

Bushfire Management Plan:  
Development Application: Yanchep Childcare Centre,  
Lots 321-325 Castlemead Drive and Lot 9008 (91)  
Ariane View, Yanchep

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**Leyton Property**

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## DOCUMENT TRACKING

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<b>Project Number</b>	20PER-17711
<b>Project Manager</b>	Alex Aitken
<b>Prepared by</b>	Alex Aitken (BPAD Level 2 – 37739)
<b>Reviewed by</b>	Daniel Panickar (BPAD Level 3 – 37802)
<b>Approved by</b>	Daniel Panickar (BPAD Level 3 – 37802)
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## ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Leyton Property (the client) and Planning Solutions.

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Template 2.8.1

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# 1. Introduction

## 1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Leyton Property to prepare a Bushfire Management Plan (BMP) to support a development application for Lots 321-325 Castlemead Drive and Lot 9008 (91) Ariane View, Yanchep (hereafter referred to as the subject site, Figure 1). The proposed development is a childcare centre to be constructed within the Vertex Estate.

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2019; Figure 3), which triggers bushfire planning requirements under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; Western Australian Planning Commission (WAPC) 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

The subject site is part of Stage 3A of Vertex Estate, Yanchep within the City of Wanneroo. Lots 321-325 Castlemead Drive and Lot 9008 (91) Ariane View, Yanchep are currently zoned as residential (R30) as part of the Local Development Plan No.14 approved on 12 October 2018 (Burgess, 2018).

This assessment has been prepared by ELA Senior Bushfire Consultant Alex Aitken (FPAA BPAD Level 2 Certified Practitioner No. BPAD37739) with quality assurance undertaken by Principal Bushfire Consultant Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802)

## 1.2 Purpose and application of the plan

The primary purpose of this BMP is to act as a technical supporting document to inform planning assessment. This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

## 1.3 Environmental considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.




The subject site has been previously cleared, resulting in no existing native vegetation on site.

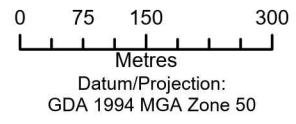
No revegetation is proposed within the development and landscaping will be maintained in a low-threat state.



**Figure 1: Site Overview**

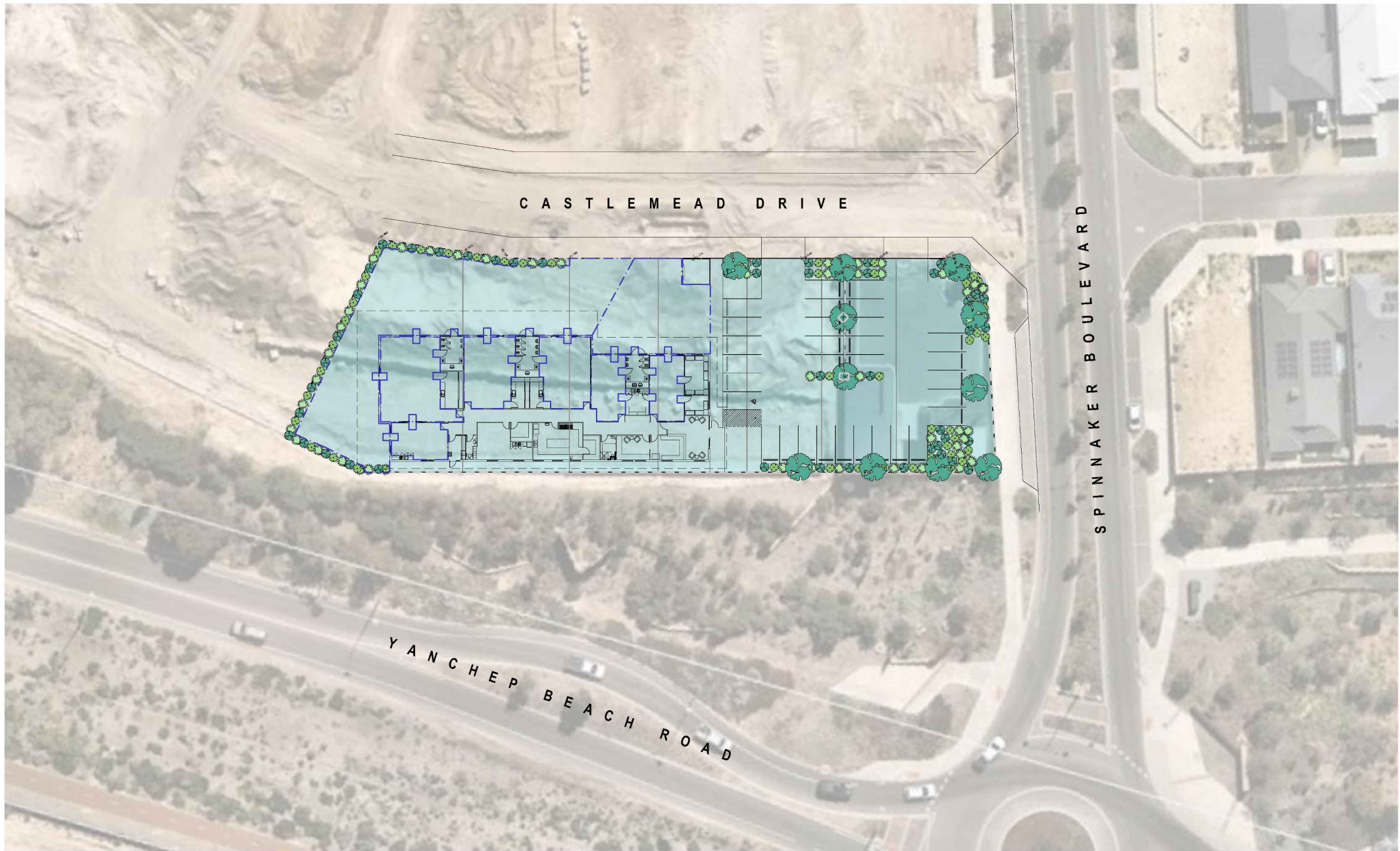


- Legend**
-  Subject site
  -  100m site assessment
  -  150m site assessment





**Figure 2: Site Plan**



**Location Plan**  
Scale: 1:500 @ A3



ON Architecture Pty Ltd abn 71 627 522 043  
3 St. Thomas Street Hawthorndene, SA 5051  
Troy Owens 0822 225 855 t.owen@onarchitecture.com.au  
Mark Hield 0812 180 486 m.hield@onarchitecture.com.au



