

# Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

## Bushfire Management Plan and Site Details

Site Address / Plan Reference: Lot 408 (#19) Neerabup Road

Suburb: Clarkson

State: WA

P/code: 6030

Local government area: City of Wanneroo

Description of the planning proposal: Subdivision Application

BMP Plan / Reference Number: JBS&G64211-149059

Version: M01 Rev 0

Date of Issue: 21/12/2022

Client / Business Name: Fabcot Pty Ltd

Reason for referral to DFES	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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 BPC elements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Is the proposal any of the following special development types (see SPP 3.7 for definitions)?</b>		
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

N/A

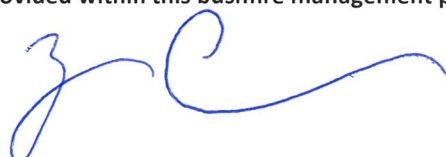
**Note:** The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

## BPAD Accredited Practitioner Details and Declaration

<b>Name</b> Zac Cockerill	<b>Accreditation Level</b> Level 2	<b>Accreditation No.</b> BPAD 37803	<b>Accreditation Expiry</b> 31/08/2023
<b>Company</b> Strategen-JBS&G		<b>Contact No.</b> (08) 9792 4797	

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner



Date 21/12/2022

Name:	Tom Keen	Date:	21 December 2022
Company:	Fabcot Pty Ltd	Job/Doc. No.:	JBS&G64211-149059
Email:	tkeen1@woolworths.com.au	Inquiries:	Zac Cockerill

## Bushfire Management Plan Addendum, Proposed subdivision of Lot 408 Neerabup Rd, Clarkson

### 1.1 Purpose and Overview

Strategen Environmental (now JBS&G) prepared a comprehensive Bushfire Management Plan (BMP) in 2018 as support for a Structure Plan to guide mixed commercial development within Lot 408 Neerabup Road, Clarkson (hereon referred to as the project area), located in the City of Wanneroo, WA. Subsequent to the Structure Plan BMP, Strategen-JBS&G in 2021 developed a BMP to support a Development Application (DA) for a proposed shopping centre within the project area. This BMP addendum has been prepared for the proposed subdivision of the project area into the following (as per Figure 1):

- proposed Lot 1, zoned commercial, for a Woolworths and associated support infrastructure, eight tenancies, liquor store, mall and outdoor dining
- proposed Lot 2 for future urban development.

This memorandum is an addendum to the original Structure Plan BMP (Strategen 2018) and provides an updated, detailed bushfire assessment specific to the subdivision stage for the project area. This BMP addendum has been prepared to accompany subdivision application for Lot 408 Neerabup Road, Clarkson and address compliance requirements of Policy Measure 6.4 of *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 Version 1.4* (the Guidelines; WAPC 2021). This BMP addendum should be read in conjunction with the original Structure Plan BMP (Strategen 2018), as well as the subsequent DA stage BMP (Strategen-JBS&G 2021). Consistency has been maintained with these previous documents where applicable.

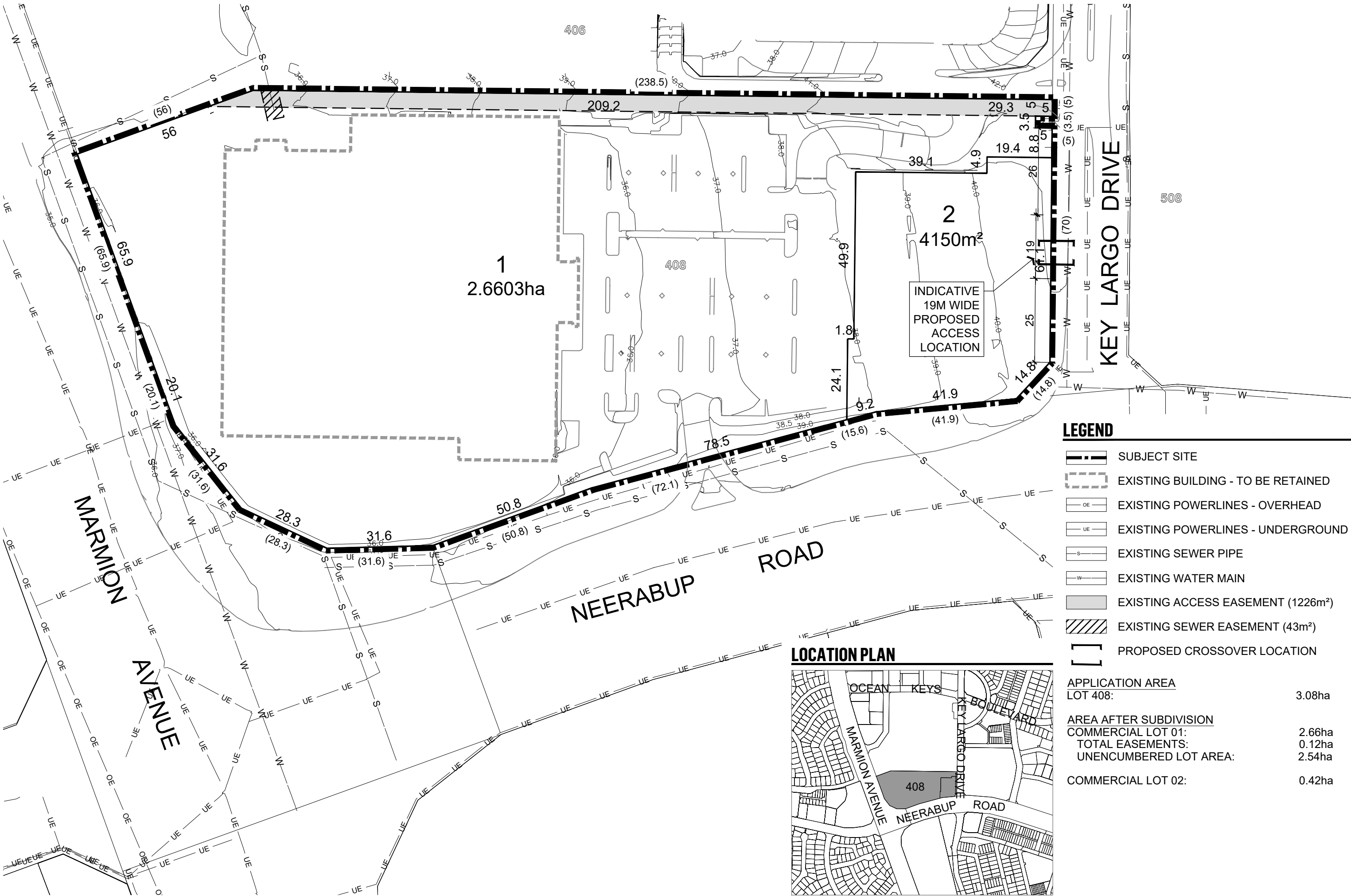
This addendum includes the following information:

