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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: Portion of Lot 9020 Marmion Avenue

Suburb: Eglinton

State: WA

P/code: 6034

Local government area: City of Wanneroo

Description of the planning proposal: Subdivision of Stages 8 and 9 Amberton Estate

BMP Plan / Reference Number: STO17541.01

Version: R001 Rev 1

Date of Issue: 07/11/2017

Client / Business Name: Stockland Corporation 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)?

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)?

Is the proposal any of the following special development types (see SPP 3.7 for definitions)?

Unavoidable development (in BAL-40 or BAL-FZ)

Strategic planning proposal (including rezoning applications)

Minor development (in BAL-40 or BAL-FZ)

High risk land-use

Vulnerable land-use

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.)?

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

Name

Roger Banks

Accreditation Level

Level 2

Accreditation No.

BPAD36857

Accreditation Expiry

30/04/2018

Company

Strategen Environmental

Contact No.

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 07/11/2017



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Bushfire Management Plan

Amberton Estate - Stages 8 and 9

Prepared for
Stockland Corporation Limited
by Strategen

November 2017



Bushfire Management Plan

Amberton Estate - Stages 8 and 9

Strategen is a trading name of
Strategen Environmental Consultants Pty Ltd
Level 1, 50 Subiaco Square Road Subiaco WA 6008
ACN: 056 190 419

November 2017

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Environmental conclusions

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Client: Stockland Corporation Limited

| Report Version | Revision No. | Purpose | Strategen author/reviewer | Submitted to Client | |
|---------------------|--------------|---|--|---------------------------|------------------|
| | | | | Form | Date |
| Draft Report | Rev A | For review by client | A Ennis (BPAD39184) / R Banks (BPAD36857) | Electronic (email) | 2/11/2017 |
| Final Report | Rev 0 | Issued for use: to accompany subdivision application | A Ennis (BPAD39184) / R Banks (BPAD36857) | Electronic (email) | 6/11/2017 |
| Final Report | Rev 1 | Issued for use: to accompany subdivision application | A Ennis (BPAD39184) / R Banks (BPAD36857) | Electronic (email) | 7/11/2017 |

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1. Introduction

1.1 Background

Stockland Corporation Limited (the developer) is proposing the subdivision of Stages 8 and 9 of Amberton Estate, Eglinton in the City of Wanneroo (hereon referred to as the project area). The proposed subdivision will create 32 residential lots and a balance lot that will be subject to residential development as part of future stages (see Figure 1). The project area and balance lot are subject to the approved Eglinton Structure Plan (see Appendix 1).

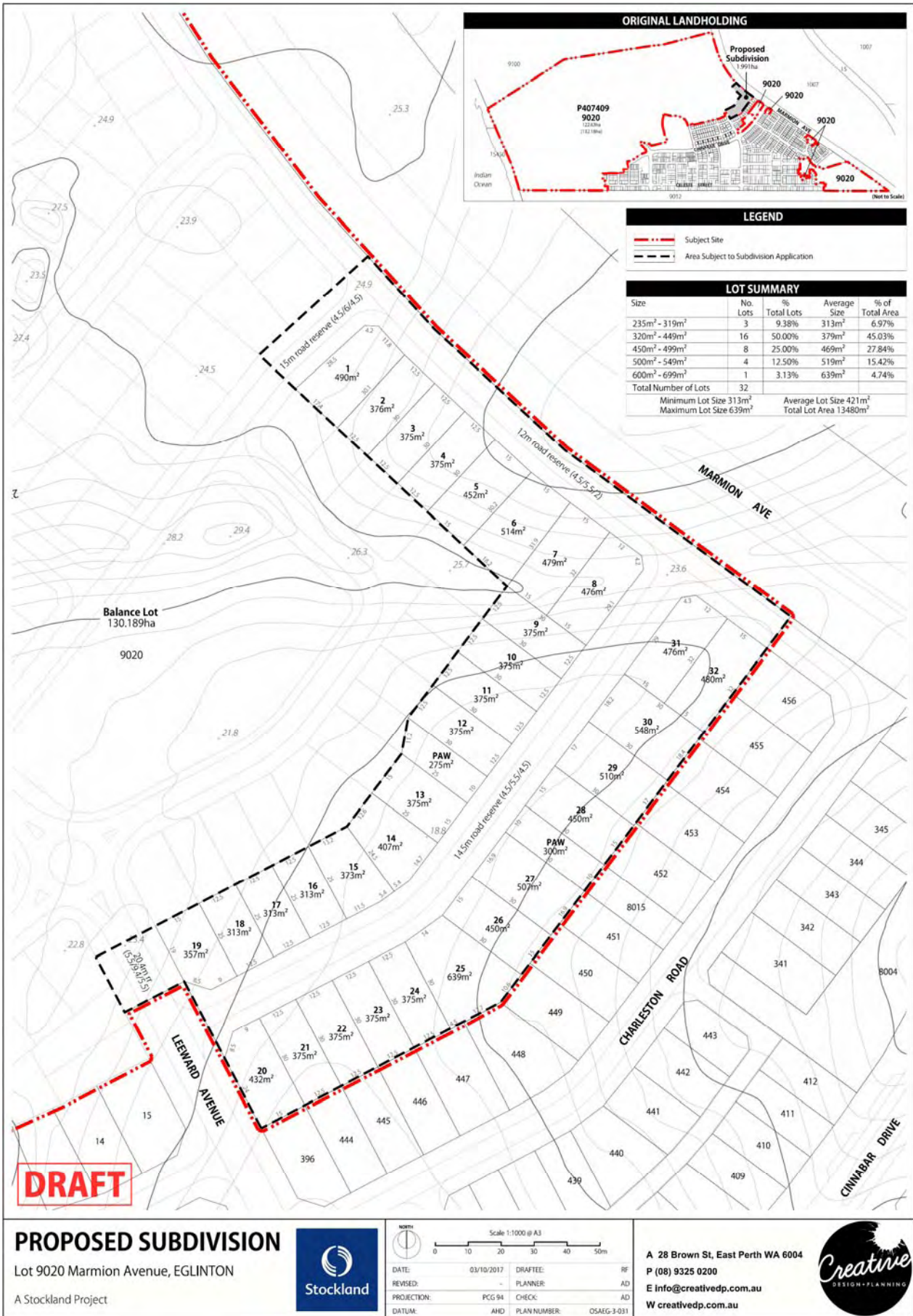
A portion of the project area is designated as bushfire prone on the WA *Map of Bush Fire Prone Areas* (DFES 2017). As a result, Strategen has prepared this Bushfire Management Plan (BMP) to address the following information requirements triggered by subdivision application under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015), namely Policy Measure 6.4:

- a Bushfire Attack Level (BAL) contour map to determine the indicative acceptable BAL ratings across the subject site, in accordance with *Guidelines for Planning in Bushfire Prone Areas* (the Guidelines; WAPC 2017) – refer to Section 2.3 and Figure 4
- identification of any bushfire hazard issues arising from the BAL contour map – refer to Section 2.4
- assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the subdivision site – refer to Section 4 and Table 3.

This BMP has been prepared in accordance with the Guidelines and addresses all of the above information requirements to satisfy SPP 3.7.

1.2 Purpose of the BMP

The purpose of this BMP is to provide guidance on how to plan for and manage the bushfire risk to future life and property assets of the project area through incorporation of a range of bushfire management measures into subdivision design and construction. The BMP outlines how future on-site assets can be protected during the summer months when the threat from bushfire is at its peak. This is particularly relevant when existing fire appliances in the area may be unable to offer an immediate emergency suppression response; therefore, development planning and design should aim to provide mitigation strategies that protect future life and property from bushfire as a priority.



Source: Creative Design and Planning 2017

Figure 1: Proposed subdivision



2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The project area comprises a portion of Lot 9020 (P411132) Marmion Avenue, Eglinton in the City of Wanneroo, which represents Stages 8 and 9 of the Amberton Estate development. The project area occupies approximately 1.9 ha and is bound by the following, as depicted in Figure 2:

- Marmion Avenue and bushland to the north and northeast that is identified for future urban development under the Eglinton Structure Plan and North Eglinton Structure Plan
- partially cleared land in preparation for future development stages of Amberton Estate to the west and northwest
- developed urban land to the south, southeast and southwest.

