Local Government Use

BUSHFIRE PRONE PLANNING

Bushfire Hazard Assessment



393-397 Logan Reserve Road Logan Reserve

Logan City Council

Report Date: **14 August 2026**

Job Reference No: **260530**

COMPANY AND BUSHFIRE CONSULTANT DETAILS

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ASSESSMENT AND REPORT DETAILS

Version	Details	Site Assessment Date	Report Date
1.0	Original	24 June 2026	14 August 2026
-	-		

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.

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BAL Assessment and Planning Report (Master) Template v15.1

TABLE OF CONTENTS

STATEMENT OF PURPOSE – THE BUSHFIRE HAZARD ASSESSMENT 3

1 PROPERTY DETAILS AND DESCRIPTION OF BUILDING WORKS OR USE 4

1.1 OTHER DOCUMENTS RELEVANT TO PREPARING THE BMP 5

2 ENVIRONMENTAL CONSIDERATIONS – NATIVE VEGETATION 7

2.1 BIODIVERSITY OR CONSERVATION VALUES IDENTIFIED 7

3 BUSHFIRE HAZARD ASSESSMENT 9

3.1 BAL ASSESSMENT SUMMARY (CONTOUR MAP FORMAT) 9

3.1.1 BAL DETERMINATION METHOD(S) APPLIED AND THE LOCATION OF DATA AND RESULTS 10

3.1.2 BAL RATINGS DERIVED FROM THE CONTOUR MAP 10

3.1.3 IDENTIFICATION OF SHIELDED ELEVATIONS 10

3.1.5 BAL CONTOUR MAP(S) 12

3.2 VEGETATION ASSESSMENT AND CLASSIFICATION 14

APPENDIX A: BAL ASSESSMENT DATA (DETAILED) AND SUPPORTING INFORMATION 18

A1: ASSESSED SITE INPUTS COMMON TO THE METHOD 1 AND METHOD 2 PROCEDURES 18

A1.1: FIRE DANGER INDICES (FDI/ FDI/GFDI) 18

A1.3: EFFECTIVE SLOPE 18

A1.4: SEPARATION DISTANCE 21

A2: ADDITIONAL ASSESSED SITE INPUTS APPLIED USING THE METHOD 2 PROCEDURE 22

APPENDIX B: GUIDANCE – ASSET PROTECTION ZONES AND BUSHFIRE ATTACK LEVELS 23

B1: THE ASSET PROTECTION ZONE (APZ) 23

B2: VEGETATION EXCLUDED FROM CLASSIFICATION – ENSURE CONTINUED LOW THREAT STATUS 24

B3: BAL RATINGS – CORRESPONDING THREATS AND CONSTRUCTION REFERENCES 25

B4: BAL CONTOUR MAP INTERPRETATION 26

APPENDIX C: OVERLAY CODE RESPONSE 27

LIST OF FIGURES

Figure 1.1: Site plan locating the proposed building works on the lot. 6

Figure 3.1: Classified vegetation and topography map. 11

Figure 3.2: BAL Contour Map 12

STATEMENT OF PURPOSE – THE BUSHFIRE Hazard Assessment

EXPLANATORY INFORMATION

SITE/USE PLANNING

This BHA is produced to present the information necessary for a planning proposal's assessment against local government planning schemes and the State's bushfire planning requirements. The developed information is to inform and assist decision-making authorities, planners, landowners/proponents and referral agencies in their implementation Qld's State Planning Policy 2017 and the SPP state interest guidance material – Natural hazards, risk and resilience - Bushfire supported by the Bushfire Resilient Communities (BRC) guidance material and any supplementary provisions of a local planning scheme or policy.

Policy Document Versions Applied in This BHA	State Planning Policy 2017	Dec 2019	Logan City Council Planning Scheme 2015	V9.2

SITE OPERATIONS

This BHA is not an 'operational' Bushfire Management Plan (BMP) for property and operations management. Such a BMP would apply additional and more specific bushfire protection measures to more comprehensively reduce the level of risks associated with a bushfire event. These being the potential loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss.

However, this BHA does establish certain responsibilities for the implementation and maintenance of the bushfire protection measures that are considered the minimum for bushfire planning decision making.

BUSHFIRE RESISTENT CONSTRUCTION

This BHA is not required to consider the requirement to construct certain buildings, in designated bushfire prone areas, to the standard corresponding to the Bushfire Attack Level (BAL) they are subject to. This requirement is dealt with under the State Building Act 1975/Building Regulations 2021 and the referenced National Construction Code (NCC).

