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Bushfire Management Plan

Lot 6 Taronga Place, Eglinton

Prepared for
Urban Quarter
by Strategen

March 2017

Bushfire Management Plan

Lot 6 Taronga Place, Eglinton

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March 2017

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Client: Urban Quarter

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Table of contents

1. Introduction	1
1.1 Purpose and application of the plan	1
2. Spatial consideration of bushfire threat	2
2.1 Existing site characteristics	2
2.1.1 Location	2
2.1.2 Zoning and land use	2
2.1.3 Assets	2
2.1.4 Access	2
2.1.5 Water and power supply	2
2.2 Existing fire environment	4
2.2.1 Vegetation	4
2.2.2 Site topography and effective slope	4
2.2.3 Bushfire weather conditions	13
2.2.4 Bushfire history, fuel age, risk of ignition and potential ignition source	13
2.2.5 Potential bushfire scenarios	14
2.2.6 Bushfire suppression response capability	14
2.3 Pre-development bushfire hazard level assessment	14
2.4 Post-development bushfire hazard level assessment	14
2.5 Identification of any bushfire hazard issues	15
2.6 BAL assessment	15
2.6.1 Fire Danger Index	15
2.6.2 Vegetation class	15
2.6.3 Slope under classified vegetation	16
2.6.4 Distance between proposed development areas and the classified vegetation	16
2.6.5 Method 1 BAL calculation	16
3. Bushfire management measures	21
3.1 Asset Protection Zone	21
3.2 Increased building construction standards	21
3.3 Vehicular access	21
3.4 Water supply	22
3.5 Fuel management within POS	22
3.6 Additional measures	23
4. Proposal compliance and justification	24
5. Implementation and enforcement	27
5.1 Document review	27
5.2 Stakeholder consultation	27
6. References	28

List of tables

Table 1: Method 1 BAL calculation (BAL contours)	16
Table 2: Vehicular access technical requirements	21
Table 3: Acceptable solutions assessment against bushfire protection criteria	25
Table 4: Indicative works program	27

List of figures

Figure 1: Site overview	3
Figure 2: Vegetation class and effective slope	11
Figure 3: Bushfire hazard levels	18
Figure 4: Bushfire Attack Level (BAL) contour map	20

List of appendices

Appendix 1 City of Wanneroo Fire and Burning Notice 2015-2016
Appendix 2 January wind profiles for Gingin Aero
Appendix 3 Certificate of Title

1. Introduction

Urban Quarter is proposing to develop Lot 6 Taronga Place, Eglinton, in the City of Wanneroo (the subject site) for residential and commercial development. A Structure Plan has been prepared for a portion of the subject site (the project area) which includes residential lots, roads and areas of active and managed public open space (POS).

Due to the current extent of on-site and adjacent vegetation, the subject site and project area are designated as bushfire prone, as outlined on the Western Australian *Map of Bush Fire Prone Areas* (DFES 2016). As a result, Strategen has prepared this BMP to support the Structure Plan in accordance with *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015a).

This BMP has been prepared in accordance with the Guidelines and addresses all of the information requirements to satisfy SPP 3.7 specific to the Structure Plan stage for this project.

This BMP provides a compliant bushfire management response for proposed development based on the proposed post-development state of the on-site and surrounding fire environment.

This Bushfire Management Plan (BMP) will be updated concurrently with future planning stages, including at Structure Plan and subdivision stage.

1.1 Purpose and application of the plan

The purpose of the BMP is to provide guidance on how to plan for and manage the potential bushfire risk to future assets of the project through implementation of a range of bushfire risk mitigation measures. 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.

2. Spatial consideration of bushfire threat

2.1 Existing site characteristics

2.1.1 Location

The project area comprises approximately 28.03 ha of land within Lot 6 Taronga Place, Eglinton. The subject site is bound by the following, as depicted in Figure 1:

- Bushland and cleared land to the north and east
- Residential development to the south
- Marmion Avenue and remainder of Lot 6 to the west.

2.1.2 Zoning and land use

The subject site is currently zoned 'Urban' under the Metropolitan Regional Scheme (MRS) and 'Urban Development' under provisions of the City of Wanneroo Local Planning Scheme No. 2.

Land surrounding the subject site is zoned 'Urban Development' under the City of Wanneroo Local Planning Scheme. Land surrounding the subject site is zoned 'Urban' under the MRS.

The subject site is currently undeveloped and contains woodland vegetation.

2.1.3 Assets

The subject site currently contains no property assets due to the undeveloped nature of the site. Proposed development will significantly increase these critical assets in that the number of residents, visitors and built assets will be intensified across the subject land.

The subject site contains environmental assets in the form of intact *Banksia woodlands of the Swan Coastal Plain* Threatened Ecological Community (TEC) which also potentially contains habitat for black cockatoos.

The presence of and potential impacts on environmental assets have been considered as part of standard referral requirements for strategic planning proposals under the *Environmental Protection Act 1986* and *Environment Protection and Biodiversity Conservation Act 1999*. A banksia woodland retention plan has been proposed, which allows for 10.3 ha of banksia woodland to be retained within the subject site (more than 100 m from the project area).

2.1.4 Access

The subject site is currently accessed via Bluewater Drive from the south (Figure 1). There are no formal access ways currently constructed within the subject site, only a network of informal tracks and boundary firebreaks.

2.1.5 Water and power supply

The subject site is currently un-serviced.



Lot 6 Taronga Place, Eglinton
Site Overview

Figure
1

2.2 Existing fire environment

2.2.1 Vegetation

Strategen has assessed vegetation class within the project area and adjacent 100 m through on-ground verification.

Vegetation 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 3959-2009: SA 2009). The following provides a summary of the vegetation classes within 100 m of the project area, as depicted in Figure 2a:

- subject site consists of:
 - * Class B woodland (Plate 1; Plate 2; Plate 3; Plate 4; Plate 5; Plate 6)
 - * Class C shrubland (Plate 7; Plate 8; Plate 9; Plate 10)
 - * Class D scrub (Plate 11; Plate 12)

Vegetation that is currently managed in a low threat, minimal fuel condition is excluded from classification under Clause 2.2.3.2 (f) of AS 3959. Any non-vegetated areas occupied by waterways, rocky outcrops, roads, dwellings or other infrastructure are excluded from classification under Clause 2.2.3.2 (e) of AS 3959.

Strategen emphasises that the vegetation extent discussed above and mapped in Figure 2a displays current site conditions and does not take into account vegetation clearing proposed as part of development. Therefore, the mapped extent of Clause 2.2.3.2 exclusions within the project area will increase as development progresses throughout the site as shown in Figure 2b.

Vegetation to the east of the project area (with the exception of a small pocket of conservation POS) will be cleared as part of the development (Figure 2b). Urban Quarter owns this land as per the Certificate of Title in Appendix 3 and will maintain this area as per Clause 2.2.3.2 exclusions in perpetuity.

The above information has been used to inform a pre-development and post-development bushfire hazard level assessment for the project area.

2.2.2 Site topography and effective slope

Strategen has assessed site topography and effective slope under classified vegetation within the project area and adjacent 100 m through on-ground verification in accordance with AS 3959 methodology (Figure 2a; Figure 2b).

Site observations indicate that vegetation within the project area and adjacent 100 m is situated on either flat ground or on land with an effective slope of 0-5 degrees.



Plate 1: Class B woodland (Note narrow strip of *Eucalyptus globulus* along boundary)



Plate 2: Class B woodland



Plate 3: Class B woodland with Planting of *E globulus*



Plate 4: Class B woodland



Plate 5: Class B woodland



Plate 6: Class B woodland



Plate 7: Class C shrubland



Plate 8: Class C shrubland



Plate 9: Class C shrubland (<2 m tall)



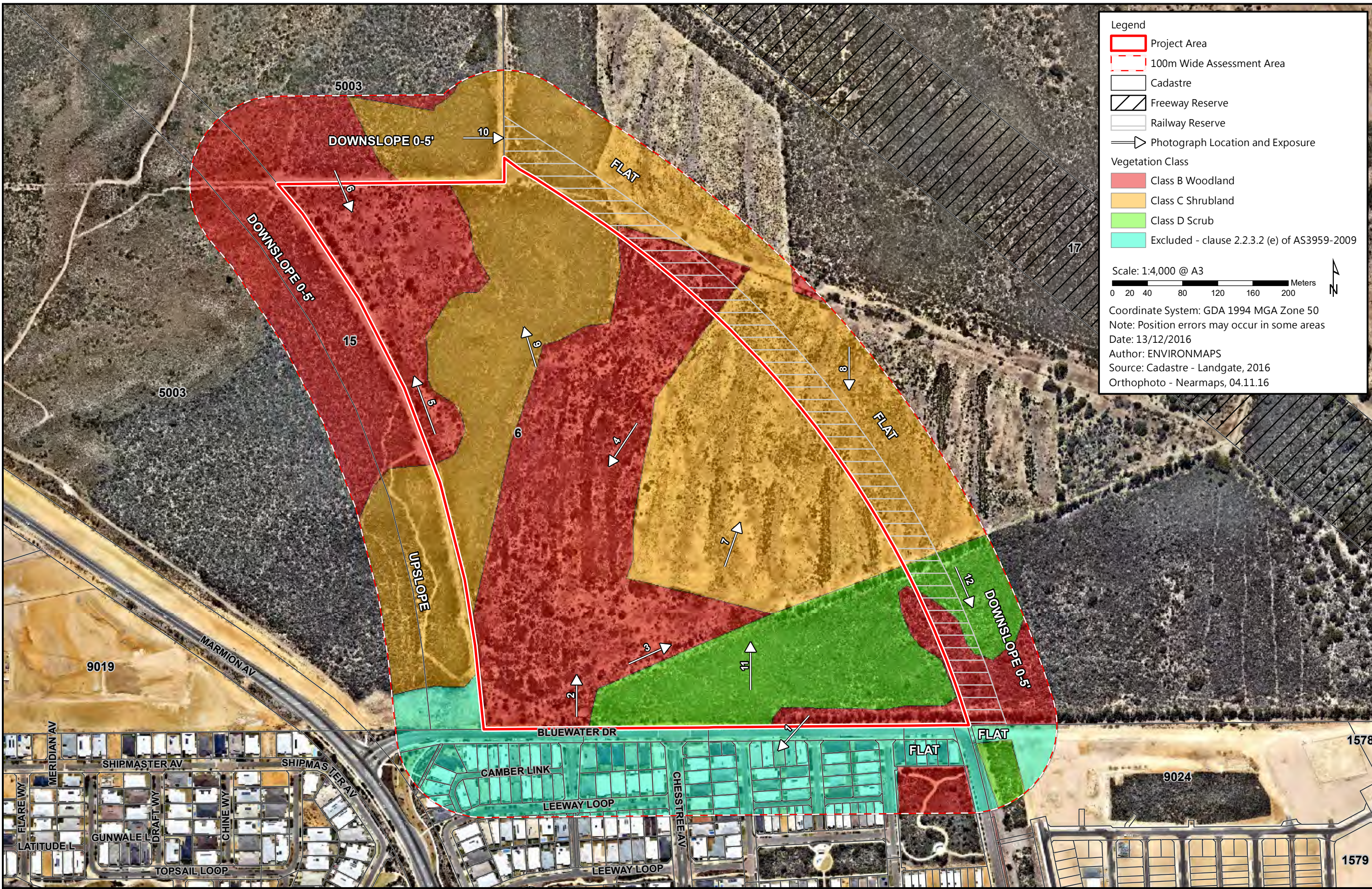
Plate 10: Class C shrubland (<2 m tall)

