

# Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address:

Site visit: Yes  No

Date of site visit (if applicable): Day  Month  Year

Report author or reviewer:

WA BPAD accreditation level (please circle):

Not accredited  Level 1 BAL assessor  Level 2 practitioner  Level 3 practitioner

If accredited please provide the following.

BPAD accreditation number:  Accreditation expiry: Month  Year

Bushfire management plan version number:

Bushfire management plan date: Day  Month  Year

Client/business name:

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?		

Is the proposal any of the following (see <a href="#">SPP 3.7 for definitions</a> )?	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)		
Strategic planning proposal (including rezoning applications)		
High risk land-use		
Vulnerable land-use		

None of the above

**Note:** Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer



Date



# Stage 4 – Proposed Sports Hall Carey Baptist College, Forrestdale Bushfire Management Plan

Date: 12 June 2023

Prepared For: Carey Baptist College

Linfire Ref: 20230529294BQA-BMP-001\_0

**Linfire Consultancy**

ABN: 577 930 47299



Revision	Issue Date	Revision Description	Approved By
0	12 June 2023	Issued for approval	Linden Wears (Level 3 BPAD 19809)

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## **1.0 Proposal details**

### **1.1 Background**

Carey Baptist College (the Proponent) is seeking to lodge a development application for a new Sports Hall building at Carey Baptist College, Forrestdale (the project area) in the City of Armadale.

The proposed Sports Hall building development (see Figure 1 and Appendix 1) will include the following:

- Indoor Sports Centre with associated stage, change rooms and staff office
- Fitness Centre
- Staff Study
- HPE Store
- Change Rooms, toilets and laundry
- Covered area and verandah's
- Internal road extension

### **1.2 Site description**

The existing college is located on a 22 ha site (see Figure 2) with an early learning centre, childcare, kindergarten and administration buildings constructed in 2015, a new south-west wing constructed in 2018, a Science, Technology, Engineering, Art and Mathematics (STEAM) building being completed and a new Teaching Block Out of School Hours Care extension currently being constructed. Further master planning has been conducted with plans to eventually construct additional school facilities to south and west of the existing footprint which is also depicted on Figure 1.

Land to the north, east and south-east is primarily existing rural lots, with Gibbs Road Nature Reserve located 400 m to the north-west and Forrestdale Lake and nature reserve approximately 1 km to the east.

Public road access to the college is from Nicholson Road, which is located to the east of the site and provides access north and south of the college site.

### **1.3 Other plans/reports**

Linfire are aware of the following bushfire management plans previously prepared for the college:

- Bushfire Management and Emergency Evacuation Plan – STEAM Centre
  - Prepared by Bushfire Safety Consulting; dated 12 December 2019
- Bushfire Management Plan – Stage 3 Teaching Block and OSHC Centre
  - Prepared by Linfire Consultancy, Rev 2 dated 24 Oct 2022.

The previous BMP and Evacuation Plan for the STEAM Centre included the following management measures within the college:

- Variable width (27 m to 41 m) Asset Protection Zone around the STEAM Centre
- Nominated all other existing non-vegetated and low threat vegetation already developed within the college, to be an Asset Protection Zone
- Noted the existing 6 m wide Emergency Access Way connecting the main college carpark to Nicholson Road, as an alternative vehicular access to the main driveway entrance.
- Existing onsite private driveways providing access and turnarounds for fire appliances, including turnaround south-west of the STEAM building.

- Existing reticulated water supply supplying the onsite fire hydrant system consisting of a booster connection and onsite hydrants, which provides coverage to the college buildings.
- Nominates the primary bushfire response action as offsite evacuation, however if this is unsafe to undertake, the Kindy/ Pre-primary and Grade 1/ 2 Classrooms (adjoining the main Administration Building) is nominated as the onsite Bushfire Safer Buildings (BSB) for shelter-in-place if required.

The BMP for the Stage 3 Teaching Block and OSHC Centre included the following management measures:

- APZs around the Teaching Block building and OSHC Centre extension.
- Recommendation to construct buildings to the assessed BAL rating.
- Ensure existing hydrant system provides compliant coverage to new buildings.
- Updating the BEEP to reflect the 2 additional buildings prior to occupancy.
- Conduct an audit of the nominated BSB and propose any practical rectification measures to enhance bushfire resilience and to ensure safe onsite shelter-in-place. This audit is currently being conducted.

Where possible, the risk management measures and overall approach documented in the previous BMPs, have been adopted for this proposal, especially the use of the BSB for onsite shelter-in-place, should offsite evacuation be unsafe to conduct.

In addition to the previous bushfire reporting, revegetation plans have been produced which are discussed in Section 2.2.

#### 1.4 Purpose

The project area is designated as bushfire prone on the *Map of Bush Fire Prone Areas* (DFES 2023; see Plate 1), which triggers requirements under *State Planning Policy 3.7: Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015) and the accompanying *Guidelines for Planning in Bushfire Prone Areas* (the Guidelines).

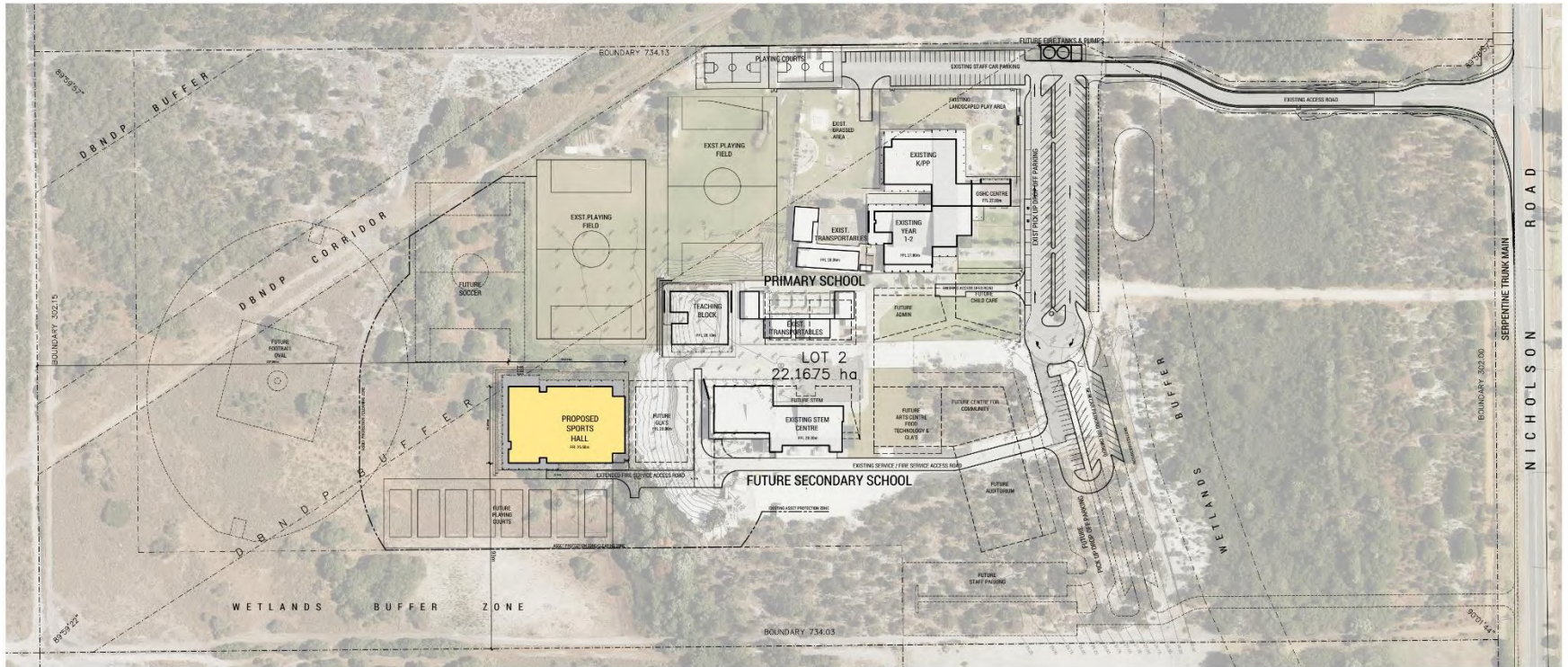
This Bushfire Management Plan (BMP) has been prepared to address requirements under Policy Measure 6.5 of SPP 3.7 and the relevant aspects of the Guidelines. Additionally, where possible, the risk management measures and overall approach documented in the previous BMPs, have been incorporated into this BMP.

The proposed development is considered to be a vulnerable land use which triggers additional requirements under Policy Measure 6.6 of SPP 3.7. This BMP has been prepared in accordance with Sections 5.4 and 5.5 of the Guidelines, which require development applications for vulnerable be accompanied by a bushfire emergency evacuation plan (BEEP) which details the emergency management and evacuation arrangements for the development. Given there is an existing college BEEP, previously prepared by Bushfire Safety Consulting and currently being amended by Linfire as part of previous DA approval for Teaching Block and Out of School Hours Care buildings, it is a requirement of this BMP that the college BEEP is amended to include the new Sports Hall prior to occupation.



Plate 1: Map of Bush Fire Prone Areas (DFES 2023)





SITE DETAILS:  
 LOT 2 (S40) NICHOLSON ROAD, FORRESTDALE.  
 SITE AREA; 221,675m<sup>2</sup>  
 PROPOSED BUILDING AREA; 2170m<sup>2</sup>

CLIENT  
  
 Carey  
 Baptist  
 College

---

PROJECT  
**FORRESTDALE STAGE 4  
 SPORTS CENTRE**

---

DRAWING  
**SITE PLAN**

---

  
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SCALE: 1:1000 @ A1  
 DATE: 12 JUNE 2023  
 STATUS: CONCEPT DESIGN  
 PROJECT NO: 23.01  
 DRAWING NO: SK01/C

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Figure 1: Development Plan





**Legend**

- Proposed Development
- Building Outline
- Project Area
- Assessment Area
- 100m
- 150m
- Cadastre
- Existing 6m EAW

Scale 1:2,100



0 30 60 90 Metres



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Carey Baptist College

Stage 4 - Sports Hall

Figure 2: Site Overview

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## **2.0 Environmental considerations**

### **2.1 Native vegetation - modification and clearing**

The proposal will require clearing of remnant vegetation to accommodate the Sports Hall and to implement the Asset Protection Zone around the building, although much of the land to the east is already cleared of native vegetation.