DETERMINED BUSHFIRE ATTACK LEVEL (BAL) RATINGS AND CONSTRUCTION – CAUTION!

For construction purposes a determined (not indicative) BAL rating is required to be known and a BAL Certificate produced for submission with a building application. This establishes the construction design and materials that are to be complied with in accordance with AS 3959 Construction in bushfire prone areas (as amended) and/or NS 300 NASH Standard Steel Framed Construction in Bushfire Areas (as amended).

This BHA cannot necessarily determine a BAL rating that will apply to a future building. All variables required for that calculation may not be known at the assessed stage of planning. For example, actual location of a building footprint on a lot and/or any classified vegetation that will remain, at the time of construction, within the lot or on neighbouring lots.

This BHA is only required to identify if a viable sized building can be located on a lot and be subject to a BAL rating not exceeding BAL-29, based on certain allowable assumptions. This is a planning requirement not a building requirement and a BAL contour map can be used to illustrate this information as an 'indicative' BAL rating.

Be aware that typically you cannot derive the determined BAL rating for a future building(s) on a specific lot from a BAL contour map (when presented in a BMP prepared for planning approval purposes). This is only possible in limited circumstances.

Planning assessment requirements are different to building assessment requirements. Refer to explanatory information above and Appendix B1 for additional information.

1 PROPERTY DETAILS AND DESCRIPTION OF BUILDING WORKS OR USE

PROPERTY DETAILS	
Address Details	393-397 Logan Reserve Road Logan Reserve
Real Property Description	Lot 30 RP 223179
Applicable Local Government	Logan City Council
Zoning	Emerging Community
Total Area of Subject Lot	13700 m²
REPORT PURPOSE	
This report is to accompany a Development Application to be submitted to Local Government.	
DESCRIPTION	
Number of Additional Lots Created	Existing lot(s) = 1 / Proposed lot(s) = 22
Development is a Reconfiguration of Lot (1 into 22) freehold subdivision, new roads, and detention basin.	
Vulnerable Land Use Determination	
Assessment Supporting Details: No vulnerable land uses are proposed.	
DESCRIPTION OF THE RELEVANT BUILDING(S) AND/OR PROPOSED WORKS AND/OR USE	
Primary Construction Works	Construction of a new single house
BCA Classification(s)	Class 1a (house) Class 10a (non-habitable building)
Additional Description Details:	
None required	

1.1 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
Concept Plan	Yes	Yes	Yes	Yes	-
Implications for the BMP: Proposed residential lots and any open space (drainage) lots that will be impacted by bushfire or change the bushfire hazards.					
Bushfire Hazard Assessment	Yes	Yes	Yes	N/A	This report
Implications for the BHA: Assessment of existing and future bushfire hazard areas.					
Preliminary bushfire advice (may include a BAL contour map)	No	N/A	N/A	N/A	-
Bushfire Emergency Plan	No	N/A	N/A	N/A	-
Environmental Asset or Vegetation Survey	No	N/A	N/A	N/A	-
Revegetation Plan	No	N/A	N/A	N/A	-

Statistics	
Total Area of Subdivision	1.3700 ha
Number of Lots	22
Length of New Road	131 m
Contour Interval	1.0 m

STORMWATER EASEMENT 4M WIDE

NEW ROAD 10m WIDE

NEW ROAD 10m WIDE

ROAD

RESERVE

STAGE 2

STAGE 1

ROAD 1 (UNAR)

ROAD 2 (UAS)

Approved Development Application no. COM/21/2022

LOGAN

GLEN RD

24 RP226268

314 SP331974

23 RP226269

34 RP223190

33 RP223190

32 RP223190

31 RP223190

199 SP280847

dts urban planning, surveying & development

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Issue	Revision	Int	Date
E	Amended lot Layout	RC	15/07/26
F	Stormwater Easement Amendment	RC	17/07/26
G	Amended access easements	NQ	21/07/26
H	Amended lot Layout	RC	13/08/26
I	Amended lot Layout	RC	14/08/26
I2	Amended lot Layout	RC	14/08/26

SUBDIVISION PROPOSAL PLAN

393-397 Logan Reserve Road, Logan Reserve

SCALE 1:1000 @ A3

10 0 10 20 30 40 50

Description	Lot 30 on RP223179
Local Authority	Logan City Council
Client	Nolah Property Developments

This plan has been prepared by DTS as a proposal plan and should not be used for any other purpose. The information contained on this plan is approximate only, has not been verified and may be subject to change. The intellectual property on this plan remains the property of DTS. The contours shown on this plan have been derived from QSpatial LiDAR data.

