



Bushfire Management Plan:  
Subdivision: Baldivis South East

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**Parcel Property**

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## DOCUMENT TRACKING

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## ACKNOWLEDGEMENTS

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Template 2.8.1

Version control	
Version	Purpose
v1	Final – Submission to CoR
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# 1. Introduction

## 1.1 Proposal details

Eco Logical Australia (ELA) was commissioned by Parcel Property to prepare a Bushfire Management Plan (BMP) to support a subdivision application for Lot 1 Serpentine Road and 939 (Lot 1006) & 993 (Lot 1007) Baldivis Road, Baldivis (hereafter referred to as the subject site, Figure 1). The proposed subdivision will result in an intensification of land use and involves the establishment of 436 residential lots and two Public Open Space (POS) areas with associated public road network.

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 currently zoned as 'Development' under the City of Rockingham Local Planning Scheme 2 (LPS2). The subject site is located between the Kwinana Freeway (east) and the Baldivis Tramway Reserve (west) (see Figure 2).

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. Any clearing (including re-clearing) of native vegetation onsite may require discussions with the local government, the Department of Water and Environmental Regulation and potentially the Department of Biodiversity, Conservation and Attractions to determine approvals requirements, during/post-approval of subdivision.

### 1.3.1 Revegetation

Revegetation within the subject site is proposed within drainage basins in both POS areas. This revegetation has been considered in the bushfire assessment and management responses in Sections 2 and 3 of this BMP.

ELA initially consulted with the City of Rockingham regarding plans for the Baldivis Tramway Reserve and included the outcomes of the discussions in this BMP. This involved classifying the final state of all vegetation within the reserve as Class B Woodland. Since initial consultation, the City changed its mind and thus, this BMP has classified all future vegetation within the Baldivis Tramway Reserve as Class A Forest. The City has however, allowed a 4 m wide perimeter firebreak within the Baldivis Tramway Reserve to be included in this BMP.

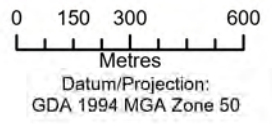
Drainage swales within the road reserve abutting the eastern boundary of the Baldivis Tramway will also be revegetated. These areas are not considered to represent classified vegetation however, in response to comments provided by the City of Rockingham, have been treated as Class G Grassland in Section 2 of this BMP. Refer to Appendix A for representative photos.

All other landscaped areas within the subject site (retained/planted trees, turf areas etc.) will represent low threat vegetation. Refer to the project's Concept Landscape Masterplan (LD Total 2021) for further details.

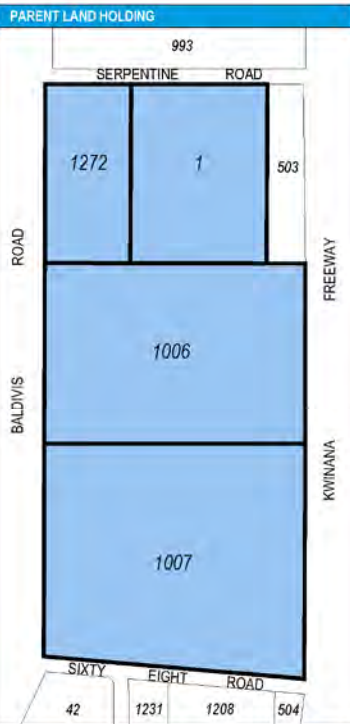
**Figure 1: Site Overview**



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



# Figure 2: Site Plan



**LEGEND**

- Lot 1 - 4.3362ha
- Lot 1006 - 8.3878ha
- Lot 1007 - 10.3263ha
- Lot 1272 - 2.7226ha
- Subject Area - 25.8089ha
- Balance of Lot 1006 - 0.0166ha

**YIELD**

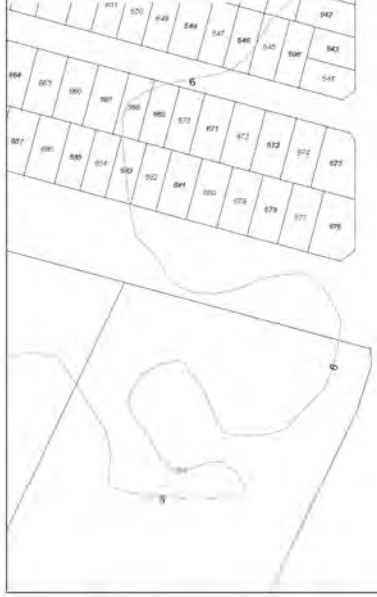
- Residential - 436 lots
- Balance - 1 lot
- Total - 437 lots

All road carriageway detail where depicted on this subdivision plan including road pavements, road treatments, medians or parking, are for illustrative purposes only and are subject to final engineering design and separate approval processes. The detail reflects the preferred urban design intent for the road network's standards.