Linfire assumes that all relevant environmental studies and clearing and environmental approvals will be obtained prior to commencing any on-site vegetation modification, if required.

### **2.2 Revegetation / Landscape Plans**

No revegetation is proposed as part of the proposal, however some revegetation has been documented in the following revegetation plans:

- Revegetation Plan Addendum (Stage 2) prepared by Coterra Environment (dated June 2020)
- Addendum to the Revegetation Plan prepared by Coterra Environment (dated March 2023)

The revegetation plan proposes Mesic Revegetation and Banksia Improvement to the south of the Sports Hall (refer to Appendix 3), while to the north is proposed Mesic Revegetation, Dryland Revegetation and Banksia Improvement. All this revegetation is accounted for in the bushfire vegetation mapping, as detailed in Section 3.1.1.

All proposed Asset Protection Zones (APZ's) are to comply with Schedule 1 of the Guidelines (refer to Appendix 4), and while onsite landscaping outside the nominated APZs that is excluded from classification, is to consist of low threat and managed gardens in accordance with AS 3959—2018 Clause 2.2.3.2 (f) (refer to Appendix 5).

### 3.0 Bushfire assessment results

#### 3.1 Assessment inputs

##### 3.1.1 Vegetation classification and effective slope

Linfire assessed classified vegetation and exclusions within 150 m of the project area through on-ground verification on 3 June 2023 in accordance with *AS 3959—2018 Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2018) and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). Georeferenced site photos and a description of the vegetation classifications and exclusions are contained in Appendix 2 and depicted in Figure 3 and Table 1.

The revegetation plan proposes several categories of future revegetation (refer to Appendix 3), with the following bushfire vegetation classifications assigned:

- Mesic Revegetation
  - Class A Forest (Plots 7 and 8)
- Dryland Revegetation
  - Class D Scrub (Plot 6)
- Banksia Improvement
  - Class D Scrub (included in Plot 3)

##### 3.1.2 Effective slope

Linfire assessed effective slope under classified vegetation through on-ground verification on 3 June 2023 in accordance with AS 3959. Results were cross-referenced with Landgate 10 m contour data and are depicted in Table 1 and Figure 3.

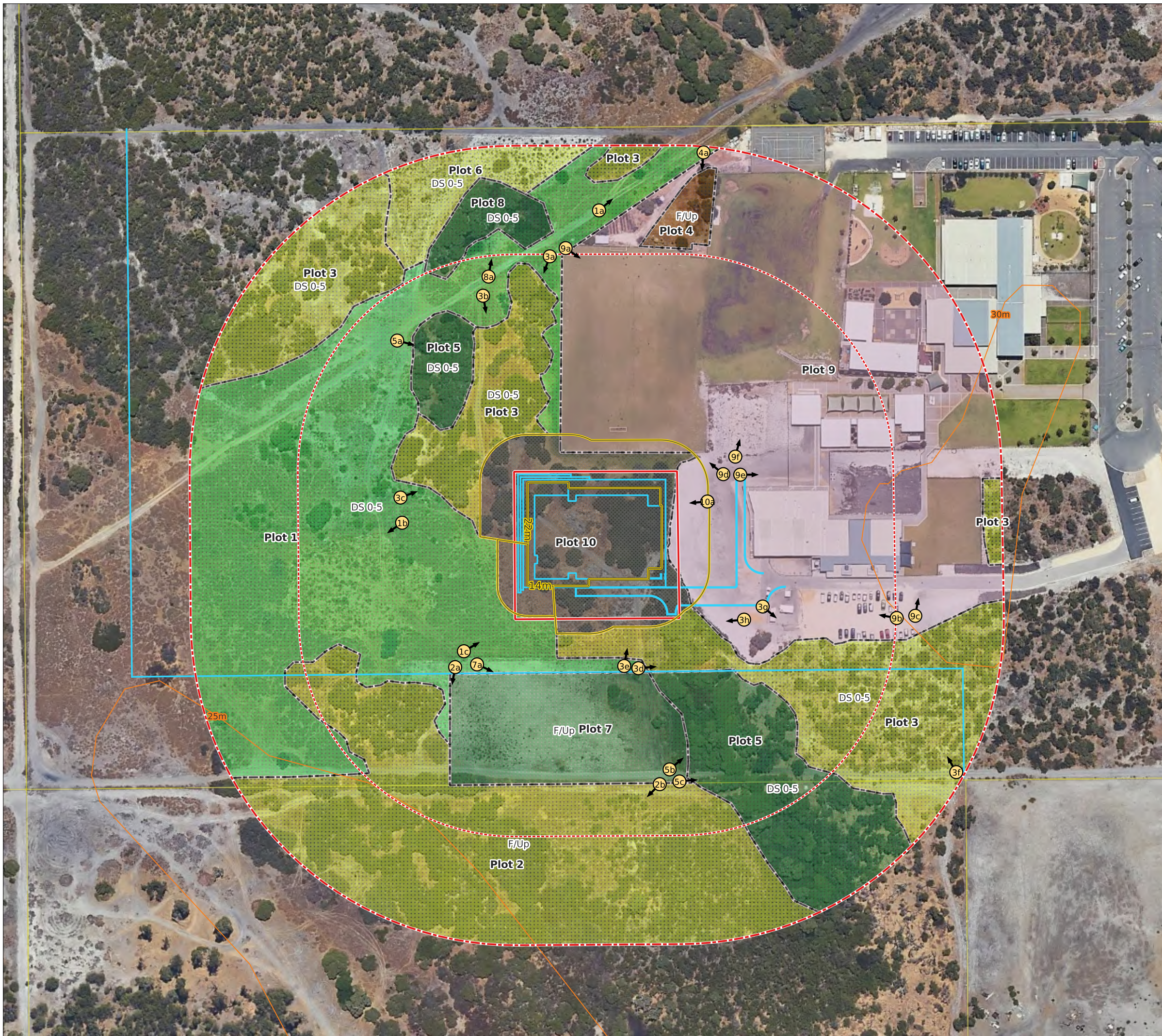
##### 3.1.3 Summary of inputs

Table 1 illustrates the anticipated post-development vegetation classifications and exclusions following completion of development works, including modification of existing vegetation to a non-vegetated or low threat state.

**Table 1: Post-development vegetation classifications/exclusions and effective slope**

Vegetation plot	Vegetation classification	Effective slope	Comments
1	Class G Grassland	Downslope >0–5°	Unmanaged grassland
2	Class D Scrub	Flat/upslope (0°)	Vegetation less than 6 m in height, primarily consisting of Melaleuca in low-lying areas to the south-west and west, and Banksia woodland to the south and north. Includes areas of Banksia Improvement revegetation.
3	Class D Scrub	Downslope >0–5°	
4	Class B Woodland	Flat/upslope (0°)	Small plot of woodland adjacent to the sports fields, consisting of several mature trees with grassy understorey.
5	Class A Forest	Downslope >0–5°	Vegetation greater than 6 m height, containing eucalypt species, sometimes as juvenile trees, primarily in low-lying areas to the south-east and north-west.
6	Class D Scrub	Downslope >0–5°	Proposed Dryland Revegetation to the

Vegetation plot	Vegetation classification	Effective slope	Comments
			north of the project area
7	Class A Forest	Flat/upslope (0°)	Proposed Mesic Revegetation to the south of the project area, within existing grassland area.
8	Class A Forest	Downslope >0–5°	Proposed Mesic Revegetation to the north of the project area.
9	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Existing non-vegetated elements (roads, paths, buildings) and low threat vegetation (managed gardens, maintain lawn) surrounding the project area
10	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Areas to be modified to non-vegetated elements and low threat vegetation (including the APZ) as part of this development



**Legend**

- Photo Location
- Proposed Development
- Contours
- Building Outline
- Project Area
- Assessment Area**
  - 100m
  - 150m
- Cadastre
- Vegetation Plot
- Classified Vegetation**
  - A. Forest
  - B. Woodland
  - D. Scrub
  - G. Grassland
- Excluded Clause 2.2.3.2(e&f)
- Modified to non vegetated and low threat
- Asset Protection Zone

Scale 1:1,700

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Carey Baptist College

Stage 4 - Sports Hall

Figure 3: Post-development vegetation and effective slope

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## 3.2 Assessment outputs

### 3.2.1 Bushfire Attack Level (BAL) contour assessment

Linfire has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for the project area (see Figure 4). The Method 1 procedure incorporates the following factors:

- state-adopted FDI 80 rating
- vegetation classification
- effective slope
- distance maintained between proposed development areas and the classified vegetation.

The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by proposed future development and subsequently informs the standard of building construction and/or setbacks required for proposed habitable development to potentially withstand such impacts.

The BAL contours are based on:

- the vegetation classifications and effective slope observed at the time of inspection.
- the anticipated post-development vegetation based on proposed on-site clearing extent, and resultant vegetation exclusions and separation distances, achieved to implement the proposed development.
- future revegetation as per the Revegetation Plan

The results of the BAL contour assessment are detailed in Table 2 and illustrated in Figure 4. The highest BAL applicable to the proposed building is BAL–19.