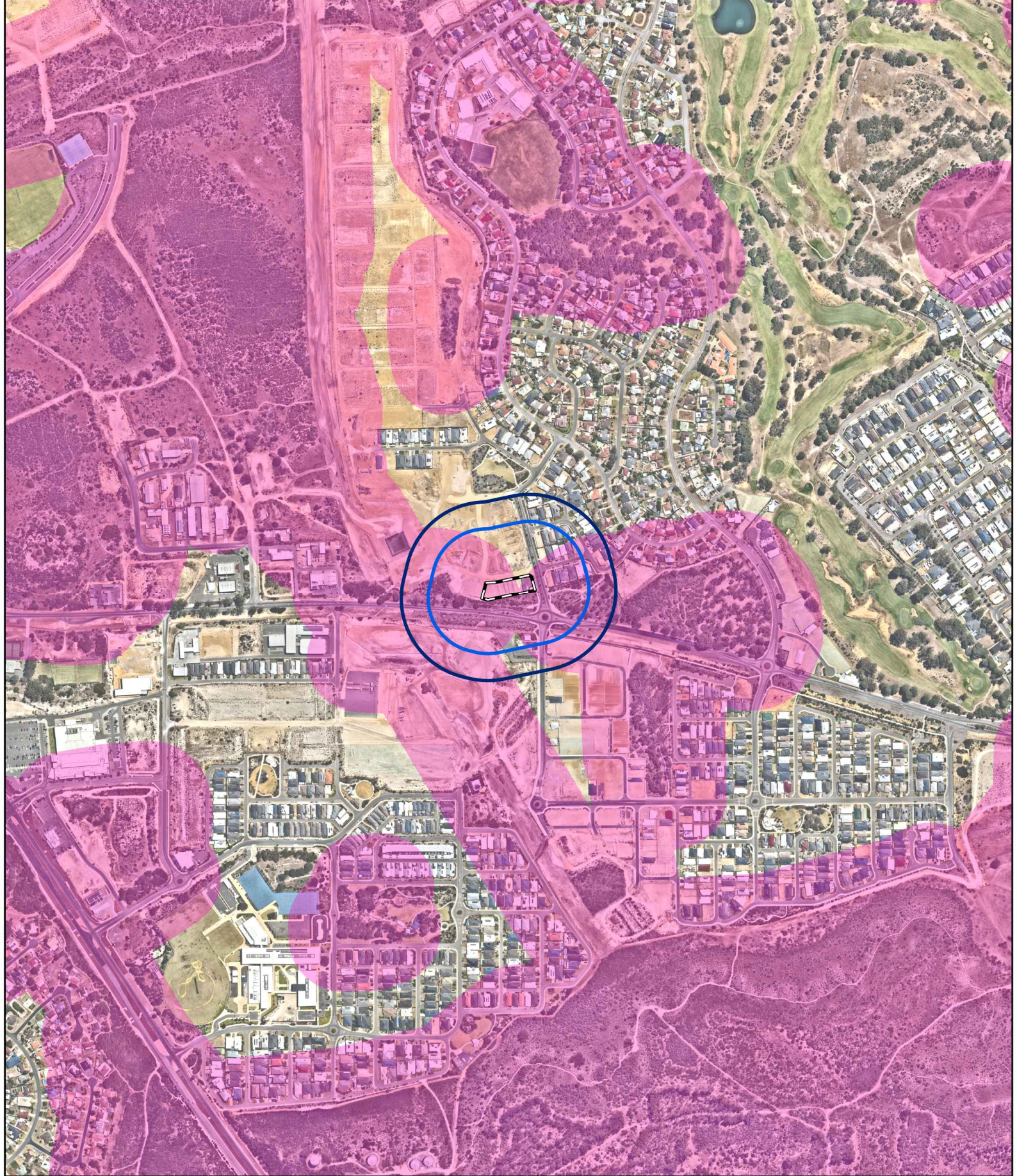
**94 PLACE CHILDCARE**  
LOT 319-325 CASTLEMEAD DRV YANCHEP WA





Job No: **S193**  
Dwg No: **SK01.1**  
Date: **October 2020**





**Figure 3: Bushfire Prone Areas**



- Legend**
-  Subject site
  -  100m site assessment
  -  150m site assessment
  -  Bushfire Prone Mapping (DFES 2019)

0 75 150 300  
Metres  
Datum/Projection:  
GDA 1994 MGA Zone 50



**eco**  
**logical**  
AUSTRALIA  
A TETRA TECH COMPANY



## 2. Bushfire assessment results

### 2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

#### 2.1.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australia, as outlined in Australian Standard (AS) 3959–2018 and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

#### 2.1.2 Vegetation classification

Vegetation within the subject site and surrounding 150 m (the assessment area) was assessed in accordance with the Guidelines and AS 3959-2018 *Construction of Buildings in Bushfire Prone Areas* (SA 2018) with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 18 November 2020.

The classified vegetation for the proposed development from each of the identified vegetation plots are identified below, Table 1 and Figure 4.

**Table 1: Classified vegetation as per AS 3959-2018**

Plot	Vegetation Classification	Effective Slope
1	Class B Woodland	All upslopes and flat land (0 degrees)
2	Class B Woodland	All upslopes and flat land (0 degrees)
3	Excluded AS 3959-2018 2.2.3.2 (f)	-
4	Excluded AS 3959-2018 2.2.3.2 (e)	-
5	Excluded AS 3959-2018 2.2.3.2 (e)	-

Photographs relating to each area and vegetation type are included in Appendix A.

The classified vegetation shown in Plot 2- Class B- Woodland is currently classifiable due to the unmanaged nature of the existing vegetation. Documentation provided by the client however, notes that the area is to be developed as public open space (POS) as part of Stage 3A of Vertex Estate (Appendix D). The approved outcome for this POS area will contain: landscaped vegetation; non-vegetated areas; and unmanaged vegetation which will encompass less than 1 ha, thereby able to be excluded under clause 2.2.3.2 (b) of AS 3959-2018.

