

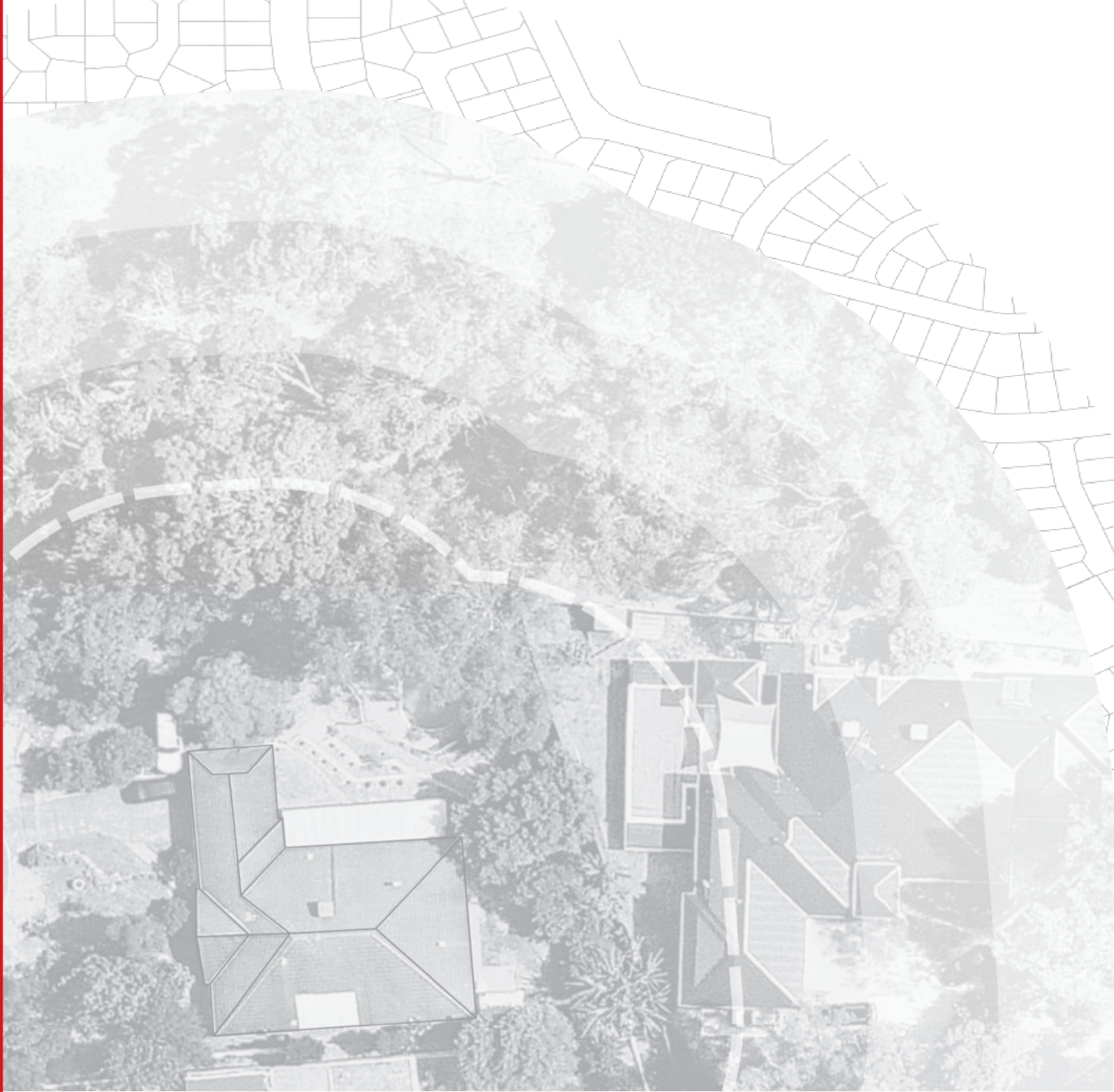


# BUSHFIRE MANAGEMENT PLAN

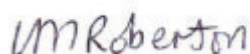
Strategic Planning Proposal & Subdivision Application

