



Bushfire Management Plan: Subdivision:  
Lot 1 and 2 Templetonia Boulevard, Yanchep

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**Capricorn Village Joint Venture**

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DOCUMENT TRACKING

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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 Capricorn Village Joint Venture to prepare a Bushfire Management Plan (BMP) to support a subdivision application for the creation of Lots 1 and 2 Templetonia Boulevard, Yanchep (hereafter referred to as the subject site, Figure 1), currently part of parent Lot 9052 Beachside Parade. The proposed subdivision will result in an intensification of land use and involves the development of two commercial lots and a Pedestrian Access Way (PAW) as depicted in Figure 2.

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2021; 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 subdivision application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.4* (the Guidelines; WAPC 2021).

The subject site is located in the City of Wanneroo and is zoned 'Business, parks, recreation, residential' under the City of Wanneroo's District Structure Plan (DSP) No.2 and zoned 'Urban' under the Metropolitan Region Scheme (MRS) and will be serviced by Templetonia Boulevard. Significant development is or will be occurring nearby with the commissioning of Marmion Avenue to the east and development of lots to the west that will provide additional future access/egress routes to the east, south and through neighbouring developments to the west.

This assessment has been prepared by ELA Bushfire Consultant Lee Galer (FPAA BPAD Level 2 Certified Practitioner No. BPAD55096) with quality assurance undertaken by Senior Bushfire Consultant Eva Cronin (FPAA BPAD Level 2 Certified Practitioner No. BPAD45482) and 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.

The current subdivision application focuses on Lots 1 and 2 (subject site), Public Access Way (PAW) and creation of Templetonia Boulevard as per Figure 2. Section 3 of this BMP assesses the subject site and its compliance against the criteria set out within the Guidelines.

Any future development applications within the subject site will be required to comply with policy measures 6.2 and 6.5 of SPP 3.7 and the Guidelines which requires an assessment of compliance against criteria set out within the Guidelines provided in the form of a Bushfire Management Plan (or an amended Bushfire Management Plan where one has been previously endorsed). Additionally, future proposed development applications that incorporate vulnerable or high risk land uses will be required to comply with policy measure 6.6 of SPP 3.7 and the Guidelines which requires a Bushfire Management Plan jointly endorsed by the local government and the Department of Fire and Emergency Services. In

most instances the requirement of the bushfire risk management plan (applicable to high risk land uses) and bushfire emergency evacuation plan (applicable to vulnerable land uses) should be incorporated into the proposed site management plans.

### 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.

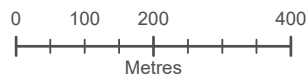
The subject site has previously been cleared ready for development, resulting in no existing native vegetation within this area. Any future landscaping within the subject sites shall be implemented and maintained to comply with a low threat standard as per clause 2.2.3.2(f) of AS 3959: 2018, or in accordance with requirements of 'Standards for Asset Protection Zones' (WAPC 2021; Appendix A).





**Figure 1: Site Overview**

-  Subject site
-  100m site assessment
-  150m site assessment



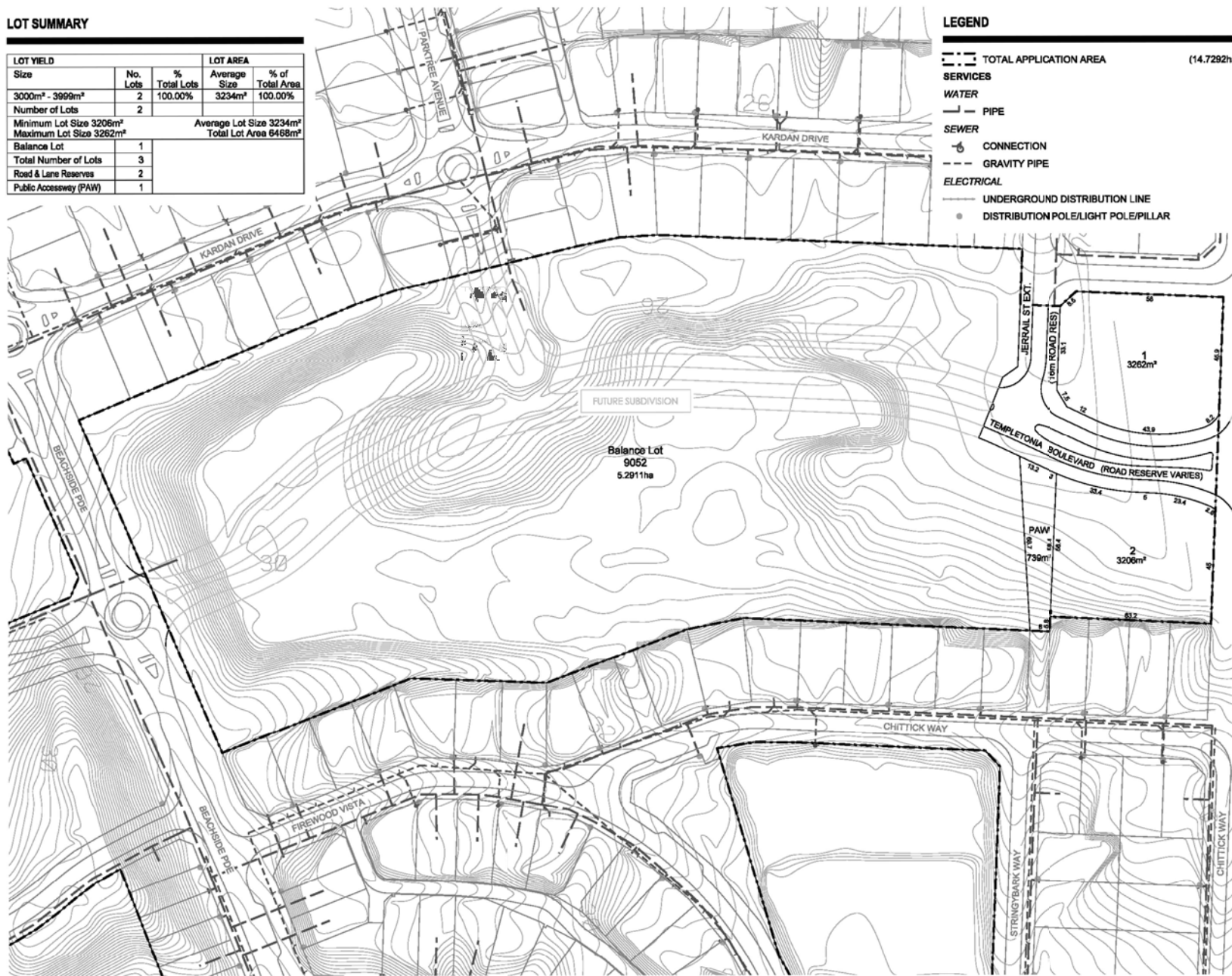
Datum/Projection:  
GDA 1994 MGA Zone 50  
22PER2246-JP Date: 3/03/2023