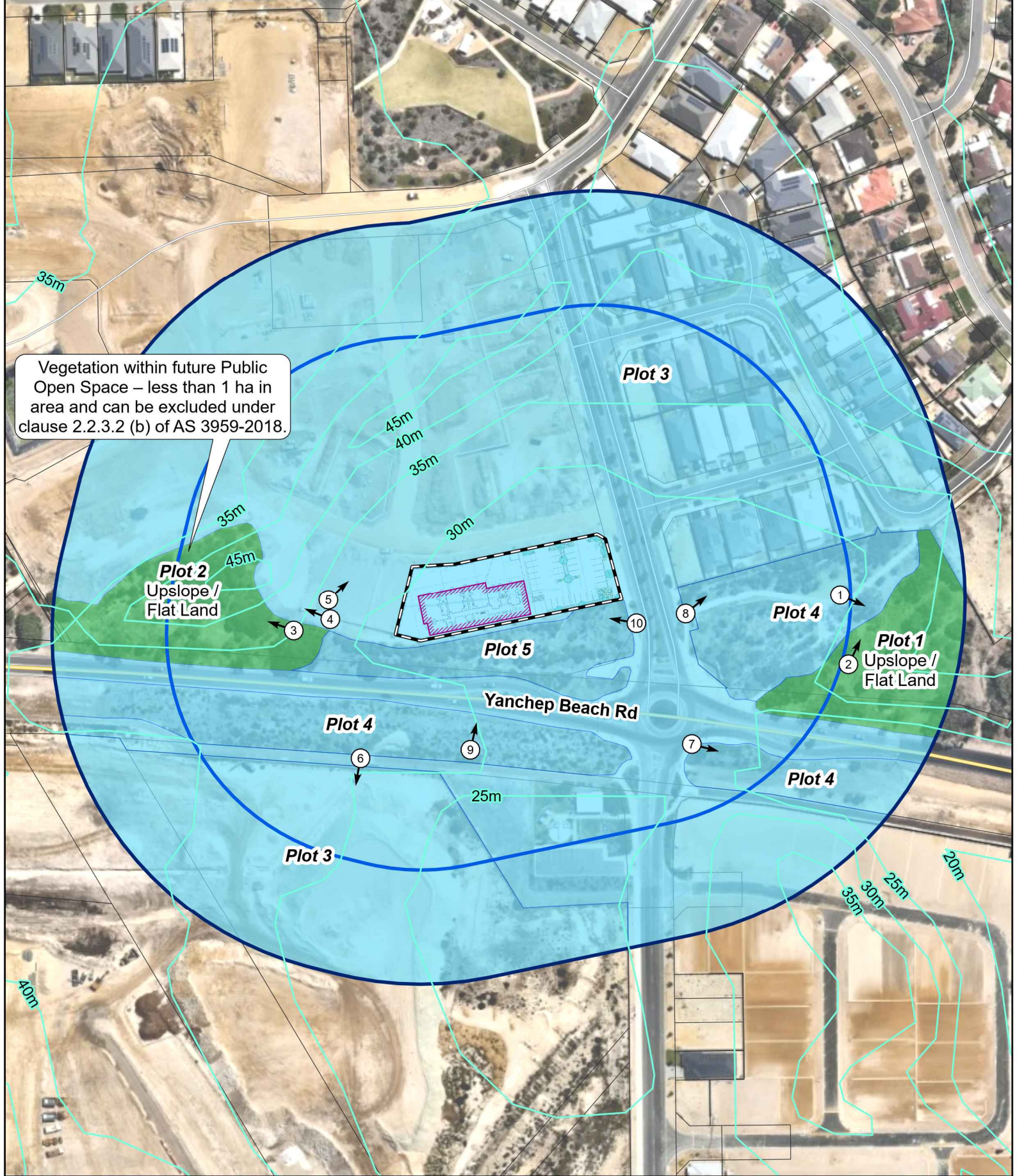
Vegetation located within Plot 4 and 5 is currently being managed as landscaped POS and has been excluded under AS3959-2018 Section 2.2.3.2 (e). These areas are being managed as road verge landscaping and reticulated landscape gardens with playgrounds and pathways.



### 2.1.3 Topography and slope under vegetation

Effective slope under vegetation was assessed for a distance of 150 m from the subject site in accordance with the Guidelines and AS 3959-2018 and is depicted in Figure 4. Slope under classified vegetation was assessed and is shown in Table 1.

**Figure 4: Vegetation Classification**



Vegetation within future Public Open Space – less than 1 ha in area and can be excluded under clause 2.2.3.2 (b) of AS 3959-2018.

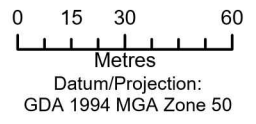
**Legend**

- Subject site
- 100m site assessment
- 150m site assessment
- Proposed building
- Cadastre
- Contour (5m)

Photo location

**Vegetation classification**

- Class B woodland
- Excluded as per clause 2.2.3.2 (e) and (f)





## 2.2 Bushfire assessment outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959-2018 and the bushfire assessment inputs in Section 2.1.

### 2.2.1 BAL assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959-2018.

A Method 1 BAL assessment (as outlined in AS 3959-2018) has been completed for the proposed development and incorporates the following factors:

- Fire Danger Index (FDI) rating;
- Vegetation class;
- Slope under classified vegetation; and
- Distance between proposed development area and the classified vegetation.

Based on the identified BAL, construction requirements for proposed buildings can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

### 2.2.2 Method 1 BAL assessment

Table 2 and Figure 5 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed development in accordance with AS 3959-2018 methodology. Vegetation exclusions utilised for the areas (including the proposed POS area within Vertex Estate) have been further detailed in Section 2.3.

