Bushfire Impact				
			Area / Class		2 kW/m ²	10 kW/m ²	BAL12.5	BAL-19	BAL-29
	All proposed Buildings		1	(A) Forest	-	-	42	31	21
			2	(B) Woodland	-	-	29	20	14
			3	(G) Grassland	-	-	17	12	8
			4	Excluded cl 2.2.3.2(e & f)	-	-			
	Note 1: Will include the application of the radiant heat barrier when applicable to the planning proposal. Note 2: Refer to the Vegetation and Topography Map in Section 3.2.4								
	All land within the subject lot surrounding the proposed buildings/structures will be the required APZ.								
	3	Ensure the construction of the private driveways / internal vehicular access complies with the technical requirements stated and/or referenced in Section 5.3 of the BMP at Element 3: Vehicular access, A3.1 Private driveways or A3.6 Internal vehicular access and private driveways or A3.7 Internal vehicular access and private driveways.							
4	A purchaser, occupier and/or operator of the site must be made aware of the existence of this approved BMP, be provided with access to a copy and be informed of their ongoing responsibilities it contains.								
IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Required Protection Measures Established by SPP 3.7 and/or Section 5.5 of this BMP and/or a BUSHFIRE Emergency Plan (BEP) that are Additional to the Measures Established by the Acceptable Solutions of the Bushfire Protection Criteria (Guidelines)									
5	This BMP has not established any 'Required Additional Bushfire Protection Measures', that are additional to and/or a variation to those established by the applicable acceptable solutions of the bushfire protection criteria and that must be implemented.								
IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES Measures Established by the Building Code of Australia (Vol. 1 and 2 of the National Construction Code)									

6	Inform builders engaged to construct dwellings/additions and/or other relevant structures on a lot, of the existence of this approved Bushfire Management Plan (BMP). The existence of the BMP identifies that the development site is within a designated bushfire prone area. It indicates that bushfire construction standards (corresponding to an assessed bushfire attack level (BAL) for the building), may need to be applied to satisfy the bushfire performance requirements of the BCA. The BMP typically will only provide indicative BAL ratings. A separate assessment will likely be required to determine the applicable BAL rating (and produce a BAL Certificate), once site plans and conditions are established as the post development state. This BMP may also establish, as a 'Required Additional Bushfire Protection Measure', that bushfire construction requirements to be applied must be those corresponding to a specified higher BAL rating. Compliance with the current Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks) and Class 9 vulnerable use buildings. Other classes of buildings may also be required to comply with these construction when established by the relevant authority or if identified as a 'Required Additional Bushfire Protection Measure' bushfire protection measure within the BMP. The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and for Class 1 and associated Class 10a buildings only, the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended). <i>Note: This is not a requirement under the land use planning requirements established by SPP 3.7 Bushfire or the associated Guidelines. However, for informative purposes, the existence of this responsibility is noted in this and must be given due regard.</i>
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5.2 Protection Measure Maintenance Checklist

TABLE 6.2 LANDOWNER/OCCUPIER – MAINTENANCE OF BUSHFIRE PROTECTION MEASURES	
No.	MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established by the Acceptable Solutions of the Bushfire Protection Criteria (Guidelines)
1	Annually review and enact the following maintenance responsibilities established in this approved BMP for the development site prior to the bushfire season.
2	Maintain the Asset Protection Zone (APZ) surrounding all habitable buildings by maintain all lots to the standard in the City of Swan Fire Hazard reduction notice.
3	Maintain the private driveways / internal vehicular access to comply with the technical requirements stated and/or referenced in Section 5.3 of the BMP at Element 3: Vehicular access, A3.1 Private driveways or A3.6 Internal vehicular access and private driveways or A3.7 Internal vehicular access and private driveways.
4	When the property changes ownership or occupancy, to assist with the ongoing maintenance of the implemented bushfire protection measures, ensure that the relevant person(s) is aware of the BMP, and the responsibilities it contains. Provide access to a copy of the BMP).
MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established by the Relevant Local Government. These Are Not a Land Use Planning Requirement Established by SPP 3.7 Bushfire or the Associated Guidelines. <i>(The existence of this responsibility is noted in this checklist for informative purposes, and must be given due regard)</i>	
5	In accordance with the notice issued under Section 33 of the Bush Fires Act 1954 (City of Swan Fire Hazard Reduction Notice), maintain the required asset protection zone surrounding relevant buildings to the stated dimensions and technical requirements. These dimensions are: These dimensions may be greater than the required <u>minimum</u> dimensions corresponding to a BAL-29 rating for proposed building works (established by SPP 3.7 Bushfire and the Associated Guidelines).
MAINTENANCE OF BUSHFIRE PROTECTION MEASURES Measures Established by the Building Code of Australia (Vol. 1 and 2 of the National Construction Code)	
6	Prior to any future building work, inform the builder of the existence of this approved Bushfire Management Plan (BMP). The BMP identifies that the development site is within a designated bushfire prone area and states the indicative (or determined) BAL rating(s) that may (or will) be applied to buildings/structures. A BAL assessment report may be required to confirm determined ratings and will be required when stated ratings are only indicative. BAL certificates will need to be produced to accompany building applications. The BMP may also establish, as a 'Required Additional Bushfire Protection Measure', that bushfire construction requirements to be applied must be those corresponding to a specified higher BAL rating.

Compliance with the current Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks) and Class 9 vulnerable use buildings. Other classes of buildings may also be required to comply with these construction when established by the relevant authority or if identified as a 'Required Additional Bushfire Protection Measure' bushfire protection measure within the BMP.