**LOT SUMMARY**

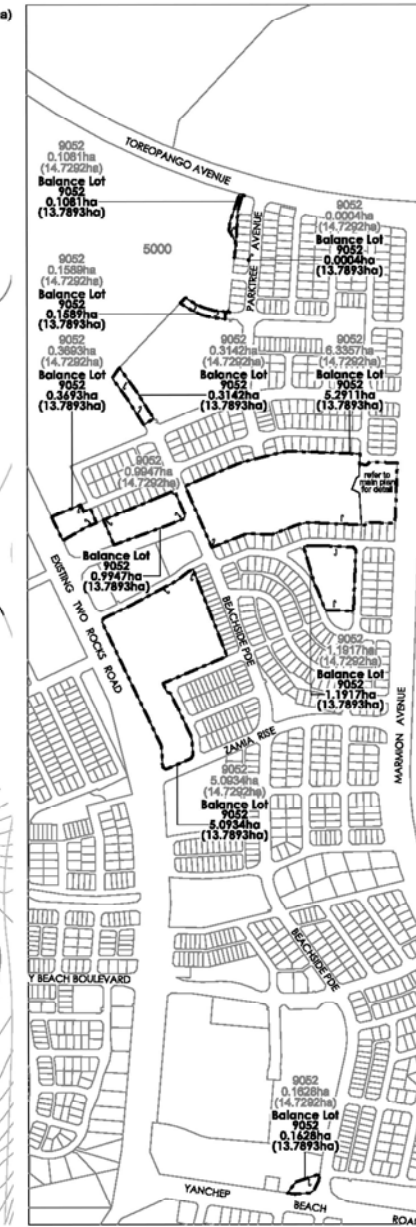
| LOT YIELD                               |          | LOT AREA     |                                     |                 |
|---|----------|--------------|-------------------------------------|-----------------|
| Size                                    | No. Lots | % Total Lots | Average Size                        | % of Total Area |
| 3000m <sup>2</sup> - 3999m <sup>2</sup> | 2        | 100.00%      | 3234m <sup>2</sup>                  | 100.00%         |
| Number of Lots                          | 2        |              |                                     |                 |
| Minimum Lot Size 3206m <sup>2</sup>     |          |              | Average Lot Size 3234m <sup>2</sup> |                 |
| Maximum Lot Size 3262m <sup>2</sup>     |          |              | Total Lot Area 6468m <sup>2</sup>   |                 |
| Balance Lot                             | 1        |              |                                     |                 |
| Total Number of Lots                    | 3        |              |                                     |                 |
| Road & Lane Reserves                    | 2        |              |                                     |                 |
| Public Accessway (PAW)                  | 1        |              |                                     |                 |



**LEGEND**

- TOTAL APPLICATION AREA (14.7292ha)
- SERVICES**
- WATER**
- PIPE
- SEWER**
- ⊕ CONNECTION
- GRAVITY PIPE
- ELECTRICAL**
- UNDERGROUND DISTRIBUTION LINE
- DISTRIBUTION POLE/LIGHT POLE/PILLAR

**OVERALL SUBDIVISION**



**Plan of Subdivision - Freehold**  
 LOT 9052 BEACHSIDE PARADE, YANCHEP

A Capricorn Village Joint Venture Project

plan: 14/024/182A    date: 28/02/2023    designed: ME  
 scale: 1:1500@A3 | 1:750@A1    grid: PCG 94    checked: ME  
 0 15 30m    asfalt:    drawn: BR

**DRAFT**

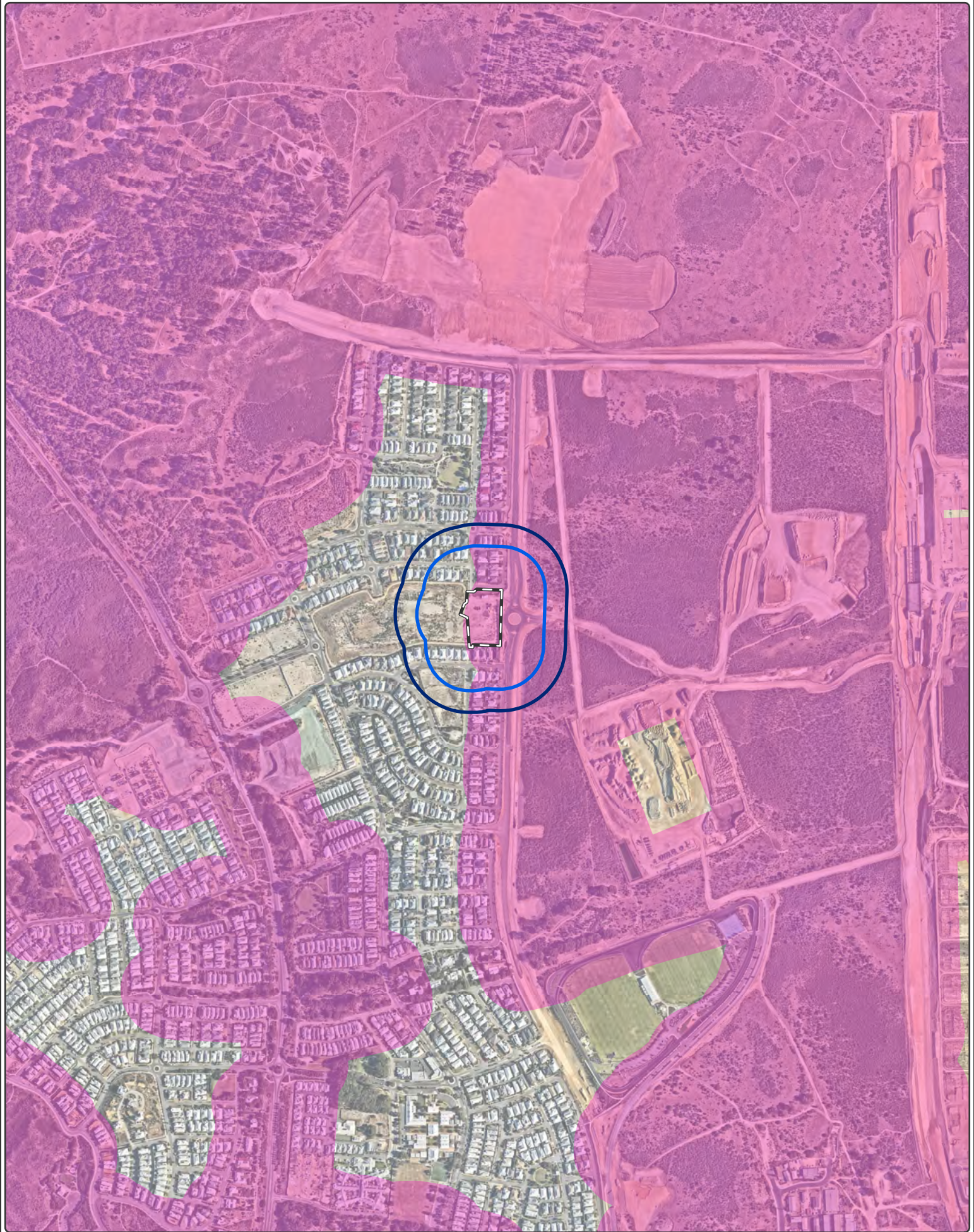
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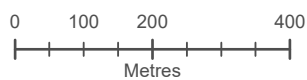
Figure 2: Site Plan





