

# **SMITH CONSULTING**

**Bushfire Consultants**

## **BUSHFIRE MANAGEMENT PLAN**

**V7 – 9 May 2018**

**Lot 102 South Western Highway, Donnybrook**

**Shire of Donnybrook-Balingup**



**Prepared by Ralph Smith**

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**Site visited 14 October 2017; Report completed 20 March 2018**

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

Site address: Lot 102 South Western Highway, Donnybrook

Site visit: Yes ☒ No ☐

Date of site visit (if applicable): Day 22 Month August Year 2017

Report author: Ralph Smith

WA BPAD accreditation level (please circle):

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

If accredited please provide the following.

BPAD accreditation number: 27541 Accreditation expiry: Month August Year 2018

Bushfire management plan version number: 1

Bushfire management plan date: Day 12 Month March Year 2018

Client/business name: Meldene Development Trust

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

Is the proposal any of the following (see [SPP 3.7 for definitions](#))?

	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

None of the above ☐

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

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

This BMP has applied a performance criteria for the access option A3.1 in regard to the access in relation to proposed Road A, within the area not declared as bushfire prone, that links to Marginata Road.

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

Signature of report author



Date 6/3/2018

## NOTE

This Bushfire Management Plan has been prepared by Smith Consulting for the exclusive use of the client, Meldene Development Trust.

The plan has been compiled using the standard methodologies required by Western Australian government departments and agencies. It is based on the following;

- *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, December 2015
- *Guidelines for Planning in Bushfire Prone Areas*, December 2017
- *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (incorporating amendments 1, 2 and 3)*, March 2009
- Standard fuel load field data collection methods and conversion to a fuel load applicable for the appropriate fire spread models.

The techniques described in the above publications have been applied in the appropriate areas and circumstances for the preparation of this document.

Where there was no public access to adjacent land holdings, the interpretation is based on photographic and satellite imagery, and a laser distance meter was used to measure distances and effective slope.

It is recommended that this Bushfire Management Plan be revised every five years to ensure that it remains relevant and in-line with current requirements. This will optimise protection.

## DISCLAIMER

This Bushfire Management Plan has been prepared in good faith. It is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, this plan is distributed on the terms and understanding that the author is not responsible for results of any actions taken based on information in this publication or for any error or omission from this publication.

Smith Consulting has exercised due and customary care in the preparation of this Bushfire Management Plan and has not, unless specifically stated, independently verified information provided by others.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time Smith Consulting performed the work. Any changes in such circumstances and facts upon which this document is based may adversely affect any recommendations, opinions or findings contained in this plan.

## DOCUMENT STATUS

Version	Comment	Reviewer	Review Date
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7	Update to Structure Plan 1P. Update Staging Plan. Footer update.	RDS/MR	9 May 2018

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# 1. INTRODUCTION

This Bushfire Management Plan (“BMP”) has been prepared to provide guidance for the structure planning and the management of the potential bushfire threat for Lot 102 South Western Highway, Donnybrook (“the Site”).

The Site is zoned for residential development. However, prior to approving its subdivision the Western Australian Planning Commission must first endorse a structure plan outlining the form of development and specifying measures to be implemented as part of subdivisional works. Such measures include the preparation and implementation of the BMP.

The Site is not adjacent to any Bush Forever sites, nor does it contain any Aboriginal Heritage sites.

A portion of the Site has been designated by the Fire and Emergency Services Commissioner as a bushfire prone area (Figure 2).

It should also be noted that the Department of Fire and Emergency Services (DFES) advise that it is an unreasonable expectation that a fire appliance be available to protect every home during a bushfire emergency. It is therefore critical that all new residential buildings are constructed to an appropriate standard and the surrounding vegetation appropriately managed.

The BMP has informed the preparation of the structure plan for the Site (Figure 2) by identifying appropriate Asset Protection Zones, building envelopes and access arrangements, including the need for temporary and permanent emergency access ways, minimisation of battleaxe lots and long driveways.

The implementation of the BMP will include the establishment of the Asset Protection Zones, ensuring that hydrants are installed and comply with Water Corporation standards, access (including emergency access) arrangements are appropriately incorporated and protected and future land owners are made aware of their roles and responsibilities in terms of fire mitigation and risk management.

## **2. Preliminaries**

### **2.1 Aim**

It is generally recognised that bushfires are an inevitable threat in the spring, summer and autumn months in the south-west of Western Australia.

The aim of this Bushfire Management Plan, when implemented, is to reduce occurrence of, and minimise the potential impact of, bushfires onto buildings and vegetation located within the Site, thereby reducing the threat to life, property and the environment.

This plan will document the minimum fire prevention requirements for the site.

### **2.2 Purpose**

The purpose of this Bushfire Management Plan is to address the fire protection risks within the Site. Implementation of the Bushfire Management Plan will reduce the threat to the landowners, residents, visitors and firefighters in the event of a bushfire within or near the site. It achieves this by presenting the minimum requirements to be implemented.

The Bushfire Management Plan also seeks to ensure that the landowners, residents and relevant agencies are aware of their responsibilities.

### **2.3 Objectives**

The objectives of this Bushfire Management Plan are achievable and measurable:

- Consider the change of land use proposal for the existing Lot 102 South Western Highway, Donnybrook, and associated vehicular access
- Identify the site's vegetation, and surrounding vegetation, topography and proposed land use
- Assess potential bushfire issues, hazards and the proximity of the site to predominant vegetation classes
- Ensure water is available to the development to enable property and life to be defended in the event of a bushfire
- Ensure the siting of the proposed subdivision minimises the level of bushfire impact
- Outline the bushfire mitigation strategies for the site

- Identify the stakeholders responsible for undertaking and implementing the bushfire mitigation strategies defined in this Bushfire Management Plan.

## **2.4 Legislative and Policy Considerations**

The Western Australian Planning Commission and the Shire of Donnybrook-Balingup require the preparation of a Bushfire Management Plan as part of the structure planning process for the Site. Specifically, the Site is included in Schedule 11 (Structure Plan Areas) of the Shire of Donnybrook-Balingup Local Planning Scheme No. 7 as “SP17”, which, inter alia, requires the preparation of a “Fire Management Plan” to support structure planning. This document has been prepared to satisfy that requirement.

All relevant provisions of applicable planning legislation and policies have been considered in the preparation of this Bushfire Management Plan. These include:

- Bush Fires Act (1954)
- State Planning Policy 3.7 (2015)
- Guidelines for Planning in Bushfire Prone Areas (2017)
- Visual guide for bushfire risk assessment in Western Australia (2016)
- Local planning scheme requirements (bushfire related)
- Local planning policy requirements (bushfire related)
- Fire Control Notice requirements
- Relevant approvals

## **3. Description of the Area (Current Status)**

### **3.1 Site Description**

The Site the subject of this Bushfire Management Plan is Lot 102 South Western Highway, Donnybrook, Western Australia. The Site is situated on the southern side of the South Western Highway, approximately 1.5km west of the Donnybrook Townsite (Figure 1).

The Site is described as Lot 102 on Certificate of Title Volume 2578, Folio 72 and on Deposited Plan No. 24333. It is 17.7976 hectares in area and owned by Louie and Helen Tuia and John and Jean Wringe as tenants in common.

The Site has been designated, in part, by the Fire and Emergency Services as bushfire prone (Figure 2).

### **3.2 Land Use**

The land has been extensively cleared, and part remains as grassland and other parts regenerated with native species. To the west, north and east is land that has been developed in the portions of the lots for fruit and vegetable growing, housing, associated infrastructure and semi-rural.

A railway reserve, unconstructed (and unnamed) road reserve and private property separates the Site from South Western Highway.

The recent residential subdivision of the land immediately to the east of the Site provides a single road access (Orchid Close) approximately mid distance along the Site's eastern boundary.

The northern portion of the Site has previously been cleared and developed for intensive farming purposes (organic orchard). The orchard has not been managed as a commercial property for the past 10 years, and all orchard plantings have been removed. The central ridge and much of the south facing slope remains naturally vegetated (Figure 3).

Recently, fire breaks have been constructed around the periphery of the site. With the exception of residential standard fencing on the eastern boundary, and rural standard fencing on the remaining boundaries, the Site is free of any other significant improvements.

The land to the west is utilised for intensive agricultural purposes. The orchard plantings are largely separated from the site by remnant vegetation which, like the remnant vegetation on the Site, is situated on rocky ground unsuitable for cultivation.

To the south of the Site the land is heavily cleared and used for broad acre agricultural purposes. The land to the east (Meldene Estate) has been subdivided and developed for residential purposes to a density of R5.

There are no cultural or environmentally significant features on the Site.

