

This Bushfire Management Plan ('BMP') has been solely prepared for a Subdivision at Lot 11 Redgate Road Witchcliffe.

Envision Bushfire Protection

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Version Control

Lot 11 Redgate Road Witchcliffe			
Version	Date	Author	
V1	15 September 2022	Anthony Rowe	draft
V2	27 September 2022	Anthony Rowe	Submission
V3	6 June 2023	Anthony Rowe	Approval amendments

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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 and identify appropriate mitigation measures to be considered by the determining authority. This is described in a Bushfire Management Plan and prepared following the Department of Planning Lands and Heritage templates.

Client relationship

I was engaged in providing 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



The signatory declares that this Bushfire Management Plan meets the requirements of State Planning Policy 3.7 and the Guidelines for Planning in Bushfire Prone Areas V1.4.

SUMMARY

The proposal is for a subdivision at Lot 11 Redgate Road Witchcliffe. The site is located within a Bushfire Prone Area (OBRM September 2019). A subdivision is a form of development requiring assessment against State Planning Policy 3.7 Planning in Bushfire Prone Areas and the associated Guidelines for Planning in Bushfire Prone Areas V1.4.

In accordance with SPP 3.7 the planning authority when determining an application must first be satisfied the proposal is consistent with the policy intent, **to preserve life and reduce the impact of bushfire on property and infrastructure** and upon completion will achieve a development area capable of supporting the development of a habitable building that is exposed to a bushfire attack level of less than BAL-29. In addition, the proposed subdivision is required to demonstrate that it can comply with the Bushfire Protection Criteria (Appendix 4) in the Guidelines.

This BMP has been prepared in accordance with the WAPC template *BMP template to support a BAL Contour assessment for structure plans where the lot layout is known and subdivision applications* and the *Model Subdivision Conditions Schedule May 2020*. The following headings follow the structure and the investigations of the template.

1. Proposal details (addressed in Section 1)

The proposal is to site create 22 rural living lots, ranging from 2000 m² to 3800 m².

The land is predominantly flat and comprises grassland and remnant forest. It is located west of the township of Witchcliffe and identified as SPA 11 within an area zoned for Future Development. Land immediately south has commenced residential development. Land north, to be developed for rural residential will provide additional road linkages through the Future Development area.

2. Environmental considerations (addressed in Section 2)

Areas of the site have been historically cleared and used for grazing. The remnant forest vegetation at the site will be protected through the wetland waterway set aside on a 9.55 ha Public Open Space area that will be ceded to the Crown.

3. Bushfire assessment results (addressed in Section 3)

A Bushfire Attack Level assessment following Method 1 AS 3959:2018, and the DPLH *Visual guide for bushfire risk assessment in Western Australia*, using an FFDI of 80, has been undertaken.

It has been assumed that the Public Open Space will be wholly developed as forest. A perimeter road has been provided to separate the residential development from the bushfire threat. Adjoining vegetation is expected to be retained. The area north of the site, intended for future residential development has been recently harvested and replanted. It has been mapped as forest in the interim to its development for residential purposes.

4. Identification of bushfire hazard issues (addressed in Section 4)

Without bushfire mitigation strategies development at the site would be subject to a dispersed ember attack from the nearby forest, and the potential for a localised mass ember attack, should the forest in the POS 100 m wide, ignite.

The land in this instance is within a larger flat area, promoting regular fire behaviour.

The risk treatments include separation to avoid flame contact (BAL-29) and construction standards commensurate to the BAL level at the habitable building location.

5. Compliance with the Bushfire Protection Criteria

The proposal was assessed for compliance with the bushfire criteria (SPP3.7 measures 6.2, 6.4, and 6.7 and Appendix 4 Guidelines for planning in bushfire prone areas V1.4).

Element 1 and 2 (location, and siting and design) and (cl 6.7 SPP 3.7)

The proposal meets the Acceptable Solutions for the bushfire protection criteria with respect to Elements 1 and 2 addressing location, and siting and design.

Figure 4 has followed the WAPC Position Statement: Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design. It has applied a 300 m² building dimension with the relevant (APZ) (based on AS 3959:2018). Figure 5b BAL contour plan illustrates that each site can accommodate a 300m² dwelling within each lot at BAL-29 (or less).

A public open space area east of the proposed lots will be ceded to the Shire and assumed to be revegetated to a Forest condition. A condition of ceding is for the first three metres alongside the Emergency Access Way (adjacent Lot 38, to be maintain as a grassland understorey. No trees should be planted within this area.

A Public Open Space is provided on the adjoining land adjacent lots 43-46. It will initially be provided as low threat with light ongoing Shire maintenance. It has cautiously been assumed to be retained as grassland.

Element 3 Vehicle Access

The site has access to Redgate Road which is a through road providing access to the road network and multiple destinations.

The site provides an internal through road which will connect into the subdivision that is occurring to the west of the site.

The internal roads will be constructed in accordance with the requirements for a public road (technical requirements in table 6 column 1) and will be ceded to the Shire as a public road.

All lots are separated from the Public Open Space, by the internal road arrangement (a perimeter road).

An Emergency Access Way is proposed as an interim access for the development of site works and will be retained to provide an additional through access to Redgate Road. Otherwise the new lots would be serviced by a loop from the west

Element 4 Water

Element 3 requires water is available, to defend property and infrastructure from bushfire.

A reticulated water supply is not available. Each lot is required to be provided with a domestic water supply from which they may also provide their own defence.

A 50 000 L strategic water tank is to be provided for community firefighting. The tank will be located alongside the EAW and ceded to the Shire on the Public Open Space land, ceded to the Shire.

Additional Bushfire Management Strategies (addressed in section 5.2)

Additional management strategies, to retain all new lots to APZ standard, will enable landscaping to occur without promoting the spread of bushfire or exceeding the construction standard of adjacent habitable buildings.

The WAPC Model subdivision conditions have been included where relevant and are additional to the bushfire protection criteria.

Spatial representation of the bushfire management strategies (Figure EX 1)

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

6. Responsibilities for implementation and management of the bushfire measures

The Responsibilities for Implementation and Management of the Bushfire Measures are listed in section 6 of the report and summarised on the *Spatial representation of the bushfire management strategies*.

Section 6 lists the requirements to be satisfied prior to clearance, enabling the individual titles to be issued.

The responsibilities align with the bushfire protection criteria elements and the WAPC Model Subdivision Conditions June 2021, although in accordance with its direction these will be added by the WAPC to the approval.

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APPENDIX 1 - APZ Guidelines

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APPENDIX 3 - References

1. PROPOSAL DETAILS

1.1 Introduction

Envision Bushfire Protection has been commissioned to prepare a Bushfire Management Plan, for a proposed subdivision at Lot 11 Redgate Road Witchcliffe (the site), to create 22 rural residential lots.

The site is located within the Shire of Augusta Margaret River and zoned for rural living. The location in context to the township of Margaret River is shown on Plate 1. The site is 250 m west of the township of Witchcliffe.

The subject land is within a declared bushfire prone area (OBRM September 2019) and shown on Plate 2.

In accordance with SPP 3.7, the planning authority in determining an application in a declared bushfire prone area must be satisfied the proposal is consistent with the Policy intent, **to implement effective risk-based land use planning and development to preserve life and reduce the impact of bushfire on property and infrastructure.**

This BMP has been prepared following the

- FPAA methodology and template for the preparation of a Bushfire Attack Level (BAL) assessment.
- The DPLH BMP to support a BAL Contour assessment for subdivision template.
- The WAPC Model Subdivision Conditions April 2020.

Purpose of this Plan

The purpose of this Bushfire Management Plan (BMP) is for assessment against the bushfire protection criteria requirement and to demonstrate the subdivision will on completion have a low to moderate Bushfire Hazard Level and provide a development area on each lot for the placement of a habitable building that does not exceed a Bushfire Attack Level of BAL-29.

The BMP will therefore assess the bushfire hazards within and near to the site and any potential restrictions that may apply to the Acceptable Bushfire Protection measures or alternative solutions (performance principle) to achieve the intent of the bushfire protection measure.

The purpose of this report is to assess the suitability of the resultant lots to accommodate the existing and proposed dwellings in their location for their intended purpose, to place primacy upon human life, and reduce the impact of bushfire on property and infrastructure.

Site and Proposal Description

The subdivision arrangement to create 30 rural living lots ranging in size from 2000 m² to 3100 m², with the balance provided as public open space for conservation of remnant forest as shown on Plate 3.

The proposal and its context comprises:

Local Government Area	Shire of Augusta Margaret River
Local Planning Scheme Zone	Future Development SPA 11
Bushfire Season	30 November - 31 May
Development proposal	Subdivision to create 22 rural residential lots from a 21.5 ha holding.
Land description site Existing buildings Topography	The site is flat and largely agricultural grassland with an area of remnant vegetation at the east side, that is to be retained within Public Open Space. The site contains an existing farm residence that is to be retained on Lot 42.
Site Vegetation	Historic aerial imagery (Landgate) illustrates the grassland area was cleared of native vegetation prior to 1975.