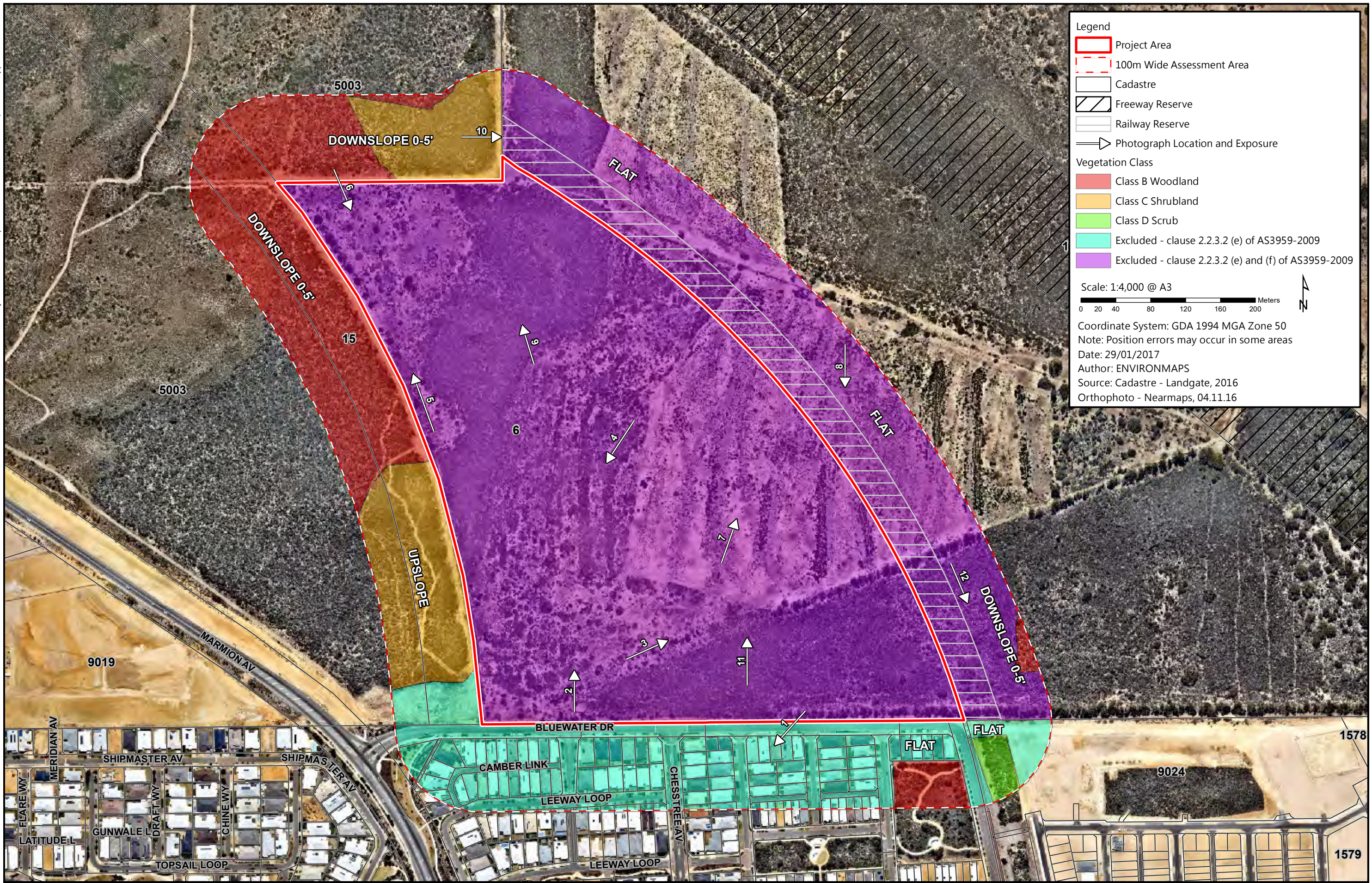


Plate 11: Class D scrub (>2 m tall)



Plate 12: Class D scrub





2.2.3 Bushfire weather conditions

Climate statistics

The Eglinton locality experiences a Mediterranean climate characterised by mild, wet winters and warm to hot, dry summers. The nearest Bureau of Meteorology (BoM) weather station at Gingin Aero (Station No. 009178), located approximately 22 km from the subject site, provides average monthly climate statistics for the locality.

Average annual rainfall recorded at Gingin Aero is 620.2 mm (BoM 2016). Rainfall may occur at any time of year; however, most occurs in winter in association with cold fronts from the southwest. Highest temperatures occur between November and March, with average monthly maximums ranging from 28°C in November to 33.3°C in February (BoM 2016). Lowest temperatures occur between May and October, with average monthly minimums ranging from 6.2°C in July to 9.2°C in October (BoM 2016).

Worst case bushfire weather conditions

Southwest Western Australia generally experiences a cool to mild growing season in the months of August through to November of each year, followed by four months of summer drought conditions, which is when the potential for bushfire occurrence is at its peak.

Worst case (adverse) bushfire weather conditions can occur during this dry period when a low pressure trough forms off the west coast and strong winds develop from the north or northeast. These conditions are sometimes associated with 'Extreme' or 'Catastrophic' fire dangers, which are consistent with very high temperatures, low relative humidity and very strong winds. Based on the predominant summer climatic conditions of the local area, 'Extreme' and 'Catastrophic' fire dangers normally occur less than 5% of the time during the designated bushfire season, which equates to around six days between December and March (McCaw & Hanstrum 2003).

Predominant bushfire weather conditions

Predominant fire weather conditions are considered to occur 95% of the time during the designated bush fire season and these conditions generally align with average summer climatic conditions of the locality.

Average 9:00 am and 3:00 pm January wind profiles for Gingin Aero are contained in Appendix 2. These profiles illustrate that the predominant winds during the designated bush fire season are from the east and southeast in the morning averaging around 20.9 km/h; and from the southwest in the afternoon averaging around 25.5 km/h (BoM 2016).

The mean 9:00 am and 3:00 pm relative humidity for Gingin Aero during the designated bush fire season is around 48% and 33% respectively, with average monthly maximum temperatures peaking at around 33.3°C in February. These predominant fire weather conditions correlate with an average fire danger index of 'High', as determined using the Commonwealth Science and Industrial Research Organisation Fire Danger and Fire Spread Calculator (CSIRO 1999).

2.2.4 Bushfire history, fuel age, risk of ignition and potential ignition source

City of Wanneroo is rated as one of the high bushfire risk areas in Western Australia, which is indicative of a significant vegetation extent situated within or adjacent to urban or rural-urban developments in such localities as Yanchep, Alkimos and Jindalee.

The subject site has likely been subject to infrequent bushfires, however, no documented bushfire history is available. During the flora and vegetation assessment conducted by Strategen in October 2016, it was noted that fire age across most of the vegetation was over ten years, indicating the area has not been burnt for at least ten years.

On 16 January 2009, an uncontrolled bush fire burnt through approximately 8 000 ha of vegetation at Yanchep National Park, north of the subject site. Power lines and poles, parts of the Pinjar pine plantation were destroyed.

The current ignition risk within the project area is considered to be low to moderate due to the low levels of existing residency, public access and visitation throughout the location and surrounding land. Strategen considers that the ignition risk may increase following development intensification given that current levels of public access and resident occupancy at the bushland interface are low.

The potential sources of ignition in the area are expected to be from:

- deliberately lit fire (i.e. arson)
- lightning strike
- accidental causes, such as vehicle accidents and sparks from vehicle exhausts/machinery
- escapes from fuel hazard reduction burning
- incorrect disposal of cigarettes.

2.2.5 Potential bushfire scenarios

Strategen considers a fire front approaching the subject site from the east to west to be the worst case bushfire scenario, due to the bushfire run at a landscape scale within vegetation in these directions. However, given that likely afternoon summer prevailing winds are from the southwest this worst case scenario is not considered to pose a significant bushfire risk.

2.2.6 Bushfire suppression response capability

Local Bush Fire Brigades stationed at Two Rock and Quinns Rocks are expected to provide a best case emergency suppression response time of 30 minutes should a bushfire threaten lives or homes on or adjacent to the subject site.

