

Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Bushfire Management Plan and Site Details

Site Address / Plan Reference: Lot 9000 (No.61) Ashley Road

Suburb: TAPPING

State: WA

P/code: 6065

Local government area: City of Wanneroo

Description of the planning proposal: Subdivision of one Lot into 43 Lots.

BMP Plan / Reference Number: 170874

Version: v1.0

Date of Issue: 30/07/2018

Client / Business Name: F. Borogogno (Landowner) via Burgess Design Group - Town Planning & Urban Design

Reason for referral to DFES	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the proposal any of the following special development types (see SPP 3.7 for definitions)?		
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

N/A

Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

BPAD Accredited Practitioner Details and Declaration

Name Kathy Nastov	Accreditation Level Level 3	Accreditation No. BPAD 27794	Accreditation Expiry 01/08/2018
Company Bushfire Prone Planning		Contact No. 6477 1144	

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner



Date 30/07/2018



Bushfire Management Plan (Subdivision Application)

Lot 9000 (No.61) Ashley Road, Tapping

City of Wanneroo

Job Number:	170874
Assessment Date:	19 July 2018
Report Date:	30 July 2018

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Disclaimer

The measures contained in this Bushfire Management Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the correct implementation of the required bushfire protection measures (and any associated response/evacuation plan if applicable) will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.


All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith based on information available to Bushfire Prone Planning at the time.

All maps included herein are indicative in nature and are not to be used for accurate calculations.


Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents - arising out of the services provided by their consultants.

Document Control

Version	Version Details	Date Submitted
1.0	BMP for Subdivision	30-Jul-18
		-
		-

Author	Accreditation	Signature
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-

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Document Content Compliance Statement

This Bushfire Management Plan (the Plan) provides the required information to address State Planning Policy No. 3.7: Planning in Bushfire Prone Areas - December 2015 (SPP 3.7), the associated Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 (Guidelines), and any additional information as directed by the WA Planning Commission (WA Department of Planning, Lands and Heritage). It is fit for accompanying a planning application.

Structure Plan / Subdivision BMP Template v7.3

Table of Contents

DOCUMENT CONTROL	1
EXECUTIVE SUMMARY	4
1 THE PROPOSAL AND PURPOSE OF THE PLAN	5
1.1 DETAILS	5
1.2 EXISTING DOCUMENTATION RELEVANT TO THE CONSTRUCTION OF THIS PLAN	10
2 ENVIRONMENTAL CONSIDERATIONS	11
2.1 NATIVE VEGETATION – MODIFICATION AND CLEARING	11
2.2 RE-VEGETATION / RETAINED VEGETATION / LANDSCAPE PLANS	13
3 POTENTIAL BUSHFIRE IMPACT ASSESSMENT	14
3.1 ASSESSMENT INPUT	14
3.1.1 Fire Danger Index (FDI) Applied	14
3.2 ASSESSMENT OUTPUT	24
3.2.1 Separation Distances Calculated to Construct the BAL Contours.....	25
3.2.2 Bushfire Attack Levels (BAL) Derived from The Contour Map.....	28
4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES	30
5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (BPC)	31
5.1 BUSHFIRE PROTECTION CRITERIA - ASSESSMENT SUMMARY	31
5.2 BUSHFIRE PROTECTION CRITERIA – ACCEPTABLE SOLUTIONS ASSESSMENT DETAIL	32
5.2.1 Element 1: Location	32
5.2.2 Element 2: Siting and Design of Development	33
5.2.3 Element 3: Vehicular Access.....	34
5.2.4 Element 4: Water	36
5.3 ADDITIONAL INFORMATION FOR REQUIRED BUSHFIRE PROTECTION MEASURES	37
5.3.1 Vegetation Management	37
5.3.2 Consideration/Implementation of Public Open Space Management.....	39
5.3.3 Future Stage Planning Application – Additional Information Required	39
6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE PROTECTION MEASURES	40
APPENDIX 1 - ONSITE VEGETATION MANAGEMENT TECHNICAL REQUIREMENTS	43
APPENDIX 2 - VEHICULAR ACCESS TECHNICAL REQUIREMENTS	48
APPENDIX 3 - WATER TECHNICAL REQUIREMENTS	50

List of Figures

FIGURE 1.1: PROPOSED SUBDIVISION PLAN	6
FIGURE 1.2: LOCATION PLAN (SPACIAL CONTEXT)	8
FIGURE 1.3: MAP OF BUSHFIRE PRONE AREAS FOR THE SUBJECT SITE AND SURROUNDS	9
FIGURE 3.1: VEGETATION CLASSIFICATION AND TOPOGRAPHY MAP.	18
FIGURE 3.2: BAL CONTOUR MAP	27

Executive Summary

Bushfire Prone Planning (BPP Group Pty Ltd) has been commissioned by the Landowner/Proponent to prepare a Bushfire Management Plan to accompany subdivision application for the proposed development of Lot 9000 Ashley Road, Tapping. The land consists of a 2.3037 hectare Lot for the proposed subdivision into 42 Residential Lots and 1 Homestead Lot retaining the existing dwelling.

The subdivision will comprise a combination of Residential R30 and R40 Lots.

Contained within the Bushfire Management Plan, contour mapping is utilised to visually show the potential radiant heat impacts (from bushfire prone vegetation), as separate Bushfire Attack Level contours across the site. The indicative BAL's have been derived for proposed Lots within the assessed area. The purpose is to inform future development planning by determining or indicating the Bushfire Attack Levels (BAL's) that future Lots and buildings, within the proposed subdivision, are potentially subject to.

Against the Bushfire Protection Criteria, the decision maker's assessment of the Proposal will be on the basis of it being able to meet the Acceptable Solutions, once construction and landscaping is complete, as follows:

- For Element 1 'Location', the Proposal is able to achieve the acceptable solution (by being located in an area that will on completion be subject to BAL-29 or less);
- For Element 2 'Siting and Design' the Proposal is able to meet the acceptable solutions by every habitable building being able to achieve an APZ of sufficient size to ensure the radiant heat impact does not exceed BAL-29. APZ's will be managed in a low-fuel state within the subdivision across the internal neighbouring Lots and road reserves due to small Lot areas (Acceptable solution A2.1 and E2.1);
- For Element 3 'Vehicular Access', the Proposal is able to meet the current acceptable solution A3.1 and E3.1 (provision of two access routes to different destinations); and
- For Element 4 'Water', the Proposal is able to achieve the acceptable solution (it will be able to provide reticulated water supply for fire-fighting).

1 The Proposal and Purpose of the Plan

1.1 Details

Landowner /
Proponent: F Borgogno

Site Address: Lot 9000 (No. 61) Ashley Road, Tapping

Local Government: City of Wanneroo

Site Area: 2.3037 hectares

No. of Proposed Lots: 43 (refer to Table 1.1)

Planning Stage: Subdivision

Subdivision Type: Subdivision - Moderate number of lots (R30 &R40)

Overview of the Proposal:

Subdivision of Lot 9000 (No.61) Ashley Road, Tapping, which comprises 2.3037 hectares for proposed 35 R30 Lots, 9 R40 Lots and the balance homestead Lot retaining the existing dwelling.

Bushfire Prone Planning
Commissioned to
Produce the Plan by: Burgess Design Group – Town Planning & Urban Design

Purpose of the Plan: To accompany a planning application

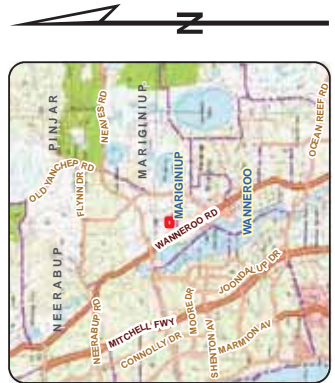
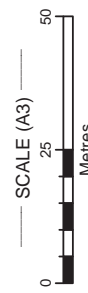
For Submission to: WA Planning Commission (WAPC)



Figure 1.1
Proposed Subdivision
 Lot 9000 on Plan 409072
 [Street No. 61]
 Ashley Road
 TAPPING

LEGEND

- Subject Area: Lot
- Other Lots
- Proposed**
- Subdivision
- Existing Building**
- Class 1(a)
- Class 10(a)
- Residential**
- R-30
- R-40
- Access**
- Footpath
- Dual Use Path
- Road Alignment



Aerial Imagery : Landgate/SLIP
Image Date : JAN/FEB 2018

Map compiled by: Russell Worries
 Date map compiled/updated: 27/07/2018
 Coordinate System: GDA 1984 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre

Disclaimer and Limitation: This map has been prepared for business management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequences which may arise from relying on any information depicted.
 Map Document Name / Path: G:\BushfirePlan\Map\MapXD\S2018\170874_Lot 9000 (HE1) Ashley Road Tapping_BMP_(A3P) (8-7).mxd

Table 1.1.1: Details of proposed lots

Current Lot	
No.9000	2.3037ha

Proposed Lots	
R30	
Number of Lots	35
Total Area of Lots	12176m ²
Average Area of Lots	348m ²
Minimum Lot Area	288m ²
Maximum Lot Area	375m ²

Proposed Lots	
R40	
Number of Lots	9
Total Area of Lots	2632m ²
Average Area of Lots	292m ²
Minimum Lot Area	224m ²
Maximum Lot Area	508m ²