Project	BNE260080	Drawing	A3 7133
File	B260080P2.dwg	Revision	I2
Date	14/08/2026	Sheet	1 of 1

2 ENVIRONMENTAL CONSIDERATIONS – NATIVE VEGETATION

EXPLANATORY INFORMATION

VEGETATION CLEARING

Some bushfire prone areas also have high biodiversity values. The SPP prioritises the retention of native vegetation for biodiversity conservation, environmental protection and landscape amenity.

Clearing of native vegetation in Queensland is governed by the Vegetation *Management Framework.* The **Vegetation Management Act 1999** (VMA), the **Vegetation Management Regulation 2023**, the **Planning Act 2016 (Planning Act)** and the **Planning Regulation 2017**, in conjunction with associated policies and codes, form the Vegetation Management framework.

Regulated Vegetation Management maps are sourced from Queensland Globe version 2.15 released 29 January 2024.

Clearing native vegetation is an offence, unless done under a clearing permit or the clearing is for an exempt purpose. Exemptions are contained in the **Planning Regulation 2017**. Approvals under other legislation, from other agencies, may also be required, dependent on the type of flora or fauna present.

Assessment of vegetation for clearing is required through an application to the State Assessment and Referral Agency (SARA). Approval for clearing is against benchmarks in the State Development Assessment Provisions (SDAP)

- State Code 16: Native Vegetation Clearing.

Local Planning Policy: Natural areas that are not protected by the above Act and Regulation (or any other National or State Acts) may be protected by a local planning policy or local biodiversity strategy. Permission from the local government will be required for any modification or removal of native vegetation. Refer to the relevant local government for detail.

KOALA HABITAT

The State government has mapped koala habitat areas as part of the South East Queensland Koala Conservation Strategy (2020 – 2025). Two koala conservation habitat types are defined and identified in trigger mapping requiring further assessment:

- Core Koala Habitat Area (KHA)
- Koala Priority Area (KPA)

The koala habitat mapping is supported by the State Planning Policy 2017 (SPP) as well as the SDAP with the relevant state codes:

- State Code 25 – Development in South East Queensland koala habitat areas
- State Code 16 – Native Vegetation Clearing

KPA and KHA are regulated under the **Planning Act 2016** and **Planning Regulation 2017** and in this circumstance will require assessment against **Schedule 10** of the Regulation. Any 'modification' or 'clearing' of vegetation to reduce bushfire risk requires a clearing permit unless for an exempt purpose.

2.1 Biodiversity or Conservation Values Identified

EXPLANATORY INFORMATION

The required information, relevant to bushfire planning and informing the production of this BHA, is sourced and presented as indicated below.

Note that where a 'desktop' assessment has been conducted, this should not be considered a replacement for a full Environmental Impact Assessment. It is a summary of potential biodiversity or conservation values at the subject site, inferred from information contained in public available datasets and/or reports, which are only current to the date of last modification.

The information provided in the BHA should be considered indicative where the subject site has not previously been subject to a site-specific environmental assessment by an appropriate professional.	
The required information is sourced from the environmental/planning consultant report developed for the subject site and provided to the bushfire consultant (details below when applicable). The information it contains is not repeated in this BHA as it will accompany the planning submission. The implications for the subject planning proposal and this BHA are stated below when relevant.	No Report Available / Provided
N/A	
The required information is sourced by the bushfire consultant as a 'desktop' assessment from publicly available data bases and/or a local government's local biodiversity strategy or local planning strategy. When applicable, this information is presented on the following pages of this BHA.	Yes - Fully
Regulated Vegetation Management, Koala Habitat Areas & Koala Priority Areas	

3 BUSHFIRE HAZARD ASSESSMENT

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/m^2. 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. 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.

3.1 BAL Assessment Summary (Contour Map Format)

INTERPRETATION OF THE BAL CONTOUR MAP

The BAL contour map is a diagrammatic representation of the results of the bushfire attack level assessment.

The map presents different coloured contours extending out from the areas of classified vegetation. Each contour represents a set range of radiant heat flux that potentially will transfer to an exposed element (building, person or other defined element), when it is located within that contour.