**Table 2: BAL contour assessment results (to proposed building)**

Method 1 BAL determination					
Plot	Vegetation classification	Calculation method	Effective slope	Separation (m)	BAL
1	Class G Grassland	Method 1	Downslope >0–5°	14 m	BAL–19
2	Class D Scrub	Method 1	Flat/upslope (0°)	63 m	BAL–12.5
3	Class D Scrub	Method 1	Downslope >0–5°	22 m	BAL–19
4	Class B Woodland	Method 1	Flat/upslope (0°)	>100 m	BAL–Low
5	Class A Forest	Method 1	Downslope >0–5°	42 m	BAL–19
6	Class D Scrub	Method 1	Downslope >0–5°	>100 m	BAL–Low
7	Class A Forest	Method 1	Flat/upslope (0°)	40 m	BAL–19
8	Class A Forest	Method 1	Downslope >0–5°	>100 m	BAL–Low
9	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	N/A	N/A	N/A
10	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	N/A	N/A	N/A

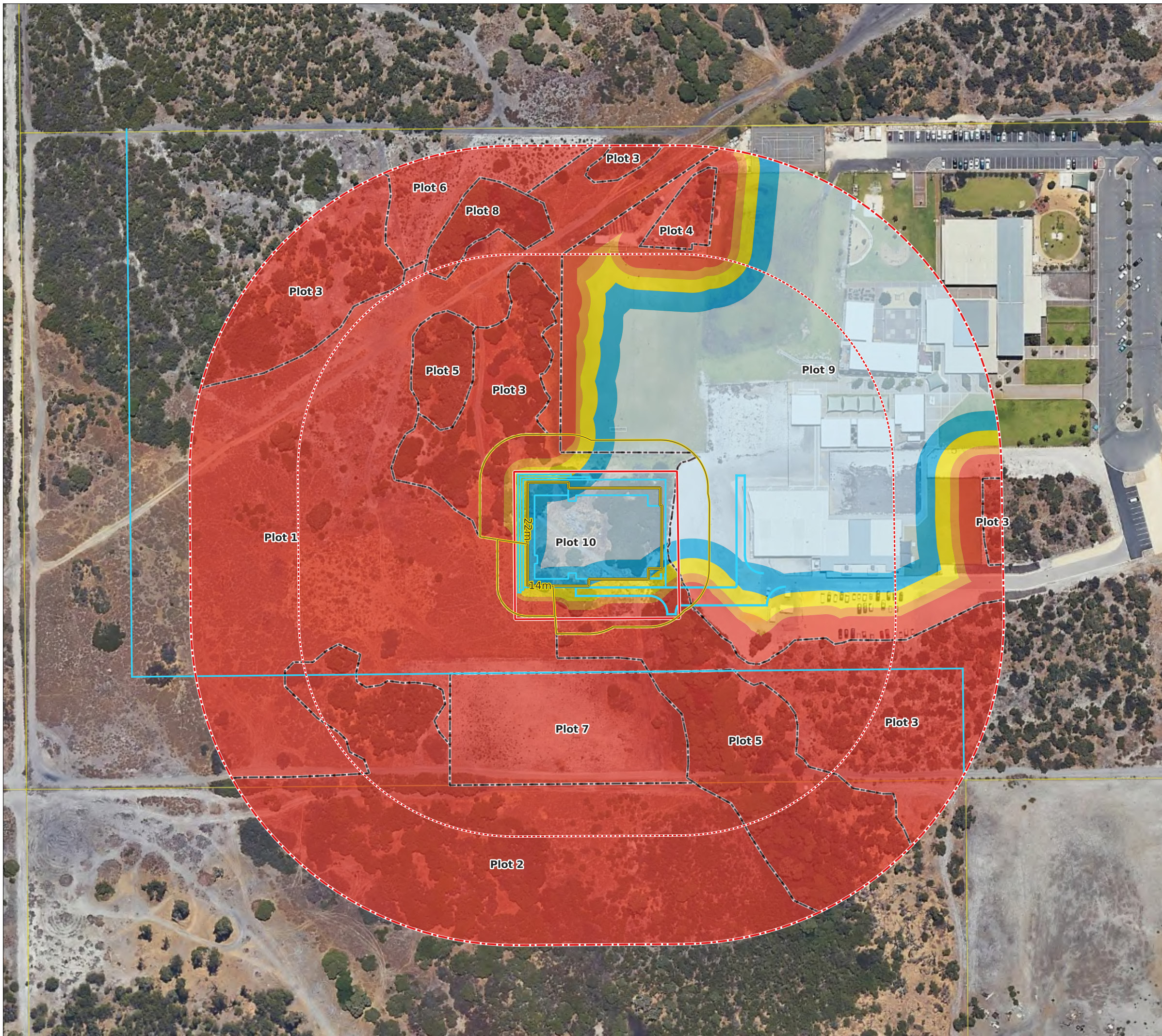
Table 3 lists the BAL applicable to each building or element within the proposed development.

**Table 3: BAL applicable to each building/element**

Building / element	Initial BAL	APZ	Revised BAL
Sports Hall	BAL-FZ	14 m – 22 m APZ around the building perimeter, in addition to existing APZs and onsite low threat landscaping	BAL-19

Should there be any changes in development design or classified vegetation extent that results in a modified BAL outcome, then the BAL contours will need to be reassessed.





**Legend**

- Proposed Development
- Building Outline
- Project Area
- Assessment Area
- 100m
- 150m
- Cadastre
- Vegetation Plot
- Asset Protection Zone
- BAL Contours
- BAL FZ
- BAL 40
- BAL 29
- BAL 19
- BAL 12.5
- BAL Low

Scale 1:1,700



0 20 40 60 Metres



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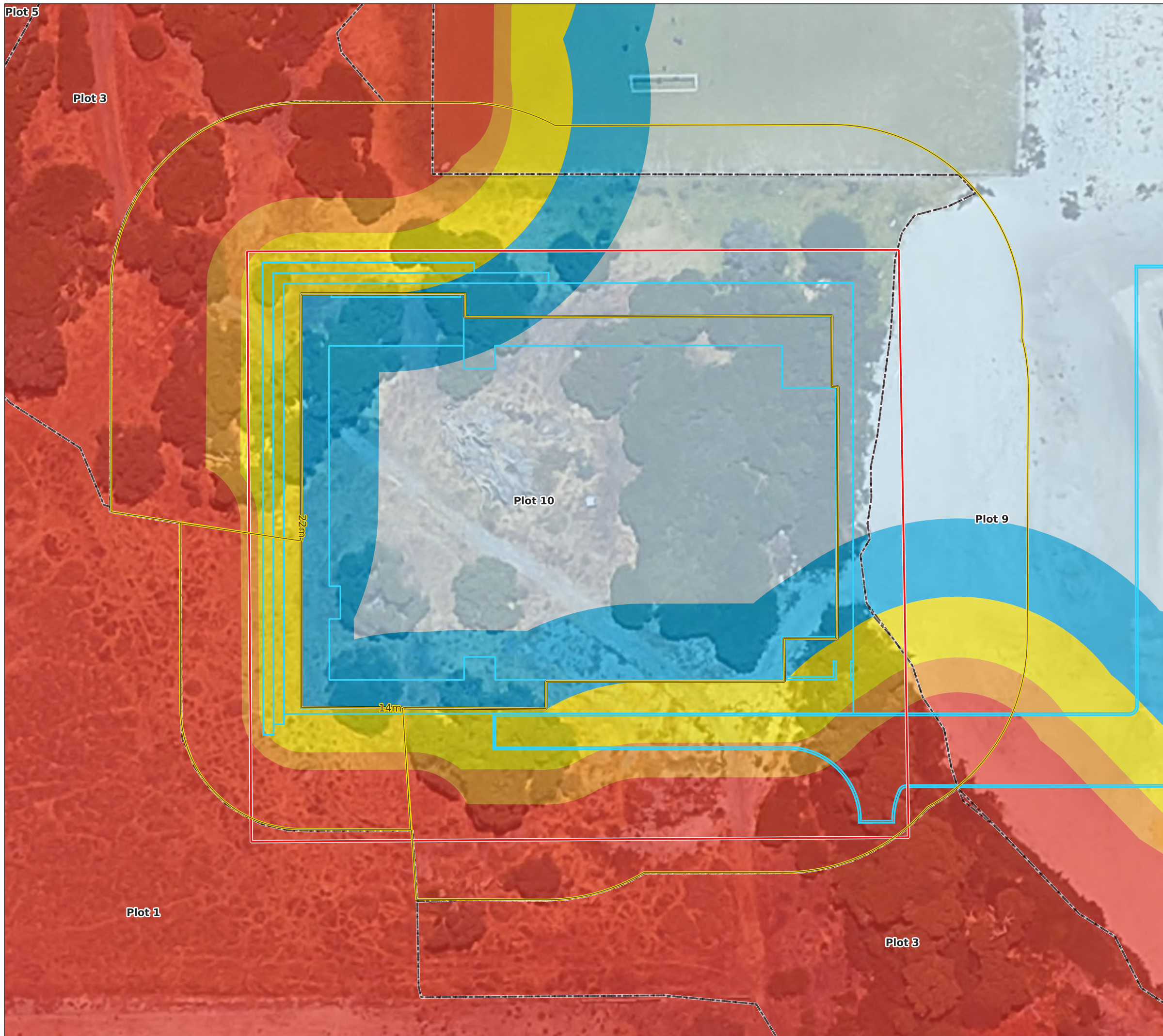
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Figure 4: BAL Contour Plan

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**Legend**

- Proposed Development
- Building Outline
- Project Area
- Assessment Area**
- 100m
- 150m
- Cadastre
- Vegetation Plot
- Asset Protection Zone
- BAL Contours**
- BAL FZ
- BAL 40
- BAL 29
- BAL 19
- BAL 12.5

Scale 1:400



0 7 14 21 Metres



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Figure 4: BAL Contour Plan (zoom)

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## **4.0 Identification of bushfire hazard issues**

### **4.1 Bushfire context**

The greatest bushfire threat to the proposed development is likely from the west or south, given the potential for long fire runs through continuous grassland, scrub and forest vegetation from this direction. Notwithstanding, bushfire threat from all other directions is also possible through long fire runs, however separation provided by the existing school development, and the fragmented vegetation profile by existing agricultural land uses, does lessen the likely impact although bushfires through grassland fuels can still be a considerable hazard.

Any bushfire approaching the development from these directions, can be expected to produce elevated radiant heat and ember attack, and represent a threat to the proposed building and occupants, if not appropriately managed.