Lots 1793 -1795 Matison Street, Southern River

Version: 1.0 Reference: 5615 Date: February 2017



**Project Number:** 5615  
**Project Name:** Lots 1793 -1795 Matison Street, Southern River  
**Author:** Louisa Robertson, MSc, BPAD36748 Level 1  
**Approved by:** Darrel Krammer, Grad Cert Bushfire Protection, BPAD33412 Level 1  
**Version:** 1.0  
**Date of issue:** 17<sup>th</sup> February 2016



Author: Louisa Robertson  
Date: 17<sup>th</sup> February 2016



Approved by: Darrel Krammer  
Date: 17<sup>th</sup> February 2016

In the signing the above, the author declares that this Bushfire Management Plan meets the requirements of State Planning Policy 3.7. This report supersedes all previous Bushfire Management Plans for the site.

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## 1.0 Introduction

### 1.1 Subject Site

The site the subject of this Bushfire Management Plan (BMP) is Lot 1973 to 1975 Matison Street, Southern River. The site is located within the municipality of the City of Gosnells. Figure 1A illustrates the subject site and its immediate surrounds.

The site is identified as being Bushfire Prone on the *Map of Bush Fire Prone Areas 2016* (OBRM, 2016).

#### 1.1.1 Environmental Considerations

Environmental considerations within and adjacent to the site are shown in Figure 1A.

The proposed development includes 2.06ha of Bush Forever land in the south east corner of the site that includes a Resource Enhancement Wetland (REW) and REW Buffer.

The north eastern and south eastern site boundaries are bordered by a Conservation Category Wetland (CCW) within Lots 1796 to 1798 Matison Street, Lots 1799 to 1802 Passmore Street and Lots 1803 to 1804 Holmes Street. A CCW buffer extends from the CCW into the site. A portion of the lots surrounding the north east and south eastern site boundaries is also Bush Forever land.

The entire site and surrounding land, within 600 metres to several kilometres of the site, is classified as an Environmentally Sensitive Area (WALGA, 2016).

### 1.2 Development Description

This BMP has been prepared to accompany an application for a Local Structure Plan (LSP) as well as an application for subdivision over the site (the development).

The LSP application proposes development of land for residential purposes (R25-R40), access streets and Public Open Space (POS) including Bush Forever Reserve / Resource Enhancement Wetland (REW) and Forrestdale Main Drain. A buffer has also been provided to the REW and Conservation Category Wetland (CCW). The proposed Local Structure Plan Concept is shown in Figure 1B.

The subdivision application involves the subdivision of the site into 135 residential lots (Lots 1 to 135) ranging in size from 246m<sup>2</sup> to 814m<sup>2</sup> along with an internal road network, Bush Forever Reserve, POS, REW and the REW and buffer and CCW buffer. The indicative subdivision layout is shown on the development plan at Figure 1C.

Development staging is still to be refined; however, it is likely that the subject land will be developed in 1 to 3 stages with the first stage of development occurring adjacent to Matison Street and either side of the main north-south connector road. The second stage of development is likely to occur adjacent to Holmes Street and the final stage to occur within the north-eastern portion of the subject land. The staging and development will be heavily influenced by market forces, connection to infrastructure and changes to the road network.

### 1.3 Previous Bushfire Assessments

There are no known previous bushfire assessments that have been undertaken for the site.