All dimensions and areas depicted on this plan are subject to pre-sal and final survey and will vary from the figures shown. This plan represents the property of CLE

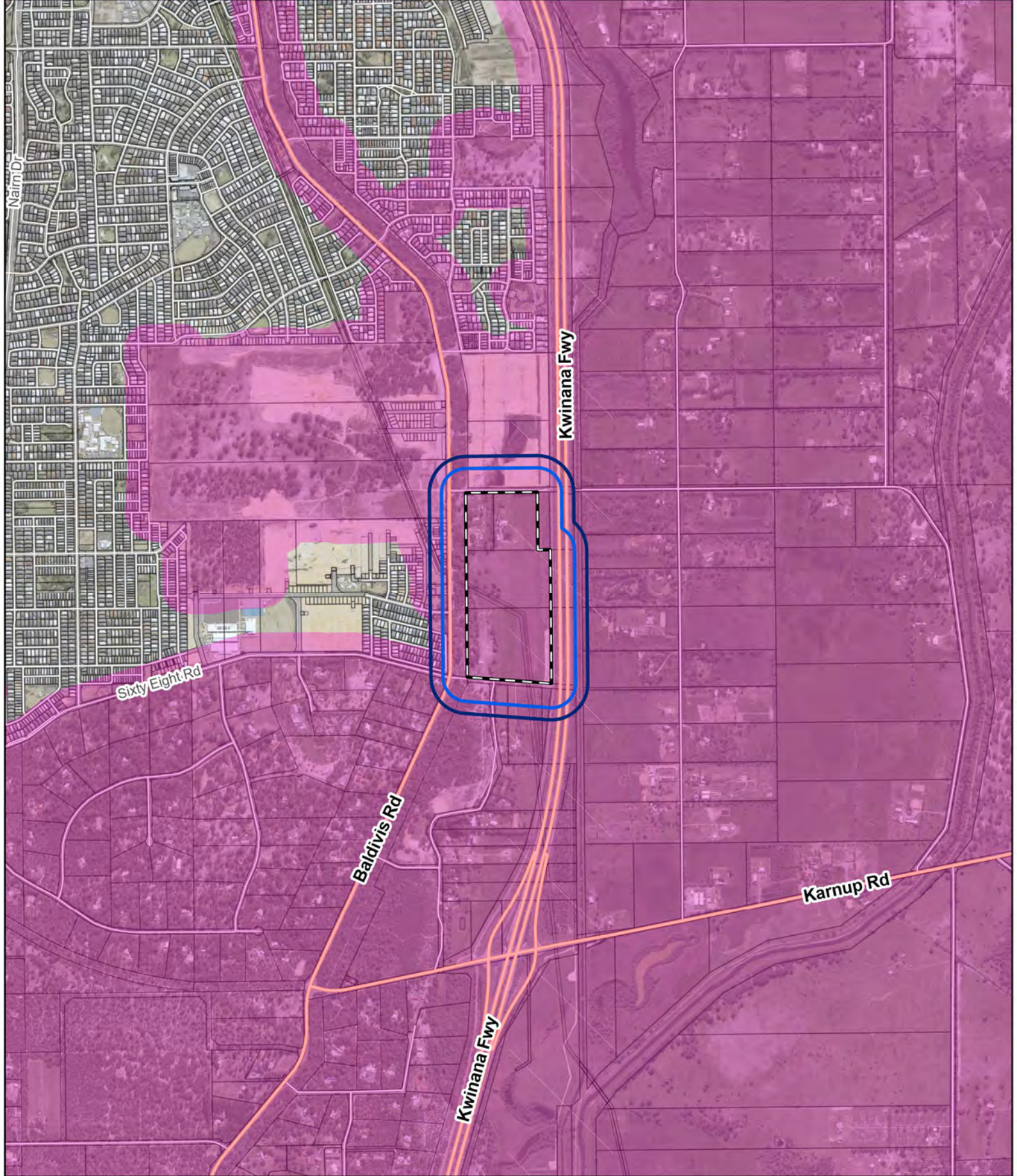
**LOT SUMMARY**

Size	No. Lots
179m <sup>2</sup> - 234m <sup>2</sup>	9
235m <sup>2</sup> - 319m <sup>2</sup>	232
320m <sup>2</sup> - 449m <sup>2</sup>	168
450m <sup>2</sup> - 499m <sup>2</sup>	25
500m <sup>2</sup> - 549m <sup>2</sup>	2
Balance	1
<b>Total Lots</b>	<b>437</b>
Minimum Lot Size	- 212m <sup>2</sup>
Maximum Lot Size	- 516m <sup>2</sup>
Average Lot Size	- 335m <sup>2</sup>
Total Lot Area	- 14.5842ha





**Figure 3: Bushfire Prone Areas**



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

0 150 300 600  
Metres  
Datum/Projection:  
GDA 1994 MGA Zone 50

## 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 5 November 2020.

The classified vegetation for the site from each of the identified vegetation plots are identified below, Table 1, Figure 4 and Figure 5. The post-development vegetation classification has been presented to indicate:

- Revegetation of drainage basins within the POS areas in the subject site (Class G Grassland);
- Future natural regeneration within the Baldivis Tramway Reserve such that all vegetation resembles Class A Forest;
- A 4 m wide firebreak on the eastern boundary of the Baldivis Tramway Reserve;
- Classification of vegetation within the Kwinana Freeway as Class D Scrub (note: this is not ELA’s classification, instead it has been forced by the City of Rockingham);
- Revegetation of drainage swales within the road reserve abutting the eastern boundary of the Baldivis Tramway (Class G Grassland)
- Exclusion of POS areas not containing drainage basins (Excluded – clause 2.2.3.2 [f]); and
- Exclusion of the portions of the subject site to be cleared for residential lots and associated infrastructure (Excluded – clause 2.2.3.2 [e]).