Adjoining Land-uses	North	East	South	West
	Plantation forest, partially harvested. Future rural residential R10 lots	Forest 137 m, Rails to Trails and township of Witchcliffe	South east 730 m Forest. South east residential 2000 m ² lots	Pasture Future rural residential R10 lots
Road Access	The site is serviced by Redgate Road which provides east west destinations. Bussell Highway and the Witchcliffe township are located 250 m east of the site.			
Nearest Town Centre	The nearest town centre is Margaret River (9.1 km) by Bussell Highway (north).			
Water supply	The township of Witchcliffe and the recent residential development south does not have access to a reticulated water supply. The Witchcliffe Brigade is located 500 m (east) from the site on Redgate Road.			
Tele communications	The site is within the Telstra network.			
Emergency services	The nearest rural fire brigade is the Witchcliffe Volunteer Bushfire Brigade located at on Redgate Road Witchcliffe (approximately 500 m)			
Minor Development	Not applicable			
Unavoidable development	Not applicable			
Vulnerable Development	Not applicable			
High-risk land use	Not applicable			

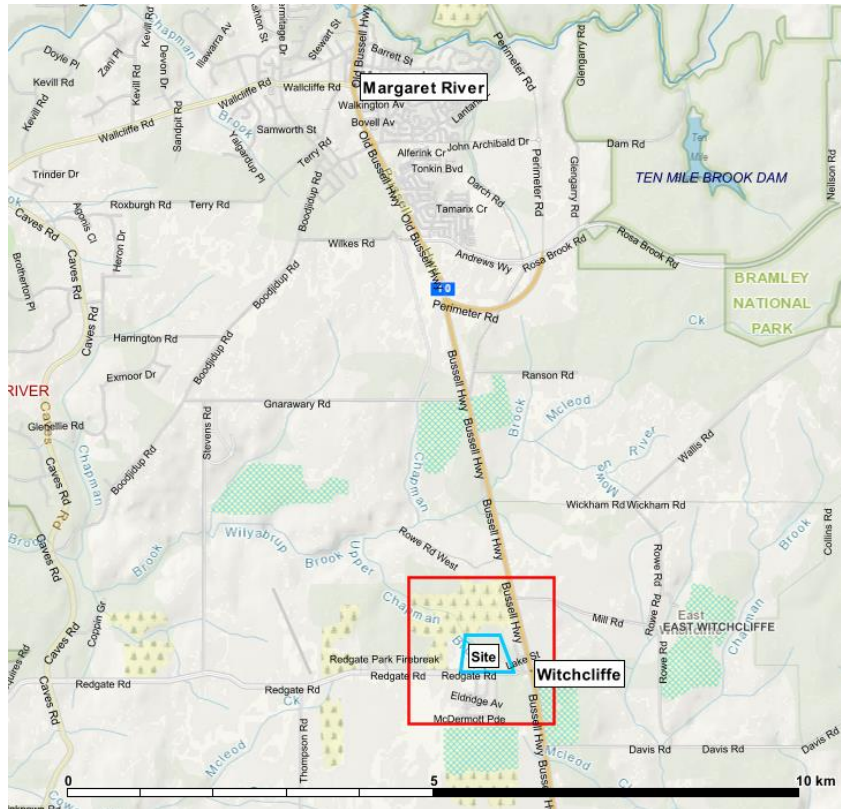
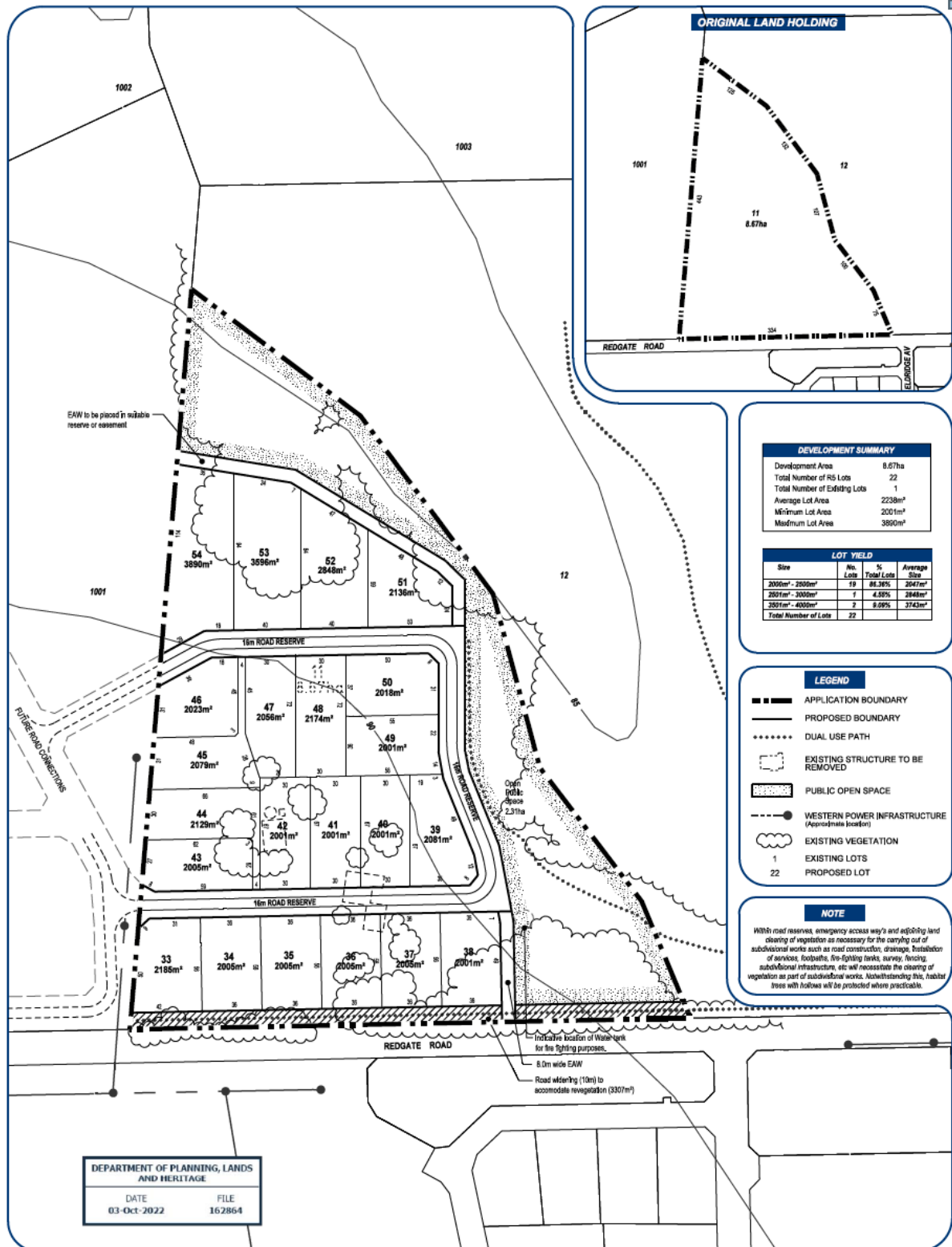


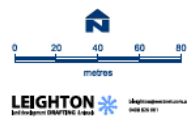
Plate 1: Locality



Plate 2: OBRM Bushfire Prone Area (pink area)



This concept has been prepared for the purpose of making a subdivision. The client shall not be liable for any errors, omissions or inaccuracies in this plan. All parties are advised to seek professional advice before relying on this plan. The client shall be responsible for any costs incurred in connection with this plan. The client shall be responsible for any costs incurred in connection with this plan. The client shall be responsible for any costs incurred in connection with this plan.



Title: PROPOSED PLAN OF SUBDIVISION
LOT 11 REDGATE ROAD, WITCHCLIFFE

Date: September 2022

Scale: 1:2,000@A3

Revision No: C

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Fixed & Other Subdivision Development Applications
Reserve Planning
Survey Practice
Heritage
Planning

Plate 3: Plan of subdivision



Plate 4: Adjoining land approved Structure Plan

1.2 Regulatory Compliance Requirements

Planning and Development Act 2005 - SPP 3.7

On 7 December 2015, the State Government 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) regulations introduced under Part 10A Schedule 2 of the *Planning and Development (Local Planning Scheme) Regulations 2015* and guided by the *Guidelines for Planning in Bushfire Prone Areas*.

The State Planning Policy, Regulations, and Guidelines now form the foundation for fire risk management planning in WA at a community and land development level. The Policy Intent of SPP 3.7 is **to preserve life and reduce the impact of bushfire on property and infrastructure**.

Applicable clause from SPP 3.7, addressing subdivision include:

SPP 6.2: A subdivision within a bushfire prone area has or will, on completion, have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, may be considered for approval.

SPP 6.4: A subdivision application in a bushfire protection area is to be accompanied by a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, the identification of any bushfire hazard issues arising from the BAL Contour Map; and an assessment against the bushfire protection criteria requirements contained within the Guidelines.

SPP 6.7: A subdivision will result in the introduction or intensification of development or land use in an area that has or will, on completion, have an extreme BHL and/or BAL-40 or BAL-FZ will not be supported.

6.10: The decision-maker may impose a 'notice on title' advising that the site is located in a bushfire prone area and is subject to a Bushfire Management Plan.

SPP 6.11: Precautionary Principle if a landowner/proponent cannot satisfy the performance principles of the relevant policy measures (intent) through either the acceptable solutions outlined in the Guidelines, or through the alternative solutions (Performance Principle) the application may not be approved.

In November 2019 the WAPC released a Position Statement: *Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design*

The Position Statement has sought to clarify Policy measure 6.7 of State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) to provide that for a subdivision the whole site is subject to the BAL contour identification, and notwithstanding portions may be identified as extreme BHL or BAL 40-FZ, it must demonstrate a developable area suitable for its purpose is available that is moderate to low BHL or a maximum of BAL-29 upon completion.

Bushfires Act 1954

Section 33 of the *Bush Fires Act 1954* recognises the responsibility of all landowners to prevent the spread of bushfire. The Shire of Augusta Margaret River issues a Firebreak Notice annually.

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

It is an offense 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 5ha)

<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 the 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*.

Commonwealth Environment Protection Biodiversity Conservation Act 1999

The Commonwealth Environment Protection Biodiversity Conservation Act 1999 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.

2. ENVIRONMENTAL CONSIDERATIONS

A fundamental consideration in the assessment of development under SPP 3.7 is to avoid instances where bushfire risk management measures would conflict with or be limited by other biodiversity management measures.

In accordance with the Department of Planning Lands and Heritage template (Bushfire Management Plan template to support a BAL Contour Assessment) a review of the listed databases (table 1) has been undertaken as part of this assessment to identify whether restrictions or other specific considerations may apply that would affect the implementation of any bushfire protection initiatives that may otherwise be identified.

