

Appendix 4. BAL Certificate



Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2018

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

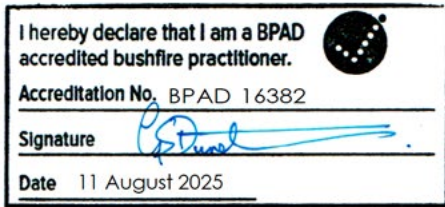
Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference		
		31	813	Francais Road		
Local government area	Suburb			State	Postcode	
	Pickering Brook			WA	6076	
Main BCA class of the building	City of Kalamunda					
Description of the building or works	Class 1a	Use(s) of the building	Domestic dwelling			
	Construction of new ancillary building					

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class 'B' Woodland	Flat - 0 degrees	19m	BAL-29

BPAD Accredited Practitioner Details

Name Greg Dunstan Company Details BPP Group Pty Ltd ABN 39 166 551 784 I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2018.	 Authorised Practitioner Stamp
--	---

Reliance on the assessment and determination of the Bushfire Attack Level contained in this certificate should not extend beyond a period of 12 months from the date of issue of the certificate. If this certificate was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated certificate issued.

Appendix 5. BAL Report



Local Government Use

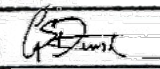
Bushfire Attack Level Assessment Report



Address / Location: Lot 813 (31) Francois
Road, Pickering Brook

City of Kalamunda

Appendix 5. BAL Report (cont.)

COMPANY AND BUSHFIRE CONSULTANT DETAILS			
BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING ACN: 39 166 551 784 ABN: 39 166 551 784 SUITE 11, 36 JOHNSON STREET GUILDFORD WA 6055 PO BOX 388 GUILDFORD WA 6935 08 6477 1144 admin@bushfireprone.com.au		I hereby declare that I am a BPAD accredited bushfire practitioner. Accreditation No. BPAD 16382 Signature  Date 11 August 2025 Authorised Practitioner Stamp	
Author:	Greg Dunstan (BPAD Level 1 No. 16382)		
Reviewed:	Kathy Nastov (BPAD Level 3 No. 27794) 		
ASSESSMENT AND REPORT DETAILS			
Version	Details	Site Assessment Date	Report Date
1.0	Original	6 August 2025	11 August 2025
-	-		
Report Preparation: This report has been prepared by an accredited BPAD practitioner using the simplified BAL determination procedure (Method 1) as detailed in section 2 of AS 3959:2018			
Warranty of the Accrediting Body: FPA Australia makes no warranties as to the accuracy of the information provided in the report. All enquiries related to the information and conclusions presented in this report must be made to the BPAD Accredited Practitioner.			
Period of Validity: Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of issue of the report. If this report was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the accredited practitioner and where required an updated report and/or BAL certificate issued.			
Limitations: The protection measures that will be implemented based on information presented in this report are minimum requirements and they do not guarantee that buildings or infrastructure will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required protection measures (including bushfire resistant construction) and any other required or recommended measures, will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control. All surveys, forecasts, projections and recommendations made in this report associated with the proposed development or use are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations. 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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BAL Assessment and Planning Report (Master) Template v15.1			

Appendix 5. BAL Report (cont.)



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Appendix 5. BAL Report (cont.)