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

Plot	Vegetation Classification- Pre-Development	Vegetation Classification- Post-Development	Effective Slope
1	Class G Grassland	Class G Grassland	All upslopes and flat land (0 degrees)
2	Class G Grassland	Class G Grassland	All upslopes and flat land (0 degrees)
3	Class G Grassland	Residential development: Excluded AS 3959-2018 2.2.3.2 (e) Drainage basins and swales: Class G Grassland	All upslopes and flat land (0 degrees) All upslopes and flat land (0 degrees)
4	Class B Woodland	Class A Forest	All upslopes and flat land (0 degrees)

Plot	Vegetation Classification- Pre-Development	Vegetation Classification- Post-Development	Effective Slope
5	Class A Forest	Class A Forest	All upslopes and flat land (0 degrees)
6	Class A Forest	Class A Forest	All upslopes and flat land (0 degrees)
7	Class D Scrub*	Class D Scrub*	All upslopes and flat land (0 degrees)
8	Class G Grassland	Class G Grassland	All upslopes and flat land (0 degrees)
9	Class G Grassland	Class G Grassland	All upslopes and flat land (0 degrees)
10	Excluded AS 3959-2018 2.2.3.2 (e) & (f)	Excluded AS 3959-2018 2.2.3.2 (e) & (f)	All upslopes and flat land (0 degrees)

\*ELA DOES NOT BELIEVE THIS VEGETATION CLASSIFICATION IS ACCURATE. THIS HAS BEEN FORCED BY THE CITY OF ROCKINGHAM

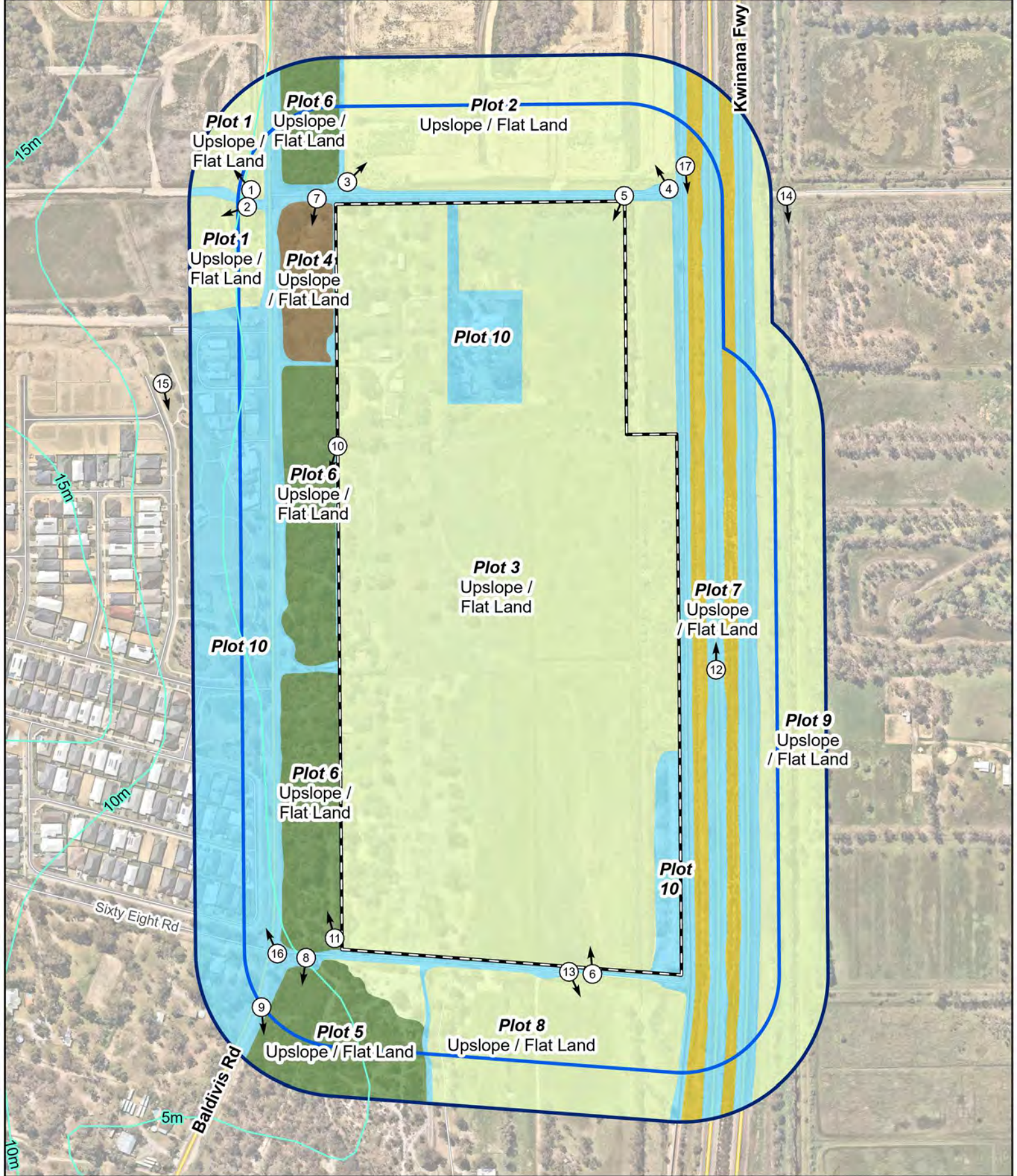
Photographs relating to each area and vegetation type are included in Appendix A.