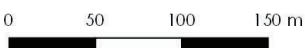
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 Scale: 1:3,500

**BUSHFIRE MANAGEMENT PLAN MAP**  
**Lots 1793 - 1795 Matison Street,**  
**Southern River**

**Site Overview**



- Site Boundary
- Cadastre
- Roads

Ref: 5615\_001\_03\_BaseMap\_20161219  
 Projection: GDA94 MGA50  
 Author: MM - RUIC | Date: 2017-01-31  
 Data Source: Cadastre - Landgate; Imagery -  
 Nearmap; Roads, Site Boundary, Veg, BAL, Buffers,  
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**Figure 1A: Site Overview**



Lots 1793 - 1795 Matison Street, Southern River

**Figure 1B: Structure Plan Concept**

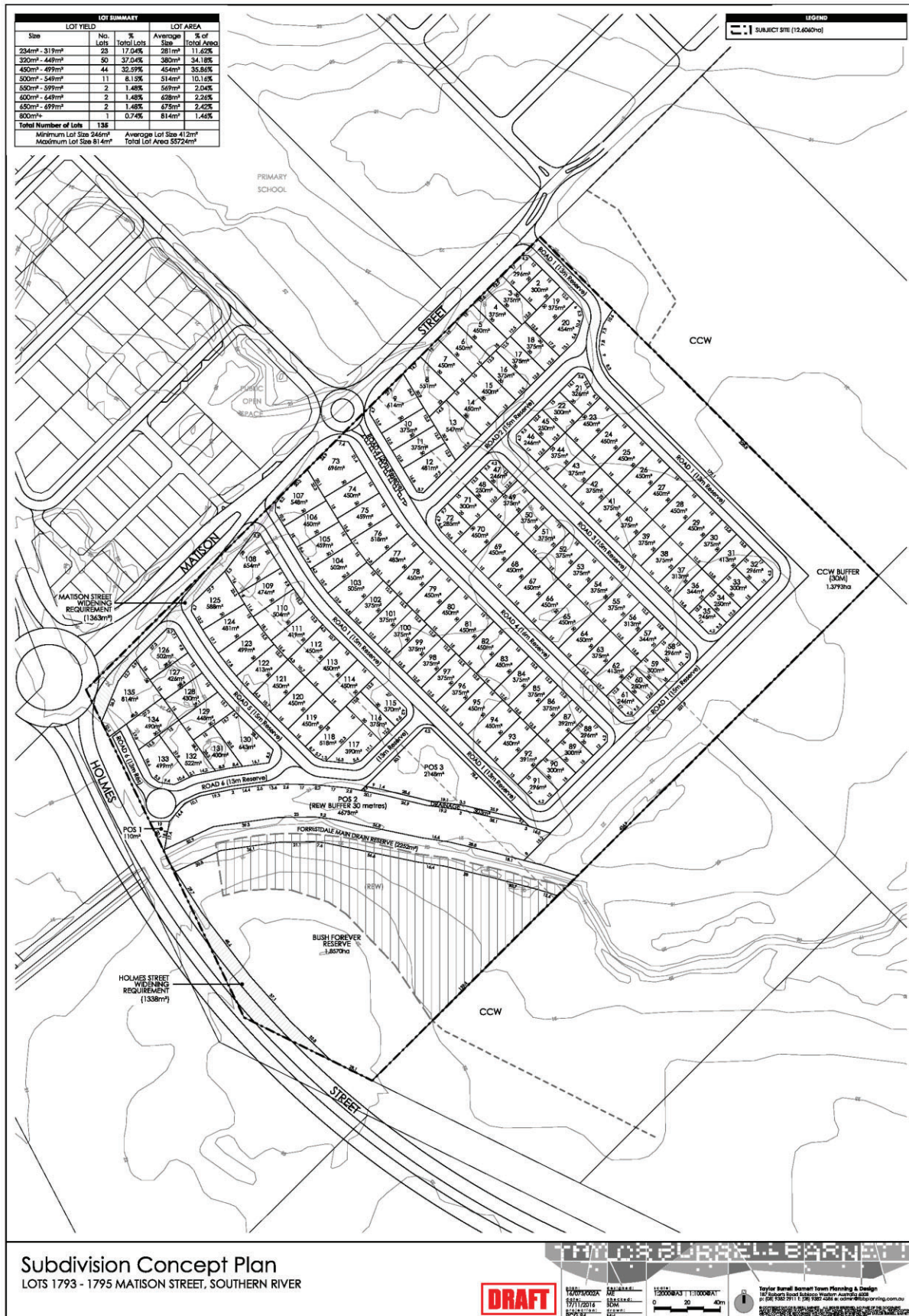


Figure 1C: Subdivision Concept Plan



## 2.0 Spatial Consideration of Bushfire Threat

### 2.1 Effective Slope

Effective slope under each vegetation plot was assessed in accordance with the methodology detailed in AS 3959-2009 *Construction of buildings in bushfire prone areas (AS 3959)* (Standards Australia, 2009). Slope data was measured on site and cross referenced with Landgate elevation data.