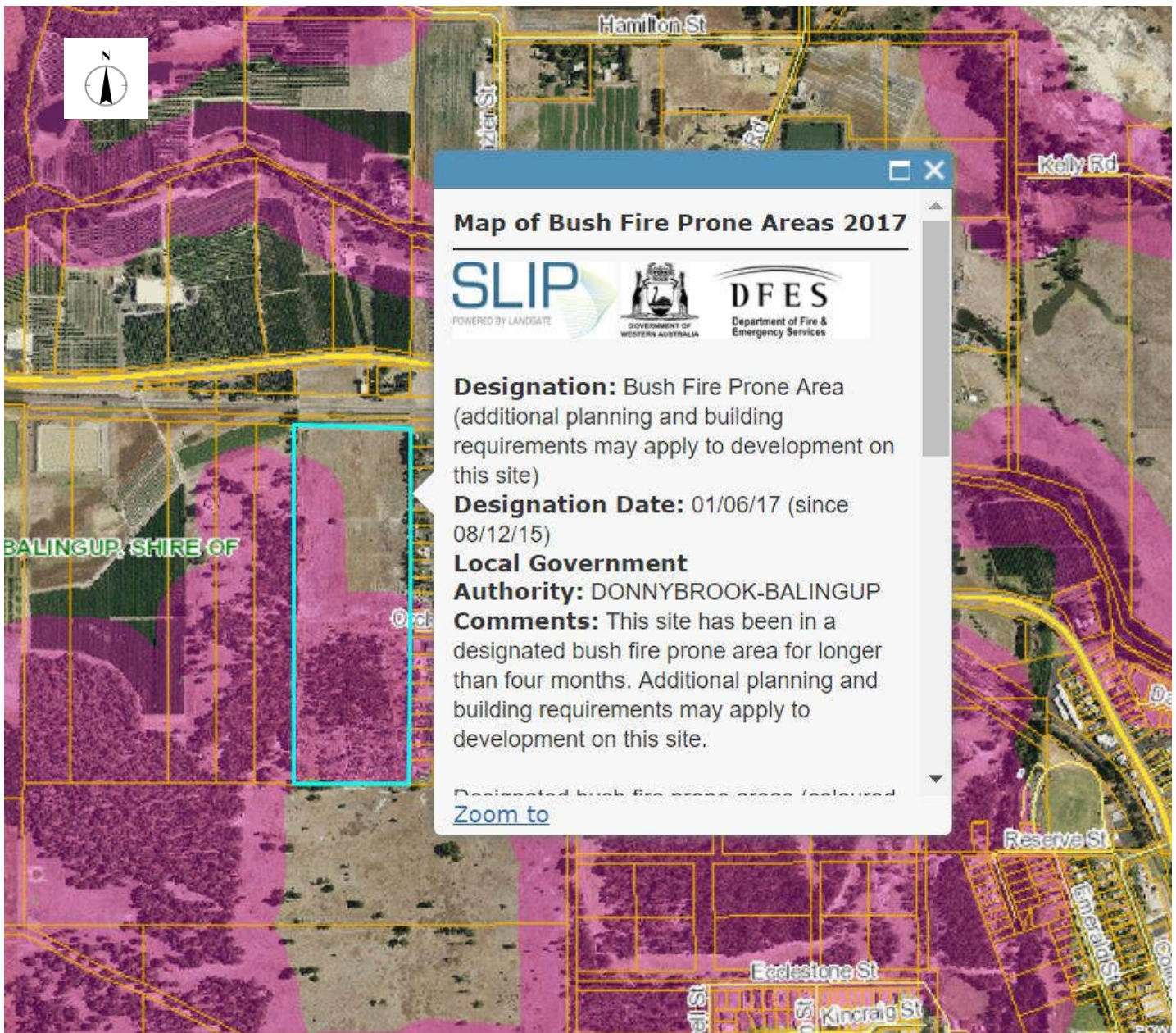


## Location

Lot 102 South Western Highway, Donnybrook



**Figure 1**



**Figure 2.** Aerial photo showing the Site (Lot 102 South Western Highway, Donnybrook) and surrounding lots being designated, in part, as bushfire prone. Source: Department of Fire and Emergency Services



**Figure 3.** Aerial photograph showing the Lot 102 South Western Highway Place, Donnybrook, and surrounding land use.  
Source: Nearmap Online Mapping System.

### 3.3 Climate

The scheme area of the Shire of Donnybrook-Balingup has a Mediterranean climate with four seasons: cool, wet winters (June-August) followed by a mild spring (September-November), and hot, dry summers (December-February) leading into autumn (March-May). Rainfall usually occurs in autumn through to spring. This rainfall facilitates substantial vegetation growth during the winter and spring months, which dries in summer and continues through autumn.

The maximum temperatures occur during summer when the bushfire fuels are at their driest. As the summer progresses the grass fuels cure and become available as bushfire fuel. Grass fuels are a diminishing bushfire risk as they start to break down, post being 100% cured. This is in stark contrast to the natural environment where forest, woodland or shrubland with a scrub multi-tiered understorey become a greater bushfire risk late in summer and early autumn, until the winter rains break. The bulk of the bushfire fuel in this assessed location, which includes up to 100 metres from the Site is grassland to the west, south and east and north to the forest.

### 3.4 Topography

The Site generally slopes north to south and with a downslope of less than  $1^\circ$  from the grassland to the south. The potential greatest threat is the unmanaged grassland vegetation associated with the neighbouring property to the south, and the forest vegetation in the west immediately adjacent to the Site.



Figure 4. Undulating slope across the neighbouring lots to the east of 1.9% ( $1^\circ$ ).

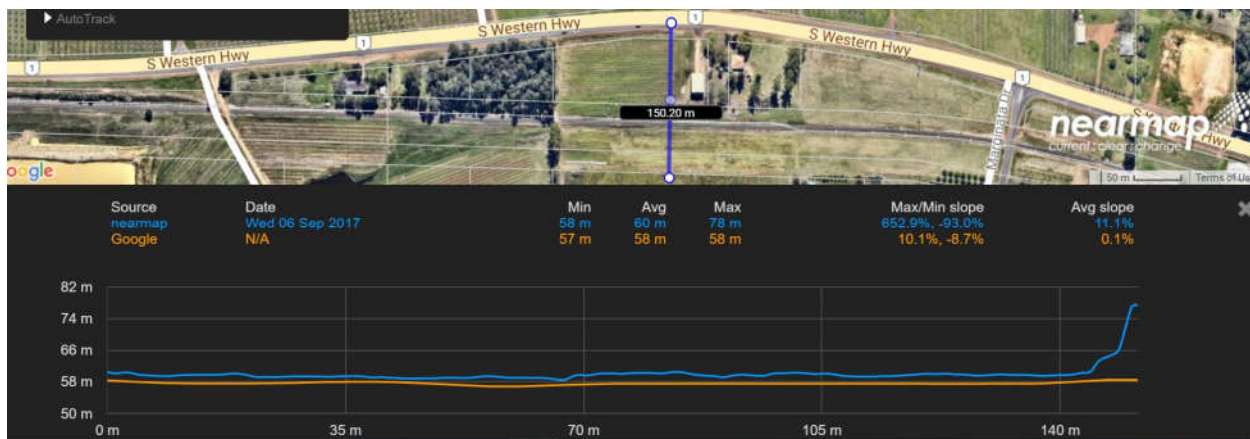


Figure 5. Slope across the neighbouring properties to the north of 0.1% (0.17°).



Figure 6. Slope across the neighbouring properties to the west of 2.2% (1.3°).

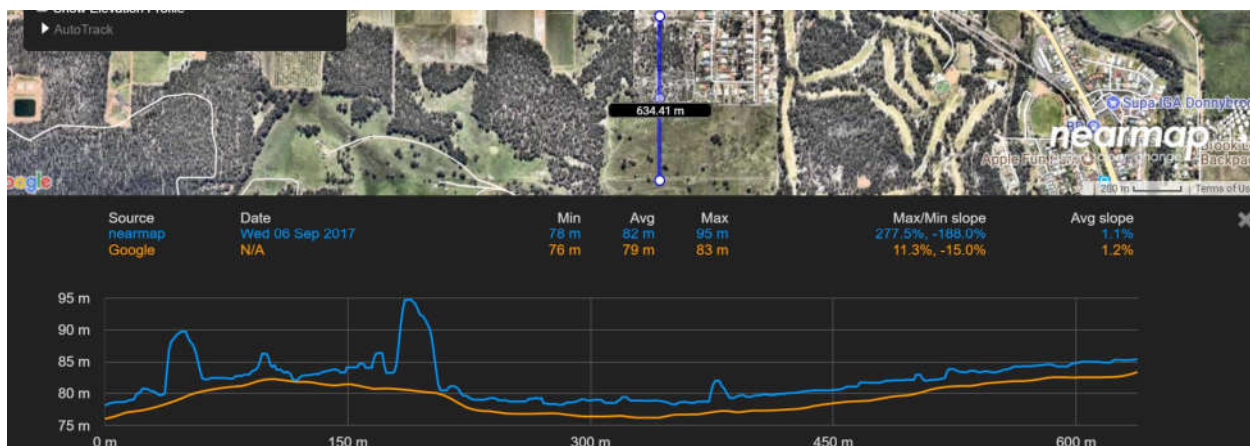


Figure 7. Slope across the lot and neighbouring property to the south of 1.2% (0.7°).

\*The orange line on the slope figures is indicative of the slope of the land. The blue line is indicative of features above the land surface.

### **3.5 Bushfire Fuels**

Historically, Lot 102 South Western Highway, Donnybrook (and the surrounding lots to the west, east and south), were part of a modified vegetation area that was parkland cleared for farming and fruit growing and are now a grassland and 'low threat vegetation'. To the north is grassland vegetation, a disused railway line and reserve, an unconstructed road reserve and road infrastructure. To the south is grassland that is grazed. To the west and adjacent to the southern edge of the subdivision site is forest vegetation. To the east is an established residential area.

The predominant vegetation type, as described in the *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (AS 3959)*, on the Site will be 'low threat vegetation'. The POS will remain as a modified forest overstorey with managed surface vegetation.

### **3.6 Assets**

Within the local area, the assets include all the built structures on neighbouring properties, fruit trees, animals within the paddocks, windbreaks and the grass (pasture) within those areas. The local assets are changing and becoming a more 'standard' urban development on the private land as indicated on the land to the east.

There are no cultural or environmentally significant features on the Site.

## **4. Statutory Framework**

The Site is zoned "Residential R5/10" pursuant to the Shire of Donnybrook-Balingup Local Planning Scheme No. 7. It is also included in a "Structure Control Area" (SCA8) and a "Structure Plan Area", nominated as SPA 17 (Schedule 11 of the Scheme).

The provisions relating to SPA 17 require, inter alia, the preparation of a "Fire Management Plan" as part of any structure planning process for the Site.

The land to the east of the Site is zoned "Residential R5", the land to the south "General Agriculture", the land to the east and north (generally) "Priority Agriculture".

The land to the south east of the Site is zoned “Residential R20/30”, and the land immediately to the west of this and immediately south of the Site is identified as “Residential Investigation” under the Shire’s Local Planning Strategy (Figure 8).