Table 1

Is the land affected by:	Yes/No	Comment
Conservation Wetland or buffer (DBCA-019 DBCA-017)	Yes	High importance Groundwater Dependent Ecosystem (Proposed POS)
RAMSAR Wetland (DBCA-010)	No	No RAMSAR sites are located within or nearby to the site.
Threatened and Priority Flora (DBCA-036)	No	No threatened or priority flora are identified within the site.
Threatened and Priority Fauna (DBCA-037)	No	No threatened or priority fauna are identified within the site.
Threatened Ecological Communities (DBCA-038)	No	No threatened ecological communities are identified within the site
Bush Forever (COP-071)	No	No Bush Forever sites are located within or nearby to the site
Environmentally Sensitive Area (DWER-046)	Yes	Within the site proposed POS
Regionally Significant Natural Areas (DWER-070)	Yes	Remnant vegetation, South West Regional Ecological Linkage
Conservation Covenant (DPIRD-023)	No	Not applicable
Does the proposal require the removal of restricted vegetation?	Yes	No

2.1 Native Vegetation – Modification and Clearing

A review of the ecological data does not identify the site as containing threatened or near threatened fauna and flora although the two pockets are identified as a local natural area.

The wetland area within the site, identified within the proposed Public Open Space, is of high ecological value and is identified across a number of data sets. The remnant vegetation across the site is identified as regionally significant.

The proposed subdivision arrangement will retain most of the remnant vegetation either in the proposed public open space or the conservation lot.

The wetland will be retained within the POS. There are no bushfire protection measures expected to have an impact upon the wetland, although water quality draining from the perimeter road should be considered for retention of potential contaminants. This is a consideration applicable to subdivision and road arrangements generally.

Clearing of remnant vegetation will occur from the displacement by site works and roads and the entirety of each lot should be considered as an (APZ).

2.2 Re-Vegetation/Landscape Plans

Rehabilitation of the ecological asset within the Public Open Space and the Conservation lot has been addressed by perimeter roads, to ameliorate the bushfire impact by providing separation from the forest edge to the residential lots.

3. BUSHFIRE ASSESSMENT

3.1 Bushfire Attack Level Assessment (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 subject building has been classified following Clause 2.2.3 (AS 3959:2018) to determine the Bushfire Hazard Level at the locality. The BAL Contour Plan is, however, is measured within 100 m of the site boundary following the requirement for a BAL assessment, which is 100 m.

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.

The BAL rating has been determined through site inspection and assessment of the following parameters:

- Fire Danger Index (FDI) rating; assumed to be FDI - 80 for Western Australia;
- A separation distance between the building and the classified vegetation source(s) within 100 m (for BAL impact) the separation distance is measured from the wall face (receiver) to the unmanaged understory rather than the canopy edge (dripline) *see below*; and
- Slope of the land under the classified vegetation.

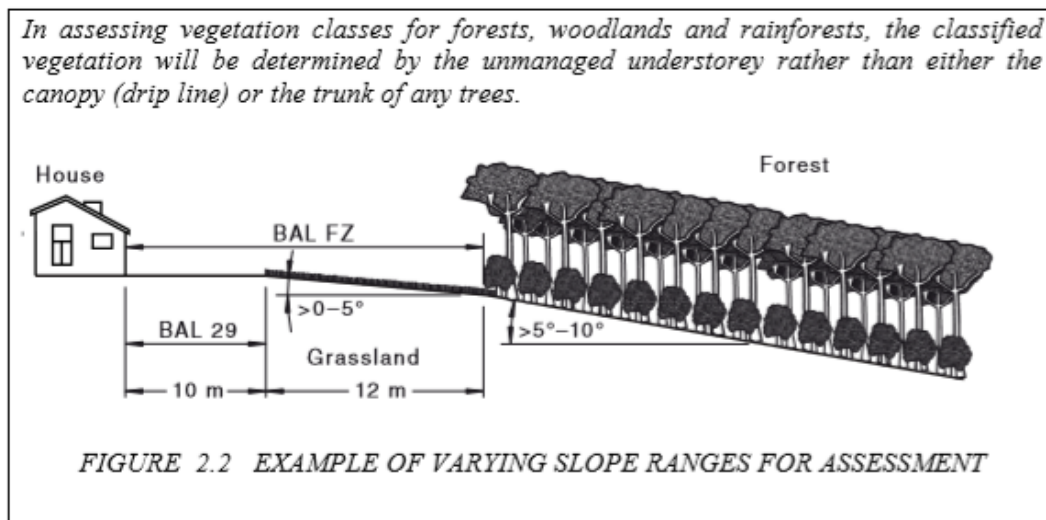


Plate 4: figure slope and measure explanation AS 3959:2018

3.2 Input Figures

Figure 2

Topographic features

Figure 3

All vegetation within 150 m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959:2018 from a site inspection undertaken on 19 August 2020.

The inspection followed the Fire Protection Association Australia accredited practitioner methodology (Template) for the preparation of Bushfire Attack Level (BAL) assessments, including photo verification and is attached in Appendix 1. The slopes were recorded using a Nikon Forestry Pro.

Photo evidence Site Assessment & Site Plans

The assessment of this site / development was undertaken on 19 August 2020 and 16 May 2022 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959:2018 Simplified Procedure (Method 1).