### **4.2 Bushfire hazard issues**

Examination of the bushfire risk assessment (Section 3.0) has identified the following bushfire hazard issues:

1. The existing extent of unmanaged vegetation to the west and south could result in the proposed building being subject to an initial BAL of BAL-FZ if unmanaged (i.e. before any management). Providing sufficient separation from unmanaged vegetation will be required.
2. Access to the school is via a public access road (Nicholson Road), while internal access within the college is via existing private driveways. Providing vehicular access appropriate to the bushfire risk and use of the buildings, will be important to ensure occupant egress is safe and fire brigade access is available.
3. Given the direct interface with unmanaged vegetation, a compliant bushfire fighting water supply for fire brigade to protect the proposed development will be critical.
4. Ensuring college staff have a clear plan of how to prepare for, and manage a bushfire emergency, especially evacuation or relocation of students who will be unable to evacuate/relocate themselves, is also a vital issue to be addressed from a life safety perspective.

### **4.3 Bushfire safety strategy**

The following bushfire safety strategy is proposed to demonstrate compliance with the Bushfire Protection Criteria of the Guidelines and address the bushfire hazards identified above:

1. Create appropriate separation between the proposed building and surrounding classified vegetation to achieve BAL-29 or lower, by establishing APZ at critical interfaces.
2. Ensure the existing and proposed onsite vehicular access within the project area, is compliant with the requirements for private driveways of the Guidelines
3. Ensure a secure bushfire fighting water supply by ensuring the proposed buildings are sufficiently protected from the existing onsite fire hydrant network.
4. To ensure onsite staff are prepared for bushfire emergencies and are aware how best to manage evacuation of the site in a bushfire event, to prioritise protection of life. The strategy for this will be outlined within the college BEEP.

It is acknowledged that the bushfire risk to the proposed development posed by these hazards can be managed through a combination of standard application of Acceptable Solutions under the Guidelines.

## 5.0 Assessment against the bushfire protection criteria

### 5.1 Compliance table

An assessment against the bushfire protection criteria is provided in Table 4.

**Table 4: Compliance with the bushfire protection criteria of the Guidelines**

Bushfire protection criteria			Development response	
Performance Principle	Acceptable solutions	Planning Stage	Method of compliance	Proposed bushfire management measures
<b>Element 1: Location</b>				
<i>Intent: To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure</i>				
<p><b>Performance Principle P1</b></p> <p>The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL-29 or below, and the risk can be managed.</p> <p>For unavoidable development in areas where BAL-40 or BAL-FZ applies, demonstrating that the risk can be managed to the satisfaction of the decision-maker.</p>	<p><b>A1.1 Development location</b></p> <p>The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.</p>	<b>All</b>	<b>Acceptable Solution</b>	<p>The BAL contour assessment (see Figure 4 and Table 2) shows that upon completion of the development and implementation of the nominated APZ, the proposed buildings will be subject to a BAL rating of BAL-29 or lower.</p> <p>All other college buildings are currently exposed to BAL-29 or less, and will continue to be so following completion of this development.</p>
<b>Element 2: Siting and design of development</b>				
<i>Intent: To ensure that the siting and design of development minimises the level of bushfire impact.</i>				
<p><b>Performance Principle P2</b></p> <p>The siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. The proposal incorporates a defendable space and significantly reduces the heat intensities at the building surface thereby minimising the bushfire risk to people, property and infrastructure, including compliance with AS 3959 if appropriate.</p>	<p><b>A2.1 Asset Protection Zone (APZ)</b></p> <p>Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:</p> <p><b>Width:</b> 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 bushfire does not exceed 29kW/m<sup>2</sup> (BAL-29) in all circumstances.</p> <p><b>Location:</b> 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 (see explanatory notes)</p> <p><b>Management:</b> the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' (see Guidelines Schedule 1).</p>	<b>All</b>	<b>Acceptable Solution</b>	<p>On completion of this development, much of the college footprint is to be landscaped and maintained in a low threat state, however a variable width 14 m-22 m Asset Protection Zone is nominated at hazard interfaces with the proposed building to achieve BAL-19, as depicted in Figure 5. As shown in Figure 1, the nominated APZ largely extends over land that is earmarked for a future soccer pitch (to the north-west) and future playing courts (to the south).</p> <p>All APZs are to be implemented and maintained in accordance with Schedule 1 of the Guidelines (see Appendix 4).</p> <p>All land within the college site that is currently non-vegetated or low threat vegetation, but outside the APZs nominated in this BMP, including those previously been nominated as APZs in a previous BMPs, is expected to be maintained as non-vegetated elements or low threat vegetation, compliant with the principles of AS 3959 Clause 2.2.3.2 (e) and (f) (see Appendix 5), and the concepts of Schedule 1 of the Guidelines (see Appendix 4).</p>
<b>Element 3: Vehicular access</b>				
<i>Intent: To ensure that the vehicular access serving a subdivision/ development is available and safe</i>				
<p><b>Performance Principle P3i</b></p> <p>The design and capacity of vehicular access and egress is to provide for the community to evacuate to a suitable destination before a bushfire arrives at the site, allowing emergency services personnel to</p>	<p><b>A3.1 Public Roads</b></p> <p><i>The minimum requirements under this acceptable solution are applicable to all proposed and existing public roads.</i></p> <p>Public roads are to meet the minimum technical requirements in Table 6, Column 1.</p> <p>The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for</p>	<b>SP, Sb, Do</b>	<b>Existing compliance with Acceptable Solution</b>	<p>No public roads are proposed as part of this development.</p> <p>Vehicular access to college is from Nicholson Road, which is a sealed two-way road that appears compliant with Guidelines, and are sufficient for occupant egress and emergency services access.</p>

Bushfire protection criteria			Development response	
Performance Principle	Acceptable solutions	Planning Stage	Method of compliance	Proposed bushfire management measures
attend the site and/or hazard vegetation.	Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area.			
	<p><u>A3.2a Multiple access routes</u></p> <p>Public road access is to be provided in two different directions to at least two different suitable destinations with an all-weather surface (two-way access).</p> <p>If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the road access is to be a maximum of 200 metres from the subject lot(s) boundary to an intersection where two-way access is provided.</p> <p>The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met:</p> <ul style="list-style-type: none"> <li>the no-through road travels towards a suitable destination; and</li> <li>the balance of the no-through road, that is greater than 200 metres from the subject site, is wholly within BAL-LOW, or is within a residential built-out area – Figure 23.</li> </ul>	SP, Sb, Do	Acceptable Solution	From the college, Nicholson Road provides for travel either north to Armadale Road, where travel is available in multiple directions, or south to Rowley Road, where further travel is also available in various directions. On this basis, Nicholson Road is a through road providing multiple access routes.
	<p><u>A3.2b Emergency access way</u></p> <p>Where it is demonstrated that A3.2a cannot be achieved due to site constraints, or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution.</p> <p>An emergency access way is to meet all the following requirements:</p> <ul style="list-style-type: none"> <li>requirements in Table 6, Column 2;</li> <li>provides a through connection to a public road;</li> <li>be no more than 500 metres in length; and</li> <li>must be signposted and if gated, gates must open the whole trafficable width and remain unlocked.</li> </ul>	SP, Sb, Do	Existing compliance with Acceptable Solution	No permanent emergency access ways (EAW) are proposed as part of this proposal. There is an existing 6 m wide trafficable emergency access way (EAW) that connects the main onsite carpark to Nicholson Road, and will be maintained in accordance with the standards documented in the previous BMP. The college should ensure that they are able to access this EAW at anytime during bushfire season.
	<p><u>A3.3 Through roads</u></p> <p>All public roads should be through-roads. No-through roads should be avoided and should only be considered as an acceptable solution where:</p> <ul style="list-style-type: none"> <li>it is demonstrated that no alternative road layout exists due to site constraints; and</li> <li>the no-through road is a maximum length of 200 metres to an intersection providing two-way access, unless it satisfies the exemption provisions in A3.2a of this table.</li> </ul> <p>A no-through road is to meet all the following requirements:</p> <ul style="list-style-type: none"> <li>requirements of a public road (Table 6, Column 1); and</li> <li>turn-around area as shown in Figure 24</li> </ul>	SP, Sb	Existing compliance with Acceptable Solution	No permanent no-through roads are proposed as part of the subdivision. The existing public road access to the project area, namely Nicholson Road, is a through road.
<p><u>Performance Principle P3ii</u></p> <p>The internal layout, design and construction of public and private vehicular access and egress in the subdivision / development allow emergency and other vehicles to move through it safely and easily.</p> <p>The design of vehicular access and egress provides:</p>	<p><u>A3.4a Perimeter Roads</u></p> <p>Two different vehicular access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents/the public at all times and under all weather conditions.</p> <p>A perimeter road is a public road and should be provided for greenfield or infill development where 10 or more lots are being proposed (including as part of a staged subdivision) with the aim of:</p> <ul style="list-style-type: none"> <li>separating areas of classified vegetation under AS3959, which adjoin</li> </ul>	SP, Sb	Not Applicable	No public roads are proposed as part of the development.

