

SMITH CONSULTING

Bushfire Consultants

BUSHFIRE ATTACK LEVEL REPORT

New lots 155, 156, 157, 158, 159 and 160 within current
Lots 2 and 3 Anketell Road, Anketell
(City of Kwinana)



Report completed by Ralph Smith
Smith Consulting
BPAD Accredited Practitioner
8 February 2018
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Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

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

Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
	-		156, 157, 158, & 159	Existing Lot 2 and 3 Anketell	
Local government area	Suburb		State	Postcode	
	Anketell		WA	6164	
Main BCA class of the building	City of Kwinana		Use(s) of the building	Dwelling	
Description of the building or works	Class 1a		Construction of buildings		

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class B Woodland	0	102	BAL – LOW

BPAD Accredited Practitioner Details

Name Ralph Smith	<div style="border: 1px solid black; padding: 5px;"> <p>I hereby declare that I am a BPAD accredited bushfire practitioner. </p> <p>Accreditation No. <u>27541</u></p> <p>Signature <u><i>Ralph Smith</i></u></p> <p>Date <u>9/2/18</u></p> </div>
Company Details Smith Consulting	
I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendments 1, 2 and 3).	

Authorised Practitioner Stamp

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

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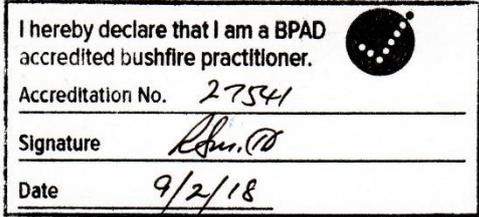
Property Details and Description of Works

Address Details	Unit no	Street no	Lot no	Street name / Plan Reference	
	-		155 & 160	Existing Lot 2 and 3 Anketell	
Local government area	Suburb			State	Postcode
	Anketell			WA	6164
Main BCA class of the building	Use(s) of the building				
Class 1a	Dwelling				
Description of the building or works	Construction of buildings				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class B Woodland	0	88	BAL – 12.5

BPAD Accredited Practitioner Details

Name Ralph Smith	 <p>I hereby declare that I am a BPAD accredited bushfire practitioner. Accreditation No. 27541 Signature <i>Ralph Smith</i> Date 9/2/18</p>
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Introduction

This is a Bushfire Attack Level (BAL) assessment and report. It has been developed by Smith Consulting for the exclusive use of the client, Terranovis.

This BAL assessment and report has been compiled using the standard methodologies required by Western Australian government departments and agencies. The report is based on the following:

- *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, December 2015
- *Guidelines for Planning in Bushfire Prone Areas*, December 2017
- *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (incorporating amendments 1, 2 and 3)*, March 2009
- Standard fuel load field data collection methods and conversion to a fuel load applicable for the appropriate fire spread models.

The techniques described in the above publications have been applied in the appropriate areas and circumstances for the development of this document.

Where there was no public access the interpretation is based on photographic and satellite imagery, and a laser distance meter was used to measure distances and effective slope.

DISCLAIMER

This Bushfire Attack Level (BAL) assessment and report has been prepared in good faith. It is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, this report is distributed on the terms and understanding that the author is not responsible for results of any actions taken based on information in this publication or for any error or omission from this publication.

Smith Consulting has exercised due and customary care in the preparation of this BAL report and has not, unless specifically stated, independently verified information provided by others.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time Smith Consulting performed the work. Any changes in such circumstances and facts upon which this document is based may adversely affect any recommendations, opinions or findings contained in this report.

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Property Details

Location of property: New lots 155, 156, 157, 158, 159 and 160 within current Lots 2 and 3 Anketell Road, Anketell, Western Australia

Property owner or representative: Lorraine Spencer

Property owner or representative contact details: lorraine@terranovis.com.au

Date of field assessment: 25 January 2018

Purpose of Assessment

This assessment has been undertaken to determine the potential Bushfire Attack Level (BAL) on the proposed new lots 155, 156, 157, 158, 159 and 160 within the current Lots 2 and 3 Anketell Road, Anketell. The BAL assessment and subsequent report are based on the physical evidence that was present at the time of assessment. The BAL assessment is based on the requirements contained within the Western Australian government policies and guidelines.