**Figure 3: Bushfire Prone Areas**

-  Subject site
-  100m site assessment
-  150m site assessment
-  Bushfire Prone Mapping (DFES 2021)



Datum/Projection:  
GDA 1994 MGA Zone 50  
22PER2246-JP Date: 3/03/2023





## 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 Fire Danger Index (FDI) 80 is adopted for Western Australia, as outlined in Australian Standard AS 3959: 2018 *Construction of Buildings in Bushfire Prone Areas* (SA 2018) and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

#### 2.1.2 Vegetation classification and slope under vegetation

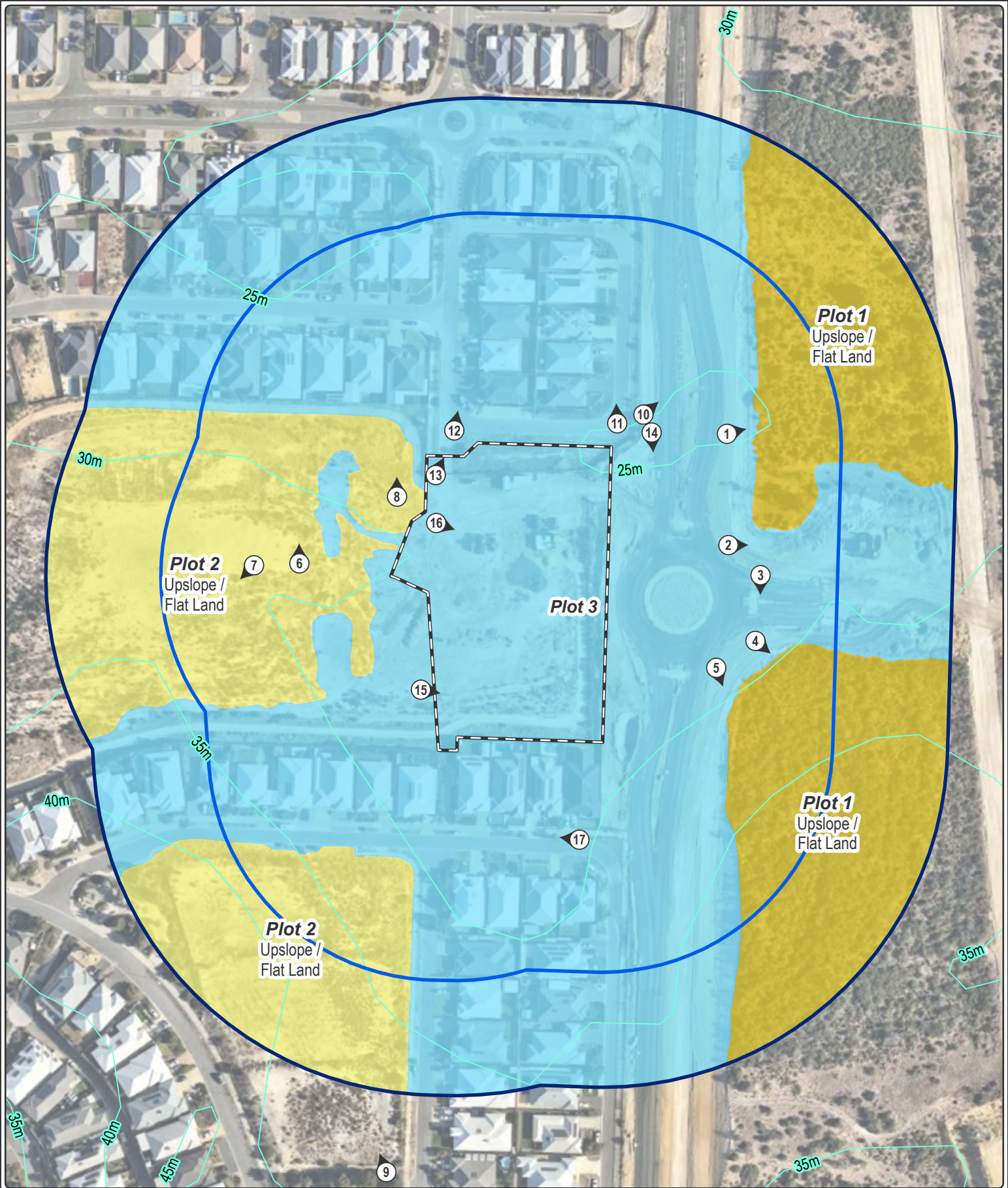
Vegetation and effective slope (i.e. slope under vegetation) within the subject site and surrounding 150 m (the assessment area) were assessed in accordance with the Guidelines and AS 3959: 2018 with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016). Site assessment was undertaken on 23 February 2023.

The classified vegetation and effective slope for the subject site from each of the identified vegetation plots are identified below in Table 1 and Figure 4.






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




| Plot | Vegetation Classification                | Effective Slope                        |
|------|--|--|
| 1    | Class D Scrub                            | All upslopes and flat land (0 degrees) |
| 2    | Class C Shrubland                        | All upslopes and flat land (0 degrees) |
| 3    | Excluded AS 3959: 2018 2.2.3.2 (e) & (f) | -                                      |

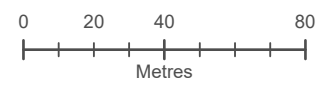
Photographs relating to each area and vegetation type are included in Appendix B.



**Figure 4: Vegetation Classification**

-  Subject site
-  100m site assessment
-  150m site assessment
-  Contour (5m)
-  Photo location

- Vegetation classification**
-  Class C Shrubland
  -  Class D Scrub
  -  Excluded as per clause 2.2.3.2 (e) and (f)



Datum/Projection:  
GDA 1994 MGA Zone 50  
22PER2246-JP Date: 3/03/2023





## 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 subject site and the classified vegetation.

Based on the identified BAL, construction requirements for proposed buildings can then be assigned (where applicable). 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.