The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and for Class 1 and associated Class 10a buildings only, the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).

Note: This is not a requirement under the land use planning requirements established by SPP 3.7 Bushfire or the associated Guidelines. However, for informative purposes, the existence of this responsibility is noted in this checklist and must be given due regard.

APPENDIX A: DETAILED BAL ASSESSMENT DATA AND SUPPORTING INFORMATION

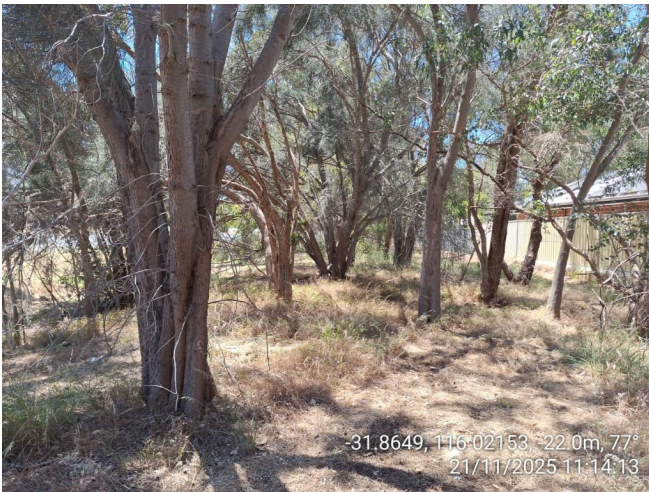
A1: BAL Assessment Inputs Common to the Method 1 and Method 2 Procedures

A1.1: FIRE DANGER INDEX (FDI)

FIRE DANGER INDEX APPLIED						
When using Method 1 the relevant FDI value required to be applied for each state and region is established by AS 3959:2018, Table 2.1. Each FDI value applied in Tables 2.4 – 2.7 represents both the Forest Fire Danger Index (FFDI) and a deemed equivalent for the Grassland Fire Danger Index (GFDI), as per Table B2 in Appendix B. When using Method 2, the relevant FFDI and GFDI are applied. The values may be able to be refined within a jurisdiction, where sufficient climatological data is available and in consultation with the relevant authority.						
Relevant Jurisdiction:	WA	Region:	Whole State	Method 1	Applied FDI:	80
				Method 2	Applied FFDI:	N/A
					Applied GFDI:	N/A

A1.2: VEGETATION ASSESSMENT AND CLASSIFICATION

CLASSIFIED VEGETATION – APPLICATION OF METHODOLOGY	
VEGETATION TYPES AND CLASSIFICATION In accordance with AS 3959:2018 Clauses 2.2.3 and C2.2.3.1, all vegetation types within 100 metres of the 'site' (defined as "the part of the allotment of land on which a building stands or is to be erected"), are identified and classified. Any vegetation more than 100 metres from the site that has influenced the classification of vegetation within 100 metres of the site, is identified and noted. The maximum excess distance is established by AS 3959: 2018 Clause 2.2.3.2 and is an additional 100 metres. Classification is also guided by the Visual Guide for Bushfire Risk Assessment in WA (WA Department of Planning February 2016) and any relevant FPA Australia practice notes. MODIFIED VEGETATION The vegetation types have been assessed as they will be in their natural mature states, rather than what might be observed on the day. Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its expected re-generated mature state. Modified areas of vegetation can be excluded from classification if they consist of low threat vegetation (refer to Appendix B) and that any required active management can be expected to continue in perpetuity, and this can be adequately justified. THE INFLUENCE OF GROUND SLOPE UNDER THE VEGETATION Where significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 Clauses 2.2.5 and C2.2.5.	
THE INFLUENCE OF VEGETATION GREATER THAN 100 METRES FROM THE SUBJECT SITE	
Vegetation area(s) within 100m of the site whose classification has been influenced by the existence of bushfire prone vegetation from 100m – 200m from the site:	None
Assessment Statement:	No vegetation types exist close enough, or to a sufficient extent, within the relevant area to influence classification of vegetation within 100 metres of the subject site.

VEGETATION AREA 1						
Classification	A. FOREST					
Types Identified	Open forest A-03					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)		Upslope or flat 0 degrees	
Foliage Cover (all layers)	30-70%	Shrub/Heath Height	1-2m	Tree Height	6-10m	
Dominant & Sub-Dominant Layers	Mixed eucalyptus species and sheoak as part of a Bush Forever reserve and a remnant nature strip along Roe Highway,					
Understorey	Juvenile eucalyptus trees and long weedy grasses.					
Justification Comments:	Not Required.					
Post Development Assumptions:	None required.					
 -31.86473, 116.02107, -22.0m, 20° 21/11/2025 11:13:21  -31.86496, 116.02173, -23.0m, 76° 21/11/2025 11:15:05						
PHOTO ID: 1			PHOTO ID: 2			
 -31.86496, 116.02098, -18.0m, 343° 21/11/2025 11:12:48  -31.8649, 116.02153, -22.0m, 77° 21/11/2025 11:14:13						
PHOTO ID: 3			PHOTO ID: 4			

VEGETATION AREA 2						
Classification	B. WOODLAND					
Types Identified	Woodland B-05					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees		Applied Range (Method 1)	Upslope or flat 0 degrees	
Foliage Cover (all layers)	10-30%	Shrub/Heath Height	N/A		Tree Height	6-10m
Dominant & Sub-Dominant Layers	Mixed native and endemic eucalyptus species.					
Understorey	Long pastoral grasses up to 30cm in height.					
Justification Comments:	Not Required.					
Post Development Assumptions:	None required.					
 31.86569, 116.0211, -21.0m, 94° 21/11/2025 11:10:50  31.86554, 116.02121, -25.0m, 44° 21/11/2025 11:11:21						
PHOTO ID: 5			PHOTO ID: 6			

VEGETATION AREA 3				
Classification	G. GRASSLAND			
Types Identified	Open tussock G-23			
Exclusion Clause	N/A			
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees
Dominant & Sub-Dominant Layers	Long pastoral grasses as part of a semi managed block.			
Justification Comments:	Not Required.			
Post Development Assumptions:	None required.			
 				