Bushfire protection criteria			Development response	
Performance Principle	Acceptable solutions	Planning Stage	Method of compliance	Proposed bushfire management measures
<ul style="list-style-type: none"> <li>access and egress for emergency service vehicles while allowing the community to evacuate;</li> <li>a defensible space for emergency services personnel on the interface between classified vegetation and development site; and</li> </ul> hazard separation between classified vegetation and the subject site to reduce the potential radiant heat that may impact a lot(s).	the subject site, from the proposed lot(s); and <ul style="list-style-type: none"> <li>removing the need for battle-axe lots that back onto areas of classified vegetation.</li> </ul> A perimeter road is to meet the requirements contained in Table 6, Column 1. A perimeter road may not be required where: <ul style="list-style-type: none"> <li>the adjoining classified vegetation is Class G Grassland;</li> <li>lots are zoned for rural living or equivalent;</li> <li>it is demonstrated that it cannot be provided due to site constraints; or</li> <li>all lots have frontage to an existing public road</li> </ul>			
<u>Performance Principle P3iii</u> Vehicular access is provided which allows: <ul style="list-style-type: none"> <li>access and egress for emergency service vehicles;</li> <li>defendable space for emergency services personnel on the interface</li> <li>between classified vegetation and development; and</li> <li>hazard separation between classified vegetation and the site to reduce the potential radiant heat that may impact a lot(s).</li> </ul>	<u>A3.4b Fire service access route</u> <i>Where proposed lots adjoin classified vegetation under AS3959, and a perimeter road is not required in accordance with A3.4a, a fire service access route can be considered as an acceptable solution to provide firefighter access, where access is not available, to the classified vegetation.</i> A fire service access route is to meet all the following requirements: <ul style="list-style-type: none"> <li>requirements in Table 6, Column 3;</li> <li>be through-routes with no dead-ends;</li> <li>linked to the internal road system at regular intervals, every 500 metres;</li> <li>must be signposted;</li> <li>no further than 500 metres from a public road;</li> <li>if gated, gates must open the required horizontal clearance and can be locked by the local government and/or emergency services, if keys are provided for each gate; and</li> <li>turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres.</li> </ul>	SP, Sb	Not Applicable	The proposed development does not require fire service access routes (FSARs).
<u>Performance Principle P3iv</u> Vehicular access is provided which allows emergency service vehicles to directly access all habitable buildings and water supplies and exit the lot without entrapment	<u>A3.5 Battle-axe access legs</u> <i>Where it is demonstrated that a battle-axe cannot be avoided due to site constraints, it can be considered as an acceptable solution.</i> There are no battle-axe technical requirements where the point the battle-axe access leg joins the effective area of the lot, is less than 50 metres from a public road in a reticulated area. In circumstances where the above condition is not met, or the battle-axe is in a non-reticulated water area, the battle-axe is to meet all the following requirements: <ul style="list-style-type: none"> <li>requirements in Table 6, Column 4; and</li> <li>passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres)</li> </ul>	Sb	Not applicable	No battle-axe legs are proposed as part of the development and the project area is not serviced by an existing battle-axe.
	<u>A3.6 Private driveways</u> There are no private driveway technical requirements where the private driveway is: <ul style="list-style-type: none"> <li>within a lot serviced by reticulated water;</li> <li>no greater than 70 metres in length between the most distant external</li> </ul>	Dd, Do	Acceptable Solution	An extension of an existing driveway currently providing access to the STEAM building, is proposed as part of this development. The driveway will be 4 m wide and provided with a compliant turnaround within 30 m of the Sports Hall. There will be 40 m dead-end leg, however this is compliant with DFES GL-11 (Site Planning and Fire Appliance Specifications).

Bushfire protection criteria			Development response	
Performance Principle	Acceptable solutions	Planning Stage	Method of compliance	Proposed bushfire management measures
	<p>part of the development site and the public road measured as a hose lay; and</p> <ul style="list-style-type: none"> <li>accessed by a public road where the road speed limit is not greater than 70 km/h.</li> </ul> <p>In circumstances where all of the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following requirements:</p> <ul style="list-style-type: none"> <li>requirements in Table 6, Column 4;</li> <li>passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and</li> <li>turn-around area as shown in Figure 28 and within 30 metres of the habitable building.</li> </ul>			
<b>Element 4: Water</b>				
<i>Intent: To ensure that water is available to enable people, property and infrastructure to be defended from bushfire</i>				
No Performance Principle Applies	A4.1 Identification of future water supply	SP	Not applicable	Not applicable to this planning stage
<p><b>Performance Principle P4</b></p> <p>The subdivision, development or land use is provided with a permanent and secure water supply that is sufficient for firefighting purposes.</p> <p>Provide a permanent water supply that is:</p> <ul style="list-style-type: none"> <li>sufficient and available for firefighting purposes;</li> <li>constructed from non-combustible materials (e.g. steel), or able to</li> <li>maintain its integrity throughout a bushfire; and</li> </ul> <p>accessible, with legal access for maintenance and re-filling by tankers and emergency service vehicles</p>	<p><b>A4.2 Provision of water for firefighting purposes</b></p> <p>Where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, then the following applies:</p> <ul style="list-style-type: none"> <li>The provision of a water tank(s), in accordance with the requirements of Schedule 2; and</li> <li>Where the provision of a strategic water tank(s) is applicable, then the following requirements apply: <ul style="list-style-type: none"> <li>land to be ceded free of cost to the local government for the placement of the tank(s);</li> <li>the lot or road reserve where the tank is to be located is identified on the plan of subdivision;</li> <li>tank capacity, construction, and fittings, provided in accordance with the requirements of Schedule 2; and</li> <li>a strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds).</li> </ul> </li> </ul> <p>Where a subdivision includes an existing habitable building(s) that is to be retained, a water supply should be provided to this existing habitable building(s), in accordance with the requirements listed above.</p>	Sb, Dd, Do	Acceptable Solution	<p>The existing college is connected to reticulated water supply, and has the following onsite firewater services:</p> <ul style="list-style-type: none"> <li>an existing street hydrant located on the incoming driveway,</li> <li>an existing onsite feed hydrant system consisting of a fire booster connection located near the main entrance gate to the college, and several onsite hydrants positioned throughout the college.</li> </ul> <p>Where observed, the hydrants have been depicted on Figure 5.</p> <p>Fire hydrant system coverage to the proposed building is to be assessed against the National Construction Code and relevant Australian Standards at the building permit stage, and should there be a shortfall from the existing hydrant locations, additional hydrants may need to be installed to achieve compliance coverage. Notwithstanding, there is currently sufficient firewater connections onsite for bushfire fighting purposes.</p>

\* **Applicable Planning Stages** (SP - Strategic planning and structure plan where lot layout is unknown; Sb - Structure plan where lot layout is known and subdivision application; Dd – Development application for a single dwelling, ancillary dwelling or minor development; Do – Development application for any other development)

## 6.0 Bushfire management measures

Linfire makes the following additional bushfire management recommendations to inform ongoing planning stages of the development and increase the level of bushfire risk mitigation across the site. Where possible, these measures have been depicted on Figure 5.

### 6.1 Onsite Asset Protection Zones and Landscaping

The BAL contour assessment is reliant on all onsite excluded vegetation being implemented and maintained as:

- A variable width 14 m-22 m APZ around the perimeter of the new Sports Hall building

The APZ nominated above is to be implemented and maintained in accordance with Schedule 1 of the Guidelines (see Appendix 4). The establishment of the APZ, and all ongoing management, is to be conducted in accordance with by the Proponent, in perpetuity, and this is enforceable under the City of Armadale firebreak notice (see Appendix 7).

All land within the college site that is currently non-vegetated or low threat vegetation, but outside the APZs nominated above, have previously been nominated as APZs in a previous BMPs, and are expected to be maintained by the Proponent as non-vegetated elements or low threat vegetation, compliant with the principles of AS 3959 Clause 2.2.3.2 (e) and (f), and the concepts of Schedule 1 of the Guidelines (see Appendix 4).

### 6.2 Building construction standards

Bushfire construction provisions of the National Construction Code require that Class 1, 2, 3 and associated Class 10a buildings comply with the bushfire specific construction requirements of AS 3959 or the NASH standards, in accordance with the assessed BAL.

While it is noted the proposed buildings are not these classifications with no statutory trigger to comply with the bushfire construction requirements, however given the vulnerable occupants, it is recommended consideration is given to constructing the buildings to comply with the assessed BAL rating to provide resilience to bushfire attack, or comply with the BAL-12.5 specifications which are primarily aimed at resilience to ember attack.

### 6.3 Vulnerable land use

The proposed development constitutes a vulnerable land use. On this basis, a Bushfire Emergency Evacuation Plan (BEEP) is required to address the requirements of Policy Measure 6.6.1 of SPP 3.7.

The college has an existing BEEP that formed part of the previous BMP submitted to accompany the STEAM building DA. It is a requirement of this BMP that the existing BEEP is updated to reflect the new Sports Hall building forming part of this DA, prior to occupation of this building.

### 6.4 Bushfire Safer Building

Ensure the nominated Bushfire Safer Building is maintained in accordance with the original approval and the recommendations of the audit, such that it is safe for onsite shelter-in-place in a bushfire emergency, if required as a last resort response by the College.

### 6.5 BAL compliance and/or BAL assessment report

A BAL compliance and/or BAL assessment report may be prepared at the discretion of the City, prior to construction, following completion of construction works or prior to issue of certificate of occupancy, to validate and confirm the accuracy of the BAL contour assessment. The Building Certifier may also require














a revised BAL assessment to confirm the BAL rating to buildings, prior to submission of building licence.

#### **6.6 Compliance with annual firebreak notice**

The Proponent is to comply with the current City of Armadale annual firebreak notice (refer to Appendix 7), including any approved variations (should they exist).



**Legend**

-  Street Hydrant
- Mitigation Measures**
-  Bushfire Safer Building
-  Onsite Fire Hydrant System Infrastructure
-  Fire Booster
-  Proposed Development
-  Building Outline
-  Cadastre
-  Asset Protection Zone
-  Existing 6m wide EAW

Scale 1:1,300



0 20 40 60 Metres



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Carey Baptist College

Stage 4 - Sports Hall

Figure 5 Bushfire Management Measures

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## 7.0 Responsibilities for implementation and management of the bushfire measures

Implementation of the BMS applies to the Proponent and the City to ensure bushfire management measures are adopted and implemented on an ongoing basis. A bushfire responsibilities table is provided in Table 5 to drive implementation of all bushfire management works associated with this BMS.

**Table 5: Responsibilities for implementation and management of the bushfire measures**

Implementation/management table	
<i>Proponent – prior to development occupation</i>	
No.	Implementation action
1A	Establish the Asset Protection Zone (APZ) around nominated building to the dimensions and standards stated in the BMP and Appendix 4.
1B	Ensure all low threat landscaping and APZs throughout the college are established and maintained, in accordance with the dimensions and standards outlined in the previous BMPs.
1C	Construct the extension to the existing internal driveway, including the turnaround, in accordance with standards stated in the BMP.
1D	Ensure the existing onsite fire hydrant system provides compliant coverage to the proposed buildings, in accordance with the National Construction Code and relevant Australian Standards.
1E	Amend the existing college BEEP for the college, reflecting the additional Sports Hall building forming part of this DA
1F	If required by the City or Building Certifier, individual BAL assessment prior to issuing of building permits.
1G	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954, including any approved variations, including the creation of all required perimeter firebreaks.
<i>Proponent – ongoing</i>	
No.	Implementation action
2A	Maintain the Asset Protection Zone (APZ) around the nominated building to the dimensions and standards stated in the BMP and Appendix 4.
2B	Maintain low threat landscaping and APZs throughout the college, in accordance with the dimensions and standards outlined in the previous BMPs.
2C	Maintain all internal private driveway and the existing EAW, to the standards stated in the BMP (and previous BMPs).
2D	Maintain the onsite fire hydrant system in accordance with relevant Australian Standards.
2E	Maintain the Bushfire Safer Building in accordance with the requirements of the original approval and any recommendations of the audit.
2F	Regularly review with the BEEP requirements to ensure they remain appropriate to the facility, and ensure continual implementation including all preparedness actions and training and exercise drills.
2G	Comply with the relevant local government annual firebreak notice issued under s33 of the Bush Fires Act 1954, including any approved variations, including maintenance of perimeter firebreaks.