#### **4.1 Planning Background**

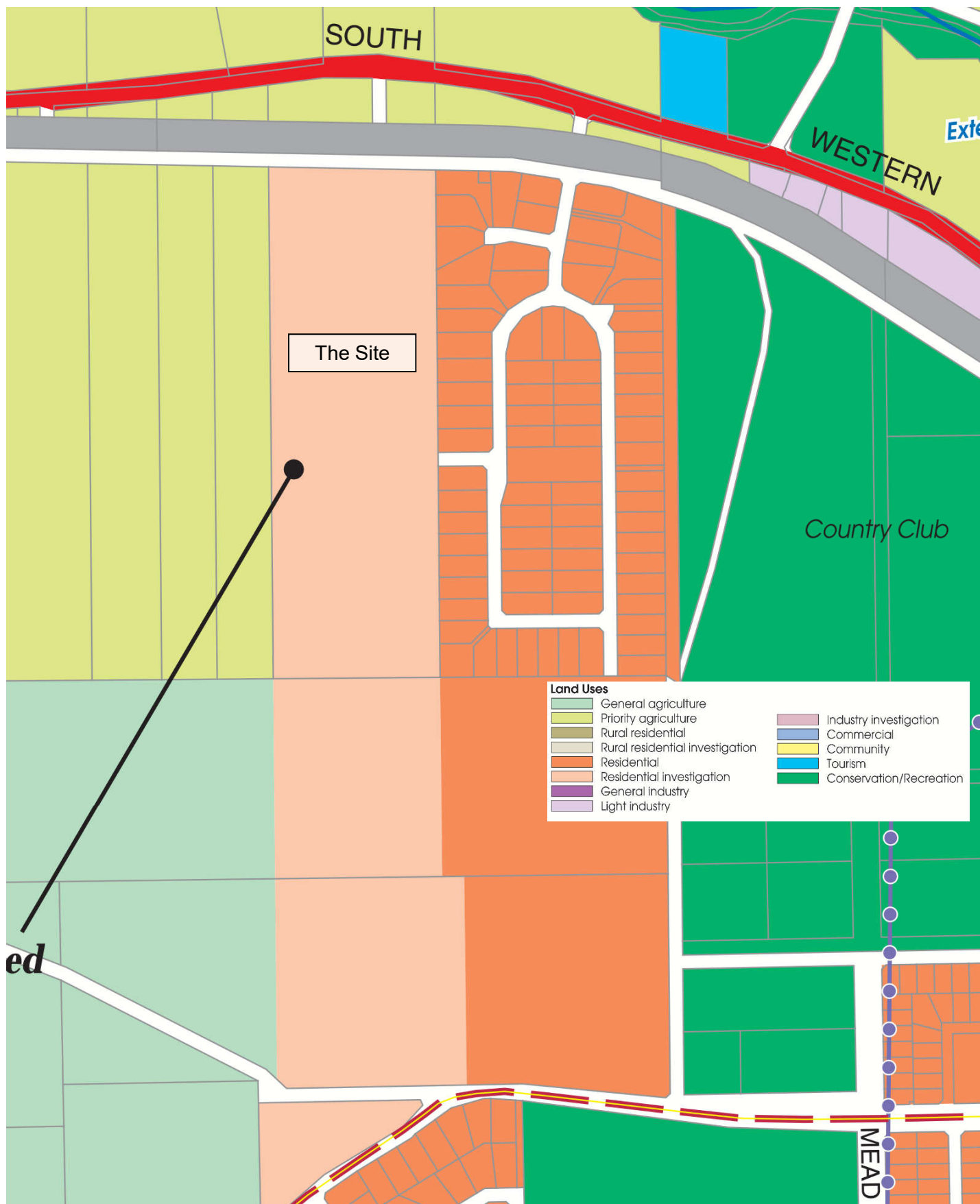
The Site was rezoned from “Intensive Farming” to “Special Residential R5/2.5” under the Shire of Donnybrook-Balingup Town Planning Scheme No. 4 in August 2014 (Amt No. 93). This Amendment introduced a number of provisions into Schedule 9 – Special Residential Zones of the Scheme, including the requirement to upgrade the intersection of Marginata Drive and South Western Highway, and to provide for strategic connections to adjacent Development Investigation Areas and Structure Plan Areas.

In May, 2015 the Shire’s Local Planning Strategy was endorsed and came into effect. The Local Planning Strategy included the site, and the land immediately to the south, in a “Residential Investigation” area. The land immediately to the south of Meldene Estate was classified as “Residential”, reflective of its then, and current, zoning (Figure 8).

The zoning and provisions introduced to Town Planning Scheme No.4 by Amendment 93 were carried over to Local Planning Scheme No. 7, the later Scheme superseding the former. The new Scheme classified the Site as “Residential” (it did not provide for a “Special Residential” zone) and introduced the provisions relating to the Site from Scheme 4 into Schedule 11 – Structure Plan Areas (SPA 17).

In January 2017, the Site was rezoned from “Residential R5/2.5” to “Residential R5/10” (Amendment No. 2 to LPS No. 7). All the Schedule 11 provisions, including those relating to access arrangements, were retained.

The documentation for Amendment No. 2 demonstrates the proposed access arrangements to and from the Site, including future linkages to the land to the south (Lots 2934 and 2 Bentley Road), which is identified in the Shire’s Local Planning strategy as “Residential Investigation”.



**Figure 8.** Shire of Donnybrook-Balingup Local Planning Strategy extract

## 5. Proposed Development

It is proposed to subdivide and develop the Site for residential purposes (Figure 9).

The subdivision and development of the Site will incorporate the following;

- 85 residential lots ranging in size from 1,000m<sup>2</sup> to 2,775m<sup>2</sup>.
- An interconnected road system, constructed to urban standard (sealed and drained).
- Drainage and Buffer reserves.
- Public Open Space (2.33ha).

All of the residential lots will be connected to a reticulated water service and underground power. The lots will also be serviced with standard telecommunications infrastructure.

The proposed internal road system represents an extension of the existing transport network to the east (Meldene Estate), specifically an extension from Marginata Drive via the unconstructed road reserve aligned along the Site's northern boundary and the extension of Orchid Court.

Provision has also been made for a road connection to the, as yet, undeveloped land to the south, which has been identified as (potentially) future urban by the Shire's Local Planning Strategy.

### 5.1 Access

Vehicular access to the Site has been predetermined by the existing development to the east (Meldene Estate) and the planning processes undertaken since 2014, when the Site was rezoned from "Intensive Farming" to "Residential".

Access to the site is currently via Orchid Court which connects with Leschenaultia Circle. Leschenaultia Circle connects with South West Highway via Marginata Drive.

The intersection of South West Highway and Marginata Drive is required, by Scheme provisions, to be upgraded by the subdivider and will almost certainly be a condition of subdivision.

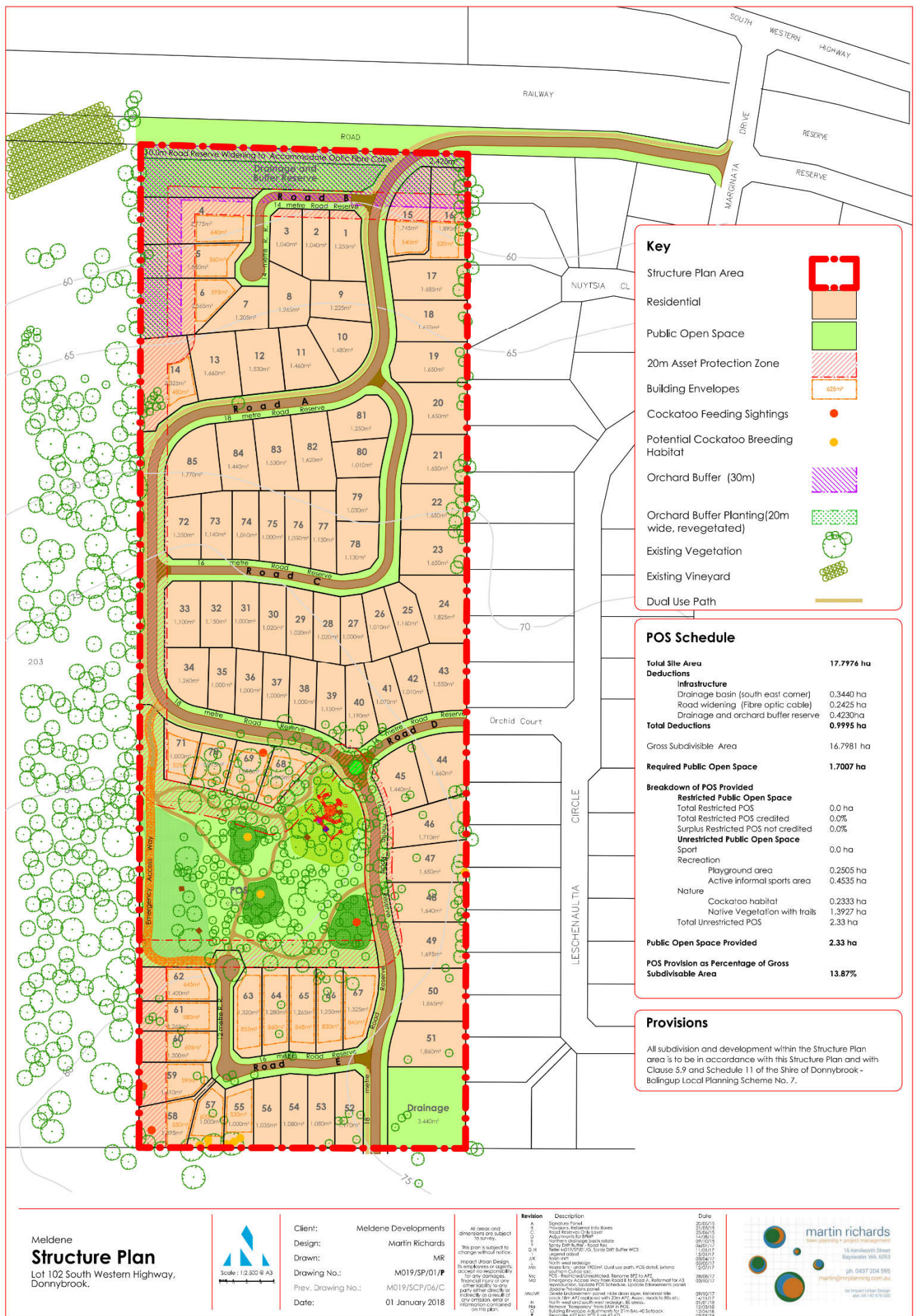


Figure 9. Proposed Structure Plan

A new road, being Road A, will also be constructed as part of subdivisional works to link to Marginata Drive, the intersection of which will be approximately 50 metres south of South Western Highway. Accordingly, the existing Orchid Close and future 'Road A' access arrangements provide multiple ingress/egress routes. It also facilitates emergency services access.

Under the current Guidelines, A3.1 requires *Two different vehicular access routes are [to be] 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/public at all times and under all weather conditions.* There are two different destinations available at the junction of Marginata Drive and South West Highway. The railway line and associated reserve prevent additional access directly onto South West Highway.

The emergency access way (EAW) will be constructed by the proponent to the required standard in the Guidelines as part of Stage 1 subdivisional works.