1. A revised bushfire assessment including:
  - a. an updated Vegetation Classification and Effective Slope map, depicting the potential post-development vegetation classifications/exclusions specific to the subdivision area, consistent with the latest site conditions mapped in the Strategen-JBS&G (2021) DA stage BMP (Figure 2)
  - b. an updated BAL Contour map specific to the subdivision area and post-development vegetation conditions mapped from Item 1a above (Figure 3)

2. An updated assessment against the bushfire protection criteria of the Guidelines, including updated statements of compliance against acceptable solutions to demonstrate compliance within the boundary of the subdivision site (Table 3).
3. A works program outlining responsibilities and timing for implementation of the bushfire management actions specific to the proposed subdivision (Table 4).

## **1.2 Bushfire prone designation**

The project area is partially designated as bushfire prone on the Map of Bush Fire Prone Areas (depicted in Figure 2). As such, bushfire risk considerations and a BAL assessment are required to inform subdivision design and application.

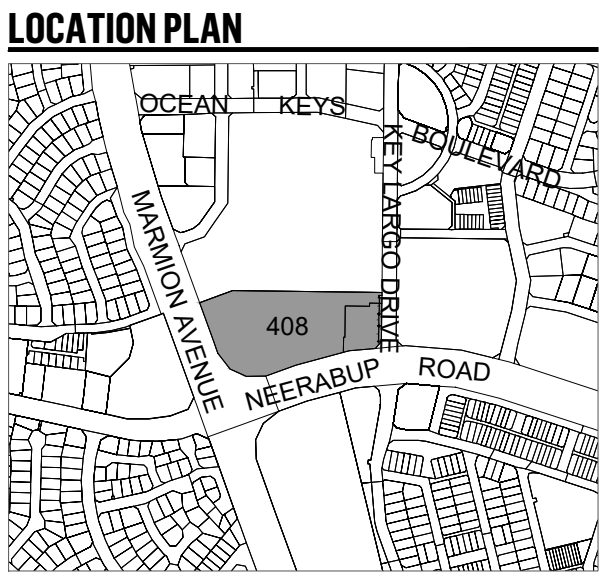


**LEGEND**

- SUBJECT SITE
- EXISTING BUILDING - TO BE RETAINED
- EXISTING POWERLINES - OVERHEAD
- EXISTING POWERLINES - UNDERGROUND
- EXISTING SEWER PIPE
- EXISTING WATER MAIN
- EXISTING ACCESS EASEMENT (1226m²)
- EXISTING SEWER EASEMENT (43m²)
- PROPOSED CROSSOVER LOCATION

**APPLICATION AREA**

LOT 408:	3.08ha
<b>AREA AFTER SUBDIVISION</b>	
COMMERCIAL LOT 01:	2.66ha
TOTAL EASEMENTS:	0.12ha
UNENCUMBERED LOT AREA:	2.54ha
COMMERCIAL LOT 02:	0.42ha



## **2. Bushfire assessment results**

### **2.1 Assessment inputs**

#### **2.1.1 Vegetation classification**

Strategen-JBS&G assessed classified vegetation and exclusions within the 150 m assessment area as part of the original Structure Plan BMP (Strategen 2018) and DA BMP (Strategen-JBS&G 2021) 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).

A review of on-ground conditions via Nearmap imagery (dated 1 October 2022) has determined that the extent of classified vegetation has not materially changed since the latest 2021 site inspection. In this regard, a desktop assessment was deemed to be an appropriate means of providing an updated assessment of current vegetation conditions, which are summarised as follows and depicted in Figure 2:

- the project area contains no classifiable vegetation and currently comprises cleared land/built form (a low threat state is expected to be maintained within the project area throughout the life of the development)
- adjacent POS and bushland reserve land opposite Marmion Avenue to the west and Neerabup Road to the south consists of Class D scrub
- multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site or of other vegetation being classified as vegetation are excluded under Clause 2.2.3.2 (c). While the vegetation is within 20 m from the project area boundary under the proposed subdivision, it is greater than 20 m from habitable development as per the DA stage BMP (Strategen-JBS&G 2021) and is therefore excludable under Clause 2.2.3.2 (c)
- narrow strips of vegetation along Marmion Avenue and Neerabup Road to the south, southwest and southeast that are less than 20 m in width and not within 20 m of other classified vegetation or the project area are excluded under Clause 2.2.3.2 (d)
- existing non vegetated areas (e.g. roads and buildings) and low threat managed land (e.g. urban road verge treatments, managed POS etc) are excluded under Clauses 2.2.3.2 (e) and (f).

Site photos representative of the above vegetation classifications/exclusions can be viewed in Appendix 2 of the original Structure Plan BMP (Strategen 2018) and Appendix C of the subsequent DA stage BMP (Strategen-JBS&G 2021).