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

| Plot | Vegetation Classification                | Effective Slope                        | Separation distances required              |        |        |        |          |
|------|--|--|--|--------|--------|--------|----------|
|      |  |  | BAL-FZ                                     | BAL-40 | BAL-29 | BAL-19 | BAL-12.5 |
| 1    | Class D Scrub                            | All upslopes and flat land (0 degrees) | <10  | 10-<13 | 13-<19 | 19-<27 | 27-<100  |
| 2    | Class C Shrubland                        | All upslopes and flat land (0 degrees) | <7   | 7-<9   | 9-<13  | 13-<19 | 19-<100  |
| 3    | Excluded AS 3959: 2018 2.2.3.2 (e) & (f) | -                                      | No separation distances required – BAL-LOW |        |        |        |          |

Based on the site assessment inputs and BAL assessment, all proposed lots within the subject site can achieve a BAL rating of ≤BAL-19.

In relation to the BAL ratings for future buildings, the Guidelines state:

*The bushfire construction requirements of the Building Code of Australia only apply to certain types of residential buildings (being Class 1, 2 or 3 buildings and/or Class 10a buildings or decks associated with a Class 1, 2 or 3 building) in designated bushfire prone areas. As such, AS 3959 does not apply to all buildings. Only vulnerable or high-risk land uses that fall within the relevant classes of buildings as set out in the Building Code of Australia will be required to comply with the bushfire construction requirements of the Building Code of Australia. As such, the planning process focuses on the location and siting of vulnerable and high-risk land uses rather than the application of bushfire construction requirements.*

As future buildings within the proposed lots will be for commercial purposes, none of them are expected to be a Class 1, 2 or 3 building and/or Class 10a building or deck associated with a Class 1, 2 or 3 building. Therefore, ELA expect construction to AS 3959: 2018 is unlikely to be required for these future buildings, however, this will be assessed at the time of future development applications over the proposed two lots and the intended land use is known.

**Table 3: BAL rating for subject site lots**

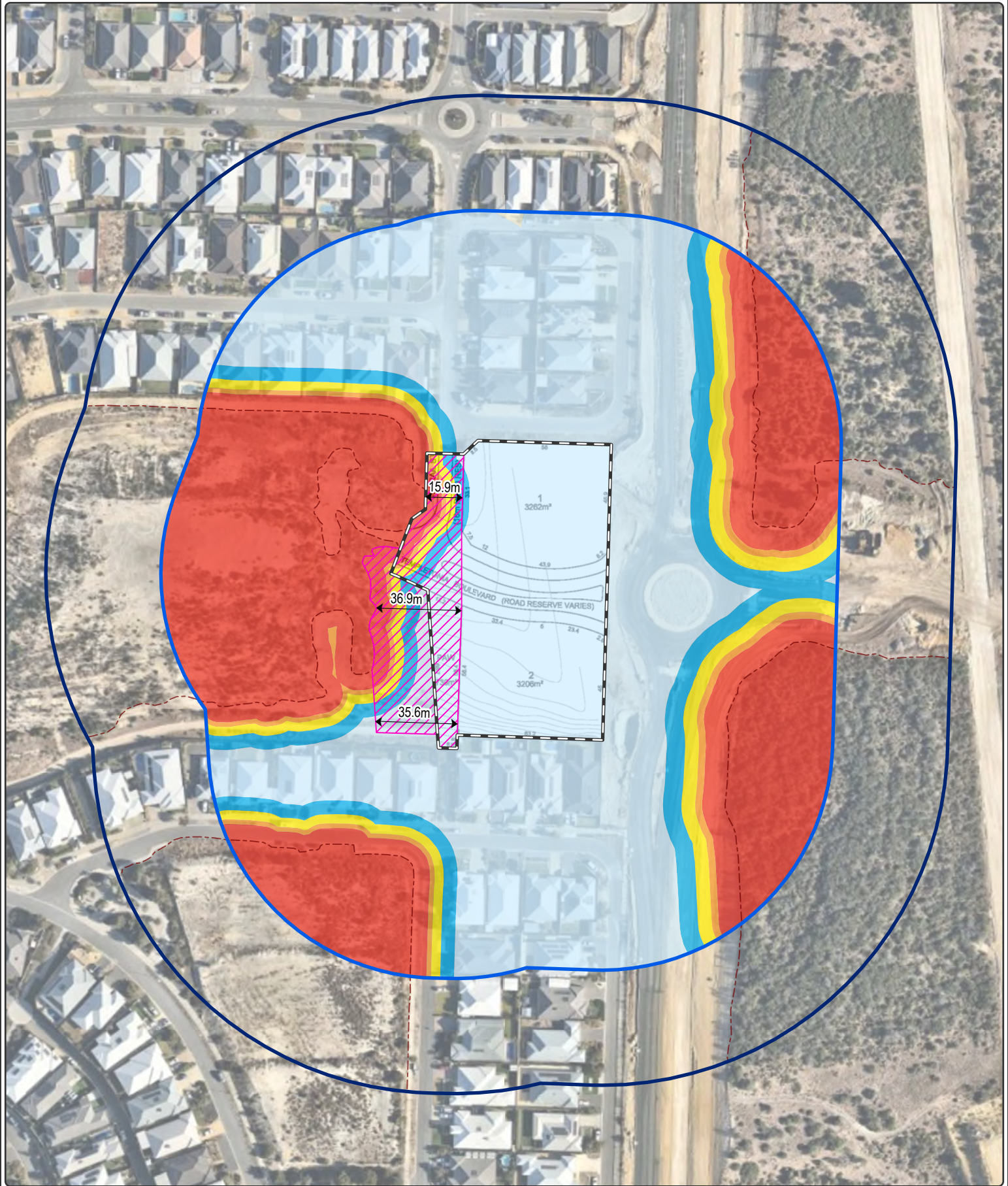
| Proposed lot | Plot most affecting BAL rating | Separation Distance (m) | BAL Rating |
|--------------|--------------------------------|-------------------------|------------|
| Lot 1        | Plot 2 – Shrubland             | 15.9 m                  | BAL-19     |
| Lot 2        | Plot 2 – Shrubland             | 36.9 m                  | BAL-12.5   |

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

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.

Vegetation to the west of the subject site is located within the bounds of Capricorn Village Joint Venture’s landholdings (within Lot 9052) and is likely to be cleared as part of adjacent development that will reduce the current mapped bushfire risk. Until such time that this area is developed, an APZ shall be installed and maintained to standards in the Guidelines (Appendix A) to ensure separation distances from current vegetation to the west of the subject site are maintained. The location of the APZ is depicted in Figure 5 and Figure 6.