2.1.2 Assets

The project area consists of undeveloped, vacant land that has been partially cleared in preparation for development so does not contain any existing life or property assets. The surrounding land contains existing life and property assets to the south and southeast, which is developed for high density urban residential use.

Due to the cleared state of the site, there are no significant environmental values within the project area.

2.1.3 Access

The project area can be accessed via Leeward Avenue and Charleston Road, which connect to other developed stages of Amberton Estate to the south and southeast.

2.1.4 Water and power supply

Reticulated mains water and underground power supplies are available to the project area through extension of existing services from adjacent development.

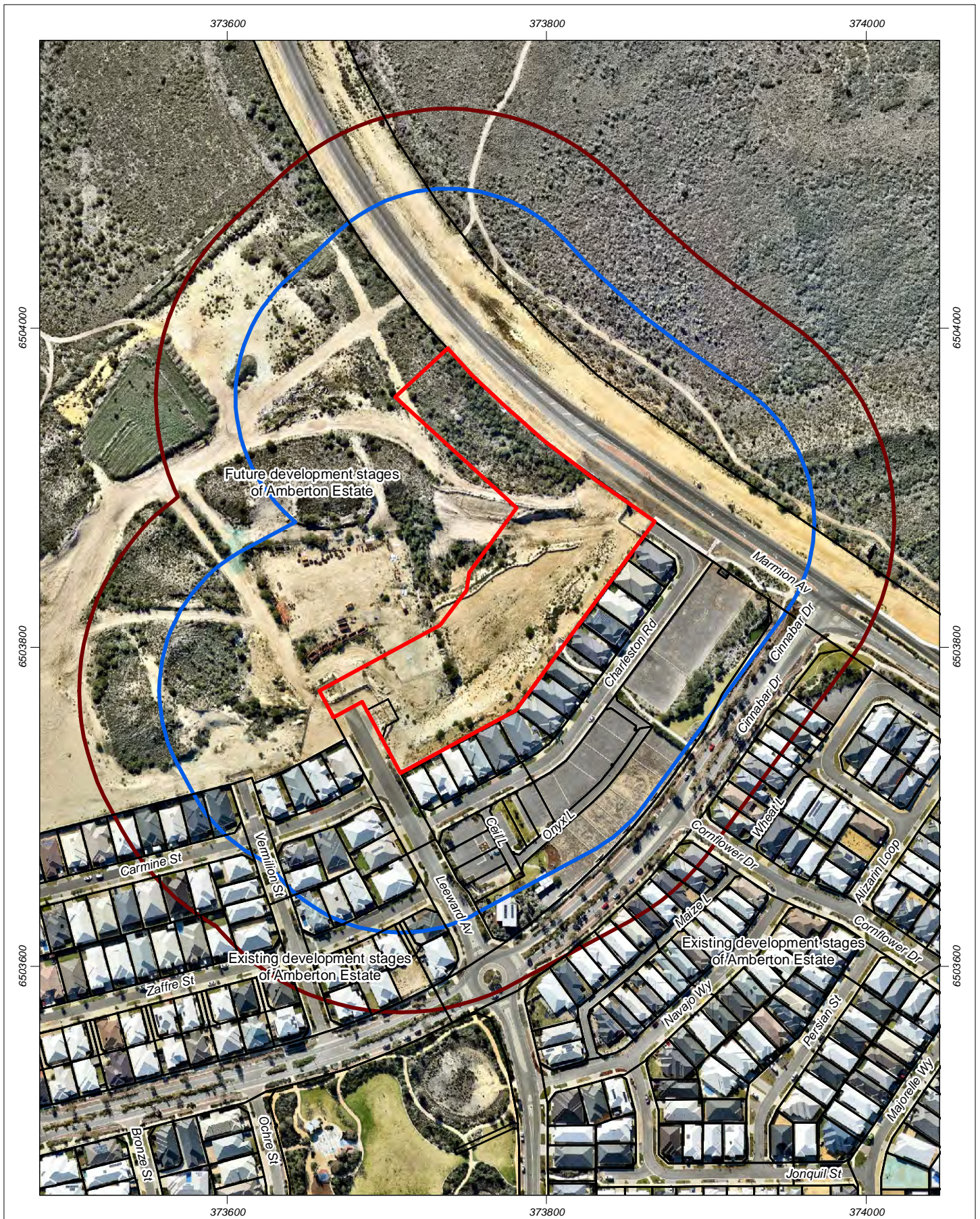
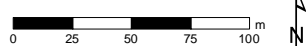


Figure 2 Site overview

Scale 1:3,200 at A4



Coordinate System: GDA 1994 MGA Zone 50
 Note that positional errors may occur in some areas

Date: 2/11/2017

Author: JCrute

Source: Aerial image: Nearmap, flown 06/2017. Subdivision layout: Client 10/2017. Existing cadastre: Landgate 2017.

Legend

- Project area
- 100m wide assessment area
- 150m wide assessment area
- Existing cadastre



info@strategen.com.au
 www.strategen.com.au

2.2 Post-development fire environment

2.2.1 Vegetation class and exclusions

Post-development vegetation class was assessed in accordance with the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016) and *Australian Standard 3959-2009 Construction of Buildings in Bushfire Prone Areas* (AS 3959: SA 2009). This assessment involved on-ground verification of vegetation class and any areas excluded from classification within the project area and adjacent 150 m as per conditions at time of assessment on 12 October 2017.

Development will result in the clearing of vegetation within proposed residential lots and road reserves within the project area.

Land to the west and northwest of the project area, forming the balance of lot 9020 and owned by the developer, will be subject to development as part of future stages for Amberton Estate. Management measures in this BMP include establishment and maintenance of a temporary 100 m wide low fuel buffer within the adjacent portion of the balance lot to the west and northwest. The developer will maintain this low fuel buffer until the land is developed, which will result in a permanent low fuel outcome.

Therefore, post-development vegetation exclusions will include:

- Clause 2.2.3.2 (c): areas of vegetation less than 0.25 ha in area and not within 20 m of other areas of vegetation classified or proposed development, including revegetation within Public Open Space (POS) east of the project area
- any non-vegetated areas occupied by roads, parking, dwellings or other infrastructure excluded from classification under Clause 2.2.3.2 (e) of AS 3959, including:
 - * existing surrounding residential development and proposed residential lots
 - * existing and proposed roads.
- vegetation that is currently or will be managed in a low threat, minimal fuel condition excluded from classification under Clause 2.2.3.2 (f) of AS 3959, including:
 - * existing and proposed road reserves and nature strips consisting of managed low fuel areas
 - * proposed 100 m wide low fuel buffer within the balance lot to the west and northwest.

Vegetation classes and exclusions are depicted in Figure 3 along with the location and direction of georeferenced site photographs (refer to Appendix 2 for site photographs). The following vegetation classes were identified:

- Class C shrubland north of Marmion Avenue (Photo 1, Photo 3 and Photo 8) and within future development areas to the west (Photo 5)
- Class D scrub north of Marmion Avenue (Photo 4) and within future development areas to the west (Photo 6)
- Class G grassland within future development areas to the west (Photo 7)
- vegetation within off-site POS to the east excluded under Clause 2.2.3.2 (c) of AS 3959 (Photo 10)
- non-vegetated areas (e.g. roads and buildings) or low threat managed grassland and vegetation excluded from classification under Clause 2.2.3.2 (e) and (f) of AS 3959 (Photo 2, Photo 8 and Photo 9).

This information has been used to inform a BAL contour assessment for the project area (refer to Section 2.3).

2.2.2 Effective slope

Strategen has assessed site topography and effective slope under classified post development vegetation within the adjacent 150 m through on-ground verification in accordance with AS 3959 methodology (Figure 3).

The project area occurs on predominantly flat land at an elevation of around 20 mAHD (Australian Height Datum). The predominant slope under classified vegetation within 150 m adjacent of the project area is flat land or upslope from proposed development, with the exception of a strip of Class C shrubland north of Marmion Avenue that is downslope >15-20 degrees.