PHOTO ID: 7			PHOTO ID: 8	

VEGETATION AREA 4	
Classification	N/A
Exclusion Clause	2.2.3.2 (e) Non-vegetated areas and (f) Low threat vegetation - minimal fuel condition.
Justification Comments:	Area includes managed lawns and verges and exotic vegetation.
Post Development Assumptions:	Subject lot has been managed in its entirety within some exotic trees being retained (Photo 9).
	
	
PHOTO ID: 9	PHOTO ID: 10
	
	
PHOTO ID: 11	PHOTO ID: 12



PHOTO ID: 13



PHOTO ID: 14

A1.3: EFFECTIVE SLOPE

EFFECTIVE SLOPE

DEFINITION

Effective slope is "the slope under that classified vegetation which most influences the bushfire attack" (AS 3959:2018, Clause 1.5.11).

"The effective slope under the classified vegetation is not the same as the average slope for the land surrounding the site of the proposed building. The effective slope is that slope which most significantly influences bushfire behaviour" (AS 3959:2018, Clause CB4).

The slope is described as upslope, flat or downslope when viewed from an exposed element (e.g., building) and looking towards the vegetation. It is measured in degrees.

COMPOUND SLOPES UNDER VEGETATION AND DETERMINING SLOPE SIGNIFICANCE - EXPLAINING THE ASSESSMENT METHODOLOGY APPLIED BY BUSHFIRE PRONE PLANNING

[Note: Additional relevant guidance provided by AS 3959:2018 and NSW RFS, Planning for Bushfire Protection (2019) is incorporated into the applied assessment methodology and is presented at the end of this explanation.]

Non-Linear Slopes: When the slope of ground under the vegetation out to the distance to be assessed (100 m or further if necessary), is not a straight line or nearly straight line slope, then it is made up of several different slopes i.e., it is a compound slope. The different slope angles and lengths must be factored into the determination of the effective slope value to be applied. Different slopes will potentially influence the bushfire rate of spread and intensity, both increasing and decreasing it.

Significant Slope: The AS 3959:2018 bushfire attack level determination methodology, with default inputs, models a fully developed bushfire. Therefore, a 'significant' slope is one that will significantly influence bushfire behaviour. To be 'significant' the length of the slope must be 'sufficient' to support a fully developed fire on that slope. The angle of a significant slope could be the determined effective slope for the area of classified vegetation if it is the one that 'most influences the bushfire attack'.

Sufficient Slope Length: Is a slope that will, as a minimum, allow the entire flame depth (flaming zone) of a fully developed fire (100m flame width) to exist on that slope.

The expected flame depth of a fully developed bushfire is a function of the length of time the flaming phase will exist on a section of the fuel bed (the 'residence time') and the bushfire's 'rate of spread'. For a given rate of spread, longer residence times result in greater flame depths. Greater flame depths are correlated with greater flame temperatures and greater flows of radiant heat.

The primary factors that will increase the residence time are:

- Heavier fine fuel loads of grass, leaf litter, twigs, bark etc less than 6mm in width and existing within the surface and near surface layers (and elevated fuel layers when contiguous with the base layers); and
- A greater percentage of larger fine fuels within the fuel load.

The primary factors that increase the rate of spread (apart from fire weather factors), include finer fuels, drier fuels, horizontal continuity of fuel and steeper upward ground slope in the direction of fire travel.

Example values:

- Residence Time: Grassfire 5 – 15 seconds, Forest fire 25 -50 seconds.
- Rate of Spread: Grassfires of a few km/hr are considered fast moving, 5-10 km/hr is common and fastest in the order of 25km/hr. Forest fire typically recorded in metres/hour with 1-1.5 km/hr being considered fast moving and fastest in the order of 3-4 km/hr.
- Flame Depth: More typically, a few metres for grasses to tens of metres for forest fires.

An Isolated Slope: For scenarios where there is a single significant slope (based on the above criteria) additional consideration would need to be given to the time and distance consumed by a bushfire still in its 'developing'

phase. This will require due consideration be given to how it is potentially ignited i.e., from a single or multiple points, as this will influence the time and distance required to fully develop. For such scenarios, a normally significant slope may not be sufficiently long. It may be necessary to determine the potential bushfire impact more accurately by justifying the application of a lesser effective slope, or a lower threat vegetation classification, or calculating a reduced head fire width (using short fire run modelling).

Determined Effective Slope: Only a 'significant' slope can potentially be the effective slope by itself. In which case, for a defined area of classified vegetation area, the worst significant slope under that vegetation is to apply.

The table below presents Bushfire Prone Planning's considerations applied to assessing short and/or compound slopes in determining the effective slope.