2.3 Pre-development bushfire hazard level assessment

Strategen has mapped the pre-development bushfire hazard levels on and within 100 m of the subject site (Figure 3a). The bushfire hazard levels have been assessed on the basis of the vegetation classes identified in Section 2.2.1, the current pre-development extent of vegetation within the site and the effective slope under classified vegetation assessed in Section 2.2.2.

All woodland and scrub (Class B and D) vegetation has been assigned a bushfire hazard level of 'Extreme'. All shrubland (Class C) vegetation has been assigned a hazard level of 'Moderate'. Areas within 100 m of woodland (Class B), scrub (Class D) and shrubland (Class C) vegetation have been assigned a bushfire hazard level of 'Moderate'.

Strategen emphasises that the vegetation extent discussed above and mapped in Figure 3a displays current site conditions and does not take into account vegetation clearance proposed as part of the development. Therefore, the mapped extent of AS 3959 Clause 2.2.3.2 exclusions within the subject site will increase as development progresses throughout the site.

2.4 Post-development bushfire hazard level assessment

The existing vegetation extent within the subject site will be cleared, due to the low fuel outcome of the proposed urban development. The proposed development will include 3.16 ha of POS which will constitute excluded vegetation as per clause 2.2.3.2 of AS 3959-2009. Strategen reiterates that this hazard level mapping will be revised at future planning stages to accurately reflect the on-ground status of vegetation at the time of future assessments.

Strategen has mapped the post development bushfire hazard levels on and within 100 m of the subject site on the basis of current vegetation extent within the subject site being cleared to accommodate proposed urban development. All woodland and scrub (Class B and D) vegetation has been assigned a bushfire hazard level of 'Extreme'. All shrubland (Class C) vegetation has been assigned a hazard level of 'Moderate'. Areas within 100 m of woodland (Class B), scrub (Class D) and shrubland (Class C) vegetation have been assigned a bushfire hazard level of 'Moderate'.

Figure 3b demonstrates that post development vegetation extent will result in the entirety of the subject site being located within a 'Moderate' or 'Low' bushfire hazard level area.

2.5 Identification of any bushfire hazard issues

There is limited landscape scale bushfire risk or fire run through dense vegetation or steep terrain adjacent to the subject site. There will be no bushfire risk or fire run within the subject site post development.

The bushfire risk to proposed development posed by these hazards can be managed through standard application of acceptable solutions under the Guidelines, as well as through a direct bushfire suppression response if required.

On completion of the development, there will be a reduced bushfire risk to future assets of the site as a result of vegetation clearing that will be undertaken to facilitate development. Vegetation clearing throughout the project staging will play an important role in managing the bushfire risk posed by on-site temporary vegetation during roll out of individual development stages.

2.6 BAL assessment

Vegetation with a 'Moderate' or 'Extreme' bushfire hazard level is considered bushfire prone and any proposed development within 100 m of the bushfire prone vegetation extent will require application of Australian Standard AS 3959-2009 *Construction of Buildings in Bushfire-prone Areas* (SA 2009) via implementation of increased building construction standards in response to the assessed Bushfire Attack Level (BAL).

Once the project area is cleared of vegetation in preparation of development there will only be a small proportion of the project area which will be located within bushfire prone land, which will require a BAL response in accordance with AS 3959-2009 (Figure 4). This is largely consistent with findings of the *WA State Map of Bush Fire Prone Areas*.

Vegetation situated adjacent to the project area (west and northwest) will be cleared as part of adjacent developments. This clearing has not been incorporated into the BAL assessment contained within this BMP, however updated versions of this BMP prepared to support subdivision applications will reflect this clearing if applicable.

The Method 1 procedure for calculating the BAL (as outlined in AS 3959-2009) incorporates the following factors:

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

Based on the specified BAL, construction/separation requirements for proposed buildings can then be assigned.

2.6.1 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australian environments, as outlined in AS 3959-2009 and endorsed by Australasian Fire and Emergency Service Authorities Council.

2.6.2 Vegetation class

Vegetation class is described in Section 2.2.1 and depicted in Figure 2b and consists of woodland (Class B), shrubland (Class C) and scrub (Class D). Where BAL contours differ based on the different BAL application distances associated with the vegetation classifications, the highest BAL has been applied (e.g. BAL 12.5 in Class B woodland vs. BAL 19 in Class C shrubland – BAL 19 would be the end result).

2.6.3 Slope under classified vegetation

Slope under classified vegetation is assessed in Section 2.2.2 and is depicted in Figure 2a and Figure 2b:

2.6.4 Distance between proposed development areas and the classified vegetation

Strategen has assessed and identified the separation distances between future buildings and the classified vegetation extent, as summarised in Table 1.

2.6.5 Method 1 BAL calculation

A Method 1 BAL calculation has been completed for the project area in accordance with AS 3959-2009 (Table 1).

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

A portion of the project area will be located within 100 m of vegetation assessed as having an 'Extreme' and 'Moderate' bushfire hazard level (i.e. bushfire prone land), which will require implementation of AS 3959-2009 (refer to Figure 4). The 'Extreme' bushfire hazard applies to Class B Woodland vegetation and 'Moderate' bushfire hazard applies to Class C shrubland surrounding the project area. Vegetation under slope is summarised in Section 2.6.3.

BAL contours for proposed built assets within 100 m of this vegetation are outlined in Table 1.

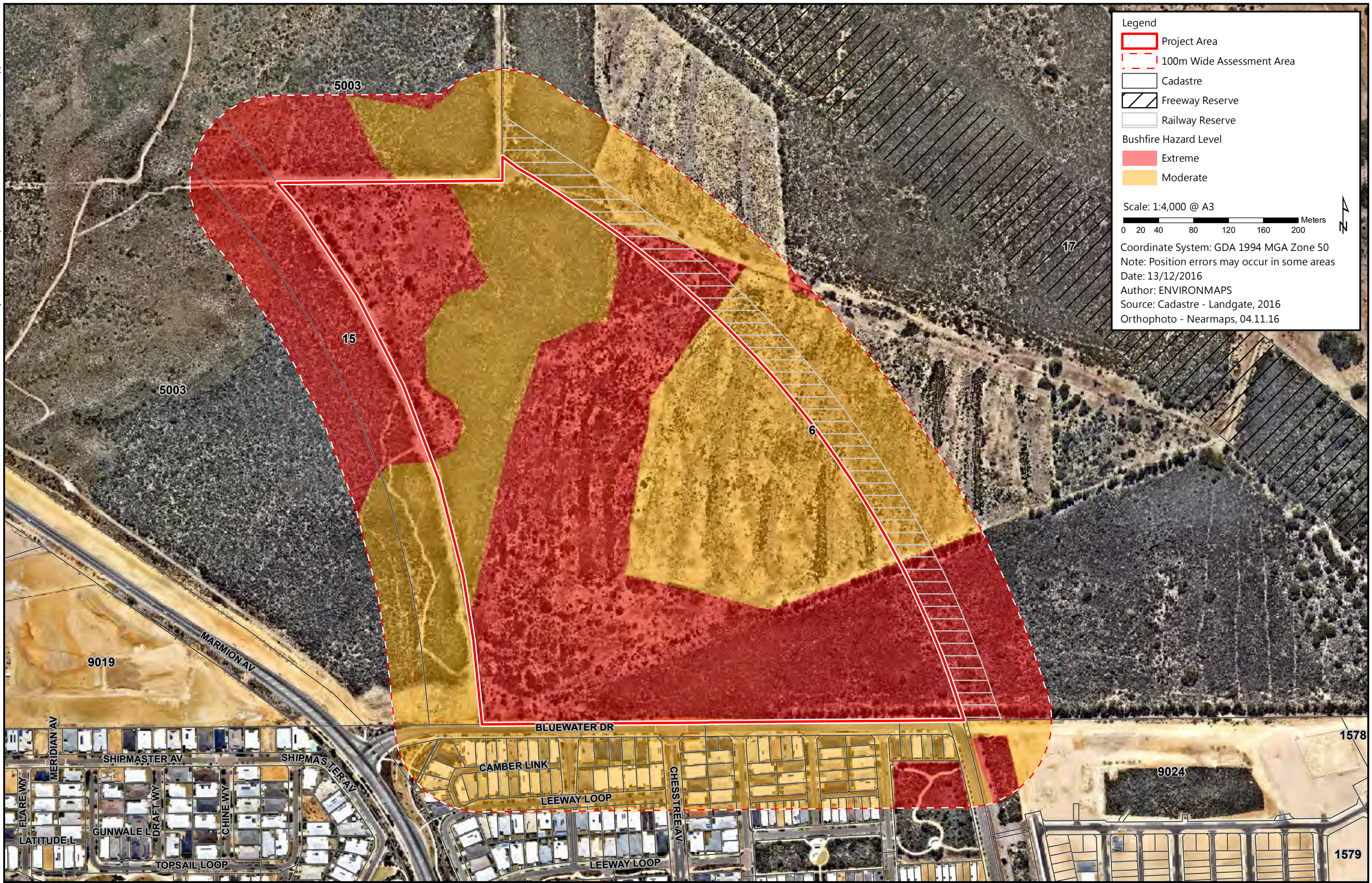
Table 1: Method 1 BAL calculation (BAL contours)

Vegetation class	Slope under classified vegetation	Distance from classified vegetation				
		BAL FZ	BAL 40	BAL 29	BAL 19	BAL 12.5
Class B woodland	Vegetation at equal elevation to, or upslope from proposed assets	0-<10 m	10-<14 m	14-<20 m	20-<29 m	29-<100 m
	Vegetation downslope at an angle between 0 to 5 degrees from proposed assets	0-<13 m	13-<17 m	17-<25 m	25-<35 m	35-<100 m
Class C Shrubland	Vegetation at equal elevation to, or upslope from Site	0-<7 m	7-<9 m	9-<13 m	13-<19 m	19-<100 m
	Vegetation downslope at an angle between 0 to 5 degrees from proposed assets	0-<7 m	7-<10 m	10-<15 m	15-<22 m	22-<100 m
Class D scrub	Vegetation at equal elevation to, or upslope from Site	0-<10 m	10-<13 m	13-<19 m	19-<27 m	27-<100 m
	Vegetation downslope at an angle between 0 to 5 degrees from proposed assets	0-<11 m	11-<15 m	15-<22 m	22-<31 m	31-<100 m

Section 6.6.2 of SPP 3.7 states that subdivision and development applications in areas of BAL 40 or BAL FZ will not be supported without extraordinary planning approval. Therefore, all proposed buildings must be developed outside of areas subject to BAL FZ or BAL 40 to avoid applying for extraordinary planning approval (i.e. proposal for unavoidable or minor development). All proposed lots will be located outside of areas subject to BAL FZ and BAL 40 contours which will be displayed in a revised BMP provided at the subdivision stage of planning.