#### **2.1.2 Effective slope**

JBS&G assessed effective slope under classified vegetation within the assessment area as part of the original Structure Plan BMP (Strategen 2018) and DA BMP (Strategen-JBS&G 2021) in accordance with AS 3959. Results were cross referenced with DPIRD 2m contour data and are depicted in Figure 2. Site observations indicate that the effective slope under all classifiable vegetation within the 150 m assessment area is predominantly flat or upslope, except for a small section of Class D scrub to the west opposite Marmion Avenue, which is subject to a downslope of 0–5 degrees in association with a drainage basin.

### 2.1.3 Summary of inputs

Figure 2 illustrates the anticipated post-development vegetation classifications and exclusions following completion of subdivisional works. The post-development vegetation classifications/exclusions and effective slope are summarised in Table 1.

**Table 1: Summary of post-development vegetation classifications, exclusions and effective slope**

Vegetation plot	Vegetation classification	Effective slope	Comments
1	Class D Scrub	Downslope >0–5°	Located opposite Marmion Avenue to the west, adjacent to Fowey Loop, containing scrub vegetation with a continuous horizontal fuel profile between 2–6 m in height associated with an existing drainage basin.
2	Class D Scrub	Flat/upslope (0°)	Located opposite Neerabup Road within McAllister Park to the south and opposite Marmion Avenue within Anchorage Park to the west, as well as road verge vegetation within Marmion Avenue and Neerabup Road in various states of management adjacent to the project area, containing scrub vegetation with a continuous horizontal fuel profile between 2–6 m in height.
3	Excluded – Clause 2.2.3.2 [d]	N/A	Narrow strips of vegetation along Marmion Avenue and Neerabup Road to the south, southwest and southeast that are less than 20 m in width and not within 20 m of other classified vegetation or the project area.
4	Excluded – Clause 2.2.3.2 [c]	N/A	Multiple areas of vegetation less than 0.25 ha in area retained to the northwest and not within 20 m of proposed habitable development or other vegetation being classified as vegetation.
5	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Includes existing managed low threat landscaping and non-vegetated elements such as roads, paving, infrastructure, managed POS within Anchorage Park and managed road verges.



- Legend**
- Project area
  - 100m assessment area
  - 150m assessment area
  - Cadastral boundary
  - Bushfire prone areas
- Vegetation classification**
- Class D Scrub
  - Clause 2.2.3.2 (c)
  - Clause 2.2.3.2 (d)
  - Clause 2.2.3.2 (e) & (f)
- Proposed lots
  - Topographic contours (mAHd)
  - Roads



Job No: 64211

Client: Fabcot Pty Ltd

Version: A	Date 20/12/2022
Drawn By: jcrute	Checked By: CT

Scale 1:2,700 at A4 ↑

0                      50                      100  
metres

Coord. Sys. GDA 1994 MGA Zone 50

**Lot 408 Neerabup Road,  
Clarkson, WA**

**VEGETATION CLASSIFICATION  
AND EFFECTIVE SLOPE**

**FIGURE 2**

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

Strategen-JBS&G has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for the project area (Figure 3). 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 development and subsequently informs the standard of building construction and/or setbacks required for proposed habitable development to potentially withstand such impacts and/or deliver compliance with relevant bushfire protection criteria of the Guidelines.

The BAL contours are based on:

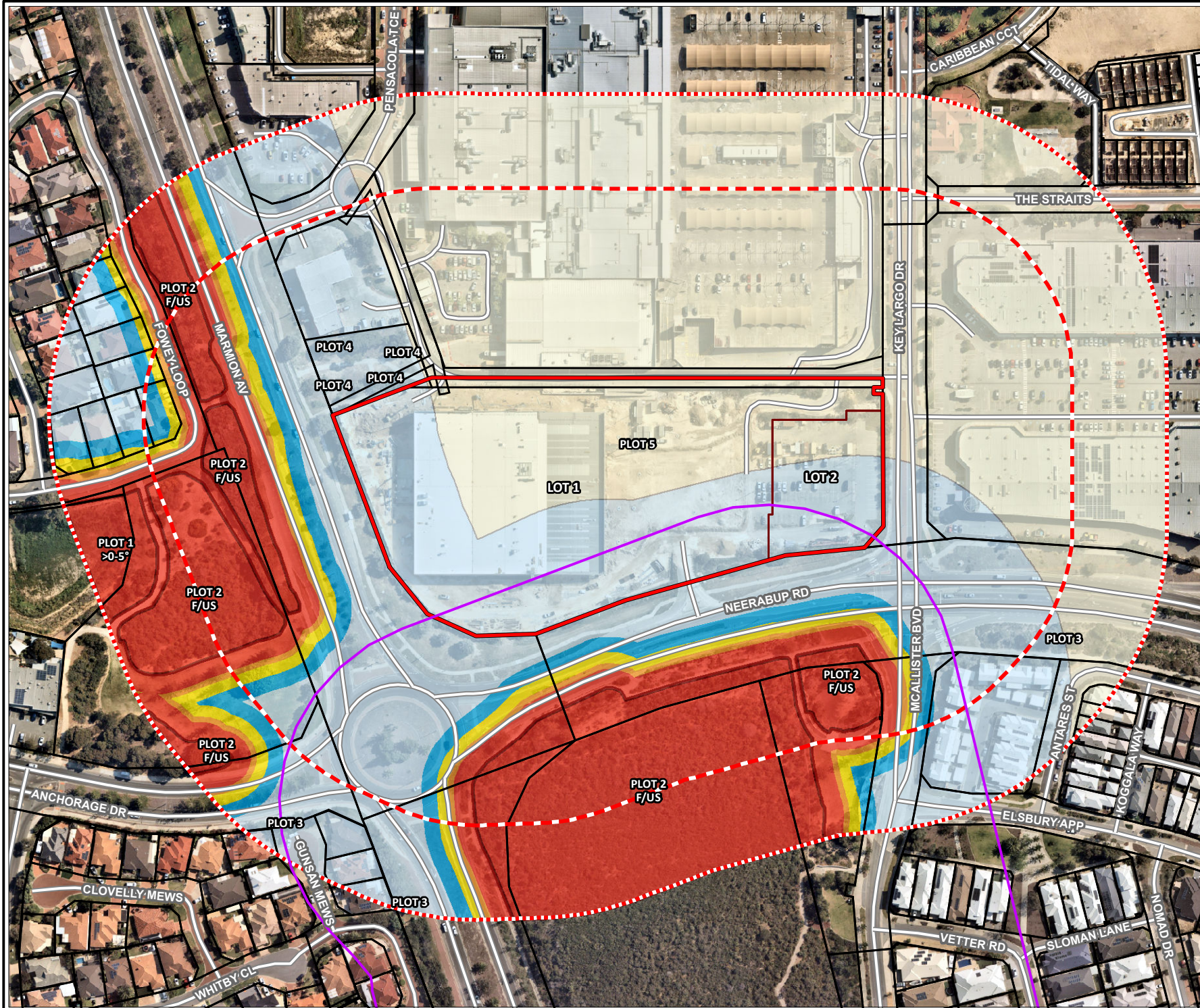
- the vegetation classifications and effective slope observed during the original 2021 site inspection and updated desktop review of current site conditions
- consideration of the existing level of clearing/vegetation modification to a low threat state within the project area, given this area has been previously cleared as part of the previous commercial use within the site.