This information has been used to inform a BAL contour assessment for the project area (refer to Section 2.3).

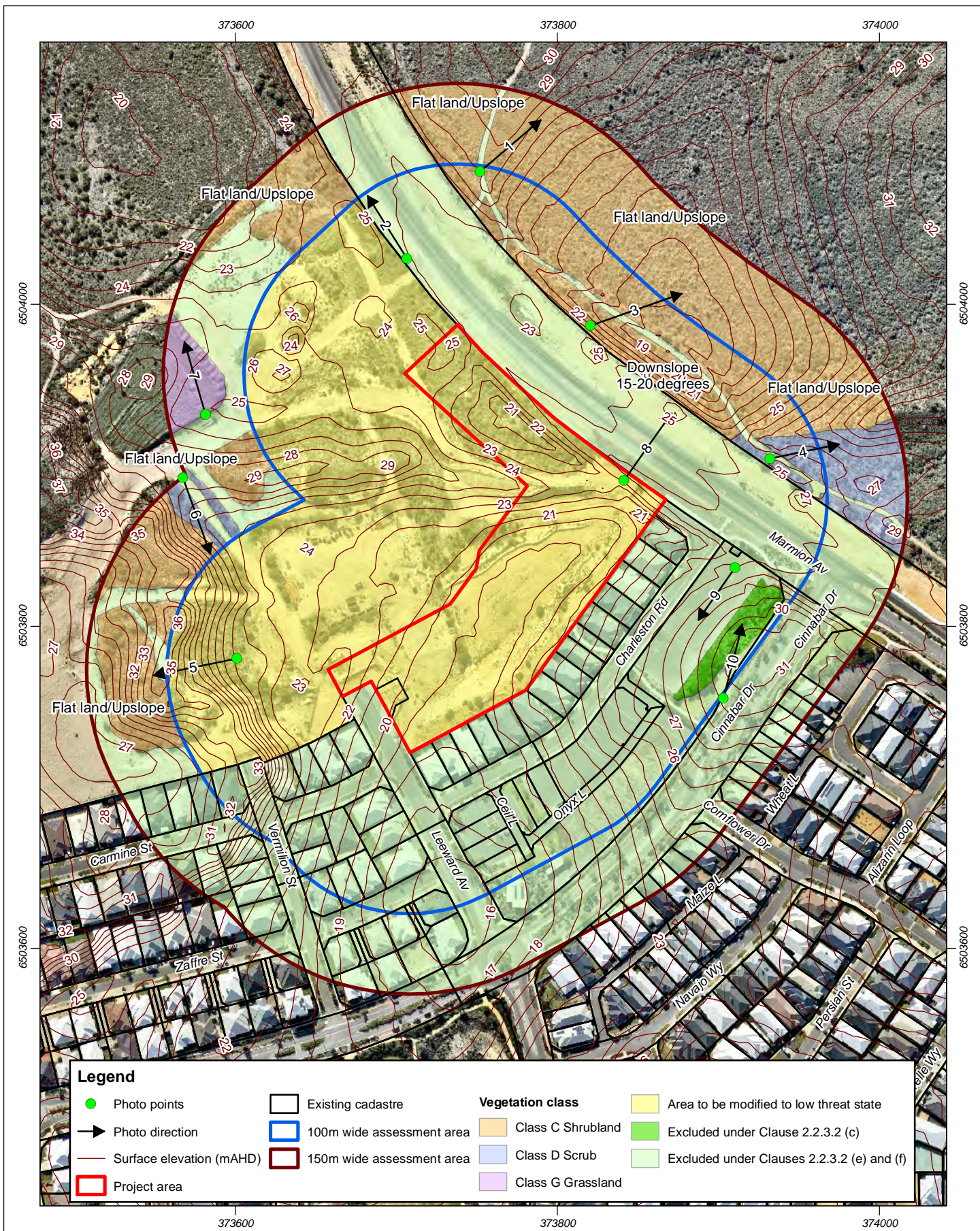
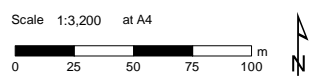


Figure 3 Post-development vegetation class and effective slope



Scale 1:3,200 at A4
 Coordinate System: GDA 1994 MGA Zone 50
 Note that positional errors may occur in some areas
 Date: 6/11/2017
 Author: JCrute

Source: Aerial image: Nearmap, flown 06/2017. Subdivision layout: Client 10/2017. Existing cadastre: Landgate 2017. Surface elevation: Derived from DEM, Geoscience Australia, 2017.



2.3 BAL contour assessment

Any proposed habitable development that cannot achieve a full 100 m wide low fuel separation distance from post development classified vegetation will require application of AS 3959 to determine appropriate location and siting of development and potential increased building construction standards in response to the assessed BAL.

Strategen has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for proposed development areas (Table 1). The BAL contour assessment is based on post-development conditions on and adjacent to the project area. The Method 1 procedure for calculating the BAL (as outlined in AS 3959) incorporates the following factors:

- state-adopted FDI rating
- vegetation class
- 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 lots and subsequently informs the standard of building construction required for proposed lots to potentially withstand such impacts.

The assessed BAL contours are depicted in Figure 4.

The width of each BAL contour in Figure 4 is set in accordance with AS 3959 and reflects the relevant BAL rating applicable to the respective Class C shrubland, Class D scrub or Class G grassland vegetation types situated on the various assessed slopes (refer to Table 1). Where BAL contours differ based on the different BAL application distances associated with the vegetation classifications, the highest (worst case) BAL has been applied.

The BAL contours are based on post-development conditions and take into consideration the proposed clearing extent, vegetation retention, resultant vegetation exclusions and separation distances achieved in line with the subdivision plan. Should there be any changes in development design or classified vegetation extent that requires a modified bushfire management response, then the above BAL contours will need to be reassessed for the affected areas and documented in a brief addendum to this BMP prepared to accompany future planning applications.

Table 1: Method 1 BAL calculation

| Classified vegetation | Effective slope | Hazard separation distance | BAL rating | Comment |
|--|--|----------------------------|------------|---|
| Class C shrubland (off-site to the north and west) | All up-slope and flat land (0 degrees) | 0–<7 m | BAL–FZ | No development is proposed in this area |
| | | 7–<9 m | BAL–40 | No development is proposed in this area |
| | | 9–<13 m | BAL–29 | No development is proposed in this area |
| | | 13–<19 m | BAL–19 | No development is proposed in this area |
| | | 19–<100 m | BAL–12.5 | Development will occur in this area |
| Class C shrubland (off-site to the north) | Down-slope >15-20 degrees | <10 m | BAL–FZ | No development is proposed in this area |
| | | 10–<15 m | BAL–40 | No development is proposed in this area |
| | | 15–<22 m | BAL–29 | No development is proposed in this area |
| | | 22–<31 m | BAL–19 | No development is proposed in this area |
| | | 31–<100 m | BAL–12.5 | Development will occur in this area |
| Class D scrub (off-site to the northeast and west) | All up-slope and flat land (0 degrees) | <10 m | BAL–FZ | No development is proposed in this area |
| | | 10–<13 m | BAL–40 | No development is proposed in this area |
| | | 13–<19 m | BAL–29 | No development is proposed in this area |
| | | 19–<27 m | BAL–19 | No development is proposed in this area |
| | | 27–<100 m | BAL–12.5 | Development will occur in this area |
| Class G grassland (off-site to the west) | All up-slope and flat land (0 degrees) | <6 m | BAL–FZ | No development is proposed in this area |
| | | 6–<8 m | BAL–40 | No development is proposed in this area |
| | | 8–<12 m | BAL–29 | No development is proposed in this area |
| | | 12–<17 m | BAL–19 | No development is proposed in this area |
| | | 17–<50 m | BAL–12.5 | No development is proposed in this area |

2.4 Identification of bushfire hazard issues

Intact vegetation adjacent to the project area consists of:

- bushland to the west and northwest subject to future urban development under the Eglinton Structure Plan
- bushland to the north and northeast subject to future urban development under the Eglinton Structure Plan and North Eglinton Structure Plan that also currently links to Yanchep National Park in the northeast.