The proposed Structure Plan for the Site provides for a significant road linkage to the land immediately to the south, which is classified as "Residential Investigation" under the Shire's Local Planning Strategy. The ultimate road alignments and connectivity will be determined by a future structure plan for this land.

Until the land to the south is developed for urban purposes, effectively only one access from external areas, i.e. from South Western Highway, will be available to the Site.

This situation is unavoidable, as no provision has been made in the previous planning initiatives for alternative access arrangements, particularly to South Western Highway, and any future connection to the north will be complicated by the adjacent railway reserve.

The land to the west is zoned and used for intensive agricultural pursuits and access to the Site from the west is therefore highly unlikely; although the unconstructed road reserve on the Site's northern boundary continues approximately 600 metres to the west.

The access road, Road A, links to Marginata Road through the northern area. The northern area of the Site is not declared as bushfire prone and therefore deemed by the State and local government as being a 'low threat.' As the State has determined that this area is low threat there are no ongoing maintenance requirements, even though the area is regularly slashed.

Cul-de-sacs and battle axes will be constructed by the subdivider to the required standard in the Guidelines. The areas requiring firebreaks will be compliant with the Shire's firebreak and fuel load notice.

Reticulated mains water supply will be available to the urban development within the Site. This system will be in accordance with the State Government's criteria. Fire hydrants and fire hydrant road and pole markings will comply with the *Water Corporation No 63 Water reticulation Standard*.

The subdivision will be developed in 3 stages, with the southern portion developed first as stage 1 (Figure 10). To ensure that there are two access options available to Stage 1, an emergency access way will be constructed as part of subdivisional works (for Stage 1) to create a link between the termination of Road A on Stage 1's northern boundary and Marginata Drive.



## 6. Fire Threat Assessment

The land to the east of the Site has been subdivided into residential lots (approx. 2,000m<sup>2</sup>) and associated urban infrastructure. To the north of the Site the railway reserve is no longer used for rail traffic. Intensive agriculture, highway and then orchards occur to the north of the railway reserve. The intensive agriculture, highway and orchards are all 'low threat vegetation'.

To the west is intensive agriculture for the northern portion of the neighbouring lot and forest for the southern portion. The land to the south of the Site is grassland, has not been declared as bushfire prone and therefore is classified as a 'low threat.'

The railway reserve is the responsibility of the Department of Transport and it needs to comply with the Shire's firebreak notice. Likewise surrounding private property also must comply. Therefore these areas will comply with the AS 3959 definition of 'low threat vegetation.'

The Department of Health requires the implementation of a buffer, primarily for spray drift, on the north western and northern boundaries of the Site. This buffer is to comprise of a 20 metre wide, relatively densely planted area adjoining the above mentioned boundaries. The vegetation is to comprise native, primarily broad leaf species. The buffer will be contained in private properties and a reserve ceded to the Shire.

The buffer required by the Health Department will be implemented as part of subdivisional works and will introduce a fire hazard, primarily along the northern boundary of the Site. This has been recognised in the BAL Contour Mapping, and appropriate setbacks, via building envelopes, have been imposed on affected (proposed) lots.



**Plate 1.** View along where the Road A will join Marginata Road and south of the railway line.



**Plate 2.** View of the managed grass between the railway line and the South Western Highway.

## 6.1 BAL Contour Mapping

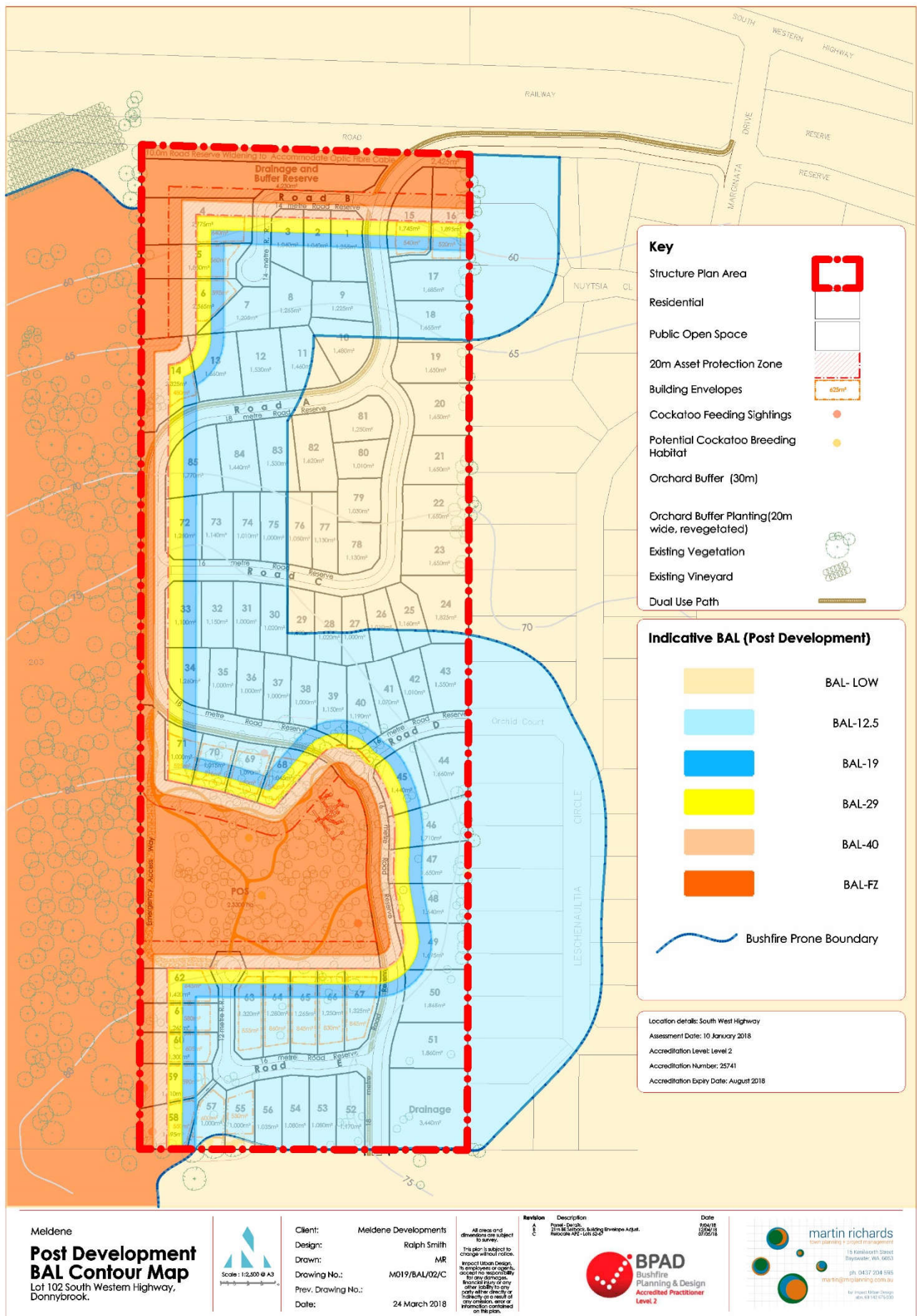


Figure 11 . BAL Contour Map

To achieve the required 150 metre assessment, this map complements the BAL contour map.

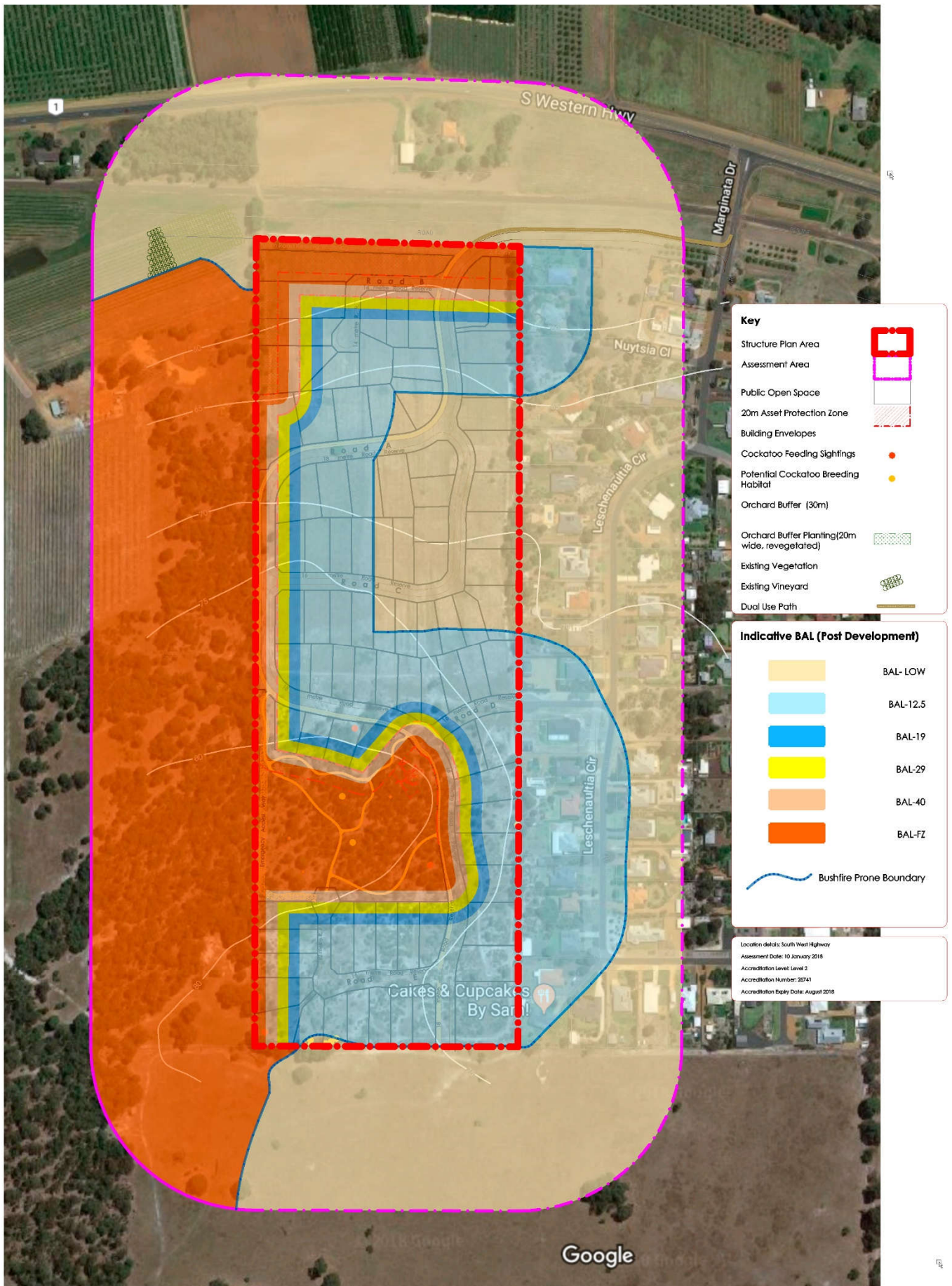


Figure 12. BAL Contour Map for the area outside the Site.