Results of the BAL contour assessment are detailed in Table 2 and illustrated in Figure 3. The determined worst case BAL impact to the project area is BAL-12.5.

**Table 2: BAL contour assessment results**

Method 1 BAL determination				
Vegetation plot	Vegetation classification	Effective slope	Separation distance	Highest BAL
1	Class D Scrub	Downslope >0–5°	>100 m	BAL-Low
2	Class D Scrub	Flat/upslope (0°)	41m	BAL-12.5
3	Excluded – Clause 2.2.3.2 [c]	N/A	N/A	N/A
4	Excluded – Clause 2.2.3.2 [d]	N/A	N/A	N/A
5	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	N/A	N/A





- Legend**
- Project area
  - 100m assessment area
  - 150m assessment area
  - Cadastral boundary
  - Bushfire prone areas
  - Proposed lots
  - Classified vegetation
- BAL contours**
- BAL FZ
  - BAL 40
  - BAL 29
  - BAL 19
  - BAL 12.5
  - BAL Low
  - Roads



Job No: 64211

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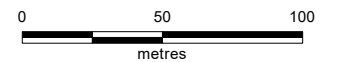
Version: A

Date 20/12/2022

Drawn By: jcrute

Checked By: CT

Scale 1:2,700 at A4



Coord. Sys. GDA 1994 MGA Zone 50

**Lot 408 Neerabup Road,  
Clarkson, WA**

**BAL CONTOUR MAP**

**FIGURE 3**

### 3. Assessment against bushfire protection criteria

#### 3.1 Compliance with Elements 1–4

Compliance with Elements 1–4 of the bushfire protection criteria of the Guidelines (Version 1.4) is demonstrated by meeting the acceptable solutions, as detailed in **Table 3**.

**Table 3: Compliance with the bushfire protection criteria of the Guidelines (Elements 1–4)**

Bushfire protection criteria	Performance Principle	Method of compliance	Statement of development compliance	Compliance achieved
		Acceptable solutions		
<b>Element 1: Location</b>	<b>Performance Principle P1</b> 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. 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.	<b>A1.1 Development location</b> 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.	The BAL contour assessment (see Figure 3 and Table 2) demonstrates that all future development will be located in areas of BAL-12.5 or lower.	✓
<b>Element 2: Siting and design</b>	<b>Performance Principle P2</b> 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 defensible 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.	<b>A2.1 Asset Protection Zone</b> Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the requirements set out in Schedule 1.	No formal Asset Protection Zones are required to deliver BAL-29 or lower given the existing extent of low threat land surrounding the project area, as depicted in Figure 3. All areas of low threat land are to continue to be maintained as per APZ standards (Refer to Attachment A).	✓
<b>Element 3: Vehicular access</b>	<b>Performance Principle P3i</b> 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 attend the site and/or hazard vegetation.	<b>A3.1 Public roads</b> <i>The minimum requirements under this acceptable solution are applicable to all proposed and existing public roads.</i> Public roads are to meet the minimum technical requirements in Table 6, Column 1. The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area.	N/A No public roads are proposed as part of proposed subdivision. Access within the site will be via internal driveways connected to the existing surrounding public road network.	N/A
		<b>A3.2a Multiple access routes</b> 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). 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. 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: the no-through road travels towards a suitable destination; and 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	The project area is located on the north side of Neerabup Road, east of Marmion Avenue and west of Key Largo Drive and will achieve the required multiple access routes through internal driveway connections to the existing public road network, as follows (refer also to Attachment B for specific technical requirements of the Guidelines): <ul style="list-style-type: none"> <li>proposed connection south to Neerabup Road, which in turn opens onto the Mitchell Freeway to the east and leads north/south to multiple suitable destinations</li> <li>proposed connections northeast and northwest into the existing commercial area, which in turn provides access onto Marmion Avenue and Key Largo Drive, which allow north/south access to multiple suitable destinations</li> <li>proposed connection east to Key Largo Drive and north/south to multiple suitable destinations.</li> </ul>	✓