## 8.0 References

Department of Fire and Emergency Services (DFES) 2023, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <https://maps.slip.wa.gov.au/landgate/bushfireprone/>,.

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

Standards Australia (SA) 2018, *Australian Standard AS 3959–2018 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

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

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



## Appendix 2: Vegetation plot photos and description



Photo ID: 1a



Photo ID: 1b



Photo ID: 1c

Plot number		Plot 1
Vegetation classification	Pre-development	Class G Grassland
	Post-development	Class G Grassland
Description / justification		Grassland greater than 100 mm in height



Photo ID: 2a



Photo ID: 2b

Plot number		Plot 2
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity



Photo ID: 3a



Photo ID: 3b



Photo ID: 3c



Photo ID: 3d



Photo ID: 3e



Photo ID: 3f



Photo ID: 3g



Photo ID: 3h

Plot number		Plot 3
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Class D Scrub
Description / justification		Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity



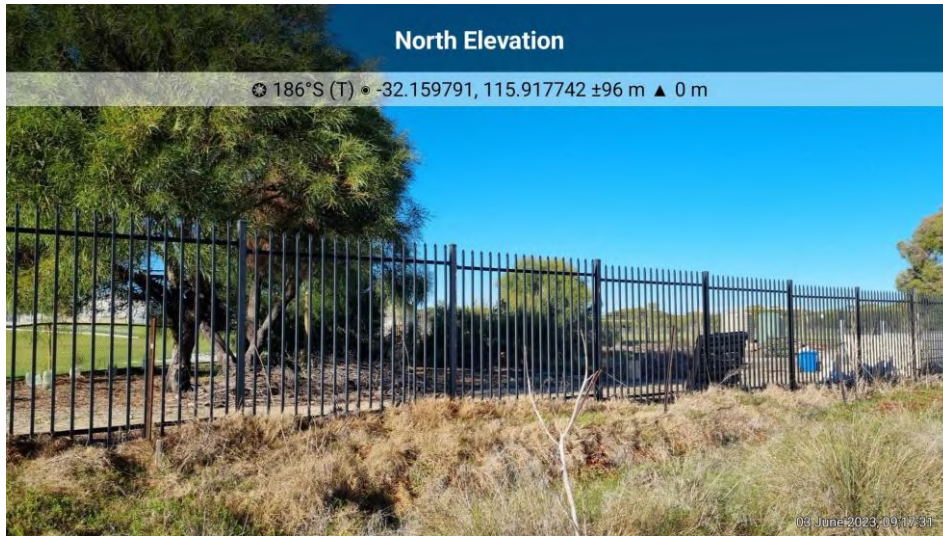


Photo ID: 4a

Plot number		Plot 4
Vegetation classification	Pre-development	Class B Woodland
	Post-development	Class B Woodland
Description / justification		Trees 2-30 m at maturity, dominated by trees with a grassy understorey (lacks shrubby middle layer and deep surface litter)



Photo ID: 5a

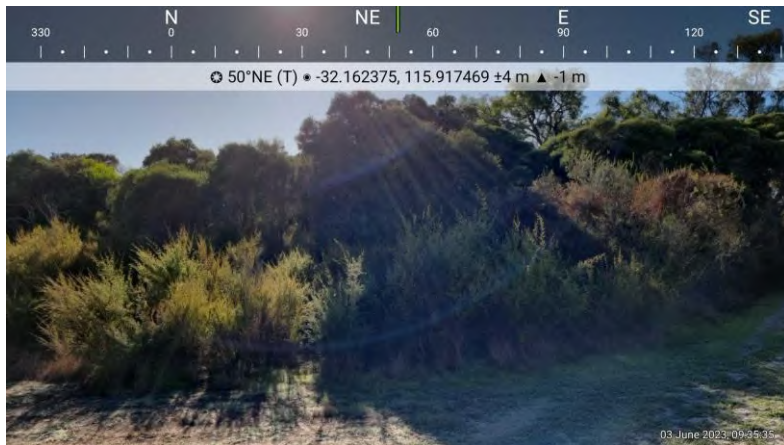


Photo ID: 5b



Photo ID: 5c

Plot number		Plot 5
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 10-30 m high at maturity, dominated by Eucalypts, multi-tiered structure comprising tall canopy layer, shrubby middle layer and grass/herb/sedge understorey



Photo ID: 7a

Plot number		Plot 7
Vegetation classification	Pre-development	Class G Grassland
	Post-development	Class A Forest
Description / justification		Trees 2-30 m at maturity, dominated by trees with a grassy understorey (lacks shrubby middle layer and deep surface litter)



Photo ID: 8a

Plot number		Plot 8
Vegetation classification	Pre-development	Class A Forest
	Post-development	Class A Forest
Description / justification		Trees 2-30 m at maturity, dominated by trees with a grassy understorey (lacks shrubby middle layer and deep surface litter)



Photo ID: 9a



Photo ID: 9b



Photo ID: 9c



Photo ID: 9d



Photo ID: 9e



Photo ID: 9f

Plot number		Plot 9
Vegetation classification	Pre-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification		Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints



Photo ID: 10a

Plot number		Plot 10
Vegetation classification	Pre-development	Class D Scrub
	Post-development	Modified to non-vegetated (exclusion 2.2.3.2 [e]) and/or low threat (exclusion 2.2.3.2 [f]) state
Description / justification		Vegetation to be modified to non-vegetated or low threat state



## Appendix 4: APZ standards (Schedule 1 of the Guidelines)

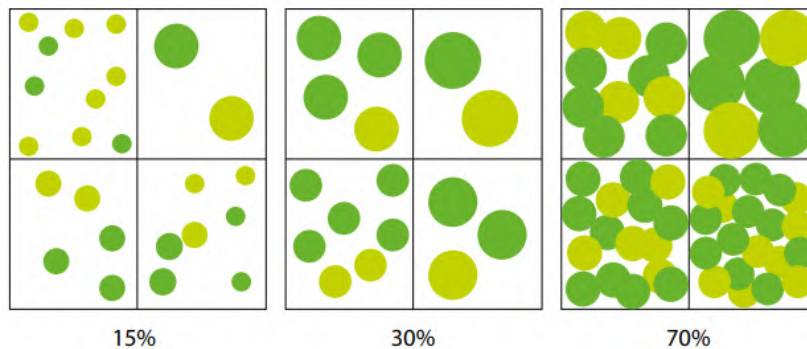
An APZ is a low fuel area maintained around a habitable building to increase the likelihood that it will survive a bushfire, by providing a defensible space and reducing the potential for direct flame contact, radiant heat exposure and ember attack.

Vegetation management within an APZ should provide defensible space and be maintained to a low threat state, in perpetuity, in accordance with the requirements outlined in Schedule 1.

### Schedule 1: Standards for Asset Protection Zones

- **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 overhang 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.
- 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.



- **Shrub\* and Scrub\* (0.5 metres to 6 metres in height)**

- Should not be located under trees or within three metres of buildings.
- Should not be planted in clumps >5 square metres in area.
- Clumps should be separated from each other and any exposed window or door by at least 10 metres.
- Shrub and scrub >6 metres in height are to be treated as trees.

- **Ground covers (<0.5 metres in height)**

- Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above.
- Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
- Ground covers >0.5 metres in height are to be treated as shrubs

- **Grass**

- Grass should be maintained at a height of 100 millimetres or less, at all times.
- Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.

- **Fine Fuel load (combustible dead vegetation mater <6 mm 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).
- Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.

### Schedule 1: Standards for Asset Protection Zones

- **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.
- **Fences within the APZ**
  - Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959)
- **LPG 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.
  - Must sit on a firm, level and non-combustible base and be secured to a solid structure.

\* *Plant flammability, landscaping design and maintenance should be considered – refer to explanatory notes*

\*\* *Fine fuel load should be maintained to less than two tonnes per hectare, however this is often a subjective assessment.*

- *Reducing fuel load levels does not necessarily require the removal of existing vegetation. A combination of methods can be utilised to reduce fuel load such as raking, weed removal, pruning, mulching and/or the removal of plant material.*
- *A simple method to estimate fuel load is to roughly equate one tonne of fuel load per hectare as 100 grams per square metre. For example, two tonnes per hectare of leaf litter is roughly 200 grams of leaf litter per square metre and eight tonnes per hectare is roughly 800 grams.*
- *Eucalyptus leaf litter is approximately 100 grams per handful, so two handfuls of litter per square metre will roughly equate to two tonnes per hectare.*
- *Different types of fine fuel, like mulch or pine needles may be more or less than a handful, however the 100 grams per square metre rule of thumb can still be used.*

## E2 Plant flammability

There are certain plant characteristics that are known to influence flammability, such as moisture or oil content and the presence and type of bark. Plants with lower flammability properties may still burn during a bushfire event, but may be more resistant to burning and some may regenerate faster post-bushfire.

There are many terms for plant flammability that should not be confused, including:

- Fire resistant – plant species that survive being burnt and will regrow after a bushfire and therefore may be highly flammable and inappropriate for a garden in areas of high bushfire risk.
- Fire retardant – plants that may not burn readily or may slow the passage of a bushfire.
- Fire wise – plants that have been identified and selected based on their flammability properties and linked to maintenance advice and planting location within a garden.

Although not a requirement of these Guidelines, local governments may develop their own list of fire wise or fire retardant plant species that suit the environmental characteristics of an area. When developing a recommended plant species list, local governments should consult with ecologists,



land care officers or environmental authorities to ensure the plants do not present a risk to endangered ecological communities, threatened, or endangered species or their habitat.