Slope throughout the assessment area was found to be relatively flat with minimal variation in relief. The effective slope of each vegetation plot is listed under the photos provided in Section 2.2 below.

### 2.2 Bushfire Fuels

The location and extent of AS 3959 vegetation structures, including Clause 2.2.3.2 exclusions, within 100 metres of the site are mapped in Figure 2A and illustrated in the photos below.

Bushfire fuel loads are identified as consistent with AS 3959 Table B2 for radiant heat flux modelling purposes. All bushfire structures and fuel loads are assessed in their mature states (including revegetation and rehabilitation areas) unless otherwise identified.

All vegetation within the residential development area will be removed as part of the subdivision development works. If the subdivision is staged, all vegetation located within the development area (excluding the Bush Forever reserve, the CCW buffer and the REW and buffer) within 100 metres of the residential lots will be reduced to low threat vegetation. Low threat vegetation is to be consistent with AS 3959 Clause 2.2.3.2 (f), including grass managed and maintained to <100mm in height.

The *Landscape Master Plan* (LD Total, 2016) is provided at Appendix A and details how landscaping within the site will be implemented and maintained. A summary is provided below:

- The main Public Open Space (POS) area (including the verge planting) (Plot 14) will be maintained and irrigated as low threat vegetation in accordance with AS 3959 Clause 2.2.3.2(f).
- The wetland planting area (Plot 16), which incorporates both POS and the Resource Enhancement Wetland (REW) buffer, will comprise low lying shrubs with an open canopy of taller woodland species. This plot will be consistent with Class C Shrubland.
- The Forestdale Main Drain (Plot 12), will be retained and revegetated as Class B Woodland vegetation.
- The Bush Forever Reserve (Plot 1) will be revegetated as Class B Woodland vegetation.
- The Conservation Category Wetland (CCW) buffer (Plot 13) will be revegetated as Class D Scrub vegetation. The proposed lots are located a minimum distance of 13m from the CCW buffer.
- The drainage swales adjacent to the CCW buffer (Plot 3) will comprise low lying shrubs with an open canopy of taller woodland species. This plot will be consistent with Class C Shrubland.
- All street tree plantings and verges will be maintained as low threat vegetation in accordance with AS 3959 Clause 2.2.3.2(f).

All areas of low threat landscaping within the site, including the POS area and street verges are to be implemented and managed in accordance with AS 3959 Clause 2.2.3.2(f) by the developer for the first two summers following subdivision clearance and thereafter in perpetuity by the City of Gosnells. A formal agreement is to be entered into with the City of Gosnells as a condition of subdivision approval.

## 2.2.1 Vegetation Plots

### Plot 1



**Existing:** Class G Grassland

**Post-development:** Class B Woodland

**Effective Slope:** Flat

*The vegetation is located within the existing Bush Forever reserve. The existing vegetation is to be revegetated as per the Landscape Master Plan (Appendix A) and will be consistent with Class B Woodland at maturity i.e. trees 2-30m high, tree dominated but lacking shrubby middle later, 10-30% canopy cover.*

### Plot 2



**Existing:** Class B Woodland

**Post-development:** Class B Woodland

**Effective Slope:** Flat

*The vegetation is located south of the existing Forrestdale drainage reserve in the Bush Forever Reserve. The existing vegetation is to be retained as per the Landscape Master Plan (Appendix A) and will be consistent with Class B Woodland at maturity i.e. trees 2-30m high, tree dominated but lacking shrubby middle later, 10-30% canopy cover.*