**Figure 5: Bushfire Attack Level (BAL) Contours - Post Development**

|                             |                                    |  |
|-----------------------------|------------------------------------|--|
| Subject site                | <b>Bushfire Attack Level (BAL)</b> | <br>Datum/Projection:<br>GDA 1994 MGA Zone 50<br>22PER2246-JP Date: 27/03/2023 |
| 100m site assessment        | BAL - FZ                           |  |
| 150m site assessment        | BAL - 40                           |  |
| Asset Protection Zone (APZ) | BAL - 29                           |  |
| Bushfire hazard interface   | BAL - 19                           |  |
|                             | BAL - 12.5                         |  |
|                             | BAL - LOW                          |  |



### 3. Assessment against the Bushfire Protection Criteria

#### 3.1 Compliance

The proposed development is required to comply with policy measures 6.2 and 6.4 of SPP 3.7 and the Guidelines. Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire risk management measures, as outlined, have been devised for the proposed subdivision in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria.

Table 4 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed. These management measures are depicted in Figure 6 where relevant.

**Table 4: Summary of solutions used to achieve bushfire protection criteria**

| Bushfire Protection Criteria                       | AS                                  | PS                       | N/A                      | Comment  |
|--|-------------------------------------|--------------------------|--------------------------|--|
| <b>Element 1: Location</b>                         |                                     |                          |                          |  |
| <b>A1.1 Development location</b>                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <p>Future assets within the subject site can be located in areas subject to BAL ratings of ≤BAL-29 (Figure 5; Figure 6).</p> <p><i>The subject site is considered to be compliant with A1.1.</i></p>   |
| <b>Element 2: Siting and design of development</b> |                                     |                          |                          |  |
| <b>A2.1 Asset Protection Zone (APZ)</b>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <p>The subject site has been assessed to be within an area of existing low threat vegetation and non-vegetated areas that are expected to continue to be maintained to the standard of a low threat state as per clause 2.2.3.2 (e &amp; f) of AS 3959: 2018 in perpetuity. An APZ shall be installed to maintain separation distances from current vegetation to the west (located within lot 9052) until such time the APZ area is developed and then maintained in a low threat state as per the AS 3959: 2018. (Figure 5; Figure 6).</p> <p><i>The proposed development is considered to be compliant with A2.1.</i></p>   |
| <b>Element 3: Vehicular access</b>                 |                                     |                          |                          |  |
| <b>A3.1 Public Roads</b>                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <p>The subject site will be accessed via Templetonia Boulevard which is yet to be constructed and will be a public road that will comply with requirements outlined in the Guidelines (Appendix C). Templetonia Boulevard will be accessed via an extension of Jerrail Street to the south which is an existing public road.</p> <p>The Guidelines do not prescribe values for the trafficable (carriageway/pavement) width of public roads as they should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area. ELA are not traffic/civil engineers so cannot comment on whether existing roads surrounding the proposed subdivision comply with Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad</p> |

| Bushfire Protection Criteria               | AS                                  | PS                       | N/A                                 | Comment  |
|--|-------------------------------------|--------------------------|-------------------------------------|--|
|  |                                     |                          |                                     | <p>standards and/or any applicable standards for the local government area. ELAs assessment, however, has identified that the roads surrounding the development are bitumen with estimated width of the sealed surface achieving a minimum width of 6 m and therefore consider the existing road network would provide suitable access and egress for the community and emergency services personnel in the event of a bushfire.</p> <p>Vehicular access technical requirements in accordance with the Guidelines are detailed in Appendix C.</p> <p>Templetonia Boulevard will be created to service Lots 1 and 2. At a later stage Templetonia Boulevard will be extended to the west joining Beachside Parade. Marmion Avenue, when commissioned, will connect to the eastern end of Templetonia Boulevard.</p> <p><i>The proposed development is considered to be compliant with A3.1.</i></p>   |
| <p><b>A3.2a Multiple access routes</b></p> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <p>Main access to/from this subdivision will be via the Jerrail Street Extension and Templetonia Boulevard. From this access point, vehicular access and egress to/from Beachside Parade to the west is available via the established public road network (Figure 6).</p> <p>Once future road connections of Templetonia Boulevard to Marmion Avenue to the east (currently under construction) are established through subsequent stages of development there will be multiple access/egress routes provided to the subject site (Figure 6).</p> <p>Until Marmion Avenue and Templetonia Boulevard have been connected, a safe relocation space for occupants of the subject site is located at Parktree Park. Parktree Park is not located within a Bushfire prone area and is approximately 235 m from subject site. Evacuation route is shown within Figure 6.</p> <p><i>With utilisation of the safe relocation space and current access routes (Figure 6), the proposed development area is considered to be compliant with A3.2a.</i></p> |
| <p><b>A3.2b Emergency Access way</b></p>   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p><i>A3.2b is not applicable to this proposed development.</i></p>  |
| <p><b>A3.3 Through-roads</b></p>           | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <p>Templetonia Boulevard will be a temporary cul-de-sac until Marmion Avenue is commissioned and will be no greater than approximately 70 m in length. Marmion Avenue is expected to provide access to the greater road network in east and south directions. Marmion Avenue is currently under construction, however, confirmation that it will be completed prior to works commencing with Lots 1 and 2 was not able to be obtained at the time this BMP was commissioned.</p> <p>At later stages of development Templetonia Boulevard will be extended to the west, joining Beachside Parade.</p> <p>At the head of the temporary cul-de-sac a turn-around area will be constructed with a minimum diameter of</p>  |

| Bushfire Protection Criteria                             | AS                                  | PS                       | N/A                                 | Comment  |
|--|-------------------------------------|--------------------------|-------------------------------------|--|
|  |                                     |                          |                                     | 18 m, as per the Guidelines. This turn around area will be decommissioned once current Marmion Ave construction works are complete with connection to the eastern end of Templetonia Boulevard established and access/egress provided to the greater road network in east and south directions.<br><br><i>The proposed development is considered to be compliant with A3.3.</i>  |
| <b>A3.4a Perimeter roads</b>                             | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Acceptable Solution A3.4a applies to subdivisions with 10 or more proposed lots. Two commercial lots and one PAW lot are being created at this stage.<br><br><i>A3.4a is not applicable to this proposed development.</i>  |
| <b>A3.4b Fire service access route</b>                   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Lot 1 & 2 do not adjoin classified vegetation.<br><br><i>A3.4b is not applicable to this proposed development.</i>   |
| <b>A3.5 Battle-axe access legs</b>                       | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | There are no battle axe access legs proposed within the subject site.<br><br><i>A3.5 is not applicable to this proposed development.</i>   |
| <b>A3.6 Private driveways</b>                            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | No new private roads/driveways are proposed at this stage of development.<br><br><i>A3.6 is not applicable to this proposed development.</i>   |
| <b>A4.2 Provision of water for firefighting purposes</b> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Existing reticulated water is present within the area and the subject site is expected to be connected to this water supply in accordance with the Water Corporation Design Standards DS 63 Water Reticulation Standard. The nearest existing hydrant is located on Jerrail Street as depicted in (Figure 6). ELA assumes the surrounding network of existing hydrants meet Water Corporation design Standard DS 63 and LGA requirements specifications given they are established and within the Perth metropolitan area.<br><br><i>The proposed development is considered to be compliant with A4.2.</i> |
| <b>Element 5: Vulnerable tourism land uses</b>           | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | This development application is not considered vulnerable tourism land use. Element 5 is not applicable to this proposed development.  |