BALs are used to determine which, if any, construction requirements contained within Sections 3–9 of the *Australian Standard 3959 – Construction standard of buildings in bushfire-prone areas* (AS 3959) are appropriate for a particular site.

Procedure

The BAL assessment involved the following process in accordance with AS 3959 (Method 1):

- Determine the area to be assessed
- Determine the relevant Fire Danger Index (FDI)
- Determine the vegetation type/s and class
- Determine the distance of the site from the classified vegetation type/s
- Determine the effective slope/s under the classified vegetation type/s
- Determine the BAL
- Determine the appropriate construction requirements.

Fire Danger Index

The methodology rates bushfire attack using a combination of vegetation type, slope and distance from the building or building envelope to the predominant vegetation. In Western Australia it assumes a Fire Danger Index (FDI) of 80.

Site Assessment

The assessment of the proposed subdivision was undertaken on 24 December 2017 for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 (Method 1).



<p>Location details: Anketell Road</p> <p>Assessment date: 24 December 2017</p> <p>Accreditation level: Level 2</p> <p>Accreditation Number: 25741</p> <p>Accreditation expiry date: August 2018</p> <p>Date aerial photo: December 2017</p>	<p>Vegetation Classification Map</p> 	<table border="0"> <thead> <tr> <th colspan="2">Legend</th> <th colspan="2">Vegetation Class</th> </tr> </thead> <tbody> <tr> <td></td> <td>Assessment area external boundary</td> <td></td> <td>B Woodland</td> </tr> <tr> <td></td> <td>Subject land (indicative)</td> <td></td> <td>Exclusion as per 2.2.3.2 (e) and (f)</td> </tr> <tr> <td></td> <td>Photo point</td> <td></td> <td></td> </tr> </tbody> </table>	Legend		Vegetation Class			Assessment area external boundary		B Woodland		Subject land (indicative)		Exclusion as per 2.2.3.2 (e) and (f)		Photo point		
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	Photo point																	

Slope



Figure 1: Slope to the west across the vegetation.

Effectively, the slope is flat with some short distance low undulations. North, east and south of the new six lots is all cleared land and does not influence the construction standards.

5.4 Bushfire fuels

Historically, the current Lots 2 & 3 Anketell Road, Anketell (and the surrounding lots), were part of a modified vegetation area that was cleared and then replanted with an orchard and grassland. To the south is a market garden and west a grassland.

The predominant vegetation type during the initial assessment, was described in the *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (AS 3959)*, on Lots 2 & 3 Anketell Road, Anketell. Stage 1 is now cleared land from a surface fine fuel vegetation perspective, but with trees remaining some areas.

The overstorey to the north and east in the area adjacent to the main development site, which provides the woodland with scrub surface fuels, are scattered red gum (*Corymbia calophylla*), jarrah (*Eucalyptus marginata*) and banksia (*Banksia spp.*). To the west of new lots 155, 156, 157, 158, 159 and 160 is a cleared land, grassland and then banksia woodland. To the south is a market garden and associated infrastructure.



Figure 2. Photographs showing the woodland vegetation immediately to the east of Lots 2 & 3 Anketell Road, Anketell.



Figure 3. Photographs showing the woodland and grass understorey vegetation north of Lots 2 & 3 Anketell Road, Anketell.



Figure 4. Photographs showing the grass and then woodland vegetation to the west of Lots 2 & 3 Anketell Road, Anketell.



Figure 5. Photographs showing the cleared land and market garden vegetation to the south of Lots 2 & 3 Anketell Road, Anketell.

Vegetation Classification

All vegetation within 150 metres of the proposed subdivision as indicated on the vegetation classification map was classified in accordance with the Western Australian Government criteria and Clause 2.2.3 of AS 3959 was applied. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below. AS 3959 only requires consideration of 100 metres between vegetation and the building and 50 metres between vegetation and the building for grassland.

Photos showing vegetation classification to a distance of 150 metres from the vegetation on Lots 2 & 3 Anketell Road, Anketell

Plot 1

Class B – Woodland



PHOTO 1 Facing east showing the banksia woodland and scrub understorey.