Figure 1: Location - Lot 11 Redgate Road Witchcliffe

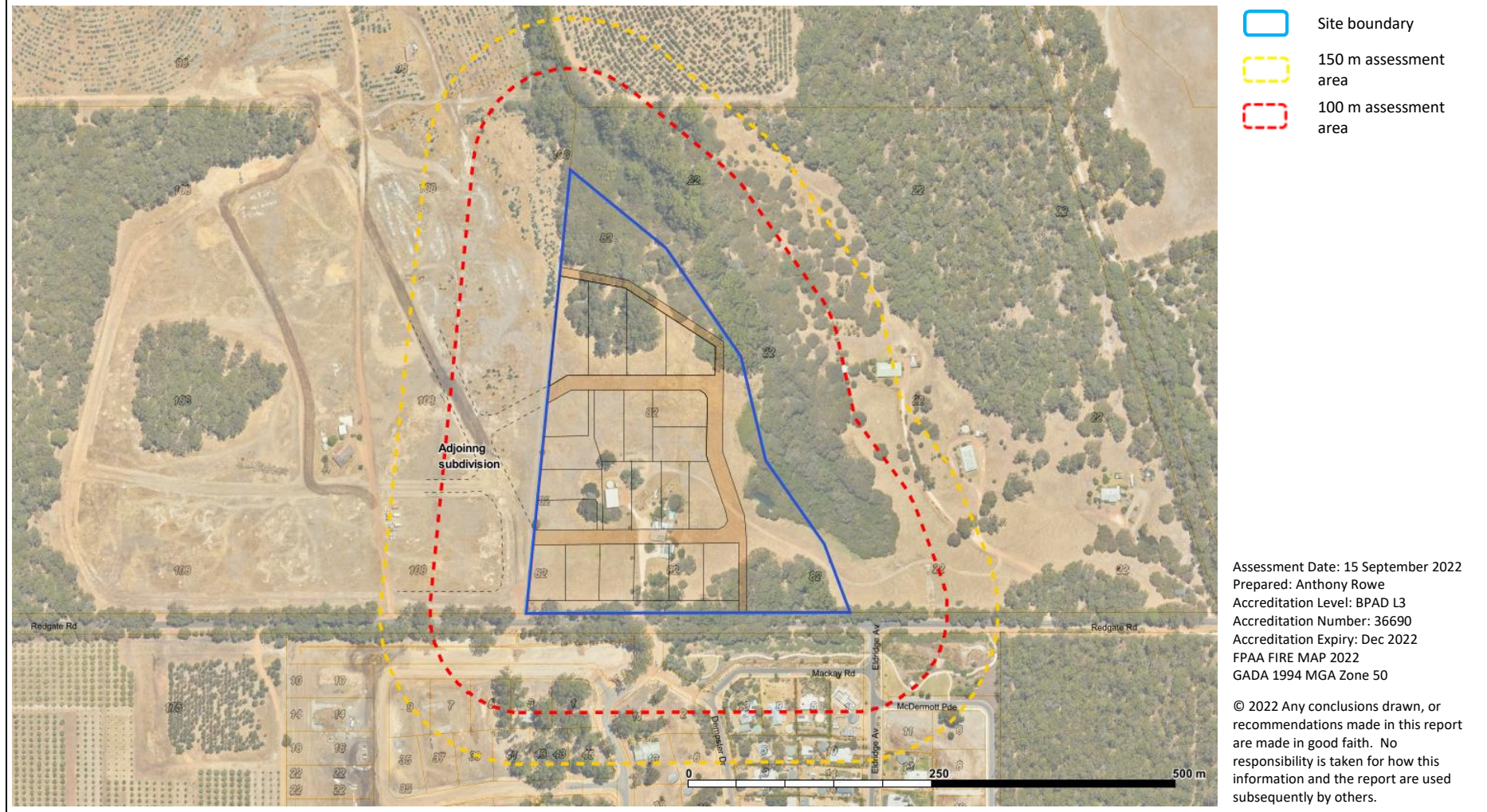


Figure 2: Topography - Lot 11 Redgate Road Witchcliffe

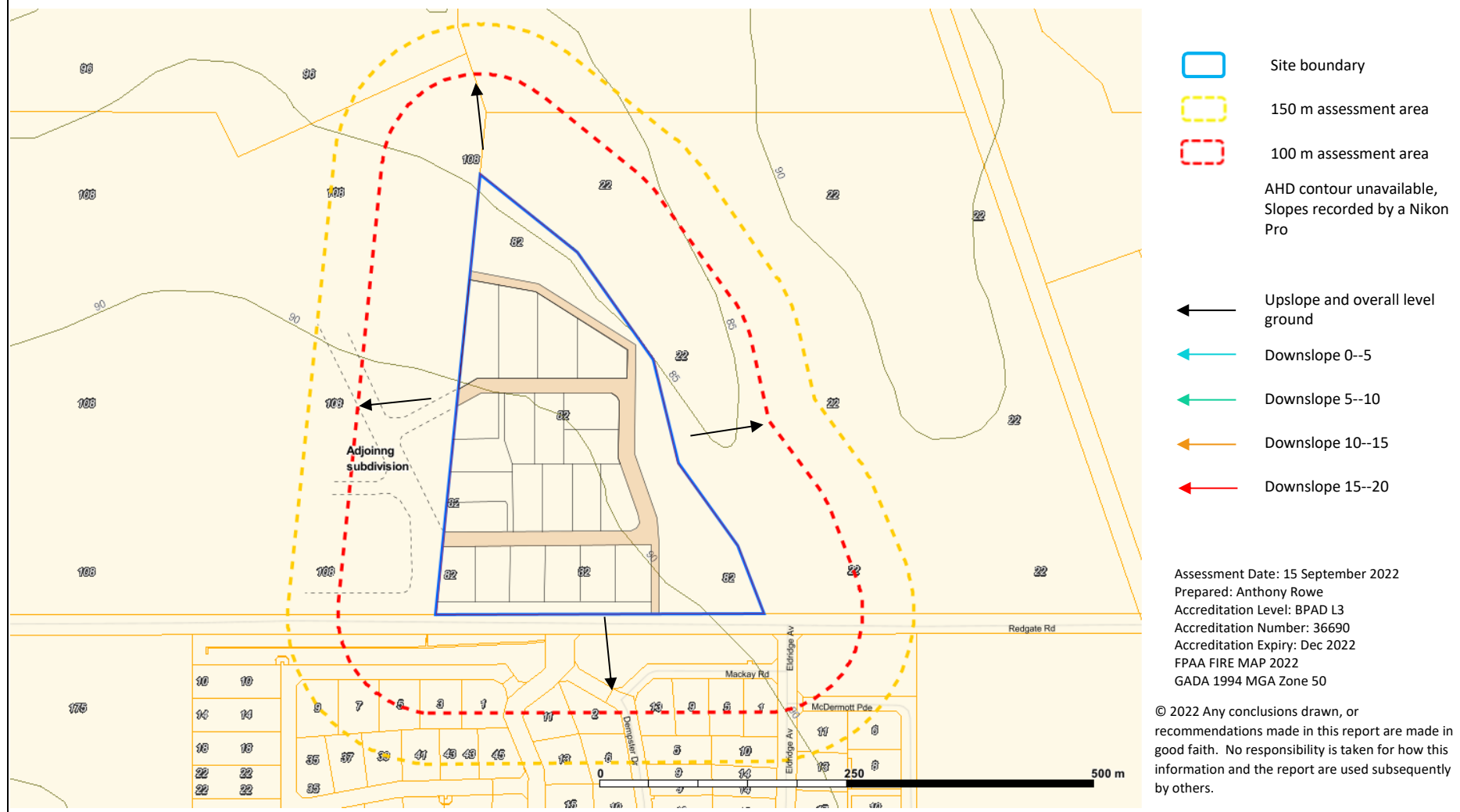


Figure 3: Vegetation Classification - Lot 11 Redgate Road Witchcliffe - Pre development

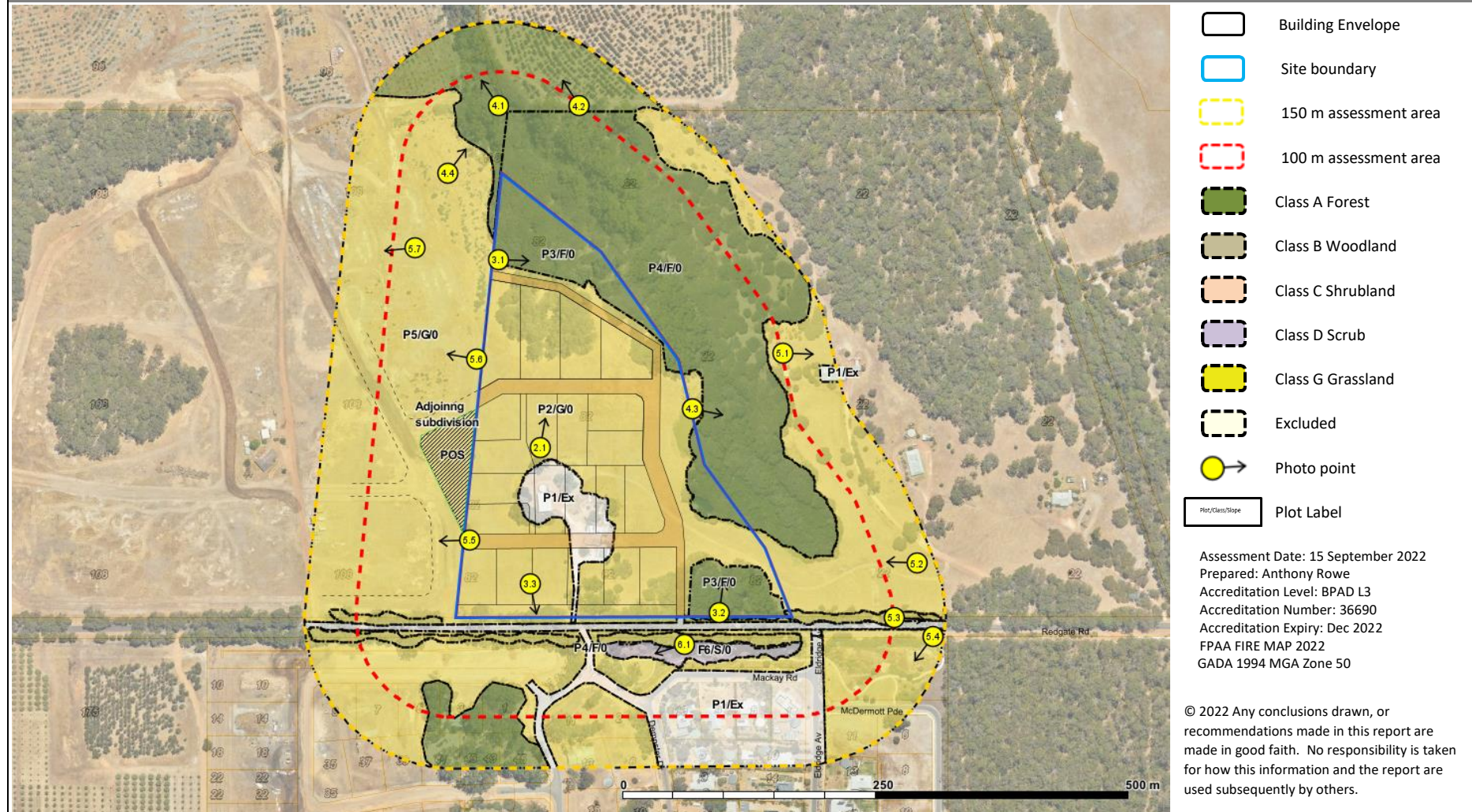
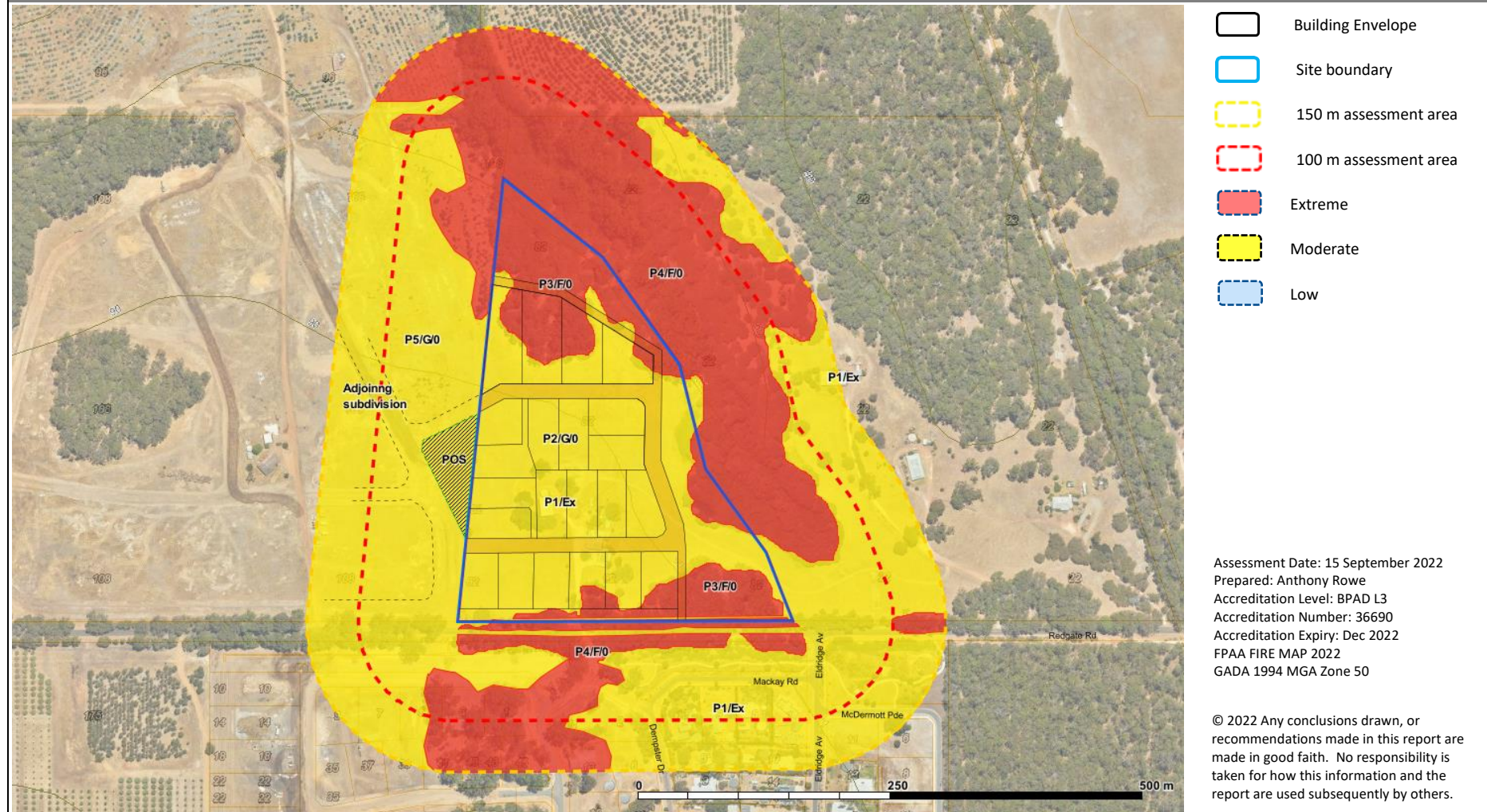


Figure 4: Vegetation Classification - Lot 11 Redgate Road Witchcliffe – Bushfire Hazard Level



3.3 Output Figures

Figure 4

Bushfire hazard level across the site and out to 150 m in accordance with the method described in Appendix 2 of the Guidelines.