Slope Length (m)	Considered a Significant Slope	Considerations in Determining the Effective Slope
< 5	No	Where these short slopes exist as part of a compound slope under an area of classified vegetation, they can be ignored as they will not influence the fire behaviour in that vegetation.
5-20	Will Vary	These slopes will have a range of influence on fire behaviour from very little to a degree of influence that must be accounted for to some extent by the effective slope value that is applied (i.e., with a greater length - apply to a greater extent). But the actual slope of these shorter slopes is less likely to be applied as it is not a 'significant' length.
20-30	Possibly - Likely	The same considerations applied to the 5-20m slope lengths should be applied here. However, more justification would need to be presented to support an assessment of not 'significant'. For these slope lengths, consideration must be given more broadly to the potential level of risks associated with a bushfire event in this location. The risk level will be a function of the bushfire hazard threat levels (direct attack mechanisms) within the immediate and broader assessment area as influenced by local topography, vegetation extents and types and the exposure and vulnerability of persons and/or buildings/structures to these threats. Higher consequent risk levels require greater precaution meaning these length slopes should be considered 'significant', and vice versa. Consider the potential for a bushfire on adjoining or nearby land be a source of ignition and/or pre-heating to vegetation on the subject slope. Consider if vegetation on the slope is likely be ignited by a single ignition point or is multipoint ignition possible from bushfire an adjoining slopes or the surrounding area. Single point ignition will require a fire to travel further before being fully developed (DFES considers less than 100m fire runs may be considered a short fire run for forest, woodland and scrub vegetation classifications, RFS NSW applies 150m). Isolated slopes of this length are less likely to be considered significant as compared to when part of a compound slope.
>30	Yes	Likely to always be a significant slope unless isolated (i.e., exists alone) – in which case, justifying the application of a lesser effective slope, or a lower threat vegetation classification, or calculating a reduced head fire width, are approaches that may justifiably be applied.

BPP Approach - Slope Variation Within Areas of Vegetation

When multiple 'significant' slope lengths with large differences in degrees of effective slope (or different applicable slope ranges when AS 3959:2018 Method 1 is applied), exists under a single vegetation classification, these will be delineated as separate vegetation areas of classified vegetation to account for the difference in potential bushfire behaviour and impact, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

Effective Slope Variation Due to Multiple Development Sites

When the effective slope, under a single area of bushfire prone vegetation, will vary significantly relative to multiple proposed development sites (exposed elements), then the effective slopes corresponding to each of the different locations, are separately identified. The relevant (worst case) effective slope is determined in the direction corresponding to the potential directions of fire spread towards the subject building(s).

AS 3959:2018 EFFECTIVE SLOPE DETERMINATION - GUIDANCE

The Standard presents a broad set of guidance statements that indicate the intent of deriving an effective slope value for use in calculations, rather than detailing the 'in the field' determination process. These include:

- Highlighting the importance of the value by stating "The slope of the land under the classified vegetation has a direct influence on the rate of fire spread the severity of the fire and the ultimate level of radiant heat flux" (Clause C2.2.5). [Note: A common rule of thumb is that for every 10 degrees of upslope, a fire will double its rate of spread if moving in the direction of the prevailing wind].
- "It may be necessary to consider the slope under the classified vegetation for distances greater than 100 m in order to determine the effective slope for that vegetation classification) ... (i.e. the vegetation within 100 m) (Clause C2.2.5).
- "Where there is more than one slope within the classified vegetation, each slope shall be individually assessed, and the worst case Bushfire Attack Level shall apply" (Clause 2.2.5).

NSW RFS 2019, PLANNING FOR BUSHFIRE PROTECTION - APPENDIX A1.5 - ADDITIONAL DETERMINATION GUIDANCE

- "In identifying the effective slope - it may be found that there are a variety of slopes covering different distances within the vegetation. The effective slope is considered to be the slope under the vegetation which will most significantly influence the bushfire behaviour for each aspect. This is usually the steepest slope. In situations where this is not the case, the proposed approach must be justified".
- "Vegetation located closest to an asset may not necessarily be located on the effective slope".

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

The effective slopes have been determined from the site assessment. The assessed values are stated in the data table presented in Section 3.2 of this bushfire management plan.

When additional information is required to justify the applied values, this is provided on the following pages and includes any necessary diagrams and images.

For the subject planning proposal, it is determined there is no requirement for additional information.

A1.4: SEPARATION DISTANCE

SEPARATION DISTANCE

DEFINITION AND MEASURING

The separation distance is the distance in the horizontal plane between the receiver (building/structure or area of land being considered) and the edge of the classified vegetation (AS 3959:2018, clause 2.2.4)

The relevant parts of a building/structure from which the measurement is taken is the nearest part of an external wall or where a wall does not exist, the supporting posts or columns. Certain parts of buildings are excluded including eaves and roof overhangs.

The edge of the vegetation, for forests and woodlands, will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk (AS 3959:2018, clause C2.2.5).

MEASURED SEPARATION DISTANCE AS A CALCULATION INPUT

If a separation distance can be measured because the location of the building/structure relative to the edge of the relevant classified vegetation is known, this figure can be entered into the BAL calculation. The result is a determined BAL rating.

ASSUMED SEPARATION DISTANCE AS A CALCULATION INPUT

When the building/structure location within the lot is not known, an assumed building location will be applied based on a factor that puts a restriction on a building location such as:

- An established setback from the boundary of a lot, such as a residential design code setback or some other mechanism that establishes an appropriate location limitation; or
- Within an established building envelope.

The resultant BAL rating would be indicative and require later confirmation (via a Compliance Report) of the building/structure actual location relative to the vegetation to establish the determined BAL rating.