Bushfire protection	Performance Principle	Method of compliance	Statement of development compliance	Compliance
		built-out area – Figure 23.		
		<p><b>A3.2b Emergency access way</b></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>	The proposed subdivision design will comply with Acceptable Solution A3.2 by providing access in two different directions to at least two different suitable destinations. Emergency Access Ways (EAWs) are not required to provide through access to a public road.	N/A
		<p><b>A3.3 Through-roads</b></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>	N/A As previously mentioned, no public roads are proposed as part of proposed subdivision.	N/A
	<p><b>Performance Principle P3ii</b></p> <p>The design of vehicular access and egress provides:</p> <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> <li>hazard separation between classified vegetation and the subject site to reduce the potential radiant heat that may impact a lot(s).</li> </ul>	<p><b>A3.4a Perimeter roads</b></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 the subject site, from the proposed lot(s); and</li> <li>removing the need for battle-axe lots that back onto areas of classified vegetation.</li> </ul> <p>A perimeter road is to meet the requirements contained in Table 6, Column 1.</p> <p>A perimeter road may not be required where:</p> <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>	Perimeter roads at all interfaces with classified vegetation (i.e. to the west and south) are already in place via Marmion Avenue (west) and Neerabup Road (south).	✓
	<p><b>Performance Principle P3iii</b></p> <p>Vehicular access is provided which allows:</p> <ul style="list-style-type: none"> <li>access and egress for emergency service vehicles;</li> </ul>	<p><b>A3.4b Fire service access route</b></p> <p>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</p>	As discussed under A3.4a, perimeter roads are already provided at all interfaces with classified vegetation. In this regard, fire service access routes (FSARs) are not required for the proposed development.	N/A

Bushfire	Performance Principle	Method of compliance	Statement of development compliance	Compliance
	defendable space for emergency services personnel on the interface between classified vegetation and development; and hazard separation between classified vegetation and the site to reduce the potential radiant heat that may impact a lot(s).	<i>access, where access is not available, to the classified vegetation.</i> A fire service access route is to meet all the following requirements: requirements in Table 6, Column 3; be through-routes with no dead-ends; linked to the internal road system at regular intervals, every 500 metres; must be signposted; no further than 500 metres from a public road; 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 turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres.		
	<b>Performance Principle P3iv</b> Vehicular access is provided which allows emergency service vehicles to directly access all habitable buildings and water supplies and exit the lot without entrapment.	<b>A3.5 Battle-axe access legs</b> <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: requirements in Table 6, Column 4; and 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).	No battle-axe lots are proposed as part of the subdivision and the project area is not serviced by an existing battle-axe.	N/A
		<b>A3.6 Private driveways</b> There are no private driveway technical requirements where the private driveway is: within a lot serviced by reticulated water; 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 accessed by a public road where the road speed limit is not greater than 70 km/h. 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: requirements in Table 6, Column 4; 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	N/A Private driveways are to be assessed at the DA stage of the proposed development. Notwithstanding, the proposed subdivision will contain private driveways greater than 70m from a public road within a reticulated area that are designed as parking for the commercial subdivision, with through access to adjacent existing commercial areas to the north. Proposed public car parks will meet the requirements of Table 6, column 4 (see attachment B). As large trafficable areas, the parking lots will not need separate passing bays, will have the additional trafficable width and turn around areas.	N/A

Bushfire protection	Performance Principle	Method of compliance	Statement of development compliance	Compliance
		<p>minimum six metres); and</p> <p>turn-around area as shown in Figure 28 and within 30 metres of the habitable building.</p>		
<b>Element 4: Water</b>	No performance principle applies	<p><b>A4.1 Identification of future water supply</b></p> <p>Evidence that a reticulated or sufficient non-reticulated water supply for bushfire fighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2.</p> <p>Where the provision of a strategic water tank(s) is required a suitable area within a road reserve or a dedicated lot the location should be identified, should be identified on the structure plan, to the satisfaction of the local government.</p>	A4.1 is applicable to strategic planning applications only.	N/A
	<p><b>Performance Principle P4</b></p> <p>Provide a permanent water supply that is:</p> <p>sufficient and available for firefighting purposes;</p> <p>constructed from non-combustible materials (e.g. steel), or able to maintain its integrity throughout a bushfire; and</p> <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> <p>The provision of a water tank(s), in accordance with the requirements of Schedule 2; and</p> <p>Where the provision of a strategic water tank(s) is applicable, then the following requirements apply:</p> <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> <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>	The proposed development will be connected to reticulated water supply via extension of services from adjacent development in accordance with Water Corporations Design Standard 63 requirements.	✓

#### 4. Responsibilities for implementation and management of the bushfire measures

Implementation of the BMP applies to the developer, prospective landowners and the City to ensure bushfire management measures are adopted and implemented on an ongoing basis. A bushfire responsibilities table is provided in Table 4 to drive implementation of all relevant bushfire management works associated with the Strategen Environmental (2018) Structure Plan BMP, the subsequent Strategen-JBS&G (2021) DA stage BMP and this addendum.

**Table 4: Responsibilities for implementation and management of the bushfire measures**

Implementation/management table	
Developer – prior to issue of titles	
No.	Implementation action
1	Maintain the project area in a non-vegetated/low threat managed state and ensure any future landscaping aligns with the expected low threat vegetation outcomes in accordance with the requirements of this BMP addendum.
2	Comply with the relevant requirements of the City of Wanneroo annual firebreak notice (as amended; refer to Attachment C).
3	Prepare a BMP compliance report to demonstrate the relevant bushfire management measures have been implemented to deliver compliance in accordance with this BMP addendum.
Developer – until sale/transfer of lots	
No.	Implementation action
1	Maintain the project area (including any landscaped areas) in a non-vegetated/low threat state in accordance with the requirements of this BMP addendum.
2	Comply with the relevant requirements of the City of Wanneroo annual firebreak notice (as amended; refer to Attachment C).
Landowner/occupier – prior to building construction and ongoing	
No.	Implementation action
1	Comply with the relevant requirements of the City of Wanneroo annual firebreak notice (as amended; refer to Attachment C).
Local government – ongoing management	
No.	Implementation action
1	Maintain existing street verges in a low threat state.