Figure 5a

Illustrates the post development vegetation, after site works,

Figure 5b

Illustrated Bushfire Attack Level – contours across the site.

The Post Development Assumptions have included:

- All classified vegetation external to the site is assumed retained although the R10 west of the site is approved and proceeding.
- The establishment of lots, roadways and Asset Protection Zones illustrating the capability of accommodating a habitable building of 300 m² developable area not exceeding BAL 29.

Table 1: Separation from influential vegetation and slope type – applied to BAL Contour

Plot	Vegetation classification	Effective slope	Separation Distance (AS 3959:2018 Table 2.5)	BAL
Plot 3 and 4	Forest	Flat/upslope	< 16 m	BAL-FZ
			16 - < 21 m	BAL-40
			21 - < 31 m	BAL-29
			31 - < 42 m	BAL-19
			42 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
Plot 2 and 5	Grassland	Flat	< 6 m	BAL-FZ
			6 - < 8 m	BAL-40
			8 - < 12 m	BAL-29
			12 - < 17 m	BAL-19
			17 - < 50 m	BAL-12.5
			> 50 m	BAL-LOW
6	Scrub	Flat/upslope	< 10 m	BAL-FZ
			10 - < 13 m	BAL-40
			13 - < 19 m	BAL-29
			19 - < 27 m	BAL-19
			27 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW

Figure 5a: Vegetation Classification - Lot 11 Redgate Road Witchcliffe – Post development

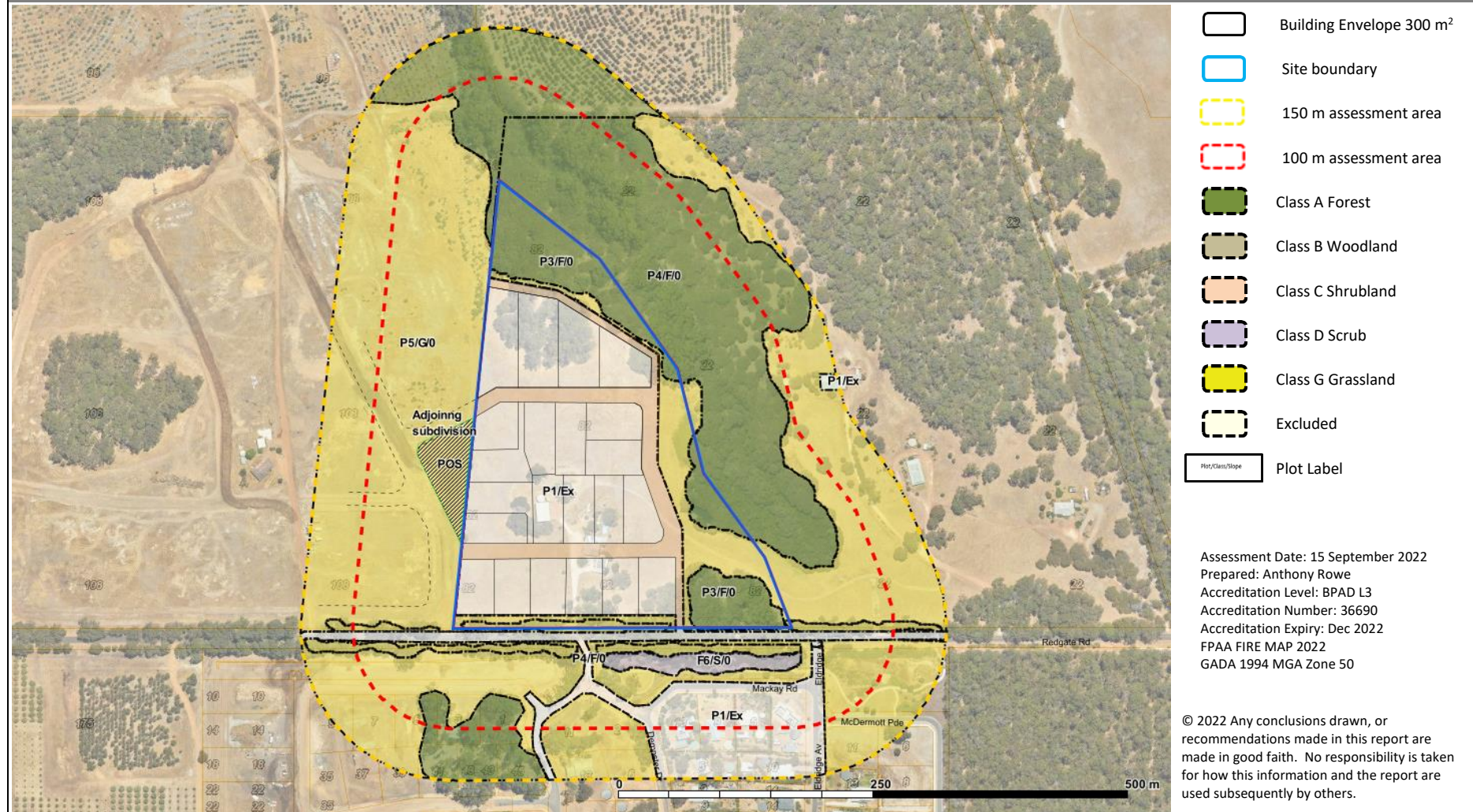
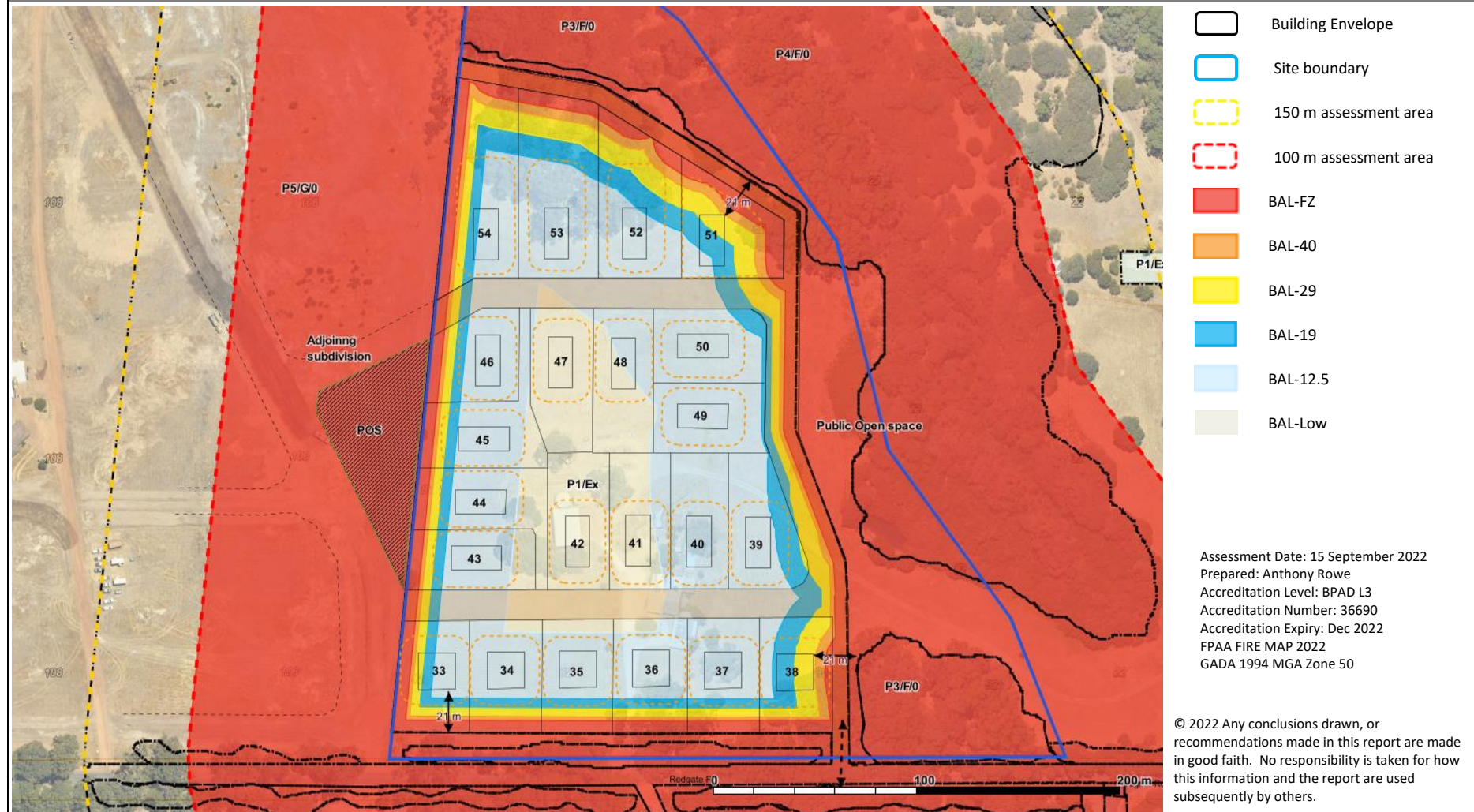






Figure 5b: BAL Contour (Post Development) - Lot 11 Redgate Road Witchcliffe - BAL Contour Plan










Vegetation Classification




All vegetation within 150m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2018. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

PLOT: 2		
Vegetation Classification	PHOTO ID: 2.1	PHOTO ID: 2.2
Class G Grassland – Sown pasture G-26		
Slope		
Flat		
Description (AS3959) All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland		
Observation/Justification for classification Grassland area is a historically grazed area, occasional shrubs and trees less than 10%.	Comment: Historically cleared and grazed areas (grass) foreground	
Post development Excluded 2.2.3.2(e) To be displaced by site works and roadworks.		