SEPARATION DISTANCE AS A CALCULATION OUTPUT

With the necessary site specific assessment inputs and using the AS 3959:2018 bushfire modelling equations, the range of separation distances that will correspond to each BAL rating can be calculated. This has application for bushfire planning scenarios such as:

- When the separation distance cannot be measured because the exact location of the exposed element (i.e., the building/structure, area or persons), relative to classified vegetation, is yet to be determined.

In this scenario, the required information is the identification of locations on-site that will correspond to each BAL rating (or a specific level radiant heat). Indicative BAL ratings can be derived for a variety of potential locations; or

- The separation distance is known for a given building, structure or area (and a determined BAL rating can be derived), but additional information is required regarding the level of exposure to radiant heat from a bushfire to buildings or persons, that will exist at different locations within a subject site.

The calculated range of separation distances corresponding to each BAL rating can be presented in a table and/or illustrated as a BAL Contour Map – whichever is determined to best fit the purpose of the assessment.

For additional information refer Appendix B.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

For the subject development/use the applicable separation distances values are derived from calculations applying the assessed site data. They are an output value, not an input value when the BAL contour map format is applied. Consequently, they cannot be additionally justified.

The derived separation distance ranges corresponding to the BAL for the specific development site are presented in the table in Section 3.2 of this bushfire management plan and illustrated as a BAL contour map in Figure 3.2.

APPENDIX B: GUIDANCE – BUSHFIRE ATTACK LEVELS AND ASSET PROTECTION ZONES

B1: Understanding Bushfire Attack Level (BAL) Ratings

BUSHFIRE ATTACK LEVEL

IMPORTANT

It is not the purpose of this 'planning' BMP to derive a 'determined' BAL rating (and associated minimum APZ dimensions), that will apply to an existing or future habitable or specified building, for the purpose of establishing its bushfire resistant construction requirements in accordance with the Building Code of Australia (contained in the NCC).

However, in limited situations a 'determined' BAL can be an incidental outcome of the planning assessment.

BUSHFIRE ATTACK LEVEL (BAL)

The potential transfer (flux/flow) of radiant heat from a bushfire to a receiving object is measured in kW/m². The AS 3959:2018 Bushfire Attack Level (BAL) determination methodology establishes the ranges of radiant heat flux that correspond to each bushfire attack level.

The defined ranges of radiant heat transfer are titled BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

For certain classes of building/structure the bushfire performance requirements and the associated deemed to satisfy solutions are established by the Building Code of Australia (Vol. 1 & 2 of the NCC). For most jurisdictions the relevant building classes are 1, 2, 3, 9 and associated 10a.

The assessed BAL rating that applies to a specific building/structure determines the bushfire resistant construction requirements for those works in accordance with AS 3959:2018 - *Construction of buildings in bushfire prone areas*, or for Class 1 buildings, the NASH Standard – *Steel framed construction in bushfire areas (NS 300 2021)*, as the recognised deemed to satisfy solutions.

DETERMINED BAL RATINGS

A BAL can only be classed as 'determined' and therefore apply to an existing or future building/structure when:

1. The building/structure final design and position on the lot are known and the stated separation distance from classified bushfire prone vegetation exists and can justifiably be expected to remain in perpetuity; or
2. The building/structure will always remain subject to the same BAL regardless of:
 - (a) The retention of all existing classified vegetation either on-site or off-site; and
 - (b) Its design or position on the lot - including, as relevant and necessary, accounting for any regulatory or enforceable building setbacks from lot boundaries (e.g. R-codes and defined building envelopes).

Consequently, a BAL Certificate may be able to be issued for a BAL stated in the BMP when it can be considered 'determined'. However, this is not the typical outcome but an incidental one.

If the BMP can derive determined BAL(s), the BAL Certificate(s) required for submission with building applications could potentially be provided, using the BMP as the supporting assessment data.

INDICATIVE AND CONDITIONAL BAL RATINGS

An 'Indicative BAL' indicates the highest BAL rating that exists for the applied set of parameters that have been applied to the site's assessment. Because the potential remains for these parameters to be varied, they are unable to be considered a 'determined' BAL.

A 'Conditional BAL' establishes the BAL rating that will be considered as a 'Determined BAL' once the stated requirements (i.e. the conditions), which may require approval by the relevant authority, are implemented and subsequently confirmed as being met.

Relevant conditions that may need to be met include:

- The location of future development sites being identified accurately and/or modified; and/or
- Classified vegetation being modified or removed (after obtaining any required approvals from the relevant authority), to establish the required vegetation separation distances.

A BAL Certificate cannot be issued for an indicative or conditional BAL rating – only for a 'Determined BAL'.

BAL RATINGS FOR BUILDING VERSUS PLANNING PURPOSES – ASSESSMENT & REPORTING REQUIREMENTS ARE DIFFERENT

Building Permit Applications

The relevant requirements are established in accordance with the WA Building Act 2011 and Building Regulations 2012 which reference the application of the Building Code of Australia (within the National Construction Code).

The required BAL rating is a 'determined' BAL rating (stated on a BAL Certificate) and supported by the requisite assessment details. Typically, this will be a Bushfire Attack Level (BAL) Report produced specifically for this purpose.

The required supporting assessment information may be derived from a Bushfire Management Plan (BMP) when a 'determined' BAL can be derived for a planning proposal. This is possible when the specific conditions discussed under 'Determined BAL Ratings' above, can be met, as an incidental outcome.