NOTE – AS- ACCEPTABLE SOLUTION, PS- PERFORMANCE SOLUTION, N/A- NOT APPLICABLE

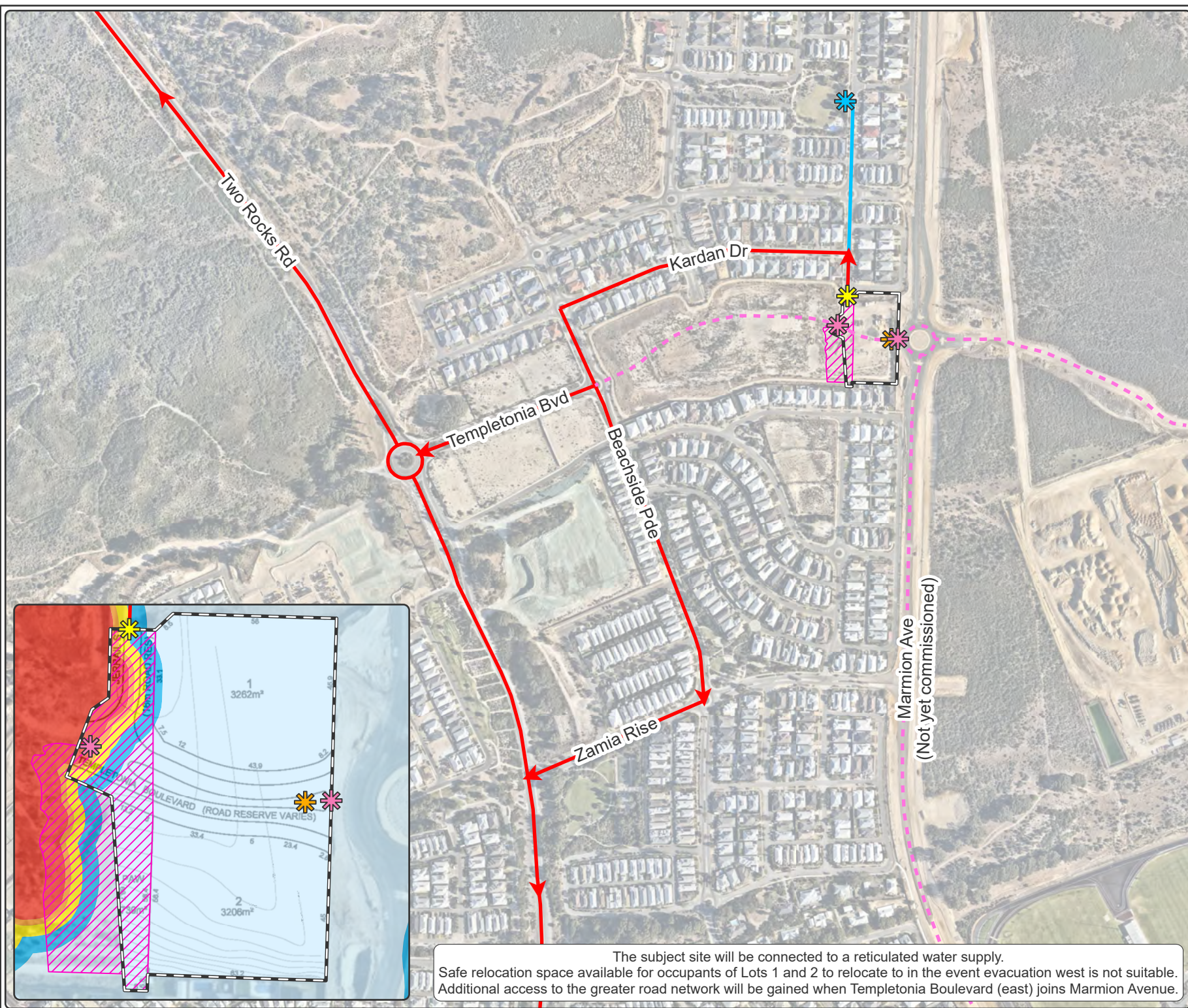


## 3.2 Additional Bushfire Requirements

ELA has been advised that Marmion Avenue to the east of the subject site is expected to be commissioned shortly after the publication of this BMP. ELA believes Marmion Avenue will be connected to the greater road network, providing an alternate access/egress route to the south and east in the future.

Until Marmion Avenue is commissioned a safe place for occupants of Templetonia Boulevard is located at Parktree Park. This park is located outside of a bushfire prone area and is located approximately 235 m from the subject site.





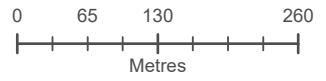
**Legend**

- Subject site
- 100m site assessment
- 150m site assessment
- Lot boundary
- Asset Protection Zone (APZ)
- Hydrant
- Access point
- Safe relocation space
- Temporary Cul-De-Sac
- Future access/egress point
- Access / egress route
- Future access/egress routes
- Route to safe relocation space

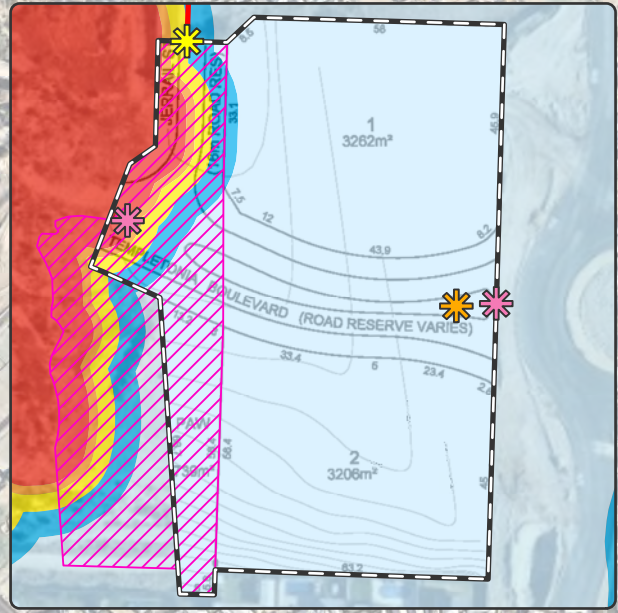
**Bushfire Attack Level (BAL)**

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

**Figure 6: Spatial representation of the bushfire management strategies**



Datum/Projection:  
GDA 1994 MGA Zone 50  
22PER2246-JP Date: 3/17/2023



The subject site will be connected to a reticulated water supply.  
Safe relocation space available for occupants of Lots 1 and 2 to relocate to in the event evacuation west is not suitable.  
Additional access to the greater road network will be gained when Templetonia Boulevard (east) joins Marmion Avenue.