PLOT 3		
Vegetation Classification	PHOTO ID 3.1	PHOTO ID 3.2
Class A Forest - Low open forest A-04		
Slope		
Flat		
Description (AS3959)		
Trees over 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.		
Observation/Justification for classification	Comment: Vegetation to be retained in conservation reserve, north.	Comment: Vegetation to be retained in conservation reserve, central.
The edge of this plot demonstrates removal of understorey (possibly grazing see photo 3.3), but which becomes progressively dense inwards from the edge (see photo 3.1)	PHOTO ID 3.3	PHOTO ID 3.4
		
Post development		
Class A Forest - Low open forest		
To be retained as conservation lot.	Comment: Vegetation to be retained in conservation reserve, disturbed edge, south	Comment: Vegetation to be retained in conservation reserve, view west.

PLOT: 4		
Vegetation Classification	PHOTO ID: 4.1	PHOTO ID: 4.2
Class A Forest - Open forest A-03		
Slope		
Flat		
Description (AS3959)		
Trees over 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.		
Observation/Justification for classification	Comment: View to future Public Open Space west of lot 530.	Comment: Adjacent harvested plantation, replanted, but will be a future R10 area
Comprises trees taller than 6 m with a foliage cover 60% -70%	PHOTO ID: 4.3	PHOTO ID: 4.4
		
Post development		
Class A Forest - Low open forest		
To be retained as Public Open Space, potential for rehabilitation.	Comment: View east to wetland to be retained in Public Open Space.	Comment: View west to wetland to be retained in Public Open Space.

PLOT: 5		
Vegetation Classification	PHOTO ID: 5.1	PHOTO ID: 5.2
Class G Grassland – Sown pasture G-26		
Slope		
Flat		
Description (AS3959)		
All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland		
Observation/Justification for classification		
Grassland external to the site.	Comment: Grassland and 100 m from site looking east.	Comment: Grassland view from east to west
	PHOTO ID: 5.3	PHOTO ID: 5.4
		
Post development		
Retained	Comment: Single row along Redgate Road, classed by grassland understorey	Comment: Sedges in drainage swale - grassland.

PLOT: 5		
Vegetation Classification	PHOTO ID: 5.5	PHOTO ID: 5.6
Class G Grassland – Dense sown pasture G-05		
Slope		
Flat		
Description (AS3959)		
All forms (except tussock moorlands) including situations with shrubs and trees if the overstorey foliage cover is less than 10%. Includes pasture and cropland		
Observation/Justification for classification	PHOTO ID: 5.7	PHOTO ID: 5.8
Grassland west of the site, future R10		
	Comment: Grassland east of the site.	Comment: Grassland east of the site.
Post development		
Grassland. The adjacent POS (adjoining the west boundary to Lots 43-46 is to be established as a garden with separated vegetation. It is expected to be retained in a grassland condition, accounting for a light maintenance approach.	Comment: Grassland east of the site.	

PLOT: 6		
Vegetation Classification	PHOTO ID: 6.1	PHOTO ID: 6.2
Class D Scrub - Closed scrub D-13		
Slope		
Flat		
Description (AS3959) Found in wet areas and/or areas affected by poor soil fertility or shallow soils; >30% foliage cover. Dry heaths occur in rocky or sandy areas. Shrubs >2 m high. Typical of coastal areas and tall heaths up to 6 m in height. May be dominated by Banksia, Melaleuca or Leptospermum with heights of up to 6 metres		
Observation/Justification for classification Public Open Space south of the site.		
Post development Scrub to be retained.	Comment: Scrub in public open space south of the site	

4. IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

Factors affecting bushfire behaviour depend upon the fuel (size, quantity, type, moisture, and its distribution), weather conditions (temperature, humidity, wind speed, and atmospheric stability) and the topography (slope aspect and interaction with wind). These factors affect the speed of the fire, the flame height, the spotting behaviour/burning embers, and intensity. Fires travel faster, and the flame length is closer to the ground traveling uphill. The speed of a fire doubles for every 10 degrees upslope increases.

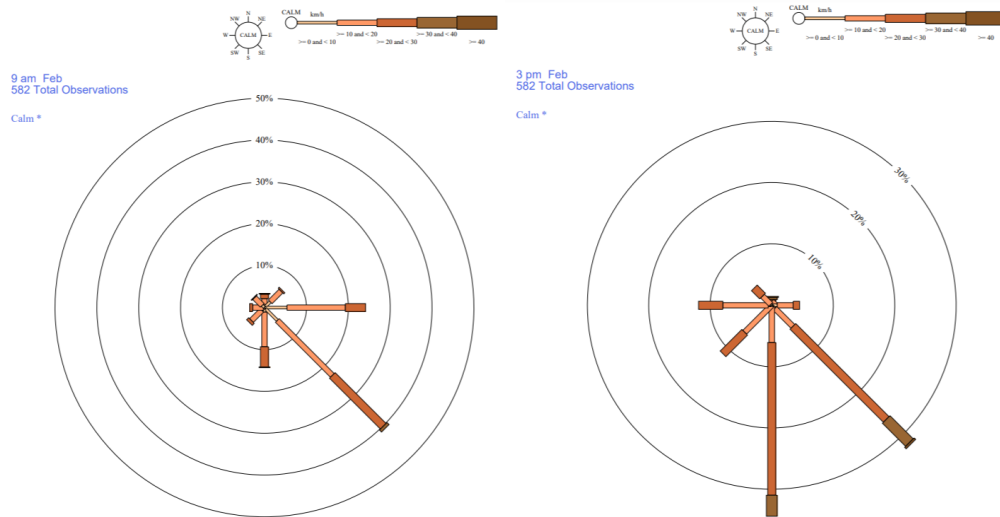


Plate 5: BoM Wind roses Witchcliffe weather station

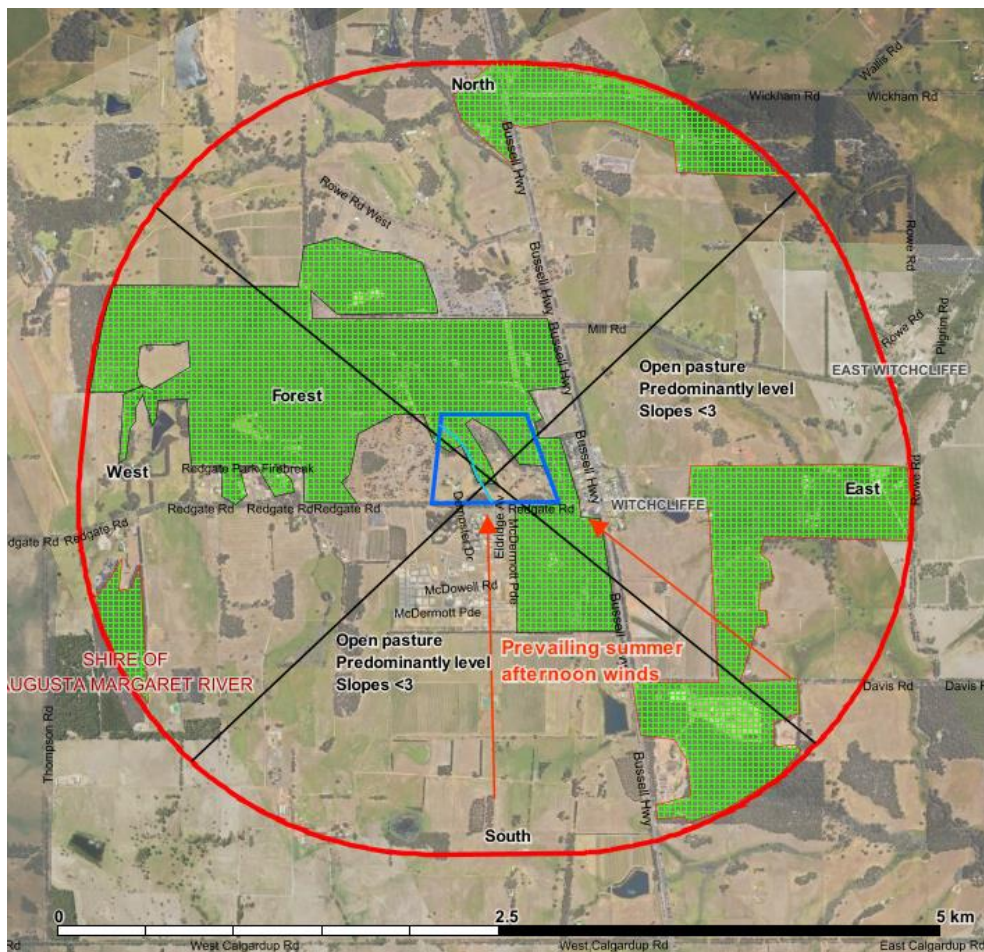


Plate 6: Forest within 2km of the site

Table Hazard Identification by quadrant.

	North	East	South	West
Adjacent vegetation	Forest 10% Forest Plantation 90%	POS Forest to Rural Residential	Rural residential	Grassland, future R10
Topography	Predominantly level – no channelling of wind	Predominantly level – no channelling of wind	Predominantly level – no channelling of wind	Predominantly level – no channelling of wind.
Bushfire Hazard Level	Extreme 1km followed by moderate	Extreme/fragmented	Low	Moderate
Afternoon wind %	2	17	45	35
Access BHL (within 2km)	N/A	Isolated forest > 200 m to Bussell Highway 500 m.	N/A	Isolated forest > 200 m, to reach Caves Road 5.5 km.

4.1 Hazard identification summary

The site is level and within an area that is largely level within 5 km from the site.

The majority of the area around the site is pasture, although isolated forest is located immediate or near to the site within the locality.

The site is within the locality of the township of Witchcliffe, and surrounding the site are large areas identified for rural living. In the long run the Public Open Space east of the site will be retained as a narrow forest 100 m wide.

The development of the land east of the site for residential development (R10) is proceeding, but in the interim has been classed as grassland.

There is a lack of large forest area within 5 km of the site. The site is likely to only experience light ember attack with the exception of localised ember attack from forest north of the site until it is replaced by residential development.