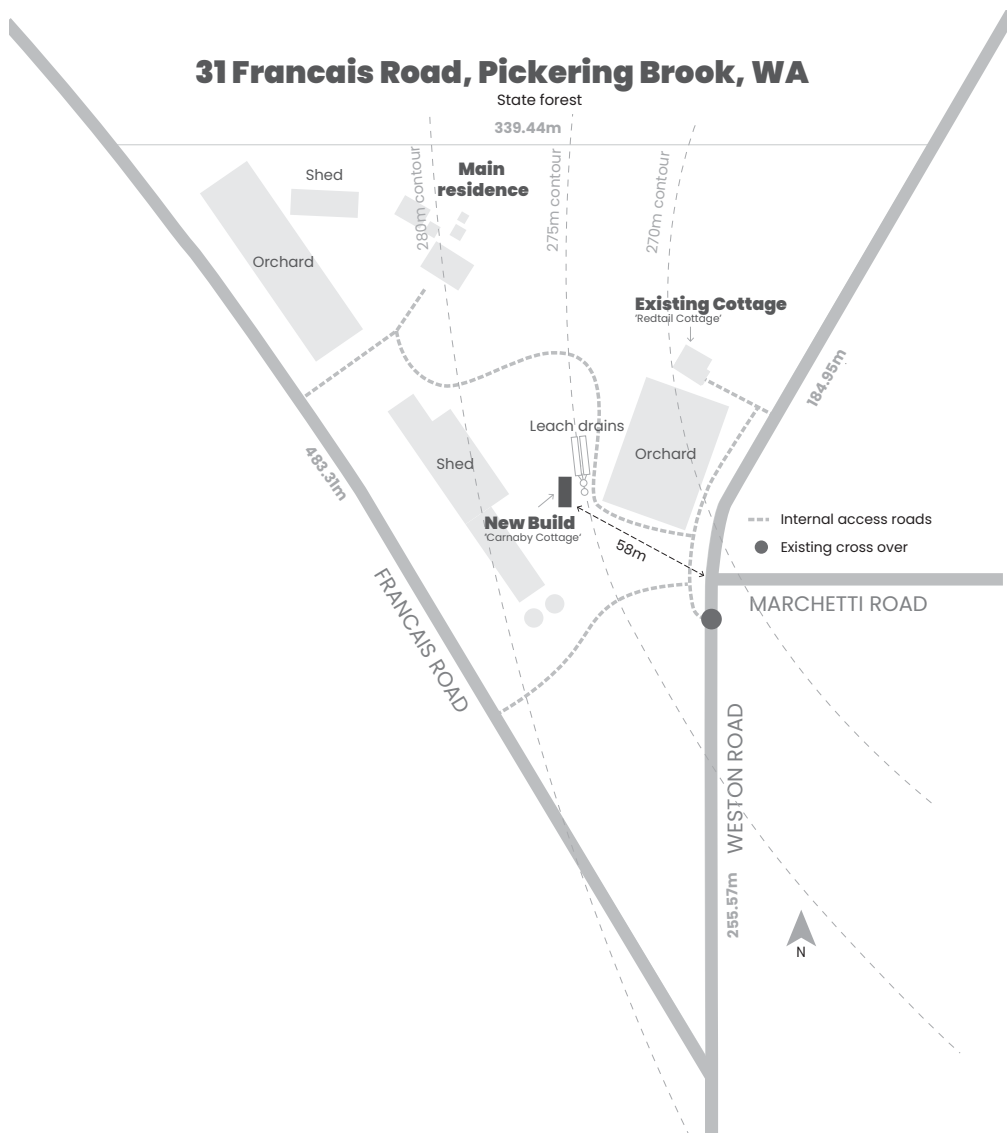


1 PROPERTY DETAILS AND DESCRIPTION OF BUILDING WORKS OR USE

PROPERTY DETAILS	
Address Details	Lot 813 (31) Francais Road, Pickering Brook
Applicable Local Government	City of Kalamunda
Total Area of Subject Lot	53370 ha
REPORT PURPOSE	
This report is to accompany a Building Application - submitted via Planning and Development to be submitted to Local Government.	
DESCRIPTION OF THE RELEVANT BUILDING(S) AND/OR PROPOSED WORKS AND/OR USE	
EXPLANATORY INFORMATION Note: A habitable building is defined in the <i>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.	
Existing Habitable Building(s)	N/A
Change of Use:	N/A
Primary Construction Works	Construction of a new ancillary dwelling
Associated Construction Works	N/A
BCA Classification(s)	Class 1a (house) -
Additional Description Details:	
None required.	

Appendix 5. BAL Report (cont.)

Site map Lot No: 813



Appendix 5. BAL Report (cont.)



2 INFORMATION FOR LOCAL GOVERNMENT BUILDING SERVICES (& THE LANDOWNER)

BUSHFIRE ATTACK LEVELS (BAL) - UNDERSTANDING THE RESULTS

The potential transfer (flux/flow) of radiant heat from the bushfire to a receiving object is measured in kW/m². The AS 3959:2018 BAL determination methodology establishes the ranges of radiant heat flux that correspond to each bushfire attack level. These are identified as BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

The bushfire performance requirements for certain classes of buildings are established by the Building Code of Australia (Vol. 1 & 2 of the NCC). The BAL will establish the bushfire resistant construction requirements that are to apply in accordance with AS 3959:2018 - Construction of buildings in bushfire prone areas and the NASH Standard – Steel framed construction in bushfire areas (NS 300 2021), whose solutions are deemed to satisfy the NCC bushfire performance requirements.

DETERMINED BAL RATINGS

A BAL Certificate can be issued for a determined BAL. A BAL can only be classed as 'determined' for an existing or future building/structure when:

1. It's 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. It will always remain subject to the same BAL regardless of its design or position on the lot after accounting for any regulatory or enforceable building setbacks from lot boundaries as relevant and necessary (e.g., R-codes, restrictive covenants, defined building envelopes) or the retention of any existing classified vegetation either onsite or offsite.

INDICATIVE BAL RATINGS

A BAL Certificate cannot be issued for an indicative BAL. A BAL will be classed as 'indicative' for an existing or future building/structure when the required conditions to derive a determined BAL are not met.

This class of BAL rating indicates what BAL(s) could be achieved and the conditions that need to be met are stated.

Converting the indicative BAL into a determined BAL is conditional upon the currently unconfirmed variable(s) being confirmed by a subsequent assessment and evidential documentation. These variables will include the future building(s) location(s) being established (or changed) and/or classified vegetation being modified or removed to establish the necessary vegetation separation distance. This may also be dependent on receiving approval from the relevant authority for that modification/removal.

2.1 BAL Assessment Summary (Table Format)

2.1.1 BAL Determination Method(s) Applied and the Location of Data and Results

Procedure Method (AS 3959:2018)	Applied to the BAL Assessment	Location of the Site Assessment Data			Location of the Results
		Site Assessment Map	Calculation Input Variables		Assessed Bushfire Attack Levels and/or Radiant Heat Levels
			Summary Data	Detailed Data with Explanatory and Supporting Information	
Method 1 (Simplified)	Yes	Figure 2	Table 1	Appendix A1	- Section 2.1.2 Table 1
Method 2 (Detailed)	No	-	-	-	- - -

Appendix 5. BAL Report (cont.)