The post-development vegetation classification of the Baldivis Tramway reserve adjacent to the subject site (Plots 4 and 6) is separated from the site by 4 m wide firebreak. This firebreak is required to be installed to ensure the Bushfire Attack Level (BAL) assessment in this BMP is accurate.

### 2.1.3 Topography and slope under vegetation

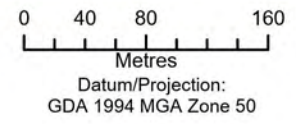
Effective slope under vegetation was assessed for a distance of 150 m from the subject site in accordance with the Guidelines and AS 3959-2018 and is depicted in Figure 4. Slope under classified vegetation was assessed and is shown in Table 1.

**Figure 4: Pre-Development Vegetation Classification**

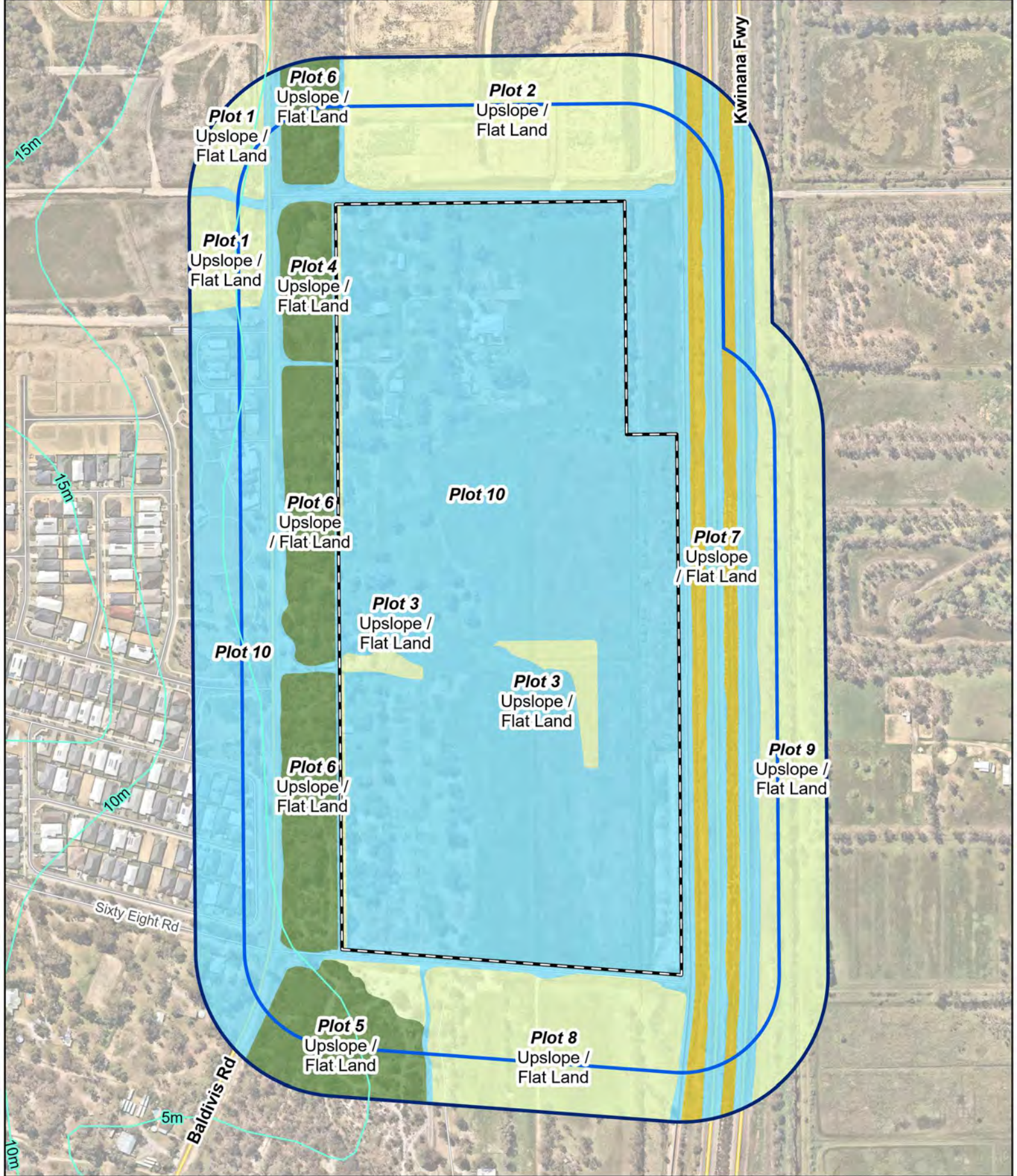


- Legend**
- Subject site
  - 100m site assessment
  - 150m site assessment
  - Contour (5m)
  - Photo location