## 6.2 Bushfire Hazard Level

The bushfire hazard assessment for this site is moderate and has a bushfire attack level of BAL-12.5 when considered against the requirements in *Guidelines for Planning in Bushfire Prone Areas* (2017), AS 3959 and the Building Code of Australia (BCA) and the creation of an asset protection zone of 20 metres. This determination is based on the observation of the predominant vegetation type on the Site and adjacent assessable lands and aligning that to the published criteria.

All vegetation within 150 metres of the lot boundaries or building have been considered in accordance with the Western Australian Government criteria. AS 3959 only requires consideration of 50 metres between the vegetation and the lot boundary or building for grassland and 100 metres for other vegetation types.

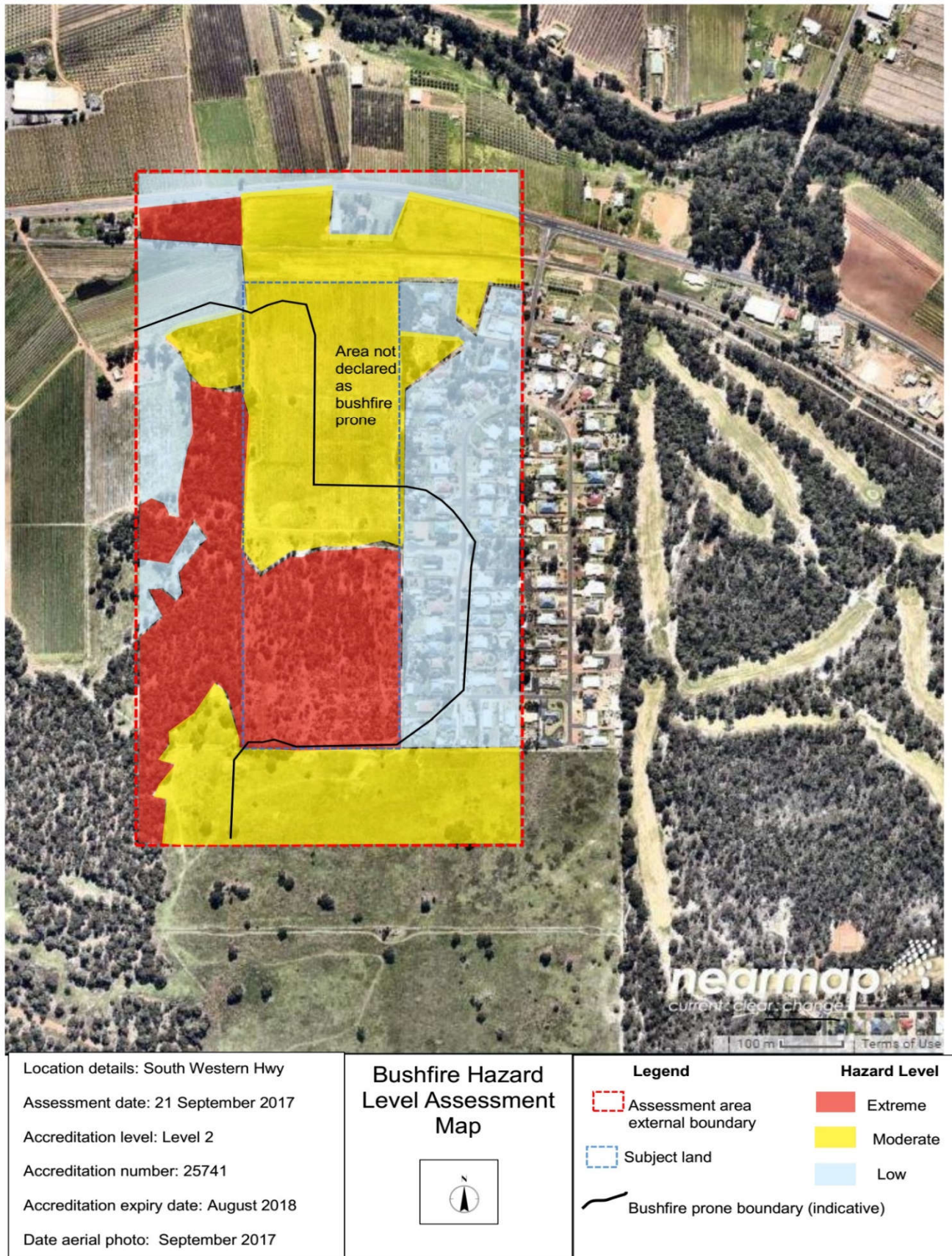
For AS 3959 to be applicable requires the formal declaration of the site to be bushfire prone. This site is declared in part as bushfire prone.

## 6.3 Bushfire Attack Level (BAL) Assessment

### 6.3.1 Potential Bushfire Impacts

The potential bushfire impacts to the proposed dwellings from each of the identified vegetation plots are identified in the BAL contour map. AS 3959 Table 2.4.3 (below) provides guidance as to the separation distance between the vegetation classifications and the future dwellings.

TABLE 2.4.3 DETERMINATION OF BUSHFIRE ATTACK LEVEL (BAL)—FDI 80 (1090 K)					
Vegetation classification	Bushfire Attack Levels (BALs)				
	BAL—FZ	BAL—40	BAL—29	BAL—19	BAL—12.5
	Distance (m) of the site from the predominant vegetation class				
	All upslopes and flat land (0 degrees)				
A. Forest	<16	16–<21	21–<31	31–<42	42–<100
B. Woodland	<10	10–<14	14–<20	20–<29	29–<100
C. Shrubland	<7	7–<9	9–<13	13–<19	19–<100
D. Scrub	<10	10–<13	13–<19	19–<27	27–<100
E. Mallee/Mulga	<6	6–<8	8–<12	12–<17	17–<100
F. Rainforest	<6	6–<9	9–<13	13–<19	19–<100
G. Grassland	<6	6–<8	8–<12	12–<17	17–<50



**Figure 13.** Bushfire Hazard Level Assessment Map

### **6.3.2 Determination of Bushfire Attack Level (BAL)**

The determined Bushfire Attack Level (highest BAL) on the future residential nearest to the vegetation has been determined in accordance with clause 2.2.6 of AS 3959 using the above analysis.

The determined Bushfire Attack Level (BAL) for the Site varies by lot and the placement of the future buildings.

### **6.3.3 Construction Standards**

The predominant vegetation type on the Site will be a mixture of grass surface fuel and 'low threat' vegetation. It is required that an APZ as defined by the Shire of Donnybrook-Balingup and the Department of Fire & Emergency Services (DFES) be implemented on appropriate locations around the future dwellings prior to the commencement of any new construction on the residential lots.

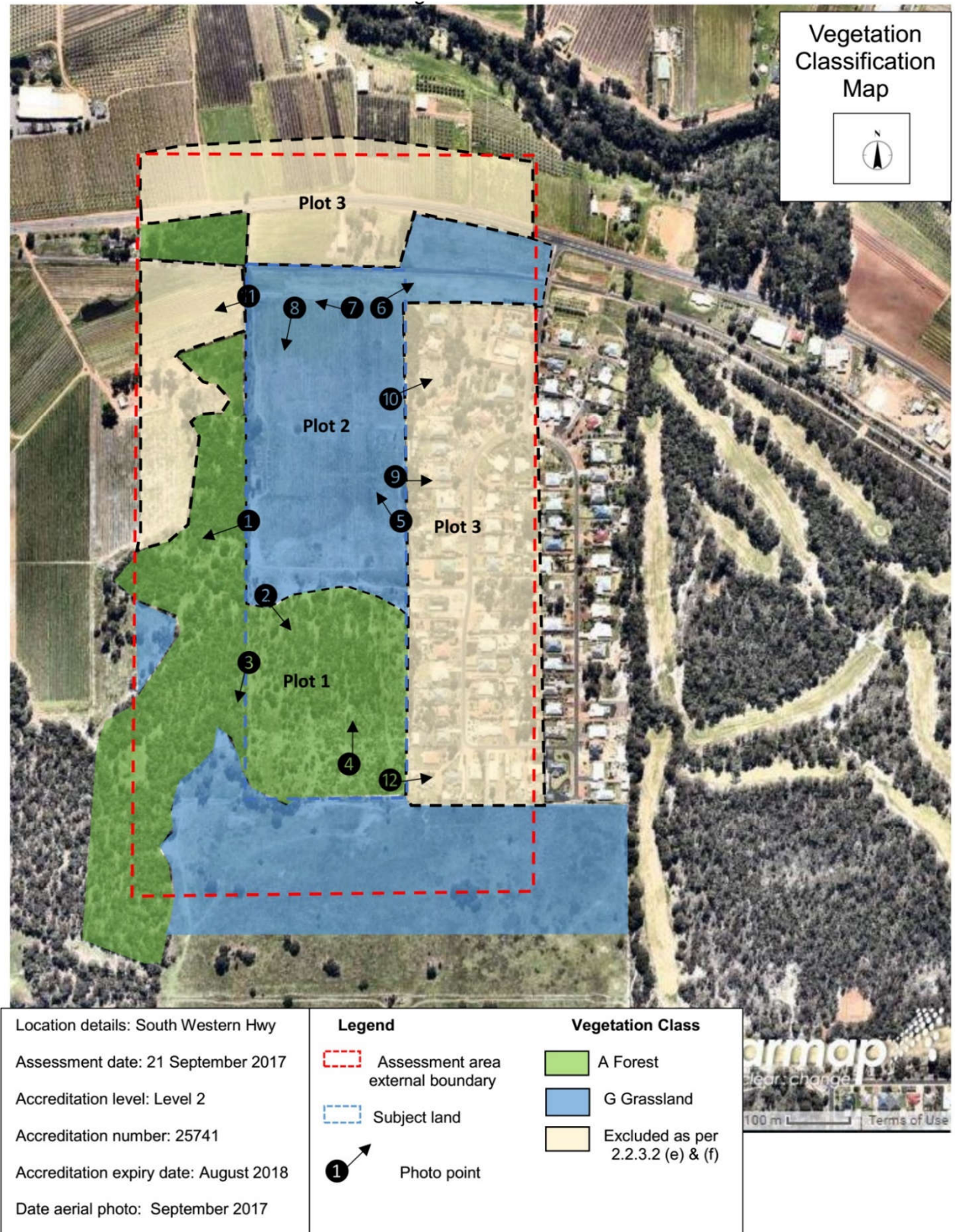
The forest vegetation to the west of the Site is the primary influencing vegetation type effecting on the construction standards of future dwellings.

