Bushfire Management Plan

22 McNeill Rd, Champion Lakes

June 2025

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LIMITATIONS STATEMENT

This Bushfire Management Plan ('BMP') addresses a proposal to create 44 lots from an existing lot at 22 McNeill Road, Champion Lakes.

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Version Control

22 McNeill Road, Champion Lakes			
Version	**Date**	**Author/Reviewer**	
V1	28 February 2025	Jacqui Rowe	Author
	12 March 2025	Anthony Rowe L3 BPAD 36690	Reviewer
V2	9 June 2025	Jacqui Rowe	Author
	9 June 2025	Anthony Rowe L3 BPAD 36690	Reviewer

Disclaimer

In undertaking this work, the authors have made every effort to accurately apply the available information at the time of writing following the instructions of the regulatory authorities and applying best practice as described by the Fire Protection Association Australia. Any conclusions drawn or recommendations made in the report are made in good faith, and the consultants take no responsibility for how this information and the report are subsequently used.

Envision Bushfire Protection accepts no liability for a third party's use of, or reliance upon, this specific report.

Envision Bushfire Protection accepts no liability for the inaction of the owner to provide or maintain the bushfire protection measures identified in this report. Vegetation is dynamic, building materials may distort, and the accumulation and the location of flammable materials near the building may affect the potential for damage or loss of a building to occur.

Failure to maintain the property and/or building to these standards may compromise an insurance policy if currently covering any of your assets or those of any third party that may be consequentially affected due such failure. If not insured, and if you are seeking insurance, this report may not influence the decision of any insurer not to offer cover.

Importantly the measures contained in this report cannot guarantee human safety or an absence of harm or that the building will not be damaged or would survive a bushfire event on every occasion. This is due to the unpredictable nature of fire behaviour (knowledge in this field continues to develop) and the unpredictable nature of extreme weather conditions.

Scope of this report

Envision Bushfire Protection has been engaged to provide expert bushfire safety and planning advice.

The scope of the advice has been to assess the proposal for compliance with the policy measures described in State Planning Policy 3.7 *Bushfire* (2024) and identify appropriate mitigation measures to be considered by the determining authority. This is described in a Bushfire Management Plan and prepared with regard to the Department of Planning Lands and Heritage templates.

Client relationship

I was engaged to provide expert bushfire safety and planning advice. My relationship with the client is a standard commercial contract, and no private, personal, or other matter has influenced the content of the BMP or my findings.

STATEMENT OF CONFORMITY – PLANNING AND DEVELOPMENT ACT 2005

Anthony Rowe Level 3 - BPAD36690

Principal Bushfire Consultant **I** Town Planner

BPAD Accredited Practitioner Level 3 I PIA Registered Practicing Planner

The signatory declares that this Bushfire Management Plan meets the requirements of State Planning Policy 3.7 Bushfire and the Planning for Bushfire Guidelines 2024.

SUMMARY

This BMP has been prepared as documentation to support a renewal of the subdivision approval for 44 lots at existing lot 22 McNeill Road, Champion Lakes.

The site is located within the City of Armadale (Plate 2) and is within a bushfire prone area (Area 2 Bushfire Prone Map).

State Planning Policy 3.7 *Bushfire (2024)* is applicable to the assessment of the subdivision.

1. **Proposal details (addressed in Section 1)**

An existing subdivision approval (WAPC approval 160652) for this lot will expire in August 2025.

There has been a minor change to the approved lot layout; 2 lots that had previously been planned to take access from McNeill Road at their eastern boundary, will instead take access from (proposed) Waler Road (north).

The existing lot is 2.3 ha, and the subdivision proposes 43 residential lots ranging in size from 302 m^2 to 470 m^2 and a Public Open Space (POS) of 1968 m^2.

Since the WAPC approval 160652, an application has been approved for the lot at the east boundary (436 Lakes Road) for a gated residential village, through which the road access is to connect (gated) or share the termination/turnaround area from the site. The site-works on the adjacent land have not commenced and the timing is not confirmed.

Four proposed lots at the eastern boundary will be withheld to provide for a temporary road arrangement through those lots until the development at the adjacent lot (immediate east) proceeds and shared trafficable arrangements are made.

Environmental consideration

All vegetation on site, will be permanently removed for the subdivision. This is consistent with the zoning and the expectation of the Armadale Redevelopment Scheme 2. An area of Woodland at the northeastern portion of the site will be retained as Low Threat within the POS.

Compliance with the Bushfire Protection Criteria

The assessment of compliance with SPP 3.7 Outcomes is provided by alignment of the proposal with Bushfire Protection Criteria 5 –Structure Plans and subdivision applications.

<u>Location</u>

The site is within a Broader Landscape Area Type A and classed as acceptable.

<u>Siting and Design</u>

Figure 6 illustrates all proposed lots (Lots 802-844) have a developable area that can achieve BAL 29 or less with the exception of proposed lots 819, 825, 835 and 836 which are temporarily impacted by a BAL exceeding BAL 29 due to grassland immediately east on a lot which has been approved for subdivision. These lots are to be withheld to provide for temporary roads, until subdivision works provide for turning heads or a through road arrangement with 436 Lakes Road; at this time the BAL effect from 436 Lakes Road will also be removed to reduce the BAL within the affected lots to BAL Low – BAL 12.5 (< BAL 29).

<u>Vehicle Access</u>

The site proposes two access points from McNeill Road, and three connections into the future residential development of the land to the east of the site.

Proposed lots 819, 825, 835 and 836 will be withheld to provide for a compliant temporary road arrangement to until development at the adjacent lot (immediate east) proceeds and shared trafficable arrangements are made.

Water

The site is within an area which has a reticulated water supply. Hydrants servicing the subdivision will be certified to be present prior to the issue of titles.

Additional Bushfire Management Strategies (addressed in section 5.2)

There are no additional bushfire management strategies required to support compliance with the bushfire protection criteria.

Spatial representation of the bushfire management strategies (Figure 7)

The key features demonstrating compliance with the bushfire protection measures are identified on the *Spatial representation of the bushfire management strategies*.

These illustrated actions follow the *Responsibilities for implementation and management of the bushfire measures,* in this instance key features at the site.

Responsibilities for Implementation and Management of the Bushfire Measures.

The *Responsibilities for Implementation and Management of the Bushfire Measures,* addressed in section 6 of the BMP and identified at Figure 7 supersede or are additional to the details included within the Subdivision application.

The conditions are to be satisfied prior to the issue of land titles.

Table of Contents

1. PROPOSAL DETAILS

Introduction

A subdivision (renewal) is proposed to create 43 residential lots and a public open space (POS) at 22 McNeill Road, Champion Lakes. The existing subdivision approval for this lot (WAPC 160652) will expire in August 2025.

The site is within Area 2 on the State (OBRM) Map of bushfire prone areas (2024) and identified for residential development in Armadale Redevelopment Scheme 2.

Site and Proposal Description

Address	**22 McNeill Road, Champion Lakes**			
Local Government Area	City of Armadale			
Local Planning Scheme Zone	Urban Development			
Bushfire Season	30 November - 31 May			
Development proposal	The subdivision (refer plate xx) will result in – 43 residential lots – 1 public open space – A public road network			
Land description site **Existing buildings** **Topography** **Site Vegetation**	The site area is 2.3 ha and generally flat. There are no existing buildings. The site historically was predominantly grassland with areas of woodland. All vegetation will be cleared during siteworks for the subdivision.			
Adjoining Vegetation	North West	North East	South East	South West
Within 150 m	Palomino Park (Public Reserve)	Grassland in a lot awaiting urban development	Residential	Rural Living
Within 1 km (by quadrant)	Rural Living	Residential	Residential	Residential/ Rural Living
Within 2 km (by quadrant	Rural	Residential	Residential	Rural Living/ Residential
Road Access	The site is to be accessed from McNeill Road; 2 access roads are proposed.			
Nearest Town Centre	The site is 5 km northwest from the Armadale town centre			
Water supply	The site is within a reticulated area and hydrants will be provided.			
Tele communications	The site is within the 5G Telstra network.			
Emergency services	Armadale Fire Station 438 Green Ave, Armadale (5 km southeast)			