The following items are still able to be constructed within BAL FZ and BAL 40 areas (i.e. the APZ):

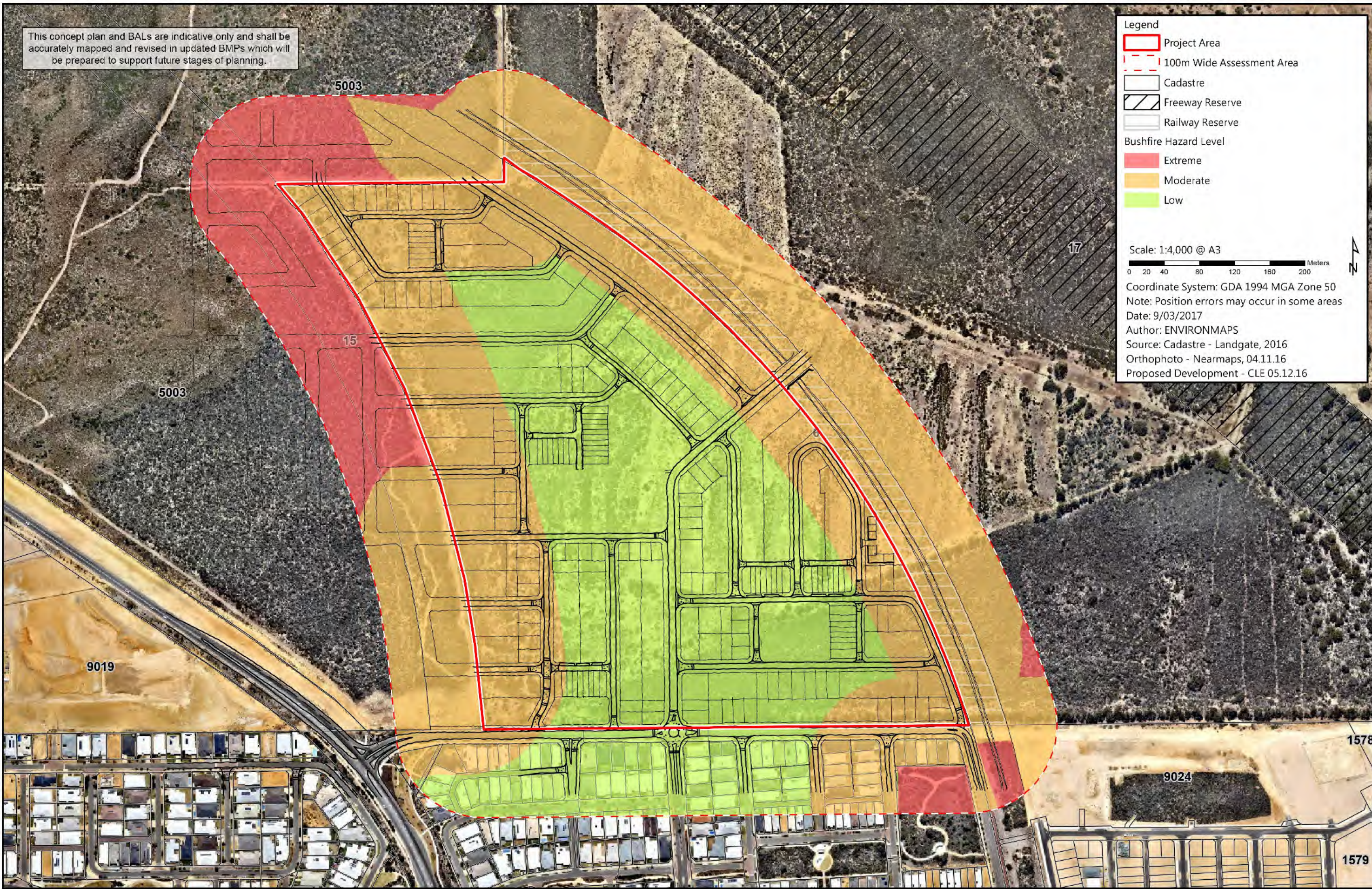
- driveways
- roads
- carparks
- laydown area
- Public Open Space managed in a low fuel state.



Lot 6 Taronga Place, Eglinton
Bushfire Hazard Level Map (Pre-development)

Figure 3a

This concept plan and BALs are indicative only and shall be accurately mapped and revised in updated BMPs which will be prepared to support future stages of planning.



Legend

- Project Area
- 100m Wide Assessment Area
- Cadastre
- Freeway Reserve
- Railway Reserve

Bushfire Hazard Level

- Extreme
- Moderate
- Low

Scale: 1:4,000 @ A3

0 20 40 80 120 160 200 Meters

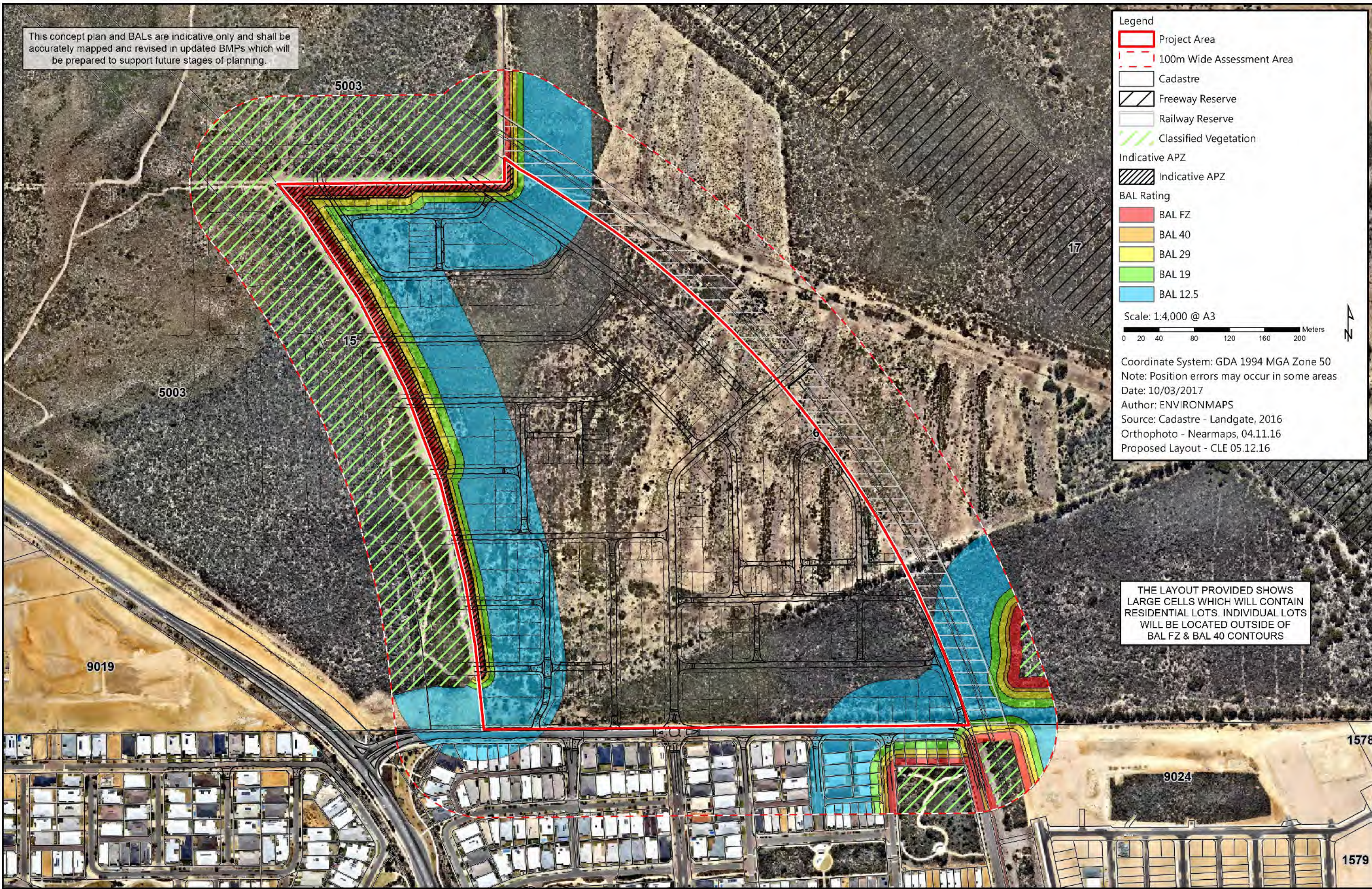
Coordinate System: GDA 1994 MGA Zone 50
 Note: Position errors may occur in some areas
 Date: 9/03/2017
 Author: ENVIRONMAPS
 Source: Cadastre - Landgate, 2016
 Orthophoto - Nearmaps, 04.11.16
 Proposed Development - CLE 05.12.16



Lot 6 Taronga Place, Eglinton
 Bushfire Hazard Level Map (Post-development)

Figure 3b

This concept plan and BALs are indicative only and shall be accurately mapped and revised in updated BMPs which will be prepared to support future stages of planning.



