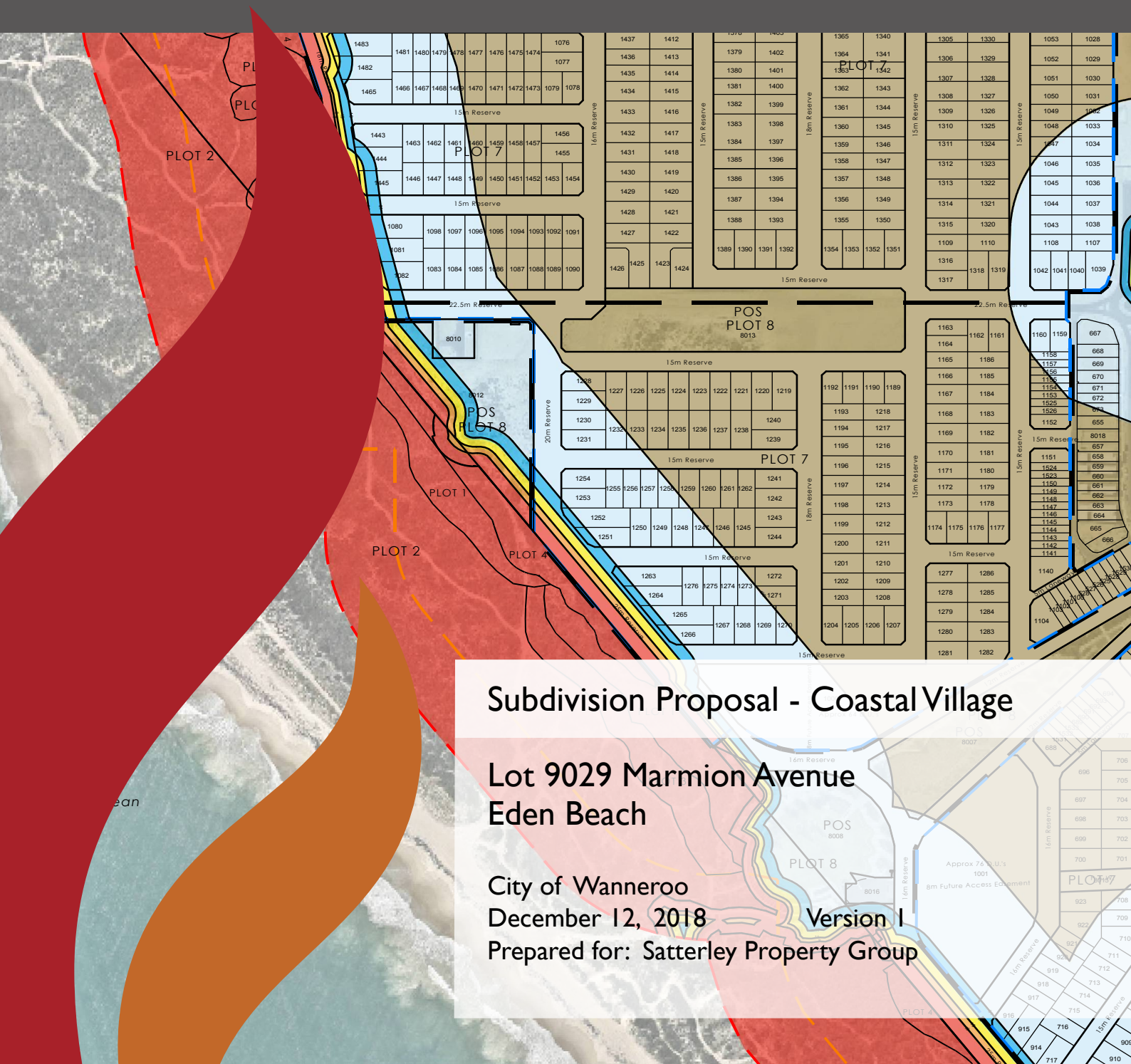


Bushfire Management Plan



Subdivision Proposal - Coastal Village

**Lot 9029 Marmion Avenue
Eden Beach**

**City of Wanneroo
December 12, 2018
Version 1
Prepared for: Satterley Property Group**

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Document Information

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Document Control

Bushfire Management Plan – Lot 9 Marmion Avenue, Jindalee			
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Front cover photo: Post development BAL contours over the site

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EXECUTIVE SUMMARY

This Bushfire Management Plan (BMP) has been prepared to support a proposed subdivision at Lot 9029 Marmion Avenue, Jindalee. This BMP updates a previous prepared BMP for a portion of Eden Beach known as the 'Coastal Village'. The site is approximately 38 hectares in size and is primarily surrounded by shrubland and scrub vegetation associated with sand dunes to the north, west and south, with residential lots in development to the east. Land to the north and south of the site is currently being developed for residential estates and vegetation on these interfaces will be removed to accommodate land developments. The foreshore reserve contains permanent vegetation which exposes some of the lots to bushfire attack from the west.

The area is reticulated and there will be good vehicular access.

A Method 1 BAL assessment has been undertaken to determine predicted radiant heat flux levels on the site and no lots are exposed to predicted radiant heat flux levels exceeding 29kW/m² once temporary vegetation north of the site has been permanently removed. Existing boundary lots on the north interface will not be sold until this has occurred and BAL-29 or lower is achieved.

The proposed subdivision can achieve all of the Acceptable Solutions and Performance Principles in the Guidelines for Planning in Bushfire Prone Areas V1.3 (2107).

The developer is responsible for ensuring requirements for the provision of water and vehicular access are met and maintaining the Asset Protection Zone until lots are sold. Fuel loads and responsibility for APZ standards then transfers to the new owners / occupiers of the land.

It is expected that the implementation of this BMP will reduce the threat to residents, the public and fire fighters in the area addressed by this BMP. The proposal complies with the *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)* and the *Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 V1.3)*.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ii
1 PROPOSAL DETAILS.....	1
1.1 Application of SPP 3.7	4
1.2 Guidelines for Planning in Bushfire Prone Areas V1.3 (2017)	4
2 ENVIRONMENTAL CONSIDERATIONS	6
2.1 Native Vegetation – modification and clearing	6
2.2 Re-vegetation/Landscape Plans	6
3 BUSHFIRE ASSESSMENT RESULTS	6
3.1 Assessment Inputs.....	6
3.1.1 Vegetation Classification.....	7
3.1.2 Effective Slope	11
3.2 Assessment Outputs.....	11
4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES	13
5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA.....	16
5.1 Additional Management Strategies.....	18
6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES.....	20
7 CONCLUSION	22
REFERENCES	23

TABLE OF TABLES

Table 1: Policy measures.....	4
Table 2: Summary of vegetation type and effective slope	11
Table 3: Summary of assessment outputs	11
Table 4: Compliance table.....	17
Table 5: Responsibility for bushfire measures	20

TABLE OF FIGURES

Figure 1: Subdivision plan showing the proposed development	2
Figure 2: Site location showing surrounding vegetation and residential areas	3
Figure 3: Map of declared WA Bushfire Prone areas for site	5
Figure 4: Vegetation Classification Map (for BAL Contour) showing contours	14
Figure 5: BAL Contour Plan showing predicted radiant heat flux levels into the site	15
Figure 6: Spatial Representation of Bushfire Management Strategies	19

TABLE OF APPENDICES

Appendix 1: Asset Protection Zone Standards
Appendix 2: Shire of Wanneroo – Firebreak Notice 2018/19
Appendix 3: Vehicular Access Technical Requirements
Appendix 4: Public Open Space Landscape Concept Plans

1 PROPOSAL DETAILS

This Bushfire Management Plan (BMP) has been prepared to support a proposed subdivision application for Lot 9029 Marmion Rd, Jindalee. This BMP updates a previously prepared and approved BMP for the same site due to some minor modifications to the subdivision design.