Planning Proposal Applications

The relevant requirements are established in accordance with the Planning and Development Act 2005, LPS Regulations 2015, SPP 3.7 Bushfire and the associated Guidelines.

To comply with the relevant acceptable solutions contained in the Guidelines, the subject planning proposal must demonstrate that the required minimum sized asset protection zone (APZ) - subject to location constraints and allowances established by the Guidelines - can be installed surrounding a habitable or specified building.

The minimum dimensions are those that ensure the potential radiant heat impact on the relevant buildings does not exceed 29 kW/m² from fire in any surrounding types of classified vegetation. This is the upper limit of the range of radiant heat flux corresponding to the BAL-29 rating.

Consequently, the BAL ratings identified in a Bushfire Management Plan (BMP) only need to be 'indicative' - although 'determined' ratings may be derived as an incidental outcome when relevant conditions are met (discussed under 'Determined BAL Ratings' above).

The indicative BAL-29 dimensioned APZ is not necessarily the APZ that will be required to be implemented and maintained surrounding any subject building/structure that exists as per an approved planning proposal. Refer to Appendix B3 in this BMP for additional information.

B2: BAL Contour Map Interpretation

THE BAL CONTOUR MAP

The Bushfire Attack Level (BAL) contour map is a diagrammatic representation of the outcome of the bushfire attack level assessment that has been conducted.

The map presents six shaded radiant heat contours extending out from each area of classified vegetation. Each coloured contour represents a different BAL rating (BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ) and corresponds to a set range of potential radiant heat transfer (kW/m²), in accordance with AS 3959:2018 BAL determination methodology.

The highest BAL rating contour that an exposed element (building, person or other defined element), is partly or fully located within, is the BAL rating that will apply to that element.

The width of each BAL contour:

- Will vary dependent on the BAL rating it represents; and
- The assessed potential bushfire behaviour that considers site specific vegetation types, fuel loads, ground slopes and fire weather; and
- Represents the minimum and maximum vegetation separation distances corresponding to the BAL rating it represents.

For 'post development' BAL contour maps, the areas of classified vegetation applied to the production of the BAL contours, are those that will remain at the intended end state of the subject development once earthworks, clearing and/or landscaping and/or re-vegetation have been completed.

IMPORTANT

A BAL contour map is typically constructed for planning assessment and application purposes rather than building permit application purposes.

The BAL ratings identified from a BAL contour map will likely only be 'indicative' of what can be achieved – with planning compliance for this factor being satisfied when BAL-29 is indicated.

However, future building works require a 'determined' BAL rating for building permit applications and a BAL Certificate. The required 'determined' BAL rating is not necessarily able to be derived from the BAL contour map. There are only limited scenarios where this is possible. Refer to Appendix B1 and B3 for additional information.

Consequently, a subsequent assessment of the site data and associated report for building application purposes may be required to determine the BAL rating that is to apply for building purposes. Note: If approval from the relevant authority needs to be obtained for native vegetation modification and/or removal this also establishes that a subsequent assessment and report will be required.

B3: The Asset Protection Zone (APZ)

THE APZ – DESCRIPTION, TECHNICAL REQUIREMENTS AND DIMENSIONS

DESCRIPTION AND PURPOSE

An asset protection zone (APZ) is an area surrounding a habitable or specified building that is:

- Not vegetated; and/or
- Supports retained or planted vegetation that can be considered to present a low bushfire threat as a result of;
 - Low flammability and/or higher moisture content characteristics; and/or
 - Minimal fuel loads (either naturally or as a result of continual maintenance).

The primary objectives of establishing an APZ are:

1. To ensure a reduction in the exposure of the building/structure to the bushfire direct attack mechanisms (threats) of flame contact, radiant heat transfer and ember attack, by establishing appropriate separation distances from each identified area of classified vegetation.

These distances are measured from the nearest part of an external wall and/or the supporting posts of building parts without external walls; and

2. To ensure a reduction in the exposure of the building/structure to bushfire indirect attack mechanisms (threats) by:

- Preventing surface fire spreading to the building/structure;
- Minimising the potential for tree strike that can decrease building/structure resilience to bushfire direct attack mechanisms; and
- Limiting the potential for consequential fires to impact the building/structure by eliminating, reducing, moving away and/or shielding consequential fire fuels.

These fuels include accumulated debris, stored combustible/flammable items and constructed combustible items. Note that consequential fire, typically ignited by embers, is the primary cause of building loss in a bushfire event; and

3. To provide a defensible space for firefighting activities.

TECHNICAL REQUIREMENTS

Established by the Guidelines

The relevant technical requirements for an APZ are established in the Planning for Bushfire Guidelines (DPLH/WAPC) (as amended), Appendix B2: Siting and design and available online at [Planning WA - SPP 3.7 Bushfire](#)

Established by the Relevant Local Government

Certain LGA may state technical requirements to be complied with that vary from and/or are additional to those established by the Guidelines.

Refer to the notice issued annually by the relevant local government under s33 of the Bushfires Act 1954 (e.g. Bushfire Risk Reduction Notice or Firebreak and Hazard Reduction Notice etc). These technical requirements may also be established by their gazetted local planning scheme. Refer to the ratepayer notice and/or the local government's website for the current version.

Information Published by the Bushfire Centre of Excellence (DFES)

The book titled Firewise Gardening in Western Australia (2024), is a good source of relevant information and is available online at <https://dfes.wa.gov.au/hazard-information/bushfire/bcoe#bushfire-resources>.