Total Number of Lots	
43 Lots	

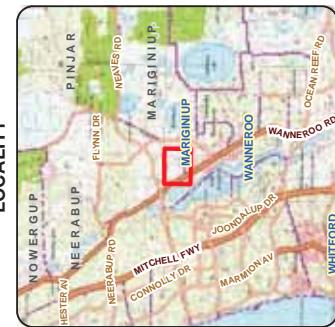
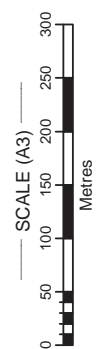


Figure 1.2
Proposed Subdivision
 (SPATIAL CONTEXT)

Lot 9000 on Plan 409072
 [Street No. 61]
 Ashley Road
 TAPPING

LEGEND

- Subject Area: Lot
- Other Lots
- Local Government Authority
- Locality / Suburb
- Bush Forever
- Proposed**
- Subdivision



Aerial Imagery : Landgate/SLIP
Image Date : JAN/FEB 2018

Coordinate System: GDA 1984 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Russell Wornes
 Date map compiled/updated: 27/07/2018

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Map Document Name / Path: G:\BushfireProne\Maping\MXD\52018\170874_Lot 9000 (HE1) Ashley Road, Tapping_BMP_(ASP)18-7.mxd

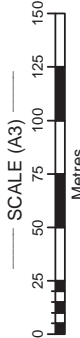


Figure 1.3
Bushfire Prone Area

Lot 9000 on Plan 409072
[Street No. 61]
Ashley Road
TAPPING

LEGEND

-  Subject Area: Lot
-  Other Lots
-  Bushfire Prone Areas (2018)

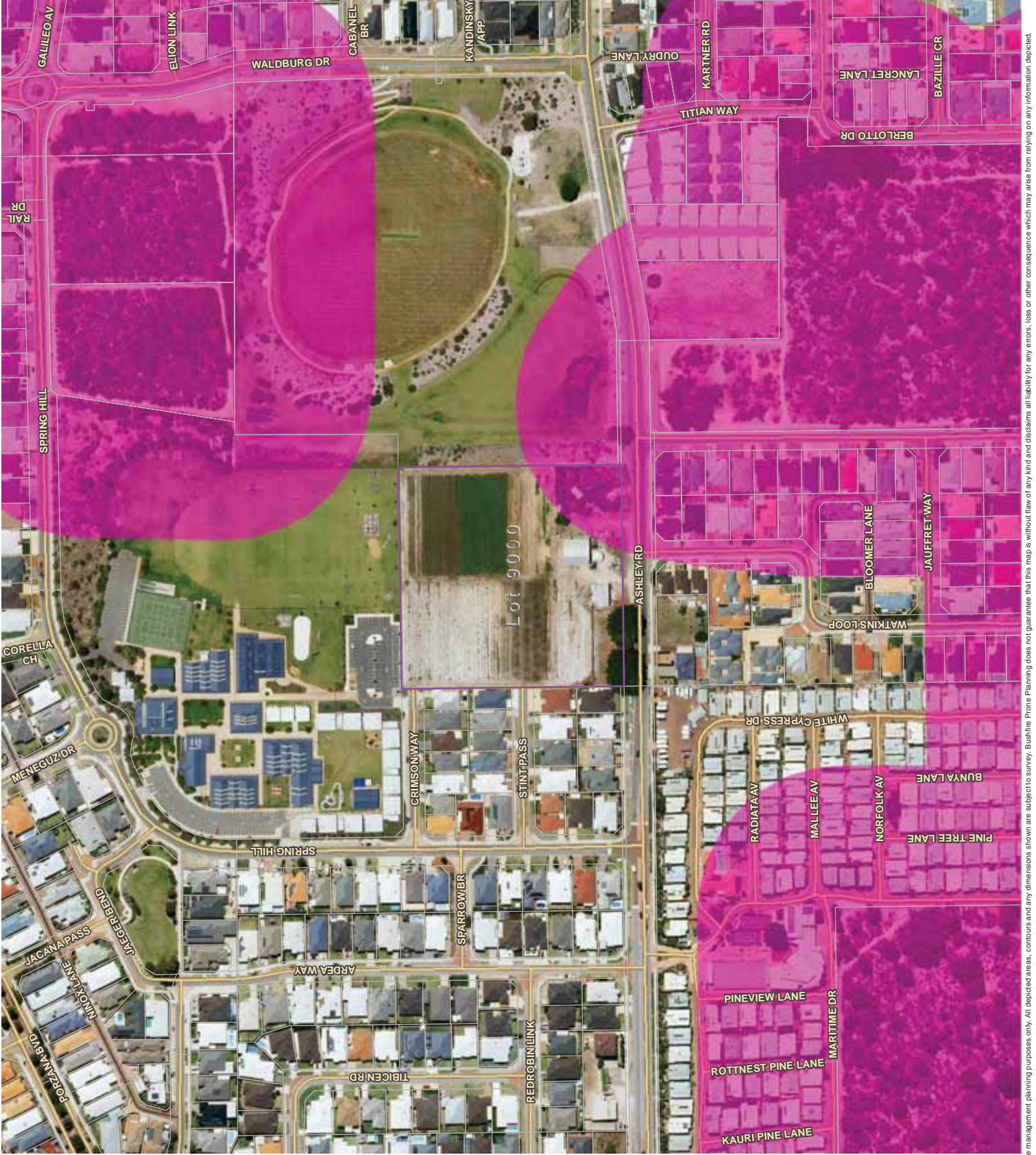


Aerial Imagery : Landgate/SLIP
Image Date : JAN/FEB 2018

Coordinate System: GDA 1984 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre

Map compiled by: Russell Wornes
Date map compiled/updated: 27/07/2018

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequences which may arise from relying on any information depicted.
Map Document Name / Path: C:\BushfireProne\Map\MXD\2018\170874_Lot 9000 (HE1) Ashley Road Tapping_BMP_(A3P)18-7.mxd



1.2 Existing Documentation Relevant to the Construction of this Plan

This section acknowledges any known reports or plans that have been prepared for previous planning stages, that refer to the subject area and that may or will impact upon the assessment of bushfire risk and/or the implementation of bushfire protection measures and will be referenced in this Bushfire Management Plan.

Relevant Documents		
Existing Document	Copy Provided by Client	Title
Structure Plan	N/A	-
Environmental Report	N/A	-
Landscaping (Revegetation) Plan	N/A	-
Bushfire Risk Assessments	N/A	-

Landscaping (revegetation) other than maintained residential gardens and lawns within the subdivision site requires consideration of the bushfire management plan requirements, to ensure an increase in bushfire hazards does not occur, nor alter bushfire attack levels determined for the site. Where an environmental report or landscaping (revegetation) is required as a condition of subdivision, the bushfire management plan will require updating (or amending) to address any bushfire impacts arising from these subsequent reports or plans.

2 Environmental Considerations

2.1 Native Vegetation – Modification and Clearing

‘Guidelines’ s2.3: “Many bushfire prone areas also have high biodiversity values. SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.”

Existing conservation areas that are potentially affected by the development proposal are required to be identified. This may result in vegetation removal/modification prohibition or limitations. These areas include National Parks, Nature Reserves, Wetlands and Bush Forever sites.

Environmental Protection Act 1986: “Clearing of native vegetation in Western Australia requires a clearing permit under Part V, Division 2 of the Act unless clearing is for an exempt purpose. Exemptions from requiring a clearing permit are contained in Schedule 6 of the Act or are prescribed in the Environmental Protection Regulations” (‘Guidelines’ s2.3).

The Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act): This Act administered by the Australian Government Department of Environment, provides a national scheme of environment and heritage protection and biodiversity conservation. Nationally threatened species and ecological communities are a specific matter of significance. Areas of vegetation can be classified as a Threatened Ecological Community (TEC) under the EPBC Act and consequently have removal restrictions imposed.

Vegetation Modification and Clearing Assessment	
Will on-site clearing of native vegetation be required?	No
Does this have the potential to trigger environmental impact/referral requirements under State and Federal environmental legislation?	N/A
Identified environmental legislation applicable to the Proposal site - No.1:	N/A
Identified environmental legislation applicable to the Proposal site - No.2:	N/A
For the proposed development site, have any areas of native vegetation been identified as species that might result in the classification of the area as a Threatened Ecological Community (TEC)?	No
Potential TEC species identified:	N/A

The subject site is cleared of native vegetation, comprising only of market garden produce and landscape planting around the existing dwelling. The bushfire assessment and management strategies contained in the BMP, assume that environmental approval will be achieved or clearing permit exemptions will apply.

Development Design Options

Establishing development in bushfire prone areas can adversely affect the retention of native vegetation through clearing associated with the creation Lots and/or Asset Protection Zones. Where loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, it will be necessary to consider available design options to minimise the removal of native vegetation.

Minimising the Removal of Native Vegetation		
Design Option	Identified	Adopted
Reduction of lot yield	N/A	N/A
Cluster development	N/A	N/A
Construct building to a standard corresponding to a higher BAL rating as per BCA (AS 3959-2009 and/or NASH Standard)	N/A	N/A
Modify the development location	N/A	N/A

As there is no native vegetation on the site, the proposed subdivision and future construction of buildings on the proposed Lots will allow for the development of asset protection zones without the clearing of large areas of significant vegetation.