Legend

- Project Area
- 100m Wide Assessment Area
- Cadastre
- Freeway Reserve
- Railway Reserve
- Classified Vegetation

Indicative APZ

- Indicative APZ

BAL Rating

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

Scale: 1:4,000 @ A3

0 20 40 80 120 160 200 Meters

Coordinate System: GDA 1994 MGA Zone 50
 Note: Position errors may occur in some areas
 Date: 10/03/2017
 Author: ENVIRONMAPS
 Source: Cadastre - Landgate, 2016
 Orthophoto - Nearmaps, 04.11.16
 Proposed Layout - CLE 05.12.16

THE LAYOUT PROVIDED SHOWS LARGE CELLS WHICH WILL CONTAIN RESIDENTIAL LOTS. INDIVIDUAL LOTS WILL BE LOCATED OUTSIDE OF BAL FZ & BAL 40 CONTOURS

3. Bushfire management measures

Strategen has identified a range of bushfire management measures to address compliance with the Guidelines. It should be noted that these measures are being provided at the strategic planning level in the absence of a detailed development plan and that future addendums to this BMP will need to be prepared to align with future planning stages on provision of greater levels of detail. This BMP demonstrates a commitment to ensure that all of the bushfire management measures identified will be implemented to achieve compliance with the Guidelines in subsequent planning stages.

3.1 Asset Protection Zone

The proposed development will maintain an Asset Protection Zone (APZ) between classified vegetation and proposed buildings which will allow all proposed buildings to be located in areas subject to a BAL rating of BAL 29 or lower. These APZs will comprise of perimeter roads and setbacks within the development area itself, as well as low fuel buffers on adjacent lands which will be maintained by Urban Quarter in perpetuity. Figure 4 displays indicative APZs which will be revised and updated when this BMP is revised at future stages of planning. The detail presented above is sufficient to show that APZs can be maintained between proposed lots and classified vegetation, therefore meeting the intent of SPP 3.7 at this high level of planning.

All APZs will be maintained on a regular and ongoing basis as low threat vegetation as per clause 2.2.3.2 (f) of AS 3959-2009. This meets the intent of the APZ specified in the Guidelines.

The BMP will be reviewed at subsequent planning stages, at which time any changes to development and clearing within surrounding areas can be considered and addressed in a revised BMP.

3.2 Increased building construction standards

Strategen has designated BAL requirements for the proposed development in accordance with AS 3959–2009. This has resulted in a combination BAL 29, BAL 19 and BAL 12.5 contours being recommended to areas of land within the Project area.

3.3 Vehicular access

The proposed vehicular access network will provide greater than two links to the surrounding public road network to the south as well as future links to adjacent development areas to the north, east and west.

The public roads created as part of the proposed development will be compliant with Guideline requirements as detailed in Table 2.

Table 2: Vehicular access technical requirements

Technical requirement	Public road	Cul-de-sac	Private driveway	Emergency access ways	Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal distance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 m	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15

Technical requirement	Public road	Cul-de-sac	Private driveway	Emergency access ways	Fire service access routes
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius	8.5	8.5	8.5	8.5	8.5

* Refer to E3.2 Public roads: Trafficable surface

Source: WAPC 2015b

3.4 Water supply

Water supply services will be extended throughout the project area from surrounding areas. The reticulated system will ensure an all year round supply of water is provided to meet minimum domestic and emergency water supply requirements.

At subsequent planning stages, the developer will also be required to prepare, have approved by the relevant water supply authority and Department of Fire and Emergency Services (DFES), and implement a detailed plan demonstrating the location and capacity of fire emergency infrastructure.

A network of hydrants will need to 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.

3.5 Fuel management within POS

POS areas located within the project area will be maintained such that they can be excluded from classified vegetation under clause 2.2.3.2 of AS 3959-2009 (e.g. less than 1 ha of retained vegetation more than 100 M away from areas of classified vegetation, low threat vegetation etc.)

Ongoing management of fuel loads within proposed POS areas will be addressed through landscaping plans provided as part of a revised BMP at future planning stages.

3.6 Additional measures

Strategen makes the following recommendations for additional bushfire management measures to inform ongoing planning stages of the development and increase the level of bushfire risk mitigation across the site:

1. Notification on Title: Strategen recommends notification to be placed on title for areas within the development that have a BAL-12.5 rating or higher as a condition of subdivision to ensure all landowners/proponents and prospective purchasers are aware that their lot is in a designated bushfire prone area and that increased building construction standards will apply to future buildings. The notification on title is also to include that the site is subject to a BMP.
2. Compliance with the City of Wanneroo Fire and Burning Notice 2015-2016 the developer/land manager and prospective land purchasers are to comply with the current City of Wanneroo Fire and Burning Information 2015-2016 (Appendix 1).

4. Proposal compliance and justification

Proposed development within the project area is required to comply with SPP 3.7 and the Guidelines, as required 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.

6.3 Information to accompany strategic planning proposals

Any strategic planning proposal to which policy measure 6.2 applies is to be accompanied by the following information prepared in accordance with the Guidelines:

a) (i) the results of a BHL assessment determining the applicable hazard level(s) across the subject land, in accordance with the methodology set out in the Guidelines. BHL assessments should be prepared by an accredited Bushfire Planning Practitioner; or

a) (ii) where the lot layout of the proposal is known, a BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. The BAL Contour Map should be prepared by an accredited Bushfire Planning Practitioner; and

b) the identification of any bushfire hazard issues arising from the relevant assessment; and

c) clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages.

This information can be provided in the form of a Bushfire Management Plan or an amended Bushfire Management Plan where one has been previously endorsed.

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 and the Guidelines, bushfire management measures, as outlined in Section 3, have been devised for the proposed development in accordance with Guideline acceptable solutions to meet compliance with bushfire protection criteria. An 'acceptable solutions' assessment at the strategic planning stage 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.	A1.1 Development location 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 Section 3.2, Figure 3b and Figure 4, which demonstrates that proposed development to be identified as part of future planning stages will be located within a Moderate bushfire hazard level area and designed and located to ensure a rating of BAL 29 or below is 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.	A2.1 Asset Protection Zone Every building is surrounded by an APZ, depicted on submitted plans, which meets detailed requirements (refer to the Guidelines for detailed APZ requirements).	Refer to Section 3.1, which demonstrates that APZs will be adopted to meet the standard appropriate to the BAL for that location, whilst not exceeding BAL-29. The requirement for APZs will need to be reviewed when proposed development layout is identified at future planning stages..	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.	A3.1 Two access routes 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. A3.2 Public road A public road is to meet the requirements in Table 2, Column 1. A3.3 Cul-de-sac (including a dead-end-road) 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 (refer to the Guidelines for detailed cul-de-sac requirements). A3.4 Battle-axe Battle-axe access leg 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 (refer to the Guidelines for detailed battle-axe requirements). A3.5 Private driveway longer than 50 m A private driveway is to meet detailed requirements (refer to the Guidelines for detailed private driveway requirements).	Refer to Section 3.3, which demonstrates that the public road network proposed as part of the development will provide a minimum of two access routes for all proposed lots through a combination of existing roads and proposed internal roads. Refer to Section 3.3, which demonstrates that any proposed public roads will be designed to meet minimum requirements outlined in Table 2. Refer to Section 3.3, which demonstrates that any proposed cul-de-sacs will be designed to meet minimum requirements outlined in Table 2. Refer to Section 3.3, which demonstrates that proposed development will avoid inclusion of any battle-axe access legs. N/A. No private driveways longer than 50 m proposed.	The measures proposed are considered to comply and meet the intent of Element 3 Vehicular access.

		<p>A3.6 Emergency access way 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 (refer to the Guidelines for detailed EAW requirements).</p>	<p>N/A. No Emergency Access Ways proposed.</p>	
		<p>A3.7 Fire service access routes (perimeter roads) 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 (refer to the Guidelines for detailed fire service access route requirements).</p>	<p>N/A. No Fire service access roads proposed.</p>	
		<p>A3.8 Firebreak width 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>	<p>N/A. No firebreaks proposed.</p>	
<p>Element 4: Water</p>	<p>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>	<p>A4.1 Reticulated areas 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>	<p>Refer to Section 3.4, which demonstrates that reticulated water supply will be provided for the proposed development.</p>	<p>The measures proposed are considered to comply and meet the intent of Element 4 Water</p>
		<p>A4.2 Non-reticulated areas 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>	<p>N/A Reticulated water supply will be provided for the proposed development.</p>	
		<p>A4.3 Individual lots within non-reticulated areas (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>	<p>N/A Reticulated water supply will be provided for the proposed development.</p>	

5. Implementation and enforcement

Implementation of the BMP and future revisions of the BMP apply to the developer, prospective landowners and local government to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in Section 3, as well as an indicative works program to guide future planning, is provided in Table 4.

This indicative works program will need to be revised and updated as part of requirements for preparation of a revised BMP as planning stages progress.

Table 4: Indicative works program

Bushfire management measure	Timing for application	Responsibility
Creation of APZs	Prior to construction of proposed dwellings	Developer during development, prospective landowners thereafter
Maintenance of APZs	Following creation of APZ and as required to achieve 2 t/ha fuel threshold all year round	Developer during development, prospective landowners thereafter
Implementation of increased building construction standards	During construction of proposed dwellings	Local government, builder, prospective landowners
Construction of public roads, emergency access ways, fire service access routes or firebreaks	Following subdivision approval and prior to construction of proposed dwellings	Developer
Implementation and maintenance of firebreaks	As required in accordance with City of Armadale Firebreak Notice	Prospective landowners
Provision of reticulated water supply	Prior to construction of proposed dwellings	Developer
Fuel management within POS	Prior to construction of proposed dwellings	Developer for specified/agreed period, Shire thereafter
Notification on Title	Following subdivision approval	Developer
Revised BMP and BAL assessment at future planning stages	Prior to subdivision approval	Developer

5.1 Document review

This BMP will need to be updated as part of future planning stages to ensure:

1. Proposed management measures are based on a final detailed development plan, including lot boundaries, road layout, building envelopes and locations
2. Final development details and management measures are re-assessed for compliance with bushfire protection criteria.