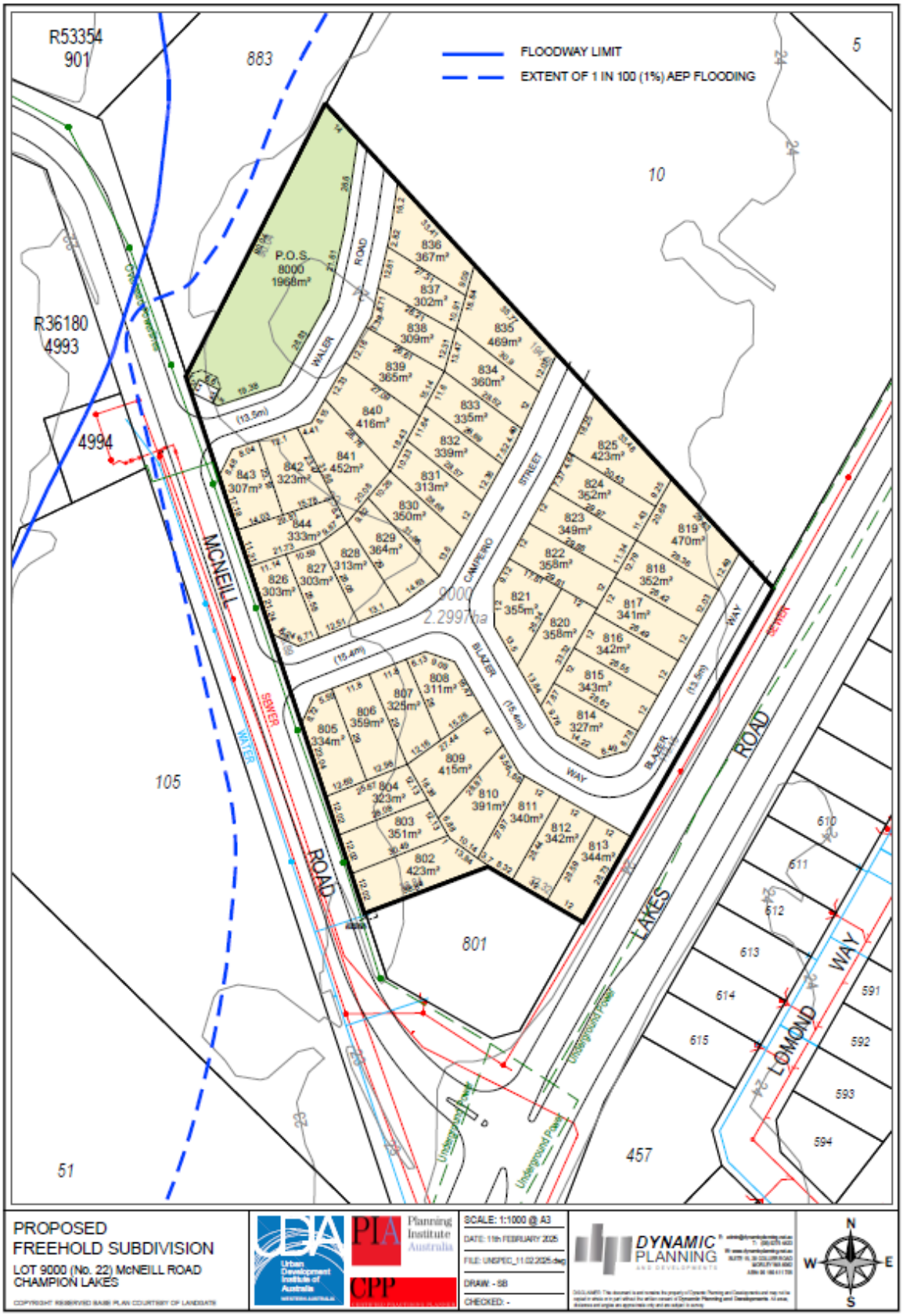

Figure 1a – proposed subdivision

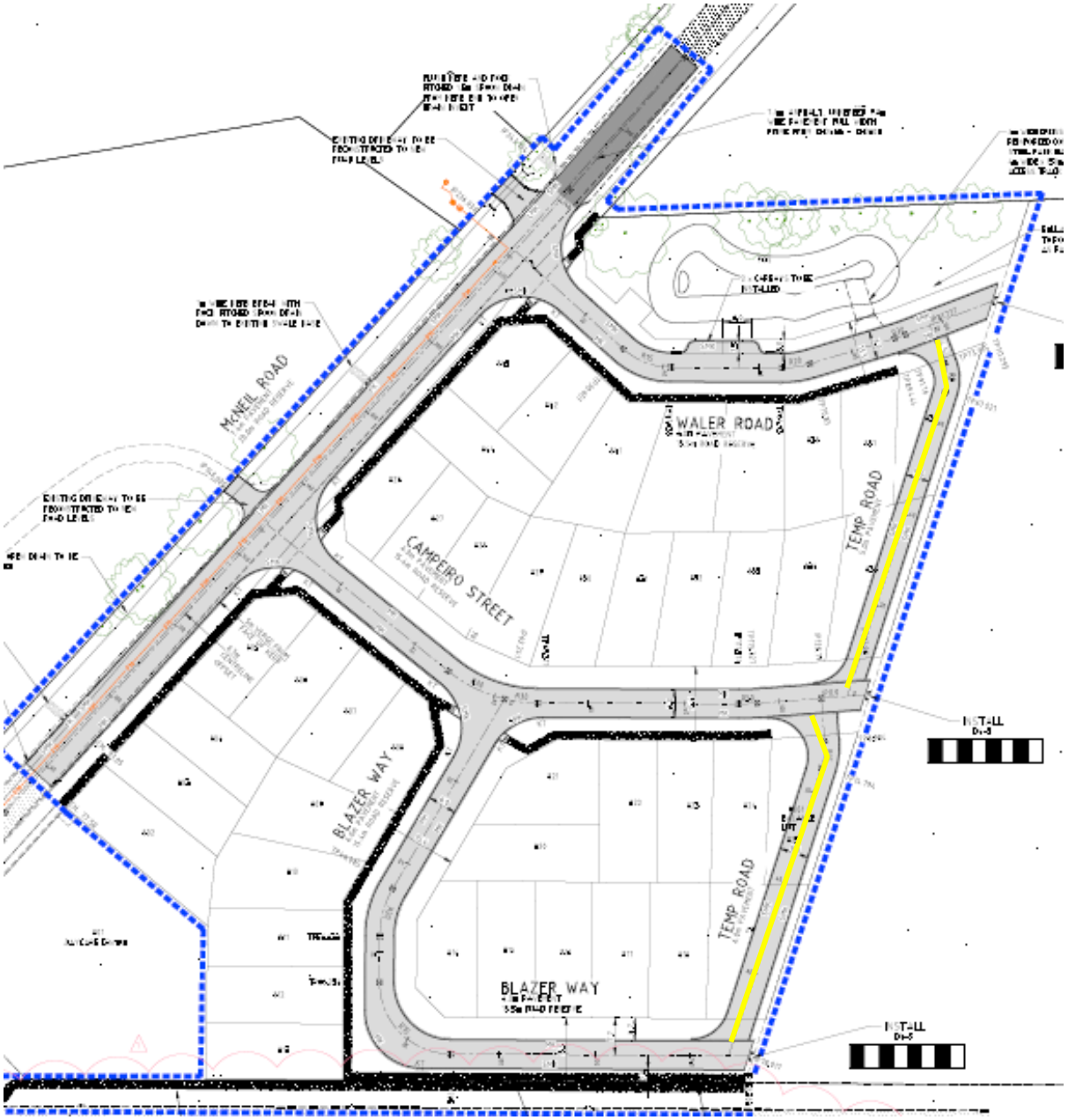

Figure 1b – proposed temporary road arrangement (east boundary)

Figure 2: Location Plan

Legend

- Site Boundary
- 150 m Assessment area
- 100 m Assessment area

Assessment Date: 11/02/2025
BAL Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2025
FPAA FIRE MAP 2025
GDA 1994 MGA Zone 50

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Figure 3: Bushfire Prone Area (Sep 2024)

Legend

- Site Boundary
- 150 m Assessment area
- 100 m Assessment area
- Bushfire Prone Map

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Regulatory Compliance Requirements

Planning and Development Act 2005 - SPP 3.7

On 7 December 2015, the State Government first introduced by Gazette, a state map of Bushfire Prone Areas by order under the *Fire and Emergency Services Act 1998* and introduced development controls in Bushfire Prone Areas through the *Planning and Development Act 2005*. These controls were authorised by State Planning Policy 3.7 (Planning in Bushfire Prone Areas) and regulations introduced under Part 10A Schedule 2 of the *Planning and Development (Local Planning Scheme) Regulations 2015*.

SPP 3.7 and the *Guidelines for Planning in Bushfire Prone Areas was updated 24 September 2024 and became operational from 18 November 2024.*

The State Bushfire Map has also now been divided into Area 1, as identified within the Perth metropolitan area, Rockingham, Mandurah and Bunbury, and Area 2 (being the balance not identified as Area 1).

State Planning Policy 3.7 Planning in Bushfire prone areas 2024.

Key aspects to be followed from SPP 3.7 (as a project design brief) and demonstrated in the proposal include:

SPP Policy Intent

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

The Policy Intent is achieved by demonstrating a capability for the resulting development to comply with the bushfire protection criteria assessed in section 5 of this BMP.

The proposed subdivision is consistent with the expectations for the development (Zoning) of the land. The development is classed as 'unavoidable', risk management measures Bushfire Protection Criteria 6 is required.

2. ENVIRONMENTAL CONSIDERATIONS

2.1 Native Vegetation – Modification and Clearing

A fundamental consideration in the assessment of development under SPP 3.7 is to prioritise the retention of native vegetation and avoid (unless unavoidable) instances where bushfire risk management measures would conflict with the objectives of the separate State, Federal and Local, Environment Protection Legislation (these are listed below).

Environment Protection Act 1986 and Environmental Protection (clearing native vegetation) Regulation 2004

It is an offence to clear native vegetation without the authority of a permit or an exemption. The act of clearing native vegetation, requires a permit from either the Department of Water and Environmental Regulation (DWER) or the Department of Mines, Industry Regulation and Safety (DMIRS), unless an exemption applies.

Exemptions include:

Environment Protection Act 1986

- Clearing required by local government Section 33 *Bush Fires Act 1954.*
- **Clearing in accordance with the terms of a subdivision approval.**
- Clearing in accordance with a permit under the *Bush Fires Act 1954* (prescribed burning) and clearing by a bushfire control officer.

Environmental Protection (clearing native vegetation) Regulation 2004 (exemptions do not apply in Environmentally Sensitive Areas, and clearing > than 5 ha)

https://www.der.wa.gov.au/your-environment/environmentally-sensitive-areas

- Clearing to the extent necessary to construct an approved building.
- Clearing that is for fire hazard reduction burning.
- Clearing to maintain an area cleared in the last ten years.

(WA) Biodiversity Conservation Act 2016 and Bio-diversity Conservation Regulations 2018

The *Biodiversity Conservation Act, 2016*, replaces the *Wildlife Conservation Act, 1950*, and the *Sandalwood Act, 1929*, it became operational with the *Bio-diversity Conservation Regulations 2018*, on 1 January 2019.

The Act provides for listing species, threatened ecological communities (TECs), key threatening processes, and critical habitats. It introduces criteria for listing species 'endangered', 'critically endangered' or 'vulnerable,' to align with the Environment Conservation and Biodiversity Conservation Act 1999 (Cth).

The *Biodiversity Conservation Act 2016* recognises that activities approved under the *Environment Protection Act 1986* do not require further approval include clearing of native vegetation that is either exempt or done under the authority of a clearing permit or done in accordance with an implementation decision under Part IV of the *Environment Protection Act 1986*.

Advice from agencies responsible for environmental protect and biodiversity conservation will be sought, in addition to any separate City requirements.

Commonwealth Environment Protection Biodiversity Conservation Act 1999

The Commonwealth Environment Protection Biodiversity Conservation Act 1999 (EPBC) provides for the protection of matters of national environmental significance. National environment law does not generally regulate fire prevention measures taken by state and territory governments, but no specific exemptions are provided.

Local vegetation retention policies

A number of local government have local policies for the retention of native vegetation for biodiversity or amenity purposes. These are not directly attributed as consideration for the Bushfire Management Plan

but may affect the basis for the local support of the subdivision. The identification of local policies affecting the bushfire protection measures is the responsibility of the local government.

In accordance with the Department of Planning Lands and Heritage template a review of the listed databases (Landgate) has been undertaken to identify whether restrictions or other specific considerations may apply that would affect the implementation of any bushfire protection initiatives that would involve the removal or modification of regulated native vegetation (flora) and the habitat (fauna) it supports (it does not include local policies).

Table 1 – Landgate SLIP viewed 28 February 2025

Is the land affected by:	Yes/No	Comment	
Conservation Wetland or buffer (DBCA-013 DBCA-019)	Yes	Identified as 'multiple use wetland' by DBCA 19	
RAMSAR Wetland (DBCA-010)	No	The site is not identified as RAMSAR site.	
Threatened and Priority Flora (DBCA-036)	No	No threatened and Priority Flora are identified within the site	
Threatened and Priority Fauna (DBCA-037)	No	No threatened and Priority Fauna are identified within the site	
Threatened Ecological Communities (DBCA-038)	No	No threatened ecological communities are identified within the site	
Bush Forever (DPLH-019)	No	The site does not occupy an area identified as Bush Forever.	
Environmentally Sensitive Area (DWER-046)	No	The site is not identified as an Environmentally Sensitive Area (ESA)	
Regionally Significant Natural Areas (DWER-070)	No	The site is not within the Swan Bioplan	
Conservation Covenant	No	No existing covenant is displayed.	
Does the proposal require the removal of restricted vegetation?		~~YES~~	**NO**

Native Vegetation – Modification and Clearing

SPP 3.7 Bushfire prioritises the retention of native vegetation unless unavoidable, as a first consideration before proceeding to address the bushfire risk management measures.

Objective 5.4

Prioritise the retention of native vegetation for biodiversity conservation environmental protections and landscape amenity

Outcome 6.2

Ensure siting and design solutions:

- *avoid, or where unavoidable, minimise the clearing of native vegetation*

SPP3.7 and its Guidelines recognise there is an expectation to be able to build a habitable building on a lot zoned for its intended purpose.

The proposed subdivision is consistent with the expectation for the site as identified by the Armadale Redevelopment Scheme 2. The site is within Precinct 14 of the Wungong Project Area. Precinct 14 is described in the Armadale Redevelopment Scheme 2 as predominantly residential..