Each of the set ranges of radiant heat flux corresponds to a different BAL rating as defined by the AS 3959:2018 BAL determination methodology.

The width of each shaded BAL contour will vary dependant on both the BAL rating and the relevant parameters (calculation inputs) for the subject site. Their width represents the minimum and maximum vegetation separation distances that correspond to each BAL rating (refer to the relevant table below for these distances).

The areas of classified vegetation to be considered in developing the BAL contours, are those that will remain at the intended end state of the subject development once earthworks, clearing and/or landscaping and re-vegetation have been completed. Variations to this statement that may apply include:

- Both pre and post development BAL contour maps are produced; and/or
- Each stage of a development is assessed independently.

3.1.1 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)	No	N/A	N/A	N/A	-
Method 2 (Detailed)	Yes	Figure 3.1	Table 1	Appendix A2	Section 3.2.2 Table 1 BAL Contour Map

Under the Bushfire Resilient Communities technical reference guide (2019) a Bushfire Hazard Assessment is to determine the radiant heat flux using

1. The SPP Bushfire asset protection zone calculator or
2. Method 2 of AS3959-2018 with the adoption site specific values of
   a. FFDI (5% AEP fire weather event) determined in accordance with procedure 5.4.2, Step 1.
   b. Site specific vegetation hazard classes and their associated potential fuel loads determined in accordance with procedure 5.4.2 Step 2, together with modified surface fuel loads (w) for certain vegetation hazard classes.

1.	The conditions of the subject site and/or surrounding land are outside the scope of Method 1.
2.	A more specific result is sought.

None required

3.1.2 BAL Ratings Derived from the Contour Map

Table 3.1: Indicative and determined BAL(s) for future buildings/structures on the proposed lots.

BUSHFIRE ATTACK LEVEL FOR FUTURE BUILDINGS / STRUCTURES ON STATED LOT [1]		
Lot No.	Future Buildings / Structure	
	Indicative BAL [2]	Determined BAL [2]
1-22	BAL-LOW	BAL-LOW

[1] The assessment data used to derive the BAL ratings is sourced from Table 1 and Figure 3.2.

[2] Refer to the start of Section 3 for an explanation of indicative versus determined BAL ratings.

3.1.3 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	All new dwellings	The shielding provisions cannot be applied.

Figure 3.1

Existing Topography & Classified Vegetation

Lot 30 RP 223179
393-397 Logan Reserve Road
LOGAN RESERVE
Logan City Council

Area 1
VHC 41.4
Slope 2°
3.89 ha

Area 2
VHC 39.2
Slope 3°
1.36 ha

Area 3
VHC 42.6
Slope 2°
1.02 ha

Area 1
VHC 41.4
Slope 2°
1.84 ha

Area 3
VHC 42.6
Slope 2°
7.7 ha

Area 2
VHC 39.2
Slope 3°
0.2 ha

Area 1
VHC 41.4
Slope 2°
0.71 ha

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

- Subject Site
- 150m Assessment Area
- 100m Assessment Area
- Photos

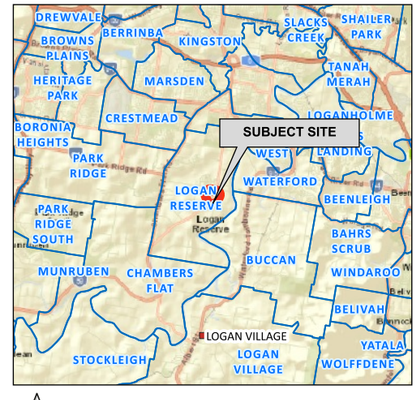
Classified Vegetation Exact Slope

- 39.2 Low to moderate tree cover in built-up areas
- 41.4 Discontinuous low grass or tree cover
- 42.6 Nil to very low vegetation cover
- Classified Veg edge

0 20 40 60 80

Metres

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



AERIAL IMAGERY: Nearmap

Coordinate System: GDA2020 / MGA zone 56
Projection: Universal Transverse Merctaor Units: Metre
Map by: 18-08-2026
SCALE (A3): 1 : 1800

BUSHFIRE PRONE PLANNING

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 30 RP 223179
393-397 Logan Reserve Road
LOGAN RESERVE
Logan City Council

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

- Subject Site
- 150m Assessment Area
- 100m Assessment Area
- Classified Veg edge