The 38 hectare site is proposed to be subdivided into 528 residential lots, with the creation or extension of a large number of new public roads (Figure 1). All lots will have direct driveway access onto one of the newly created public roads.

The site is zoned 'Residential' under the City of Wanneroo Local Planning Scheme (LPS). It is adjacent to existing subdivision stages in the Eden Beach Estate to the east. To the west is a strip of foreshore reserve containing native shrubland and scrub vegetation associated with coastal sand dunes. Land to the north and south currently contains similar vegetation but is expected to be developed into similar residential lots in the near future.

The area will be reticulated, and scheme water provided. There will be a number of entry/egress routes using proposed public roads and there will be fire hydrants within regulated access.

This BMP addresses future subdivision conditions by providing responses to the performance criteria in the *Guidelines for Planning in Bushfire Prone Areas V1.3* (WAPC *et.al.* 2017).

If there is a bushfire within or near the site, implementing this BMP will reduce the threat to residents, property and emergency response personnel.

Bushfire Management Plan – Eden Beach, Jindalee



Figure 1: Subdivision plan showing the proposed development

Bushfire Management Plan – Eden Beach, Jindalee



Figure 2: Site location showing surrounding vegetation and residential area

Policy and Guidelines

1.1 Application of SPP 3.7

The *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)* provides the foundation for land use planning to address bushfire risk management in Western Australia. It is used to inform and guide decision makers, referral agencies and land owners / proponents to help achieve acceptable bushfire protection outcomes.

The policy contains objectives and policy measures as well as reference to the bushfire protection criteria as outlined in the *Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 V1.3; the Guidelines)*. The policy applies to this subdivision proposal because the subdivision application is in a designated bushfire prone area on the WA map of Bushfire Prone Areas. See Figure 3.

The following policy measures will need to be comply with SPP 3.7:

Table 1. Policy measures

Policy Measure 6.2	The subdivision application is located within a designated bushfire prone area and will have a Bushfire Hazard Level above low and a Bushfire Attack Level rating above BAL-LOW.
Policy Measure 6.4	Policy 6.2 applies meaning the subdivision proposal will be accompanied by: <ul style="list-style-type: none"> - BAL Contour Plan - Lot specific BAL ratings - Identification of relevant issues; and - Demonstration of compliance with the guidelines

The subdivision proposal does not propose vulnerable or high-risk land use and is not considered as minor or unavoidable development under *SPP 3.7*.

1.2 Guidelines for Planning in Bushfire Prone Areas V1.3 (2017)

The Department of Planning have recently released the *Guidelines for Planning in Bushfire Prone Areas V1.3 (2017)*. The requirements of this document are accommodated within this BMP.

The *Guidelines for Planning in Bushfire Prone Areas V 1.3(2017)* is intended to inform and guide decision makers, referral authorities and proponents to achieve acceptable bushfire protection outcomes, including expectations at the different stages of planning.

Bushfire Management Plan – Eden Beach, Jindalee

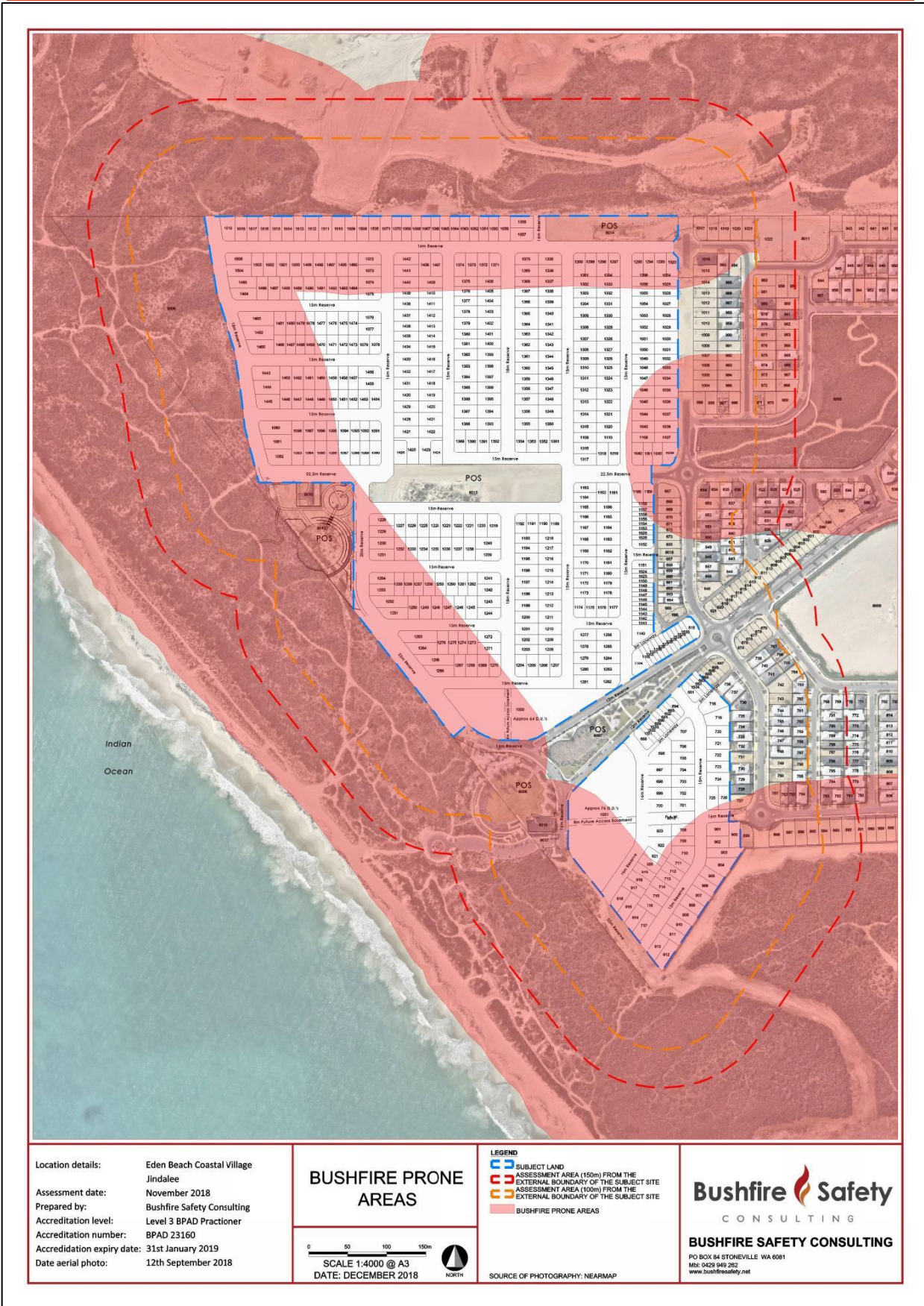


Figure 3: The site is within the declared Bushfire Prone area of WA

2 ENVIRONMENTAL CONSIDERATIONS

There are no environmental, biodiversity or conservation values on the subject site that restrict the intensification of land use proposed.