## **6.4 Potential Bushfire Impact**

In accordance with AS 3959 Methodology 1, a potential bushfire impact analysis was undertaken to determine the potential worst-case scenario for radiant heat impact on the proposed future residential lots.

The post development BAL Maps are at Figures 11 and 12.

#### 6.4.1 Assessment area with the current vegetation classified



**Figure 14.** Plan showing assessment area (red boundary within 150 m of the Site boundary) with AS 3959 vegetation classification and photo points and direction.

#### **6.4.2 Photos showing vegetation classification to a distance of 150 metres from the assessment site on Lot 102 South Western Highway, Donnybrook**

All vegetation within 150 metres of the Site as indicated on the site assessment plan was classified in accordance with the Western Australian Government criteria and Clause 2.2.3 of AS 3959. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

##### **Plot 1**

Class A – Forest



**Photo ID: Photo 1** The forest west of the Site



**Photo ID: Photo 2** The forest west of the Site



**Photo ID: Photo 3** Forest each side of the Site boundary.



**Photo ID: Photo 4** Grasstree vegetation under the tree overstorey.

## Plot 2

Class G – Grassland (this includes the area not declared as bushfire prone, but within the 150 metre assessment zone).



**Photo ID: Photo 5** Grass surface fuels on the Site not in within the bushfire prone area.



**Photo ID: Photo 6** Grass surface vegetation foreground and orchard in the background.



**Photo ID: Photo 7** The vegetation to the north of the on Site.



**Photo ID: Photo 8** Looking south across the grass the Site looking from the north.

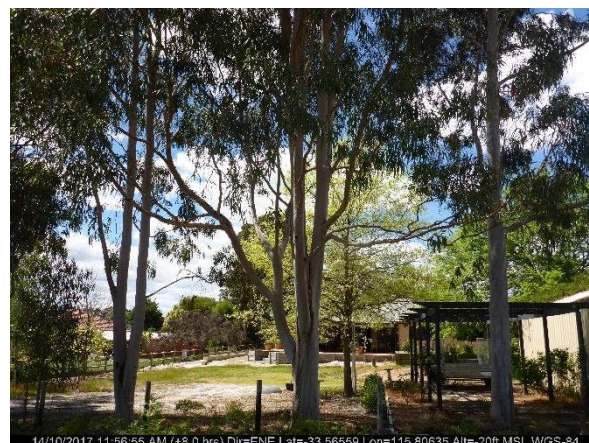
### Plot 3

Exclusion – Low threat vegetation and non-vegetated areas

Clause 2.2.3.2 (e) & (f)



**Photo ID: Photo 9** The housing to the east of the Site.



**Photo ID: Photo 10** The housing and gardens to the east.



**Photo ID: Photo 11** The reticulated and cultivated plants to the west of the Site.



**Photo ID: Photo 12** The housing adjacent to the southern boundary of the Site.

## Notes to Accompany Vegetation Classification

### 1. Plot 1

Class A – Forest

This plot comprises the forest located within the southern portion of the Site and to the west of the Site and within the 150 metre vegetation assessment zone.

The southern/central portion of the Site will remain as managed forest and classified as POS.

### 2. Plot 2

Class G – Grassland

This plot comprises the grassland to the north and south of the Site. The majority of the grassland in the northern portion of the Site is not declared as bushfire prone and therefore AS 3959 does not apply. The grassland south of the Site is also not declared as bushfire prone.

### 3. Plot 3

Exclusion – Low threat vegetation and non-vegetated areas

Clause 2.2.3.2 (e) and (f)

This plot comprises the houses, roads, paths, buildings, cultivated gardens, orchards, vineyards and managed grassland areas surrounding the subdivision site.

This plot comprises the area that has not been declared as bushfire prone. This means that the

Shire and the State have deemed this area to be a low threat. This includes the access roads adjacent to the rail reserve.

The vegetation on Plot 3 is classified as BAL–LOW.

## Other considerations in regard to vegetation

1. The fire spread algorithms applied in AS 3959 consider fine fuels as less than 6mm diameter for dead material, and less than 3mm diameter for live material.

## 7. Bushfire Mitigation Strategies

This Bushfire Management Plan is developed to provide guidance for the planning and management of the potential bushfire threat on the proposed development of the Site. The Bushfire Management Plan (BMP) is a supporting document for the proposed Structure Plan for the Site. In accordance with the State Government's requirements, the BMP considers the bushfire threat after the BMP has been implemented (post development).

This Bushfire Management Plan adopts an acceptable solution and performance-based system of control for each bushfire hazard management issue. The approach is consistent with Appendix 4 of *Guidelines for Planning in Bushfire Prone Areas* (December 2017).

This Bushfire Management Plan has adopted the Shire of Donnybrook-Balingup's item 3 (b) of the Fire Break Order where on land that exceeds 2024m<sup>2</sup>, i.e. *Grass on the remaining area of the land must be either grazed, cut for fodder, or totally removed from the land*. This will ensure that any bushfire attacking the lots will be at a reduced fire intensity.

The Bushfire Management Plan has informed the design outcomes of the Structure Plan and incorporates the following measures to mitigate bushfire risk in accordance with SPP 3.7 – Planning in Bushfire Prone Areas and the Guidelines for Planning in Bushfire Prone Areas V1.3 (“the Guidelines”);

### 7.1 Access Arrangements.

The proposed road network extends from the existing sealed road system and will be further connected on the future development of the land to the south of the Site. Specifically, the proposed roads will be sealed and drained, and maintained to a high standard by the local authority. Two access points will be created, one representing the extension of Orchid Ct and the other via the establishment of Road A in the unconstructed road reserve on the northern boundary of the Site. This road will connect the Site to Marginata Drive and, accordingly, the South Western Highway (refer also Part 9.1 - Element 3: Vehicular Access).

### 7.2 Emergency Access Ways

Two temporary emergency access tracks are to be implemented by the subdivider as part of stage one of the development (refer Figure 12 – Staging Plan). One of these will create a link

from the northern extent of Road A in Stage 1 to Marginata Drive. This will be replaced by the completion of Road A as part of Stage 2 of the subdivision. The other emergency access track will link Road E to Road A, which will be necessary until such time as Road A is extended to the south and connected to the external road network as part of the future development of the land to the south of the Site.

### **7.3 Asset Protection Zones.**

In accordance with the Guidelines, 20 metre wide Asset Protection Zones (“APZs”) are to be implemented, by the subdivider, on areas of the Site that are adjacent to the remnant vegetation to the east, the Public Open Space (which contains remnant vegetation) and the area of the northern portion of Lot 102 to be rehabilitated as an orchard (spray drift) buffer.

The APZs will be established by the subdivider at the time of subdivision, and will comply with the requirements of Schedule 1 of the Guidelines.

The land within the APZs is classified as BAL-FZ and BAL-40, development within which will be restricted via Provision 11 of the Structure Plan, which states *“Development of habitable buildings is not permitted in areas of BAL FZ/40 on any lot, as identified in the BMP and depicted by the APZ exclusion area on the Structure Plan”*.

The APZs will be implemented as part of subdivisional works by the developer and will comply with the standards of Schedule 1 of the Guidelines.

The ongoing maintenance of the APZ within the Public Open Space will be the responsibility of the local authority. The Shire of Balingup-Donnybrook has accepted this responsibility. APZs within individual lots will be maintained by the lot owners.

### **7.4 Building Envelopes**

Building envelopes have been imposed on those proposed lots which have a component of the lot affected by a (post development) BAL rating of BAL-FZ or BAL-40. This will ensure that the dwellings will only be constructed in the area of the lot with a BAL-29 or lower rating.

A number of the proposed residential lots have minor incursions of BAL-40 rated land, but as these fall within the set back areas imposed by the Residential Design Codes, building envelopes are not considered necessary for these lots.

A building envelope plan will be required by a condition of subdivision. This plan is to be approved by the Shire of Donnybrook-Ballingup, and will be used by the Shire to enforce appropriate building location in accordance with this Bushfire Management Plan.

## **8. Compliance**

Compliance with the statutory requirements for development within a declared bushfire prone area is as detailed below.

### **8.1 Western Australian Planning Commission State Planning Policy 3.7 – Planning in Bushfire Prone Areas**

The policy requirements of State Planning Policy 3.7 apply to planning proposals for any land located within a declared bushfire prone area. As a portion of the Site is within a declared bushfire prone area, the requirements of SPP 3.7 are to be addressed.

#### **8.1.1 Policy Objectives**

The objectives of SPP 3.7 (Part 5) are addressed as follows;

**Objective 1: Avoid any increase in the threat of bushfire to people, property and infrastructure. The preservation of life and management of bushfire is paramount.**

**Response:** This BMP addresses all relevant criteria and policy requirements to ensure compliance with SPP 3.7 and the Planning for Bushfire Guidelines.

**Objective 2: Reduce vulnerability to bushfire through the identification and consideration of bushfire risk in decision-making at all stages of the planning and development process.**

**Response:** This bushfire management plan has been prepared, in part, to instruct the design and implementation of the Structure Plan for the Site. The identification and consideration of the bushfire risk,

in accordance with the relevant legislation and policy guidelines, has been undertaken as part of this process.

**Objective 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.**

**Response:** The preparation of this bushfire management plan as part of the structure planning process for the Site satisfies this objective. The design and layout of the Structure Plan for the Site has been informed by the outcomes of this bushfire management plan. Future applications for subdivision and development on the Site will need to comply with the requirements of this BMP.