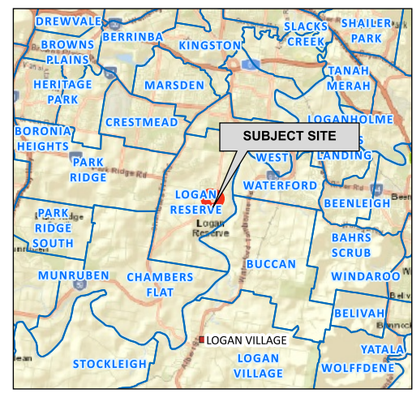
Bushfire Attack Levels

- BAL-LOW

0 20 40 60 80

Metres

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



AERIAL IMAGERY: Nearmap

Coordinate System: GDA2020 / MGA zone 56
Projection: Universal Transverse Merctaor Units: Metre
Map by: 17-08-2026
SCALE (A3): 1 : 1800

BUSHFIRE PRONE PLANNING

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Table 1: 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 2 - DETAILED PROCEDURE (AS 3959:2018 APPENDIX A)										
The Calculation Input Variables - Corresponding to the Applied BAL Determination Method [2]												
Method 2		Fuel Loads			Method 2							
Vegetation Classification		VHC Fuel Loads			Site Slope	FFDI or GFDI	Flame Temp.	Elevation of Receiver	Flame Width	Fireline Intensity	Flame Length	Modified View Factor
Area	Class	Understory	Total	Prone Type[3]	degrees		K	metres	metres	kW/m	metres	% Reduction
1	VHC 41.4	2.5	3.0	3	d/slope 2	54	Default	Default	Default	Default	Default	Default
2	VHC 39.2	5.0	8.0	3	d/slope 3	54	Default	Default	Default	Default	Default	Default
3	VHC 42.6	1.0	2.0	3	d/slope 2	54	Default	Default	Default	Default	Default	Default

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.

Note 3: The prone type is a categorical indicator of the status of VHC with respect to its capacity to support a significant bushfire. The prone type categories are

1=Bushfire prone 2=Grass fire prone 3=Low hazard

3.2 Vegetation Assessment and Classification

Vegetation Types and Classification

In accordance with AS 3959:2018 and the BRC all vegetation types within 150 metres of the site, 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 States BRC Vegetation Hazard Class (VHC) mapping has been used to identify potentially hazardous vegetation. VHCs are based on the Queensland Herbarium's statewide regional ecosystem mapping at the broad vegetation group level, and several other mapping data sets such as foliage projective cover mapping. Ground truthing of vegetation to confirm understory and species composition is conducted to determine post development VHC.

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 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 classification of vegetation within 100 metres of the subject site.

VEGETATION AREA 1						
Classification	**VHC 41.4 Discontinuous low grass or tree cover**					
Effective Slope	Measured	d/slope 2 degrees	Applied Range (Method 1)	N/A		
Foliage Cover (all layers)	10-30%	Shrub/Heath Height	N/A	Tree Height	Up to 30m	
Dominant & Sub-Dominant Layers	Canopy of mature eucalyptus trees with some garden amenity species					
Understorey	Grass maintained as lawn less than 300mm high					
Justification Comments:	Includes roadside verges and neighbouring land under control of the local school maintained by Council and private management.					
Post Development Assumptions:	The classified vegetation areas will remain at the same extent or be reduced as development in the area continues.					



PHOTO ID: 1



PHOTO ID: 2



PHOTO ID: 3



PHOTO ID: 4

VEGETATION AREA 2						
Classification	**VHC 39.2 Low to moderate tree cover in built up areas**					
Effective Slope	Measured	d/slope 3 degrees	Applied Range (Method 1)	N/A		
Foliage Cover (all layers)	10-30%	Shrub/Heath Height	<1 m	Tree Height	Up to 30m	
Dominant & Sub-Dominant Layers	Canopy of mature eucalyptus trees					
Understorey	Regrowth native vegetation including juvenile eucalyptus, acacia sp. and native grasses.					
Justification Comments:	Vegetation along the boundaries within large residential lots to provide a vegetation buffer between dwellings. Some of these areas have had less management, however surrounding fuel is low hazard, and the total area of the patches does not exceed 2 ha. Maintenance of these areas has varied recently with less maintenance of the undergrowth at the rear boundaries. The unmanaged areas are restricted to within two lots, with the front half of both these lots well maintained as lawn or formal gardens. It is unlikely that the unmanaged vegetation will increase in size due to the land use and increase in local development.					
Post Development Assumptions:	The classified vegetation areas will remain at the same extent or be reduced as development in the area continues.					