2.1 Native Vegetation – modification and clearing

The site is mostly cleared, an area in the north-west corner contains some native vegetation which will be cleared to accommodate the subdivision design. There are no native vegetation restrictions that will constrain the subdivision design being fully achieved.

2.2 Re-vegetation/Landscape Plans

Revegetation of shrubland species will occur on batters in the reserve adjacent to the western edge of the site. This has been accommodated in this assessment and will not result in lot BAL ratings exceeding 29 Kw/m². In addition, there are three internal Public Open Space (POS) parklands proposed within the development site (see Appendix 4 for Landscape Concept Plans). All three POS are to be landscaped to a managed parklands standard and will comply with Exclusion Clause 2.2.3.2 (f) in the Australian Standards AS3959. The parks contain irrigated turf, mulched garden beds, paths and recreation facilities. Fine fuel loads within the vegetation will be established and maintained in isolated groups both vertically and horizontally to ensure minimal potential fire behaviour. Plant species for the garden beds will be selected based on characteristics which minimise fire potential such as leaf moisture content, reduced fine fuel loads, low oil content and ease of maintenance.

3 BUSHFIRE ASSESSMENT RESULTS

Bushfires are common in the City of Wanneroo and local brigades respond to numerous bushfires in the district annually. Given the bushfire threat in the area this BMP plays a critical role in ensuring that the development of the land appropriately mitigates the risk from bushfire.

3.1 Assessment Inputs



The methodology used to assess the site is outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.3 (2017)*. The lot layout is known, and a strategic level bushfire hazard assessment is not required. A BAL Contour map is provided in accordance with Appendix 3 of the guidelines.




Assessing bushfire threat at the site-specific level accounts for the predominant class of vegetation on the site and surrounding area for a minimum of 150m, as shown in the Vegetation Classification Map at Figure 4.

3.1.1 Vegetation Classification

There is no classified vegetation within the site that is a threat to the development. The eastern boundary of the site is adjacent to lots of a similar size that have been developed or are currently under development and contains no to low threat vegetation. Adjoining sites to the north and south contain predominately shrubland vegetation that is likely to be developed in the near future. A foreshore conservation reserve containing vegetation to be retained exists to the west and consists of native shrubland vegetation with occasional small pockets of scrub.

The vegetation plots on and surrounding the site and within 150 metres of the site boundary are found in Figure 4 with plot descriptions below.

<p>Photo ID: 1</p> <p>Plot Number: 1</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Dense shrub canopy less than two metres in height (2m high stake seen in photo). Understorey consists of grasses and herbaceous weeds.</p>	
<p>Photo ID: 2</p> <p>Plot Number: 1</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Dense shrub canopy less than two metres in height. Understorey consists of grasses and herbaceous weeds.</p>	

<p>Photo ID: 3</p> <p>Plot Number: 2</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Dense shrub canopy less than two metres in height. Understorey consists of grasses and herbaceous weeds.</p>	
<p>Photo ID: 4</p> <p>Plot Number: 2</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Dense shrub canopy less than two metres in height. Understorey consists of grasses and herbaceous weeds.</p>	
<p>Photo ID: 5</p> <p>Plot Number: 3</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Dense shrub canopy less than two metres in height. Understorey consists of grasses and herbaceous weeds.</p>	

<p>Photo ID: 6</p> <p>Plot Number: 3</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Shrub layer canopy less than two metres in height. Understorey consists of grasses and herbaceous weeds. Shown in foreground of photo, Plot 5 Scrub shown in gully behind and Plot 1 Shrubland in background.</p>	
<p>Photo ID: 7</p> <p>Plot Number: 4</p> <p>Vegetation classification or exclusion clause: Class C Shrubland</p> <p>Description/justification of classification: Shrub layer canopy less than two metres in height. Understorey consists of grasses and herbaceous weeds.</p>	
<p>Photo ID: 8</p> <p>Plot Number: 5</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Large shrub layer 2 to 4 metres tall. Understorey consists of small to medium shrubs and grasses.</p>	

<p>Photo ID: 9</p> <p>Plot Number: 5</p> <p>Vegetation classification or exclusion clause: Class D Scrub</p> <p>Description/justification of classification: Large shrub layer 2 to 4 metres tall. Understorey consists of small to medium shrubs and grasses (Plot 3 Class C Shrubland in foreground).</p>	
<p>Photo ID: 10</p> <p>Plot Number: 7</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2 (e)</p> <p>Description/justification of classification: Non-vegetated areas including mineral earth, roads, footpaths and buildings.</p>	
<p>Photo ID: 11</p> <p>Plot Number: 7</p> <p>Vegetation classification or exclusion clause: Exclusion Clause 2.2.3.2 (e) & (f)</p> <p>Description/justification of classification: Low-threat vegetation including maintained public parkland, reticulated lawn and cultivated gardens; and non-vegetated areas including mineral earth, roads, footpaths and buildings.</p>	

3.1.2 Effective Slope

The entire site, as well as the adjacent land to the east, is flat due to extensive earthworks. The landscape to the north, west and south of the site contains typical sand dune elevations which varies significantly and can rise and fall over short distances. Localised slope has been calculated for each vegetation plot, however the overall general slope in these areas is towards the west (Table 2).

Table 2. Summary of vegetation type and effective slope

Plot	Applied Vegetation Classification	Effective Slope under the Classified Vegetation
1	Class C Shrubland	Flat/ Upslope
2	Class C Shrubland	Downslope 5 to 10
3	Class C Shrubland	Downslope 10 to 15
4	Class C Shrubland	Downslope 15 to 20
5	Class D Scrub	Flat/ Upslope
6	Class D Scrub	Downslope 5 to 10
7	Exclusion Clause 2.2.3.2 (e)	N/A
8	Exclusion Clause 2.2.3.2 (e) & (f)	N/A

3.2 Assessment Outputs

A BAL contour assessment was undertaken according to Appendix 3 of the Guidelines and the results are found in the BAL Contour Map at Figure 5.

A Method 1 BAL Assessment was undertaken to determine the BAL contours impacting the site. A total of 20 lots on the northern perimeter are currently exposed to BAL-40 and above. These lots are identified in Table 3 as requiring clearing on the adjacent development land in order to achieve BAL-29 or lower. No lots are exposed to predicted radiant heat flux levels exceeding 29kW/m² once temporary vegetation north of the site has been permanently removed. Existing boundary lots on the north interface will not be sold until this has occurred and BAL-29 or lower is achieved.