- Vegetation classification**
- Class A forest
  - Class B woodland
  - Class D scrub
  - Class G grassland
  - Excluded as per clause 2.2.3.2 (e) and (f)

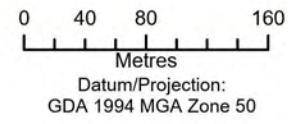


**Figure 5: Post-Development Vegetation Classification**



- Legend**
- Subject site
  - 100m site assessment
  - 150m site assessment
  - Contour (5m)

- Vegetation classification**
- Class A forest
  - Class D scrub
  - Class G grassland
  - Excluded as per clause 2.2.3.2 (e) and (f)



## 2.2 Bushfire assessment outputs

A 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 5 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 subdivision and the classified vegetation.

Based on the identified BAL, construction requirements for future 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 6 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed subdivision in accordance with AS 3959-2018 methodology.

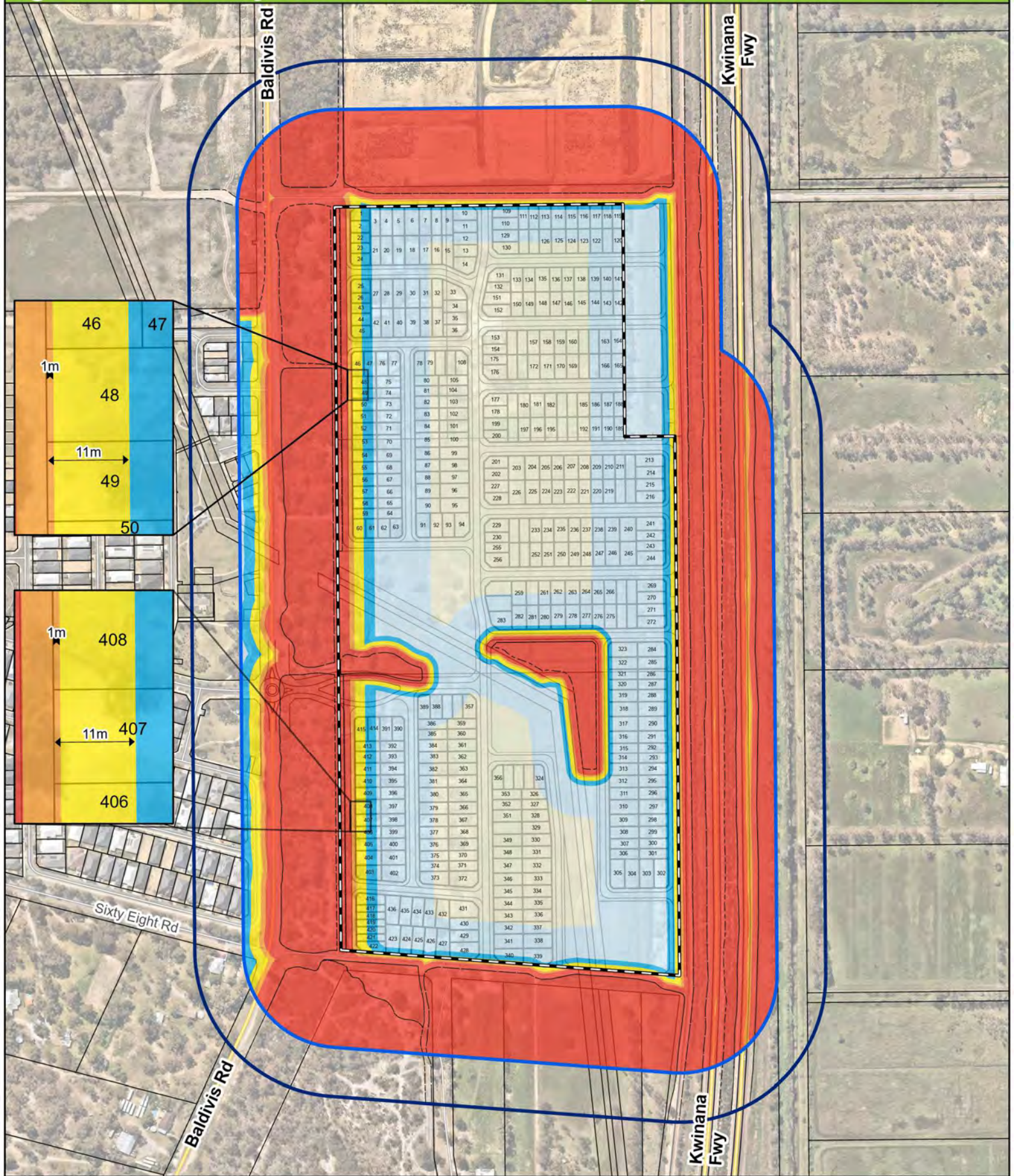
**Table 2: Method 1 BAL calculation (BAL contours)**