Impact on Adjoining Land

Is this planning proposal able to implement the required bushfire measures within the boundaries of the land being developed so as not to impact on the bushfire and environmental management of neighbouring reserves, properties or conservation covenants?	Yes
---	-----

The proposed subdivision is located in a residential area adjoining City of Wanneroo maintained parkland (Public Open Space) and managed open recreational reserve (mown grass). Separation from currently unmanaged grasses to the northeast of the site is achieved by subdivision internal road reserves.

2.2 Re-vegetation / Retained Vegetation / Landscape Plans

Is re-vegetation of riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	No
Is the requirement for ongoing maintenance of existing vegetation in riparian zones and/or wetland or foreshore buffers and/or public open space a part of this Proposal?	No

In assessing vegetation for bushfire threat, consideration must be given to possible future vegetation changes likely on the site that is being assessed and in particular those that would have the potential to increase the bushfire risk. This may be due to growth of existing vegetation or growth of planned landscape plantings, including future re-vegetation. There must be careful consideration of the creation of vegetation corridors where they join offsite vegetation and which may provide a route for fire to enter an area of future development.

Landscaping or revegetation (other than managed/maintained gardens and lawns on proposed Lots) within the site should be undertaken as to align with the bushfire management planning requirements to ensure an increase in bushfire hazards does not occur, nor alter the indicative bushfire attack levels indicated for the site.

All future onsite landscape planting (where applicable to verge street scapes) is to be managed in a low threat state as per the criteria detailed in AS3959-2009 s2.2.3(f) "Low threat vegetation" and all other vegetation remaining on undeveloped Lots managed in accordance with the annual City of Wanneroo Firebreak Notice and Fire and Burning Information Brochure. This ensures BAL separation distances can be effectively maintained and bushfire hazards on-site are reduced and maintained at low threat levels.

Management of the areas as described above is to be undertaken initially by the Landowner /Proponent (Developer). The landowner/proponent (Developer) shall have no further responsibilities to provision of bushfire land management or maintenance on Lot/s which pass from their ownership.

3 Potential Bushfire Impact Assessment

3.1 Assessment Input

3.1.1 Fire Danger Index (FDI) Applied

AS 3959-2009 specifies the fire danger index values to apply for different regions as per Table 2.1. The values used in the model calculations are for the Forest Fire Danger Index (FFDI) and for which equivalent representative values of the Grassland Fire Danger Index (GFDI) are applied as per Appendix B. The values can be refined if appropriately justified.

Table 3.1.1: Applied FDI Value

FDI Value			
Vegetation Area	As per AS 3959 - 2009 Table 2.1	As per DFES for the Location	Value Applied
1 - 8	80	N/A	80

Existing Vegetation Identification, Classification and Effective Slope

Vegetation identification and classification has been conducted in accordance with AS 3959-2009 s2.2.3 and the Visual Guide for Bushfire Risk Assessment in WA (DoP February 2016).

When more than one vegetation type is present, each type is identified separately with the worst-case scenario being applied as the classification. The predominant vegetation is not necessarily the worst-case scenario.

The vegetation structure has been assessed as it will be in its mature state (rather than what might be observed on the day). Areas of modified vegetation are assessed as they will be in their natural unmodified state (unless maintained in a permanently low threat, minimal fuel condition, satisfying AS 3959-2009 s2.2.3.2-f and asset protection zone standards). Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its revegetated mature state.

Effective Slope: Is the ground slope under the classified vegetation and is determined for each area of classified vegetation. It is the measured or determined slope which will most significantly influence the bushfire behaviour in that vegetation as it approaches a building or site. Where there is a significant change in effective ground slope under an area of classified vegetation, that will cause a change in fire behaviour, separate vegetation areas will be identified, based on the change in effective slope, to enable the correct assessment.

Table 3.1.2: Vegetation identification and classification

All Vegetation Within 150 metres of the Proposed Development				
Vegetation Area	Identified Classification Types ¹ or Description if 'Excluded'	Applied Classification ²	Effective Slope Under Classified Vegetation	
			degrees	description
1	Grassland G-26 & G-21 (Unmanaged grass & weeds)	Class G Grassland	0	Upslope
2	Woodland B-05 & B-07 (Banksia Woodland Dominant)	Class B Woodland	0	Upslope
3	Non-vegetated area & Low threat vegetation	Excluded AS3959-2009 2.2.3.2 (e) & (f)	N/A	N/A
4	Low threat vegetation (Managed land)	Excluded AS3959-2009 2.2.3.2 (f)	0	Upslope
5	Low threat vegetation (Managed land)	Excluded AS3959-2009 2.2.3.2 (f)	0	Upslope
6	Woodland B-05 (Mixed species of trees with canopy separation and grass/low shrub understorey))	Class B Woodland	0	Upslope
7	Low threat vegetation (Managed land/school playing field)	Excluded AS3959-2009 2.2.3.2 (f)	0	Upslope
8	To be cleared for development (Market Garden)	Excluded AS3959-2009 2.2.3.2 (f)	N/A	N/A

Representative photos of each vegetation area, descriptions and classification justification, are presented on the following pages. The areas of classified vegetation are defined, and the photo locations identified on the topography and classified vegetation map, Figure 3.1.

Note¹: As per AS 3959-2009 Table 2.3 and Figures 2.3 and 2.4 a-g

Note²: As per AS 3959-2009 Table 2.3.

Vegetation Area 1	Classification Applied or Exclusion Clause: Class G Grassland
-------------------	---

Vegetation Type Present: Sown pasture G-26 ; Tussock grassland G-22

Description / Classification Justification: Off-site unmanaged grasses and weeds (Castor Oil bush weed). Unmanaged strip is approximately 10m wide & 100m in length along school playing field fence-line.



Photo ID: 1a



Photo ID: 1b

Vegetation Area 1	Classification Applied or Exclusion Clause: Class G Grassland
-------------------	---

Vegetation Type Present: Sown pasture G-26 ; Tussock grassland G-22

Description / Classification Justification: Off-site unmanaged grasses and weeds (Castor Oil bush weed). Unmanaged strip is approximately 10m wide & 100m in length along school playing field fence-line.



Photo ID: 1c

Photo ID: -

Vegetation Area 2	Classification Applied or Exclusion Clause: Class B Woodland
-------------------	--

Vegetation Type Present: Woodland B-05 ; Low woodland B-07

Description / Classification Justification: Marri & Banksia canopy, Zamia Palm, Grass Tree and grassy understorey. Tree height upper canopy ~20.0m and lower canopy ~6m, foliage cover ~15%, open canopy between trees.



Photo ID: 2a



Photo ID: 2b

Vegetation Area 2	Classification Applied or Exclusion Clause: Class B Woodland
-------------------	--

Vegetation Type Present: Woodland B-05 ; Low woodland B-07

Description / Classification Justification: Predominantly Banksia canopy, Zamia Palm, Grass Tree and grassy understorey. Tree height ~4m – 6m, foliage cover ~15%, open canopy between trees.



Photo ID: 2c



Photo ID: 2d

Vegetation Area 3	Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (e) (f)
-------------------	--

Vegetation Type Present: Non-vegetated Areas & Low Threat Vegetation

Description / Classification Justification: Residential buildings, foot paths, roads, mown lawns and maintained landscaped gardens/verges.



Photo ID: 3a



Photo ID: 3b

Vegetation Area 3	Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (e) (f)
-------------------	--

Vegetation Type Present: Non-vegetated Areas & Low Threat Vegetation

Description / Classification Justification: Residential buildings, foot paths, roads, mown lawns and maintained landscaped gardens/verges.



Photo ID: 3c

Photo ID: -

Vegetation Area 4	Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (f)
-------------------	--

Vegetation Type Present: Low Threat Vegetation

Description / Classification Justification: Off-site low grasses and weeds <100mm in height. Vegetation within this Lot is able to be maintained and managed in low threat state by the City of Wanneroo.



Photo ID: 4a



Photo ID: 4b

Vegetation Area 5	Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (f)
-------------------	--

Vegetation Type Present: Low Threat Vegetation

Description / Classification Justification: Off-site mown grass <100mm in height, shade trees and landscaped planting with mulch and drip watering system, in the recreational park. Vegetation within this POS is able to be maintained and managed in low threat state by the City of Wanneroo. It is reasonable to ensure continued planned and programmed maintenance.



Photo ID: 5a



Photo ID: 5b

Vegetation Area 5

Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (e) (f)

Vegetation Type Present: Low Threat Vegetation & Non-vegetated Areas

Description / Classification Justification: Off-site mown grass <100mm in height, shade trees and landscaped planting with mulch and drip watering system, foot paths, in the recreational park. Vegetation within this POS is able to be maintained and managed in low threat state by the City of Wanneroo. Road verge mulched and street trees spaced ensuring canopy separation and foot paths. It is reasonable to ensure continued planned and programmed maintenance.



Photo ID: 5c



Photo ID: 5d

Vegetation Area 5

Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (f) Low Threat Vegetation

Vegetation Type Present: Low Threat Vegetation

Description / Classification Justification: Off-site mown grass <100mm in height, low to medium shrubs planted <0.1ha in area and landscaped planting (approximately 13m wide) with mulch and drip watering system along subdivision boundary, in the recreational park. Vegetation within this POS is able to be maintained and managed in low threat state by the City of Wanneroo. It is reasonable to ensure continued planned and programmed maintenance.