PHOTO ID: 5



PHOTO ID: 6



PHOTO ID: 7



PHOTO ID: 8

VEGETATION AREA 3						
Classification	**VHC 42.6 Nil to very low vegetation cover**					
Effective Slope	Measured	d/slope 2 degrees	Applied Range (Method 1)	N/A		
Foliage Cover (all layers)	N/A	Shrub/Heath Height	N/A	Tree Height	N/A	
Dominant & Sub-Dominant Layers	Infrastructure and built environment					
Understorey	Grass maintained as lawn within residential lots					
Justification Comments:	None required					
Post Development Assumptions:	The classified areas will remain at the same extent or increase as development in the area continues.					



PHOTO ID: 9



PHOTO ID: 10



PHOTO ID: 11



PHOTO ID: 12

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)

The Bushfire Resilient Communities mapping provides estimated spatially explicit 5% annual exceedance probability (AEP) fire weather event FFDI values for Queensland.

Unlike Queensland's adoption of AS 3959–2018, that uses a single FFDI value for all of Queensland (40), the estimate of fire weather severity in Queensland recognises that weather conditions vary across the state. Values for Queensland vary from 50 in Southeast Queensland and Cape York bioregions to 130 in the south-western parts of the state.

Relevant Jurisdiction:	Qld	Region:	FFDI Contours	Method 1	Applied FDI:	N/A
				Method 2	Applied FFDI:	54
					Applied GFDI:	N/A

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, horizonal 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	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. Higer 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 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 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 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 Hazard Assessment.

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

For the subject site additional information is not required.

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 of this report and illustrated in Figure 3.2.

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

For the subject site additional information is not required.

A2: Additional Assessed Site Inputs Applied Using the Method 2 Procedure

AS 3959:2018 BAL DETERMINATION PROCEDURES

AS 3959:2018 establishes the official methodology to determine the radiant heat flux (RHF) a receiver (e.g., a building, structure, person or specified location), will potentially be exposed to from a fully developed bushfire within any adjacent classified vegetation. The methodology accounts for the configuration of a specific site and its surrounds.

The model calculations are complex. Consequently, AS 3959:2018 establishes two pathways to apply the methodology - a simplified procedure (Method 1) and a detailed procedure (Method 2);

1. The Method 1 procedure has limitations to both its scope and the degree to which site specific conditions can be applied. However, it requires minimal site assessment inputs and provides a standardised output that is satisfactory for many situations; and
2. Method 2 is used when the site conditions are out of the scope of Method 1 or when it is necessary to produce a more site specific result. A suitable level of justification must be provided for the modification of input variables that are applied.

BUSHFIRE RESILIENT COMMUNITIES GUIDELINES

Under the Bushfire Resilient Communities technical reference guide (2019) a Bushfire Hazard Assessment is to determine the radiant heat flux using

3. The SPP Bushfire asset protection zone calculator or
4. Method 2 of AS3959-2018 with the adoption site specific values of
    a. FFDI (5% AEP fire weather event) determined in accordance with procedure 5.4.2, Step 1.
    b. Site specific vegetation hazard classes and their associated potential fuel loads determined in accordance with procedure 5.4.2 Step 2 & Section 6, together with modified surface fuel loads (w) for certain vegetation hazard classes.

Vulnerable Uses

The higher flame temperature of 1200 K is to be applied when determining the availability of suitable onsite sheltering options for tourism vulnerable land uses and a setback that achieves a radiant heat flux of 10kw.m² or less (Section 9.4).

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 defendable space for firefighting activities.

DIMENSIONS

Established by the Guidelines

No APZ dimensions are established by the BRC. 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/m^2 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

B2: Vegetation Excluded from Classification – Ensure Continued Low Threat Status

MAINTAINING THE LOW THREAT STATUS OF EXCLUDED VEGETATION

A new methodology for statewide mapping of bushfire prone areas in Queensland (CSIRO, 2014) used to produce the current statewide Bushfire Prone Area map.

This report outlines the methodology for determining the potential fireline intensity and defines the areas that are identified as potentially low, medium, high and very high bushfire hazards.