**Table 2: Method 1 BAL calculation (BAL contours)**

Plot and vegetation classification	Effective slope	Hazard separation distance	BAL rating	Comment
Plot 1 Class B Woodland	All upslopes and flat land (0 degrees)	0-<10	BAL-FZ	No development proposed in this area
		10-<14	BAL-40	No development proposed in this area
		14-<20	BAL-29	No development proposed in this area
		20-<29	BAL-19	No development proposed in this area
		29-<100	BAL-12.5	No development proposed in this area
Plot 2*	Excluded as per clause 2.2.3.2 (b) of AS3959- 2018	N/A		
Plot 3	Excluded as per clause 2.2.3.2 (e) of AS3959- 2018	N/A		
Plot 4	Excluded as per clause 2.2.3.2 (f) of AS3959- 2018	N/A		
Plot 5	Excluded as per clause 2.2.3.2 (f) of AS3959- 2018	N/A		

\*CURRENTLY CLASS B WOODLAND, HOWEVER HAS BEEN APPROVED TO BE MANAGED IN POS SUCH THAT REMAINING VEGETATION WILL BE <1 HECTARE IN AREA – REFER TO SECTION 2.1.2

Based on the site assessment inputs and BAL assessment, the proposed childcare centre within the subject site will have a BAL rating of **BAL-LOW**.

### 2.3 Identification of issues arising from the BAL assessment

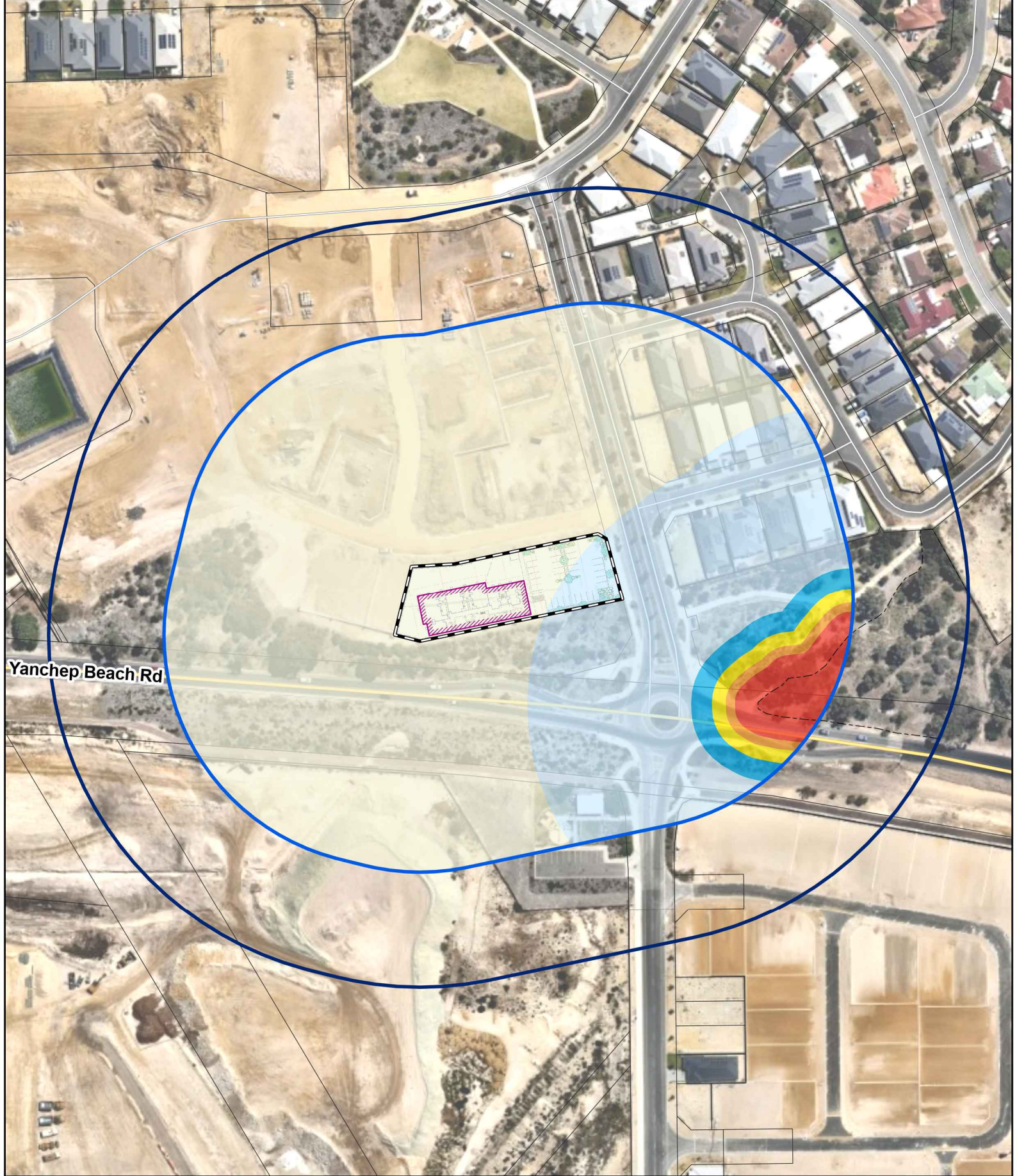
As per the BAL assessment shown in Table 2 and Figure 5, ELA have applied several exclusions to the classified vegetation plots utilising the AS3959-2018 Clause 2.2.3.2 and also the approved subdivision documentation provided by the client. The existing subdivision approval for the Vertex Estate, Yanchep, has an approved BMP (BPP, 2017), an approved local development plan (LDP) (Burgess, 2018) and the recent subdivision BMP compliance completed (NAM, 2020). Appendix C and Appendix D contain the LDP and BMP subdivision clearance letter for reference purposes.

The approved BMP and LDP plans indicate that on completion of the staged subdivision development, majority of the POS area west of the subject site will be managed as low threat vegetation and the remaining vegetation will encompass <1 ha. Development of Stage 3A of the Vertex Estate was being completed during the ELA site assessment and final vegetation/landscaping management of the POS had not been completed. ELA believe however, that the vegetation will be managed as part of the subdivision development and therefore have excluded areas of vegetation located in Plot 2, 4 and 5 to develop the BAL assessment which has resulted in the BAL-LOW rating for the proposed childcare building.



Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.

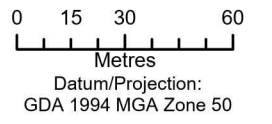
**Figure 5: Bushfire Attack Level (BAL) Contours**



- Legend**
- Subject site
  - 100m site assessment
  - 150m site assessment
  - Proposed building
  - Bushfire Hazard Interface
  - Cadastre

**Bushfire Attack Level (BAL)**

	BAL - FZ
	BAL - 40
	BAL - 29
	BAL - 19
	BAL - 12.5
	BAL - LOW



Datum/Projection:  
GDA 1994 MGA Zone 50





### 3. Conclusion

As the proposed childcare building has a BAL rating of BAL-LOW, there is no requirement to address the bushfire protection criteria from the Guidelines. And therefore, the proposed development is not required to comply with policy measures 6.2, 6.5 and 6.6 of SPP 3.7 and the Guidelines.