Strategen therefore considers a fire front approaching the project area from the northeast, north and northwest to be the worst-case bushfire scenarios due to the presence of bushfire fuels in these directions.

Under predominant afternoon summer weather conditions for the location, the likely afternoon prevailing winds are from the southwest (BoM 2017). However, there is no significant fire run through dense vegetation in this direction due to existing surrounding development. Summer winds from the north are less common and can occur during the bushfire season when a low pressure trough forms off the west coast and strong winds develop from the north or northeast. These conditions have the potential to direct a bushfire towards the site and contribute elevated levels of radiant heat and ember attack on the proposed development.

Proposed implementation and maintenance of a temporary 100 m wide low fuel buffer (see Section 3.1.2) within adjacent stages of Amberton Estate to the west and northwest, will provide a significant hazard separation until these areas are subject to future development that will result in a permanent low fuel outcome.

The bushfire risks to proposed development posed by bushfire fuels to the north and northeast can be managed through standard application of acceptable solutions under the Guidelines, including provision for and implementation of Asset Protection Zones (APZs) that will consist of permanent low fuel areas within road reserves, relevant bushfire construction standards, provision of adequate emergency water supply and vehicular access, as well as through a direct bushfire suppression response if required.

On this basis, Strategen considers the bushfire hazards adjacent to the project area and the associated bushfire risk is readily manageable through standard management responses outlined in the Guidelines and AS 3959. These responses have been factored in to proposed subdivision design to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life and property assets.

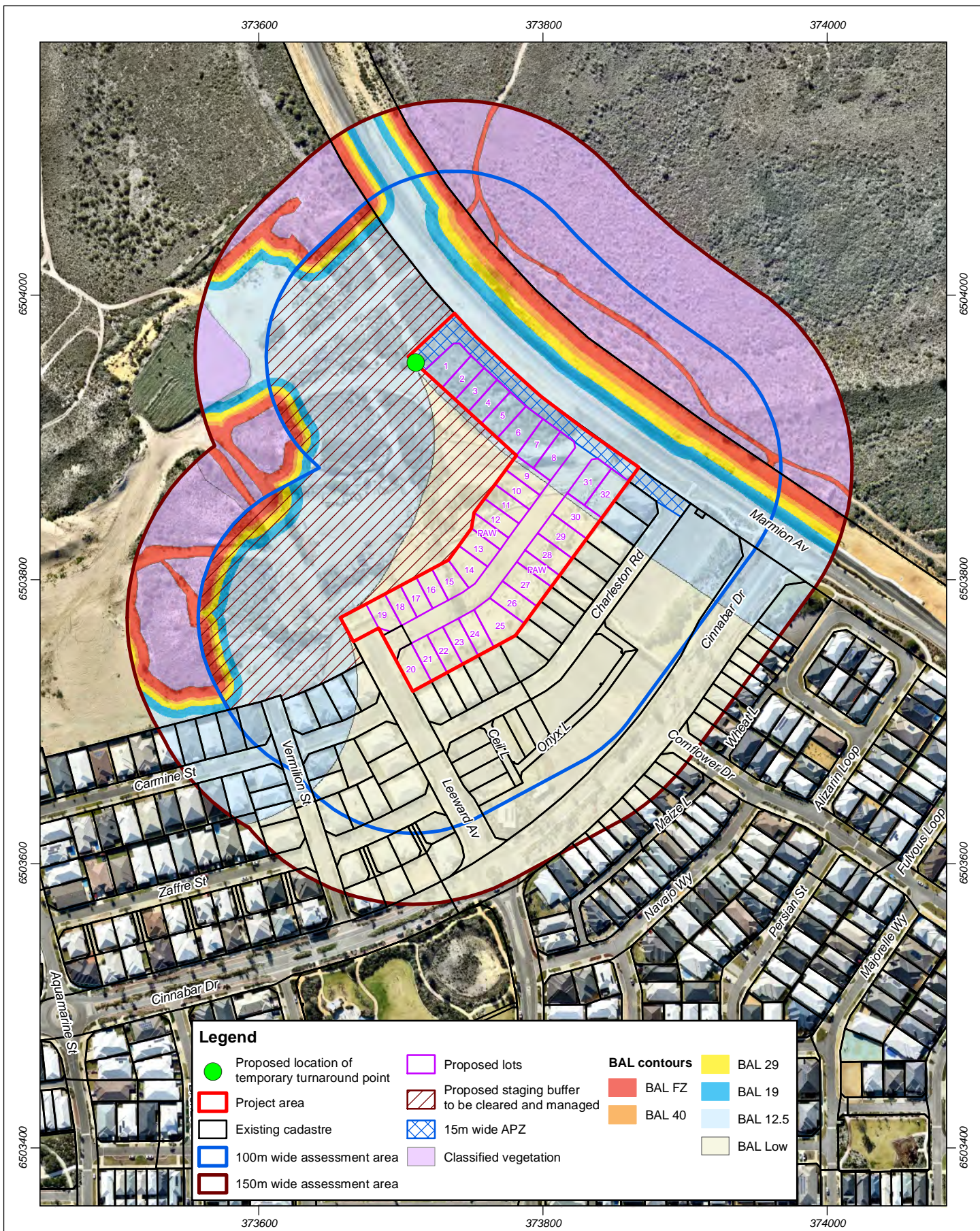
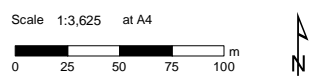


Figure 4 BAL contour map



Coordinate System: GDA 1994 MGA Zone 50
 Note that positional errors may occur in some areas
 Date: 6/11/2017
 Author: JCrute

Source: Aerial image: Nearmap, flown 06/2017. Subdivision layout: Client 10/2017. Existing cadastre: Landgate 2017.

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3. Bushfire management measures

This section outlines the bushfire management measures that will be adopted to ensure Guideline compliance and a manageable level of bushfire risk is achieved for proposed development within the project area. The management actions recommended are directly referred to in the bushfire compliance table outlined in Table 4 to assist with implementation, enforcement and auditing of all works.

3.1 Asset Protection Zone (APZ)

Method 1 BAL assessment has confirmed that all residential lots can be located within areas of BAL–12.5 or lower and therefore can achieve minimum separation distances outlined in Table 1 through provision of APZs at all interfaces where proposed buildings abut post-development classified vegetation.

The required 15 m wide APZs will consist of:

- northern interface: 12m wide proposed road reserve and 3 m of existing Marmion Avenue road reserve
- western interface: 15 m wide proposed road reserve.

Explanatory Note E2.1 of the Guidelines recognises public roads as appropriate for inclusion within APZs. This will meet minimum APZ requirements as per Guideline acceptable solution A2.1 and will ensure development is avoided throughout all areas of BAL–FZ and BAL–40 as per Guideline acceptable solution A1.1.

The APZs need to be maintained on a regular and ongoing basis at a fuel load less than 2 t/ha to achieve a low threat minimal fuel condition in accordance with acceptable solution A2.1 of the Guidelines. This may include regular slashing/weed control of road verges and other grassland fuels where applicable. Timing and responsibilities for APZ implementation and maintenance are outlined below and summarised in Table 4.

Requirements under the Guidelines for APZs include:

- Fine Fuel Load: combustible dead vegetation matter less than 6 mm in thickness reduced to and maintained at an average of 2 t/ha
- Trees (>5 m in height): trunks at maturity should be a minimum distance of 6 m from all building elevations, lower branches should be removed to a height of 2 m above the ground, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 m apart as to not form a continuous canopy
- Shrubs (0.5 m to 5 m in height): should not be located under trees, should not be planted in clumps greater than 5 m² in area, clumps of shrubs should be separated from each other by at least 10 m
- Groundcovers (<0.5 m in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 m of a structure
- Grass: should be managed to maintain a height of 10 cm or less.

3.1.1 On-site fuel management

Following subdivision approval, the developer will be responsible for the ongoing management of any cleared vacant lots through regular slashing and weed control to ensure the understorey and surface fuels are kept in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959 until such time that the lots are sold, after which the fuel management responsibility will be transferred to the respective landowners until such time that the land is constructed on.