The developer will be responsible for updating and revising the BMP until such time that the development is complete, after which the Shire will be the authority responsible for updating and revising the BMP.

5.2 Stakeholder consultation

Strategen has undertaken consultation with the client to ensure the aims and objectives of the BMP are in accordance with stakeholder expectations and the BMP maintains compliance with the BMP.

6. References

- Bureau of Meteorology (BoM) 2016, *Climate statistics for Australian locations: Monthly climate statistics for Bickley*, [Online], Commonwealth of Australia, available from: http://www.bom.gov.au/climate/averages/tables/cw_009240.shtml, [6/9/2016].
- Commonwealth Science and Industrial Research Organisation (CSIRO) 1999, *Fire Danger and Fire Spread Calculator*, Commonwealth Science and Industrial Research Organisation, Perth.
- Department of Fire and Emergency Services (DFES) 2016, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>, [6/9/2016].
- McCaw L and Hanstrum B 2003, 'Fire environment of Mediterranean south-west Western Australia', in *Fire in Ecosystems of South-West Western Australia: Impacts and Management*, eds I Abbott & ND Burrows, Backhuys Publishers, Leiden, Netherlands, pp. 171–188.
- Standards Australia (SA) 2009, *Australian Standard AS 3959–2009 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.
- Western Australian Planning Commission (WAPC) 2015a, *State Planning Policy 3.7 Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.
- Western Australian Planning Commission (WAPC) 2015b, *Guidelines for Planning in Bushfire-Prone Areas*, Western Australian Planning Commission, Perth.

Appendix 1
City of Wanneroo Fire and Burning
Notice 2015-2016



CITY OF WANNEROO
FIRE AND BURNING INFORMATION
2015-2016

TO REPORT ALL FIRES RING 000

BURNING PERIODS & FDRS

BUILDING PROTECTION ZONES

BURNING GARDEN REFUSE

ALTERNATIVES TO BURNING

FIRE BANS / BRIGADE CONTACTS

BUSHFIRE SURVIVAL PLAN

FIREBREAKS & EXAMPLES

BURNING PERIOD DATES & FIRE DANGER RATINGS (FDRs)

1 DECEMBER TO 31 MARCH (INCLUSIVE)

ALL burning, including garden refuse is prohibited during this period.

Dates may be varied due to climate or weather conditions. Period variations will be advertised in local papers, the City website and Facebook page.

BURNING PERMITS ARE REQUIRED

1 APRIL - 30 NOVEMBER

Permits to burn may be obtained from the City of Wanneroo at the following locations:

Wanneroo Animal Care Centre

1204 Wanneroo Road, Ashby // 4pm-6pm everyday

City of Wanneroo Civic Centre

23 Dundobar Road, Wanneroo // 9am-4pm weekdays

Two Rocks Volunteer Fire Brigade

Carraway Loop, Two Rocks. Call **0427 026 000** before attending. For Two Rocks residents only (Seatrees Estate and Breakwater estate)

ALL BURNING IS PROHIBITED ON DAYS OF VERY HIGH OR ABOVE FIRE DANGER RATINGS AND IF A TOTAL FIRE BAN OR A HARVEST AND VEHICLE MOVEMENT BAN IS DECLARED.



FIRE DANGER RATINGS (FDR)

If you are in a bushfire risk location you need to know what the Fire Danger Rating (FDR) is for your area, monitor local conditions and keep informed.

The FDR is based on the forecast weather conditions and gives you advice about the level of bushfire threat on a particular day. When the rating is high, the threat of a bushfire increases.

FIRE DANGER RATING INFORMATION BOARDS

These boards clearly display the daily fire danger rating and are featured at eight locations across the City of Wanneroo.

- 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
- Gngangara Road, Landsdale
- Countryside Drive, Two Rocks

STAY INFORMED

An RSS feed is available to receive email alerts when the City's Harvest and Vehicle Movement Bans are declared. To sign up, visit the City website.

Harvest and Vehicle Movement Bans are also published on the website and broadcast on the ABC local radio station.



The City of Wanneroo's fire weather district is -
Lower West Coast.

You can find out the daily FDR online at:

- www.dfes.wa.gov.au
 - www.bom.gov.au
- or by phoning the **Telstra Weather Service on 1196.**

BURNING PERIODS & FDRS

BUILDING PROTECTION ZONES

A building protection zone (BPZ) is an area extending for at least 20 metres around a building on all sides where there is little or nothing to burn.

Reducing vegetation, rubbish and anything that can burn from around your home will increase its chances of surviving a bushfire.

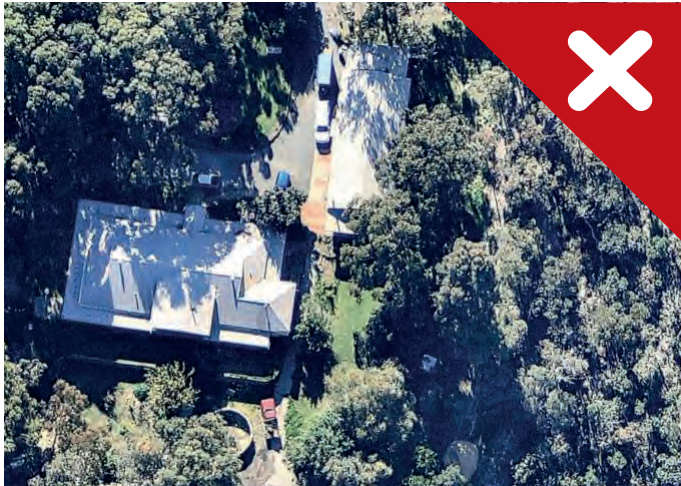


If there is little or nothing to burn then the fire's impact will be reduced. This can be achieved by:

- Maintaining a minimum 2m gap between trees and the building. Make sure that no trees overhang the house.
- Ensuring tree crowns are a minimum of 10m apart.
- Ensuring there is a gap between shrubs and buildings of three times their mature height.
- Ensuring shrubs aren't planted in clumps.



- Keeping the grass short and prune the scrub so that it is not dense, nor does it have fine, dead aerated material in the crown of the scrub.
- Raking up leaves, twigs and removing tree trailing bark.
- Pruning lower branches (up to 2m off the ground) to stop a surface fire spreading to the canopy of the trees.
- Creating a mineral earth firebreak.
- Having your paths adjacent to the building and have your driveway placed so that it maximises the protection to the house.
- Keeping your gutters free of leaves and other flammable material



✓ EXAMPLE ABOVE:
extensive fire protection
zone created around
building.

✗ EXAMPLE LEFT:
no fire protection zone
created around building.

BUILDING PROTECTION ZONES

BURNING GARDEN REFUSE

There are many methods of hazard reduction available to residents. Reduction of fuel does not have to be as drastic as removing all vegetation. Burning garden refuse is one option available at certain times of the year.

GARDEN REFUSE MAY BE BURNT WITHOUT A PERMIT AFTER 6PM, SUBJECT TO:

- the pile of refuse being burnt not exceeding 1sqm
- a 2 metre wide area clear of flammable material surrounding the pile
- the fire only being lit between 6pm and 11pm
- only one heap being burnt at any one time
- the fire being completely extinguished by midnight
- a person in control of the fire staying with the fire until it is completely extinguished
- there being a means of extinguishing the fire available at all times (eg garden hose, knapsack spray or fire unit)
- neighbours are informed of your intention to burn
- the smoke does not cause a nuisance to neighbours
- the smoke does not create a traffic hazard
- household or commercial waste, or any noxious materials are not burned.



**BURNING PERMITS REQUIRED 01 APRIL - 30 NOVEMBER.
OUTSIDE OF THESE DATES (01 DEC - 3 MARCH)
BURNING IS PROHIBITED.**

MITIGATION BURNS

For assistance regarding mitigation burns, contact the City of Wanneroo Fire Protection Officers where properties can be assessed. Volunteer Fire Brigades in conjunction with the City's Fire Protection Officers may be able to assist with undertaking the burns. For more information please call 9405 5000.



Mild intensity prescribed burn for fuel reduction.

Eight months post burn at Ashbrook Park.



GARDEN REFUSE CANNOT BE BURNT:

- At any time during the Prohibited Burning Period
- If a Total Fire Ban or Harvest and Vehicle Movement Ban has been declared
- If the Fire Danger Rating is Very High or above.

NOTE: DO NOT BURN DAMP, WET OR GREEN MATERIAL AT ANY TIME AS THIS WILL CAUSE EXCESSIVE SMOKE.

BURNING GARDEN REFUSE

ALTERNATIVES TO BURNING

There are a range of alternatives to burning waste which can also be used as a method of hazard reduction.

In many circumstances, hand and mechanical clearing methods should be considered the best way to protect assets. These methods can be safer than burning, and easier to organise and maintain.

Raking or manual removal of fine fuels

Remove fuels such as fallen leaves, twigs and bark.

Mowing grass

Keep grass short, green and well watered. Mowed / slashed firebreaks need to be kept below 20mm.

Spraying

Grass can be sprayed with herbicide to reduce fuel loads. This may be a practical alternative particularly if erosion is a concern or if areas are difficult to access.

Slashing and mulching

This is an economical method of fuel reduction. To be effective, the cut material must be removed or allowed to rot before summer starts. Slashing and mowing may leave grass in rows, increasing fuel in some places. Mulching, or turbo mowing, also mulches the vegetation leaving the fuel where it is cut.



Ploughing and grading

These methods can produce effective firebreaks, however, the areas need constant maintenance. Loose soil may erode in steep areas, particularly where there is high rainfall and strong winds.

For further information on preventing erosion please contact the Fire Protection Officer.

DISPOSAL OF GREEN WASTE

City residents and ratepayers are able to dispose of green waste and garden refuse at the Greens recycling Facility (70 Motivation Drive, Wangara. 8am – 4.45pm weekends and public holidays).