**Plot 3**



**Existing:** Class D Scrub/ Exclusion 2.2.3.2(e) non-vegetated area

**Post-development:** Class D Scrub

**Effective Slope:** Flat

*The existing vegetation consists of dirt tracks and intermittent scrub species. This area forms the CCW buffer and is to be revegetated as Class D Scrub vegetation in accordance with the Landscape Master Plan (Appendix A).*

**Plot 4**



**Existing:** Exclusion 2.2.3.2(e) non-vegetated area

**Post-development:** Exclusion 2.2.3.2(e) non-vegetated area

**Effective Slope:** Flat

*This plot comprises an area that has been fully cleared for future development on the northern side of Matison Road.*

**Plot 5**



**Existing:** Class G Grassland  
**Post-development:** Class G Grassland  
**Effective Slope:** Flat

*The plot consists of unmanaged grassland vegetation on the northern side of Matison Road.*

**Plot 6**



**Existing:** Exclusion 2.2.3.2(e) & (f) non-vegetated areas and low threat vegetation  
**Post-development:** Exclusion 2.2.3.2(e) & (f) non-vegetated areas and low threat vegetation  
**Effective Slope:** Flat

*Maintained existing residences with grass slashed to less than 10cm and maintained gardens. Non-vegetated areas include existing buildings and driveways.*

**Plot 7**



**Note:** This plot has been cleared of grassland vegetation, for imminent development, since the site inspection was conducted. The satellite imagery showing the clearing is dated 16 January 2017.

**Existing:** Exclusion 2.2.3.2(e) non-vegetated areas

**Post-development:** Exclusion 2.2.3.2(e) non-vegetated areas

**Effective Slope:** N/A

*Unmanaged grassland has been cleared for future development along the western side of Holmes Street/ northern side of Matison Street.*

**Plot 8**



**Existing:** Class G Grassland

**Post-development:** Class G Grassland

**Effective Slope:** Flat

*Unmanaged grassland greater than 10cm in height along the western side of Holmes Street.*

**Plot 9**



**Existing:** Class B Woodland  
**Post-development:** Class B Woodland  
**Effective Slope:** Flat  
**Photo ID:**

*Vegetation located within the existing Bush Forever reserve external to the south eastern boundary of the subject site. Banksia trees are within the range of 2-10m high at maturity. Tree dominated but lacks shrubby middle later. Canopy cover is approximately 20-30%.*

**Plot 10**



**Existing:** Class G Grassland  
**Post-development:** Class G Grassland  
**Effective Slope:** Flat

*Unmanaged grassland greater than 10cm in height along the northern side of Matison Street.*

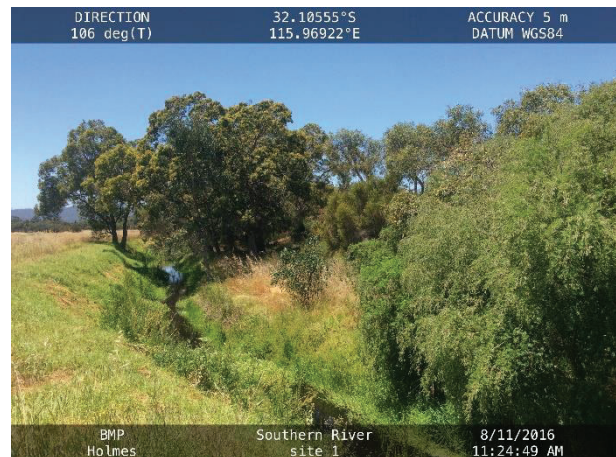
**Plot 11**



**Existing:** Class G Grassland  
**Post-development:** Class G Grassland  
**Effective Slope:** Flat

*Unmanaged grassland greater than 10cm in height to the western site of Holmes Street.*

**Plot 12**



**Existing:** Class B Woodland/ Class G Grassland  
**Post-development:** Class B Woodland  
**Effective Slope:** Flat

*The vegetation is located within the existing Forrestdale drainage reserve and is to be retained/ revegetated as Class B Woodland as per the Landscape Master Plan (Appendix A). Future vegetation will consist of trees 2-10m high with approximately 30% canopy cover and grassy understorey with a sparsely distributed shrubs.*

**Plot 13**



**Note:** Photo supplied is representative of grassland vegetation within the site rather than being reflective of the precise location of future vegetation plots.