All vegetation on site, will be permanently removed for the subdivision.

Other approvals

Please note that separate authorisations may be required under the Environment Protection Act 1986. This BMP may identify works that will require a further approval under other legislation. The authorisation under the Planning and Development Act, for which this documentation is being produced, does not subvert the requirements for approval under other Federal or State legislation.

This BMP does not pre-empt its finding or provide any priority.

This BMP has not considered local vegetation retention facilitation for biodiversity and amenity purposes. It has considered the future use of public open space and it potential (bushfire) to affect the site.

Re-Vegetation/Landscape Plans

Proposed Lots

An area (1968 m^2) within the northwestern portion of the Site is to be retained as Public Open Space (POS). The POS will include the retention of some existing trees on the north western boundary, and new vegetation in and around the basin.

No other revegetation plans are proposed.

The lots range in size from 303 m^2 to 470 m^2 and each lot is to be developed for residential purposes. Any gardens will be managed (low threat). With the exception of the POS which has been classified as scrub, the completed site will comply with AS 3959:2018 low threat section 2.2.3.2(e) and (f).

3. BUSHFIRE ASSESSMENT

3.1 Broader Landscape Assessment

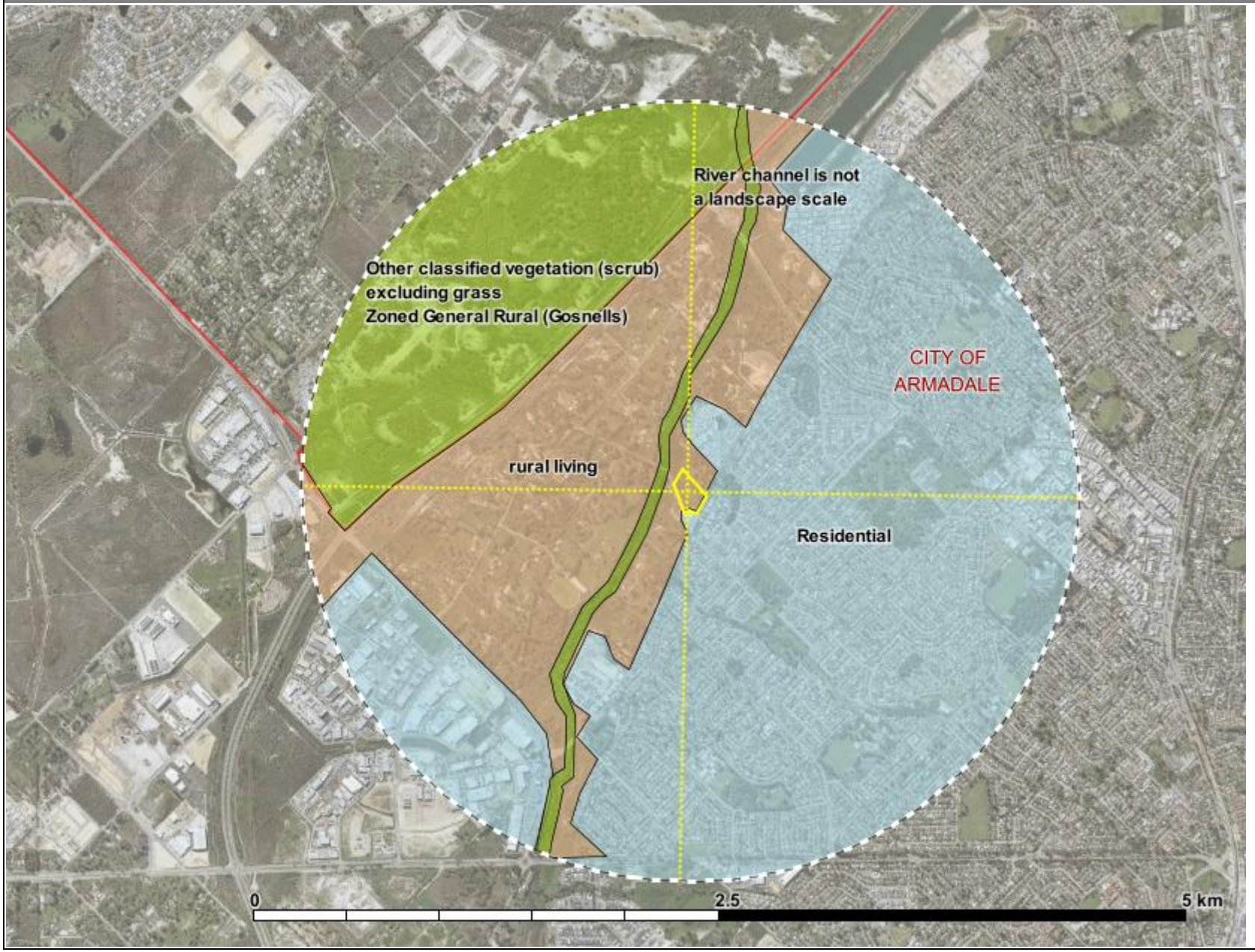
The broader landscape assessment provides a basis for identifying the site context to potential landscape scale bushfire hazards extending 2 km from the site.

The broader landscape assessment is determined upon a point score system and includes the assignment of points to the following:

- The vegetation classification:
  - A contiguous extent of vegetation for classification purposes is a minimum 1000 m deep and 100 m wide, it has the potential to result in a landscape scale bushfire (Guidelines page 92);
  - A mosaic vegetation landform is one that consists of grassland and vegetation within rural living precincts (Guidelines page 67); and
  - Cleared vegetation is residential or urban zoned land.
- The classified vegetation is identified by quadrant, to determine if the site is surrounded or the fire source is only from certain directions. A quadrant is a cardinal distribution. A hemisphere is one side comprising two quadrants. The quadrant may be aligned such the classified (contiguous vegetation) fills the volume of a quadrant);
- Assessment considerations include the access routes and the ability to avoid extreme bushfire hazards and travel in the opposite direction of a bushfire; and
- Assessment considerations include the proximity to a township (suitable destination). The closer the location the shorter the travel time and greater is the likelihood of emergency support.

The BLA informs Section 4 Identification of Bushfire Hazard Issues, and the topography in the broader landscape also affects bushfire behaviour and in particular erratic bushfire behaviour. A Topography map has been provided in the BLA map suite.

Figure 4a Vegetation type and Aspect



Site Boundary

2 km Assessment Area

Low Threat Vegetation

Unmanaged grassland

All other classified vegetation

Assessment Date: 11/02/2025
BAL Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2025
FPAA FIRE MAP 2025
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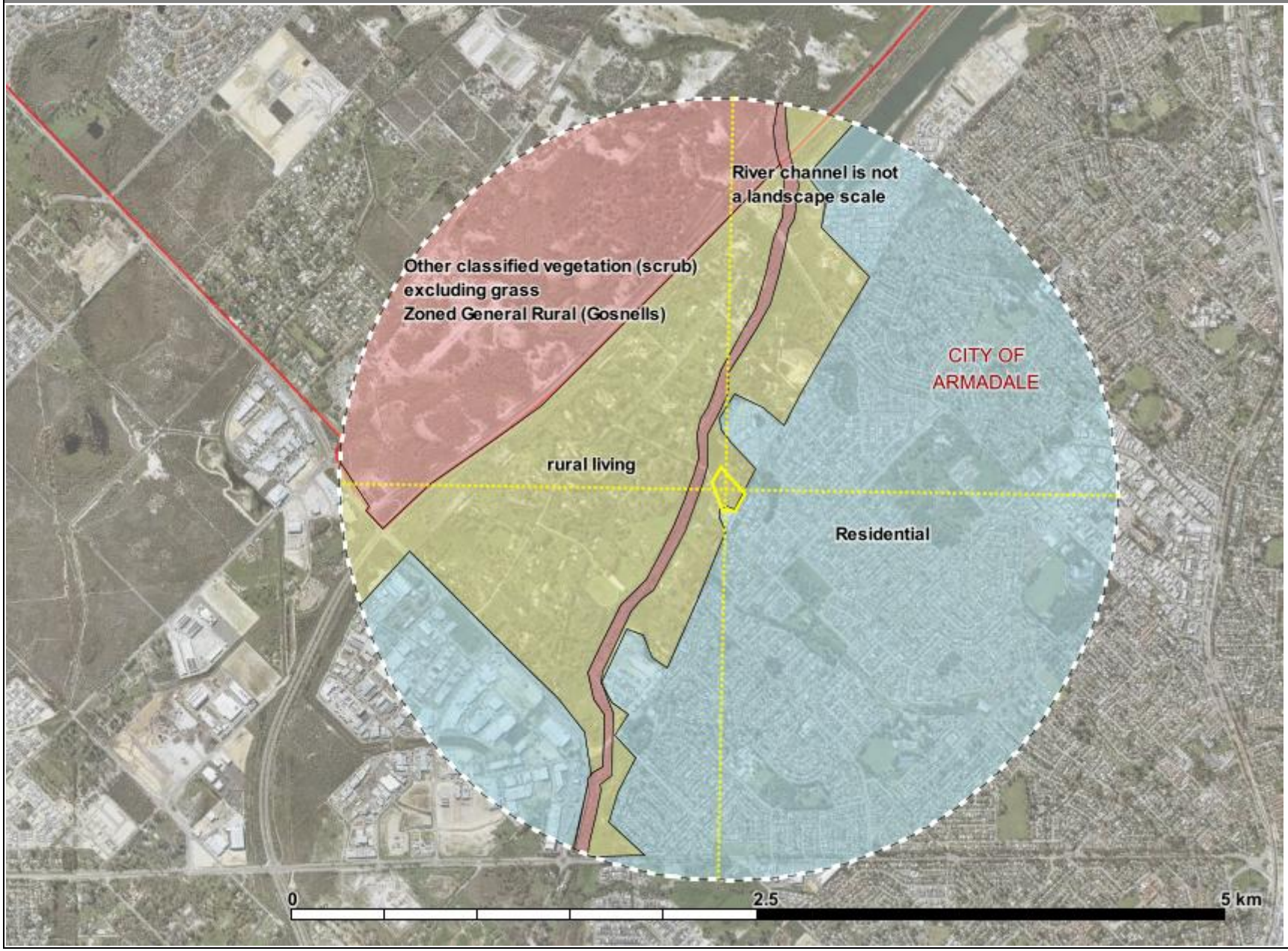
Figure 4b Vegetation pattern