Access to the site is free with a 'Greens voucher'. Four Greens vouchers are included with the annual Rates notice. Each voucher allows the disposal of a standard 6x4 trailer-load of clean greens at no charge. Entry fees apply without a valid voucher

Garden refuse can also be used as a mulch or compost to improve soils and the growth of plants. If you have large quantities of green waste (branches, tree trunks) you can arrange for mobile mulching services to mulch the material onsite.

Mulch piles should be no larger than 5 cubic metres to reduce the risk of spontaneous combustion and should be surrounded by a firebreak.



VERGES - A SHARED RESPONSIBILITY

The City of Wanneroo urges all residents to include their property's verge in their fire preparation activities.

The City cannot do it alone, given its size and number of bush verges requiring maintenance.

ALTERNATIVES TO BURNING

FIRE BANS / BRIGADE CONTACTS

TOTAL FIRE BAN

A Total Fire Ban is declared by Department of Fire and Emergency Services (DFES) on days when fires are most likely to threaten lives and property.

WHEN A BAN IS DECLARED IT WILL BE FEATURED ON:

- the DFES website www.dfes.wa.gov.au
- DFES Twitter account [@dfes_wa](https://twitter.com/dfes_wa)
- published to subscribers through DFES's automated RSS feeds
- broadcast on **ABC local radio**
- via DFES information line **1800 709 355**

VOLUNTEER BUSH FIRE BRIGADES

Volunteer Bush Fire Brigades are called to fires via a paging and radio communications system. The 000 emergency number will put you in contact with DFES who will dispatch the nearest Brigade.

Brigades should not be contacted directly to report a fire; call 000 to report a fire.



HARVEST AND VEHICLE MOVEMENT BAN

Harvest and Vehicle Movement Bans must be imposed by a local government when the bush fire danger index exceeds 35 during a Total Fire Ban.

They are also imposed when the Chief Bush Fire Control Officer is of the opinion that the use of engines, vehicles, plant or machinery during the prohibited burning times or the restricted burning times or both is likely to cause a fire or contribute to the spread of a bush fire.

If a Harvest and Vehicle Movement and Hot works Ban is declared it is published on the City's website and broadcast on radio 720 AM.

During a Total Fire Ban or Harvest and Vehicle Movement Ban you are not allowed to light, maintain or use a fire in the open air, or to carry out any activity in the open air that causes, or is likely to cause, a fire.

This includes a prohibition on the use of engines, vehicles, plant or machinery likely to cause or be conducive to the spread of a bush fire.

YOU COULD BE FINED UP TO \$25,000 AND/OR JAILED FOR 12 MONTHS IF YOU BREACH A BAN.



BRIGADE CONTACT INFORMATION

Quinns Rocks Brigade

T: 0428 498 779

www.quinnsrocksbfb.org.au

Wanneroo Fire Support Brigade

T: 0427 026 006

www.wanneroosupportbfb.org.au

Quinns Rocks Fire Station
14 Hidden Valley Retreat,
Clarkson

Two Rocks Brigade

Caraway Loop, Two Rocks

T: 0427 026 000

www.tworocksbfb.org.au

Wanneroo Brigade

Bldg 1, Ashby Operations Centre
1204 Wanneroo Road, Ashby

T: 0427 026 521

www.wanneroobfb.org.au

FIRE BANS / BRIGADE CONTACTS

ARE YOU BUSHFIRE READY?

areyouready.wa.gov.au

IT COULD SAVE YOUR LIFE!

If you live in or near bush, developing and using a **bushfire survival plan** is critical. Your plan will help you avoid making last minute decisions that could prove deadly during a bushfire.

Your plan **MUST** include

1

Your triggers to leave or start defending.

2

An informed decision about whether you will leave for a safer place or stay and actively defend.

Bushfire Survival Plan **TIPS**

- Your plan must work for you and your family. Everyone's bush fire survival plan will be different and depend on individual circumstances.
- If you live alone develop a plan with your neighbours.
- Write your plan down and don't doubt it when the time comes to put it into action.
- Prepare and practice your plan with all the members of your family before the start of the bushfire season.
- Review your plan when your family circumstances change.

3

A back-up plan. Conditions can change very quickly in a bushfire, often without warning. Your plan must be flexible and cover a range of situations you may face before, during or after the fire.

4

Where you will go and how you will get there if you plan to leave for a safer place?

Research has shown that leaving late can be deadly. Over the last 100 years 60% of people who died in bushfires were found within 100 metres of their own residence.

Act immediately. Never 'wait and see' what might happen. Relocating at the last minute can be deadly. **Never second guess your plan.**

- Don't forget to include your pets and livestock in your bushfire survival plan.

Download a bushfire survival plan template today at www.dfes.wa.gov.au



For more information visit www.dfes.wa.gov.au or contact **DFES Community Engagement** 9395 9861



Government of **Western Australia**
Department of **Fire & Emergency Services**



BUSHFIRE SURVIVAL PLAN

FIREBREAKS / FUEL HAZARD REDUCTION / FIREBREAK EXAMPLES

Under the Bush Fires Act (1954), all owners and occupiers of land in Western Australia must establish and maintain firebreaks.

Fire breaks and protection measures are vital in assisting the prevention of fires spreading and to allow safer access for bush fire fighters and vehicles.

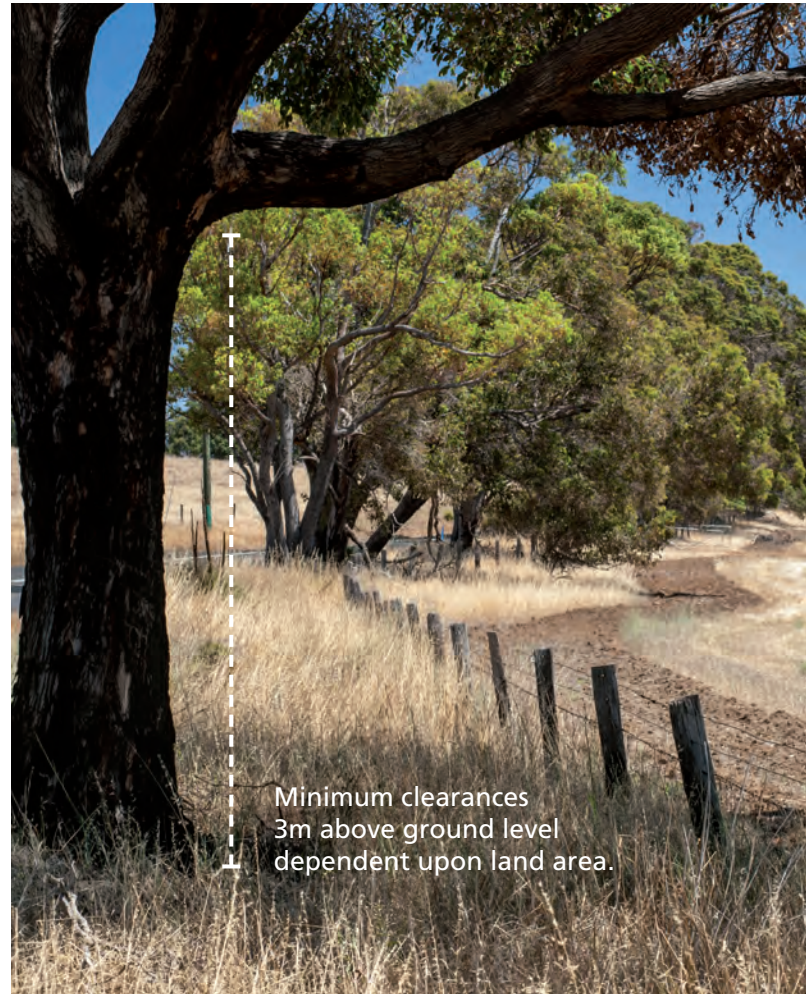
ALL LAND OWNERS WITHIN THE CITY OF WANNEROO BE ADVISED

Fire break installation must be completed by 15 November each year. Property inspections will commence the following day.

Failure to comply with these requirements may incur fines and further action by the City of Wanneroo.

Land with an area of less than 2,000m²

- A firebreak, not less than two (2) metres wide must be cleared immediately inside (or as close as possible) and around all external boundaries of the land.
- All tree branches that over-hang a firebreak must be trimmed back to a minimum height of three (3) metres above ground level.



Minimum clearances
3m above ground level
dependent upon land area.

Land with an area of 2,000m² or more

- A firebreak, not less than three (3) metres wide, must be cleared immediately inside (or as close as possible) around all external boundaries of the land.
- All tree branches that over-hang a firebreak must be trimmed back to a minimum height of three (3) metres above ground level.

Buildings

- A firebreak not less than three (3) metres wide immediately around all external walls of every building must be cleared.

APPLICATION TO VARY THE ABOVE REQUIREMENTS

If it is considered impracticable for any reason to implement any of these requirements, an 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 stated requirements must be complied with.

ADDITIONAL WORKS

In addition to these requirements, you may be required to carry out further works which are considered necessary by an Authorised Officer and specified by way of a separate written notice forwarded to the address of the owner/s as shown on the City of Wanneroo rates record for the relevant land.