This BMP has been completed to provide justification of the vegetation assessment and the documentation provided by the client to validate the BAL assessment completed as part of this DA.

## 4. References

Burgess Design Group. 2018. *Local Development Plan No. 14, Stage 3, Vertex Estate, Yanchep*. Approved City of Wanneroo, 12 October 2018.

Bushfire Prone Planning (BPP). 2018. *Bushfire Management Plan (Subdivision Application), Location: Lot 9004 (#20) Capilano Avenue, Yanchep, Project Number: 170867, Report Date: 18 January 2018*.

City of Wanneroo. 2020. *City of Wanneroo Fire Mitigation Notice, 2020*.

Department of Fire and Emergency Services, 2019, *Map of Bush Fire Prone Areas, [Online]*, Government of Western Australia, available from: <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>

Department of Planning (DoP), 2016, *Visual guide for bushfire risk assessment in Western Australia*. DoP, Perth.

Natural Area Consulting Management Services (NAM). 22 September 2020. *Re: Clearance Condition for Stage 3 of WAPC Application 156201*. Letter to City of Wanneroo

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

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

Western Australian Planning Commission, 2017, *Guidelines for Planning in Bushfire Prone Areas Version 1.3 (including appendices)*, WAPC, Perth.

Western Australian Planning Commission, 2019, *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*.



## Appendix A – Classified Vegetation Photos

Plot	Photo ID	Photo and vegetation classification
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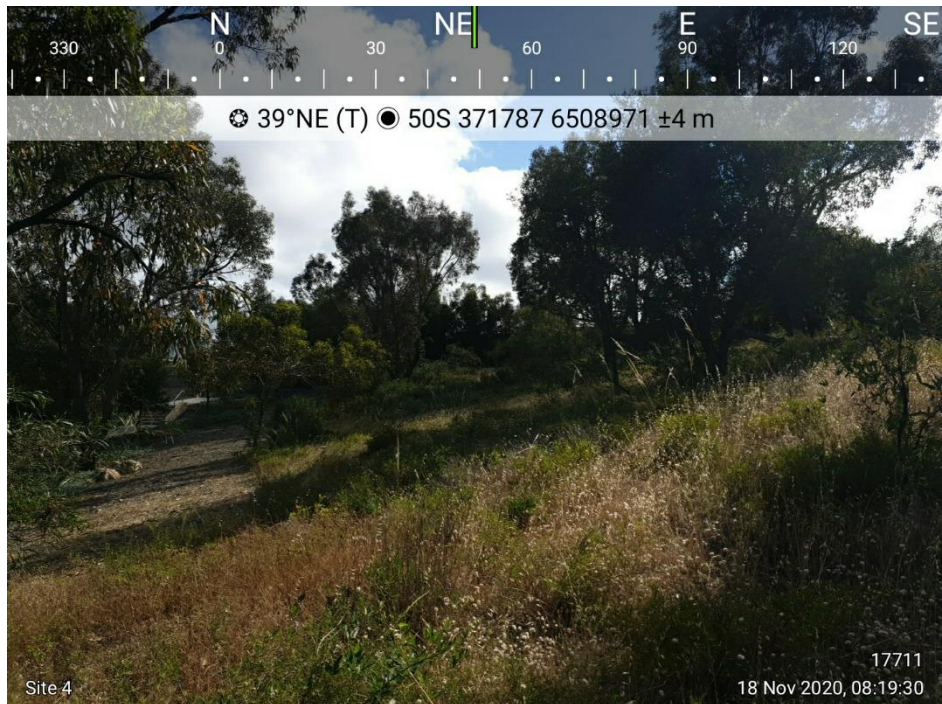
1 1



Class B Woodland

Note playground in foreground is part of Plot 4

1 2



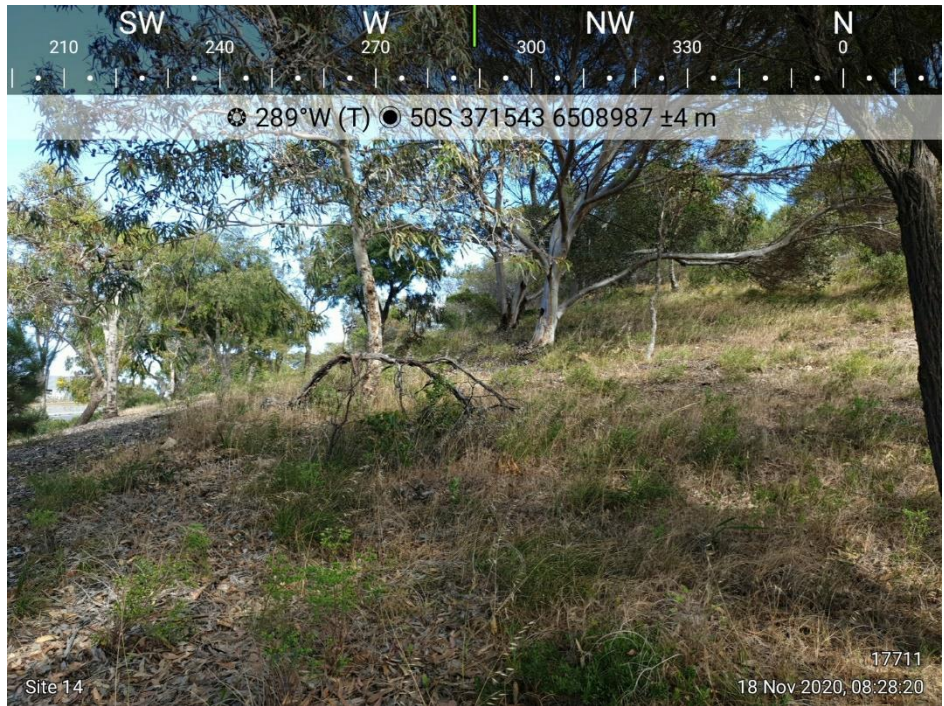
Class B Woodland

Open woodlands with Tuart overstorey and grass understorey, minor shrubs



Plot	Photo ID	Photo and vegetation classification
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2 3