Vegetated parts of the landscape that would carry a vegetation fire at an intensity lower than **4,000 kW/m** are categorised as grass fire prone land or low hazard areas (e.g. rainforest or water or non-vegetated urban areas).

Potential Bushfire Intensity Class	Potential Fireline Intensity
1. Very high	40,000 + kW/m
2. High	20,000 – 39,999 kW/m
3. Medium	4,000 – 19,999kW/m

Vegetation will be excluded from classification as a potential bushfire hazard where the fireline intensity is lower than 4000kW/m or are defined in the 'Vegetation Hazard Class descriptions and 80th percentile potential fuel loads' as Prone Type 3 'low hazard'.

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.

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	**The NASH Standard (2021) – Steel Framed Construction in Bushfire Areas**
		Referenced by the Building Code of Australia for Building Classes 1, 2, 3 & 10a	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. The construction requirements are set out as essentially non-combustible construction systems for each of the following building elements: 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 – 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	
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.	
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.	
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.	The construction requirements are set out in Sections 1-5 and differ from the requirements for all other BAL ratings.

[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/m^2, and is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire."*

B4: BAL Contour Map Interpretation

THE BAL CONTOUR MAP

> ***Caution!*** *Future building works require a 'determined' BAL rating for building permit applications. When a BAL contour map is being used for planning assessment purposes, (as opposed to a building assessment purpose), the required 'determined' BAL rating typically is not able to be derived from the map (there are only limited scenarios where this is possible).*
>
> *The BAL ratings identified from the map will more likely be only 'indicative' of what can be achieved – with planning compliance for this factor being achieved when BAL-29 is indicated.*
>
> *Otherwise, an additional assessment of the site data for building application purposes is required, and potentially approval will need to be obtained for native vegetation modification and/or removal from the relevant authority.*

The Bushfire Attack Level (BAL) contour map, when used, is a diagrammatic representation of the results of the bushfire attack level assessment that has been conducted. It presents different coloured contours extending out from the different areas of classified vegetation.

Each contour represents a set range of radiant heat, corresponding to the BAL rating as defined by the AS 3959:2018 BAL determination methodology. When an exposed element (building, person or other defined element), is fully or partly located within a specific contour, it is potentially subject to the corresponding level of radiant heat transfer.

The width of each coloured BAL contour is dependent on both the BAL rating it represents, and the relevant site specific calculation inputs and will vary. It represents the minimum and maximum vegetation separation distances that correspond to each BAL rating for that site.

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.

APPENDIX C: OVERLAY CODE RESPONSE

Logan Planning Scheme 2015 V9.2

8.2.3 Bushfire hazard overlay code

8.2.3.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 8.2.3.3.1 - Bushfire hazard overlay code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Location, design and siting of development		
PO1 Development is designed to: a. minimise risk of bushfire hazard; b. provide safe premises; c. create efficient emergency access for fire-fighting and other emergency vehicles. Note - Planning scheme policy 6 - Management of bushfire hazard provides guidelines on how to achieve this outcome.	**AO1** Development: a. does not increase the number of persons living in, or lots in, the Bushfire hazard area identified on Bushfire hazard overlay map OM-03.00; or b. is on a site that a bushfire hazard assessment prepared in accordance with the methodology in Planning scheme policy 6 - Management of bushfire hazard determines is of low bushfire hazard.	**R1** A site-specific Bushfire Hazard Assessment has been undertaken Bushfire Prone Planning (dated August 2026). The assessment finds: (a) There are no bushfire hazards within 100 metres of the proposed development
PO2 Development is sited and constructed to minimise the bushfire hazard and maximise the protection of life and property from bushfire. Editor's note - Planning scheme policy 6 - Management of bushfire hazard contains guidance on the preparation of bushfire management plans.	**AO2** Development is located and constructed: a. where there is no bushfire management plan approved by an existing development approval: i. such that the bushfire attack level is less than or equal to BAL-29; ii. away from the most likely direction of a fire front; iii. so that elements of the development least susceptible to fire are sited closest to the bushfire hazard;	**R2** Development is exposed to a low bushfire hazard. All future buildings on proposed lots can achieve a BAL LOW rating.