Site Boundary

Cleared vegetation

Mosaic pattern

Large tracts classified vegetation

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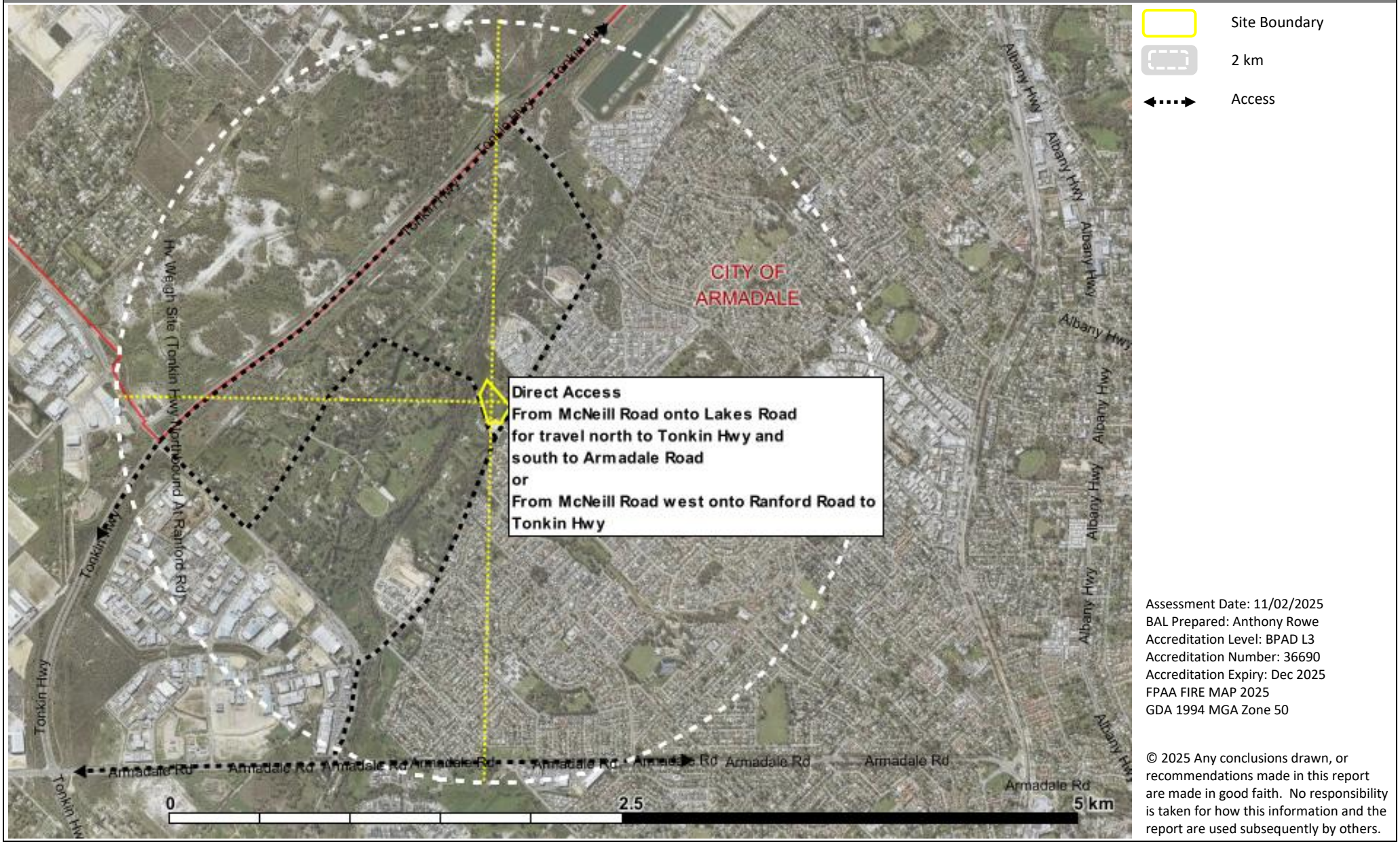
Figure 4c: Roads and destinatons



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3.1.1 Bushfire Landscape Assessment

The Broader Landscape assessment utilised the following point scores.

Criteria	5 Points	2 Points	1 Point	score
Proximity of the planning proposal to a suitable destination is:	>10 km	1-10 Km	**< 1 km** (within the urban Perth area)	1
The road pattern from the planning proposal to a suitable destination is:	Complex and indirect (cul-de-sacs, and/or multiple intersections)	Mixed road patterns	**Simple and/or direct (limited intersections)**	1
The predominant vegetation pattern is	large tracts of vegetation (contiguous vegetation)	A mosaic pattern of vegetation (e.g. vegetation within rural living precincts)	**Cleared vegetation (e.g. clearing for residential zoned urban lots)**	1
Exposure of the planning proposal to an identified external bushfire hazard (excluding Class G Grassland) is from	Three or four aspects	Two aspects	**From nil or one aspect only** **(Single Aspect predominantly grassland)**	1
Total				**4**
0-11 Points	**Broader landscape type A (BLT A)**			
12-20 points	Broader landscape type B (BLT B)			

The proposed lots are within Broader landscape type A (BLT A < 11).

The site is within the urban area, with access to the urban road network and multiple suitable destinations (as may be nominated depending upon the location of a bushfire event). The site is within an area that had been historically cleared for pasture/grazing, the predominant vegetation (outside of developed residential) is grassland.

3.2 Bushfire Attack Level Contour Map (Inputs)

The following assessment has applied the methodologies described in AS 3959:2018, the Guidelines, and has used the Fire Protection Association Australia accredited practitioner methodology for the preparation of Bushfire Attack Level (BAL) assessments.

All vegetation within 150 m (context) of the site has been classified following Clause 2.2.3 (AS 3959:2018) to determine the predominant vegetation affecting the behaviour at the locality. The Bushfire Attack Level is determined by the **predominant** vegetation within 100 m of the site boundary (for subdivision), or around the development site (building envelope) or the external face from a habitable building.

The classifications of vegetation used in AS 3959:2018 are based on foliage cover, measured as a percentage of a hectare and by the fuel (vegetation) height.

> ***Foliage cover**: The portion of the ground that would be shaded by foliage when the sun is shining directly overhead, expressed as a percentage for each stratum or identifiable layer of vegetation*

AS 3959:2018

Layer/ Stratum	Description	Hazard
Bark	Tight/fine or course/ribbon	Spotting and ember attack potential (the potential increases course/ribbon barks)
Canopy	Trees taller than 6 m	Influences the flame height
Elevated fuel	Trees and Shrubs up to 6 m	Influences the flame height
Near surface	Grasses and shrubs taller than 100 mm and up to 2 m	Influences the rate of spread (the further cured, looser and potential aerated, the easier to ignite and the faster the spread).
Surface	On ground material, leaves, twigs, bark	Influences the rate of spread (the looser and potential aerated the easier to ignite and the faster the spread).

From CFA (Vic) Overall fuel assessment guide 2010

AS 3959:2018 prescribes six categories of Bushfire Attack Level (BAL): BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40, and BAL-FZ. In addition, BAL-FZ describes only performance solutions where the separation from classified vegetation (on completion) is less than 10 m. The BAL level is used for determining the siting of development (to be less than BAL-40) and in turn the construction standard that is equivalent to the BAL at the proposed building location.

This assessment has followed the guidance of AS 3959:2018. This includes:

- A recognition of excluded vegetation types described at cl.2.2.3.2 (e) and (f), but the underlying vegetation should still be classed e.g., an orchard may be excluded but not the grassland within it.
- A separate plot is applied if there is a variation in the slope greater than 5.0^0
- For various vegetation classes a representation that is less than 10%, does not constitute the predominant class. Foliage cover referred to in AS 3959:2018 for various classes is based on the foliage cover for that class as a percentage of a ha. (shadow cast is not representative of foliage cover).
- The measurement point and the most influential vegetation class (presenting the highest BAL at the building) is used for the determination of the BAL at the building (Figure 2.2 AS 3959:2018).
- Consideration of the predominant vegetation is to consider the likelihood of regeneration.
- Orchards, and single tree rows (planted in a row less than 10 m wide) is determined by underlying the near surface fuel.

In assessing vegetation classes for forests, woodlands and rainforests, the classified vegetation will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk of any trees.

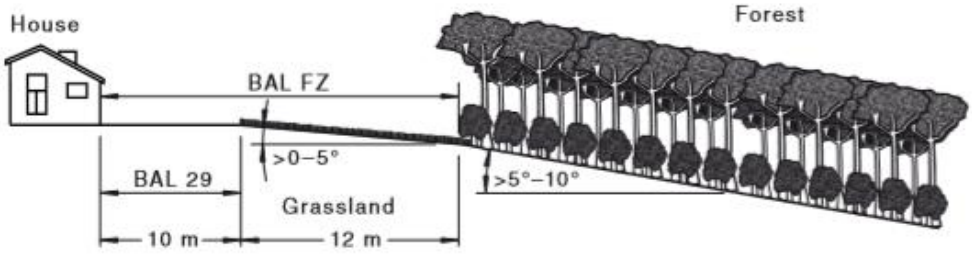

FIGURE 2.2 EXAMPLE OF VARYING SLOPE RANGES FOR ASSESSMENT

Plate 4**:** Effective Slope and measurement taken from AS 3959:2018

Effective slope under each vegetation plot was assessed in accordance with the methodology detailed in AS 3959:2018 Construction of buildings in bushfire prone areas (AS 3959) (Standards Australia, 2018 Bushfire Fuels). Slope data was measured on site and cross referenced with Landgate elevation data.

METHOD 2 - Short fire run POS - Outputs See Figure 6b

Vegetation class Scrub

Scrub width 25 m flat

FDI 80

Minimum separationto lot boundary 14 m

(No other input variations)

NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 9/06/2025 **Assessment Date:** 11/02/2025

Site Street Address:	McNeill Road, Champion Lakes
Assessor:	Anthony Rowe; Envision Bushfire Protection
Local Government Area:	WA
Alpine Area:	No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description:	Method 2		
Vegetation Information			
Vegetation Type:	Scrub/Tall Heath		
Vegetation Group:	Shrub & Heath		
Vegetation Slope:	0 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	25	**Overall Fuel Load(t/ha):**	25
Vegetation Height(m):	3	Only Applicable to Shrub/Scrub and Vesta	
Site Information			
Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	6	**APZ/Separation(m):**	14
Fire Inputs			
Veg./Flame Width(m):	9.15	**Flame Temp(K):**	1090
Calculation Parameters			
Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	80
Program Outputs			
Level of Construction:	BAL 19	**Peak Elevation of Receiver(m):**	4.39
Radiant Heat(kW/m2):	12.55	**Flame Angle (degrees):**	54
Flame Length(m):	11.63	**Maximum View Factor:**	0.191
Rate Of Spread (km/h):	4.17	**Inner Protection Area(m):**	14
Transmissivity:	0.862	**Outer Protection Area(m):**	0
Fire Intensity(kW/m):	53816		