Class B Woodland

Open woodlands with Tuart overstorey and grass understorey, minor shrubs

2 4

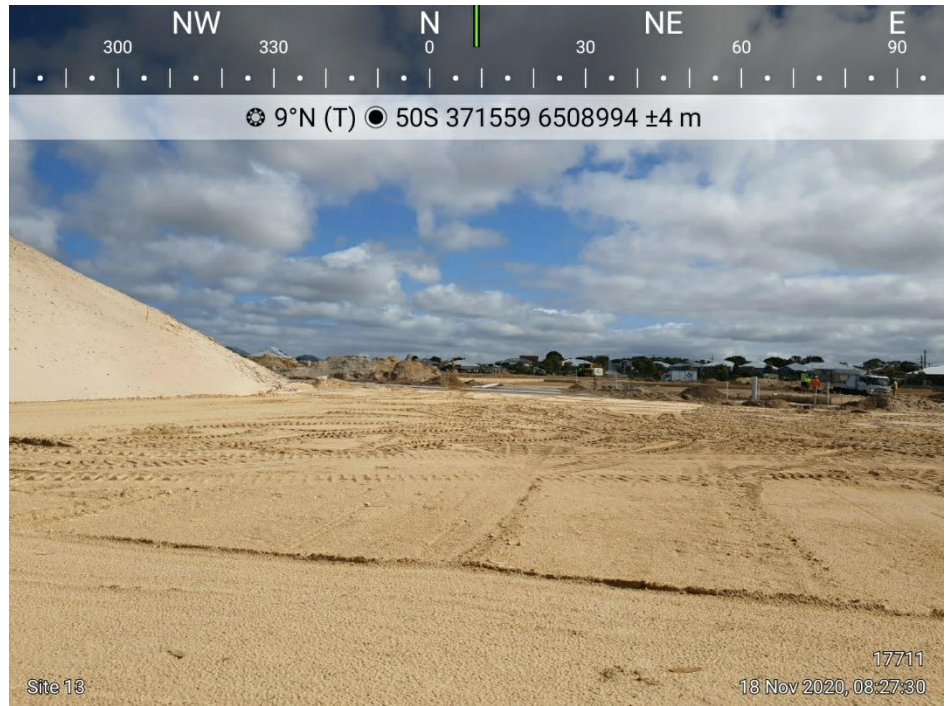


Class B Woodland



Plot	Photo ID	Photo and vegetation classification
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3 5



Excluded AS 3959-2009 2.2.3.2 (e)

Note: cleared for subdivision development

3 6

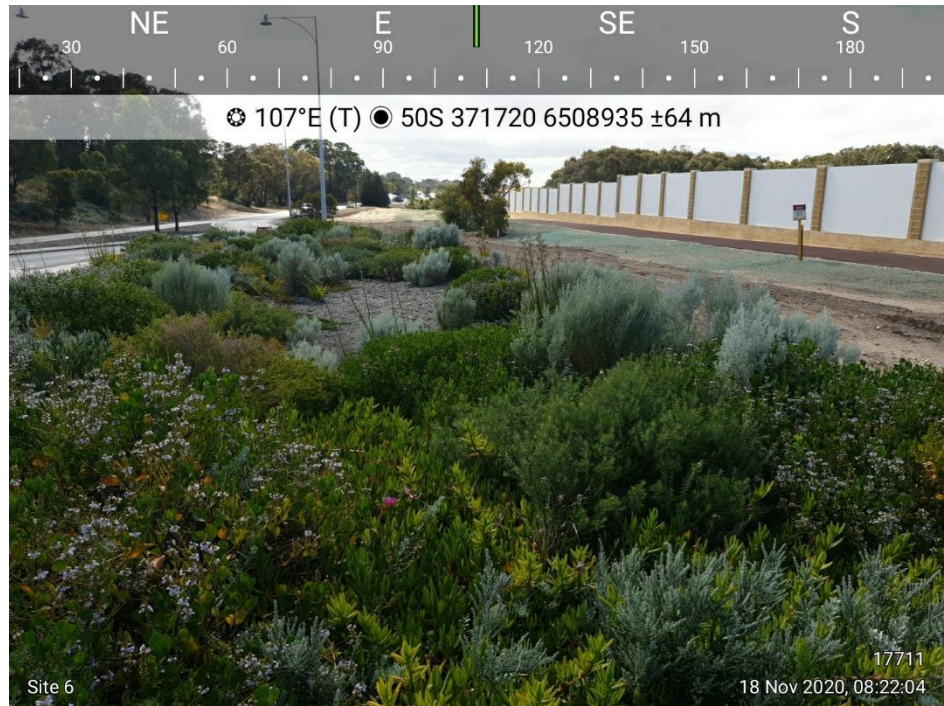


Excluded AS 3959-2009 2.2.3.2 (e)

Note: cleared for subdivision development of Jindowie Estate

Plot	Photo ID	Photo and vegetation classification
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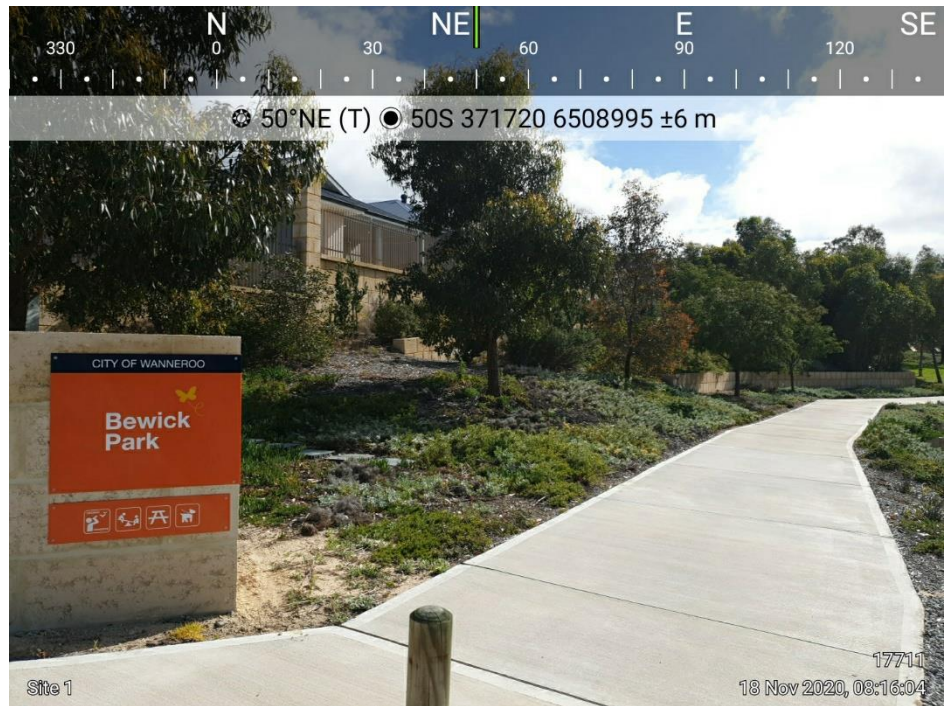
4 7