Management Action BMP 1a

Cleared vacant lots will be managed on a regular and ongoing basis by the developer until sale of lots after which time landowners will be responsible for ongoing management. Management will involve slashing/mowing of grassland and weeds to height of less than 10 cm, which is driven through compliance with the City of Wanneroo annual firebreak notice (refer to Appendix 3).

3.1.2 Off-site low fuel buffer

An off-site 100 m wide low fuel buffer is proposed to the west and northwest of the project area within adjacent portions of balance Lot 9020 (see Figure 3 and Figure 4). The BAL contours depicted in Figure 4 are based on this buffer being implemented prior to lot building construction.

A sparse assembly of overstorey canopy or small clumps of vegetation can be retained within these buffers provided the level of retention is in accordance with Guideline requirements for APZs, as specified in Section 3.1.

Management Action BMP 1b

A 100 m wide off-site low fuel buffer within balance Lot 9020 will be implemented by the developer prior to development within the project area. Once the buffer is created, it will need to be maintained on a regular and ongoing basis at a fuel load less than 2 t/ha to achieve a low threat minimal fuel condition all year round until such time that the buffer area is developed as part of future development stages. The required works will include slashing of understorey grasses and weeds on a regular and ongoing basis (sparse retention of overstorey canopy or small clumps of vegetation is permitted provided specifications of the APZ are complied with).

3.1.3 Road reserve fuel management

Proposed internal roads will be in a non-vegetated state following construction; however, road verges will need to be managed to ensure the understorey and surface fuels are kept in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959. Existing road reserves, currently excluded from classification, will also need to be managed to ensure that fuels are maintained in a low threat, minimal fuel condition.

Management Action BMP 1c

Road verges will need to be managed to ensure the understorey and surface fuels remain in a low threat, minimal fuel condition in accordance with Clause 2.2.3.2 (f) of AS 3959. Ongoing road verge management will be the responsibility of the City.

3.2 Building construction standards and BAL compliance

BAL contours have been derived for the project area through AS 3959 Method 1 BAL assessment, as outlined in Table 1 and Figure 4. These indicative BALs rely on Management Actions BMP 1a, 1b and 1c being implemented.

The BAL contour map outlined in Figure 4 is considered suitable for the purposes of informing subdivision and future building permit approval processes; however, acceptance of the BAL contour map at future planning or building permit stages is at the discretion of the WAPC/City and a BAL compliance assessment or reassessment of the BAL for individual lots located in designated bushfire prone areas may be required.

Management Action BMP 3a

Undertake BAL compliance certification post-completion of all subdivisional works. This will enable BAL certificates to be prepared prior to lot sale and included up-front as part of the contract of sale for individual lots to ensure future lot purchasers have confirmation of the BAL rating as part of the lot sale process. The BAL certificates would be valid for a 12-month period for use to support individual lot building permit applications. This BAL compliance procedure is consistent with Section 4.2 and Appendix 3 of the Guidelines.

Management Action BMP 3b

Construct buildings in accordance with AS 3959 and the assessed BAL, as outlined through BAL compliance or reassessment at the building permit stage.

3.3 Vehicular access

The proposed internal vehicular access network will provide all lots with direct road frontage and through access to the surrounding public road network via Charleston Road and Leeward Avenue to the southeast. Existing access routes leading into the site also provide egress to more than two different destinations via Marmion Avenue to the north, which provides access to the north and south, and Cinnabar Drive, which provides access to the west.

This will ensure a minimum of two access routes are provided at all times; thereby meeting compliance with acceptable solution A3.1. In addition, all proposed public roads will meet the technical requirements of the Guidelines in accordance with acceptable solution A3.2, as outlined in Table 2.

One temporary cul-de-sac, located in the north of the project area (Figure 1), will eventually link to access within adjacent stages of Amberton Estate. Notwithstanding, the cul-de-sac will comply with technical requirements of the Guidelines in accordance with acceptable solution A3.3, as outlined in Table 2, including the provision of a 17.5 m diameter turnaround point (see Figure 4). The temporary cul-de-sac is less than 200 m in length and is not considered to add any significant risk with regards access provisions to and from the relevant lots during a bushfire event.

No battle-axe blocks, private driveways longer than 50 m, emergency access ways, fire service access routes or firebreaks are proposed or required as part of this development. Therefore, acceptable solutions A3.4 through to A3.8 are not applicable in this instance.

Table 2: Vehicular access technical requirements

| Technical requirement | Public road | Cul-de-sac |
|---------------------------------|-------------|------------|
| Minimum trafficable surface (m) | 6* | 6 |
| Horizontal distance (m) | 6 | 6 |
| Vertical clearance (m) | 4.5 | N/A |
| Maximum grade <50 m | 1 in 10 | 1 in 10 |
| Minimum weight capacity (t) | 15 | 15 |
| Maximum crossfall | 1 in 33 | 1 in 33 |
| Curves minimum inner radius | 8.5 | 8.5 |

* Refer to E3.2 Public roads: Trafficable surface

Source: WAPC 2017

Management Action BMP 4a

Construct all new public roads and temporary cul-de-sacs in accordance with subdivision approval and technical requirements of the Guidelines, including a temporary cul-de-sac turnaround point of 17.5 m diameter.

3.4 Reticulated water supply

All proposed lots will be provided a reticulated water supply through extension of existing services from adjacent urban development. The reticulated system will ensure an all year-round supply of water is provided for each lot to meet minimum domestic and emergency water supply requirements to comply with Guideline acceptable solution A4.1.

A network of hydrants will also be provided along the internal road network at locations which meet relevant water supply authority and DFES requirements, in particular the Water Corporation Design Standard DS 63 'Water Reticulation Standard Design and Construction Requirements for Water Reticulation Systems up to DN250'. This standard will guide construction of the internal reticulated water supply system and fire hydrant network, including spacing and positioning of fire hydrants so that the maximum distance between a hydrant and the rear of a building envelope (or in the absence of a building envelope, the rear of the lot) shall be 120 m and the hydrants shall be no more than 200 m apart.

Management Action BMP 5a

Provide a reticulated water supply for all proposed residential lots, as well as a network of hydrants, which meet relevant water authority, DFES and City of Wanneroo technical requirements.

3.5 Additional measures

Strategen makes the following additional recommendations to inform ongoing stages of development:

Management Action BMP 6a

Where relevant, a notification pursuant to Section 165 of the *Planning and Development Act 2005* is to be placed on the certificates of title of proposed lots with a BAL rating of 12.5 or above, advising of the existence of a hazard or other factor (relevant authority). The notification is to state as follows:

This land is subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land.

Management Action BMP 6b

All parties are to comply with the current City of Wanneroo annual firebreak notice (Appendix 3).

Management Action BMP 6c

Reassessment of the BAL to inform individual building permit applications may be required at the discretion of the City or if any changes occur to proposed development design and/or vegetation class extent which may result in a different BAL rating being applied.

4. Proposal compliance and justification

Proposed development within the project area is required to comply with SPP 3.7 under the following policy measures:

6.2 Strategic planning proposals, subdivision and development applications

a) Strategic planning proposals, subdivision and development applications within designated bushfire prone areas relating to land that has or will have a Bushfire Hazard Level (BHL) above low and/or where a Bushfire Attack Level (BAL) rating above BAL-LOW apply, are to comply with these policy measures.

b) Any strategic planning proposal, subdivision or development application in an area to which policy measure 6.2 a) applies, that has or will, on completion, have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, may be considered for approval where it can be undertaken in accordance with policy measures 6.3, 6.4 or 6.5.

c) This policy also applies where an area is not yet designated as a bushfire prone area but is proposed to be developed in a way that introduces a bushfire hazard, as outlined in the Guidelines.

6.4 Information to accompany subdivision applications

Any subdivision application to which policy measure 6.2 applies is to be accompanied by the following information in accordance with the Guidelines:

a) a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. BAL Contour Maps should be prepared by an accredited Bushfire Planning Practitioner

b) the identification of any bushfire hazard issues arising from the BAL Contour Map

c) an assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the subdivision site.