Plot	Vegetation Classification- Post-development	Effective Slope	Separation distances required				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
2	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
3	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
4	Class A Forest	All upslopes and flat land (0 degrees)	<16	16-<21	21-<31	31-<42	42-<100
5	Class A Forest	All upslopes and flat land (0 degrees)	<16	16-<21	21-<31	31-<42	42-<100
6	Class A Forest	All upslopes and flat land (0 degrees)	<16	16-<21	21-<31	31-<42	42-<100
7	Class D Scrub	All upslopes and flat land (0 degrees)	<10	10-<13	13-<19	19-<27	27-<100
8	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
9	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6-<8	8-<12	12-<17	17-<50
10	Excluded AS 3959-2018 2.2.3.2 (e)	-	No separation distances required – BAL-LOW				

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

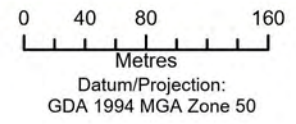
Should there be any changes in subdivision design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP. BAL assessments undertaken to support building licenses may result in a reduction in the indicative BALs in this BMP.

**Figure 6: Post-Development Bushfire Attack Level (BAL) Contours**



- Legend**
- Subject site
  - 100m site assessment
  - 150m site assessment
  - Bushfire Hazard Interface
  - Lot boundary

- Bushfire Attack Level (BAL)**
- BAL - FZ
  - BAL - 40
  - BAL - 29
  - BAL - 19
  - BAL - 12.5
  - BAL - LOW





## 3. Assessment against the Bushfire Protection Criteria

### 3.1 Compliance

The proposed subdivision 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 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summaries how the intent of each Bushfire Protection Criteria has been achieved. No Performance Solutions (PS) have been proposed for this proposal. These management measures are depicted in Figure 7 where relevant.

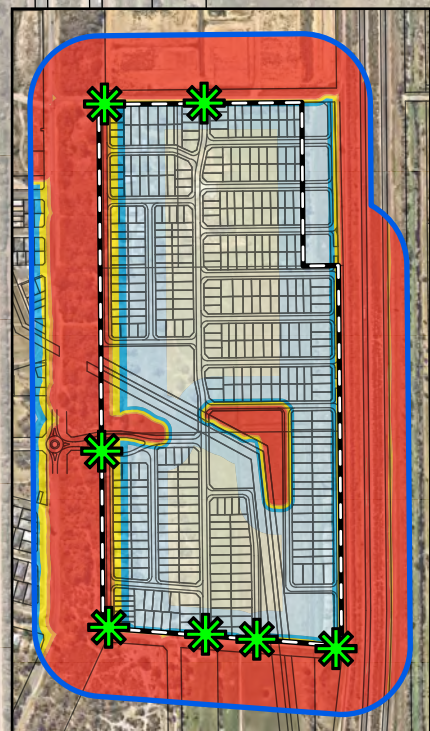
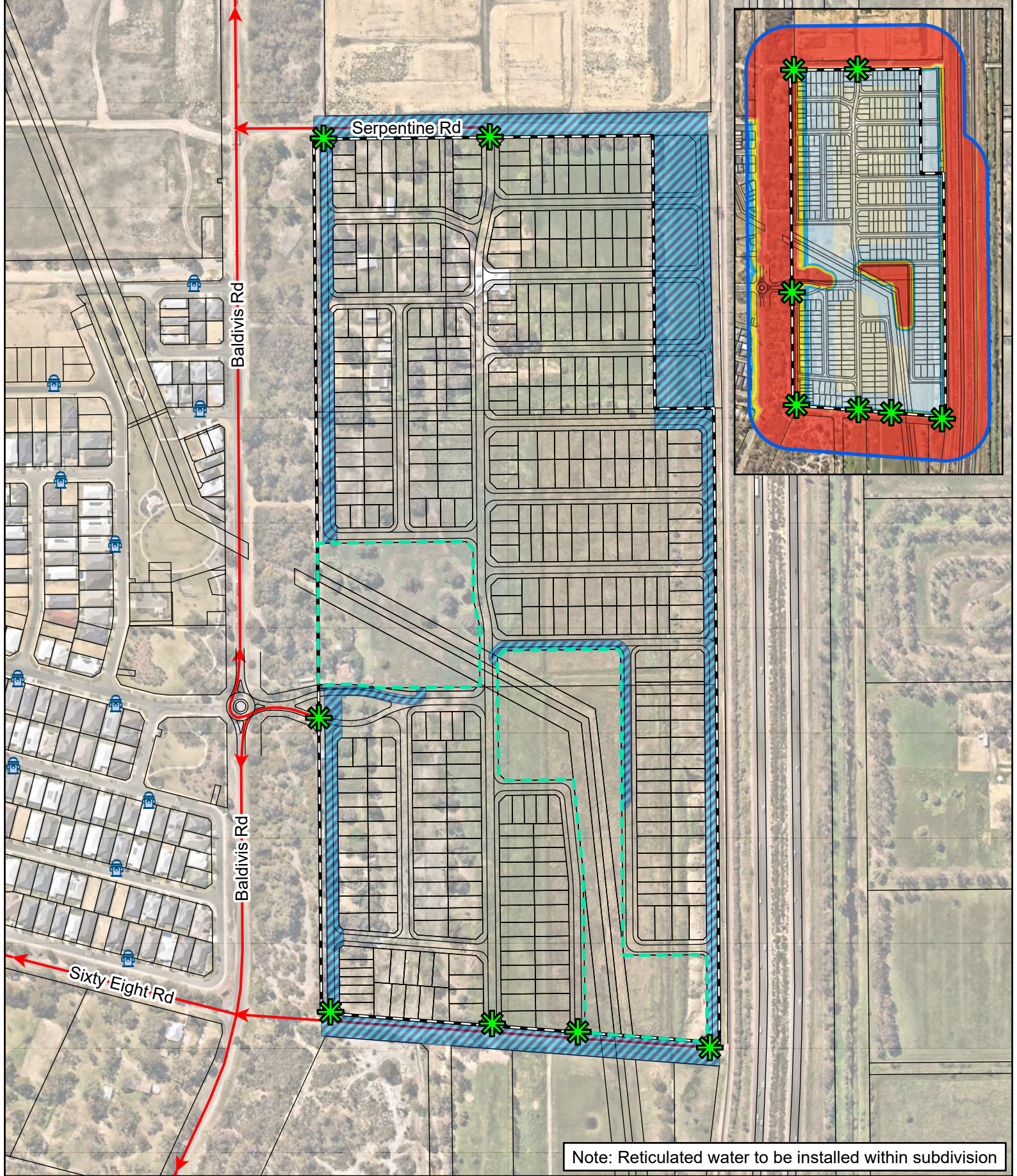
**Table 3: Summary of solutions used to achieve bushfire protection criteria**