	iv. such that asset protection zones are sited on land with a slope less than 18 degrees; v. such that asset protection zones are entirely within the boundaries of the private property of the development site; or b. where an approved bushfire management plan directs development to be located. Note - BAL = Bushfire attack level is the radiant heat flux a building will experience during a bushfire and is a measure of heat energy impacting on a surface expressed as kW/m^2. BAL is calculated from the following factors; vegetation type, fuel loads, distance to vegetation, Forest Fire danger Index (FDI), flame length, fire behaviour/intensity and slope. BAL is used to determine the required construction level of a building and the size of asset protection zones (inner and outer radiation zones). Further information on calculating the BAL can be obtained from AS3959-2009. Editor's note - Asset protection zones are not located on slopes greater than 18 degrees to ensure maintenance is practical, soil stability is not compromised and the potential for crown/canopy fires is reduced.	
PO3 Reconfiguring a lot ensures that lots are designed to minimise bushfire hazard and provide safe sites for people, property and buildings.	**AO3** Lots: a. are suitable for people, property and buildings by: i. having a bushfire attack level less than or equal to BAL-29; or ii. containing a development envelope area that has a bushfire attack level less than or equal to BAL-29; b. provide asset protection zones that: i. are located on land with a slope less than 18 degrees; ii. are located on the same lot.	**R3** All future buildings on proposed lots can achieve a BAL LOW rating.
Vehicular access and fire maintenance trails		
PO4 Access for fire management and evacuation is provided by access that:	**AO4**	**R4** No bushfire hazards are found within 100 meters of the development.

a. separates premises from adjoining vegetation; b. is safely accessible by fire fighting vehicles; c. has regular vehicular access points for bushfire management, response and evacuation; d. has regular vehicle passing and turning areas for bushfire management, response and evacuation; e. allows access at all times for fire fighting vehicles; f. allows for maintenance, burning off and bushfire response; g. has vehicular links to an alternative through road; h. is readily maintained. Editor's note - Planning scheme policy 6 - Management of bushfire hazard provides details on alternative solutions for providing fire management access and evacuation	Access for fire management and evacuation is provided by vehicular access in the form of a perimeter road: a. with a minimum reserve width of 20 metres; b. located between the premises and adjoining vegetation; c. with a maximum gradient of 12.5 percent; d. constructed to otherwise comply with section 3.4 - Movement infrastructure standards of Planning scheme policy 5 - Infrastructure; e. that has a layout that does not include a cul-de-sac.	
Water supply		
PO5 Development has access to adequate water supply for fire fighting purposes.	**AO5** Development: a. is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or b. has an on-site water storage in accordance with Table 8.2.3.3.2 - Water storage for fire fighting, dedicated or retained for fire fighting purposes that is made of fire resistant materials and is: i. a separate tank; or ii. a reserve section in the bottom part of the main water supply tank. Editor's note - The requirement in AO5 is: - in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.1 - Infrastructure code: accepted development (subject to requirements) and assessable development.; - reflected in AO5 in Table 9.4.3.3.1 - Infrastructure code: accepted development (subject to requirements) and assessable development.	**R5** Development is connected to reticulated water.

For assessable development		
Community infrastructure		
PO6 Community infrastructure is not located in a bushfire hazard area or is able to function effectively during and immediately after a bushfire event.	**AO6** Community infrastructure is: a. not located in a Bushfire hazard area identified on Bushfire hazard overlay map OM-03.00; or b. located to ensure that: i. the core services provided by the community infrastructure is able to function effectively during bushfire events; ii. access to the community infrastructure is not compromised by bushfire events; iii. the safe storage of valuable records, public records and items of cultural or historic significance is able to be maintained during a bushfire event.	**R6** No community infrastructure is proposed for the development.
Hazardous materials		
PO7 Public safety and the environment are not adversely affected by the adverse impacts of bushfire on hazardous materials including fuels, explosives and flammable chemicals manufactured or stored in bulk on premises.	**AO7** Hazardous materials: a. storage is in compliance with AS1940 - The storage and handling of flammable and combustible liquids; b. manufacturing does not occur in a Bushfire hazard area on Bushfire hazard overlay map OM-03.00.	**R7** No storage of hazardous materials is proposed for the development.

Table 8.2.3.3.2 - Water storage for fire fighting

Lot size / use type	Water requirement
For each residential lot:	
(a) less than 1,000m2	5,000 litres
(b) between 1,000m2 and less than 1 hectare	10,000 litres
(c) greater than 1 hectare	20,000 litres
Multiple dwelling	5,000 litres per dwelling up to a maximum of 20,000 litres
A use other than Multiple dwelling	5,000 litres or the prevailing rural fire brigade standard