Implementation of this BMP is expected to meet the following objectives of SPP 3.7:

5.1 Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and the management of bushfire impact are paramount.

5.2 Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process.

5.3 Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures.

5.4 Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change.

In response to the above requirements of SPP 3.7, the bushfire management measures, as outlined in Section 3, have been devised for the proposed development in accordance with acceptable solutions of the Guidelines to meet compliance with bushfire protection criteria. An 'acceptable solutions' assessment is provided in Table 3 to assess the proposed bushfire management measures against each bushfire protection criteria in accordance with the Guidelines and demonstrate that the measures proposed meet the intent of each element of the bushfire protection criteria.

Table 3: Acceptable solutions assessment against bushfire protection criteria

| Bushfire protection criteria | Intent | Acceptable solutions | Proposed bushfire management measures | Compliance statement |
|--|---|--|---|--|
| Element 1: Location | 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 | <u>A1.1 Development location</u> 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. | Refer to Sections 2.3 and 3.2 and Figure 4, which demonstrate that all future development will avoid areas of BAL–FZ and BAL–40 and a rating of BAL–12.5 or lower can be achieved | The measures proposed are considered to comply and meet the intent of Element 1 Location. |
| Element 2: Siting and design of development | To ensure that the siting and design of development minimises the level of bushfire impact | <u>A2.1 Asset Protection Zone (APZ)</u> Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements: <ul style="list-style-type: none"> • Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m² (BAL–29) in all circumstances • Location: 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) • Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' (see Guidelines Schedule 1). | Refer to Section 3.1, which demonstrates that all lots at the post-development vegetation interface will be provided an APZ to ensure a rating of BAL–12.5 or lower can be achieved | The measures proposed are considered to comply and meet the intent of Element 2 Siting and design of development |
| Element 3: Vehicular access | To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event | <u>A3.1 Two access routes</u> 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. <u>A3.2 Public road</u> A public road is to meet the requirements in Table 4 Column 1 of the Guidelines. <u>A3.3 Cul-de-sac (including a dead-end-road)</u> A cul-de-sac and/or a dead end road should be avoided in bushfire prone areas. Where no alternative exists (i.e. the lot layout already exists and/or will need to be demonstrated by the proponent), detailed requirements will need to be achieved as per Table 4 Column 2 of the Guidelines. | Refer to Section 3.3, which demonstrates that the proposed public access network will provide at least two different vehicular access routes for the proposed development at all times Refer to Section 3.3, which demonstrates that the proposed public access network will meet technical requirements of the Guidelines Refer to Section 3.3, which demonstrates that the proposed temporary cul-de-sac will meet technical requirements of the Guidelines | The measures proposed are considered to comply and meet the intent of Element 3 Vehicular access |

| | | | | |
|-------------------------|---|---|--|---|
| | | <p><u>A3.4 Battle-axe</u> Battle-axe access legs should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) detailed requirements will need to be achieved as per Table 4 Column 3 of the Guidelines.</p> | N/A. No battle-axe blocks are proposed as part of the development | |
| | | <p><u>A3.5 Private driveway longer than 50 m</u> A private driveway is to meet detailed requirements as per Table 4 Column 3 of the Guidelines.</p> | N/A No private driveways longer than 50 m are proposed as part of the development | |
| | | <p><u>A3.6 Emergency access way</u> An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists (this will need to be demonstrated by the proponent), an emergency access way is to be provided as an alternative link to a public road during emergencies. An emergency access way is to meet detailed requirements as per Table 4 Column 4 of the Guidelines.</p> | N/A No emergency access ways are required as part of the development | |
| | | <p><u>A3.7 Fire service access routes (perimeter roads)</u> Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for fire fighters and link between public road networks for fire fighting purposes. Fire service access routes are to meet detailed requirements as per Table 4 Column 5 of the Guidelines.</p> | N/A No fire service access routes are required as part of the development | |
| | | <p><u>A3.8 Firebreak width</u> Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level as prescribed in the local firebreak notice issued by the local government</p> | N/A No firebreaks are required as part of the development | |
| Element 4: Water | To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire. | <p><u>A4.1 Reticulated areas</u> The subdivision, development or land use is provided with a reticulated water supply in accordance with the specifications of the relevant water supply authority and Department of Fire and Emergency Services.</p> | Refer to Section 3.4, which demonstrates that all proposed lots will be provided a reticulated water supply and network of hydrants in accordance with local water authority, City and DFES requirements | The measures proposed are considered to comply and meet the intent of Element 4 Water |
| | | <p><u>A4.2 Non-reticulated areas</u> Water tanks for fire fighting purposes with a hydrant or standpipe are provided and meet detailed requirements (refer to the Guidelines for detailed requirements for non-reticulated areas)</p> | N/A The proposed development will not occur within a non-reticulated area | |
| | | <p><u>A4.3 Individual lots within non-reticulated areas</u> (only for use if creating 1 additional lot and cannot be applied cumulatively) Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10 000 litres.</p> | N/A The proposed development will not occur within a non-reticulated area | |

5. Implementation and enforcement

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 compliance table is provided in Table 4 to drive implementation of all bushfire management works associated with this BMP.