When selecting plants, private landholders and developers should aim for plants within the APZ that have the following characteristics:

- grow in a predicted structure, shape and height;
- are open and loose branching with leaves that are thinly spread;
- have a coarse texture and low surface-area-to-volume ratio;
- will not drop large amounts of leaves or limbs, that require regular maintenance;
- have wide, flat, and thick or succulent leaves;
- trees that have bark attached tightly to their trunk or have smooth bark;
- have low amounts of oils, waxes, and resins (which will often have a strong scent when crushed);
- do not produce or hold large amounts of fine dead material in their crowns; and/or
- will not become a weed in the area.

Refer to the WAPC Bushfire and Vegetation Fact Sheet for further information on clearing and vegetation management and APZ landscaping, design and plant selection reference material.

## Appendix 5: Low Threat Vegetation Exclusions (AS 3959)

### 2.2.3.2 Exclusions—Low threat vegetation and non-vegetated areas

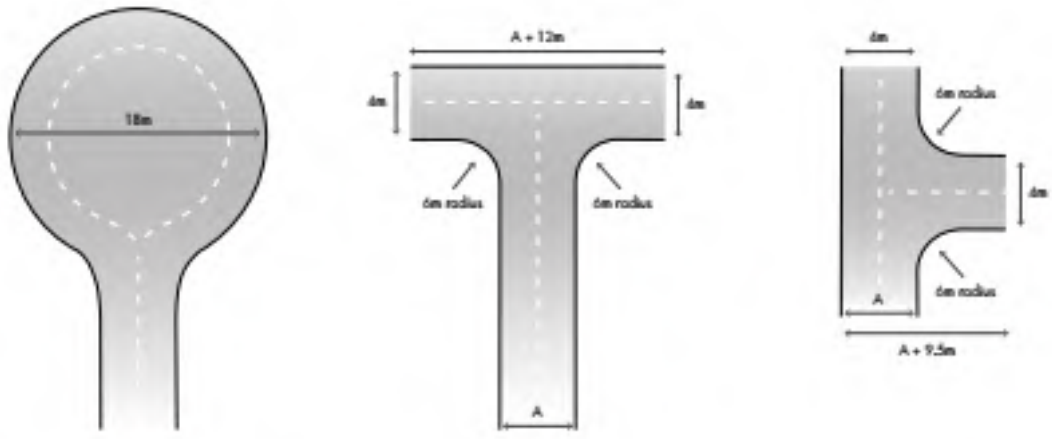
The following vegetation shall be excluded from a BAL assessment:

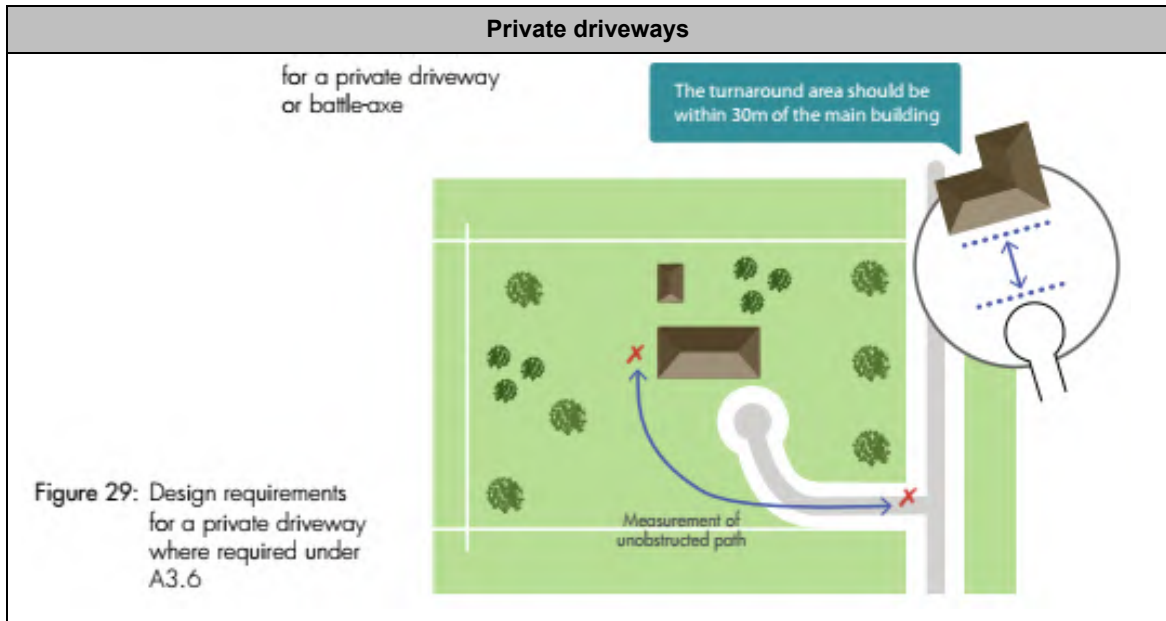
- (a) Vegetation of any type that is more than 100 m from the site.
- (b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.
- (c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.
- (d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.
- (e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
- (f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

#### NOTES:

- 1 Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).
- 2 A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.

## Appendix 6: Vehicular access technical standards of the Guidelines

Private driveways
<p><b>Acceptable solution A3.6</b></p> <p>There are no private driveway technical requirements where the private driveway is:</p> <ul style="list-style-type: none"> <li>• within a lot serviced by reticulated water;</li> <li>• no greater than 70 metres in length between the most distant external part of the development site and the public road measured as a hose lay; and</li> <li>• accessed by a public road where the road speed limit is not greater than 70 km/h.</li> </ul> <p>In circumstances where all of the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following requirements:</p> <ul style="list-style-type: none"> <li>• requirements in Table 6, Column 4;</li> <li>• passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and</li> <li>• turn-around area as shown in Figure 28 and within 30 metres of the habitable building.</li> </ul>
<p><b>Explanatory note A3.6</b></p> <p>In areas serviced by reticulated water, where the road speed limit is not greater than 70 km/h, and where the distance from the public road to the further part of the habitable building is no greater than 70 metres, emergency service vehicles typically operate from the street frontage.</p> <p>In the event the habitable building cannot be reached by hose reel from the public road, then emergency service vehicles will need to gain access within the property. Emergency service vehicles will also need to gain access within the property, where access to reticulated water (fire hydrants) is not possible. In these situations, the driveway and battle-axe (if applicable) will need to be wide enough for access for an emergency service vehicle and a vehicle to evacuate.</p> <p>Turnaround areas should be available for both conventional two-wheel drive vehicles of residents and Type 3.4 fire appliances. Turn-around areas should be located within 30 metres of habitable buildings. Circular and loop driveway design may also be considered. Note that the design requirements for a turn-around area for a private driveway or battle-axe differ to a cul-de-sac.</p>
 <p>Figure 28: Design requirements for a turn-around area for a private driveway or battle-axe</p>



Technical requirement	1	2	3	4
	Public road	Emergency access way <sup>1</sup>	Fire service access routes <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 distance (m)	N/A	6	6	6
Minimum vertical clearance (m)	4.5			
Minimum weight capacity (t)	15			
Maximum grade unsealed road <sup>3</sup>	As outlined in the IPWEA Subdivision Guidelines	1 in 10 (10%)		
Maximum grade sealed road <sup>3</sup>		1 in 7 (14.3%)		
Maximum average grade sealed road		1 in 10 (10%)		
Minimum inner radius of road curves (m)		8.5		

Notes

<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



## **Appendix 7: City of Armadale Firebreak Notice**

# Fire-break and Hazard Reduction Notice 2022/2023



For updated information on alerts and warnings about fires, floods, storms, earthquakes, cyclones, hazardous material incidents and more visit:

[emergency.wa.gov.au](https://emergency.wa.gov.au)

[dfes.wa.gov.au](https://dfes.wa.gov.au)

Call 13 3337 (13 DFES)

# Notice to all owners and occupiers of land situated within the City Of Armadale

## BUSH FIRES ACT 1954

**Notice is hereby given to all owners and/or occupiers of land within the City of Armadale that pursuant to the powers conferred in Sections 33(1), 25(1a) and 24G(2) of the *Bush Fires Act 1954* the following requirements apply to prevent the outbreak, spread or extension of a bush fire within the district and deal with other fire related preparedness and prevention matters.**

Pursuant to Section 33(1) of the *Bush Fires Act 1954*, all owners and/or occupiers of land are required to carry out fire prevention work in accordance with the requisitions of this Notice on or before the 30th day of November 2022, or within fourteen days of becoming the owner or occupier of land should this be after the 30th day of November 2022, and maintain the required fire prevention work up to and including the 31st day of March 2023.

### 1. Definitions

**Authorised Officer** means an employee of the City of Armadale appointed as a Bush Fire Control Officer.

**Bushfire Management Plan** means a plan that has been developed in accordance with *State Planning Policy 3.7*, and approved by the City of Armadale to reduce and mitigate fire hazards within a particular subdivision, lot or other area of land anywhere in the district.

**Driveway** means a point of access to a Habitable Building accessible for both conventional two wheel drive vehicles and firefighting appliances that is totally clear of Inflammable Matter and other objects or things.

**Fire-break** means an area of land constructed to a Trafficable surface and maintained totally clear of all Inflammable Matter leaving bare mineral earth, and includes the pruning and removal of any living or dead trees, scrub or any other material encroaching into the Vertical Axis of the fire-break area. Such fire-breaks may be constructed by one or more of the following methods: ploughing, cultivating, scarifying, raking, burning, chemical spraying or other method as approved by an Authorised Officer.

**Fire Management Plan** has the same meaning as Bushfire Management Plan.

**Fuel Depot / Fuel Storage Area** means an area of land, building or structure where fuel (i.e. petrol, diesel, kerosene, or any other hydrocarbon liquid) is kept, excepting where the quantities of fuel being stored are considered "minor storage quantities" under Table 2.1 of *Australian Standard AS1940* The storage and handling of flammable and combustible liquids.

**Habitable Building** means a dwelling, workplace, place of gathering or assembly and includes a building used for storage or display of goods or produce for sale by wholesale in accordance with classes 1 — 9 of the *Building Code of Australia*.