Figure 5: Topography

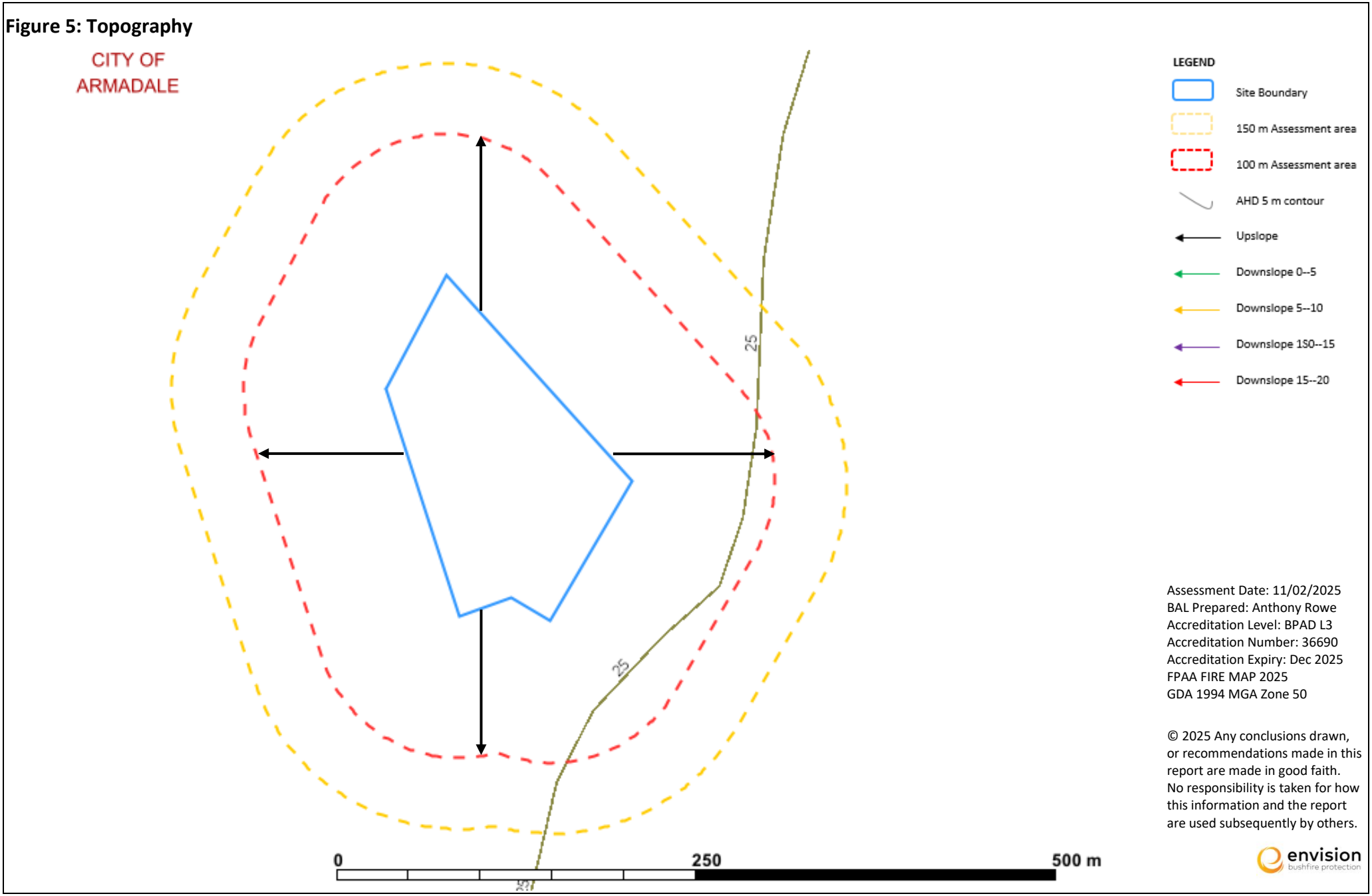

Figure 5b: Vegetation Classification and photo locations

LEGEND

- Site Boundary
- 150 m Assessment area
- 100 m Assessment area
- Proposed dwelling
- PX/X/X — Plot / Veg Class/Slope
- Class A Forest
- Class B Woodland
- Class C Shrubland
- Class D Scrub
- Class G Grassland
- Excluded Clause 2.2.3.2 (e & f)
- Excluded Clause 2.2.3.2 (e) non-vegetated

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Accreditation Expiry: Dec 2025
FPAA FIRE MAP 2025
GDA 1994 MGA Zone 50

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Plot 1				
Vegetation Classification			**Slope**	
Excludable - 2.2.3.2(e) Non Vegetated Areas			Flat	
Observation/Justification for classification (Overall Fuel Hazard Assessment Guide-Hines)				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓	✓	✓	✓
Moderate				
High				
Very High				
Extreme				
Vegetation Description (AS 3959)				
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, vineyards, orchards, banana plantations, market gardens (and other non-curing crops) cultivated gardens, commercial nurseries, nature strips and windbreaks.				
Post development				
Urban development				

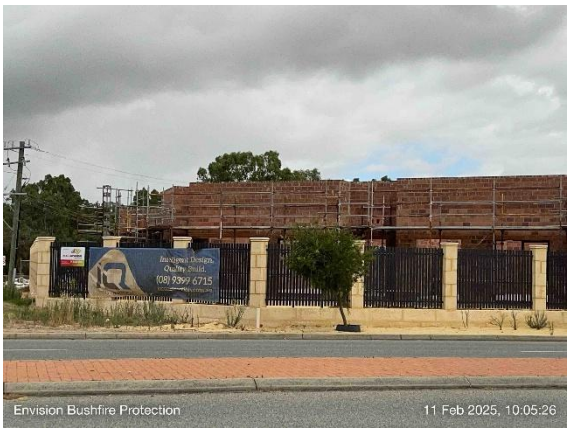

Photo 1.1 – childcare centre under construction

Photo 1.2 – residential

Photo 1.3 – residential

Photo 1.4 – low threat reserve

Plot 2				
Vegetation Classification		**Slope**		
Class G Grassland – Sown pasture G-26		Flat		
Observation/Justification for classification (Overall Fuel Hazard Assessment Guide-Hines)				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓	✓	✓
Moderate				
High	✓			
Very High				
Extreme				
Vegetation Description (AS 3959)				
All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland. NOTE: Grassland managed in a minimal fuel condition and non-curing cropland is regarded as low threat vegetation for the purposes of Clause 2.2.3.2.				
Post development				
Low threat – site will be entirely cleared during site works				

Photo 2.1 Grassland within the site

Photo 2.2 Grassland within the site

Photo 2.3 Grassland within the site

Plot 3				
Vegetation Classification		**Slope**		
Class G Grassland – Sown pasture G-26		Flat		
Observation/Justification for classification (Overall Fuel Hazard Assessment Guide-Hines)				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓	✓	✓
Moderate				
High	✓			
Very High				
Extreme				
Vegetation Description (AS 3959)				
All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland. NOTE: Grassland managed in a minimal fuel condition and non-curing cropland is regarded as low threat vegetation for the purposes of Clause 2.2.3.2.				
Post development				
Low threat – site will be entirely cleared during site works for approved subdivision				

Photo 3.1 Grassland in neighbouring lot

Photo 3.2 Grassland in neighbouring lot

<table>
<tr><th colspan="5">Plot 4</th></tr>
<tr><th colspan="3">Vegetation Classification</th><th colspan="2">Slope</th></tr>
<tr><td colspan="3">Class G Grassland – Sown pasture G-26</td><td colspan="2">Downslope 0-5</td></tr>
<tr><th colspan="5">Observation/Justification for classification (Overall Fuel Hazard Assessment Guide-Hines)</th></tr>
<tr><td>Fuel Hazard</td><td>Surface</td><td>Near surface</td><td>Elevated</td><td>Bark</td></tr>
<tr><td>Low</td><td></td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>Moderate</td><td></td><td></td><td></td><td></td></tr>
<tr><td>High</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Very High</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Extreme</td><td></td><td></td><td></td><td></td></tr>
<tr><th colspan="5">Vegetation Description (AS 3959)</th></tr>
<tr><td colspan="5">All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland.

NOTE: Grassland managed in a minimal fuel condition and non-curing cropland is regarded as low threat vegetation for the purposes of Clause 2.2.3.2.</td></tr>
<tr><th colspan="5">Post development</th></tr>
<tr><td colspan="5">No change</td></tr>
<tr><td colspan="3"> 
</td><td colspan="2"> 
</td></tr>
<tr><td colspan="3">Photo 4.1 Grassland west of the site</td><td colspan="2">Photo 4.2 Grassland west of the site</td></tr>
</table>

Plot 5				
Vegetation Classification		**Slope**		
Class G Grassland – Sown pasture G-26		Flat		
Observation/Justification for classification (Overall Fuel Hazard Assessment Guide-Hines)				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓	✓	✓
Moderate				
High	✓			
Very High				
Extreme				
Vegetation Description (AS 3959)				
All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland. NOTE: Grassland managed in a minimal fuel condition and non-curing cropland is regarded as low threat vegetation for the purposes of Clause 2.2.3.2.				
Post development				
No change				

Photo 5.1 Grassland north

Photo 5.2 Grassland north

Plot 6				
Vegetation Classification		**Slope**		
Class B Woodland - Woodland B-05		Flat		
Observation/Justification for classification (Overall Fuel Hazard Assessment Guide-Hines)				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓		
Moderate	✓			✓
High				
Very High			✓	
Extreme				
Vegetation Description (AS 3959)				
Trees 10 m - 30 m high; 10% - 30% foliage cover dominated by eucalypts and/or callistris with a prominent grassy understorey. May contain isolated shrubs. Authors Note: Woodland is classed by its understorey for the purpose of determining the fire intensity.				
Post development				
Low threat – site will be entirely cleared during site works for approved subdivision				

Photo 6.1 Woodland northeast of the site

Photo 6.2 Woodland northeast of the site

Photo 6.3 Woodland northeast of the site

Plot 7				
Vegetation Classification		**Slope**		
Class A Forest - Open forest A-03		Flat		
Observation/Justification for classification (Overall Fuel Hazard Assessment Guide-Hines)				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓			✓
Moderate		✓		
High			✓	
Very High				
Extreme				
Vegetation Description (AS 3959)				
Trees up to 30 m high; 30%-70% foliage cover (may include understorey of sclerophyllous low trees or shrubs). Typically dominated by eucalypts, melaleuca or callistemon (may include riverine and wetland environments) and callitris. Includes eucalypt plantations.				
Post development				

Photo 7.1

Photo 7.2

3.3 BAL Contour Map Inputs

The BAL Contour Map is based on the post development classifications as listed in the second table (below) and as demonstrated at Figure 5c; vegetation remaining post clearing of the subject site and the neighbouring sites which have existing approvals in place.

In this instance the site is adjoined by land that has been approved for residential development, the observed vegetation, at time of inspection, is not indicative of the BAL ratings (BAL contour) at development of the site. The following table is the determined vegetation from inspection.

Table 2a: vegetation classification upon inspection

Vegetation Area/Plot	Applied Vegetation Pre development Classification	Effective Slope Under the Classified Vegetation
1	Excludable - 2.2.3.2(e) Non Vegetated Areas	Flat/upslope
2	Class G Grassland – Sown pasture G-26	Flat/upslope
3	Class G Grassland – Sown pasture G-26	Flat/upslope
4	Class G Grassland – Sown pasture G-26	Flat/upslope
5	Class G Grassland – Sown pasture G-26	Flat/upslope
6	Class B Woodland - Woodland B-05	Flat/upslope
7	Class A Forest - Open forest A-03	Flat/upslope

Table 2b: Post development vegetation used for BAL Contour (Indicative)

Vegetation Area/Plot	Applied Vegetation Post development Classification	Effective Slope Under the Classified Vegetation
1	Excludable - 2.2.3.2(e) Non Vegetated Areas	Flat/upslope
2	Excludable - 2.2.3.2(e) Non Vegetated Areas	Flat/upslope
POS	**Class D Scrub - Open scrub D-14**	**Flat/upslope**
3	Excludable - 2.2.3.2(e) Non Vegetated Areas	Flat/upslope
4	**Class G Grassland – Sown pasture G-26**	**Flat/upslope**
5	**Class G Grassland – Sown pasture G-26**	**Flat/upslope**
6	Excludable - 2.2.3.2(e) Non Vegetated Areas	Flat/upslope
7	**Class A Forest - Low open forest A-04**	**Flat/upslope**

Important Note: The BAL Contour Map does not provide an authority for development approval. Each lot should be provided with an individual BAL Assessment at development application.