Bushfire Protection Criteria	AS	PS	N/A	Comment
<b>Element 1: Location</b> A1.1 Development location	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All proposed lots within the subject site will be located in an area subject to BAL ratings of ≤BAL-29 (Figure 6; Figure 7). Lots adjacent to the Baldavis Tramway Reserve will require 1 m setbacks on the interface with the Reserve.  The proposed development is considered to be compliant with A1.1.
<b>Element 2: Siting and design of development</b> A2.1 Asset Protection Zone (APZ)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The proposed subdivision has an APZ sufficient for the potential radiant heat flux to not exceed 29kW/m <sup>2</sup> and will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC 2017; Appendix B).  The APZ can be contained within the boundaries of the lot or managed in perpetuity in a low fuel state. The POS areas shown on Figure 7 are to be maintained as managed parklands in perpetuity.  The proposed subdivision is considered to be compliant with A2.1.
<b>Element 3: Vehicular access</b> A3.1 Two access routes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	There are three access points, Serpentine Road, Sixty Eight Road and new proposed road onto Baldavis Road that provides two access routes north and south of the subdivision (Figure 7).  All roads are public roads and comply with requirements outlined in the Guidelines (Appendix C).  The proposed subdivision is considered to be compliant with A3.1.
A3.2 Public road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All internal public roads will be designed to comply with the Guidelines (Appendix C).
A3.3 Cul-de-sac	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No cul-de-sacs are proposed as part of this subdivision.

Bushfire Protection Criteria	AS	PS	N/A	Comment
A3.4 Battle-axe	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No battle axe lots are proposed.
A3.5 Private Driveway longer than 50 m	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No private driveways longer than 50 m are proposed.
A3.6 Emergency Access way	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No emergency access way is required.
A3.7 Fire-service access routes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No fire service access routes are required or proposed.
A3.8 Firebreak width	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No fire breaks are required or proposed as per the City of Rockingham Firebreak Notice 2020.
<b>Element 4: Water</b>				The subdivision will be connected to a reticulated water supply.
A4.1 Reticulated areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The proposed subdivision is considered to be compliant with A4.1. A4.2 and A4.3 are not applicable to this proposed development.
A4.2 Non-Reticulated areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Reticulated water is present within the area.
A4.3 Individual Lots within non-reticulated areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Reticulated water is present within the area.

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

**Figure 7: Spatial representation of the bushfire management strategies**



Note: Reticulated water to be installed within subdivision

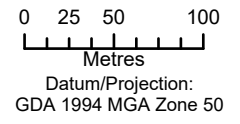
**Legend**

- Subject site
- 100m site assessment
- Access point
- Access / egress route
- Asset Protection Zone

- Public Open Space (POS)
- Hydrant
- Proposed Lot Boundary and Cadastral Boundary

**Bushfire Attack Level (BAL)**

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



Datum/Projection:  
GDA 1994 MGA Zone 50



## 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 4. 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 4: Proposed work program**

No	Bushfire management measure	Responsibility
<b>Prior to issue of Titles</b>		
1	Clear and maintain APZs depicted in Figure 6 and Figure 7.	Developer
2	Place Section 165 on title of all lots within Bushfire Prone Areas.	Developer
3	Extend reticulated water supply within the subdivision.	Developer
4	Design and construct all public roads to meet requirements of the Guidelines.	Developer
5	Ensure that 100 m wide APZs are cleared around each stage of subdivision if the entirety of the development depicted in Figure 7 is not developed in a single stage.	Developer
<b>Prior to occupancy</b>		
6	Ensure future buildings are located outside of areas subject to BAL-FZ and BAL-40 as per the design in Figure 7.	Developer
7	Construct future buildings to relevant construction standard in AS 3959-2018 or earlier version dependent on which version of the <i>Building Code of Australia</i> (BCA) is being used.	Landowners
<b>Ongoing management</b>		
8	Maintain APZ of the POS indicated in Figure 7	Developer / City of Rockingham

## 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

Department of Fire and Emergency Services (DFES). 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.