**Existing:** Class G Grassland

**Post-development:** Class B Open Woodland assessed as Class C Shrubland

**Effective Slope:** Flat

Unmanaged grassland vegetation will be replaced with a planted drainage swale as per the Landscape Master Plan (Appendix A). Vegetation will consist of low lying shrubs and groundcovers less than 2m in height with canopy trees spaced at least 10m apart (10-20% canopy cover).

**Plot 14**



**Note:** Photo supplied is representative of grassland vegetation within the site rather than being reflective of the precise location of future vegetation plots.

**Existing:** Class G Grassland

**Post-development:** Exclusion 2.2.3.2(f) low threat vegetation

**Effective Slope:** N/A

Unmanaged grassland vegetation will be replaced by managed and irrigated verge plantings and POS as per the Landscape Master Plan (Appendix A). The POS area will comprise lawns maintained at less than 10cm in height. The verge planting will comprise maintained canopy trees with ground covers beneath and will be irrigated.



**Plot 15**



**Note:** Photo not available. Imagery supplied by Google Maps Street View.

**Existing:** Class G Grassland

**Post-development:** Exclusion 2.2.3.2(f) low threat vegetation

**Effective Slope:** N/A

Existing vegetation along western side of Holmes Street to be landscaped and managed as low threat vegetation with specimen trees intermittently spaced and maintained lawns underneath as per the Landscape Master Plan (Appendix A).

**Plot 16**



**Note:** Photo supplied is representative of grassland vegetation within the site rather than being reflective of the precise location of future vegetation plots.

**Existing:** Class G Grassland

**Post-development:** Class B Open Woodland assessed as Class C Shrubland

**Effective Slope:** Flat

Unmanaged grassland vegetation will be replaced with wetland planting as per the Landscape Master Plan (Appendix A). Vegetation will consist of low lying shrubs and groundcovers less than 2m in height with canopy trees spaced at least 10m apart (10-20% canopy cover).