Table 3. Summary of assessment outputs

Lot	Applied Vegetation Classification	Plot No. & Effective slope	Separation Distance to Classified Vegetation	Highest BAL Contour
1057	North – Class C Shrubland	Plot 3 – Downslope 10 to 15	15m achieved	BAL – 29
1058	North – Class C Shrubland	Plot 3 – Downslope 10 to 15	13m external clearing required	BAL – 29
1059 - 1063	North – Class C Shrubland	Plot 1 – Flat/ Upslope	9m external clearing required	BAL – 29

Bushfire Management Plan – Eden Beach, Jindalee

1064, 1068 - 1071, 1535	North – Class C Shrubland	Plot 1 – Flat/ Upslope	Minimum 13m external clearing required	BAL – 29
1065, 1066	North – Class C Shrubland	Plot 1 – Flat/ Upslope	20m, 35m achieved	BAL – 12.5
1067	North – Class C Shrubland	Plot 1 – Flat/ Upslope	16m achieved	BAL – 19
1508 - 1514	North – Class C Shrubland	Plot 4 – Downslope 15 to 20	15m external clearing required	BAL – 29
1515 - 1518	North – Class C Shrubland	Plot 4 – Downslope 15 to 20	15m external clearing required	BAL – 29
	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	31-<100m achieved	BAL – 12.5
1519	North – Class C Shrubland	Plot 4 – Downslope 15 to 20	15m external clearing required	BAL – 29
	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	18m achieved	BAL – 29
1484, 1485, 1504, 1505	North – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – 12.5
	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	18m achieved	BAL – 29
1486 - 1489, 1500 - 1503	North – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – 12.5
	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – 12.5
1251 - 1253, 1263 - 1266	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	25m achieved	BAL – 19
1466 - 1469	West – Class C Shrubland	Plot 1 – Flat/ Upslope	19 – <100m achieved	BAL – 12.5
1083 - 1086, 1095 - 1098, 1228 - 1232, 1246 - 1250, 1254 - 1259, 1267 - 1276, 1446 - 1449, 1460 - 1463, 1478 - 1481	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – 12.5
1080 - 1082, 1444, 1445, 1482 - 1483	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	18m achieved	BAL – 29
1443, 1465	West – Class C Shrubland	Plot 1 – Flat/ Upslope	18m achieved	BAL – 19
1371 - 1376, 1405 - 1410, 1439 - 1442,	North – Class C Shrubland	Plot 1 – Flat/ Upslope	19 – <100m achieved	BAL – 12.5
1023 - 1026, 1055 - 1056, 1293 - 1303, 1332 - 1338, 1367 - 1370	North – Class C Shrubland	Plot 3 – Downslope 10 to 15	28 – <100m achieved	BAL – 12.5
717, 914 - 916,	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	25m achieved	BAL – 19
	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	28 – <100m achieved	BAL – 12.5
912, 913	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	19 - 27m achieved	BAL – 19
	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	25m achieved	BAL – 19
713 - 716, 917 - 920	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	28 – <100m achieved	BAL – 12.5
	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – 12.5
908 - 911	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	19 – 27m achieved	BAL – 19

Bushfire Management Plan – Eden Beach, Jindalee

	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – 12.5
904 - 907	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	13 – 18m achieved	BAL – 29
903	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	19 – 27m achieved	BAL – 19
708 - 712, 725, 726, 900 - 902, 921, 922	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	28 – <100m achieved	BAL – 12.5
1032 - 1048, 1107 - 1108, 1153 - 1160	East – Class C Shrubland	Plot 1 – Flat/ Upslope	19 - <100m achieved	BAL – 12.5
515, 525 - 528, 681 - 683, 688, 689 - 694, 696 - 707, 718 - 724, 923, 1027 - 1031, 1049 - 1054, 1087 - 1094, 1072 - 1079, 1100 - 1104, 1109 - 1110, 1140 - 1152, 1161 - 1186, 1189 - 1218, 1241 - 1245, 1260 - 1262, 1233 - 1240, 1219 - 1227, 1277 - 1286, 1304 - 1331, 1339 - 1366, 1377 - 1404, 1411 - 1438, 1450 - 1459, 1470 - 1477, 1490 - 1499, 1523 - 1526, 1528 - 1534	North – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – LOW
	West – Class C Shrubland	Plot 4 – Downslope 15 to 20	31 – <100m achieved	BAL – LOW
	South – Class C Shrubland	Plot 3 – Downslope 10 to 15	31 – <100m achieved	BAL – LOW

The final developed scenario is outlined in Figure 6 as a spatial representation of the bushfire management strategies.

4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

The Class C Shrubland vegetation to the north, west, and south of the development pose the greatest threat to the residential development. Predicted radiant heat and ember attack could impact the site as evident in the BAL contour plan (Figure 5).

Bushfire Management Plan – Eden Beach, Jindalee

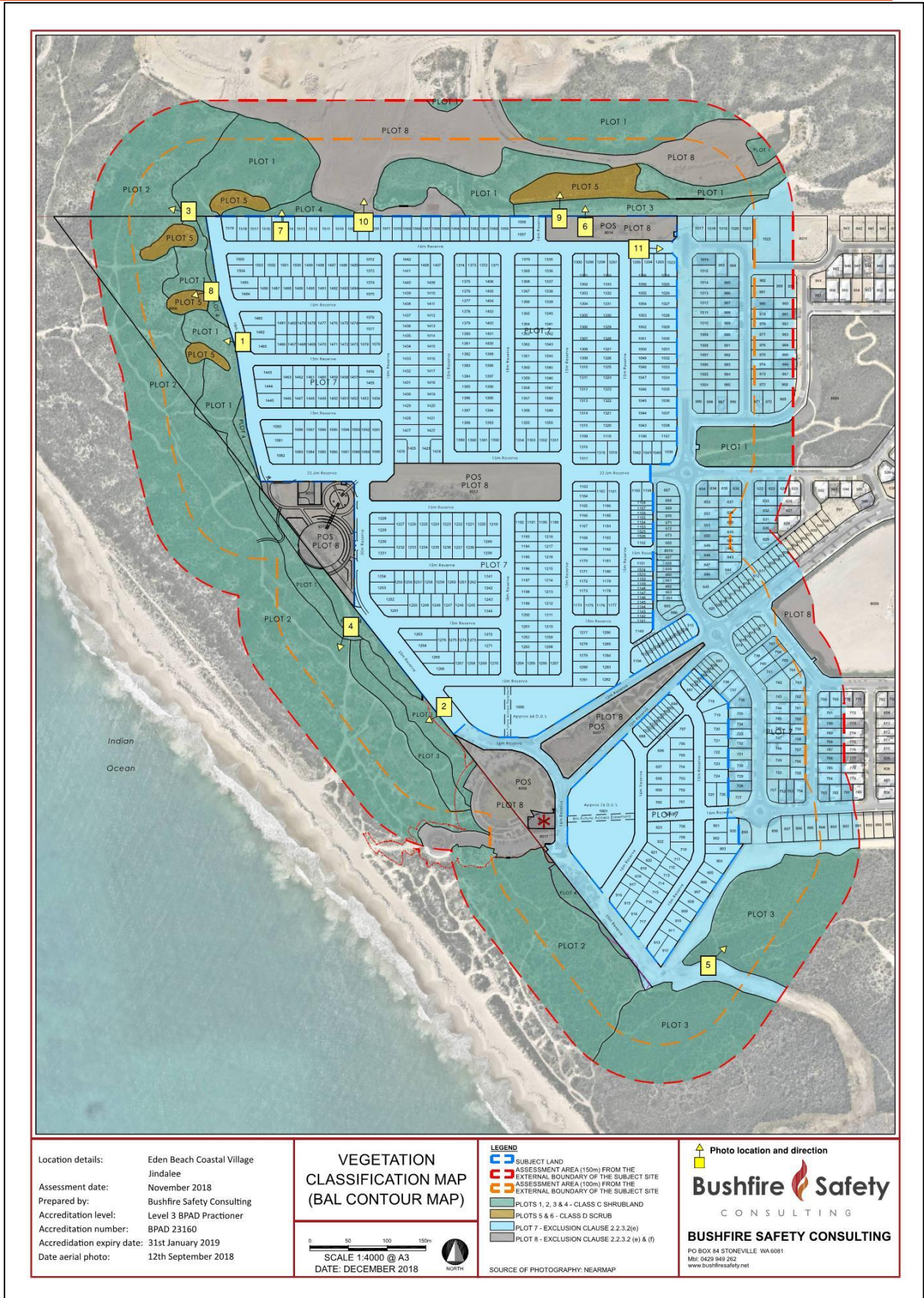


Figure 4: Vegetation Classification Map (BAL Contour)