DIMENSIONS

The dimensions of the APZ that will be the responsibility of a landowner to implement and/or maintain around a habitable or specified building/structure, are stated as the separation distances between these buildings and each identified area of classified vegetation. These distances will be site specific and dependant on variables which include:

- The potential bushfire behaviour in the identified vegetation which is dependent on factors including vegetation types, fuel loads, ground slopes and fire weather;
- The intended use of the site, with vulnerable uses requiring greater safety margins; and
- The constructed bushfire resistance of the subject building/structure (typically corresponding to a BAL rating or kW/m² level of radiant heat exposure).

For development applications, refer to the Bushfire Protection measure Implementation Checklist in Section 6 for the relevant dimensions for the subject site.

Dimensions Established by the BAL Rating of the Subject Building/Structure

These minimum separation distances, to be installed and maintained, correspond to a 'determined' BAL rating and align the building's applied level of bushfire resistant construction to its potential level of exposure to flames, radiant heat and embers from the bushfire (note: this will not account for any exposure from significant consequential fires closer to the building).

The dimensions should be stated within a Bushfire Attack Level Report (BAL Report) produced for building application purposes. They may also be identified in an associated Bushfire Management Plan (BMP) produced for planning application purposes.

Dimensions Established by the Guidelines, DPLH/WAPC for an On-site Shelter for a Vulnerable Tourism Land Use

For the stated specific use, the Guidelines specify the maximum level of radiant heat exposure allowed. Consequently, the BMP produced for planning application purposes will state the minimum distances that are to be installed and maintained.

Note: Other than for the above use, the Guidelines do not establish the dimensions of the APZ for other buildings/structures that must be installed. They only establish that at least a BAL-29 dimensioned APZ should be the minimum that is installed and ensures that this is possible for the subject planning proposal. Consequently, the BMP can only indicate the separation distances corresponding to different levels of radiant heat exposure. Refer also to Appendix B1 in this BMP.

Dimensions Established by this BMP

The required dimensions may be identified in this BMP when specific increased separation distances have been applied through the application of an outcomes-based assessment that requires this as an additional protection measure.

Dimensions Established by the BCA (NCC 2022) for Certain Class 9 Vulnerable Use Buildings

These separation distances are stated in the BCA in Specification 43 as either:

- Not less than the minimum distances specified in Table S43C2; or
- Those corresponding to radiant heat flux on exposed building elements not exceeding 10kW/m² from a justified design bushfire analysis; or
- Those justified as an outcome of a building performance solution.

The separation distances may be included in the BMP by the bushfire practitioner as additional information to inform proponents and decision makers. They are not addressed by the Guidelines and therefore not a required part of the bushfire assessments presented within a BMP for planning application purposes.

Dimensions Established by a Local Government

To satisfy certain local government requirements, required APZ dimensions may be stated in the notice issued annually by the relevant local government under s.33 of the Bushfires Act 1954. These may be greater than the dimensions applied by the above mechanisms. A maximum APZ dimension could also be applied by the LGA.

These separation distances may be included in the BMP for informative purposes, but they are not a requirement for a BMP submitted for planning application purposes in accordance with the Guidelines.

B4: Vegetation Excluded from Classification – Ensure Continued Low Threat Status

MAINTAINING THE LOW THREAT STATUS OF EXCLUDED VEGETATION

When applying AS 3959:2018 BAL determination methodology, vegetation adjoining or adjacent to the subject site can be excluded from classification based on being a 'low bushfire threat'. To maintain this status, certain requirements must continue to be met in accordance with the below extract from AS3959:2018. Refer to the 'Classified Vegetation and Topography Map' for the relevant low threat areas associated with the subject site.

Determination of 'low threat' vegetation is based on factors such as - proximity to the subject site / small areas of vegetation / low flammability / higher moisture content / low fuel load.

Aside from a naturally occurring low fuel load, vegetation maintained in a minimal fuel condition through active management can be excluded. The associated key requisite is that the active management can be expected to continue in perpetuity, and this can be adequately justified.

Acceptable forms of justification typically involve supportable evidence or the existence of an enforceable mechanism. Examples of enforceable mechanisms include:

- Requirements established by a Section 33 (Bush Fires Act 1954) notice issued by a local government;
- An appropriate and enforceable agreement between relevant parties (which may involve additions to land titles); and
- For public open space or crown land, written evidence that the land manager e.g. local government or a State Government department, agrees to maintain the designated area of land in a low threat state in perpetuity.

2.2.3.2 Exclusions—Low threat vegetation and non-vegetated areas

The following vegetation shall be excluded from a BAL assessment:

- (a) Vegetation of any type that is more than 100 m from the site.
- (b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.
- (c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.
- (d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.
- (e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
- (f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

NOTES:

- 1 Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).
- 2 A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.