## 4. Implementation and enforcement

Implementation of the BMP applies to the developer, future owners within the subject site and the local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as a works program, is provided in Table 5. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

**Table 5: Proposed work program**

| No                              | Bushfire management measure   | Responsibility |
|---------------------------------|---|----------------|
| <b>Prior to issue of titles</b> |   |                |
| 1                               | Place Section 165 Notification on Title advising the lots 1 & 2 are located within a Bushfire Prone Area and subject to the BMP.  | Developer      |
| 2                               | Any future landscaped areas (including with the PAW and road reserve areas) are to be designed and installed to comply with a low threat standard as per Clause 2.2.3.2 (f) of AS 3959: 2018. | Developer      |
| 3                               | Establish and maintain the temporary cul-de-sac in accordance with the Guidelines until future road connections remove this requirement (Figure 6).   | Developer      |
| 4                               | Establish the public road network within the subject site in accordance with the Guidelines and as set out in this BMP (includes temporary cul-de-sacs), depicted in Figure 6.                | Developer      |
| 5                               | Connect lots to existing neighbouring reticulated water supply to Water Corporation standards.  | Developer      |
| 6                               | Install APZs as depicted in Figure 5, Figure 6 and as described in Appendix A.  | Developer      |
| <b>Prior to occupancy</b>       |   |                |
| 7                               | Construct all future structures to relevant construction standard in the NCC and if considered relevant, AS 3959: 2018.   | Builder        |
| 8                               | Continue to maintain temporary cul-de-sac until such time that Templetonia Boulevard and Marmion Avenue are connected and Marmion Ave is commissioned.  | Developer      |
| 9                               | Maintain all landscaped areas within Lots 1 and 2 to a low threat standard as per Clause 2.2.3.2 (f) of AS 3959: 2018.  | Developer      |
| 10                              | Maintain APZ as depicted in Figure 5, Figure 6 and as described in Appendix A.  | Developer      |
| <b>Ongoing management</b>       |   |                |
| 11                              | Continue to maintain temporary cul-de-sac until such time that Templetonia Boulevard and Marmion Avenue are connected and Marmion Ave is commissioned.  | Developer      |
| 12                              | Maintain all landscaped areas within Lots 1 and 2 to a low threat standard as per Clause 2.2.3.2 (f) of AS 3959: 2018.  | Landowner      |



| No | Bushfire management measure   | Responsibility   |
|----|---|------------------|
| 13 | Maintain all landscaped areas within the PAW and road reserve areas to a low threat standard as per Clause 2.2.3.2 (f) of AS 3959: 2018.        | City of Wanneroo |
| 14 | Comply with current City of Wanneroo Fire Mitigation Notice.  | Landowner        |
| 15 | Maintain APZ as depicted in Figure 5, Figure 6 and as described in Appendix A until such time that future development removes this requirement. | Developer        |

## 5. Conclusion

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed subdivision. As such, the proposed subdivision is consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.

## 6. References

City of Wanneroo, [Online], *Firebreak Notice*, available from: [Firebreak Notice 2022 - City of Wanneroo](#)

Department of Fire and Emergency Services (DFES), 2021, *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.

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

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

Western Australian Planning Commission (WAPC), 2021, *Guidelines for Planning in Bushfire Prone Areas Version 1.4 (including appendices)*, WAPC, Perth.

## Appendix A – Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.4* (WAPC 2021).

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 29kW/m<sup>2</sup> (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:
  - Should be constructed from non-combustible materials or bushfire-resisting timber referenced in Appendix F of AS 3959.
- Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness):
  - Should be managed and removed on a regular basis to maintain a low threat state;
  - Should be maintained at <2 tonnes per hectare (on average); and
  - Mulches should be non-combustible (e.g. stone, gravel or crushed mineral earth) or wood mulch >6 millimetres in thickness.
- Trees (>6 metres in height):
  - Trunks at maturity should be a minimum distance of six metres from all elevations of the building;
  - Branches at maturity should not touch or overhand a building or powerline;
  - Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation;
  - Canopy cover within the APZ should be <15 per cent of the total APZ area; and
  - Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.



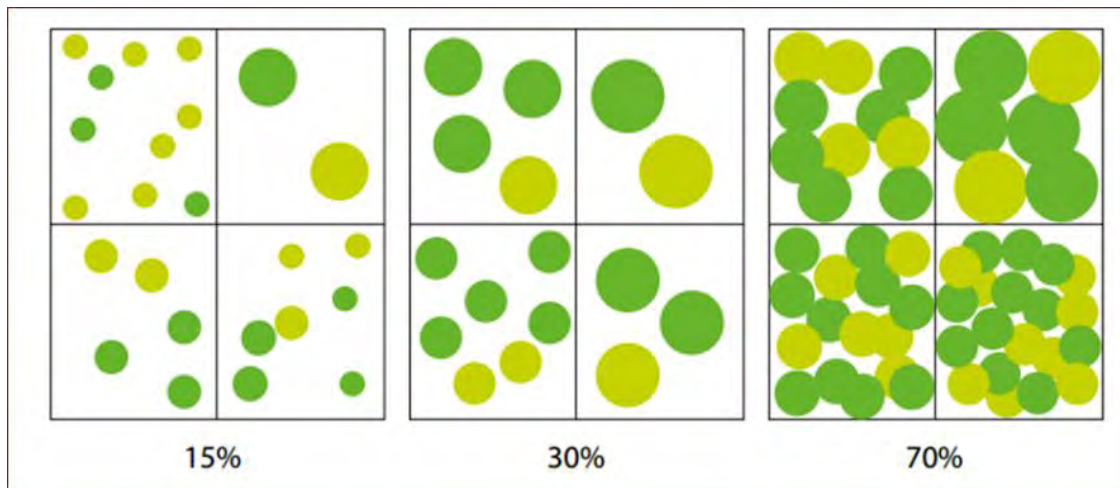


Figure 7: Illustrated tree canopy cover projection (WAPC 2021)

- Shrub and scrub 0.5 metres to six metres in height (shrub or scrub >6 metres in height are to be treated as trees):
  - Should not be located under trees or within three metres of buildings;
  - Should not be planted in clumps >5 square metres in area; and
  - Clumps should be separated from each other and any exposed window or door by at least 10 metres.
- Ground covers <0.5 metres in height (ground covers >0.5 metres in height are to be treated as shrubs):
  - Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above; and
  - Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
- Grass:
  - Grass should be maintained at a height of 100 millimetres or less, at all times; and
  - Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
- Defendable space:
  - Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
- LP Gas Cylinders:
  - Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building;
  - The pressure relief valve should point away from the house;
  - No flammable material within six metres from the front of the valve; and
  - Must site on a firm, level and non-combustible base and be secured to a solid structure.