**Objective 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.**

**Response:** The implementation of this BMP will not require significant, if any, modification to the natural environment.

### **8.1.2 Policy Measures**

The Policy Measures of SPP 3.7 (Part 6) are addressed as follows;

#### **Information accompanying strategic planning proposals (Policy Measure 6.3)**

As the structure plan area (post development) will contain land with a BHL of “moderate” and with a BAL rating above “Low”, the requirements of Policy Measure 6.3 are to be met.

Part 6.3 a)(i) of SPP 3.7 requires the preparation of a BHL assessment to determine the applicable hazard levels across the Site. This has been addressed in Section 5.2 of this report.

As the proposed lot layout is demonstrated on the Structure Plan, Part 6.3 a)(ii) of SPP 3.7 requires a BAL Contour Map to be prepared by an accredited Bushfire Planning practitioner to determine the indicative acceptable BAL ratings across the Site. The applicable BAL Contour Maps, prepared by the author, are shown in Part 5.1 of this report.

Bushfire hazard issues are identified in Part 6 of this report (Part 6.3 b)).

Compliance with the bushfire protection criteria contained in the Guidelines will be enforced in subsequent planning stages as detailed in Section 9 and Table 1 of this report (Part 6.3 c)).

## 8.2 Guidelines for Planning in Bushfire Prone Areas V1.3 December 2017

The Guidelines for Planning in Bushfire Prone Areas (“the Guidelines”) are designed to assist in the implementation of SPP 3.7’s objectives and policy measures. The Guidelines provide bushfire protection criteria and apply to all higher order strategic planning documents, strategic planning proposals, subdivisions and development applications in designated bushfire prone areas.

This bushfire management plan has been prepared in accordance with the Guidelines.

## 9. Bushfire Protection Performance Criteria and Acceptable Solutions

### 9.1 Element 1: Location

*Intent: To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk to bushfire to facilitate the protection of people, property and infrastructure.*

Acceptable solution (s)

To achieve compliance with this Element the following acceptable solution, must be met:

- A1.1

**COMPLIANT through the application of all Acceptable Solutions for the Element**

#### A1.1 Development Location

The proposed subdivision and development is located in an area where the bushfire hazard level on the site is moderate. Only a portion of the site is formally declared as bushfire prone and therefore a ‘low threat’ as described in AS 3959.

A large portion of the Site is such a low bushfire hazard that it is not declared bushfire prone.

In the areas declared as bushfire prone the AS 3959 construction standard needs to be applied. An appropriate APZ will be established as part of subdivisional works.

Where the BAL contour map has identified portions of proposed residential lots to be BAL–FZ and BAL–40, the Structure Plan imposes building envelopes to ensure that development cannot occur within these areas, i.e. all development on residential lots will be confined to areas subject to BAL-29 or lower.

## **9.2 Element 2: Siting and Design of Development**

*Intent: To ensure that the siting and design of development minimises the level of bushfire impact.*

Acceptable solution (s)

To achieve compliance with this Element the following acceptable solutions, must be met:

- A2.1.

### **COMPLIANT through the application of all Acceptable Solutions for the Element**

#### A2.1 Asset Protection Zone

An APZ will be implemented as per the Structure Plan as part of subdivisional works. The APZ has informed the design and layout of affected lots and dictated the location and configuration of proposed residential lots which include, or are adjacent to, land rated BAL-40 or higher. Should the building envelopes as shown on the Structure Plan be moved, it will be necessary to have an individual BAL assessment undertaken for such lots as a component of the building application process.

The APZ will be implemented, managed and maintained in accordance with the “Standards for Asset Protection Zones” of Schedule 1 of the Guidelines.

The APZ is imposed predominantly on the western edge of the Site, but also around the periphery of the POS and adjacent to the proposed orchard (spray drift) buffer. All vegetation within the Drainage and Buffer Reserve is to be maintained by the local authority, whilst the vegetation comprising the spray drift buffer within private property will be maintained by the individual lot owners.

The APZ in the proposed POS, road reserves and 'Drainage and Buffer Reserve' will also be maintained by the local authority, whilst the APZ within individual lots will be maintained and managed by the lot owners in accordance with the Guidelines.

### **9.3 Element 3: Vehicular Access**

*Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.*

Acceptable solution (s)

To achieve the intent, all applicable 'acceptable solutions' must be addressed:

A3.1, A3.2, A3.3, A3.4, A3.5, A3.6, A3.7, A3.8.

#### **COMPLIANT through the application of all Acceptable Solutions for the Element**

##### A3.1 Two Access Routes.

South Western Highway provides for vehicular movement east and west. Proposed Road A links to Marginata Drive close to the railway line and then provides access to the South Western Highway. Proposed Road D links to the established road, Orchid Court, which links to Leschenaultia Circle that connects to South Western Highway via Marginata Drive. The northern portion of proposed Road A traverses the 'low threat vegetation' area that has been determined by the State as 'low threat' and therefore not declared as bushfire prone.

As Road A will not be constructed its full length as part of the first stage of subdivision, the termination of road A at the northern boundary of Stage 1 will be connected to Marginata Drive by a temporary Emergency Access Way. This EAW will be approximately 550 metres in length.

The (temporary) emergency access way linking the northern portion of Stage 1 to Marginata Drive will be developed as part of Stage 1 subdivisional works, and will be constructed and maintained to the appropriate standards. This EAW will be protected by an Easement in Gross, enabling unfettered access to the local authority, and the public in case of an emergency.

The EAW and associated easement in gross will be removed and extinguished respectively once Road A is extended to Marginata Drive as part of Stage 2 of the subdivision.

### A3.2 Public Road

There will be bitumen public road access for all the lots within the subdivision. Proposed roads A, B, C, D and E will provide alternative access roads to facilitate movement through the subdivision. The proposed structure plan provides access for 4x2 emergency, public and private vehicular access to the subdivided lots.

### A3.3 Cul-de-sac (including a dead-end road)

The Structure Plan includes two culs-de-sac, these being Roads B and E. Both these roads are less than 200 metres in length and will have turning areas (heads) greater than 17.5 metres in diameter. Specifically Road B is approximately 142 metres in length and Road E, 195 metres.

Until the land to the south of the Site is developed, effectively that portion of Road A south of Orchid Court will be a “dead end road”. Accordingly, an Emergency Access Way will be constructed, as part of Stage 1 subdivisional works, through the Public Open Space, linking Road E with Road A.

The cul-de-sacs will comply with the Guidelines’ specifications.

### A3.4 Battle-axe

The Structure Plan includes two battle axe-lots (proposed Lots 16 and 58). The configuration of these lots has been dictated by the limitations imposed by the incorporation of the APZ. The lengths of the battle-axe legs for these lots are 30 and 20 metres respectively. In accordance with the Guidelines, they will be 6 metres wide and comply in all respects with column 3 of Table 6.

### A3.5 Private Driveways longer than 50 metres

None of the driveways will be longer than 50 metres. The maximum depth of the proposed residential lots is around 60 metres, making a house site greater than 50 metres from a public road extremely unlikely.

All of the building envelopes are within 25 metres of a (proposed) public road, with most being within 6 metres.

### A3.6 Emergency Access Way

The proposed EAWs provide through access to a public road(s) and will be constructed to comply with the requirements of Table 6, Column 4 of the Guidelines.

One EAW is to be established in the POS and an easement is considered unnecessary. The EAW linking Stage 1 with Marginata Drive will be contained in a public access easement in gross.

The EAWs are less than 600 metres in length and are within this distance of a public road.

### A3.7 Fire Service Access Routes (perimeter roads)

The proposed internal public road system, together with the EAW within the POS and individual firebreaks required by the Shire's firebreak notice will ensure adequate Fire Service access routes.

## **9.4 Element 4: Water**

*Intent: To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.*

Acceptable solution (s)

To achieve the intent, all applicable 'acceptable solutions' must be addressed:

A4.1, A4.2, A4.3.

### **COMPLIANT through the application of all Acceptable Solutions for the Element**

#### A4.1 Reticulated Areas

The subdivision will incorporate reticulated scheme water. Mains water will be supplied in accordance with the Water Corporation and Department of Fire and Emergency Services specifications. Hydrants will be located in accordance with the State's requirements.

#### A4.2 Non-reticulated Areas

The entire development will be serviced with reticulated water.

#### A4.3 Individual Lots within Non-reticulated Areas (Only for use if creating one additional lot and cannot be applied cumulatively)

As above, the entire development will be serviced with reticulated water and static water supplies will not be necessary.

## 10. Implementing the Bushfire Management Plan

### 10.1 Subdivider's Responsibilities

To establish the reduced level of risk and threat of fire, the developer of lots created by this proposal will be responsible for undertaking and implementing measures protecting the assets from the threat and risk of bushfire.

The subdivider (developer) shall be responsible for:

- Creating an easement in gross on the Certificate of Title of the balance of title to contain that portion of the temporary EAW that traverses private land.
- Maintain the temporary EAW to the standards set out in the Planning for Bushfire Guidelines.
- Establishing the access roads to the lot boundaries
- Establishing the water reticulation system and associated infrastructure, including hydrants at the prescribed standard
- Placing appropriate signage
- Providing reticulated power
- Ensure that the property owners are aware of the endorsed and approved Bushfire Management Plan
- Place a notification on title pursuant to *section 165A of the Planning and Development Act 2005* on lots affected by a BAL rating of 12.5 or higher that advises that the lot is within a bushfire prone area and that particular planning and building requirements related to bushfire risk may apply to development on the land
- Establish restrictive covenants pursuant to section 129BA of the Transfer of Land Act on applicable lots
- Establish the Asset Protection Zones, including those in the POS where appropriate and practical
- Establish the (temporary) Emergency Access Way (EAW) traversing the POS linking Roads D and A.
- Prepare and implement a staging plan ensuring compliance with applicable bushfire management criteria at respective stages of subdivision.

### 10.2 Property Owner's Responsibilities

To maintain the reduced level of risk and threat of fire, the owners/occupiers of lots created by this proposal will be responsible for undertaking, complying and implementing measures protecting their own assets from the threat and risk of bushfire.

The owner/occupier shall be responsible for:

- Where specified, maintaining firebreaks on their property clear of flammable material by the dates shown on the Shire of Donnybrook-Balingup's *Fire Break Notice and*

*Bushfire Information.* This is a statutory requirement. A copy is available from the Shire of Donnybrook-Balingup website.