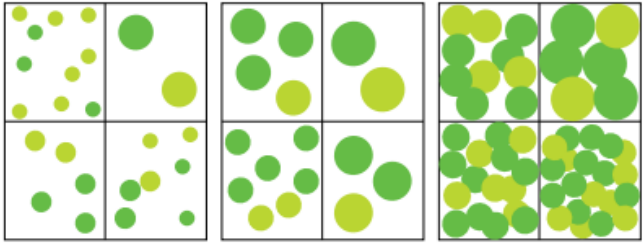
## 5. References

- Department of Fire and Emergency Services (DFES) 2021, *Map of Bush Fire Prone Areas*, [Online Government of Western Australia, available from: <https://maps.slip.wa.gov.au/landgate/bushfireprone/>, [13/12/2022]
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- Standards Australia (SA) 2018, *Australian Standard AS 3959–2018 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.
- Strategen Environmental 2018, *Lot 408 Neerabup Road, Clarkson Bushfire Management Plan (Structure Plan)*, report prepared for Urbis, April 2018.
- Strategen-JBS&G 2021, *Bushfire Management Plan (Development Application), Woolworths Mindarie, Lot 408 (#19) Neerabup Road, Clarkson*, report prepared for Woolworths Group, September 2021.
- 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.

**Attachment A APZ standards (Schedule 1 of the Guidelines)**



**Schedule 1: Standards for Asset Protection Zones**

Object	Requirement
Fences within the APZ	<ul style="list-style-type: none"> <li>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).</li> </ul>
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	<ul style="list-style-type: none"> <li>Should be managed and removed on a regular basis to maintain a low threat state.</li> <li>Should be maintained at &lt;2 tonnes per hectare (on average).</li> <li>Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch &gt;6 millimetres in thickness.</li> </ul>
Trees* (>6 metres in height)	<ul style="list-style-type: none"> <li>Trunks at maturity should be a minimum distance of six metres from all elevations of the building.</li> <li>Branches at maturity should not touch or overhang a building or powerline.</li> <li>Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation.</li> <li>Canopy cover within the APZ should be &lt;15 per cent of the total APZ area.</li> <li>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.</li> </ul> <p data-bbox="703 1182 1219 1238"><b>Figure 19:</b> Tree canopy cover – ranging from 15 to 70 per cent at maturity</p> 
Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	<ul style="list-style-type: none"> <li>Should not be located under trees or within three metres of buildings.</li> <li>Should not be planted in clumps &gt;5 square metres in area.</li> <li>Clumps should be separated from each other and any exposed window or door by at least 10 metres.</li> </ul>
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	<ul style="list-style-type: none"> <li>Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above.</li> <li>Can be located within two metres of a structure, but three metres from windows or doors if &gt;100 millimetres in height.</li> </ul>
Grass	<ul style="list-style-type: none"> <li>Grass should be maintained at a height of 100 millimetres or less, at all</li> </ul>

Schedule 1: Standards for Asset Protection Zones	
	<p>times.</p> <ul style="list-style-type: none"> <li>Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.</li> </ul>
Defendable space	Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	<ul style="list-style-type: none"> <li>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.</li> <li>The pressure relief valve should point away from the house.</li> <li>No flammable material within six metres from the front of the valve.</li> <li>Must sit on a firm, level and non-combustible base and be secured to a solid structure.</li> </ul>

**Source:** *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Element 2 Explanatory Notes
<p><b>E2 Landscaping and design of an Asset Protection Zone</b></p> <p>Landscaping, design, and maintenance of an APZ in a bushfire prone area can significantly improve the bushfire resilience of a building. An APZ should not be seen as an area entirely cleared of vegetation, but as a strategically designed space that gives holistic consideration to how existing or proposed vegetation or non-combustible features interact with, or affect the building's bushfire resilience.</p> <p>A well designed APZ provides a greater level of vegetation management within the first few metres of a building with, for example, less vegetation or inclusion of non-combustible materials. The vegetation within the remainder of an APZ can increase further away from the building with carefully considered plant selection and landscaping techniques.</p> <p>Strategic landscaping measures can be applied, such as replacing weeds with low flammability vegetation (refer to E2 Plant Flammability) to create horizontal and vertical separations between the retained vegetation. The accumulation of fine fuel load from different plants is an important consideration for ongoing maintenance in accordance with Schedule 1. For example, when planting ground covers under deciduous trees within an APZ, the total fine fuel load prescribed in Schedule 1 will include any dead plant material from ground covers and leaf litter from the trees.</p> <p>Plant density and final structure and form of mature vegetation should be considered in the initial landscaping stages. For example, clumps of sapling shrubs planted at a density without consideration of future growth, may increase the bushfire risk as a clump will quickly grow to exceed 5m<sup>2</sup>. It should be noted that in some cases, a single shrub in a mature state may be so dense as to fill a 5m<sup>2</sup> clump alone.</p> <p>The location of plants within an APZ is a key design technique. Separation of garden beds with areas of low fuel or non-combustible material, will break up fuel continuity and reduce the likelihood of a bushfire running through an APZ and subjecting a dwelling to radiant heat or direct flame contact. It is important to note, where mature trees are separated from a building by six metres, but the canopy has grown to extend or overhang a building, maintenance and pruning to remove the overhanging branches should be undertaken without the entirety of the tree being removed.</p> <p>Mulches used within the APZ should be non-combustible. The use of stone, gravel, rock and crushed mineral earth is encouraged. Wood mulch &gt;6mm in thickness may be used, however it is recommended that it is used in garden beds or areas where the moisture level is higher by regular irrigation. These materials could be sourced from non-toxic construction and demolition waste giving the added benefit of reducing the environmental impact of any 'hard</p>

## Element 2 Explanatory Notes

landscaping' actions.

Combustible objects, plants, garden supplies such as mulches, fences made from combustible material, should be avoided within 10 metres of a building. Vines or climbing plants on pergolas, posts or beams, should be located away from vulnerable parts of the building, such as windows and doors. Non-flammable features can be used to provide hazard separation from classified vegetation, such as tennis courts, pools, lawns and driveways or paths that use inorganic mulches (gravel or crushed rock). Consider locating firewood stacks away from trees and habitable buildings.

Incorporation of landscaping features, such as masonry feature walls can provide habitable buildings with barriers to wind, radiant heat and embers. These features can include noise walls or wind breaks. Use of Appendix F of AS 3959 for bushfire resistant timber selection within areas of 29kW/m<sup>2</sup> (BAL-29) or below, or the use of non-combustible fencing materials such as iron, brick, limestone, metal post and wire is encouraged.