Excluded AS 3959-2018 2.2.3.2 (e)

Note: road side managed vegetation along Yanchep Beach Road, to be maintained

4 8



Excluded AS 3959-2018 2.2.3.2 (e)

Note: managed parklands with paths, reticulated gardens, playground and managed grass



Plot	Photo ID	Photo and vegetation classification
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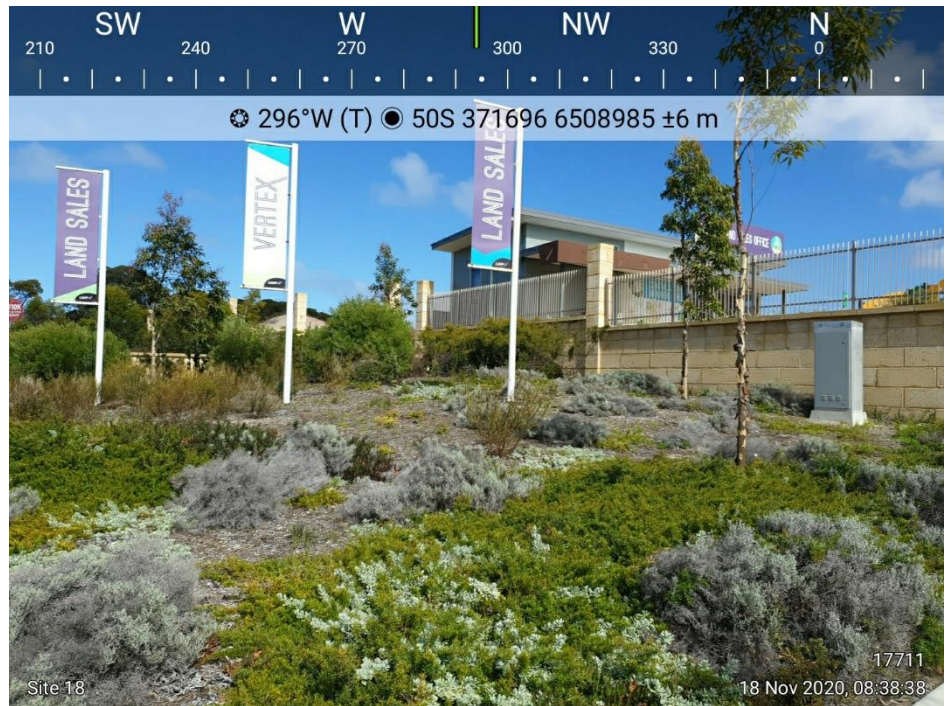
5 9



Excluded AS 3959-2018 2.2.3.2 (f)

Note: managed POS areas with respect to Vertex Estate

2 10



Excluded AS 3959-2018 2.2.3.2 (f)

Note: managed POS areas with respect to Vertex Estate

## Appendix B – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.3* (WAPC 2017).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

**a. Width:** Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed  $29\text{kW/m}^2$  (BAL-29) in all circumstances.

**b. Location:** the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).

**c. Management:** the APZ is managed in accordance with the requirements of ‘*Standards for Asset Protection Zones*’ (below):

- 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 6).

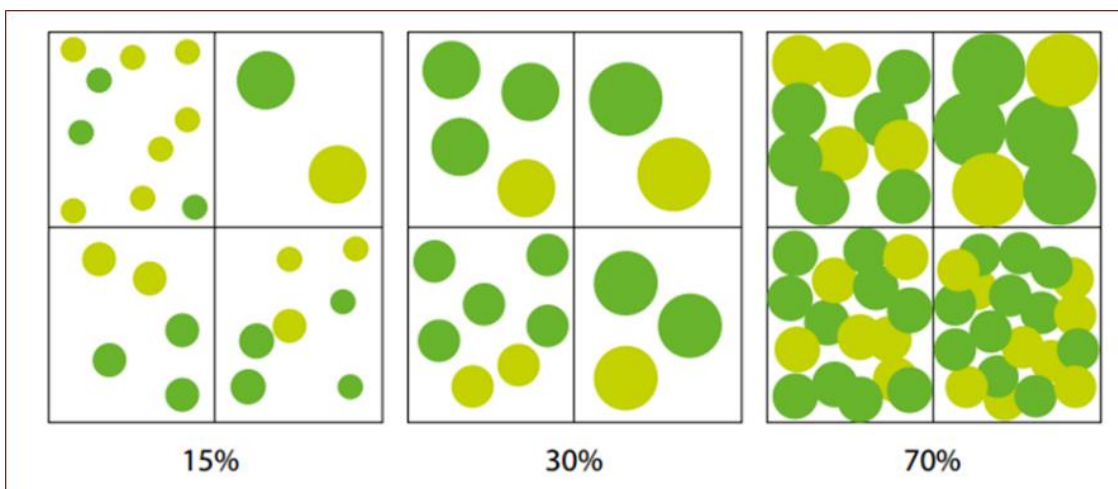


Figure 6: Illustrated tree canopy cover projection (WAPC 2017)