PHOTO 2 Facing east on the eastern boundary showing the banksia woodland.



PHOTO 3 Facing south-west showing the Regional Park and woodland vegetation.



PHOTO 4 Facing south-west showing the woodland.



PHOTO 5 Facing north showing the woodland and grass and very sparse scrub surface fuels.



PHOTO 6 Facing north showing the grass and very sparse scrub surface and near surface fuel.

Plot 2

Exclusion 2.2.2.3 (e) and (f) cultivated and reticulated garden



PHOTO 7 Facing south-east showing the market garden and infrastructure.



PHOTO 8 Facing east showing the market garden.



PHOTO 9 Facing east along the road (cleared land).



PHOTO 10 Facing north-east to the buildings in the neighbouring property.



PHOTO 11 Facing west-north-west showing the cleared fine fuels and retained overstorey.



PHOTO 12 Facing east across the retained overstorey and showing the absence of fine fuels.

Notes to Accompany Vegetation Classification

1. Plot 1

Class B – Woodland (AS 3959 classification B–05)

This is the woodland vegetation that is within neighbouring lots. In all instances the woodland is greater than 100 metres from the lots being considered in this report and therefore does not influence construction standards. The woodland is within the State Government Guidelines of requiring vegetation within 150 metres of the development being considered.

2. Plot 2

Exclusion – Low threat vegetation and non-vegetated areas
 Clause 2.2.3.2 (e) and (f)

This plot contains the cleared neighbouring land, roads and other infrastructure associated with an urban development. It also contains lots that do not yet have dwellings constructed. These lots which contain grassland are required by the City's firebreak notice to maintain the lots in a 'low threat vegetation' status. The vegetation which is near to the lots has had the vast bulk of the fine fuels removed and is in a 'low threat vegetation' status. This vegetation will be permanently removed during stage two of the development. If required the fine fuel surface vegetation will be removed to maintain compliance with the 'low threat vegetation' classification.

Other Considerations in Regard to Vegetation

1. The fire spread algorithms applied in AS 3959 consider fine fuels as less than 6 mm diameter for dead material, and less than 3 mm diameter for live material.

Potential Bushfire Impacts

The potential bushfire impacts to the proposed lots from each of the identified vegetation plots are identified below.

Plot	Vegetation Classification	Effective Slope	Separation distance (m)
1	Class B – Woodland (B-05)	Flat	88m
2	Exclusion – Low threat vegetation and non-vegetated areas Clause 2.2.3.2 (e)	Flat	Not applicable

Determination of Bushfire Attack Level (BAL)

The determined Bushfire Attack Level (highest BAL) for the Lots is listed below and have been determined in accordance with Clause 2.2.6 of AS 3959 using the above analysis.

The determined Bushfire Attack Level (BAL) for the lots are:

- Lot 155 - BAL-12.5
- Lot 156 - BAL-LOW
- Lot 157 - BAL-LOW
- Lot 158 - BAL-LOW
- Lot 159 - BAL-LOW
- Lot 160 - BAL-12.5