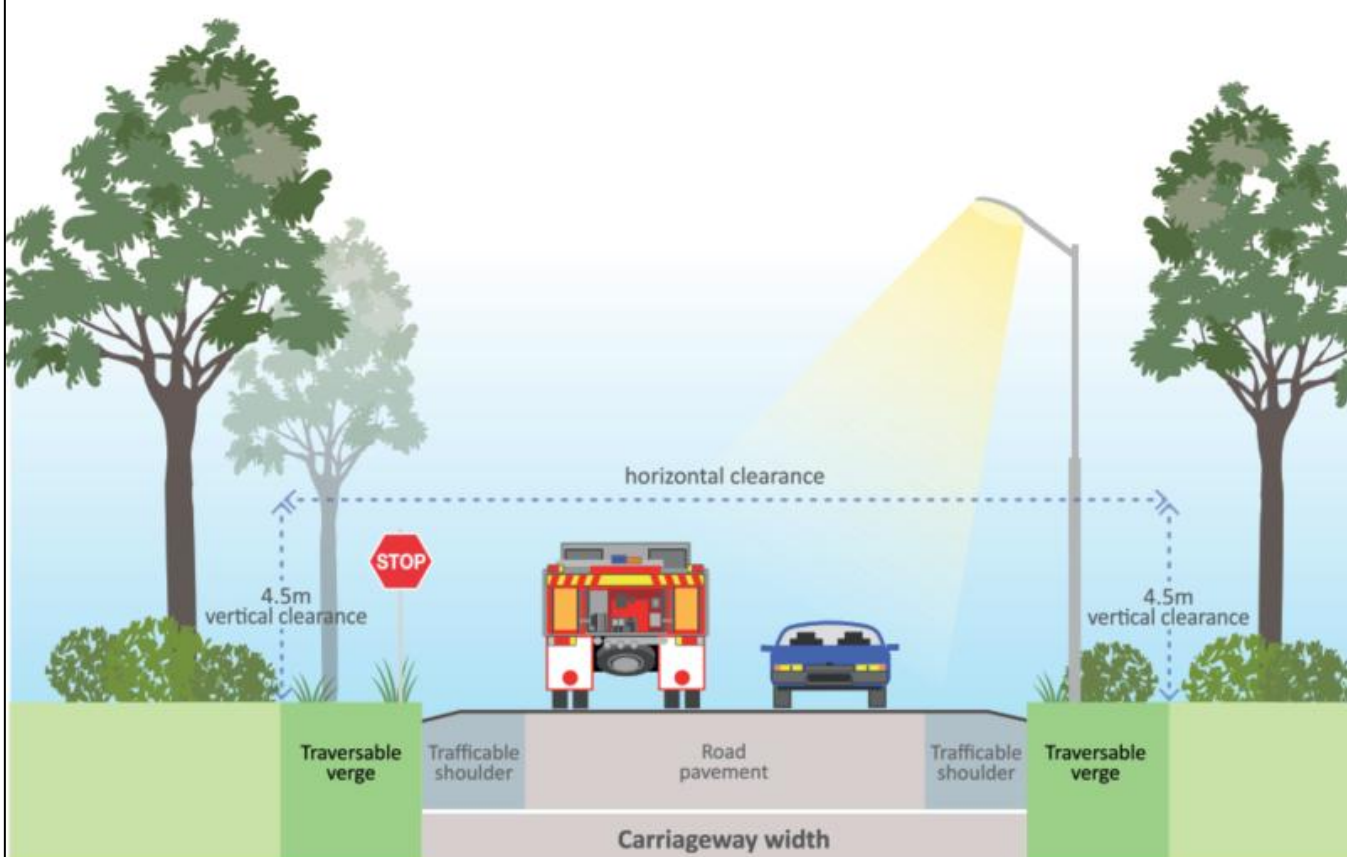
APPENDIX C: GUIDANCE - TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

The relevant technical requirements are established in the Planning for Bushfire Guidelines (DPLH/WAPC) (as amended), Appendix B3: Vehicular access and available online at [Planning WA - SPP 3.7 Bushfire](#)

The following excerpts are presented here as a quick reference to applicable terminology and design requirements applied in the assessment against the bushfire protection criteria, Element 3: Vehicular access in this BMP.

C1: Road Component Terminology

Figure 26: Area encompassing horizontal clearance and vertical clearance



Horizontal clearance: The carriageway width (including the road pavement and trafficable shoulder) and traversable verge that provides for the movement and parking of vehicles and area required by emergency services to operate. Infrastructure and vegetation within the traversable verge should be frangible, however, non-frangible items can occur providing they do not restrict vehicular movement in the event of an emergency.

C2: Vehicular Access Technical Requirements

Table 10: Vehicular access technical requirements

	1		2		3		4		5	
TECHNICAL REQUIREMENTS	PERIMETER ROADS		PUBLIC ROADS		EMERGENCY ACCESS WAY ³		FIRE SERVICE ACCESS ROUTE ³		BATTLE-AXE & PRIVATE DRIVEWAYS ¹	
MAP OF BUSH FIRE PRONE AREAS DESIGNATION	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1
Minimum horizontal clearance (metres)	12	8	See note 5		10	6	10	6	6	
Minimum vertical clearance (metres)	4.5									
Minimum weight capacity (tonnes)	15									
Maximum grade unsealed road ²	See note 5		See note 5		1:10 (10% or 6°)					
1:7 (14.3% or 8°)										
1:10 (10% or 6°)										
8.5										
Maximum grade sealed road ^{2,4}										
Maximum average grade sealed road										
Minimum inner radius of road curves (metres)										

Notes:

¹ Driveways and battle-axe legs to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision where not required to comply with the widths in this Appendix or the Guidelines.

² Dips must have no more than a 1 in 8 (12.5% - 7.1 degrees) entry and exit angle.

³ To have crossfalls between 3 per cent and 6 per cent.

⁴ For sealed roads only the maximum grade of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50 metres is permissible, except for short constrictions to 3.5 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed.

⁵ As outlined in the Institute of [Public Works Engineering Australasia \(IPWEA\) subdivision guidelines](#), [Liveable Neighbourhoods](#), [Austroads Standards Main Roads standard](#), supplement, policy or guideline and/or any applicable or relevant local government standard or policy.

Figure 30: Design requirements for a turn-around area