Photo ID: 5e



Photo ID: 5f

Vegetation Area 5	Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (f) Low Threat Vegetation
-------------------	---

Vegetation Type Present: Low Threat Vegetation

Description / Classification Justification: Off-site mown grass <100mm in height, low shrubs planted <0.2ha in area and landscaped planting (approximately 13m wide) with mulch and drip watering system along subdivision boundary, in the recreational park. Vegetation within this POS is able to be maintained and managed in low threat state by the City of Wanneroo. It is reasonable to ensure continued planned and programmed maintenance.



Photo ID: 5g

Photo ID: -

Vegetation Area 6	Classification Applied or Exclusion Clause: Class B Woodland
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Vegetation Type Present: Woodland B-05 ; Low woodland B-07

Description / Classification Justification: Mixed species including Marri, Jarrah & Banksia canopy, Zamia Palm and grassy understorey. Ferns also from understorey within the bushland. Tree height upper canopy ~11.8m and lower canopy ~9m, foliage cover ~20%, open canopy between trees.



Photo ID: 6a



Photo ID: 6b

Vegetation Area 7	Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (f)
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Vegetation Type Present: Low Threat Vegetation

Description / Classification Justification: School playing field, mown grass recreational area with isolated newly planted shade trees.



Photo ID: 7a



Photo ID: 7b

Vegetation Area 8	Classification Applied or Exclusion Clause: Excluded AS3959-2009 2.2.3.2 (f)
-------------------	--

Vegetation Type Present: Low Threat Vegetation

Description / Classification Justification: On-site market garden planting (Reticulated).



Photo ID: 8a



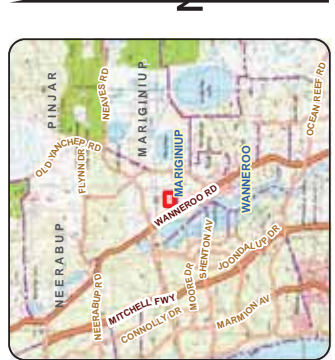
Photo ID: 8b



Figure 3.1
**Topography &
 Classified Vegetation**
 Lot 9000 on Plan 409072
 [Street No. 61]
 Ashley Road
 TAPPING

LEGEND

- Subject Area: Lot
- Other Lots
- Hydrant
- Proposed**
- Subdivision
- Road Alignment
- Access**
- Footpath
- Dual Use Path
- Assessment Area**
- Vegetation - 150m
- Classified Vegetation**
- Class (B) Woodland
- Class (G) Grassland
- Exclusion 2.2.3.2
- Elevation contour (m)
- Photo no., location & direction



Aerial Imagery : Landgate/SLIP
Image Date : JAN/FEB 2018

Coordinate System: GDA 1984 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Russel Worries
 Date map compiled/updated: 27/07/2018

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequences which may arise from relying on any information depicted.
 Map Document Name / Path: G:\BushfirePlan\Map\Mapping\MXD\52018\170874_Lot 9000 (HE1) Ashley Road_Tapping_BMP_(A3P)18-7.mxd

3.2 Assessment Output

Understanding the Bushfire Assessment Results - Application of Bushfire Attack Levels (BAL)

The BAL rating has a different application in the building environment compared to the planning environment and the BAL assessment can result in a determined BAL or an indicative BAL which have different implications.

Building versus Planning Applications

In the building environment, a determined BAL rating is required (for the proposed construction) at the building application stage. This is to inform approval considerations and establish the construction standards that are to apply if approved. An indicative BAL rating is not acceptable for a building application.

In the planning environment, assessing the ability of a proposed development site to achieve BAL-29 or less is the objective (as one of the bushfire protection criteria being assessed). The 'development site' is defined by the LPS Amendment Regulations 2015 as "that part of a lot on which a building that is the subject of development stands or is to be constructed".

Therefore, being able to show that a BAL rating of BAL-29 or lower is achievable for a proposed development site (i.e. the building footprint) is an acceptable outcome for that criteria, as established by the bushfire provisions, SPP 3.7 and the associated Guidelines. For planning purposes, this BAL rating could be either indicative or determined.

Determined BAL Ratings

A determined BAL rating is to apply to an existing or proposed construction site (building) and not to a lot or envelope. Its purpose is to state the potential radiant heat flux to which the building will be exposed.

A determined BAL cannot be given for a future building whose location, elevation design and footprint (on a given lot) are unknown. It is not until these variables have been fixed that a BAL can be determined (typically at the development application or building application stage).

The one exception is when a building of *any dimension* can be *positioned anywhere* on a proposed lot or within defined limits within the lot (i.e. building setbacks or building envelope) and always remain subject to the same BAL rating. For this to be the case, there needs to be no classified vegetation either onsite or offsite that if retained could impact upon the determined BAL rating.

Indicative BAL Ratings

When this Plan presents a single indicative BAL rating for a proposed construction site (building), this will be because the construction is still subject to a location within the lot being confirmed and/or a vegetation separation distance being achieved. That is, it will be conditional upon some factor being confirmed at a later stage.

For planning applications associated with proposed lots, the building location, elevation design and footprint have typically not been established. Therefore, indicative rather than determined BAL rating/s will be presented for each lot (with the exception as noted above under 'Determined BAL Ratings').

When this Plan presents a single indicative BAL rating for a lot or building envelope (i.e. an 'area' that is not a located building footprint) it will represent the highest BAL rating affecting that 'area'. The BAL rating of a future building on that 'area' will be dependent on its eventual location.

Otherwise, this Plan will present all BAL ratings for each lot and for each BAL rating, the vegetation separation distances from each area of classified vegetation that are to apply. These distances will be presented as either figures in a table or as a BAL contour map.

From this indicative BAL information, it can be assessed if acceptable BAL ratings (\leq BAL-29) can be achieved for future buildings.

3.2.1 Separation Distances Calculated to Construct the BAL Contours

Table 3.2.1: Vegetation separation distances applied to construct the BAL contours.

Calculated Vegetation Separation Distances										
Vegetation Area	Vegetation Classification	Effective Slope	Site Slope (Degrees)	BAL Assessment Method Applied ¹	BAL Rating and Corresponding Separation Distance ² (metres)					
					BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5	BAL-LOW
1	Class G Grassland	U/S	0	Method 1	<6	6-<8	8-<12	12-<17	17-<50	>50
2	Class B Woodland	U/S	0	Method 1	<10	10-<14	14-<20	20-<29	29-<100	>100
3	Excluded AS3959-2009 2.2.3.2 (e)(f)	N/A	N/A	Method 1	N/A	N/A	N/A	N/A	N/A	N/A
4	Excluded AS3959-2009 2.2.3.2 (f)	U/S	0	Method 1	N/A	N/A	N/A	N/A	N/A	N/A
5	Excluded AS3959-2009 2.2.3.2 (f)	U/S	0	Method 1	N/A	N/A	N/A	N/A	N/A	N/A
6	Class B Woodland	U/S	0	Method 1	<10	10-<14	14-<20	20-<29	29-<100	>100
7	Excluded AS3959-2009 2.2.3.2 (f)	U/S	0	Method 1	N/A	N/A	N/A	N/A	N/A	N/A
8	Excluded AS3959-2009 2.2.3.2 (f)	N/A	N/A	Method 1	N/A	N/A	N/A	N/A	N/A	N/A

¹ Method 1 as per AS 3959-2009 Table 2.4.3 and Method 2 as per AS 3959-2009 Appendix B. The input variables applied, other than the calculation model defaults, are presented in Section 3.1 of this Plan.

² Copies of the summaries of Method 2 calculation inputs and outputs are presented in the Appendices if applicable.

Note: D/S = Downslope U/S = Upslope C/S = Cross Slope

Interpretation of the Bushfire Attack Level (BAL) Contour Map

The contour map will present different coloured contour intervals constructed around the classified bushfire prone vegetation. These represent the different Bushfire Attack Levels that exist at varying distances away from the classified vegetation. Each BAL represents a set range of radiant heat flux (as defined by AS 3959-2009) that can be generated by the bushfire in that vegetation at that location.

The width of each shaded contour (i.e. the distance interval) will vary and is determined by consideration of variables including vegetation type, fuel structure, ground slope, climatic conditions. They are unique to a site and can vary across a site. The width of each contour is a diagrammatic expression of the separation distances from the classified vegetation that apply for each BAL rating, for that site. A building (or 'area') located within any given BAL contour will be subject to that BAL rating and potentially multiple BAL ratings of which the highest rating will be applied.