In addition to regular maintenance of an APZ, further bushfire protection can be provided at any time by:

- ensuring gutters are free from vegetation;
- installing gutter guards or plugs;
- regular cleaning of underfloor spaces, or enclosing them to prevent gaps;
- trimming and removing dead plants or leaf litter;
- pruning climbing vegetation (such as vines) on a trellis, to ensure it does not connect to a building, particularly near windows and doors;
- removing vegetation in close proximity to a water tank to ensure it is not touching the sides of a tank; and/or
- following the requirements of the relevant local government section 33 fire break notice, which may include additional provisions such as locating wood piles more than 10 metres from a building.

Preparation of a property prior to the bushfire season and/or in anticipation of a bushfire is beneficial even if your plan is to evacuate. As embers can travel up to several kilometres from a bushfire and fall into small spaces and crevices or land against the external walls of a building, best practice recommends that objects within the APZ are moved away from the building prior to any bushfire event. Objects may include, but are not limited to:

- door mats;
- outdoor furniture;
- potted plants;
- shade sails or umbrellas;
- plastic garbage bins;
- firewood stacks;
- flammable sculptures; and/or
- playground equipment and children's toys.

## 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

## Element 2 Explanatory Notes

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.

**Source:** *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

## Attachment B Vehicular access technical standards of the Guideline

## Acceptable Solution A3.2a – Multiple access routes

### Explanatory Note E3.2a

Two-way public road access is public road access from a lot in at least two different directions to two suitable destinations, and provides residents and the community, as well as emergency services, with access and egress from both the subdivision and individual habitable buildings/development in the event of a bushfire emergency. A single road provides no alternative route if the access becomes congested or is unable to be traversed due to smoke and/or fallen trees during a bushfire.

Two-way public road access applies to access/egress routes leading into a subdivision, as well as those within a subdivision. A road that loops back onto itself does not constitute the option of two different directions.

Two-way public road access should always be the first option. Where the site is not able to achieve two-way access within 200 metres of the lot boundary, due to demonstrated site or environmental constraints, the proponent should identify options for an emergency access way from the subject site to a suitable destination. Where an emergency

access way cannot be provided, the proponent should demonstrate compliance with the performance principle.

Subject sites or proposed lots greater than 200 metres from an intersection, which provides two-way access, do not satisfy the requirement for two-way access unless they meet the provisions which allow for no-through roads greater than 200 metres in A3.2a.

To demonstrate compliance with the performance principle for two-way access, the bushfire planning practitioner may have regard to:

- the extent of the bushfire hazard, location and vegetation classification, the likelihood, potential severity and impact of bushfire to the subject site and the road network;
- time between fire detection and the onset of conditions in comparison to travel time for the community to evacuate to a suitable destination;
- available access route(s) travelling towards a suitable destination; and
- turn-around area for a fire appliance for no-through roads.

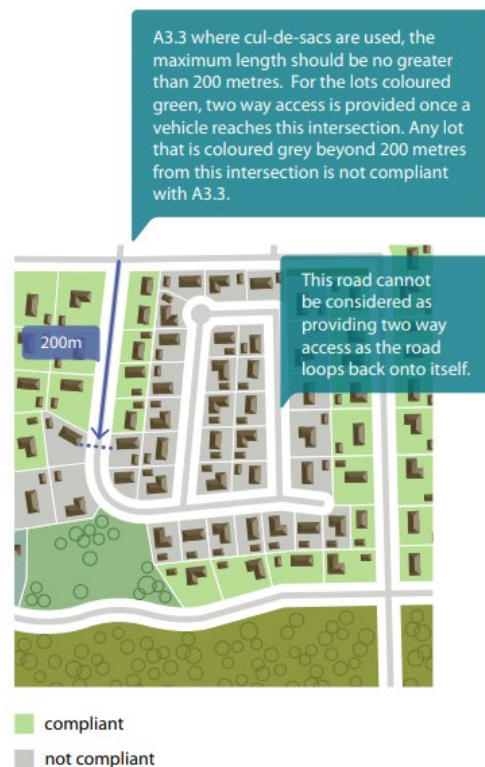


Figure 21: Example of compliant and non-compliant two-way

Source: Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)

## Acceptable Solution A3.4a – Perimeter roads

### Explanatory Note E3.4a

Where a planning proposal includes the creation of 10 or more lots adjacent to each other, which adjoin classified vegetation under AS 3959 with the exception of Class G Grassland, as part of a greenfield development or large urban infill site, hazard separation and defensible space should be provided in the form of a perimeter road. Greenfield is 'undeveloped or minimally developed areas that have been identified for urban development'; and urban infill is 'the redevelopment of existing urban areas at a higher density than currently exists'. The creation of 10 or more lots includes cumulative subdivision applications where the subdivision application may be part of a staged subdivision.

A perimeter road should be in accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area as per the requirements of a public road in Table 6, Column 1.

As the road is likely to function as a key neighbourhood distributor, or similar, consideration should be given to the provision of additional width to allow for emergency services vehicles to stop and operate on the side of the perimeter road, whilst simultaneously providing for the evacuation of the community (Figure 20).

When designing a strategic planning proposal and/or subdivision, creating a large setback between classified vegetation and proposed lots with a perimeter road, and orientating habitable buildings to front onto (rather than back onto) areas of vegetation has many benefits, including:

- passive surveillance;
- defensible space for firefighting and emergency management purposes;
- reducing the potential radiant heat that may impact a habitable building in a bushfire event;
- reducing the need for battle-axe lots; and
- unconstrained public access/egress for the community in the event of a bushfire.

In developments where no perimeter road exists, property defence in a bushfire event is difficult and can be impossible. Where proposed lots have frontage to an existing public road and abut the hazard at the rear or side, it may be an undesirable planning outcome to create lots which front the existing public road and back onto a perimeter road. In this instance, consideration should be given to a fire service access route. Refer to E3.4b.