Figure 5c: Vegetation Classification post development

LEGEND

- Site Boundary
- 150 m Assessment area
- 100 m Assessment area
- Proposed dwelling
- PX/X/X — Plot / Veg Class/Slope
- Class A Forest
- Class B Woodland
- Class C Shrubland
- Class D Scrub
- Class G Grassland
- Excluded Clause 2.2.3.2 (e & f)
- Excluded Clause 2.2.3.2 (e) non-vegetated

Assessment Date: 11/02/2025
BAL Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2025
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Figure 6a: BAL Contour - Not to be used for development assessment – development BAL certification Mehod 1

LEGEND

- Site Boundary
- 100 m Assessment area
- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-Low
- PX/X/O — Plot / Veg Class Slope

Assessment Date: 11/02/2025
BAL Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2025
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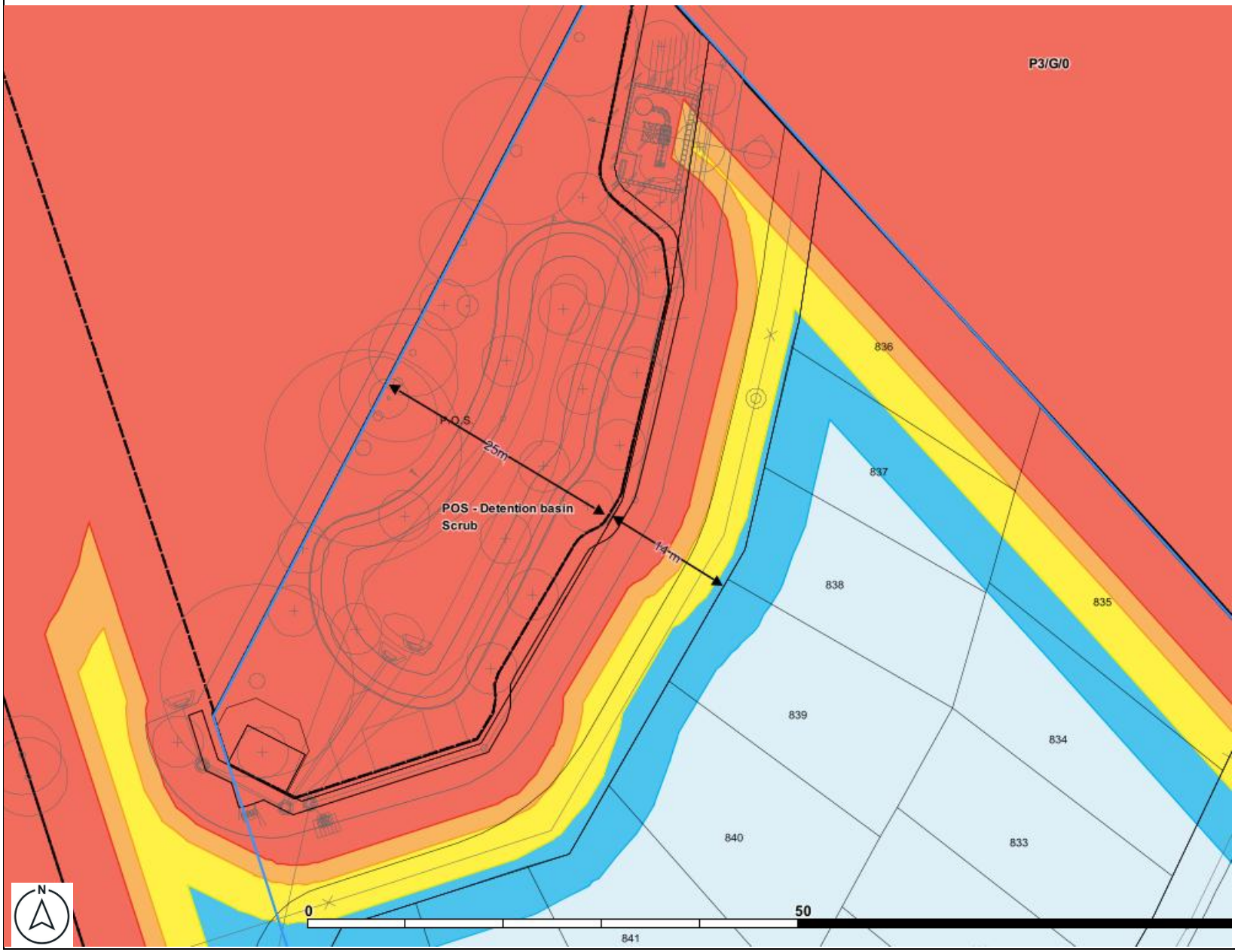
Figure 6b: BAL Contour - Not to be used for development assessment – Method 2 Short fire run



LEGEND

- Site Boundary
- 100 m Assessment area
- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-Low
- PX/X/O — Plot / Veg Class Slope

Assessment Date: 11/02/2025
BAL Prepared: Anthony Rowe
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FPAA FIRE MAP 2025
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3.4 Bushfire Attack Level Contour Map Outputs

Table 3: Highest BAL rating at each lot: For demonstrating development capability only (<BAL 29) – not to be used for development assessment.

LOT	APPLIED VEGETATION. CLASSIFICATION	SLOPE (degrees)	SEPARATION DISTANCE (m)	INDICATIVE BAL RATING
802	Grassland	0	19 m	BAL 12.5
803	Grassland	0	19 m	BAL 12.5
804	Grassland	0	19 m	BAL 12.5
805	Grassland	0	19 m	BAL 12.5
806	Grassland	0	31 m	BAL 12.5
807	Grassland	0	43 m	BAL 12.5
808	Grassland	0	54 m	BAL Low
809	Grassland	0	45 m	BAL 12.5
810	Grassland	0	48 m	BAL 12.5
811	Grassland	0	56 m	BAL Low
812	Grassland	0	63 m	BAL Low
813	Grassland	0	71 m	BAL Low
814	Grassland	0	88 m	BAL Low
815	Grassland	0	93 m	BAL Low
816	Grassland	0	102 m	BAL Low
817	Grassland	0	112 m	BAL Low
818	Grassland	0	12 m*	BAL 19
819	Grassland	0	0 m*	BAL FZ
820	Grassland	0	85 m	BAL Low
821	Grassland	0	82 m	BAL Low
822	Grassland	0	93 m	BAL Low
823	Grassland	0	101 m	BAL Low
824	Grassland	0	9 m*	BAL 29
825	Grassland	0	0 m*	BAL FZ
826	Grassland	0	19 m	BAL 12.5
	Forest	0	74 m	BAL 12.5
827	Grassland	0	31 m	BAL 12.5
	Forest	0	83 m	BAL 12.5
828	Grassland	0	41 m	BAL 12.5
	Forest	0	92 m	BAL 12.5
829	Forest	0	98 m	BAL 12.5
830	Forest	0	99 m	BAL 12.5
831	Grassland	0	66 m	BAL Low
832	Grassland	0	66 m	BAL Low
833	Grassland	0	67 m	BAL Low
834	Grassland	0	12 m*	BAL 29
835	Grassland	0	0 m*	BAL FZ
836	Grassland	0	0 m*	BAL FZ
	Scrub	0	14 m**	BAL 19
	Forest	0	88 m	BAL 12.5
837	Scrub	0	14 m**	BAL 19
	Grassland	0	8 m*	BAL 29
	Forest	0	84 m	BAL 12.5

LOT	APPLIED VEGETATION. CLASSIFICATION	SLOPE (degrees)	SEPARATION DISTANCE (m)	INDICATIVE BAL RATING
838	Scrub	0	14 m**	BAL 19
	Grassland	0	37 m	BAL 12.5
	Forest	0	81 m	BAL 12.5
839	Scrub	0	14 m**	BAL 19
	Grassland	0	40 m	BAL 12.5
	Forest	0	77 m	BAL 12.5
840	Scrub	0	14 m**	BAL 19
	Grassland	0	38 m	BAL 12.5
	Forest	0	75 m	BAL 12.5
841	Scrub	0	14 m**	BAL 19
	Grassland	0	36 m	BAL 12.5
	Forest	0	71 m	BAL 12.5
842	Scrub	0	14 m**	BAL 19
	Grassland	0	29 m	BAL 12.5
	Forest	0	64 m	BAL 12.5
843	Scrub	0	14 m**	BAL 19
	Grassland	0	19 m	BAL 12.5
	Forest	0	57 m	BAL 12.5
844	Grassland	0	19 m	BAL 12.5
	Forest	0	69 m	BAL 12.5

*BAL rating prior to clearing of vegetation (grassland) at 436 Lakes Road for subdivision works. Lots 819, 825, 835 and 836 which are currently BAL FZ will be withheld to provide for compliant access within the proposed subdivision until development at 436 Lakes Road (immediate east) proceeds and shared trafficable arrangements are made.

**BAL rating calculated by Method 2, short fire run.

4. IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

The following is based upon the National Emergency Risk Assessment Guidelines 2020 (NERAG) consistent with the Australian Standard *AS/NZS ISO 31000:2018 Risk management – principles and guidelines.* NERAG is designed for assessing sudden onset hazards such as bushfire.

Table 4 The NERAG framework is scalable and has been applied as follows:

NERAG	Scale response
Scope and Objective	SPP 3.7 Policy Intent
Risk identification	Bushfire
Risk Analysis	AS 3959:2018 Bushfire Behaviour Existing mitigations relied upon Site risk
Risk Evaluation	**Likelihood** (risk of ignition): Inherit fuels, history, external activities. **Consequence**: Social (human harm - minimising exposure evacuate or shelter) Economic (Asset threat – managing the fire, sources and building resistance)
Risk Treatments	Bushfire Protection Criteria Voluntary As Low as reasonably practical measures (ALARP) – Additional measures Bushfire Emergency Evacuation Plan, seasonal preparation and event response /instruction
Communication	Bushfire Management Plan Bushfire Emergency Evacuation Plan

Table 5 Risk Evaluation values Note: Community scale risk measures as used in NERAG 2020, are not applicable for site specific consequence, or operator duty of care and liability, the following objectives have been applied.

Consequence	Social	Economic
Catastrophic	Fatality.	Extensive loss, extended closure until facility is rebuilt.
Major	Major or Multiple injuries resulting in temporary disability or ill health, Extended lost time for recovery.	Partial loss, partial closure until isolated items are rebuilt.
Moderate	Injury or illness requiring medical or psychological treatment, lost injury time.	Disruption only for evaluation, repairs required to a primary building, but not closure.

Minor	Minor injury, first aid treatment required. No lasting impact.	Disruption only for evaluation, damage to incidental structures.
Insignificant	No treatment.	Disruption only during the period of the fire event.

Table 6 The risk treatments following the Policy Intent have been categorised as preserving life and reducing the impact on property and assets.

This is in turn divided following the NFPA 550 (2012)[1] treatment methods

SPP 3.7	NFPA	Impact Mitigation
Preserving life	Minimising Exposure	Evacuation
		Shelter
Property and assets	Managing the fire	Vegetation management (APZ)
		Building construction
		Fire suppression

BUSHFIRE RISK

Human exposure to extreme heat from a bushfire can be fatal, smoke and particle injuries (eyes) can be harmful.

Buildings and assets may be damaged or lost to a bushfire where they are exposed to direct flame contact and extreme radiant heat.

RISK ANALYSIS Bushfire Behaviour

Sustainable fire combustion depends upon the availability of fuel, oxygen, and heat. Removal of any one of the three aspects will extinguish or not sustain a fire. Fuel management, the management of vegetation, is the most practical means of control.

Bushfire behaviour, as it increases in intensity and speed of travel, can exceed human control measures and when this occurs the risk increases to humans and property. Bushfire behaviour is a result of climate, topography, and the availability of bushfire fuel (vegetation).

- Climate (drought and season) & weather (temperature, humidity, wind, atmospheric instability).

  <u>Wind</u>

  Bushfires are influenced by the wind direction and the speed. The wind direction generally determines the direction of the fire and wind speed, along with ground slope, generally determines the speed a fire will travel over ground. As wind strength increases it increases the availability of oxygen allowing the fire intensity to increase.

  Atmospheric conditions determine the potential for the uplift of embers and particles that can be distributed by the prevailing wind direction well ahead of the fire, up to 9 km, to create spot fires that can advance the location of the fire front.

  <u>Fire Danger Index FDI</u>

  FDI is an indicator of potential fire intensity and behaviour based upon weather conditions; temperature, humidity, and wind speed, together with climate measures, drought factor representing the dryness of the ground fuels.

[1] Guide to the fire safety concepts tree. Quincy: National Fire Protection Association, 2012.

The FDI is an indicator of the potential for house loss and fatalities.

The FDI is used as a basis for determining the required design performance of a building.

- Topography (slope of the ground, aspect) – fire travels faster uphill, and in some conditions may determine the direction of the fire. The landform can also channel and increase the windspeed at a locality and create turbulence. It is measured as 0.0^0 or in downslope increments of 5.0^0.
- Vegetation (horizontal and vertical structure, flammability, mass, and availability). Measured as a vegetation classification, or an exclusion, in AS 3959 (Method 1). The arrangement of fuel has a greater effect upon the intensity of a fire than just its mass; its exposure to oxygen is referred to as its availability in a bushfire.

It is assumed that a bushfire will achieve a steady-state and be fully developed to maximum intensity over a 100 m (minimum) fire run. Grass fires travel faster (GFDI) than a forest canopy fire, but a forest canopy fire can eject a higher level of embers and also eject them over a greater distance, up to 5 km.

Crown fires occur when the ground fire is intense, and conversely, when ground fuels are managed, the resultant fire intensity may not be sufficient to involve the crown or sustain a fire.

Fuel reduction initiatives such as slashing and controlled burns are intended to reduce the fuel availability to a level where the intensity of the fire remains controllable.

Climate

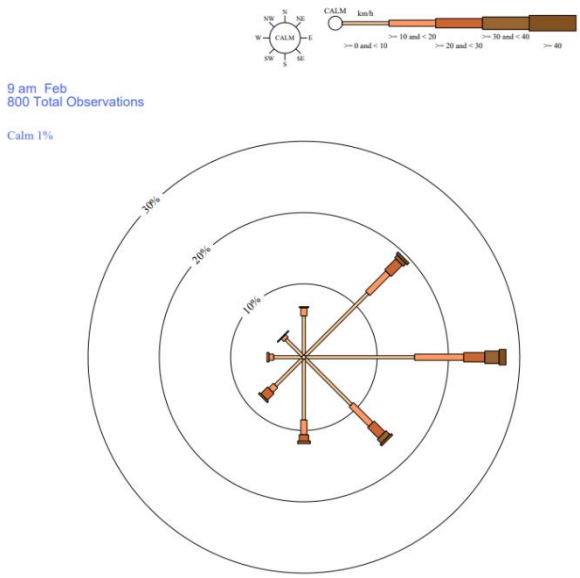
The nearest weather station to the site is at Gosnells (8 km north). The site is within an area described as having a Mediterranean climate of dry summers and mild, wet winters. The majority of rainfall is between May and September. The prohibited burning period is from mid-December to mid-March.

The Bushfire Danger Season has traditionally been between November and April each year, but recent climatic conditions have caused fire danger conditions to be present either side of this period.

Severe bushfire conditions FDI 50+, occur mostly between January and March. Extreme and Catastrophic conditions occur mostly in the afternoon and typically with south-south westerly winds (BoM Halls Head). A bushfire can however come from any direction.

Bushfires generally travel in the direction of the prevailing wind. The direction of the prevailing wind conditions can affect the options for evacuation and anticipated fire intensity depending upon the slope and fuel.

The wind roses below (Plates 5 and 6) for February (averaged) recorded at 9 am and 3 pm illustrate the winds are strongest and most frequent from the east in the morning and from the south west in the afternoon.



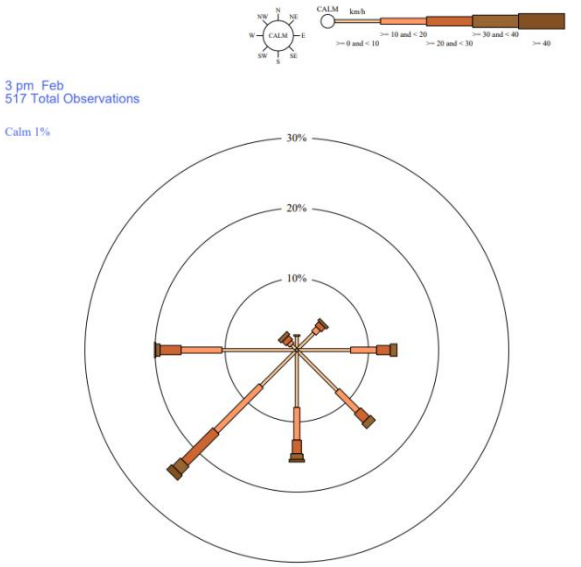


Plate 5: wind directions as at 9 am (February avg 1991-2023) Plate 6: wind directions as at 3 pm (February avg 1991-2023)

The wind roses indicate that the predominant wind direction is from the southern hemisphere during the bushfire season.

The wind roses do not preclude the possibility of a fire coming from other directions; a bushfire can come from any direction that may require an immediate response to evacuate in the opposite direction.

The wind roses also indicate that an uncontrolled fire, or a flare up, may be affected by the prevailing wind direction at some time.

Existing risk controls

Existing controls are features and activities that presently reduce the harm to humans and assets.

Communication

- The site is within a 4-5G network, mobile phones are automatically alerted to fires in the area, supporting an early and safe evacuation.

Access

- The public roads provide an easy-to-follow route, are sealed, and in good condition.

Ignition and suppression

- The City and WAPOL provide enforcement of total fire ban days (to reduce the potential for ignition) and the Shire has a statutory responsibility for the enforcement of its issued, annual notice *Bush Fires Act 1954*, placing responsibility upon the landowner to reduce the ignition spread of bushfires.

Risk -Affecting this site (Scenarios)_

The wind roses suggest the prevailing summer winds are from the east in the morning and are stronger across the southern directions in the afternoons.

A fire can however come from any wind direction.

Contiguous forest (Darling Scarp) can contribute to advanced spotting and fire spread up to 5 km from the fire front. This can ignite readily flammable materials and grasses, that can lead to fires within the site, igniting cured grasses and retained forest vegetation. The site is part of a broader urban area that is within 5 km of the Darling Scarp.

The site is located within an area of grassland historically cleared flat agriculture land, that is also joined by urban development. The adjoining land is maintained as slashed grass, awaiting development. Retained stubble can sustain a grass fire potentially ignited from embers from a distant fire i.e. Darling Scarp.

RISK EVALUATION Vulnerability assessment

Likelihood

The likelihood of a bushfire affecting ember attack for a fire nearby is considered 'unlikely'. This is based upon fires within the Darling Scarp and the potential for embers to be disturbed west. The separation from the Darling Scarp would be a low density ember attack.

Consequence

Preserving life

The site has access to a through road arrangement, to enable evacuation in an opposite direction to an approaching bushfire. It also provides multiple points of access for emergency services.

Protecting Assets

In the interim to the construction on adjoining land, grass fires have the potential for damage, but this can be reduced by modest separation and non-combustible barriers fence (CSIRO).

Building maintenance, site management, and building operation (closing doors and windows during the event) ensures the resistance of the building.

The consequence is considered minor, no extended disruption to function.

RISK TREATMENTS

Existing risk treatments that assist safety includes the public notification of a bushfire nearby to support early evacuation if required.

Telecommunication, available at site, alerts all mobile phones of a nearby bushfire threat, maximising response time (to evacuate).

The site provides a road network that enables evacuation, within an urban area, in the opposite direction from an approaching fire and into BAL Low.

Many of the lots are BAL Low, no bushfire construction applies other than a routine construction standard. The site is within a low /moderate bushfire hazard level. The urban location and a water supply supports responsiveness and effectiveness of emergency services in attending to a grass fire affecting the site and minimising penetration into the site, urban area.

5. BUSHFIRE PROTECTION MEASURES

5.1 Bushfire Protection Criteria

The Guidelines apply to development applications located within designated bushfire prone areas. The Guidelines provide supporting information for implementation of SPP 3.7. Specifically, they provide the Bushfire Protection Criteria to be addressed for all applications.

The purpose of the BMP for subdivision is to demonstrate the achievement of a developable area at the resulting lot able to accommodate a dwelling, of a typical size in the locality, at BAL 29 (see Figure 7).

Bushfire Protection Criteria 5: Structure plans and subdivision applications (compliance assessment and check list – at completion).

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	Action
Element 1: location **O1 -** Avoid broader landscapes that present an unacceptable bushfire risk to life, property and infrastructure	**A1.1a Broader Landscape Type A** The subject site is located in an area that is a Broader Landscape Type A. This location satisfies the policy outcome for Element 1: Location and no additional consideration is required.	
	A1.1b Broader Landscape Type B The subject site is located in an area that is a Broader Landscape Type B which presents an unacceptable bushfire risk of a landscape-scale bushfire resulting in impacts to people, property and infrastructure. This location does not satisfy the acceptable solution for Element 1: Location. Where the practitioner considers that further analysis could demonstrate to the decision-maker that the risks can be appropriately managed, and/or mitigated, an outcomes-based approach should be prepared, in accordance with policy measure 7.5 of SPP 3.7. Further explanatory notes are provided in Appendix B.1 of the Guidelines.	
	ASSESSMENT Element 1.1a The site is within a Broader Landscape Type A.	✓
Element 2: Siting and Design **O2 -** Ensure siting and design solutions: • manage or mitigate the bushfire risk to people, property and infrastructure; **and** • avoid, or where unavoidable, minimises the clearing of native vegetation.	**A2.1 Siting and design** Ensure that each proposed and existing lot(s) contains a sufficient development site(s) that can achieve a radiant heat impact not exceeding 29 kW/m² (BAL 29).	
	ASSESSMENT The vegetation within the site and the neighbouring site (east) is currently grassland (affecting the site BAL) and woodland (not influential). It is subject to an approved development application; however, the timing of the site works for the development adjoining the east boundary is not known, and BAL certification of development will be determined by the condition of the land (presence of grass > 100 mm) at the time of observation. All vegetation will be removed from within the site during siteworks other than an area (1968 m2) within the northwestern portion to be retained as Public Open Space. The POS will include the retention of some existing trees on the north western boundary, and new vegetation in and around the basin. At completion, no lot on the site will exceed BAL 29 with the exception of four lots which will be withheld to provide for compliant access for all lots within the proposal; these lots are currently assessed as BAL FZ pending works (approved development) at the land immediately east.	A notification is to be places on the title of lots BAL 12.5 and higher.