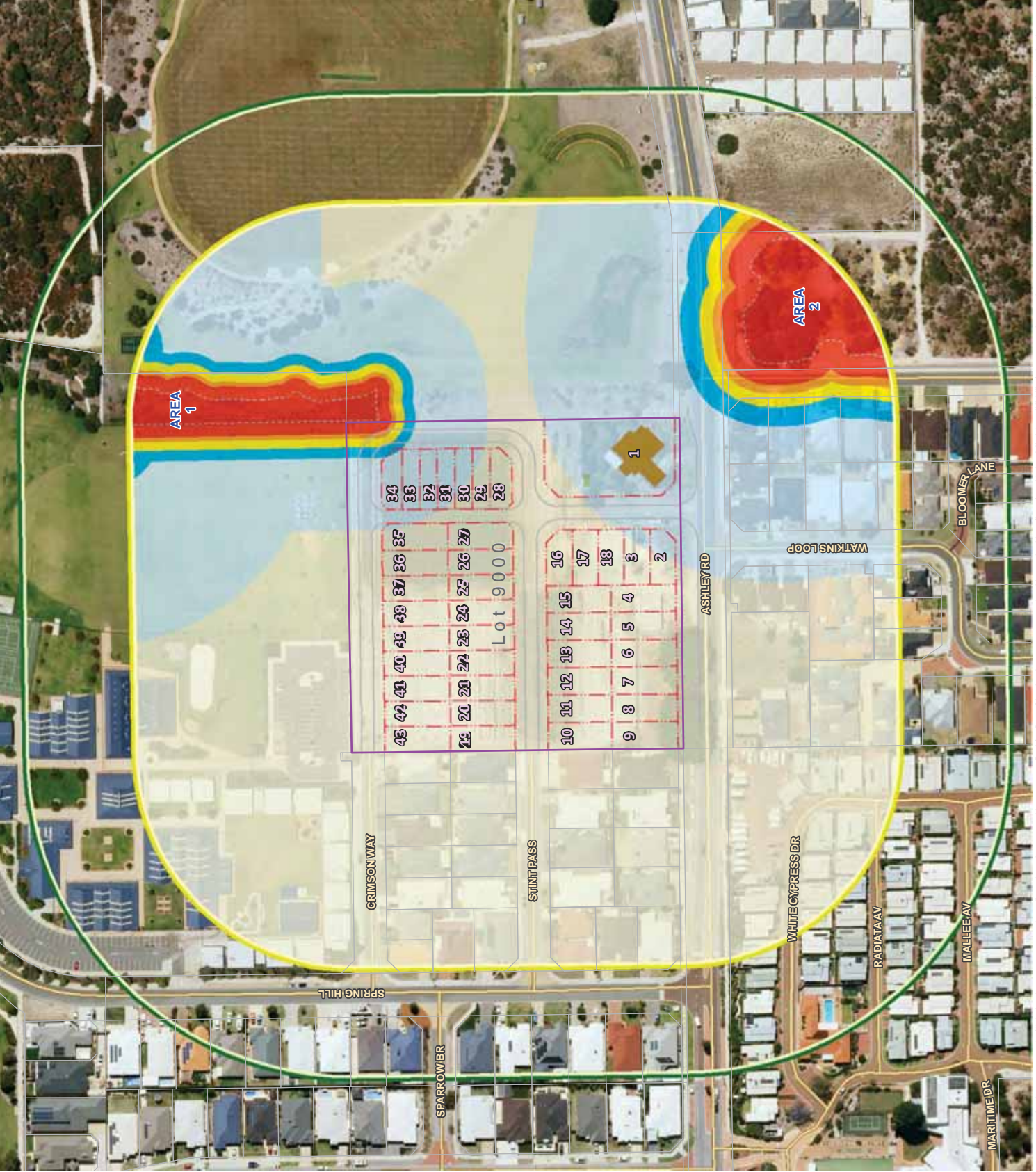
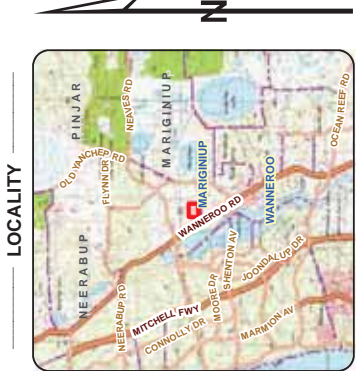


Figure 3.2
BAL Contour Map
 Lot 9000 on Plan 409072
 [Street No. 61]
 Ashley Road
 TAPPING

LEGEND

- Subject Area: Lot
- Other Lots
- Proposed**
- Subdivision
- Existing Building**
- Class 1(a)
- Class 10(a)
- Assessment Area**
- Vegetation - 150m
- BAL Contour - 100m
- Bushfire Attack Levels (Method 1)**
- Vegetation edge (Indicative only)
- BAL FZ (Indicative only)
- BAL 40 (Indicative only)
- BAL 29 (Indicative only)
- BAL 19 (Indicative only)
- BAL 12.5 (Indicative only)
- BAL LOW (Indicative only)



Aerial Imagery : Landgate/SLIP
Image Date : JAN/FEB 2018

Coordinate System: GDA 1984 MGA Zone 50
 Projection: Universal Transverse Mercator Unit: Metre

Map compiled by: Russel Worries
 Date map compiled/updated: 27/07/2018

Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Planning does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequences which may arise from relying on any information depicted.

Map Document Path : Name: G:\BushfirePlan\Map\Map\MXD\2018\170874_Lot 9000 (HE)1\Ashley_Road_Tapping_BMP_(A3P)18-7.mxd

3.2.2 Bushfire Attack Levels (BAL) Derived from The Contour Map

Deriving a BAL Rating for a Future Construction Site (Building) from the BAL Contour Map Data (Capacity to Issue a BAL Certificate)

Key Assumptions: The actual location of a building within a lot or envelope (an 'area') has not been determined at this stage of planning; and the BAL ratings represent the BAL of an 'area' not a building.

The BAL Rating is Assessed as Indicative

If the assessed BAL for the 'area' is stated as being 'indicative', it is because that 'area' is impacted by more than one BAL contour interval and/or classifiable vegetation remains on the lot, or on adjacent lots, that can influence a future building's BAL rating (and this vegetation may have been omitted from being contoured for planning purposes e.g. Grassland or when the assumption is made that all onsite vegetation can be removed and/or modified).

In this report the indicative BAL is presented as either the highest BAL impacting the site or as a range of achievable BAL's within the site – whichever is the most appropriate.

The BAL rating that will apply to any future building within that 'area' will be dependent on:

1. vegetation management onsite; and/or
2. vegetation remaining on adjacent lots; and/or
3. the actual location of the future building within that 'area'.

A BAL Certificate cannot be provided for future buildings, within a lot or envelope with an indicative BAL, until the building location and in some instances building design (elevation), have been established and any required and approved vegetation modification/removal has been confirmed. Once this has occurred a report confirming the building location and BAL rating will be required to submit with the BAL certificate.

The required confirmation of the BAL rating must be done by a bushfire practitioner with the same level of accreditation as has been required to compile this Bushfire Management Plan. This is dependent on the type of calculations utilised (e.g. if performance based solutions have been used in the Plan BPAD Level 3 accreditation is required)

The BAL Rating is Assessed as Determined

If the assessed BAL for the lot or envelope is stated as being 'determined' it is because that lot or envelope is impacted by a single BAL contour interval. This BAL has been determined by the existence (or non-existence) of classified vegetation outside the lot or envelope, and no classifiable vegetation currently exists on the lot or envelope (i.e. it has been cleared to a minimal fuel, low bushfire threat state). In the situation where the BAL Contour Map has been constructed around multiple lots, there also needs to be no classifiable vegetation on an adjacent lot if this vegetation has not already been incorporated into the creation of the BAL Contour Map.

As a result, a determined BAL can be provided in this limited situation because:

1. No classified vegetation is required to be removed or modified to achieve the determined BAL, either within the lot/envelope or on adjacent lots (or if vegetation is excluded from classification, it is reasonable to assume it will be maintained in this state into the future); and
2. A future building can be located anywhere within the 'site' and be subject to the determined BAL rating; and
3. The degree of certainty is more than sufficient to allow for any small discrepancy that might occur in the mapping of the BAL contours.

For a determined BAL rating for a lot/envelope, A BAL Certificate (referring to this BMP) can be provided for a future building, if the BMP remains current.

Table 3.2.2: Indicative Bushfire Attack Levels for Future Buildings on Proposed Lots

Indicative Bushfire Attack Level for Future Buildings on Proposed Lots	
Relevant Fire Danger Index (AS 3959-2009 Table 2.1)	80
BAL Determination Method	Method 1 as per AS 3959-2009 s2.2.6 and Table 2.4.3.
Lot No.	Indicative BAL
1 – 3	BAL-12.5
4 – 18	BAL-LOW
19 – 28	BAL-LOW
29 – 35	BAL-12.5
36 – 43	BAL-LOW

4 Identification of Bushfire Hazard Issues

This subdivision proposal is required to show that the Bushfire Protection Criteria can be complied with in the future. The intent is to ensure this Proposal is located where the bushfire hazard level is (or will on completion be) moderate or low and subject to a maximum Bushfire Attack Level of BAL-29. This can be achieved for this proposal due to the separation distances required for the appropriate BAL rating that considers the following:

Onsite Vegetation

The key factor to facilitate the determining of Indicative Bushfire Attack Levels on the Proposed Subdivision site is that vegetation onsite is under the control of the landowner/proponent. Vegetation onsite is within the control of the subject site's landowner/proponent and therefore can potentially be removed or modified to lower the bushfire risk and therefore presents a low bushfire threat. (Note: any proposed vegetation removal may be subject to local government approval, dependent on the lot's specific condition with respect to any identified environmental constraints).

Offsite Vegetation

Areas of vegetation offsite that are not within the control of the subject site's landowner/proponent cannot be removed or modified by the landowner and as a result the assessed BAL's determined by the proximity of this vegetation are unable to be further reduced. These areas external to the subdivision site but not part of the subdivision proposal have been factored for the BAL Contour mapping.