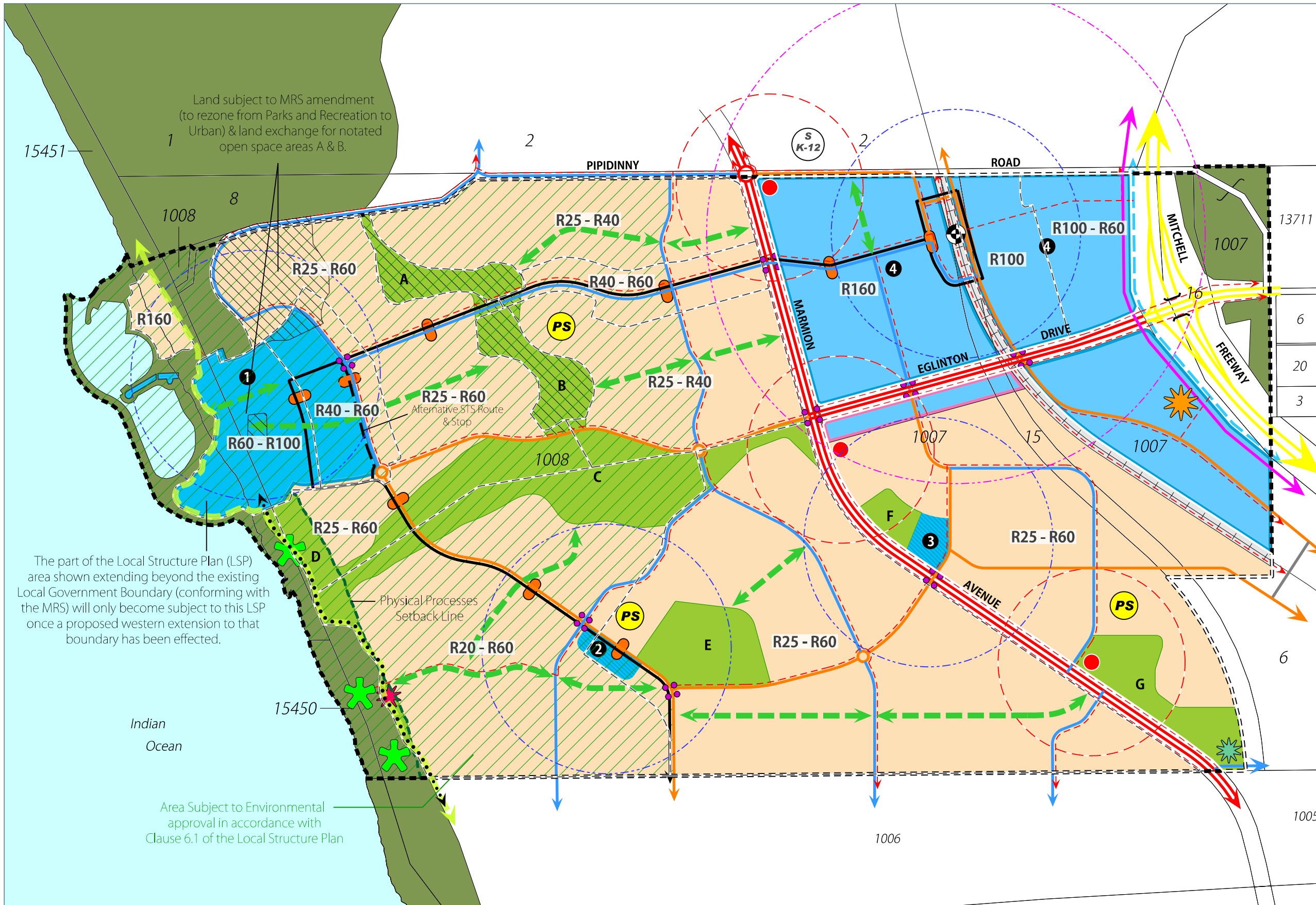
Table 4: Bushfire compliance table

| Reference | Action | Timing | Responsibility |
|---------------------------------|--|--|--|
| BMP 1a (refer to Section 3.1.1) | Establish and maintain bushfire fuels within all residential lots to achieve exclusion Clause 2.2.3.2 (f) of AS 3959 | Ongoing, all year round | Establishment – developer Maintenance - developer until vacant land is developed, landowners thereafter |
| BMP 1b (refer to Section 3.1.2) | Establish and maintain 100 m wide low fuel buffer within balance Lot 9020 to the west and northwest to achieve exclusion Clause 2.2.3.2 (f) of AS 3959 | Implement during subdivisional works, maintain all year round until area is developed | Establishment – developer Maintenance - developer until land is subject to development |
| BMP 1c (refer to Section 3.1.3) | Maintain excluded areas of existing roads reserves and new road verges in a low threat state to achieve exclusion Clause 2.2.3.2 (f) of AS 3959 | Implement during subdivisional works, maintain ongoing, all year round | Existing road reserves – City New road reserves – developer until transfer of land, City thereafter |
| BMP 2a (refer to Section 3.3) | Undertake BAL compliance check | Post-completion of subdivisional works and prior to lot title | Developer utilising accredited bushfire planning practitioner |
| BMP 2b (refer to Section 3.3) | Construct buildings in accordance with AS 3959 and the assessed BAL | At building construction | Building and future landowners |
| BMP 3a (refer to Section 3.4) | Construct all new public roads and cul-de-sacs in accordance with subdivision approval and technical requirements of the Guidelines including a temporary cul-de-sac head of 17.5 m diameter | During subdivisional works | Developer |
| BMP 4a (refer to Section 3.5) | Provide a reticulated water supply and network of hydrants in accordance with subdivision approval and water authority, DFES and City technical requirements | During subdivisional works | Developer |
| BMP 5a (refer to Section 3.5) | Where relevant, place notification on the certificates of title for proposed lots with a BAL rating of 12.5 or above | At creation of title | Developer |
| BMP 5b (refer to Section 3.5) | Comply with the City of Wanneroo annual firebreak notice (refer to Appendix 3) | Ongoing all year round | All parties |
| BMP 5c (refer to Section 3.5) | Reassess BALs for individual lots | At the discretion of the City prior to building construction if development design or vegetation class extent is modified from that outlined in this BMP | Developer prior to lot sale, future landowners thereafter |

6. References

- Bureau of Meteorology (BoM) 2017, *Climate statistics for Australian locations: Monthly climate statistics for Gingin Aero*, [Online], Commonwealth of Australia, available from:
http://www.bom.gov.au/climate/averages/tables/cw_009178.shtml, [01/11/2017].
- Department of Fire and Emergency Services (DFES) 2017, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from:
<http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>, [01/11/2017].
- Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth, WA.
- Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 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) 2017, *Guidelines for Planning in Bushfire-Prone Areas, Version 1.2 August 2017*, Western Australian Planning Commission, Perth.

Appendix 1
Eglinton Structure Plan



LEGEND

ZONES

- Residential
- Centre
- Commercial
- Mixed Use

RESERVES

- Parks & Recreation
- Railway

MOVEMENT

- Railway Station
- Primary Distributor
- Integrator Arterial (A)
- Integrator Arterial (B)
- Neighbourhood Connector
- Coastal Road
- Light Controlled Intersection
- Special Transit System/ Indicative Bus Stops
- Principal Shared Path
- Shared Path
- Regional Foreshore Shared Path
- Social/Pedestrian/Cyclist Linkages

OTHER

- Eglinton Local Structure Plan Boundary
- Proposed 132kV Transmission Line
- Proposed Zone Substation
- Primary School
- Inclusive School - Kindergarten to year 12
- Centre 1 - Eglinton Marina Centre
- Centre 2 - Neighbourhood Centre
- Centre 3 - Neighbourhood Centre
- Centre 4 - District Activity Centre
- Indicative Strategic Open Spaces
- Land to be subject to MRS Amendment
- Regional Road Drainage
- Possible Beachside Restaurant/ Cafe/Corner Store
- Proposed Water Corporation Groundwater Bore Sites
- 300 metre Well Head Protection Zones
- Possible Foreshore Recreation Development Node
- Walkable Catchment (400m - 5 min walk)
- Walkable Catchment (800m - 10 min walk)

NOTES

- 1) Areas identified as being of National Environmental Significance under the Environmental Protection and Biodiversity Conservation Act 1999 may be subject to assessment by the Federal Department of Sustainability, Environment, Water, Population and Communities, in accordance with this Act. The outcome of any such assessment may require either a modification to the LSP or minor variations from the LSP at the subdivision or development stage.
- 2) The taking of individual Graceful Sun Moths, as a result of the clearing of habitat such as *Lomandra Hermaphrodita* and *Maritima*, requires the permission of the Minister for Environment, or their delegate, pursuant to the Wildlife Conservation Act 1950.
- 3) An easement of up to 32 metres may be required for the proposed 132kV overhead transmission line. This may have implications on adjacent land uses. Final-

- width of the easement and the location of the substation will need to be confirmed as part of the future structure planning of Centre Zones.
- 4) Location of the proposed Water Corporation Groundwater Bore Sites and associated 300 metre Well Head Protection Zones is indicative only, to be confirmed at subdivision stage.

NORTH

Plan No: EGLEG191d • Date: 10/05/2012 • Not to Scale@A3
 Note: All areas and dimensions subject to detail survey.

Appendix 2
Site photographs



Photo 1: Class C shrubland north of project area and Marmion Avenue



Photo 2: Excluded areas (Clause 2.3.2.3 e and f) north of the project area



Photo 3: Class C shrubland north of project area and Marmion Avenue



Photo 4: Class D scrub northeast of project area and Marmion Avenue



Photo 5: Class C shrubland west of project area within future development stages



Photo 6: Class D scrub west of project area within future development stages



Photo 7: Class G grassland west of project area within future development stages



Photo 8: Excluded areas (Clause 2.3.2.3 e and f) in foreground and Class C shrubland in background north of the project area



Photo 9: Excluded areas (Clause 2.3.2.3 e and f) east of project area



Photo 10: Excluded areas (Clause 2.3.2.2 c) east of project area

Appendix 3
City of Wanneroo annual firebreak
notice

Protect your home and property from bushfires

NOTICE TO ALL OWNERS OR OCCUPIERS OF LAND IN THE DISTRICT OF THE CITY OF WANNEROO REGARDING FIREBREAKS.

The City of Wanneroo hereby gives notice pursuant to Section 33 of the **Bush Fires Act 1954** to all owners or occupiers of land in its district that they are required on or before 15 November, or within 14 days of becoming the owner or occupier of the land if that occurs after the 15 November, to annually plough, cultivate, scarify, or otherwise clear firebreaks as specified in this Notice and thereafter up to, and including the 30 April, annually, to maintain the firebreaks clear of flammable matter.

1. Land having an area of 2000m² or more

A firebreak not less than 3 metres wide and 3 metres high immediately inside and around all external boundaries of the land must be cleared.

2. Land having an area of less than 2000m²

A firebreak not less than 2 metres wide and 2 metres high immediately inside and around all external boundaries of the land must be cleared.

3. Buildings

A firebreak not less than 3 metres wide immediately around all external walls of every building must be cleared. Whenever a firebreak is cleared by burning the provisions of the Act and Regulations made thereunder must be observed. If pursuant to Item (2) of this Notice, mowing or slashing is carried out the height of vegetation thereafter must not exceed, as far as is reasonably practicable, 20mm over the entire area of the firebreak. The use of chemicals is subject to all restrictions imposed by the Department of Agriculture. Attention is drawn to the Flammable Liquids Regulations made under the Explosives and Dangerous Goods Act 1961, which requires a site on which flammable liquid is stored to be totally cleared of all flammable material for a minimum distance of 5 metres surrounding the site.

If it is considered to be impracticable for any reason to comply with the provisions of this Notice, application may be made not later than the 1st day of November annually to the Council or its authorised officer for permission to provide alternative fire protection measures. If permission is not granted the requirements of this Notice must be complied with.

Penalty

An owner or occupier of land who fails or neglects in any respect to comply with the requirements of this Notice is liable to a maximum fine of \$5,000.

DATES TO REMEMBER

- Firebreaks must be cleared by **15 November (AND KEPT CLEAR UNTIL APRIL 30)**
- Burning permits required all year round
- Burning prohibited between **1 December to 31 March**

When and how to obtain a fire permit

Permits are available from the City of Wanneroo at the following locations:

WANNEROO ANIMAL CARE CENTRE

Located at the rear of the Ashby Operations Centre, 1204 Wanneroo Road, Ashby

The City's Rangers / Fire Control Officers are available to issue permits 7 days a week* from 4pm - 6pm

*Except Good Friday

CITY OF WANNEROO CIVIC CENTRE

23 Dundeebar Road, Wanneroo

The City's Fire Control Officers / Permit Issuing Officers are available to issue permits Monday to Friday 9am - 4pm

NEED ADVICE?

Further advice about how to protect your home, constructing firebreaks, and when and how to burn off, is available from the City of Wanneroo during office hours on 9405 5000.



City of
Wanneroo

23 Dundeebar Road, Wanneroo, WA 6065

Locked Bag 1, Wanneroo, WA 6946

T : (08) 9405 5000 F : (08) 9405 5499

After Hours : 1300 13 83 93

E : enquiries@wanneroo.wa.gov.au

wanneroo.wa.gov.au  

PROTECT YOUR HOME
AND PROPERTY FROM
BUSHFIRES



City of
Wanneroo

Keeping your home safe from fire

There are a number of ways you can help keep your home safe from fire:

- Install smoke detectors in your home
- Clear vegetation away from the walls of your home
- Clear all rubbish and flammable material from around your home to create a 20 metre circle of safety
- Store firewood, timber, petrol, and kerosene well away from your home
- Prior to summer, clean all leaves and debris from your gutters
- Don't have flammable trees such as conifers near buildings
- Have branches trimmed that overhang the house or powerlines
- Fit wire insect screens or shutters to windows and glass doors

If a firebreak is impractical along your boundary for environmental or other reasons notify the City of Wanneroo by 1 October to obtain permission to install firebreaks in alternative positions, or of a different nature.

ALTERNATIVE METHODS OF REDUCING FIRE HAZARDS ON VACANT LAND

- For urban land less than 2000m², if mowing or slashing is carried out, the height of the vegetation must not exceed, as far as is reasonably practical, 20mm over the entire area of the firebreak
- The use of chemicals is subject to all restrictions imposed by the Department of Agriculture
- Mulching • Disposal at an authorised rubbish tip site

When and how to burn

NO BURNING FROM 1 DECEMBER - 31 MARCH

Burning off - that is, bush/running fire including grass, on any land is totally prohibited between 1 December and 31 March. Fire permits for burning material other than garden rubbish are required all year round.

A person in control of the fire must stay with the fire until it is completely extinguished.

GARDEN RUBBISH AND REFUSE

The burning of garden refuse is permitted between the hours of 6pm and 11pm, provided the fire danger rating is not VERY HIGH, SEVERE, EXTREME or CATASTROPHIC or a TOTAL FIRE BAN has been declared.

Fire danger rating signs are located at the following locations:

- Corner of Joondalup Drive and Wanneroo Road
- Wanneroo Road, south of the Yanchep Beach Road turn off
- Wanneroo Road, Carabooda • Marmion Avenue, Jindalee
- Neaves Road, Mariginiup • Old Yanchep Road, Pinjar
- Gnaragara Road, Landsdale • Country Side Drive, Two Rocks

Other points to remember when burning garden refuse and rubbish are:

- All bush and flammable material must be thoroughly cleared within two metres of all points of the site of the fire
- The material must be on the ground, and be no more than one metre wide and one metre high

Only one heap may be burnt at any one time
Incinerators may be used providing:

- The incinerator is properly constructed and designed to prevent the escape of sparks of burning material
- The incinerator is situated not less than two metres away from a building or fence
- An area of two metres surrounding the incinerator is clear of all flammable material

BARBECUES

Only gas or electric barbecues may be lit during VERY HIGH, SEVERE, EXTREME or CATASTROPHIC fire danger rating or declared TOTAL FIRE BAN. The lighting of solid fuel barbecues is not permitted on these days.

SMOKE NUISANCES

City of Wanneroo residents are advised to be mindful of smoke issues associated with any burning that they conduct. Steps should be taken to avoid undue smoke impact to neighbours and adjacent roads. Smoke across roadways can severely impact motorists' visibility and therefore road safety. Issues of smoke nuisance are regulated by the Waste Avoidance and Resource Recovery Act 2007.

CAMPFIRES

Campfires must not be lit on VERY HIGH, SEVERE, EXTREME or CATASTROPHIC fire danger days or declared TOTAL FIRE BAN. A person must remain in attendance at the site during the whole time the fire is burning. The user must extinguish the fire using water or earth before leaving the area.

Hints for safer burning

- Don't light a fire on a hot or windy day
- Don't burn more than you can control
- Let your neighbours know you'll be burning material
- Make sure smoke and sparks will not affect your neighbour's washing or enter open windows
- Cut or rake long grass around trees, building and fences before burning
- Burn against the wind
- On a sloping block, burn from the top down
- Keep a hose or spray pack at hand to dampen down fierce fires
- If in doubt, don't burn material yourself - call the Volunteer Fire Brigade
- Stay with the fire until it is completely extinguished
- Where possible, don't burn any closer than 20 metres from your home or other buildings

Penalties

Under the Bush Fires Act 1954, failing to comply with regulations can result in a fine ranging from \$250 to \$250,000 or imprisonment.

| | |
|--|-------|
| Failure to maintain 2/3 metre firebreak as per firebreak order | \$250 |
| Offence relating to lighting fire in the open air | \$250 |
| Setting fire to bush during prohibited burning times | \$250 |
| Failure of occupier to extinguish bush fire | \$250 |

Major offences result in Court action with fines ranging from \$250 to \$250,000 or imprisonment for 14 years.

THE BIGGEST PENALTY OF ALL

The biggest penalty of all would be losing your loved ones or home to fire. Please ensure you, your family and your home are kept safe by taking the necessary precautions.

Special rural and residential land

Owners and occupiers of special rural and special residential land should be aware of their responsibilities to take bush fire prevention measures, while ensuring they do not contravene Town Planning Scheme provisions which control the removal of vegetation in Special Residential and Special Rural Zones.

These special rural zones were created in areas of natural flora, and the Scheme recognises the importance of preserving the natural environment in these areas. Anyone found cutting down, lopping or damaging trees in these areas without City approval may be guilty of an offence.

However, bush fire prevention, including the installation of firebreaks, is essential regardless of the zoning of the land.

Below are some guidelines for installing firebreaks in special rural zones to prevent bush fires, while minimising damage to the natural environment.

- A 3 metre wide and 3 metre high firebreak should be cleared around the perimeter of special rural or special residential lots
- These firebreaks need not be strictly around the perimeter, but may deviate according to the flora
- The firebreak does not have to be ploughed but can instead be created by clearing and removing all flammable material
- Care should be taken to avoid damaging or removing significant trees and shrubs
- Avoid the build up of undergrowth and leaf litter