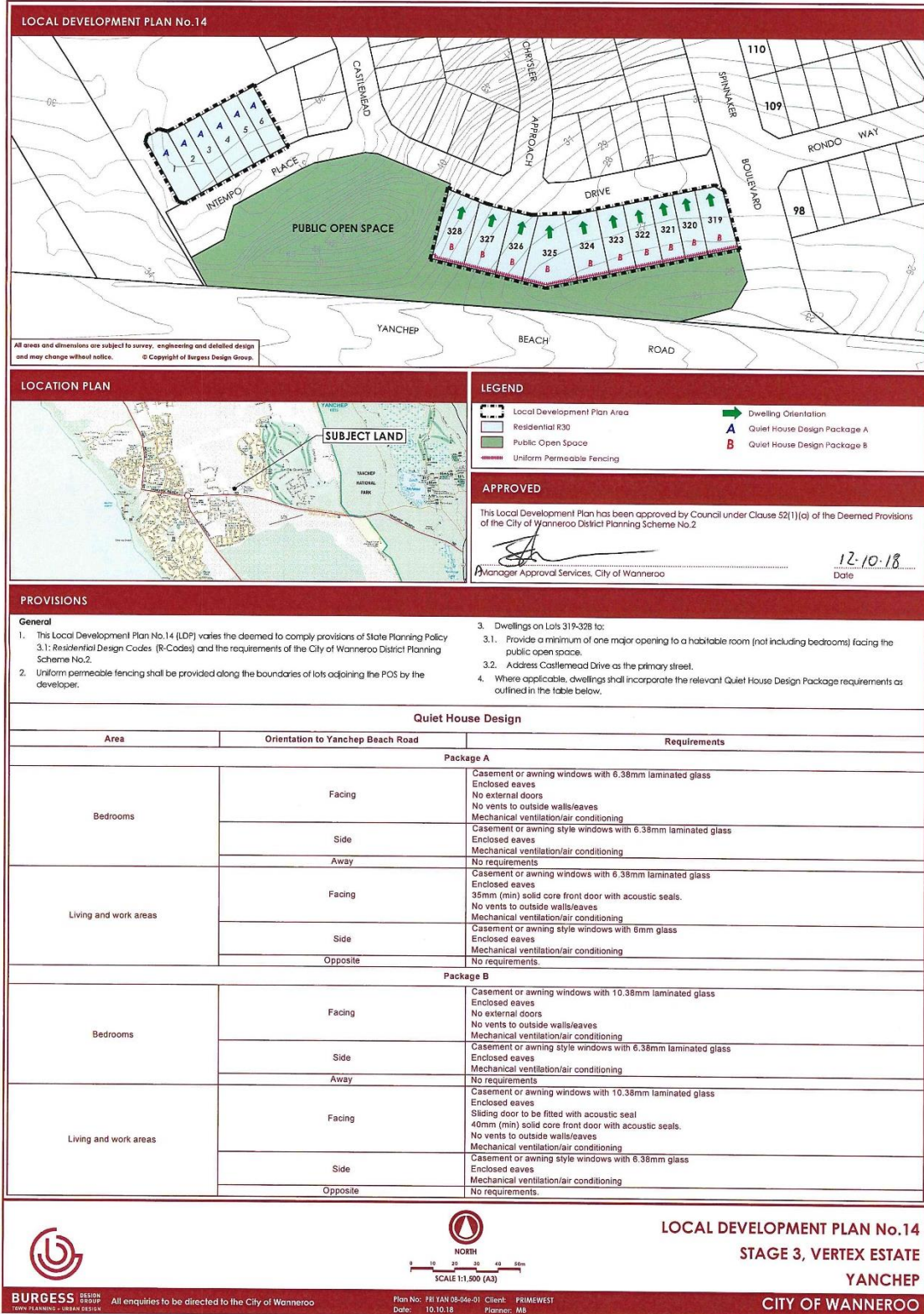
- **Shrubs (0.5 metres to 5 metres in height):** should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m<sup>2</sup> in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater 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.

### **Additional notes**

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

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. 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.

## Appendix C – Local Development Plan





## Appendix D – Subdivision BMP Compliance report



City of Wanneroo  
23 Dundobar Road  
WANNEROO WA 6065

To Whom it May Concern

**RE: Clearance Condition 9 for Stage 3 of WAPC Application 156201**

Condition 9 of subdivision approval (WAPC 156201) for Stage 3 of the Vertex subdivision in Yanchep requires:  
Information to be provided to demonstrated that the measures contained in the Bushfire Management Plan prepared by Bushfire Prone Planning dated 18 January 2018 have been implemented during subdivisional works.

Stage 3 subdivisional works have commenced and are well progressed (Figure 1), with the following information provided to support clearing of condition 9 for this stage:

- the subdivision has been designed and implemented in accordance with approved plans, giving due consideration to the presence of classified vegetation, including that located outside the site boundary
- the planned road network is sufficient to provide two access/egress options in the event of a bushfire, with one to Capilano Drive and the other to Spinnaker Blvd
- the subdivision design has ensured a suitable asset protection zone between classified vegetation and Lot boundaries based on conditions present at the time of the assessment
- the site is in a developed area thus hydrants are required to be constructed in accordance with Water Corporation guidelines
- note that classified vegetation located within the rail corridor to the west of the site will be cleared in coming months to facilitate construction of the Yanchep rail extension, with clearing expected to be completed by February 2021 at the latest; this will remove all the classified vegetation within the rail reserve identified within the Bushfire Prone Planning Bushfire Management Plan dated January 2018
- when the clearing in the rail reserve is finalised, remnant bushland retained in the POS area to the south-west of the subdivision along Yanchep Beach Road will be less than 1 ha in area and subject to exclusion clause 2.2.3.2 (b) of AS 3959 – 2018.

233C Drumpellier Drive, Whiteman, WA 6068 | Telephone 08 9209 2767  
Email [info@naturalarea.com.au](mailto:info@naturalarea.com.au)

Natural Area Holdings Pty Ltd ACN 126 093 356





**Figure 1:** Evidence of civil engineering and other works progressing at Stage 3 Vertex

If there are any questions or clarifications, please contact me via email at [sue.brand@naturalarea.com.au](mailto:sue.brand@naturalarea.com.au), or on 0439 435 110.

Regards

A handwritten signature in black ink that reads "Sue Brand".

Sue Brand  
Senior Environmental Scientist  
22 September 2020



233C Drumpellier Drive, Whiteman, WA 6068 | Telephone 08 9209 2767  
Email [info@naturalarea.com.au](mailto:info@naturalarea.com.au)

Natural Area Holdings Pty Ltd ACN 126 093 356