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

# Appendix A – Classified Vegetation Photos

Plot	Photo ID	Photo and vegetation classification
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Class G Grassland



Class G Grassland

Note: area is upslope of the subdivision

Plot	Photo ID	Photo and vegetation classification
------	----------	-------------------------------------

2      3



Class G Grassland

Note: area cleared with significant unmanaged grass

2      4



Class G Grassland

Note: area cleared with significant unmanaged grass



Plot Photo ID Photo and vegetation classification

3

5



Class G Grassland

3

6



Class G Grassland

Plot	Photo ID	Photo and vegetation classification
------	----------	-------------------------------------

4      7



Class B Woodland

Note: Trees with grass understory and areas of mulch and tracks, minor shrubs

5      8



Class A Forest

Note: Banksia woodland burnt in the last 3-4 years, continuous fuel structure from ground to above 4m, Baldvis Tramway Reserve

Plot	Photo ID	Photo and vegetation classification
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5 9



Class A Forest

Note: Banksia woodland burnt in the last 3-4 years, continuous fuel structure from ground to above 4m, Baldivis Tramway Reserve

6 10



Class A Forest

To be modified to Class B Woodland

Note: continuous fuel structure from ground to above 4m, Baldivis Tramway Reserve

Plot	Photo ID	Photo and vegetation classification
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6 11



Class A Forest

To be modified to Class B Woodland

Note: continuous fuel structure from ground to above 4m, Baldvis Tramway Reserve

7 12



Class C Shrubland

Note: Google Maps street view utilised as it was unsafe to stop on Kwinana Freeway to capture photo of vegetation. Vegetation noted to be <2m shrub managed by Main Roads. Streetview image looking north.

Plot Photo ID Photo and vegetation classification

8 13



Class G Grassland

9 14



Class G Grassland

Note: Open woodland, trees over grass paddocks, drainage line with line of trees (windbreaks)

**Plot**      **Photo ID**      **Photo and vegetation classification**

10

15



Excluded AS 3959-2018 2.2.3.2 (e)

Note: Managed POS

10

16



Excluded AS 3959-2018 2.2.3.2 (e)

Note: area cleared with significant unmanaged grass

Plot Photo ID Photo and vegetation classification

10 17



Excluded AS 3959-2018 2.2.3.2 (e)

Note: managed bike path along freeway reserve. Plot 7 vegetation on left side on photo. Noise wall on right side of photo

Representative photos of revegetation

Drainage swales within road reserves (Class G Grassland)





## 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 8).

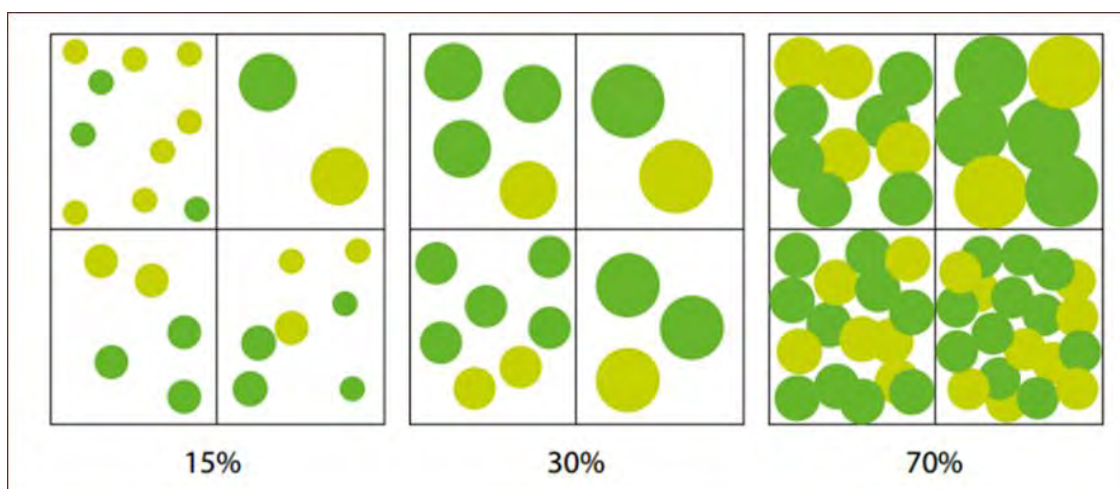


Figure 8: Illustrated tree canopy cover projection (WAPC 2017)

- **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 - Vehicular access technical requirements (WAPC 2017)

Technical requirements	Public road	Cul-de-sac	Private driveway	Emergency access way	Fire service access route
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	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	8.5	8.5	8.5	8.5	8.5
* Refer to E3.2 Public roads: Trafficable surface					