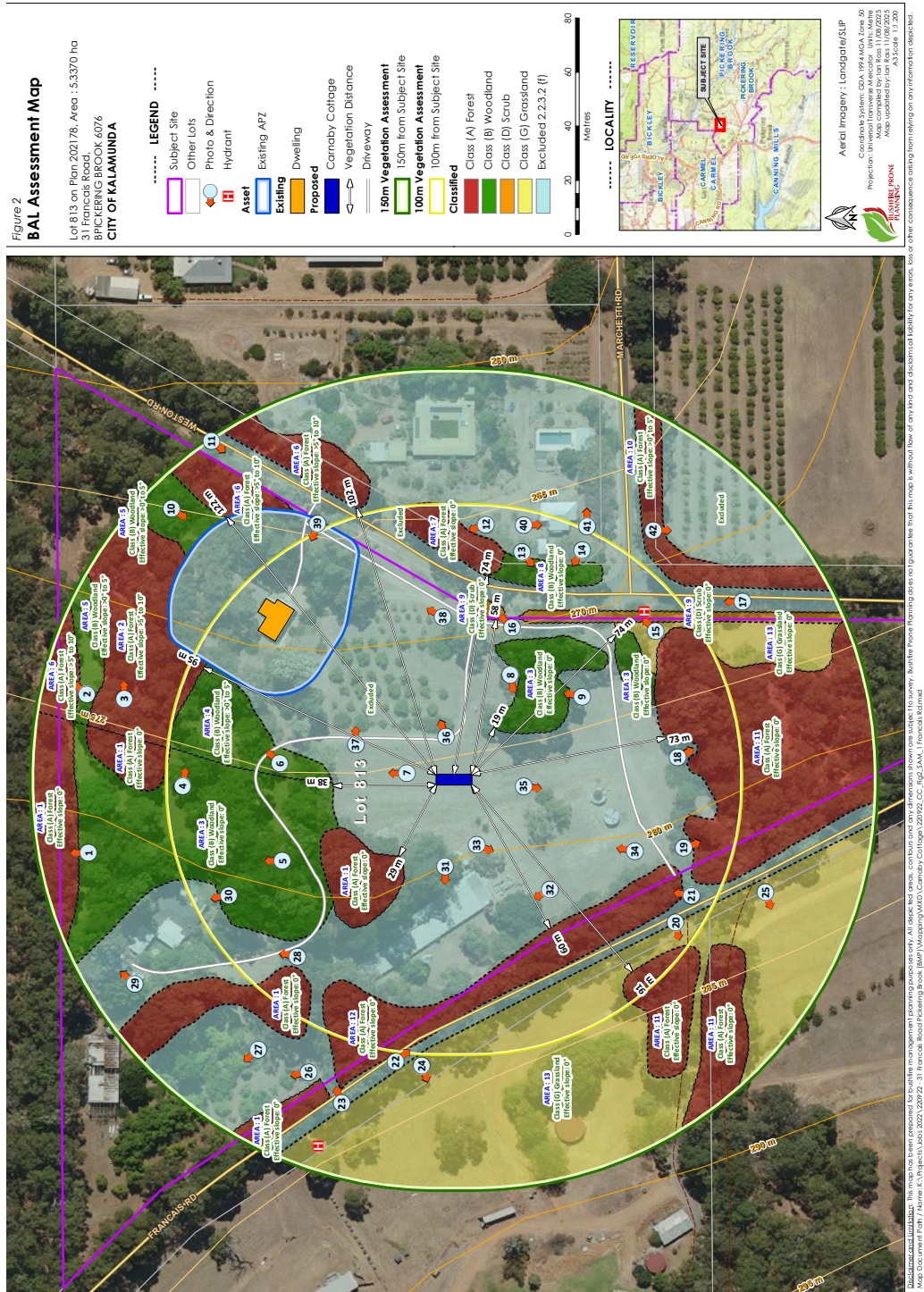
2.1.2 BAL Results

ASSESSMENT RESULT - THE BUSHFIRE ATTACK LEVEL (BAL)			
The Bushfire Attack Level (the highest assessed BAL) for the site (being the part of the allotment of land on which a building stands or is to be erected) / proposed development, has been determined in accordance with AS 3959:2018 clause 2.2.6 for the Method 1 procedure and/or AS 3959:2018 Appendix B for the Method 2 procedure (as relevant). The applicable site data applied to calculations is presented in the next section of this report.			
Proposed Building Works	New Ancillary Dwelling	DETERMINED BUSHFIRE ATTACK LEVEL	BAL-29
Proposed Building Works	N/A	-	N/A
Future Building on Lot No.	N/A	-	N/A

2.1.3 Identification of Shielded Elevations

IDENTIFICATION OF SHIELDED ELEVATION(S) – REDUCTION IN CONSTRUCTION REQUIREMENTS		
In accordance with AS 3959:2018 Clause 3.5, where an elevation is not exposed to the source of bushfire attack, the construction requirements for that elevation can reduce to the next lower BAL, but not below BAL-12.5. This shall apply to all elements of the wall, including openings, but shall not apply to subfloors or roofs. When applicable, the shielded elevation(s) are identified on the site plan when practical, otherwise a separate diagram is provided as an addendum.		
Proposed Building Works	New Ancillary Building	The shielding provisions are not applied.
Proposed Building Works	-	-

Appendix 5. BAL Report (cont.)



Appendix 5. BAL Report (cont.)



2.1.5 Site Assessment Data

Table 1: Summary of calculation input variables applied to deriving the BAL rating for the relevant element at risk.

DATA APPLIED TO THE CALCULATION OF THE BUSHFIRE ATTACK LEVELS (BAL) ¹									
METHOD 1 - AS 3959:2018 CLAUSE 2.2 - SIMPLIFIED PROCEDURE					Applied Fire Danger Index		FDI 80		
BAL Determination Method	The Element at Risk Relevant Building/Structure		Vegetation Classification		Effective Slope		Separation Distance		Bushfire Attack Level (BAL)
					Measured	Applied Range	Total	Included Building Setback ²	
New Ancillary Building		Area	Class	degrees		metres			
		1	(A) Forest	upslope	Upslope or flat 0	29	N/A	BAL-29	
		2	(A) Forest	d/slope 5.7	Downslope >5-10	95	N/A	BAL-12.5	
		3	(B) Woodland	flat 0	Upslope or flat 0	19	N/A	BAL-29	
		4	(B) Woodland	d/slope 4.8	Downslope >0-5	38	N/A	BAL-19	
		5	(B) Woodland	d/slope 4.8	Downslope >0-5	>100	N/A	BAL-LOW	
		6	(A) Forest	d/slope 5.7	Downslope >5-10	>100	N/A	BAL-LOW	
		7	(A) Forest	flat 0	Upslope or flat 0	74	N/A	BAL-12.5	
		8	(B) Woodland	flat 0	Upslope or flat 0	74	N/A	BAL-12.5	
		9	(D) Scrub	flat 0	Upslope or flat 0	58	N/A	BAL-12.5	
		10	(A) Forest	d/slope 4.7	Downslope >0-5	>100	N/A	BAL-LOW	
		11	(A) Forest	upslope	Upslope or flat 0	73	N/A	BAL-12.5	
		12	(A) Forest	upslope	Upslope or flat 0	60	N/A	BAL-12.5	
	13	(G) Grassland	upslope	Upslope or flat 0	>50	N/A	BAL-LOW		

Appendix 5. BAL Report (cont.)



Determined Bushfire Attack Level	BAL-29
Note 1: All data and information supporting the determination of the classifications and values stated in this table is presented in Appendix A. Note 2: This minimum distance (that establishes the closest distance to the lot boundary that a building/structure can legally exist) will only be identified as a component of the total vegetation separation distance if a BAL rating exceeding BAL-29 would apply if the building works was to be positioned closer to the lot boundary than the required statutory setback. The statutory setback is established by either the applicable R-code setback or another mechanism such as a restricted covenant. For all other scenarios, the building setback is not applicable and only the total separation distance will be stated.	

Appendix 5. BAL Report (cont.)



APPENDIX A: BAL ASSESSMENT DATA (DETAILED) AND SUPPORTING INFORMATION

A1: Assessed Site Inputs Common to the Method 1 and Method 2 Procedures

A1.1: FIRE DANGER INDICES (FDI/ FDI/GFDI)

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

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 cl 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 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 the classification of vegetation within 100 metres of the subject site.

Appendix 5. BAL Report (cont.)



VEGETATION AREA 1							
Classification	A. FOREST						
Types Identified	Open forest A-03 - -						
Exclusion Clause	N/A						
Effective Slope	Measured	u/slope		Applied Range (Method 1)		Upslope or flat 0 degrees	
Foliage Cover (all layers)	30-70%		Shrub/Heath Height		1-2m		Tree Height Up to 30m
Dominant & Sub-Dominant Layers	Jarrah and Marri Forest.						
Understorey	Grass Trees and Zamia, with mixed shrub species and grasses at the interface zones.						
Justification Comments:	All identified areas are classified on the worst-case scenario, resulting from tree heights up to 30m and a multi-tiered composition of vegetation.						
Post Development Assumptions:	None Required.						
DIRECTION NW (T) -32.02784° +116.11135° ACCURACY 4 m DATUM WGS84  2025-08-06 09:13:53+08:00							
PHOTO ID: 1				PHOTO ID:			

Appendix 5. BAL Report (cont.)



VEGETATION AREA 2						
Classification	A. FOREST					
Types Identified	Open forest A-03 - -					
Exclusion Clause	N/A					
Effective Slope	Measured	d/slope 5.7 degrees	Applied Range (Method 1)		Downslope >5-10 degrees	
Foliage Cover (all layers)	30-70%	Shrub/Heath Height	1-2m	Tree Height	Up to 30m	
Dominant & Sub-Dominant Layers	Jarrah and Marri Forest.					
Understorey	Mixed shrub species and grasses at the interface zones.					
Justification Comments:	All identified areas are classified on the worst-case scenario, resulting from tree heights up to 30m and a multi-tiered composition of vegetation and/or greater than 30% foliage cover.					
Post Development Assumptions:	None Required.					
						
PHOTO ID: 3			PHOTO ID: -			

Appendix 5. BAL Report (cont.)



VEGETATION AREA 3							
Classification	B. WOODLAND						
Types Identified	Woodland B-05		Sown pasture G-26		-		
Exclusion Clause	N/A						
Effective Slope	Measured	flat 0 degrees		Applied Range (Method 1)		Upslope or flat 0 degrees	
Foliage Cover (all layers)	<30%	Shrub/Heath Height		N/A		Tree Height	Up to 30m
Dominant & Sub-Dominant Layers	Scattered Jarrah and Marri trees.						
Understorey	Pasture grasses.						
Justification Comments:	Semi-cleared areas across the Lot. Small pockets of open/parkland cleared vegetation with a predominantly flat landscape as the land under this vegetation has a relatively level surface under the pockets of vegetation. Discontinuous vegetation, classified on 'worst case scenario'.						
Post Development Assumptions:	Grasses are able to be maintained by the landowner as vegetation is on-site and surrounds the immediate development area and forms part of the management regime.						
DIRECTION SE (T) -32.02803° +116.11186° ACCURACY 5 m DATUM WGS84  2025-08-06 09:15:27+08:00 DIRECTION N (T) -32.02841° +116.11132° ACCURACY 5 m DATUM WGS84  2025-08-06 09:16:20+08:00							
PHOTO ID: 4				PHOTO ID: 5			
DIRECTION W (T) -32.02926° +116.11168° ACCURACY 5 m DATUM WGS84  2025-08-06 09:26:03+08:00 DIRECTION E (T) -32.02940° +116.11129° ACCURACY 5 m DATUM WGS84  2025-08-06 09:07:58+08:00							
PHOTO ID: 8				PHOTO ID: 9			

Appendix 5. BAL Report (cont.)



VEGETATION AREA 4							
Classification	B. WOODLAND						
Types Identified	Woodland B-05		Sown pasture G-26		-		
Exclusion Clause	N/A						
Effective Slope	Measured	d/slope 4.8 degrees	Applied Range (Method 1)		Downslope >0-5 degrees		
Foliage Cover (all layers)	<30%	Shrub/Heath Height	1-2m		Tree Height	Up to 30m	
Dominant & Sub-Dominant Layers	Scattered Jarrah and Marri trees.						
Understorey	Pasture grasses.						
Justification Comments:	Open areas of scattered trees across the Lot, abutting open forest.						
Post Development Assumptions:	None required.						
DIRECTION NE (°) -32.02855° +116.11145° ACCURACY 5 m DATUM WGS84  2025-08-06 09:10:01+08:00							
PHOTO ID: 6				PHOTO ID: -			

Appendix 5. BAL Report (cont.)



VEGETATION AREA 5						
Classification	B. WOODLAND					
Types Identified	Woodland B-05		Sown pasture G-26		-	
Exclusion Clause	N/A					
Effective Slope	Measured	d/slope 4.8 degrees	Applied Range (Method 1)		Downslope >0-5 degrees	
Foliage Cover (all layers)	<30%	Shrub/Heath Height	1-2m	Tree Height	Up to 30m	
Dominant & Sub-Dominant Layers	Scattered Jarrah and Marri trees.					
Understorey	Pasture grasses.					
Justification Comments:	Open areas of scattered trees across the Lot, abutting open forest.					
Post Development Assumptions:	None required.					
 Site Assessment Photo 32°1'41", 116°6'44", 229.7m, 236° 19/12/2022 09:38:04						
PHOTO ID: 10			PHOTO ID: -			

Appendix 5. BAL Report (cont.)



VEGETATION AREA 6								
Classification	A. FOREST							
Types Identified	Open forest A-03 - -							
Exclusion Clause	N/A							
Effective Slope	Measured	d/slope 5.7 degrees		Applied Range (Method 1)		Downslope >5-10 degrees		
Foliage Cover (all layers)	30-70%		Shrub/Heath Height		1-2m		Tree Height	Up to 30m
Dominant & Sub-Dominant Layers	Jarrah and Marri Forest.							
Understorey	Grass Trees and Zamia, with mixed shrub species and grasses at the interface zones.							
Justification Comments:	All identified areas are classified on the worst-case scenario, resulting from tree heights up to 30m and a multi-tiered composition of vegetation. This area comprises 'tiered' sections, having a series of rows/levels placed one above the other along the verges sloping northeasterly along both sides of Western Road.							
Post Development Assumptions:	None Required.							
								
PHOTO ID: 11				PHOTO ID: -				

Appendix 5. BAL Report (cont.)



VEGETATION AREA 7						
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	Up to 30m	
Dominant & Sub-Dominant Layers	Jarrah and Marri Forest.					
Understorey	Grass Trees, with mixed shrub species and grasses at the interface zones.					
Justification Comments:	All identified areas are classified on the worst-case scenario, resulting from tree heights up to 30m and a multi-tiered composition of vegetation. Narrow verge sections less than 20m in width.					
Post Development Assumptions:	None Required.					
						
PHOTO ID: 12				PHOTO ID: -		

Appendix 5. BAL Report (cont.)



VEGETATION AREA 8								
Classification	B. WOODLAND							
Types Identified	Woodland B-05		Open herbfield G-27			Sown pasture G-26		
Exclusion Clause	N/A							
Effective Slope	Measured	flat 0 degrees		Applied Range (Method 1)		Upslope or flat 0 degrees		
Foliage Cover (all layers)	<30%		Shrub/Heath Height		1-2m		Tree Height	Up to 30m
Dominant & Sub-Dominant Layers	Scattered Jarrah and Marri trees.							
Understorey	Grass trees, pasture grasses and low weeds.							
Justification Comments:	Open areas of scattered trees along the verge.							
Post Development Assumptions:	None required.							
								
PHOTO ID: 13				PHOTO ID: 14				

Appendix 5. BAL Report (cont.)



VEGETATION AREA 9						
Classification	D. SCRUB					
Types Identified	Open scrub D-14		Closed scrub D-13		-	
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees		Applied Range (Method 1)	Upslope or flat 0 degrees	
Foliage Cover (all layers)	>30%	Shrub/Heath Height		Up to 6m	Tree Height	N/A
Dominant & Sub-Dominant Layers	Wattles and Grass trees.					
Understorey	Grasses and weeds.					
Justification Comments:	Verge vegetation encroaching the Lot, mixed species, including non-native WA wattles. Vegetation is located under the power line and not expected to exceed 6m in height.					
Post Development Assumptions:	None required.					
 						
PHOTO ID: 15				PHOTO ID: 16		

Appendix 5. BAL Report (cont.)



VEGETATION AREA 10								
Classification	A. FOREST							
Types Identified	Open forest A-03 - -							
Exclusion Clause	N/A							
Effective Slope	Measured	d/slope 4.7 degrees		Applied Range (Method 1)		Downslope >0-5 degrees		
Foliage Cover (all layers)	30-70%		Shrub/Heath Height		1-2m		Tree Height	Up to 30m
Dominant & Sub-Dominant Layers	Jarrah and Marri Forest.							
Understorey	Grass Trees and Zamia, with mixed shrub species and grasses at the interface zones.							
Justification Comments:	All identified areas are classified on the worst-case scenario, resulting from tree heights up to 30m and a multi-tiered composition of vegetation. This area comprises 'tiered' sections, having a series of rows/levels placed one above the other along the verges sloping easterly along Western Road. Scrub vegetation also indicated LHS of Weston Road Area 9.							
Post Development Assumptions:	None Required.							

	
PHOTO ID: 17	PHOTO ID: -

Appendix 5. BAL Report (cont.)



VEGETATION AREA 11 & 12													
Classification	A. FOREST												
Types Identified	Open forest A-03		-		-								
Exclusion Clause	N/A												
Effective Slope	Measured	u/slope		Applied Range (Method 1)	Upslope or flat 0 degrees								
Foliage Cover (all layers)	30-70%		Shrub/Heath Height		1-2m	Tree Height	Up to 30m						
Dominant & Sub-Dominant Layers	Jarrah and Marri Forest.												
Understorey	Grass Trees, with mixed shrub species and grasses at the interface zones.												
Justification Comments:	All identified areas are classified on the worst-case scenario, resulting from tree heights up to 30m and a multi-tiered composition of vegetation.												
Post Development Assumptions:	None Required.												
DIRECTION SE (T) -32.02975° +116.11140° ACCURACY 5 m DATUM WGS84  2025-08-06 09:21:45+08:00 DIRECTION SE (T) -32.02991° +116.11100° ACCURACY 5 m DATUM WGS84  2025-08-06 09:21:01+08:00 PHOTO ID: 18 PHOTO ID: 19 <tr><td colspan="7"> DIRECTION W (T) -32.02982° +116.11079° ACCURACY 5 m DATUM WGS84  2025-08-06 09:32:34+08:00 DIRECTION N (T) -32.03008° +116.11085° ACCURACY 5 m DATUM WGS84  2025-08-06 09:33:19+08:00 PHOTO ID: 20 PHOTO ID: 21 </td></tr>							DIRECTION W (T) -32.02982° +116.11079° ACCURACY 5 m DATUM WGS84  2025-08-06 09:32:34+08:00 DIRECTION N (T) -32.03008° +116.11085° ACCURACY 5 m DATUM WGS84  2025-08-06 09:33:19+08:00 PHOTO ID: 20 PHOTO ID: 21						
DIRECTION W (T) -32.02982° +116.11079° ACCURACY 5 m DATUM WGS84  2025-08-06 09:32:34+08:00 DIRECTION N (T) -32.03008° +116.11085° ACCURACY 5 m DATUM WGS84  2025-08-06 09:33:19+08:00 PHOTO ID: 20 PHOTO ID: 21													

Appendix 5. BAL Report (cont.)



	
PHOTO ID: 22	PHOTO ID: 23

Appendix 5. BAL Report (cont.)



VEGETATION AREA 13								
Classification	G. GRASSLAND							
Types Identified	Sown pasture G-26		-		-			
Exclusion Clause	N/A							
Effective Slope	Measured	u/slope		Applied Range (Method 1)		Upslope or flat 0 degrees		
Foliage Cover (all layers)	<10%		Shrub/Heath Height		N/A		Tree Height	N/A
Dominant & Sub-Dominant Layers	Grassland							
Understorey	N/A							
Justification Comments:	Grassland paddocks. Classified on worst-case scenario.							
Post Development Assumptions:	None required.							
DIRECTION SW (T) -32.02886° +116.11019° ACCURACY 5 m DATUM WGS84  2025-08-06 09:29:59+08:00 DIRECTION SW (T) -32.03000° +116.11088° ACCURACY 5 m DATUM WGS84  2025-08-06 09:32:58+08:00								
PHOTO ID: 24				PHOTO ID: 25				

Appendix 5. BAL Report (cont.)



EXCLUDED AREAS						
Classification	N/A					
Types Identified	-					
Exclusion Clause	2.2.3.2 (e) Non-vegetated areas and (f) Low threat vegetation - minimal fuel condition.					
Effective Slope	Measured	N/A		Applied Range (Method 1)	N/A	
Foliage Cover (all layers)	-	Shrub/Heath Height		-	Tree Height	-
Dominant & Sub-Dominant Layers	N/A					
Understorey	N/A					
Justification Comments:	The identified excluded areas on the subject site can be reasonably expected to be managed and continue to undergo annual maintenance by landowners. Shade trees with managed understoreys and gardens/maintained grasses immediately around buildings within the Lot. Small orchard areas are excludable and present as minimal fuel conditions. Driveways and service tracks are excluded – gravel surfaces. These areas can be excluded under AS3959-2018 clause 2.2.3.2 (maintained in minimal fuel condition and non-vegetated areas).					
Post Development Assumptions:	The area surrounding the proposed development is maintained in a low-threat condition (grasses maintained <100mm in height).					

DIRECTION N (T) -32.02873° +116.11019° ACCURACY 5 m DATUM WGS84  2025-08-06 09:35:45+08:00	DIRECTION NW (T) -32.02852° +116.11029° ACCURACY 5 m DATUM WGS84  2025-08-06 09:36:15+08:00
PHOTO ID: 26	PHOTO ID: 27

DIRECTION NE (T) -32.02846° +116.11053° ACCURACY 5 m DATUM WGS84  2025-08-06 09:39:20+08:00	DIRECTION NE (T) -32.02813° +116.11047° ACCURACY 5 m DATUM WGS84  2025-08-06 09:37:21+08:00
PHOTO ID: 28	PHOTO ID: 29

Appendix 5. BAL Report (cont.)



 DIRECTION NW (T) -32.02845° +116.11103° ACCURACY 5 m DATUM WGS84 2025-08-06 09:16:31+08:00	 DIRECTION W (T) -32.02894° +116.11110° ACCURACY 5 m DATUM WGS84 2025-08-06 09:17:41+08:00
PHOTO ID: 30	PHOTO ID: 31
 DIRECTION NW (T) -32.02940° +116.11074° ACCURACY 5 m DATUM WGS84 2025-08-06 09:19:51+08:00	 DIRECTION SW (T) -32.02924° +116.11105° ACCURACY 5 m DATUM WGS84 2025-08-06 09:19:08+08:00
PHOTO ID: 32	PHOTO ID: 33
 DIRECTION NE (T) -32.02985° +116.11099° ACCURACY 5 m DATUM WGS84 2025-08-06 09:20:37+08:00	 DIRECTION S (T) -32.02931° +116.11128° ACCURACY 5 m DATUM WGS84 2025-08-06 09:08:02+08:00
PHOTO ID: 34	PHOTO ID: 35

Appendix 5. BAL Report (cont.)



DIRECTION NE (T) -32.02913° +116.11140° ACCURACY 5 m DATUM WGS84  2025-08-06 09:08:46+08:00	DIRECTION E (T) -32.02881° +116.11142° ACCURACY 5 m DATUM WGS84  2025-08-06 09:09:18+08:00
PHOTO ID: 36	PHOTO ID: 37
DIRECTION N (T) -32.02916° +116.11193° ACCURACY 5 m DATUM WGS84  2025-08-06 09:25:17+08:00	DIRECTION W (T) -32.02857° +116.11251° ACCURACY 5 m DATUM WGS84  2025-08-06 10:08:53+08:00
PHOTO ID: 38	PHOTO ID: 39
	
PHOTO ID: 40	PHOTO ID: 41



Appendix 5. BAL Report (cont.)



A1.3: EFFECTIVE SLOPE

EXPLAINING THE ASSESSMENT METHODOLOGY APPLIED BY BUSHFIRE PRONE PLANNING

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.

[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.]

COMPOUND SLOPES UNDER VEGETATION AND DETERMINING SLOPE SIGNIFICANCE

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

Appendix 5. BAL Report (cont.)



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	No	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 determined effective slope that is applied (i.e., with a greater length apply to a greater extent). But the actual slope of these shorter slopes is likely not to be applied as it is not a 'significant' length.
20-30	Maybe	The same considerations applied to the 5-20m slope lengths should be applied here. However, more justification would need to be presented to support their assessment as not being 'significant' slopes. 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 risk levels require greater precaution meaning these slopes should be considered 'significant', and vice versa. Consider the potential for a bushfire on adjoining or nearby land to be a source of ignition and/or pre-heating to vegetation on the subject slope. Consider if vegetation on the slope is likely to be ignited by a single ignition point or is multipoint ignition possible from bushfire on 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 need to 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

Appendix 5. BAL Report (cont.)



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.
- "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

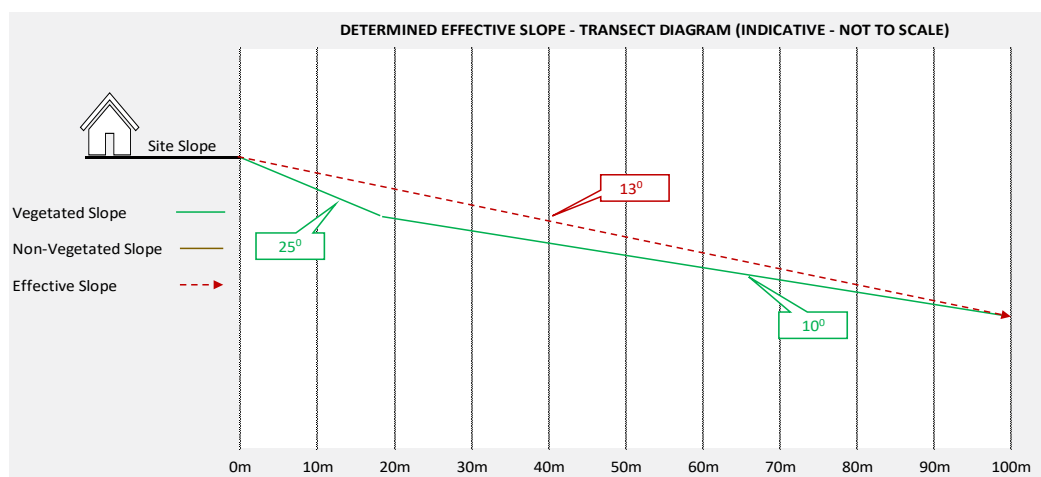
- "In identifying the effective slope - it may be found that there are a variety of slopes covering different distances within the vegetation. The effective slope is considered to be the slope under the vegetation which will most significantly influence the bushfire behaviour for each aspect. This is 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 determined from the site assessment are recorded in Table 1 of this Bushfire Management Plan.

When their derivation requires additional explanation and justification, this is provided below.

For the subject site additional information is not required.



Appendix 5. BAL Report (cont.)



A1.4: SEPARATION DISTANCE

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 may be applied that would establish the closest positioning of the building/structure relative to the relevant area of vegetation.

The assumed location would be 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 a restrictive covenant; 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.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

Measured and assumed separation distances determined from the site assessment are recorded in Table 1 of this report and illustrated in Figure 2.

When their derivation requires additional explanation and justification, including when the relevant R-Code or other regulated building setbacks are being applied, this is provided below.

For the subject site additional information is not required.

Appendix 5. BAL Report (cont.)



A2: APPENDIX B: GUIDANCE – ASSET PROTECTION ZONES AND BUSHFIRE ATTACK LEVELS

B1: The Asset Protection Zone (APZ)

THE APZ – DESCRIPTION, DIMENSION AND TECHNICAL REQUIREMENTS
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 flammability and/or 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 to ensure: • A reduction in the exposure of the building/structure to bushfire direct attack mechanisms (threats) of flame contact, radiant heat transfer and ember attack, by establishing appropriate separation from each area of classified vegetation. [The required APZ dimensions will be dependent on site specific conditions and the use of the site and are measured from the nearest part of an external wall and/or supporting posts of building parts without external walls]; and • 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; and ◦ Limiting the potential for consequential fire to impact the building/structure by eliminating, reducing and/or shielding consequential fire fuels. These fuels include accumulated debris, stored combustible/flammable items and constructed combustible items. Consequential fire, typically ignited by embers, is the primary cause of building loss in a bushfire event; and • To provide a defensible space for firefighting activities. DIMENSIONS Established by the Guidelines No APZ dimensions are established by the Planning for Bushfire Guidelines, DPLH/WAPC (as amended). The Guidelines are intended to inform the application of State bushfire planning policy. For planning approval purposes, it only needs to be demonstrated that a BAL-29 dimensioned APZ can be appropriately established, surrounding a building/structure for the specific development site conditions. For certain vulnerable land uses, evidence of the ability to implement a larger APZ may be required to inform planning decisions. These include dimensions corresponding to radiant heat impact levels of 10 kW/m² and/or 2 kW/m² and calculated using a flame temperature of 1200 K rather than 1090 K. Established by the 'Determined' BAL Rating The dimensions of the APZ that will be the responsibility of a landowner to implement and maintain around a habitable or specified building - to align the building's bushfire resistance construction level, to its level of exposure to flames, radiant heat and embers - will be those corresponding to the building's 'determined' BAL rating. This rating will account for the relevant physical characteristics of a specific site and the applicable building's separation distance from classified vegetation, the type of vegetation it is exposed to and the slope of the ground supporting that vegetation. Variations to these dimensions (i.e. vegetation separation distances) will only exist as the result of either: • A requirement presented within an associated Bushfire Management Plan to increase the size of the APZ as part of a required additional protection measure; or • A directive of the relevant Local Government through their annual notice, issued under s.33 of the Bushfires Act 1954 (see below), that results in a larger dimension.

Appendix 5. BAL Report (cont.)



Established by the Relevant Local Government

To satisfy the local governments requirements, a required APZ dimension may be stated in the notice issued annually by the relevant local government under s.33 of the Bushfires Act 1954 (e.g. Bushfire Risk Reduction Notice or Firebreak and Hazard Reduction Notice etc).

For certain vegetation/sites, based on environmental considerations, a maximum allowable dimension may be established, typically that corresponding to a BAL-29 rating for the relevant building – which will vary in response to the site specific conditions.

The existence of any such restrictions is information that would need to be sought from the relevant local government planning department.

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

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). It may state technical requirements that vary from and/or are additional to those established by the Guidelines to be complied with. Refer to the ratepayer notice and/or the local government's website for the current version.

The local government's technical requirements may be established by their gazetted local planning scheme.

Appendix 5. BAL Report (cont.)



B2: 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.

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AS 3959:2018

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 5. BAL Report (cont.)



B3: BAL Ratings – Corresponding Threats and Construction References

BAL ¹	DESCRIPTION OF PREDICTED BUSHFIRE DIRECT ATTACK MECHANISMS (THREATS) AND LEVELS OF EXPOSURE	REFERENCES FOR CONSTRUCTION REQUIREMENTS	
		AS 3959:2018 Construction of Buildings in Bushfire Prone Areas Referenced by the Building Code of Australia for Building Classes 1, 2, 3 & 10a	The NASH Standard (2021) – Steel Framed Construction in Bushfire Areas Referenced by the Building Code of Australia for Building Classes 1 & 10a
BAL – LOW	There is insufficient risk to warrant specific construction requirements but there is still some risk. (Note: DFES recommend that ember attack protection features be incorporated into the design where practicable).	Section 4. No Requirements	No Requirements
BAL – 12.5	There is a risk of ember attack. Construction elements are expected to be exposed to heat flux not greater than 12.5 kW/m ² .	Sections 3 & 5.	All construction requirements for BAL-12.5 to BAL-40 are the same except for windows and external doors, which must comply with AS 3959.
BAL – 19	There is a risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m ² .	Sections 3 & 6	The construction requirements are set out as essentially non-combustible construction systems for each of the following building elements:
BAL – 29	There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level radiant heat. The construction elements are expected to be exposed to heat flux not greater than 29 kW/m ² .	Sections 3 & 7.	Section 1.4: General Requirements Section 2: Roof and Ceiling System Section 3: External Wall System Section 4: Floor System Section 5: Carports Verandahs and Decks.
BAL – 40	There is a much-increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux not greater than 40kW/m ² .	Sections 3 & 8.	The construction requirements are set out in Sections 1-5 and differ from the requirements for all other BAL ratings.
BAL – FZ (Flame Zone)	There is an extremely high risk of ember attack and burning debris ignited by windborne embers, and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux greater than 40 kW/m ² .	Sections 3 & 9.	

¹ AS 3959:2018 Construction of buildings in bushfire prone areas, defines a Bushfire Attack Level (BAL) as a "means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat flux expressed in kW/m², and is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire."

Appendix 6. Evacuation map

This evacuation map will be included in the house manual and will be displayed in a prominent place within the chalet.