Grass fires may lead to the site until

Until the adjoining land is developed for residential development (R10).

The site is accessed from Redgate Road which is a straight through road with isolated areas of forest, mostly 200 -400 m in length, adjoining it.

The lots are to receive a reticulated water connection.

5. BUSHFIRE PROTECTION CRITERIA ASSESSMENT

5.1 Bushfire Protection Criteria (Appendix 4 of the Guidelines V1.4)

For each of the elements listed within Appendix 4 of the Guidelines for Planning in bushfire-prone areas, the ‘intent’ must be achieved either by the proposal meeting the acceptable solutions; or where these acceptable solutions cannot be fully met, then by a performance-based solution that can achieve the ‘intent.’

Table 2: Bushfire Protection Criteria assessment.

✓	Acceptable solution provided	C	An Acceptable Solution to be conditioned
N/A	Not Applicable	P	Performance Principle solution see 5.2

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
Element 1: location To ensure that strategic planning proposals, subdivision, and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property, and infrastructure	A1.1 Development location The strategic planning proposal, subdivision, and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.	✓		In accordance with the WAPC Position Statement: <i>Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design</i> , the consideration of the bushfire hazard level is not relevant to a development site, the site has already been identified in strategic level documents as a Future Development area and the proposal follows an approved structure plan that predates SPP 3.7. The area 5km around the site is predominantly pasture land with isolated forest 30 -50 ha in area. The site adjoins forest (Extreme)) at its north and east, and grassland at the east and south boundary. The resulting lots are large and able to achieve a developable area not exceeding BAL 29.

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
<p>Element 2: Siting and Design</p> <p>To ensure that the siting and design of development minimises the level of bushfire impact</p>	<p>A2.1 Asset Protection Zone</p> <p>Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:</p> <ul style="list-style-type: none"> • Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m² (BAL-29) in all circumstances. • Location: the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes). • Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones.' (see Schedule 1). 	✓		<p>All lots can contain a developable area of 300 m², approximating a habitable building, that does not exceed BAL 29</p> <p>Note: The APZ follows the WAPC advice to illustrate the required APZ to the present vegetation which is grass (8 m).</p> <p>Should the lots be landscaped with a vegetation exceeding of grassland, then BAL-29 at the building on the adjoining residential lot cannot be assured.</p> <p>For this reason the lots should be conditioned to maintain each lot in an accordance with the APZ standard.</p> <p>The APZ standard is not barren land but a horizontal and vertical separation of bushfire fuels. It provides for a tree canopy of up to 15% which would enable many of the trees to be retained on site to benefit the amenity of the estate.</p>
<p>Element 3: Vehicular Access</p> <p>To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event</p>	<p>A3.1 Public roads</p> <p>The minimum requirements under this acceptable solution are applicable to all proposed and existing public roads. Public roads are to meet the minimum technical requirements in Table 6, Column 1. The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area</p>	✓		<p>Redgate Road, Caves Road, and Bussell Highway are bituminised public roads compliant with the DPLH interpretation of Table 6 Column 1.</p> <p>The internal road arrangement is to be developed in accordance the technical requirements described in Column 1 Table 6 in Element 3 of the Guidelines or the Shire technical standards where they exceed technical requirements in the Guidelines. The proposed road is to be ceded to the Shire as a public road.</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	<p>A3.2a Multiple access routes</p> <p>Public road access is to be provided in two different directions to at least two different suitable destinations with an all-weather surface (two-way access).</p>	✓		<p>Acceptable Solution 3.1 requires development be provided with a safe access and egress to two different suitable destinations.</p> <p>Redgate Road is a through road that connects to Bussell Highway (east) and Caves Road (west).</p> <p>The site relies upon the development of the residential lots (R10) west of the site.</p> <p>In the interim, to assist the undertaking of site works on site, a single emergency accessway is proposed from Redgate Road until road connection can be made to the development west of the site.</p> <p>Note: It is anticipated at clearance the road connections west of the site will be made and functioning, the EAW will be retained as an additional relief from the site, rather than the new lots serviced by a loop to its west.</p>
	<p>A3.2b Emergency access way</p> <p>Where it is demonstrated that A3.2a 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 all the following requirements:</p> <ul style="list-style-type: none"> • requirements in Table 6, Column 2; • provides a through connection to a public road; be no more than 500 metres in length; and • must be signposted and if gated, gates must open the whole trafficable width and remain unlocked.²⁸ 	✓		<p>A short (73 m) Emergency Access Way is to be provided as a public road and ceded to the Shire.</p> <p>The EAW will be constructed in accordance with Table 6, Column 2. The EAW will provide an interim access but retained in the long term to provide an additional access option. The EAW is to be vested to the Shire as a public road.</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	<p>A3.3 Through-roads</p> <p>All public roads should be through-roads. No-through roads should be avoided and should only be considered as an acceptable solution where:</p> <ul style="list-style-type: none"> it is demonstrated that no alternative road layout exists due to site constraints; and the no-through road is a maximum length of 200 metres to an intersection providing two-way access, unless it satisfies the exemption provisions in A3.2a of this table. <p>A no-through road is to meet all the following requirements:</p> <ul style="list-style-type: none"> requirements of a public road (Table 6, Column 1); and turn-around area as shown in Figure 24 	✓		<p>The subdivision arrangement provides a through road that returns to Redgate Road.</p> <p>The site in the future will provide a connection for the development of the land west of the site.</p>
	<p>A3.4a Perimeter roads</p> <p>A perimeter road is a public road and should be provided for greenfield or infill development where 10 or more lots are being proposed (including as part of a staged subdivision) with the aim of:</p> <ul style="list-style-type: none"> separating areas of classified vegetation under AS 3959, 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. <p>A perimeter road is to meet the requirements contained in Table 6, Column 1.</p> <p>A perimeter road may not be required where: the adjoining classified vegetation is Class G Grassland;</p> <ul style="list-style-type: none"> 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 road²⁹ 	✓		<p>The subdivision arrangement has provided a perimeter road to separate the proposed lots from the Public Open Space (forest).</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	<p>A3.4b Fire service access route</p> <p>Where proposed lots adjoin classified vegetation under AS 3959, and a perimeter road is not required in accordance with A3.4a, a fire service access route can be considered as an acceptable solution 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 in Table 6, Column 3;</p> <ul style="list-style-type: none"> • be through-routes with no dead-ends; • linked to the internal road system at regular intervals, every 500 metres; • must be signposted; no further than 500 metres from a public road; • if gated, gates must open the required horizontal clearance and can be locked by the local government and/or emergency services, if keys are provided for each gate; and • turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres. 	N/A		<p>A FSAR is not required for an interface with grassland, and the expanded road reserve vegetation south of the site is Accessed from Redgate Road.</p>
<p>Element 4: Water To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire</p>	<p>A4.2 Provision of water for firefighting purposes</p> <p>Where a reticulated water supply is existing or proposed, 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:</p> <ul style="list-style-type: none"> • The provision of a water tank(s), in accordance with the requirements of Schedule 2; and 	C		<p>The subdivision will result in 22 residential lots.</p> <p>The site does not have access to a reticulated network.</p> <p>A strategic water tank is to be provided and ceded to the Shire, to be located within the POS , and accessible o the EAW from Redgate Road.</p> <p>The ratio of community tanks is 50, 000 L for 25 lots and 10 000 L for every lot thereafter (the subdivision 22 lots will require a 50 000 L strategic supply, the</p>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	<ul style="list-style-type: none"> • Where the provision of a strategic water tank(s) is applicable, then the following requirements apply: <ul style="list-style-type: none"> – land to be ceded free of cost to the local government for the placement of the tank(s); – the lot or road 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 Schedule 2; and – a strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds). <p>Where a subdivision includes an existing habitable building(s) that is to be retained, a water supply should be provided to this existing habitable building(s), in accordance with the requirements listed above³¹</p>			<p>tank is to be ceded to the shire and located on the land to be ceded at Public Open Space.</p> <p>The tank location is adjacent to the Emergency Access Way to serve during the site works.</p> <p>A passing bay 6 m x 20 m is recommended between the road and the tank to provide a safe operating space for fire appliance crews, without interfering with traffic.</p>

5.2 BUSHFIRE RISK MANAGEMENT STRATEGIES

Within the site

Considerations to be followed further to the approval of the subdivision is awareness that:

- All residential lots are to be created as low threat and maintained by subsequent owners as low threat until a building is constructed on the lot – to be reflected in a restrictive covenant on the title.
- The lot owner is responsible for the ongoing management of the site and the integrity of the building to retain an equivalent BAL construction performance for the habitable building that matches the BAL level at the habitable building.
- The placement of other buildings within 6 m of the habitable building can affect the rating of the habitable building unless a firewall is constructed to the specification in cl.3.2.3 AS 3959:2018 that provides a separation from the habitable building – habitable buildings are restricted from placement in BAL 40 -FZ. To be reflected in a restrictive covenant on the title WAPC model condition.

Public Open Space

The proposal contains public open space, to be propagated as forest. The subdivision arrangement has responded with roads and setbacks have that have demonstrated the proposed lots can accommodate a dwelling at BAL-29. Clarification is provided at Lot 38 that the first three metre of the forest understorey will be retained as grassland.

External private land

The *Bush Fires Act 1954*, s.33 1(b) assigns responsibility to the Shire, either by individual notice or a general notice directing landowners to undertake to remedy conditions upon the land, which in the opinion of the local government or its duly authorised officer, is or is likely to be conducive to the outbreak of a bushfire or the spread or extension of a bush fire.

In accordance with the *Bush Fires Act 1954*, s.33 1(b) the Shire of Augusta Margaret River annually issues its *Firebreak Notice*, upon private landholders throughout its area.

Public education and preparedness

The State and Shire have a range of information and promotion of bushfire awareness for the community and landowners in addition to the Shire of Augusta Margaret River *Firebreak Notice 2020/21*

DFES has an extensive Community Bushfire Education Program including the landowner guide '*Prepare. Act. Survive.*' (DFES 2014) available from

<http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/pages/publications.aspx>

The Shire of Augusta Margaret River provides bushfire safety advice to residents available from its website

<https://www.amrshire.wa.gov.au/services/community-safety/>

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

The Owner responsibilities (Guidelines 4.6.3) identify the bushfire management measures necessary to achieve compliance with the bushfire protection criteria.