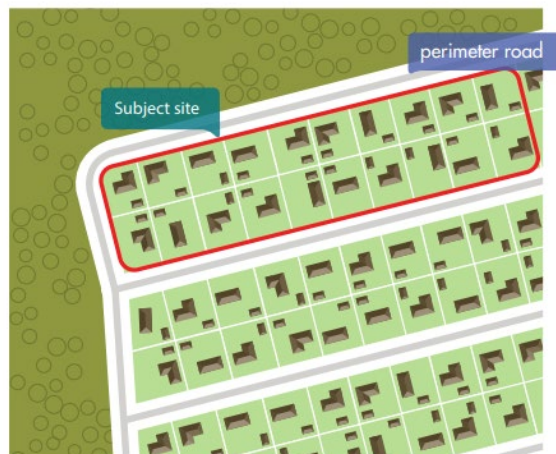


Figure 25: Example of a perimeter road

Source: *Guidelines for Planning in Bushfire Prone Areas (WAPC 2021)*

Technical requirement	1	2	3	4
	Public road	Emergency access way <sup>1</sup>	Fire service access route <sup>1</sup>	Battle-axe and private driveways <sup>2</sup>
Minimum trafficable surface (m)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (m)	N/A	6	6	6
Minimum vertical clearance (m)	4.5	4.5	4.5	4.5
Minimum weight capacity (t)	15	15	15	15
Maximum grade unsealed road <sup>3</sup>	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%, 6°)	1:10 (10%, 6°)	1:10 (10%, 6°)
Maximum grade sealed road <sup>3</sup>		1:7 (14.3%, 8°)	1:7 (14.3%, 8°)	1:7 (14.3%, 8°)
Maximum average grade sealed road		1:10 (10%, 6°)	1:10 (10%, 6°)	1:10 (10%, 6°)
Minimum inner radius of road curves (m)		8.5	8.5	8.5
<sup>1</sup> To have crossfalls between 3 and 6% <sup>2</sup> Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision <sup>3</sup> Dips must have no more than a 1 in 8 (12.5% -7.1 degree) entry and exit angle.				



## Attachment C City of Wanneroo Firebreak Notice

# IMPORTANT FIRE MITIGATION NOTICE

**Fire mitigation measures must be in place by 1 NOVEMBER and maintained until 30 APRIL EACH YEAR.**

This is a requirement under the Bush Fires Act 1954 Section 33.

Failure to comply with this Notice may incur penalties of up to \$5,000 and the works required by this Notice will be carried out at the expense of the owner/occupier.

## Fire management requirements for land **LESS** than 4000sqm

- Maintain grasses and inflammable materials with the exception of living trees on the entire property to a height of no more than 50 millimetres. The entire property is required to be maintained below 50 millimetres from 1 November each year until 30 April the following year.

**OR**

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
  - If it is not possible to install the firebreak adjacent to the external boundary of the property due to naturally occurring obstacles, it is acceptable to install the firebreak around the obstacle. If this requires the firebreak to be greater than 5 metres away from the external boundary, a firebreak variation is required.
  - Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to enable vehicles to drive along the firebreaks without access being obstructed.
- Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this Notice and with any additional requirements outlined within that plan.

## Fire management requirements for land **GREATER** than 4000sqm

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
  - If it is not possible to install the firebreak adjacent to the external boundary of the property due to naturally occurring obstacles, it is acceptable to install the firebreak around the obstacle. If this requires the firebreak to be greater than 5 metres away from the external boundary, a firebreak variation is required.
  - Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to enable vehicles to drive along the firebreaks without access being obstructed.
- Install and maintain a 20 metre bare earth area around all hay stacks and/or fuel dumps.
- Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this Notice and with any additional requirements outlined within that plan.

## All vacant land **GREATER** than 4000sqm

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
- Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to ensure vehicles can drive along the firebreaks without being impeded by tree branches.
- If the land is an area of 50,000sqm (5 hectares) or greater, the grass must be maintained on the land to a height no greater than 50 millimetres for a distance of 10 metres from any firebreak.

## Frequently asked questions

### I live in a residential area, does this notice apply to me?

Yes. All City of Wanneroo property owners must comply with the Bush Fires Act 1954.

Please refer overleaf for fire management requirements to be in place by 1 November to ensure your property is compliant.

Most properties under 1000sqm will automatically comply if gardens are maintained.

### How will inspections be carried out?

Inspections will be carried out by trained Fire Control Officers who are authorised to enter a property by foot, vehicle, quad bike and /or drone.

### Do I need a Bushfire Survival Plan?

If you live in, on or near bushland, you are at risk from a bushfire and developing a bushfire survival plan is critical.

Visit the Department of Fire and Emergency Services website for information on how to develop a plan for your property [dfes.wa.gov.au](http://dfes.wa.gov.au)

### I am concerned my neighbour's property is not compliant, what can I do?

All properties are required to be compliant by 1 November.

If you think your neighbour's property does not comply with the requirements as outlined in this Notice, please contact the Community Safety and Emergency Management team on **9405 5000**.

### I own a vacant lot, do I need a firebreak?

Yes. A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.

### I am unable to meet the requirements outlined, what should I do?

If it is considered impracticable for any reason to implement any of the requirements of this Notice, an application for a firebreak variation must be made to the City of Wanneroo by no later than 18 October of each year.

If permission is not granted, the requirements of this Notice must be complied with.

Visit the City's website [wanneroo.wa.gov.au/firebreakvariation](http://wanneroo.wa.gov.au/firebreakvariation) to apply for a variation.

### Where can I learn more about this Notice and bushfire management?

Visit the City's website [wanneroo.wa.gov.au/fireinformation](http://wanneroo.wa.gov.au/fireinformation) to learn more.

Please note, in addition to the requirements of this Notice, if a City of Wanneroo Fire Control Officer considers further works are necessary to reduce the risk of bushfire, Landowners will be notified via letter to the address shown on the City of Wanneroo rates record for the relevant land.