Bushfire Management Plan – Eden Beach, Jindalee

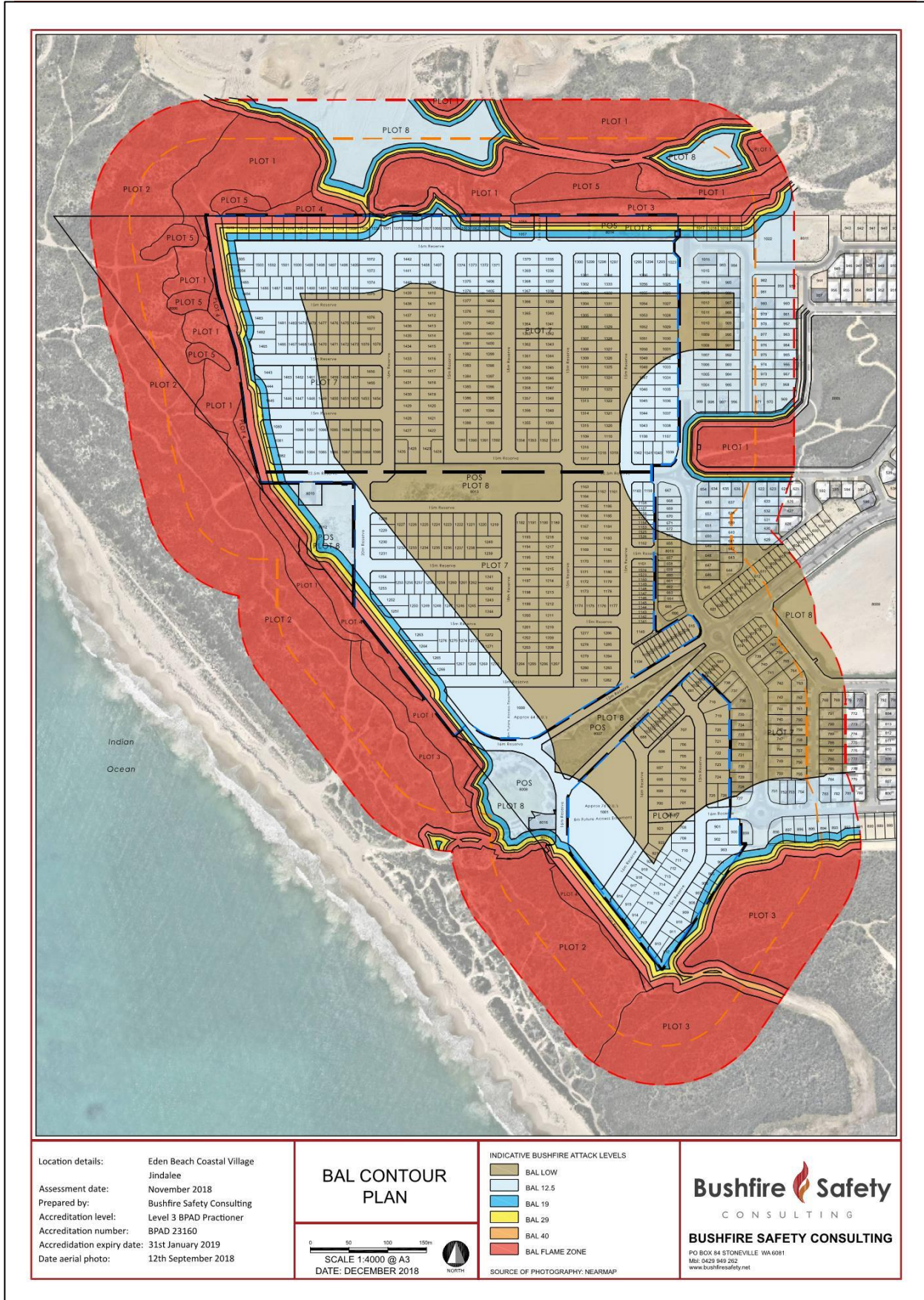


Figure 5: BAL Contour Plan showing predicted radiant heat flux levels into the proposed lots

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA

This report adopts an acceptable solution and performance-based system of control for each bushfire protection criteria. This methodology is consistent with Appendix 4 of the *Guidelines for Planning in Bushfire Prone Areas, Version 1.3 (2017)*. The management issues are:

- Location of the Development.
- Siting and Design of Development.
- Vehicular access.
- Water.

Acceptable solutions are proposed for all of the bushfire protection criteria and each illustrates a means of satisfactorily meeting the corresponding performance criteria.

Land use planning bushfire risk mitigation strategies are comprehensively detailed in the following sections by providing responses to the performance criteria that fulfil the intent of the bushfire hazard management issues outlined in the *Guidelines for Planning in Bushfire Prone Areas V1.3(2017)*. The compliance checklist is attached as Table 4.

Bushfire Management Plan – Eden Beach, Jindalee

Table 4: Compliance Table

Bushfire Protection Criteria	Method of compliance	Proposed bushfire management strategies
	Acceptable Solutions	
Element 1: Location	AQ1.1 Development Location	<p>The Method 1 BAL Assessment in this report demonstrates the classified vegetation in the area surrounding the site does impact the proposed lots, but all lots can achieve a rating of BAL-29 or lower.</p> <p>Some lots on the northern perimeter cannot be developed until the adjacent land has some clearing undertaken. This is expected to occur as the land is currently being developed. Northern perimeter lots will not be sold until such time as BAL-29 or lower can be achieved. Lots along the south-eastern boundary currently achieve BAL-29 or lower, however the BAL ratings may be reduced further if the expected future subdivision adjacent to the site results in the vegetation on the neighbouring site being permanently cleared prior to the construction of dwellings on these lots.</p>
Element 2: siting and Design	A2.1 Asset Protection Zone (APZ)	<p>The Asset Protection Zones (APZ) are already established and occupy the entire site. A specific perimeter APZ is sited on the northern, western and southern interface and includes the road reserve in the west as marked in Figure 6. Buildings are excluded from being constructed in the perimeter APZ.</p> <p>The future building envelopes on the lots are exposed to BAL-29 or lower if APZ conditions are met, as confirmed by the Method 1 BAL assessment. The APZ is managed in accordance with the requirements of the standards in Appendix 1.</p>
Element 3: Vehicular Access	A3.1 Two access routes	<p>All the lots at the site will have direct driveway access to one of over 20 new or extended public roads. The extension of three main thoroughfares allow access from these roads to the east via Reflection Boulevard, Vitrinella Avenue and Marginella Boulevard. All three main roads connect to Marmion Road. The creation of an arterial road, Aurora Esplanade, on the western boundary will link to future subdivisions planned for sites to the north and south and will provide further egress from the site in the future. Therefore, there will be provision for a minimum of two access routes.</p>