5 Assessment Against the Bushfire Protection Criteria (BPC)

5.1 Bushfire Protection Criteria - Assessment Summary

Summarised Outcome of the Assessment Against the Bushfire Protection Criteria (BPC)				
Element	Basis for the Assessment of Achieving the Intent of the Element			
	Achieves compliance with the Element through meeting Acceptable Solutions		Achieves compliance with the Element by application of a Performance Based Solution	
	Meets all relevant acceptable solutions	One or more relevant Acceptable Solutions are not <u>fully</u> met. A <u>variation</u> of the solution is provided and justified.	One or more applicable Acceptable Solutions are not met. A solution is developed with the summary presented in this Plan in Section 5.5. The supporting document presenting Bushfire Prone Planning's detailed methodology is submitted separately to the decision makers.	Minor or Unavoidable Development
Location	✓			N/A
Siting and Design of Development	✓			
Vehicular Access	✓			
Water	✓			

The subject Proposal has been assessed against:

1. The requirements established in Appendix 4 of the Guidelines for Planning in Bushfire Prone Areas, WAPC 2017 v1.3 (the 'Guidelines'). The detail, including technical construction requirements, are found at <https://www.planning.wa.gov.au/8194.aspx>. A summary of relevant information is provided in the appendices of this Plan; and
2. Any endorsed variations to the Guideline's acceptable solutions and associated technical requirements that have been established by the relevant local government. If known and applicable these have been stated in Section 5.2 of this Plan with the detail included as an appendix if required by the relevant local government.

5.2 Bushfire Protection Criteria – Acceptable Solutions Assessment Detail

5.2.1 Element 1: Location

Bushfire Protection Criteria Element 1: Location Assessment Statements and Bushfire Protection Measures to be Applied			
Intent: 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.			
Acceptable Solution:	A1.1: Development Location	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.

The proposed subdivision achieves compliance by:

- By ensuring future building work on the lot/s can be located on an area that will be subject to potential radiant heat from a bushfire not exceeding 29 kW/m² (i.e. a BAL rating of BAL-29 or less will apply). This is achieved by using positioning, design and appropriate vegetation maintenance; and
- Managing the remaining bushfire risk to an acceptable level by the existence/implementation and ongoing maintenance of all required bushfire protection measures, as identified within this Plan. These measures include the requirements for vegetation management, vehicular access and firefighting water supply.

5.2.2 Element 2: Siting and Design of Development

Bushfire Protection Criteria Element 2: Siting and Design of Development

Assessment Statements and Bushfire Protection Measures to be Applied

Intent: To ensure that the siting and design of development (note: not building/construction design) minimises the level of bushfire impact.

Acceptable Solution:	A2.1: Asset Protection Zone	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution will be fully met.
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The proposed subdivision achieves compliance by:

- Ensuring future building work on the lot/s can have established around it an APZ of the required dimensions - to ensure that the potential radiant heat from a bushfire to impact future building/s, does not exceed 29 kW/m² (i.e. a BAL rating of BAL-29 or less will apply to determine building construction standards);
- The APZ/s can be partially established within the/each lot boundaries. The balance of the APZ's required dimensions are being contributed by an area on adjoining land that is either non-vegetated or assessed as being managed in a low-fuel state and which can most reasonably be expected to be managed this way in perpetuity.
- The landowner/s having the responsibility of continuing to manage the required APZ as low threat vegetation in a minimal fuel state, by maintaining the APZ to the required dimensions and standard, including compliance with the local government's annual firebreak notice.

The required APZ dimensions are set out in Section 5.3.1. The APZ technical requirements (Standards) are detailed in Appendix 1.

5.2.3 Element 3: Vehicular Access

Bushfire Protection Criteria Element 3: Vehicular Access Assessment Statements and Bushfire Protection Measures to be Applied

Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Acceptable Solution:	A3.1: Two access routes	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
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The proposed internal road network for the subdivision provides for a loop connection to Ashley Road and Spring Hill Road.

Ashley Road and Spring Hill Road will provide safe access and egress to two different destinations. As existing sealed public road, it is available to all residents and the public at all times and under all weather conditions.

Acceptable Solution:	A3.2 Public Road	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution will be fully met as part of subdivision works.
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New roads constructed as part of the subdivision will meet the City of Wanneroo standards and specifications for public roads.

The construction technical requirements established by the Guidelines and/or the local government can and will be complied with. These requirements are set out in Appendix 2.

Bushfire Protection Criteria Element 3: Vehicular Access (continued)
Assessment Statements and Bushfire Protection Measures to be Applied

Acceptable Solution:	A3.3 Cul-de-sacs (including a dead-end road)	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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N/A

Acceptable Solution:	A3.4: Battle-axe	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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N/A

Acceptable Solution:	A3.5: Private Driveways	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
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Residential Lots created by this subdivision proposal will not require increased construction standards for driveways due to future buildings being less than 50m from the public road.

Acceptable Solution:	A3.6 Emergency Access Way	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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N/A

Acceptable Solution:	A3.7 Fire Service Access Routes	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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N/A

Acceptable Solution:	A3.8 Firebreak Width	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution is fully met.
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The existing and proposed lots will comply with the requirements of the local government annual firebreak notice issued under s33 of the Bush Fires Act 1954. Firebreaks and hazard reduction as necessary will to be installed/maintained prior to subdivision clearance and in perpetuity by subsequent landowners.

5.2.4 Element 4: Water

Bushfire Protection Criteria Element 4: Water

Assessment Statements and Bushfire Protection Measures to be Applied

Intent: To ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.

Acceptable Solution:	A4.1 Reticulated Areas	Method of achieving Element compliance and/or the Intent of the Element:	The acceptable solution can be fully met - as part of the subdivision works.
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A reticulated water supply will be available to the subject site and hydrants will be installed by the landowner/proponent (the developer) at the required regular intervals. (State required hydrant separation distances – 100m commercial, 200m residential, 400m rural residential >1ha).

The construction technical requirements established by the Guidelines and/or the local government can and will be complied with. These requirements are set out in Appendix 3.

Acceptable Solution:	A4.2 Non-Reticulated Areas	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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N/A

Acceptable Solution:	A4.3 Non-reticulated Areas (Individual Lots)	Method of achieving Element compliance and/or the Intent of the Element:	N/A
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N/A

5.3 Additional Information for Required Bushfire Protection Measures

Each proposed Lot will be required to be maintained in accordance with the City of Wanneroo Firebreak Notice and Fire and Burning Information Brochure. The Notice specifies hazard reduction requirements and Asset Protection Zone detail.

Note: This Notice may be subject to change in the future.

5.3.1 Vegetation Management

Vegetation management other than that described in the City of Wanneroo Firebreak Notice and Fire and Burning Information Brochure is not required for the subject site.

Asset Protection Zone (APZ) Dimensions that are to Apply

The required dimensions of the APZ will vary dependent upon the purpose for which the APZ has been defined. There are effectively three APZ dimensions that can apply:

1. An application for planning approval will be required to show that an APZ can be created which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m^2 (BAL-29); and
2. If the assessment has determined a BAL rating for an existing or future building is less than BAL-29, the APZ must be of sufficient size to ensure the potential radiant heat impact of a fire does not exceed the kW/m^2 corresponding to the lower assessed BAL rating; or
3. Complying with the relevant local government's annual firebreak notice may require an APZ of greater size than that defined by the two previous parameters.

The minimum dimensions (vegetation separation distances) that are to apply to the APZ for this Proposal are presented in the tables below.

The 'Planning (WAPC) BAL-12.5' APZ				
Required Dimensions for the Subject Site				
Requirement Set By	Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 v1.3)			
Relevant Fire Danger Index (AS3959-2009 Table 2.1)	80			
BAL Determination Method	Method 1 (as per AS 3959-2009 s2.2.6 and Table 2.4.3)			
Vegetation Area	Applied Vegetation Classification	Effective Slope (degrees)	Acceptable 'Planning' BAL	Required Separation Distance (metres)
1	Class G Grassland	0	BAL-12.5	17
2	Class B Woodland	0		29
3	Excluded AS3959-2009 2.2.3.2 (e) & (f)	N/A		-
4	Excluded AS3959-2009 2.2.3.2 (f)	N/A		-
5	Excluded AS3959-2009 2.2.3.2 (f)	N/A		-
6	Class B Woodland	0		29
7	Excluded AS3959-2009 2.2.3.2 (f)	N/A		-
8	Excluded AS3959-2009 2.2.3.2 (f)	N/A		-
This requirement has been established through the State bushfire provisions, SPP 3.7 and the associated Guidelines, as being a key compliance requirement for development proposals in WA.				

'Local Government Firebreak Notice APZ'	
Required Minimum Dimensions for the Subject Site	
Requirement Set By:	Local Government (City of Wanneroo)
Minimum Dimensions:	The area within a distance of 20 metres (where applicable to Lot area) from any external wall of any habitable building.
Other Conditions:	If Asset Protection Zone technical requirements are defined in the Notice, the standards and dimensions may differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with. Refer to Appendix 1.
This requirement has been established through the stated local government's annual firebreak notice issued under the Bush Fires Act 1954 s33.	

5.3.2 Consideration/Implementation of Public Open Space Management

Public Open Space/Reserves - Formal and Funded Vegetation Management in Perpetuity. The requirement for fuel loads to be managed and vegetation to be maintained in a low bushfire threat state is to be undertaken by the City of Wanneroo and funded via specified area rates, formally ensuring the targeted fuel loads are achieved and maintained in perpetuity.