- Where required an APZ will be established prior to construction and maintained after dwelling construction to comply with the APZ requirements
- Maintaining in good order and condition all fencing and gates
- Ensuring that any new domestic dwellings to be built on the property are designed and constructed in full compliance with the requirements of the Shire of Donnybrook-Balingup and as detailed in *Australian Standard 3959 – Construction of buildings in bushfire-prone areas*
- Implementing and maintaining bushfire fuels as specified in the Bushfire Management Plan and in accordance with the Shire of Donnybrook-Balingup requirements
- Reviewing and implementing hazard reduction, when required, as required by the Shire of Donnybrook-Balingup
- Installing and maintaining crossovers and driveways as required by the Shire of Donnybrook-Balingup
- Maintaining the vegetation (spray drift) buffer (Lots 4, 5, 6, 15 and 16) in accordance with the Shire's Bushfire Notice.

### **10.3 Shire of Donnybrook-Balingup Responsibilities**

The responsibility for compliance with the law rests with individual property owners and occupiers. The following conditions are not intended to transfer some of the responsibilities to the Shire of Donnybrook-Balingup. The Shire of Donnybrook-Balingup has statutory control and responsibility for ensuring that community fire safety is maintained.

The Shire of Donnybrook-Balingup shall be responsible for:

- Providing timely advice on standards and methods to achieve community fire protection to owners/occupiers of land
- Administering development controls in accordance with the local planning scheme, with due regard for *State Planning Policy 3.7 – Planning in Bushfire Prone Areas* and other policies and publications outlined in these guidelines
- Seeking compliance with Bushfire Management Plans, including issuing the annual issuing of Firebreak Notices under section 33 of the *Bush Fires Act 1954*
- Maintaining the APZ within the POS
- Maintaining the EAW within the POS
- Maintaining the POS to ensure minimisation of bushfire risk.
- Maintaining the vegetation within the Buffer and Drainage Reserve(s) in accordance with the Shire's Bushfire Notice.

**Table 1: Implementation Table**

Element	Implementation		Maintenance/Enforcement	
	Responsibility	Timing	Responsibility	Timing
BMP	Subdivider	Structure Plan	DFES/Local Authority	Ongoing
Public Roads	Subdivider	Subdivisional Works	Local Authority	Ongoing
Reticulated Water/Hydrants	Subdivider	Subdivisional works	Water Corporation	Ongoing
Power (underground)	Subdivider	Subdivisional Works	Western Power	Ongoing
EAWs	Subdivider	Subdivision – Stage 1	Temporary – Subdivider POS – Local Authority	Ongoing
APZ	Subdivider	Subdivisional Works	Individual Lot Owner Local Authority	Ongoing
Easements	Subdivider	Subdivision - Stage 1	Subdivider/Local Authority	Temporary
POS	Subdivider	Subdivision – Stage 1	Local Authority	Ongoing
Battle-axe Legs	Subdivider	Subdivisional Works	Individual Lot Owner	Ongoing
Construction Standards (AS 3959)	Local Authority/Individual Lot Owner	At Building Licence Application	Individual Lot Owner	Ongoing
Fire Service Access Routes	Subdivider	Subdivisional Works	Individual Lot Owner	Ongoing
Firefighting Services and Response	DFES/Local Authority	Ongoing	DFES/Local Authority	Ongoing
Fuel Load Reduction	Individual Lot Owner	Ongoing	Individual Lot Owner	Ongoing
Firebreak and Load Reduction Notices	Local Authority.	Ongoing	Local Authority	Ongoing
Firebreak Notice Works	Individual Lot Owner	Ongoing in accordance with Firebreak Notice	Individual Lot Owner	Ongoing
Driveways longer than 50m	N/A	N/A	N/A	N/A
Orchard Buffer	Subdivider	Subdivision – Stage 2	Local Authority	Ongoing
Signage	Subdivider	Subdivisional Works	DFES/Local Authority	Ongoing
Section 165A Notice on CT	Subdivider	Subdivision	Local Authority	Ongoing
Restrictive Covenants	Subdivider	Subdivision	Local Authority	Ongoing
Staging Plan	Subdivider	Subdivision	Subdivider/Local Authority	Ongoing

## 11. Revising the Bushfire Management Plan

It is recommended that this Bushfire Management Plan be revised every five years to ensure that it is current and in-line with contemporary requirements to optimise protection. It is proposed that the property owners undertake the review.

## 12. References

Australian Government Bureau of Meteorology climate reports, summaries and maps. Retrieved 5 October 2017 from [http://www.bom.gov.au/climate/averages/tables/cw\\_009225.shtml](http://www.bom.gov.au/climate/averages/tables/cw_009225.shtml)

Shire of Donnybrook-Balingup, (2017). *Fire Break Notice 2016/17*. Retrieved 5 October 2017 from <https://www.donnybrookbalingup.wa.gov.au/our-services/emergency-services/Documents/Firebreaks.pdf>

Near map from <http://maps.au.nearmap.com/>

Department of Fire and Emergency Services (DFES), (2017). *Map of Bushfire Prone Areas 2016*. Retrieved 5 October 2017 from <http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>

Standards Australia. (2009). *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (incorporating amendment numbers 1, 2 and 3)*. Standards Australia, Sydney, NSW.

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

Western Australian Planning Commission. (December 2017). *Guidelines for Planning in Bushfire Prone Areas*. Western Australian Planning Commission, Perth, WA.

## Appendix 1. Access requirements

The criteria below are extracts from the Guidelines and will guide the construction standard requirements for the emergency access way and if required driveways longer than 50 metres.

**Table 4:** Vehicular access technical requirements

TECHNICAL REQUIREMENTS	1 Public road	2 Cul-de-sac	3 Private driveway	4 Emergency access way	5 Fire service access routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	N/A	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum crossfall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5
*Refer to E3.2 Public roads: Trafficable surface					

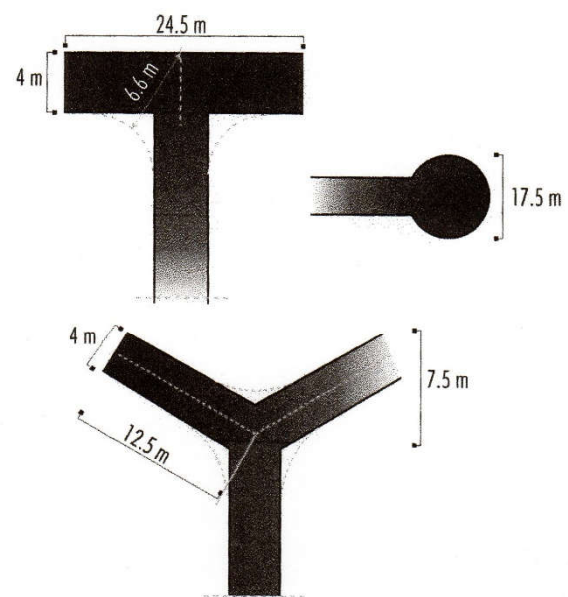
### E3.5 Private driveway longer than 50 metres

For a driveway shorter than 50 metres, fire appliances typically operate from the street frontage however where the distance exceeds 50 metres, then fire appliances will need to gain access along the driveway in order to defend the property during a bushfire. Where house sites are more than 50 metres from a public road, access to individual houses and turn-around areas should be available for both conventional two-wheel drive vehicles of residents and type 3.4 fire appliances.

Turn-around areas should be located within 50 metres of a house. Passing bays should be available where driveways are longer than 200 metres and turn-around areas in driveways that are longer than 500 metres. Circular and loop driveway designs may also be considered. These criteria should be addressed through subdivision design.

Passing bays should be provided at 200 metre intervals along private driveways to allow two-way traffic. The passing bays should be a minimum length of 20 metres, with the combined width of the passing bay and the access being a minimum of six metres.

Turn-around areas should allow type 3.4 fire appliances to turn around safely (i.e. kerb to kerb 17.5 metres) and should be available at the house sites and at 500 metre intervals along the driveway.



**Figure 22:** Design requirements for a private driveway longer than 50 metres

Turning areas should allow type 3.4 fire appliances to turn safely

## Appendix 2. Shire Confirmation of Responsibilities.

**From:** Bob Wallin <[bob.wallin@donnybrook.wa.gov.au](mailto:bob.wallin@donnybrook.wa.gov.au)>  
**Sent:** Monday, 7 May 2018 9:18 AM  
**To:** Martin Richards <[martin@mrplanning.com.au](mailto:martin@mrplanning.com.au)>  
**CC:** Stapleton, David, Smith Consulting, John Wringe, Louie Tuia  
**Subject:** RE: FW: Meldene Structure Plan, Lot 102 South West Highway, Donnybrook (WAPC Ref: SPN/2011 & 156262)

Hi Martin

Just clarifying. The Shire raises no objection to maintaining the APZ for lots 68-71 and 62-67 on the southern boundary.

Regards

**Bob Wallin**  
Principal Planner



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**From:** Bob Wallin <[bob.wallin@donnybrook.wa.gov.au](mailto:bob.wallin@donnybrook.wa.gov.au)>  
**Sent:** Monday, 7 May 2018 8:55 AM  
**To:** Martin Richards <[martin@mrplanning.com.au](mailto:martin@mrplanning.com.au)>  
**Subject:** RE: FW: Meldene Structure Plan, Lot 102 South West Highway, Donnybrook (WAPC Ref: SPN/2011 & 156262)

Hi Martin

I confirm that the Shire raises no objection to the relocation of the APZ into the POS reserve and maintaining vegetation within the drainage reserves. If the structure plan needs to show modifications to reflect these elements, no objections are raised.

If there is anything more you need, please tell me.

Regards

**Bob Wallin**  
Principal Planner



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**From:** Bob Wallin <[bob.wallin@donnybrook.wa.gov.au](mailto:bob.wallin@donnybrook.wa.gov.au)>

**Sent:** Friday, 4 May 2018 4:05 PM

**To:** Martin Richards <[martin@mrplanning.com.au](mailto:martin@mrplanning.com.au)>

**Subject:** Re: FW: Meldene Structure Plan, Lot 102 South West Highway, Donnybrook  
(WAPC Ref: SPN/2011 & 156262)

Hi Martin

I have discussed this with the Manager Works and Services. No objections are raised to the proposed responsibilities outlined in section 10.3.

Regards

**Bob Wallin**

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