Element 3: Vehicular Access (cont)	A3.2 Public Road	Each lot fronts a public road that complies with minimum public road standards as outlined in Appendix 2. Forty-two lots have an additional rear laneway which is 5m in width.
	A3.3 Cul-de-sac	There are no cul-de-sacs proposed.
	A3.4 Battle-axe	There are two battle-axes lots proposed (lots 1423 and 1425). These are urban lots and have a 14m long driveway which will enable fire appliances to park on the adjoining public road to attend any incidents. Therefore compliance with battle-axe public road standards are not required.
	A3.5 Private drive-way longer than 50 metres	There are no private driveways longer than 50m proposed.
	A3.6 Emergency access way	There are no emergency access ways proposed in this subdivision.
	A3.7 Fire Emergency access routes	There are no fire emergency access ways proposed.
	A3.8 Firebreak width	Compliance is achieved with the current City of Wanneroo Firebreak Notice (Appendix 2).
	Element 4: Water	A4.1 Reticulated areas
A4.2 Non-reticulated areas		Not applicable
A4.3 Individual lots within non-reticulated areas		Not applicable

5.1 Additional Management Strategies

As subdivision stages are developed it will be the developer's responsibility to ensure there is no temporary vegetation regrowth within 100m of the lots within the site. APZ standards will be established within the site and will be maintained by the developer prior to the creation of titles until the sale of lots.

A summary of management strategies is outlined in Figure 6.

There are no specific Vulnerable or High-Risk Land Uses proposed at the site. Any specific applications will trigger the necessary requirements under State Planning Policy 3.7.

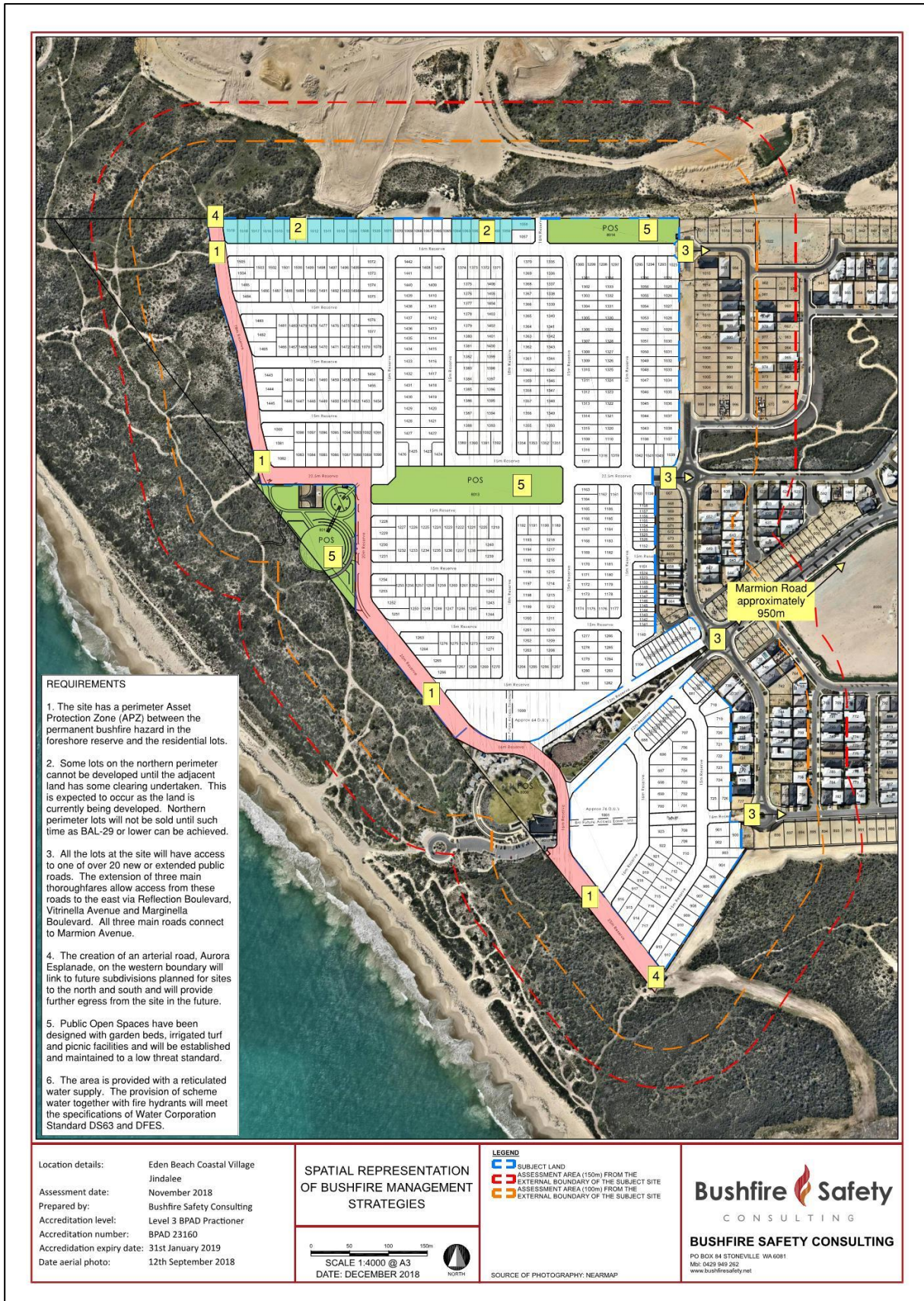


Figure 6: Spatial Representation of Bushfire Management Strategies

6 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES

Table 5 outlines the initial and ongoing responsibilities, actions and associated works that need to be undertaken by the Developer, future landowners and the City of Wanneroo. The check boxes for implementation actions will be used for subdivision clearance. A Bushfire Planning Practitioner will certify the BAL ratings are correct and necessary implementation actions have been completed.

Table 5. Responsibility for bushfire measures

DEVELOPER – PRIOR TO ISSUE OF CERTIFICATE OF TITLES FOR NEW LOTS			
No.	Implementation action	Local government clearance	Bushfire consultant clearance
1	Construct the public roads to the standards stated in the BMP	<input type="checkbox"/>	
2	Establish the Public open space in a 'low threat' state as stated in the BMP		<input type="checkbox"/>
3	Maintain fuel loads and vegetation structure standards to comply with Asset Protection Zone Standards outlined in this report.		<input type="checkbox"/>
4	Ensure revegetation of the batters on the western perimeter of the site is composed of species that do not exceed 2m in height and the shrubland vegetation structure is achieved.		<input type="checkbox"/>
5	Ensure that all lots comply with the City of Wanneroo's Firebreak Notice as published.	<input type="checkbox"/>	
6	A notification, pursuant to Section 70A of the Transfer of Land Act 1893 is to be placed on the certificate(s) of title of the lots within the Bushfire Prone Area. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows: 'The lot(s) is/are subject to a Bushfire Management Plan.' (Local Government)".		
7	Establish access and water supply to standards as specified in this document.		

Certification by bushfire consultant

I _____, certify that at the time of inspection, the BAL ratings contained within this BMP are correct; and implementation actions 2–4 have been undertaken in accordance with the BMP.

Clearance by local government is recommended.