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.

Plant flammability, landscaping design and maintenance should also be considered for trees, shrub, scrub and ground covers with the APZ. Please refer to explanatory notes 'E2 Managing an Asset Protection Zone (APZ) to a low threat state,' 'E2 Landscaping and design of an asset protection zone,' and 'E2 Plant flammability' in the Guidelines for further information relating to APZ standards.

## Appendix B - Classified Vegetation Photos

| Plot 1   | Classification or Exclusion Clause | Class D Scrub  |
|--|------------------------------------|--|
| <p><b>Photo Point 1</b></p> <p>Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.</p> <p>Slope under vegetation was assessed as upslope/ flat land.</p>              |                                    |    |
| <p><b>Photo Point 2</b></p> <p>Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.</p> <p>Slope under vegetation was assessed as upslope/ flat land.</p>              |                                    |   |
| <p><b>Photo Point 3 (Background)</b></p> <p>Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.</p> <p>Slope under vegetation was assessed as upslope/ flat land.</p> |                                    |  |

| Plot 1 | Classification or Exclusion Clause | Class D Scrub |
|--------|------------------------------------|---------------|
|--------|------------------------------------|---------------|

**Photo Point 4**

Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.

Slope under vegetation was assessed as upslope/ flat land.

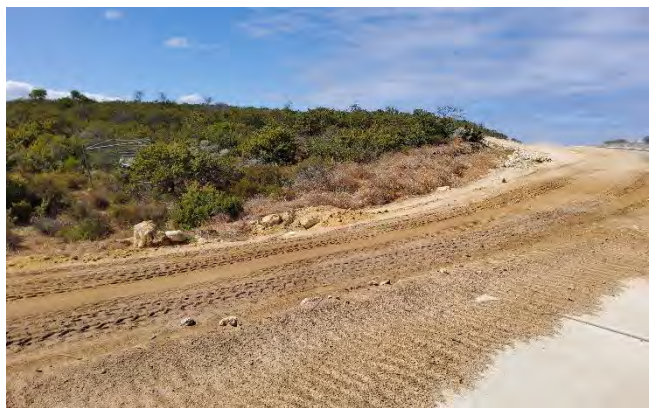


| Plot 1 | Classification or Exclusion Clause | Class D Scrub |
|--------|------------------------------------|---------------|
|--------|------------------------------------|---------------|

**Photo Point 5**

Vegetation identified within this plot is comprised of shrubs between 2 m and 6 m in height.

Slope under vegetation was assessed as upslope/ flat land.



| Plot 2 | Classification or Exclusion Clause | Class C Shrubland |
|--------|------------------------------------|-------------------|
|--------|------------------------------------|-------------------|

**Photo Point 6**

Vegetation identified within this plot are no taller than 2m in height.

Slope under vegetation was assessed as upslope/ flat land.





**Plot 2      Classification or Exclusion Clause      Class C Shrubland**

**Photo Point 7**

Vegetation identified within this plot are no taller than 2m in height.  
Slope under vegetation was assessed as upslope/ flat land.



**Plot 2      Classification or Exclusion Clause      Class C Shrubland**

**Photo Point 8**

Vegetation identified within this plot are no taller than 2m in height.  
Slope under vegetation was assessed as upslope/ flat land.



**Plot 2      Classification or Exclusion Clause      Class C Shrubland**

**Photo Point 9**

Vegetation identified within this plot are no taller than 2m in height.  
Slope under vegetation was assessed as upslope/ flat land.



**Plot 3      Classification or Exclusion Clause      Excluded AS 3959-2018 2.2.3.2 (e, f)**

**Photo Point 10**

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation and roads.



**Plot 3      Classification or Exclusion Clause      Excluded AS 3959-2018 2.2.3.2 (e, f)**

**Photo Point 11**

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.



**Plot 3      Classification or Exclusion Clause      Excluded AS 3959-2018 2.2.3.2 (e, f)**

**Photo Point 12**

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.





| Plot | 3 | Classification or Exclusion Clause | Excluded AS 3959-2018 2.2.3.2 (e, f) |
|------|---|------------------------------------|--------------------------------------|
|------|---|------------------------------------|--------------------------------------|

**Photo Point 13**

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.



| Plot | 3 | Classification or Exclusion Clause | Excluded AS 3959-2018 2.2.3.2 (e, f) |
|------|---|------------------------------------|--------------------------------------|
|------|---|------------------------------------|--------------------------------------|

**Photo Point 14**

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.



| Plot | 3 | Classification or Exclusion Clause | Excluded AS 3959-2018 2.2.3.2 (e, f) |
|------|---|------------------------------------|--------------------------------------|
|------|---|------------------------------------|--------------------------------------|

**Photo Point 15**

This plot has been excluded under Clause 2.2.3.2 (e) & of AS 3959: 2018. This area is devoid of classifiable vegetation within the subject site and is comprised of previously cleared areas ready for future development.



**Plot 3      Classification or Exclusion Clause      Excluded AS 3959-2018 2.2.3.2 (e, f)**

**Photo Point 16**

This plot has been excluded under Clause 2.2.3.2 (e) & of AS 3959: 2018. This area is devoid of classifiable vegetation within the subject site and is comprised of previously cleared areas ready for future development.



**Plot 3      Classification or Exclusion Clause      Excluded AS 3959: 2018 2.2.3.2 (e, f)**

**Photo Point 17**

This plot has been excluded under Clause 2.2.3.2 (e) and (f) of AS 3959: 2018. This is an area of low threat, maintained vegetation, roads and buildings.





## Appendix C - Vehicular access technical requirements (WAPC 2021)

| Technical requirements                   | Public road                                     | Emergency access way <sup>1</sup> | Fire service access route <sup>1</sup> | Battle-axe and private driveways <sup>2</sup> |
|--|---|-----------------------------------|--|---|
| Minimum trafficable surface (m)          | In accordance with A3.1                         | 6                                 | 6                                      | 4   |
| Minimum horizontal clearance (m)         | N/A   | 6                                 | 6                                      | 6   |
| Minimum vertical clearance (m)           | 4.5   |                                   |  |   |
| Minimum weight capacity (t)              | 15  |                                   |  |   |
| Maximum unsealed road <sup>3</sup> grade | As outlined in the IPWEA Subdivision Guidelines | 1:10 (10%)                        |  |   |
| Maximum grade sealed road <sup>3</sup>   | As outlined in the IPWEA Subdivision Guidelines | 1:7 (14.3%)                       |  |   |
| Maximum average grade sealed road        | As outlined in the IPWEA Subdivision Guidelines | 1:10 (10%)                        |  |   |
| Minimum inner radius of road curves (m)  | As outlined in the IPWEA Subdivision Guidelines | 8.5                               |  |   |

<sup>1</sup> To have crossfalls between 3 and 6 %.

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

<sup>3</sup> Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle