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	Action
	A2.2 Asset Protection Zone (APZ) Where a development site cannot be wholly located within an area with a radiant heat impact not exceeding 29 kW/m² (BAL-29) in its pre-development state, an indicative APZ is to be provided and meet the following requirements: **Width** – the APZ is to be measured from the development site, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29 kW/m² (BAL-29) in all circumstances. **Location** – the APZ is to be contained solely within the boundaries of the lot, except in instances where: – the vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, Table 9 – APZ technical requirements, or an alternative standard in a local planning scheme, on an ongoing basis in perpetuity as agreed upon via a substantiated management agreement between the applicable landowners and the local government; **or** – the adjoining land is, and will remain in perpetuity, non-vegetated such as a sealed or unsealed road, or a water body. **Management** – the APZ is managed in accordance with the requirements of Appendix B.2, Table 9 – APZ technical requirements, or an alternative standard in a gazetted local planning scheme.	
	ASSESSMENT See Figure 6, no lot, with the exception of four lots which will be withheld, will exceed BAL 29; an APZ to achieve BAL 29 is not required.	✓
	A2.3 Clearing of native vegetation The structure plan or subdivision avoids, or where unavoidable, minimises the clearing of native vegetation.	
	ASSESSMENT The site is within a developing residential area. The site is predominantly grassland, individual trees will be cleared, unavoidable - to achieve the residential expectation for the site.	✓
Element 3: Vehicular Access **O3 -** Ensure the design and capacity of vehicular access and egress provide: • for efficient and effective evacuation to a suitable destination(s) and/or • as a contingency measure for vulnerable land uses, an on-site	**A3.1 Public roads** Public roads are to meet the technical requirements in Appendix B.3, Table 10.	
	ASSESSMENT A3.1 New roads created within the subdivision will be constructed to the technical requirements in Appendix B.3, Table 10.	✓
	A3.2 Public Access routes **Area 1 (Urban)**: Public road access is to be provided to at least one suitable destination. **Area 2**: Public road access should be provided in two different directions to two different suitable destinations, with an all-weather surface.	

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	Action
shelter, where demonstrated appropriate, as a last resort option.	**ASSESSMENT A3.2** The development of the site will include temporary roads to provide compliant access until through roads or (shared) turnaround areas are provided following subdivision works at the lot immediately east.	✓
	A3.3a Area 1: No limitation on no-through road lengths. **Area 2:** If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the public road access is to be a maximum of 200 metres from the proposed lot(s) boundary to an intersection where two-way access is provided. The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met: – the no-through road travels towards a suitable destination; **and** – **the balance of the no-through road that is greater than 200 metres from the subject site is wholly within BAL-LOW, or is within a residential built-out area, or is within Area 1 (Figure 29).**	
	A3.3b No-through road requirements A no-through road is to meet all the following requirements: – requirements of a public road (Appendix B.3, Table 10, Column 2); **and** – turn-around area/head (Figure 30).	
	A3.4 Emergency access way *Where it is demonstrated that A3.2 and A3.3 cannot be achieved due to site constraints or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution*. An emergency access way is to meet the following requirements: – the requirements of Appendix B.3, Table 10, Column 3; – provides a through connection to a public road; – is no more than 500 metres in length; – connects to a public road network (note: an emergency access way onto the State Road Network requires access approval from Main Roads WA); – the proponent obtaining consent from the local government, that it will accept care, control and management for the access way; and – is signposted and, if gated, gates must open for the whole carriageway width and remain unlocked.	

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	Action
	ASSESSMENT A3.3a, A3.3b and A3.4 The development of the site will include temporary roads to provide compliant access until through roads or (shared) turnaround areas are provided following subdivision works at the lot immediately east. There will not be any no-through roads.	Not applicable
	A3.5a Perimeter roads A perimeter road is a public road and is to be provided for greenfield or infill development where 10 or more lots are proposed (including as part of a staged subdivision) with the aim of: – separating areas of classified vegetation under AS3959, which adjoin the subject site, from the proposed lot(s); and – removing the need for battle-axe lots that back onto areas of classified vegetation. A perimeter road is to meet the requirements contained in Appendix B.3, Table 10, Column 1. **A perimeter road may not be required where:** – the adjoining classified vegetation is Class G Grassland; – the lots are zoned for rural living or equivalent; – it is demonstrated that it cannot be provided due to site constraints; or all lots have frontage to an existing public road	
	ASSESSMENT A3.5a The site adjoins Grassland to the north and east. A perimeter road is not required.	Not applicable
	A3.5b Fire service access route *Where proposed lots adjoin classified vegetation under AS 3959 (excluding Class G Grassland), and a perimeter road is not required in accordance with A3.5a, a fire service access route is to be provided to provide firefighter access, where access is not available to the classified vegetation.* A fire service access route is to meet all the following requirements: – requirements of Appendix B.3, Table 10, Column 4. – be through-routes with no dead-ends; – must be signposted; – no further than 500 metres from a public road; – the proponent obtaining consent from the local government that it will accept care, control and management; and – if gated, gates must open the whole carriageway width and can be locked by the local government and/or the emergency services, if keys are provided for each gate.	

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	Action
	ASSESSMENT A3.5b The site adjoins Grassland to the north. A Fire service access route is not required.	Not applicable
	A3.6 Battle-axe access legs *Where it is demonstrated that a battle-axe access leg cannot be avoided due to site or design constraints, it can be considered as an acceptable solution.* There are no battle-axe technical requirements where the point of the battle-axe access leg joins the effective area of the battle-axe lot, is less than 50 metres from a public road in a reticulated water area. In circumstances where the above acceptable solution is not met, or the battle-axe lot is in a non-reticulated water area, the battle-axe. – requirements of Appendix B.3, Table 10, Column 1. – passing bays every 200 metres with a minimum length of 20 metres and a minimum additional carriageway width of two metres (i.e. the combined carriageway width of the passing bay and constructed private driveway to be a minimum six metres); and – turn-around area/head (Figure 30).	
	ASSESSMENT A3.6 No battleaxe allotments are proposed	Not applicable
Element 4: Water **O4 -** Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire.	**A4.1 Water supply for structure plans** Evidence that a reticulated or sufficient and sustainable non-reticulated water supply for bushfire firefighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements in Appendix B.4: Water Supply dedicated for bushfire firefighting. Where the provision of a strategic water tank(s) is required, a suitable area should be identified as a Crown reserve on the structure plan, to the satisfaction of the WAPC on advice from the local government.	
	ASSESSMENT A4.1 The proposal is not a structure plan.	Not applicable
	A4.2 Water supply for subdivision applications Where a reticulated water supply is existing or proposed, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, then the following applies: – the provision of a water tank(s) in accordance with the requirements of Appendix B.4, Table 11 – Water supply dedicated for bushfire firefighting; and Where the provision of a strategic water tank(s) is applicable, then the following requirements apply:	

Bushfire Protection Criteria	ACCEPTABLE SOLUTIONS	Action
	– land to be ceded free of cost to the Crown for the placement of the tank(s); – the proposed reserve where the tank is to be located is identified on the plan of subdivision; – tank capacity, construction and fittings, provided in accordance with the requirements of Appendix B.4; and a strategic water tank is to be located no more than a 10-minute drive from the furthest development site (at legal road speeds).	
	ASSESSMENT A4.2 The site will have access to a reticulated water supply and hydrants in accordance with Water Corporation requirements. The hydrants should be distributed having regard to the development of land east of the site.	✓
	A4.3 Water supply for existing habitable building(s) Where subdivision includes an existing habitable building(s) that is to be retained, a hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, a water tank(s) should be provided in accordance with the requirements of Appendix B.4, Table ~~5~~11 – Water supply dedicated for bushfire firefighting.	
	ASSESSMENT A4.2 There are no existing habitable buildings.	Not applicable

5.2 Additional Bushfire Management Strategies

There are no additional strategies for risk management to those addressed by the *Bushfire Protection Criteria 5: Structure plans and subdivision applications*.

The key features demonstrating compliance are represented spatially in the *Spatial representation of the bushfire management strategies*.

The Spatial representation of the bushfire management strategies is provided in Figure 7.

6. RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES AT SUBDIVISION

The purpose of a BMP is to broadly assess the suitability of the land for development and guidance, for subsequent compliance with SPP 3.7s for matters that are not routinely considered.

DEVELOPER – PRIOR TO ISSUE OF CERTIFICATE OF TITLES FOR NEW LOTS		CLEARANCE	
No.	Implementation action	Local Government	Bushfire Consultant
1.	No habitable building is to be constructed where the BAL at the building exceeds BAL-29.		
2.	Establish the site and each lot (including the lot reserved for recreation (POS)) in a low threat condition as described AS 3959:2018		
3.	All public roads are to be constructed compliant with Appendix B.3, Table 10 of the Guidelines 2024.		
4.	Temporary roads over lots 819, 825, 835 and 836 are to be an all weather surface and minimum 6 m horizontal width.		
5.	Install hydrants in compliance with the Water Corporation design standard #63 upon anticipation of the through connection to the land east.		

	LANDOWNER /DEVELOPER – ONGOING MANAGEMENT
No.	Mitigation Measure
1.	Maintain the lot in compliance with a low threat condition as described AS 3959:2018.

Figure 7: Spatial representation of the bushfire mitigation measures

Requirements - Developer

1. No habitable building is to be constructed where the BAL at the building exceeds BAL-29.
2. Establish the site and each lot (including the lot reserved for recreation (POS)) in a low threat condition as described AS 3959:2018
3. Construct the public roads compliant with Appendix B.3, Table 10, column 2 as a minimum (Guidelines November 2024)
4. Temporary roads over lots 819, 825, 835 and 836 are to be an all-weather surface and minimum 6 m horizontal width.
5. Install hydrants in compliance with the Water Corporation design standard #63 upon anticipation of the through connection to the land east.
6. Prepare a BMP compliance report to demonstrate the relevant bushfire management measures have been implemented to deliver compliance.

Requirements for ongoing management- Developer or landowner

1. Maintain the lot in compliance with a low threat condition as described AS 3959:2018.

Date: 5 June 2025

Prepared by: Anthony Rowe

BPAD Accreditation Number 36690

BPAD Accreditation Level 3

LEGEND

Subject land

Lot Boundary

Subdivision Road

Lots withheld

Temporary road

envision bushfire protection

Attachment 1 - References

GENERAL REFERENCES

Francis Hines, Kevin G Tolhurst, Andrew AG Wilson and Gregory J McCarthy - Overall fuel hazard assessment guide 4th edition July 2010

Institute of Public Works Engineering Australasia Western Australia, Local Government Guidelines for Subdivisional Development November 2017

Standards Australia, *AS 3959:2018 Construction of buildings in bushfire-prone areas*, Sydney

Standards Australian and Standards New Zealand, *Australian Standard / New Zealand Standard ISO 31000:2018 Risk management – principles and guidelines*

WA Department of Planning Land and Heritage 2016*, Visual Guide for bushfire risk assessment in Western Australia*

Western Australian Planning Commission (WAPC) 2024, *State Planning Policy 3.7 Bushfires (November 2024*), Western Australian Planning Commission, Perth, Perth

Western Australian Planning Commission (WAPC) 2024, *Planning in Bushfire Guidelines (November 2024*) Western Australian Planning Commission, Perth.

Online references

Office of Bushfire Risk management (OBRM), Map of Bush Fire Prone Areas < https://maps.slip.wa.gov.au/landgate/bushfireprone/>