Signature: _____ Date: _____

LANDOWNER/DEVELOPER – PRIOR TO SALE OR OCCUPANCY	
No.	Implementation action
8	Ensure the site complies with the City of Wanneroo’s Firebreak Notice as published.
9	As part of the building license application stage or subdivision stages, have any proposed building(s) assessed or undertake a BAL assessment for a group of lots, by a qualified consultant to support the building license applications.
10	Ensure construction of buildings complies with AS 3959:2009.
11	If buildings are subject to additional construction in the future, AS 3959:2009 compliance is required.
12	Update the Bushfire Management Plan if requested by the City of Wanneroo if it has reason to believe site conditions have substantially changed, or new methodologies or practice are adopted as identified in future revisions of the “Guidelines”.
DEVELOPER – AT SALE OF LOTS	
No.	Management action
13	Make a copy of this BMP available to each lot along with the <i>Homeowners Bush Fire Survival Manual, Prepare, Act, Survive</i> (or similar suitable documentation) and the City of Wanneroo’s Firebreak and Fuel Load Notice.
LANDOWNER/OCCUPIER – ONGOING	
No.	Management action
14	Maintain the Asset Protection Zone (APZ) to the dimensions and standard stated in the BMP.
15	Comply with the City of Wanneroo’s annual firebreak notice issued under s33 of the <i>Bush Fires Act 1954</i> .

CITY OF WANNEROO – ONGOING MANAGEMENT	
No.	Management action
16	The Public Open Space areas to be managed to ensure the vegetation remains as low threat vegetation, in accordance with AS3959–2009.
17	Maintain public roads to appropriate standards and ensure compliance with the City of Wanneroo’s Fire Break
18	Provide fire prevention and preparedness advice to landowners upon request, including the <i>Homeowners Bush Fire Survival Manual, Prepare, Act, Survive</i> (or similar suitable documentation) and the City of Wanneroo’s Fire Break Notice.

7 CONCLUSION

This Plan provides acceptable solutions and responses to the performance criteria that fulfil the intent of the bushfire hazard management issues outlined in the Guidelines for Planning in Bushfire Prone Areas (WAPC 2017 V1.3).

However, community bushfire safety is a shared responsibility between governments, fire agencies, communities and individuals.

The subdivision is located in the bushfire prone area (i.e. within 100m of classified vegetation) and risk is reduced via compliance with AS 3959:2009 standards. BAL-29 is not exceeded and existing and recommended APZ incorporates the entire site.

A minimum of two access options and fire hydrant spacing requirements for fire-fighting are met. The proposed development will fall within the acceptable level of risk.

REFERENCES

DFES. (2017). *PREPARE. ACT. SURVIVE.*

[http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DE
S_Bushfire-Prepare_Act_Survive_Booklet.pdf](http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DE
S_Bushfire-Prepare_Act_Survive_Booklet.pdf)

Standards Australia. 2009. Construction of buildings in bushfire-prone areas (Amendments 1-3), AS 3959-2009, Standards Australia International Ltd, Sydney

Western Australian Planning Commission (WAPC). 2017. Guidelines for Planning in Bushfire Prone Areas. December 2017 V1.3. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

Western Australian Planning Commission (WAPC). 2015b. State Planning Policy No. 3.7: planning in Bushfire Prone Areas (SPP3.7). December 2015. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.



APPENDICES

- Appendix 1: Asset Protection Zone Standards
- Appendix 2: City of Wanneroo Firebreak Notice
- Appendix 3: Vehicular Access Technical Requirements
- Appendix 4: Public Open Space Landscape Concept Plans

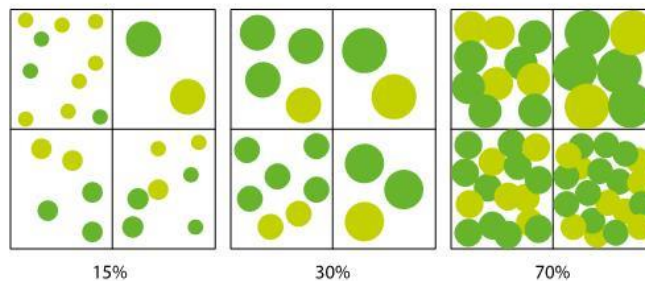
Appendix 1: Asset Protection Zone Standards

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

- **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 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.
- **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.

Figure 18: Tree canopy cover – ranging from 15 to 70 per cent at maturity



- **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 millimetres 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 millimetres or less.

APPENDIX 2: City of Wanneroo Firebreak Notice 2019/19

FIRE BREAKS / FUEL HAZARD REDUCTION / FIRE BREAK EXAMPLES



Under the Bushfires Act (1954), all owners and occupiers of land in Western Australia must establish and maintain fire breaks.

Fire breaks and protection measures are vital in assisting the prevention of fires spreading and to allow safer access for bushfire fighters and vehicles.

Land with an area of less than 4,000m²

- A fire break, not less than three (3) metres wide must be cleared immediately inside (or as close as possible) around all external boundaries of the land.
- All tree branches that over-hang a fire break must be trimmed back to a minimum height of three and a half (3.5) metres above ground level and the growth on the fire break cannot exceed fifty (50) millimetres high.

Land with an area of 4,000m² or more

- A fire break, not less than three (3) metres wide, must be cleared immediately inside (or as close as possible) around all external boundaries of the land.
- All tree branches that over-hang a fire break must be trimmed back to a minimum height of three and a half (3.5) metres above ground level and the growth on the fire break cannot exceed fifty (50) millimetres high.

Buildings

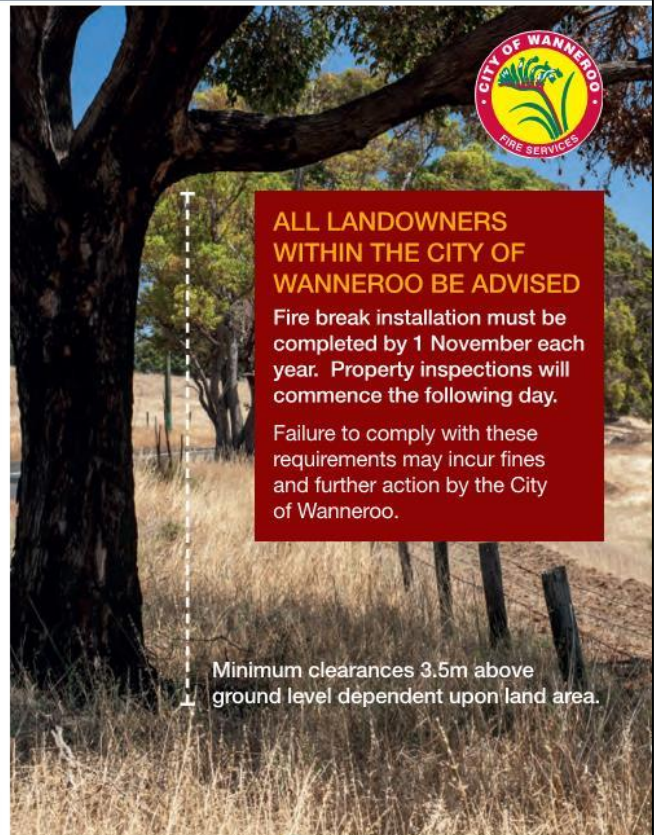
- Install and maintain a twenty (20) metre building protection zone surrounding all buildings, large hay stacks and fuel storage areas. A building protection zone includes undertaking measures such as pruning all lower tree branches to prevent fire entering the trees, ensuring three (3) metre spacing between tree canopies to prevent treetop fires spreading between trees, keeping all grasses to a height of not more than fifty (50) millimetres and storing all firewood piles more than twenty (20) metres away from the buildings.