**Haystack** means any collection of hay including fodder rolls placed or stacked that exceeds 100m<sup>3</sup> in size (e.g. five (5) metres x five (5) metres x four (4) metres), whether in a shed, other structure or in the open air.

**Inflammable matter** means any tree, bush, plant, grass, mineral, vegetable, substance, object, thing or material (except for living trees, shrubs, plants and lawns under cultivation) or any other thing deemed by an Authorised Officer to be capable of combustion that may, or is likely to, catch fire and burn.

**Trafficable** means to be able to travel from one point to another in a four-wheel drive fire appliance on a clear surface, unhindered without any obstruction that may endanger such fire appliances. A Fire-break is not to terminate, or lead to a dead end without provision for egress to a safe place or a cleared turn around area of 17.5 metre radius.

**Vertical Axis** means a continuous vertical uninterrupted line at a right angle to the horizontal line of the Fire-break.

### 2. All Land greater than 5,000m<sup>2</sup>

- a. A three (3) metre wide Fire-break with a four (4) metre high Vertical Axis is to be constructed and maintained as close as practicable inside the property boundary but no more than ten (10) metres from the boundary around the entire perimeter of the property. Reticulated and maintained green lawn may be accepted in lieu of a Fire-break; and
- b. A three (3) metre wide Fire-break with a four (4) metre high Vertical Axis is to be constructed and maintained immediately surrounding all outbuildings, sheds, haystacks and groups of buildings situated on the land; and
- c. A three (3) metre wide driveway with a four (4) metre high Vertical Axis is to be installed and maintained.

### 3. All Land 5,000m<sup>2</sup> or less

- a. All Inflammable Matter on the entire property (noting that this does not include living trees, shrubs, plants and lawns under cultivation) is to be reduced and maintained to a height of less than five (5) centimetres; and,
- b. A three (3) metre wide driveway with a four (4) metre Vertical Axis is to be installed and maintained.

#### 4. Fuel Depot / Fuel Storage Areas

- a. All Inflammable Matter within the Fuel Depot / Fuel Storage Area is to be cleared leaving bare mineral earth; and
- b. A three (3) metre wide Fire-break with a four (4) metre Vertical Axis is to be installed and maintained immediately surrounding the Fuel Depot / Fuel Storage Area.

#### 5. Hazard Reduction

The requirements of this Notice are considered to be the minimum requirement for fire prevention work, not only to protect individual properties but the district in general.

A separate Hazard Reduction Notice may be issued to individual landowners pursuant to Section 33 of the *Bush Fires Act 1954* to carry out further hazard reduction works with respect to anything upon the land, where in the opinion of an Authorised Officer, it is likely to be conducive to the outbreak and/or the extension of a bushfire.

#### 6. Application to Vary Fire-break and Hazard Reduction Notice Requirements

If you consider, for any reason, that it is impractical to meet the requirements of this Notice, you may apply in writing to the City of Armadale, or its duly Authorised Officers, **no later than the 1st day of October 2022**, requesting authorisation to employ other methods of fire prevention. If permission is not granted by the City you must comply with the requirements of this Notice.

In some instances naturally occurring features such as rocky outcrops, natural watercourses or landscaping such as reticulated gardens, lawns or driveways may be an acceptable substitute for a Fire-break.

If approved the requirements of all approved variations to the Fire-break and Hazard Reduction Notice will need to be established on or before the 30th day of November 2022 (or within 14 days of you becoming the owner or occupier should this occur after that date) and be maintained up to and including the 31st day of March 2023.

**Note: No Fire-break exemptions will be given. Please apply for a Variation if an alternative location for Fire-break installation is required.**

#### 7. Bushfire Management Plans

Where an approved Bushfire Management Plan (BMP), exists for an individual or group of properties as part of a development or subdivision approval, the owners and/or occupiers of those properties shall comply with the requirements and responsibilities of that BMP in its entirety. Some BMPs may also require compliance with this Notice.

BMPs can be viewed on the City's website via <https://www.armadale.wa.gov.au/bushfire-management-plans>. If you have trouble accessing your BMP please contact the City's Customer Service Team on 9394 5000.

#### 8. Bushfire Attack Level (BAL) Assessments

Where an approved Bushfire Attack Level assessment (BAL) has been developed in accordance with *Australian Standard 3959* as part of a development application, compliance with the requisitions of the BAL assessment is required in addition to the requirements contained within this Notice.

#### 9. Camp or Cooking Fires

In accordance with the provisions of Section 25(1a) of the *Bush Fires Act 1954* the lighting of camp or cooking fires is prohibited on all land within the City of Armadale during the Prohibited Burning Time. This prohibition does not apply to a gas appliance that does not consume solid fuel comprising of a fire, the flame of which is encapsulated by the appliance.

#### 10. Burning of Garden Refuse & Rubbish

For the purposes of this clause, "*Limited Burning Time*" means the 1st day of October 2022 through until the 31st day of May 2023 (inclusive and as varied pursuant to Sections 17 and 18 of the *Bush Fires Act 1954*) and the "*Prohibited Burning Time*" means the 1st day of December 2022 through until the 31st day of March 2023 (inclusive and as varied pursuant to Section 17 of the *Bush Fires Act 1954*).

- a. In accordance with the provisions of Section 24G of the *Bush Fires Act 1954* the burning of garden refuse or rubbish in an incinerator or on the ground that would otherwise be permitted under Section 24F is absolutely prohibited –
  - i. on land 1,200m<sup>2</sup> in size or less, during the Limited Burning Time; and
  - ii. on land larger than 1,200m<sup>2</sup> in size, during the Prohibited Burning Time.

The effect of this clause is that the burning of garden refuse or rubbish in an incinerator or on the ground on land that is 1,200m<sup>2</sup> or less in size is prohibited during the Limited Burning Time and the burning of garden refuse or rubbish in an incinerator or on the ground is prohibited on all land within the district during the Prohibited Burning Time.

- b. In addition to the restrictions under Clause 10(a), garden refuse or rubbish in an incinerator or on the ground must be burnt in accordance with the following conditions –
  - i. There is no inflammable matter (other than that being burnt) within five (5) metres of the fire at any time while the fire is burning; and



- ii. The fire is lit between 6.00pm and 11.00pm and is completely extinguished before midnight on the same day; and
  - iii. At least one person is present at the site of the fire at all times until it is completely extinguished; and
  - iv. When the fire is no longer required, the person who lit the fire must ensure that the fire is completely extinguished by the application of water or earth; and
  - v. Only one pile (up to one (1) cubic metre in size) of garden refuse burnt on the ground may be alight at any one time; and
  - vi. The person intending to light the fire must telephone the Department of Fire and Emergency Services' Communications Centre (COMCEN) on 08 9395 9209 and register the burn immediately prior to lighting the fire.
- c. Any time when there is in force a fire danger forecast issued for the district by the Bureau of Meteorology in Perth of Catastrophic, Extreme or High, a Total Fire Ban (TFB) or any other prohibition is in effect under the *Bush Fires Act 1954*, burning of garden refuse or rubbish in an incinerator or on the ground is prohibited on all land within the district.

The *City Of Armadale Environment, Animals and Nuisance Local Laws 2002* further restricts and or prohibits burning of rubbish or refuse on land in the district.

## 11. No Burning on Sundays or Public Holidays

In accordance with Clause 49(2)(a) of the *City Of Armadale Environment, Animals and Nuisance Local Laws 2002* an owner and/or occupier of land shall not set fire to, or cause or allow to be set on fire, any bush, rubbish or refuse whatsoever on a Sunday or a day that is a Public Holiday, except when specifically authorised to do so for the purpose of fuel reduction by a Bush Fire Control Officer (BFCO) duly appointed under Section 38 of the *Bush Fires Act 1954*.

## 12. Clearing of Remnant Native Vegetation – Rural Living & Special Rural Zone

In accordance with the *City of Armadale Town Planning Scheme No.4*, a separate Development Approval to clear native vegetation on properties zoned Rural Living or Special Rural may need to be obtained. Generally, clearing to satisfy necessary bush fire protection measures as determined by the local government or other relevant authority is exempt from planning

approval. Please refer to the following sections of *Town Planning Scheme No.4* for further information:

- Clause 4.7.5 deals with clearing where a property contains a development envelope;
- Clause 4B.7 deals with clearing in the Rural Living and General Rural zones; and,
- Clause 4C.9 deals with clearing in the Strategic Regional Centre, District Centre, Local Centre and Mixed Business/Residential zones.

See link - [https://www.armadale.wa.gov.au/sites/default/files/assets/documents/docs/Planning\\_and\\_Land\\_Use/Town\\_Planning\\_Scheme\\_No4.pdf](https://www.armadale.wa.gov.au/sites/default/files/assets/documents/docs/Planning_and_Land_Use/Town_Planning_Scheme_No4.pdf)

Specific situations where development approval is required for the clearing of remnant native vegetation is outlined within the following info sheet:

[https://www.armadale.wa.gov.au/sites/default/files/assets/documents/docs/Planning\\_and\\_Land\\_Use/Info\\_Clearing\\_Vegetation\\_Fire\\_Hazard\\_Reduction.pdf](https://www.armadale.wa.gov.au/sites/default/files/assets/documents/docs/Planning_and_Land_Use/Info_Clearing_Vegetation_Fire_Hazard_Reduction.pdf)

## 13. Penalties

Failure or neglect to comply with the requisitions of this Notice is an offence and can result in a penalty of up to \$5000.

Furthermore, Authorised Officers, servants, workmen, contractors, vehicles, machinery and appliances (as the officers deem fit) may enter upon the land and carry out the requisitions of this Notice that are not complied with by the time specified in the Notice, and the amount of any costs and expenses incurred may be recovered from you as the owner and/or occupier of the land.

By order of the City of Armadale

**Chief Executive Officer**  
**Joanne Abbiss**

### Important Numbers

**IN ALL EMERGENCIES CALL 000 | FIRE AMBULANCE POLICE**

**Western Australian Bureau of Meteorology 1300 183 341**

**City of Armadale Rangers 9394 5000 | After Hours 1300 886 885**

**To obtain a fire permit 9394 5000**