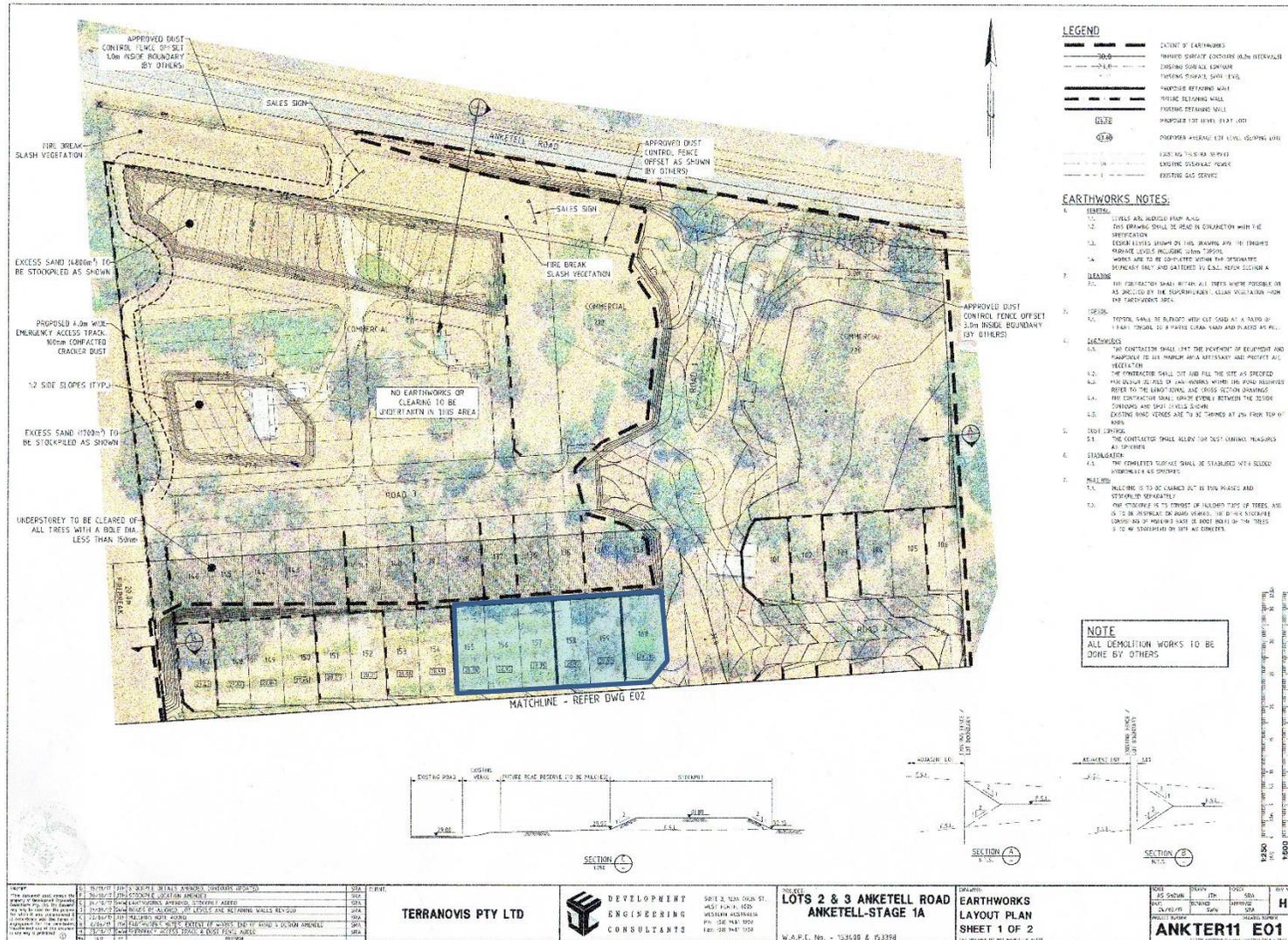
Appendix 1

Aerial photo showing the subject site, Lots 155 to 160 Anketell Road, Anketell, and surrounding lots as being designated a bushfire prone area. Source: Department of Fire and Emergency Services online map of bushfire prone areas.



Appendix 2

Plan showing the subject site, Lots 155 – 160 Anketell Road, Anketell, and surrounding land use area with cadastral boundaries. Source: Client.



Appendix 3

Plan showing the subject site. Source: Client.



References

Department of Fire and Emergency Services (DFES), (2017). *Map of Bushfire Prone Areas 2017*. Retrieved 24 December 2017 from <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>

City of Kwinana intramaps from <http://www.mapimage.net/intramaps80/default.htm?Project=Kwinana&configId=8a624b0e-001f-400a-acaa-53250c3df908>

Near Maps online mapping from <http://www.nearmaps.com>.

Standards Australia. (2009). *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (incorporating amendment numbers 1, 2 and 3)*. Standards Australia, Sydney, NSW.

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

Western Australian Planning Commission, (2017). *Guidelines for Planning in Bushfire Prone Areas*. Western Australian Planning Commission, Perth, WA.