5.3.3 Future Stage Planning Application – Additional Information Required

For future development within the proposed subdivision, there is a requirement to review and update the bushfire management plan to address future development applications (where applicable) that propose a land use other than indicated in this document, in particular:

- Future Vulnerable Land Uses – Evacuation planning required.

6 Responsibilities for Implementation and Management of the Bushfire Protection Measures

Table 6.1: BMP Implementation responsibilities prior to the issue of titles for the Developer (Landowner).

DEVELOPER (LANDOWNER) - PRIOR TO ISSUE OF TITLES		
No.	Implementation Actions	Subdivision Clearance
1	<p>Planning approval may be conditioned with the requirement to make appropriate notifications (on the certificates of title and the deposited plan), of the existence of this Bushfire Management Plan.</p> <p>The WAPC may condition a subdivision application approval with a requirement for the landowner / proponent to place a notification onto the certificate(s) of title and a notice of the notification onto the diagram or plan of survey (deposited plan). This will be done pursuant to Section 165 of the Planning and Development Act 2005 ('Hazard etc. affecting land, notating titles as to:') and applies to lots with a determined BAL rating of BAL-12.5 or above. The notification will be required to state:</p> <p><i>'This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land'.</i></p>	<input type="checkbox"/>
2	Construct the public roads to the standards stated in the BMP.	<input type="checkbox"/>
3	Maintain the Lots in accordance with the BMP and City of Wanneroo Firebreak Notice and Burning Information Brochure.	<input type="checkbox"/>
4	Install the reticulated water supply (hydrants) to the standards stated in the BMP.	<input type="checkbox"/>

Table 6.2: BMP Implementation responsibilities prior to lot sale, occupancy or building for the Landowner (Developer).

LANDOWNER (DEVELOPER) - PRIOR TO LOT SALE, OCCUPANCY OR BUILDING	
No.	Implementation Actions
1	<p>The local government may condition a development application approval with a requirement for the landowner/proponent to register a notification onto the certificate of title (it may also need to be included on the deposited plan).</p> <p>This will be done pursuant to Section 70A Transfer of Land Act 1893 as amended ('Factors affecting use and enjoyment of land, notification on title:'). This is to give notice of the bushfire hazard and any restrictions and/or protective measures required to be maintained at the owner's cost.</p> <p>This condition ensures that:</p> <ol style="list-style-type: none"> 1. Landowners/proponents are aware their lot is in a designated bushfire prone area and of their obligations to apply the stated bushfire risk management measures; and 2. Potential purchasers are alerted to the Bushfire Management Plan so that future landowners/proponents can continue to apply the bushfire risk management measures that have been established in the Plan.
2	<p>Prior to sale and post planning approval, the entity responsible for having the BMP prepared should ensure that anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information and informed that it contains their responsibilities. This includes the landowners/proponents (including future landowners where the Plan was prepared as part of a subdivision approval), local government and any other authorities or referral agencies ('Guidelines' s4.6.3).</p>
3	<p>Prior to sale of the subject lots, each individual lot is to be compliant with the local government's annual firebreak notice issued under s33 of the Bushfires Act 1954.</p>
4	<p>Prior to any building work, inform the builder of the existence of this Bushfire Management Plan and the responsibilities it contains, regarding the required construction standards. This will be:</p> <ul style="list-style-type: none"> • The standard corresponding to the determined BAL rating, as per the bushfire provisions of the Building Code of Australia (BCA); and/or • A higher standard as a result of the BMP establishing that construction is required at a standard corresponding to a higher BAL rating.

Table 6.3: Ongoing management responsibilities for the Landowner/Occupier.

LANDOWNER/OCCUPIER - ONGOING	
No.	Ongoing Management Actions
1	Maintain the Asset Protection Zone (APZ) to the dimensions and standard stated in the BMP.
2	Comply with the City of Wanneroo Firebreak Notice, issued under s33 of the Bush Fires Act 1954 and Fire and Burning Information Brochure.
3	Ensure that any builders (of future structures on the lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to a determined BAL rating.
4	Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with: <ol style="list-style-type: none"> 1. the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and 2. with any identified additional requirements established by this BMP or the relevant local government.

Table 6.4: Ongoing management responsibilities for the Local Government.

LOCAL GOVERNMENT - ONGOING	
No.	Ongoing Management Actions
1	Monitor landowner compliance with the Bushfire Management Plan and the City of Wanneroo Firebreak Notice, issued under s33 of the Bush Fires Act 1954 and Fire and Burning Information Brochure.
2	Maintain existing public open space in a managed low threat vegetation state, to ensure the vegetation does not present a bushfire hazard to the subdivision or surrounding established residential area. Where control of an area of vegetated land is vested in the control of the local government and that area of land has influenced the assessed BAL rating/s of the subject site/s – and the BAL rating has been correctly assessed - there is an obligation to consider the impact of any changes to future vegetation management and/or revegetation plans with respect to that area.

Appendix 1 - Onsite Vegetation Management Technical Requirements

It is the responsibility of the landowner to maintain the established bushfire protection measures on their property. Not complying with these responsibilities can result in buildings being subject to a greater potential impact from bushfire than that determined by the assessed BAL rating presented in this Bushfire Management Plan.

For the management of vegetation within a lot (i.e. onsite) the following technical requirements exist:

1. **The APZ:** Installing and maintaining an asset protection zone (APZ) of the required dimensions to the standard established by the Guidelines for Planning in Bushfire Prone Areas (WA Planning Commission, as amended). When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.4.1 of this Plan.
2. **The Firebreak/Fuel Load Notice:** Complying with the requirements established by the relevant local government's annual firebreak notice issued under s33 of the Bushfires Act 1954. Note: If an APZ requirement is included in the Notice, the standards and dimensions may differ from the Guideline's APZ Standard – the larger dimension must be complied with.
3. **Changes to Vegetated/Non-Vegetated Areas:**
 - a. If applicable to this Plan, the minimum separation distance from any classified vegetation, that corresponds to the determined BAL for a proposed building, must be maintained as either a non-vegetated area or as low threat vegetation managed to a minimal fuel condition as per AS 3959-2009 s2.2.3.2 (e) and (f). Refer to Part 4 of this Appendix 1.
 - b. Must not alter the composition of onsite areas of classified vegetation (as assessed and presented in Section 3.1.2) to the extent that would require their classification to be changed to a higher bushfire threat classification (as per AS 3959-2009); and
 - c. Must not allow areas within a lot (i.e. onsite) that have been:
 - i. excluded from classification by being low threat vegetation or non-vegetated; and
 - ii. form part of the assessed separation distance that is determining a BAL rating
-
...to become vegetated to the extent they no longer represent a low threat (refer to Part 4 of Appendix 1). Note: The vegetation classification exclusion specifications as established by AS 3959-2009 s2.2.3.2, are included at A1.4 below for reference.

1. Requirements Established by the Guidelines – the Asset Protection Zone (APZ) Standards

(Source: *Guidelines for Planning in Bushfire Prone Areas - WAPC 2017 v1.3 Appendix 4, Element 2, Schedule 1 and Explanatory Note E2.1*)

Defining the Asset Protection Zone (APZ)

Description: An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (by reducing fuel loads). The width of the required APZ varies with slope and vegetation. For planning applications, the minimum sized acceptable APZ is that which is of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29). It will be site specific.

The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

For subdivision planning, design elements and excluded/low threat vegetation adjacent to the lot can be utilised to achieve the required vegetation separation distances and therefore reduce the required dimensions of the APZ within the lot.

Defendable Space: The APZ includes a defendable space which is an area adjoining the asset within which firefighting operations can be undertaken to defend the structure. Vegetation within the defendable space should be kept at an absolute minimum and the area should be free from combustible items and obstructions. The width of the defendable space is dependent on the space which is available on the property, but as a minimum should be 3 metres.

Establishment: 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.

Note: Regardless of whether an Asset Protection Zone exists in accordance with the acceptable solutions and is appropriately maintained, fire fighters are not obliged to protect an asset if they think the separation distance between the dwelling and vegetation that can be involved in a bushfire, is unsafe.

Schedule 1: Standards for APZ

Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel Load: combustible dead vegetation matter less than 6 mm in thickness reduced to and maintained at an average of two tonnes per hectare (example below).

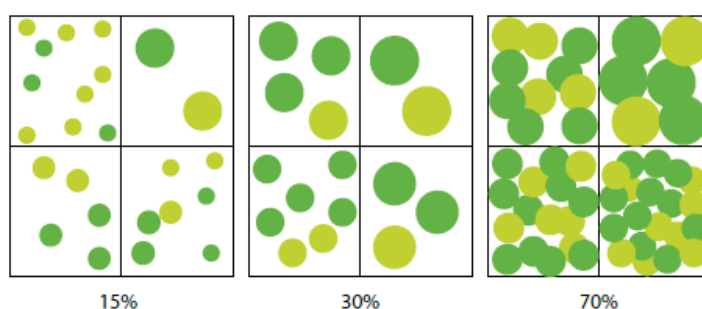
Example Fine Fuel Load of Two Tonnes per Hectare



(Image source: Shire of Augusta Margaret River's Firebreak and Fuel Reduction Hazard Notice)

Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. Diagram below represents tree canopy cover at maturity.

Tree canopy cover – ranging from 15 to 70 per cent at maturity




(Source: Guidelines for Planning in Bushfire Prone Areas 2017, Appendix 4)

Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.


Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 mm in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

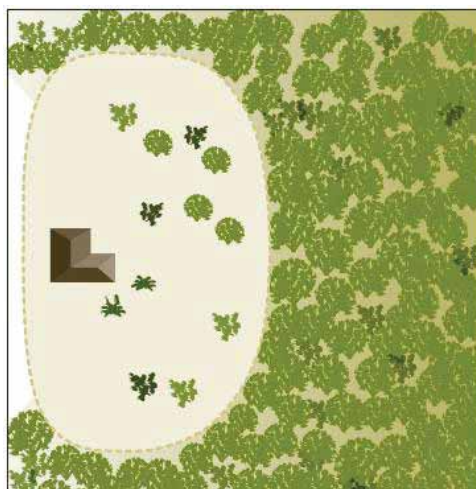
Grass: should be managed to maintain a height of 100 mm or less.

The following example diagrams illustrate how the required dimensions of the APZ will be determined by the type and location of the vegetation.

Hazard on one side
 APZ



Hazard on three sides
 APZ



2. Requirements Established by the Local Government – the Firebreak Notice

These requirements are established by the relevant local government's Firebreak Notice created under s33 of the Bushfires Act 1954 and issued annually (potentially with revisions). The Notice may include additional components directed at managing fuel loads, accessibility and general property management with respect to limiting potential bushfire impact.

The relevant local government's current Firebreak Notice is available on their website, at their offices and is distributed as ratepayer's information. It must be complied with.

If Asset Protection Zone technical requirements are defined in the Notice, the standards and dimensions may differ from the Guideline's APZ Standards, with the intent to better satisfy local conditions. When these are more stringent than those created by the Guidelines, or less stringent and endorsed by the WAPC and DFES, they must be complied with.

When, due to the planning stage of the proposal to which this Bushfire Management Plan applies, defined APZ dimensions are known and are to be applied to existing or future buildings – then these dimensions are stated in Section 5.4.1 of this Plan.

3. Requirements Recommended by DFES – Property Protection Checklists

Further guidance regarding ongoing/lasting property protection (from potential bushfire impact) is presented in the publication 'DFES – Fire Chat – Your Bushfire Protection Toolkit'. It is available from the Department of Fire and Emergency Services (DFES) website.

4. Requirements Established by AS 3959-2009 - Maintaining Areas within your Lot as 'Low Threat'

This information is provided for reference purposes. This knowledge will assist the landowner to comply with Management Requirement No. 3 set out in the Guidance Panel at the start of this Appendix. It identifies what is required for an area of land to be excluded from classification as a potential bushfire threat.

"Australian Standard - AS 3959-2009 Section 2.2.3.2: Exclusions - Low threat vegetation and non-vegetated areas:

The Bushfire Attack Level shall be classified BAL-LOW where the vegetation is one or a combination of the following:

- a) Vegetation of any type that is more than 100m from the site.*
- b) Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified.*
- c) Multiple area of vegetation less than 0.25ha in area and not within 20m of the site or each other.*
- d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified.*
- e) Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.*
- f) Low threat vegetation, including grassland managed in a **minimal fuel condition** (i.e. insufficient fuel available to significantly increase the severity of a bushfire attack – recognisable as short cropped grass to a nominal height of 100mm for example), maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks."*

Appendix 2 - Vehicular Access Technical Requirements

Each local government may have their own standard technical requirements for emergency vehicular access and they may vary from those stated in the Guidelines.

Contact the relevant local government for the requirements that are to apply in addition to the requirements set out as an acceptable solution in the Guidelines. If the relevant local government requires that these are included in the Bushfire Management Plan, they will be included in this appendix and referenced.

Requirements Established by the Guidelines – The Acceptable Solutions

(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4)

Vehicular Access Technical Requirements - Part 1

Acceptable Solution 3.3: Cul-de-sacs (including a dead-end road)

- N/A
-

Acceptable Solution 3.4: Battle-axe

- N/A
-

Acceptable Solution 3.5: Private Driveways

- N/A
-

Acceptable Solution 3.6: Emergency Access Way

- N/A
-

Acceptable Solution 3.7: Fire Service Access Routes (Perimeter Roads)

- N/A
-

Acceptable Solution 3.8: Firebreak Width

- Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three meters or to the level as prescribed in the local firebreak notice issued by the local government.
-

Vehicular Access Technical Requirements - Part 2

Technical Component	Vehicular Access Types				
	Public Roads	Cul-de-sacs	Private Driveways	Emergency Access Ways	Fire Service Access Routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	4.5	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum cross-fall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5

* A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metres of paving and one metre of constructed road shoulders. In special circumstances, where 8 lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of ninety metres may be provided subject to the approval of both the local government and DFES.

Appendix 3 - Water Technical Requirements

Requirements Established by the Guidelines - Acceptable Solution A4.1: Reticulated Areas

(Source: Guidelines for Planning in Bushfire Prone Areas WAPC 2017 v1.3, Appendix 4, Element 4)

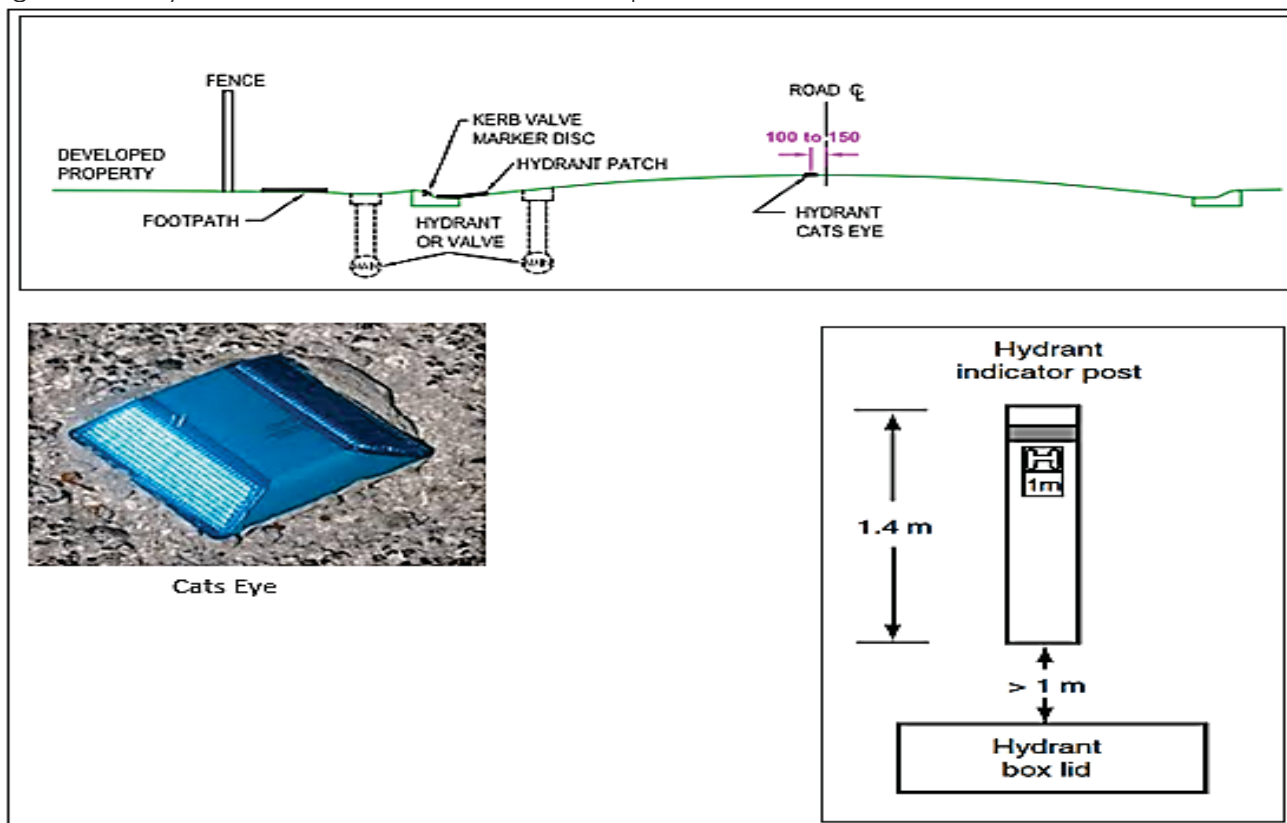
The requirement is to supply a reticulated water supply and fire hydrants, in accordance with the technical requirements of the relevant water supply authority and DFES.

The Water Corporation's 'No 63 Water Reticulation Standard' is deemed to be the baseline criteria for developments and should be applied unless local water supply authority's conditions apply.

Key specifications in the most recent version/revision of the design standard include:

- **Residential Standard** – hydrants are to be located so that the maximum distance between the hydrants shall be no more than 200 metres.
- **Commercial Standard** – hydrants are to be located with a maximum of 100 metre spacing in Industrial and Commercial areas.
- **Rural Residential Standard** – where minimum site areas per dwelling is 10,000 m² (1ha), hydrants are to be located with a maximum 400m spacing. If the area is further subdivided to land parcels less than 1ha, then the residential standard (200m) is to be applied.

Figure A4.1: Hydrant Location and Identification Specifications



Contact the relevant water supply authority to confirm the technical requirements that are to be applied. They may differ from the minimum requirements of the 'baseline' Water Corporation's No. 63 Water Reticulation Standard.