APPLICATION TO VARY THE ABOVE REQUIREMENTS

If it is considered impracticable for any reason to implement any of the requirements of this Notice, application may be made not later than the 18th of October annually to the Council or its authorised officer for permission to provide alternative fire protection measures. If permission is not granted the requirements of this Notice must be complied with.

ADDITIONAL WORKS

In addition to the requirements of this Notice, you may be required to carry out further works which are considered necessary by an Authorised Officer and specified by way of a separate written notice forwarded to the address of the owner/s as shown on the City of Wanneroo rates record for the relevant land.



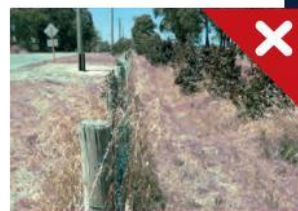
Minimum clearances 3.5m above ground level dependent upon land area.



Non-compliant: no fire break installed inside boundary fence



Compliant: grass slashed to ground level



Non-compliant: mineral earth fire break showing grass/weed regrowth



Compliant: mineral earth fire break



Non-compliant: thick scrub creates a fire hazard around power poles

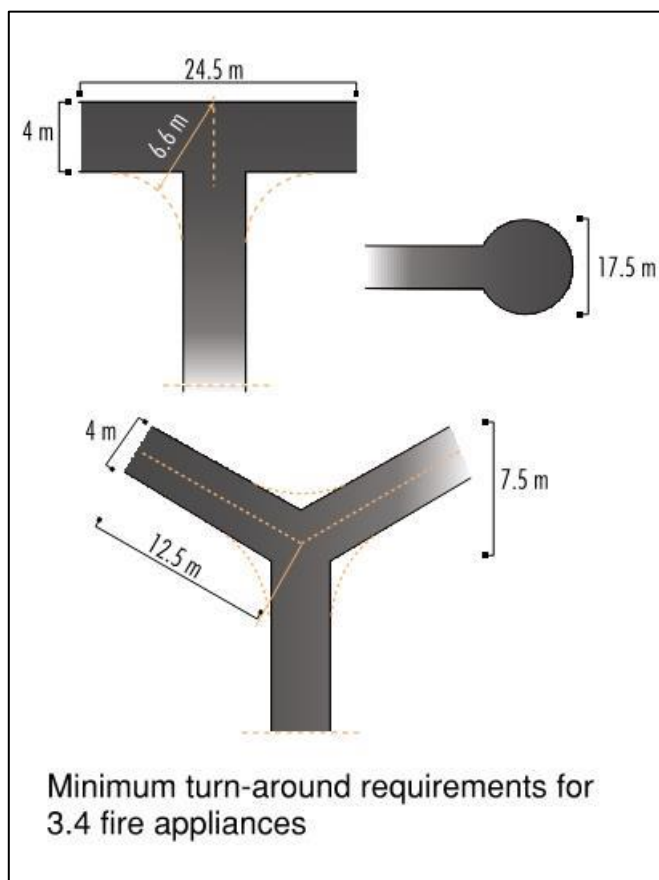


Compliant: cleared buffer zone around power poles

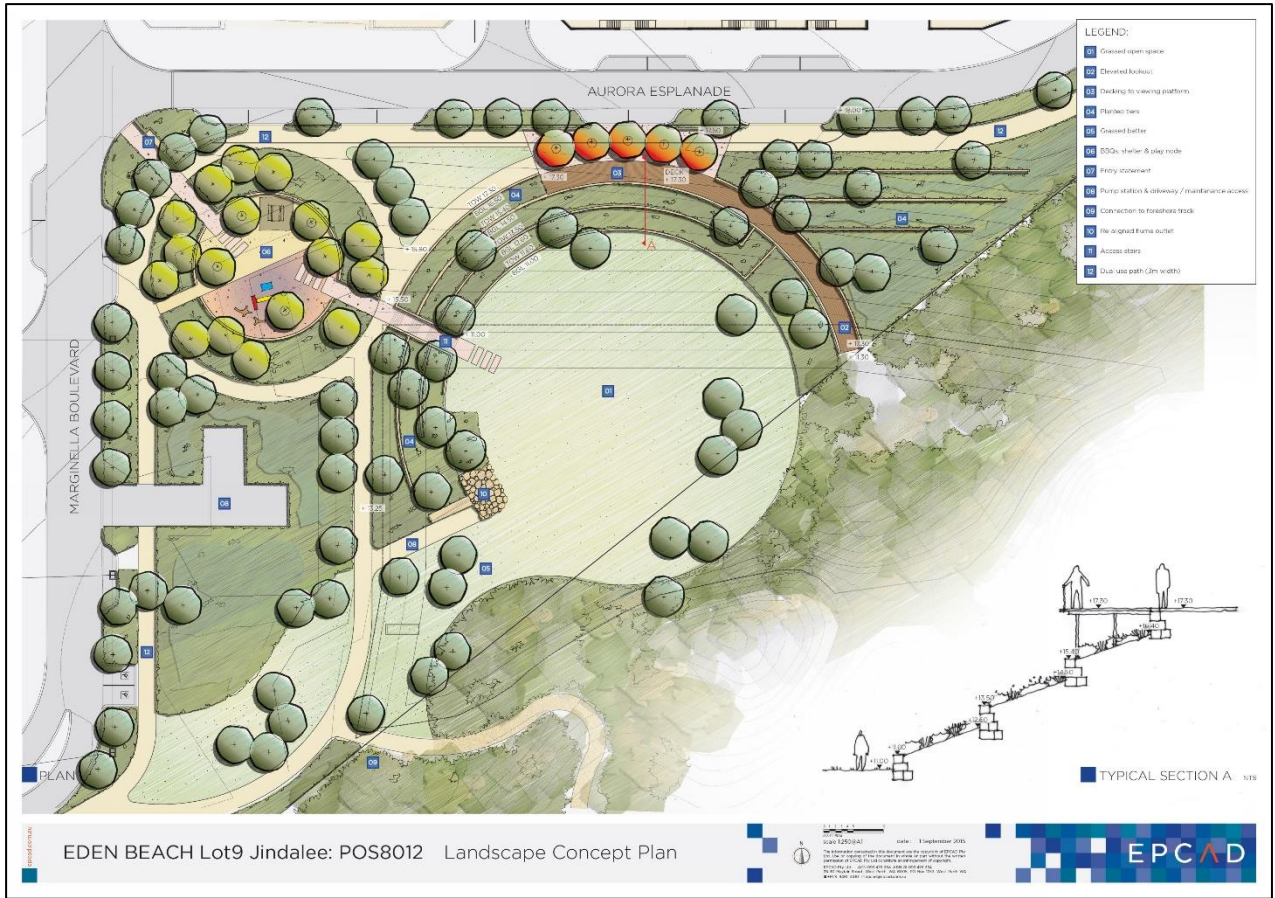
APPENDIX 3: Vehicle Access Technical Requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 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	N/A	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 crossfall	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

*Refer to E3.2 Public roads: Trafficable surface



APPENDIX 4: Public Open Space Landscape Concept Plans



Bushfire Management Plan – Eden Beach, Jindalee