For subdivision applications, the following table is included to assist the local government in providing a subdivision 'clearance' to certify that all relevant conditions of the subdivision approval have been satisfactorily undertaken. They require certification by both practitioner and local government. Through completion of the necessary implementation actions, the bushfire planning practitioner is certifying the BAL ratings (derived from the BAL assessment) are correct.

This BMP can be used to support future building approval processes for any Class 1, 2, 3 or 10a buildings which may be constructed within the site, and also to inform the location of all future habitable buildings within the lots.

DEVELOPER – PRIOR TO ISSUE OF CERTIFICATE OF TITLES FOR NEW LOTS			
No.	Implementation action	Local government clearance	Bushfire consultant clearance
1	Information is to be provided to demonstrate that the measures contained in the Responsibilities for implementation and management (Bushfire Management Plan 6 June 2023) have been implemented during subdivisional works. This information should include a completed 'Certification by Bushfire Consultant' from the bushfire management plan. (Local Government) (WAPC F1)	<input type="checkbox"/>	
2	A notification, pursuant to Section 165 of the <i>Planning and Development Act 2005</i> , is to be placed on the certificate(s) of title of the proposed lot(s) 33-38 and 51-54 advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows: "This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is subject to a Bushfire Management Plan Subdivision of 1-12 Redgate Road Witchcliffe 6 June 2023. Additional planning and building requirements may apply to development on this land" (Local Government) (WAPC F2)	<input type="checkbox"/>	
3	All Habitable buildings should be located within the Developable Area which equates to a maximum of BAL-29. A restrictive covenant to the benefit of the local government, pursuant to section 129BA of the Transfer of Land Act 1893, is to be placed on the certificate(s) of title of the proposed lot(s) 33, 38, 51, 52, 53, and 54 advising of the existence of a restriction on the use of the land within areas that have been assessed as BAL-40 or BAL-Flame Zone. Notice of this restriction is to be included on the diagram or plan of survey (deposited plan). The restrictive covenant is to state as follows: "No habitable buildings are to be built within areas identified as BAL-40 or BAL-Flame Zone" (Local Government) (WAPC F3)	<input type="checkbox"/>	
4	All roads, and the Emergency Accessway are to be installed as public roads and vested to the Shire and constructed in accordance with Table 6 columns 1 and 2 described in Element 3 of the WAPC Guidelines for Planning in Bushfire Prone Areas V1.4 December 2021. (Local Government)	<input type="checkbox"/>	
5	A strategic Water tank 50,000 is to be provided for firefighting purposes and located adjacent the Emergency Access Way. The water tanks and associated facilities are to be ceded in the Shire of Augusta Margaret River. (Local Government)		<input type="checkbox"/>
6	The public open space as a condition of ceding to the Shire will maintain the first 3 m of the Public Open Space, the forest understory, as grassland. No revegetation of trees shall occur within 3 m of the Emergency Access Way.		<input type="checkbox"/>

Certification by bushfire consultant

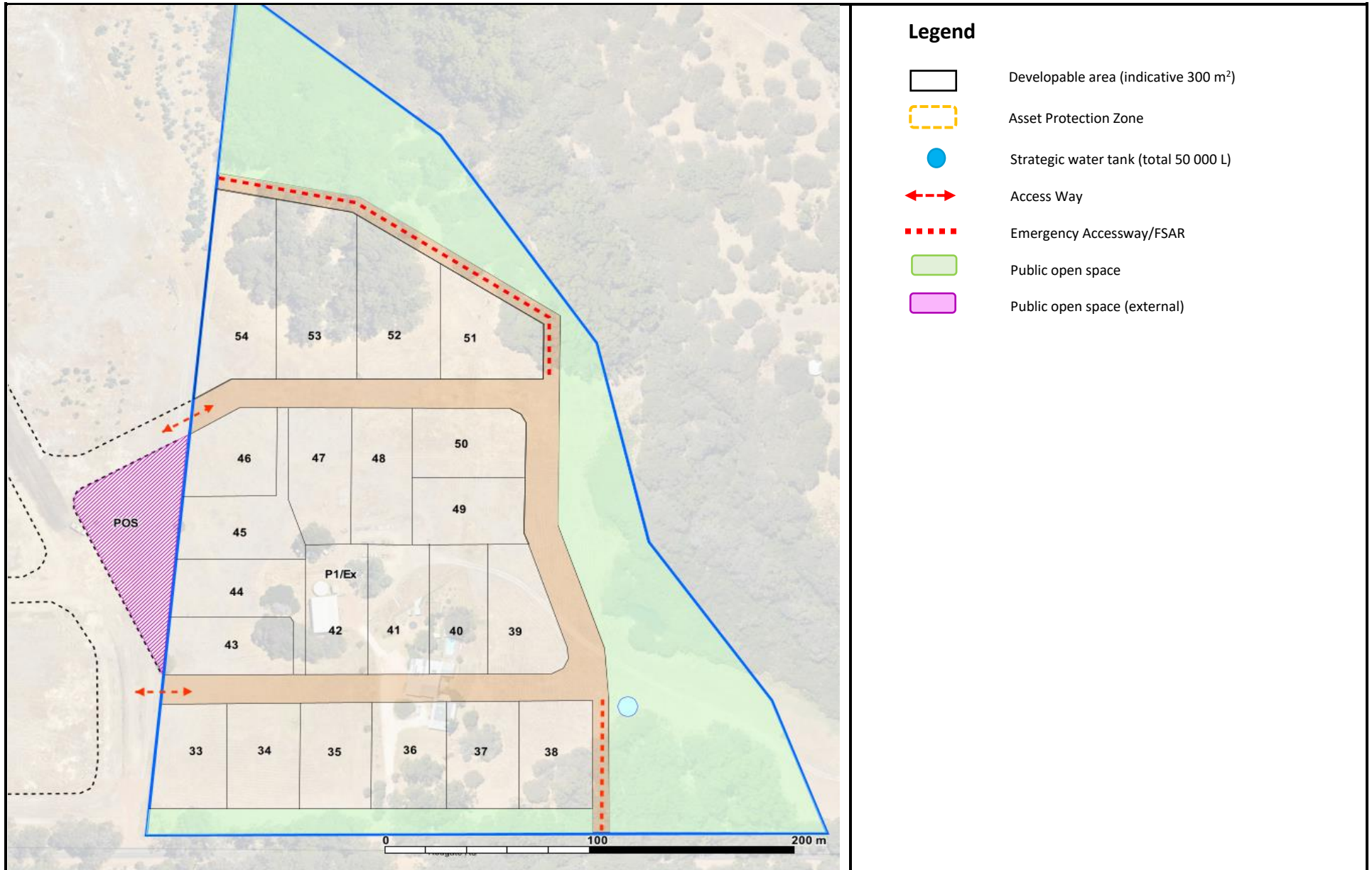
I _____, certify that at the time of inspection, the BAL ratings contained within this BMP are correct; and implementation actions 1–6 have been undertaken in accordance with the BMP.

Clearance by local government is recommended.

Signature: _____ Date: _____

Bushfire consultant details to be provided.

Figure EX1 - Spatial representation of the proposed risk management strategies Lots 11 Redgate Road Witchcliffe



APPENDIX 1 - APZ Guidelines



ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
Fences within the APZ	<ul style="list-style-type: none"> Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	<ul style="list-style-type: none"> Should be managed and removed on a regular basis to maintain a low threat state. Should be maintained at <2 tonnes per hectare (on average). Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	<ul style="list-style-type: none"> Trunks at maturity should be a minimum distance of six metres from all elevations of the building. Branches at maturity should not touch or overhang a building or powerline. Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. Canopy cover within the APZ should be <15 per cent of the total APZ area. Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.
<p>Figure 19: Tree canopy cover – ranging from 15 to 70 per cent at maturity</p>	
<p>The figure consists of three 2x2 grids of circles representing tree canopies. The first grid, labeled '15%', shows sparse, widely spaced circles. The second grid, labeled '30%', shows a moderate density of circles. The third grid, labeled '70%', shows a high density of overlapping circles, representing a continuous canopy cover.</p>	
Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	<ul style="list-style-type: none"> Should not be located under trees or within three metres of buildings. Should not be planted in clumps >5 square metres in area. Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	<ul style="list-style-type: none"> Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.



ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
Grass	<ul style="list-style-type: none"> • Grass should be maintained at a height of 100 millimetres or less, at all times. • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
Defendable space	<ul style="list-style-type: none"> • Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	<ul style="list-style-type: none"> • Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure.

* Plant flammability, landscaping design and maintenance should be considered – refer to explanatory notes

APPENDIX 2 - Vehicular Access Requirements

Table 6: Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public roads	2 Emergency access way¹	3 Fire service access route¹	4 Battle-axe and private driveways²
Minimum trafficable surface (metres)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (metres)	N/A	6	6	6
Minimum vertical clearance (metres)	4.5			
Minimum weight capacity (tonnes)	15			
Maximum grade unsealed road ³	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road ³		1:7 (14.3%)		
Maximum average grade sealed road		1:10 (10%)		
Minimum inner radius of road curves (metres)		8.5		

Notes:

¹ To have crossfalls between 3 and 6%.

² Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

³ Dtps must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.

APPENDIX 3 - References

GENERAL REFERENCES

SA Department of Environment and Natural Resources, Government of South Australia, 2012 *Overall Fuel Hazard Guide for South Australia*

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

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

Standards Australian and Standards New Zealand 2009, *Australian Standard / New Zealand Standard ISO 31000:2009 Risk management – principles and guidelines*

Western Australian Planning Commission (WAPC) 2015, *State Planning Policy 3.7 Planning in Bushfire Prone Areas*, Western Australian Planning Commission, Perth, Perth

Western Australian Planning Commission 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4*, Western Australia.

Online references

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

Office of Bushfire Risk Management (OBRM), Bushfire Risk Management (BRM) Plan Guidelines