Non-compliant: no firebreak installed inside boundary fence



Compliant: grass slashed to ground level



Non-compliant: mineral earth fire break showing grass/weed regrowth



Compliant: mineral earth fire break



Non-compliant: thick scrub creates a fire hazard around power poles



Compliant: cleared buffer zone around power poles



23 Dundebur Road, Wanneroo, WA 6065

Locked Bag 1, Wanneroo, WA 6946

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

wanneroo.wa.gov.au

Appendix 2
January wind profiles for Gingin Aero

Rose of Wind direction versus Wind speed in km/h (01 May 1996 to 30 Sep 2010)

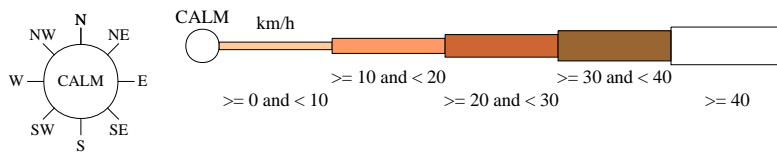
Custom times selected, refer to attached note for details

GINGIN AERO

Site No: 009178 • Opened Jan 1968 • Still Open • Latitude: -31.4628° • Longitude: 115.8642° • Elevation 73m

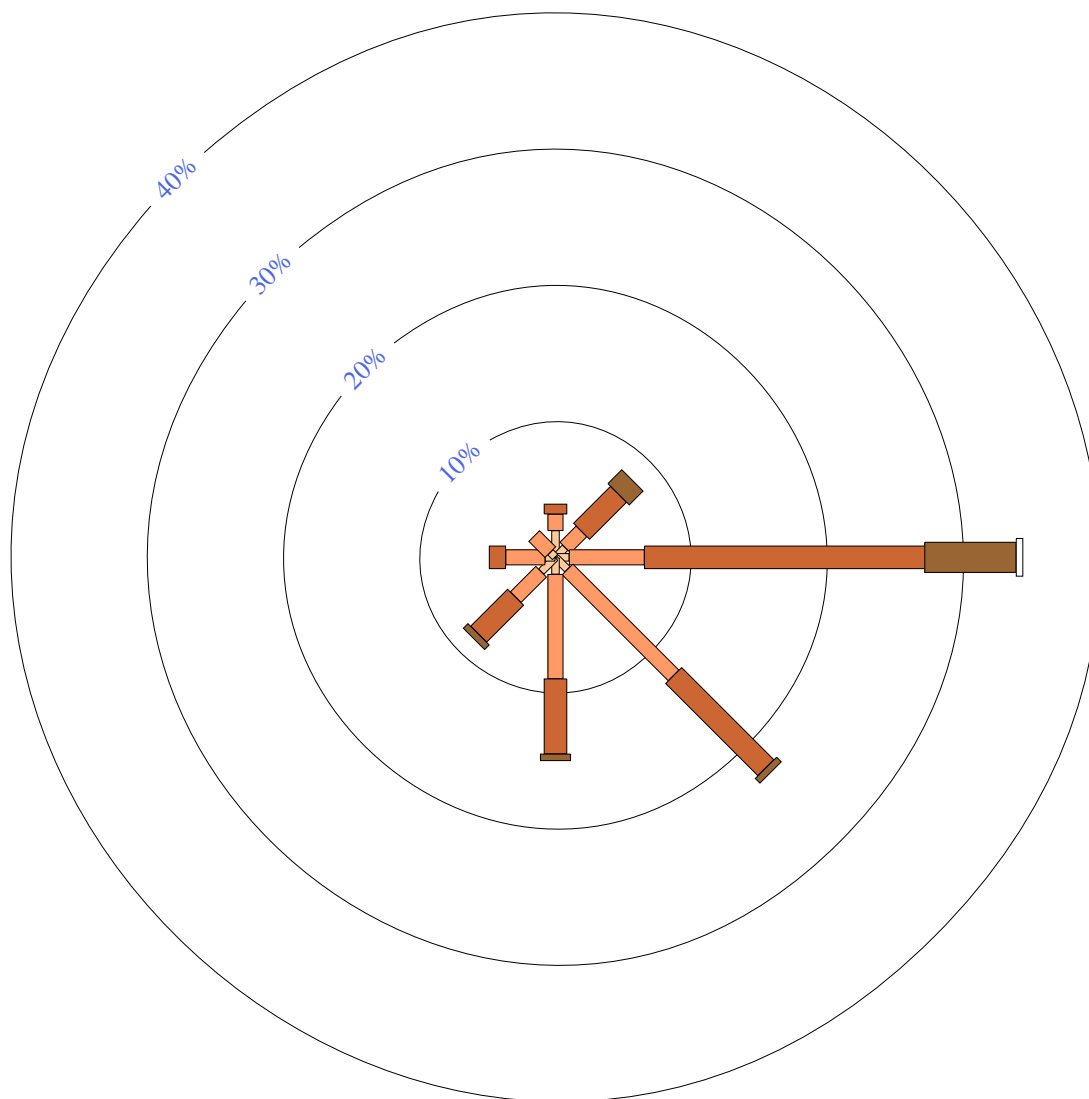
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am Jan
411 Total Observations

Calm *



Rose of Wind direction versus Wind speed in km/h (01 May 1996 to 30 Sep 2010)

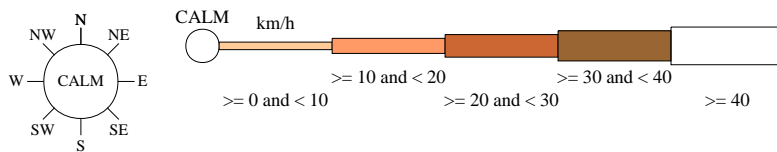
Custom times selected, refer to attached note for details

GINGIN AERO

Site No: 009178 • Opened Jan 1968 • Still Open • Latitude: -31.4628° • Longitude: 115.8642° • Elevation 73m

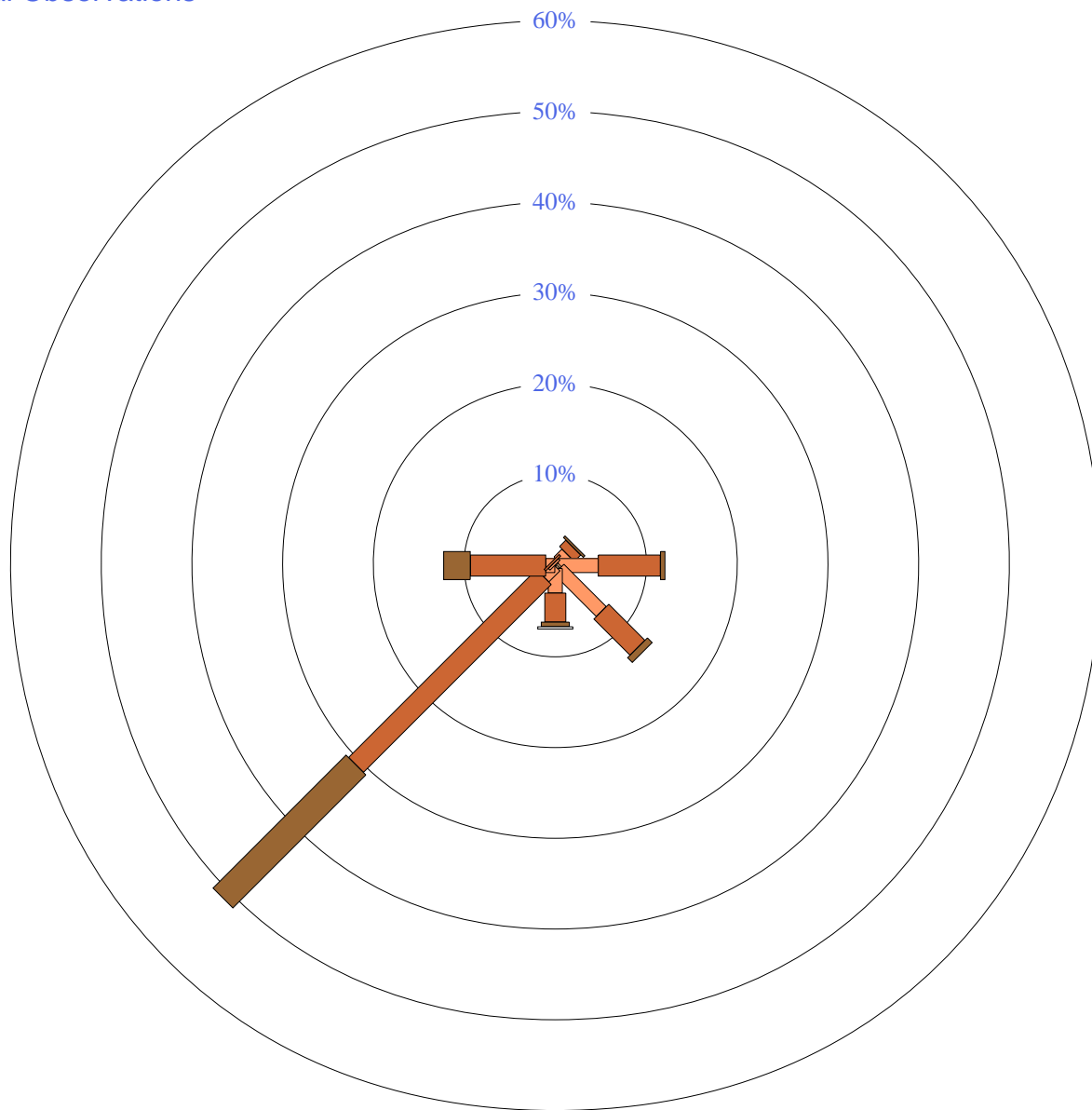
An asterisk (*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm Jan
410 Total Observations

Calm *



Appendix 3
Certificate of Title

WESTERN



AUSTRALIA

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

REGISTER NUMBER 6/D26989	
DUPLICATE EDITION 2	DATE DUPLICATE ISSUED 25/10/2016

VOLUME
1909FOLIO
63

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

**LAND DESCRIPTION:**

LOT 6 ON DIAGRAM 26989

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

DAWS & SON PTY LTD OF LEVEL 4 72 KINGS PARK ROAD WEST PERTH WA 6005
(T N466075) REGISTERED 24 OCTOBER 2016

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

- EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 594/1933.
- THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1909 FOL 063.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1909-63 (6/D26989).
PREVIOUS TITLE: 1285-913.
PROPERTY STREET ADDRESS: 19 TARONGA PL, CARABOODA.
LOCAL GOVERNMENT AREA: CITY OF WANNEROO.