**Plot 17 (residential development area)**

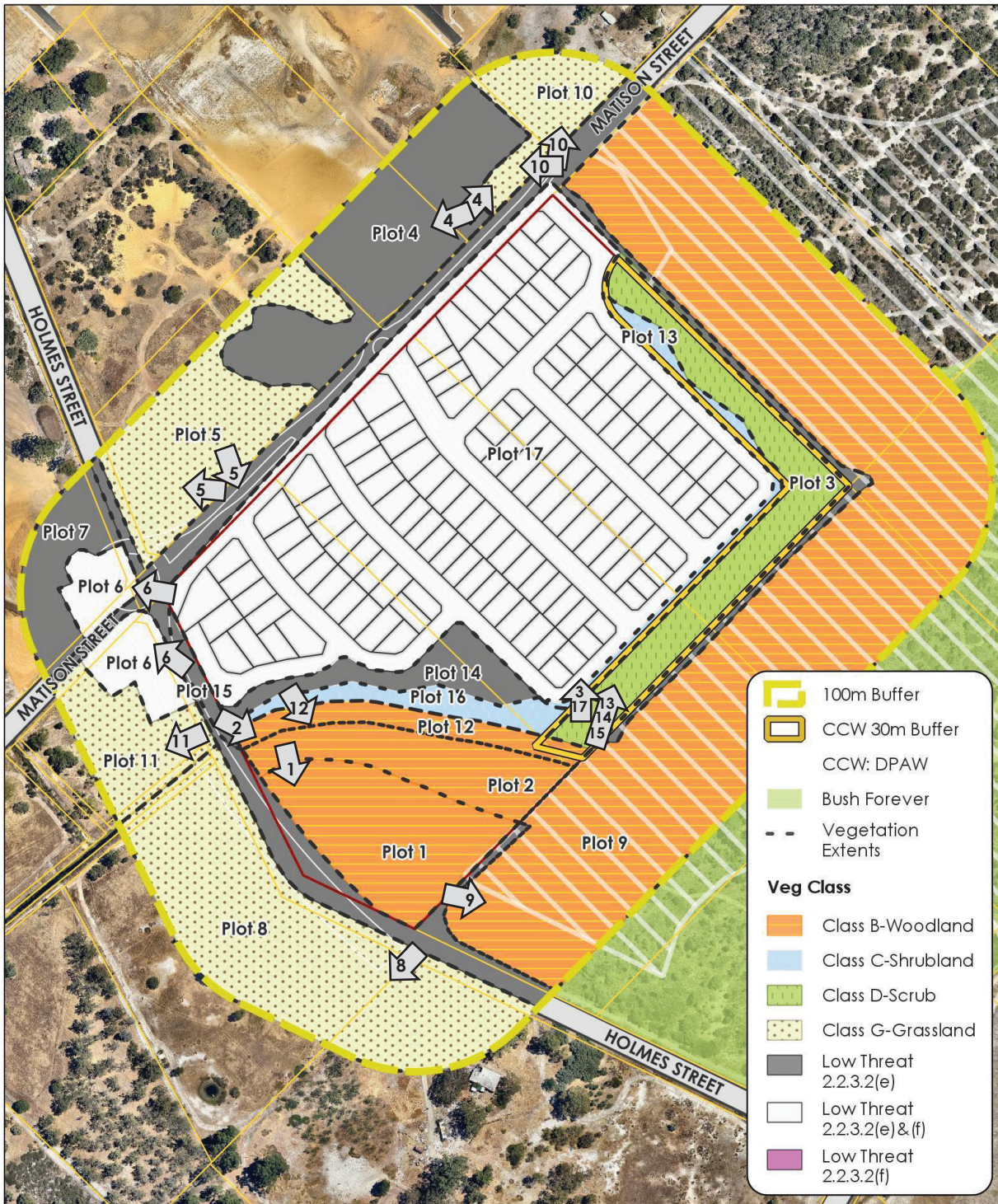


**Existing:** Class G Grassland/ Class D Scrub

**Post-development:** Exclusion 2.2.3.2(e) & (f) non-vegetated areas and low threat vegetation

**Effective Slope:** N/A

*Existing vegetation within the proposed residential development area will be replaced by roads, footpaths, managed street verge vegetation and residential properties with maintained lawns and gardens.*



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**BUSHFIRE MANAGEMENT PLAN MAP**  
 Lots 1793 - 1795 Matison Street,  
 Southern River

**Vegetation Classification**



- [Red outline box] Site Boundary
- [Yellow outline box] Cadastre
- [Grey rounded rectangle] Main Road



Photos: plot,  
 location &  
 direction

Ref: 5615\_002\_03\_Veg\_20161219  
 Projection: GDA94 MGA50  
 Author: MM - RUIC | Date: 2017-01-31  
 Data Source: Cadastre - Landgate; Imagery -  
 Nearmap; Roads, Site Boundary, Veg, BAL, Buffers,  
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**Figure 2A: Post Development Vegetation Classifications**

## 2.3 Potential Bushfire Impact

Potential bushfire impact analysis was undertaken in accordance with AS 3959 Methodology 1 to determine the potential worst case scenario radiant heat impact on each of the developable lots in the proposed development. In accordance with SPP 3.7, a BAL Contour Map has been prepared to illustrate the potential radiant heat impacts and associated BAL ratings for the assessment area after the development is completed (see Figures 2B to 2D).

The following table (Table 2A) outlines the worst case BAL for each of the Vegetation Plots based on separation distance to the external boundary of the developable lots. The worst case BAL applicable to the developable lots is BAL-FZ.

**Table 2A:** Worst case BAL that applies to the developable lots Post-Development

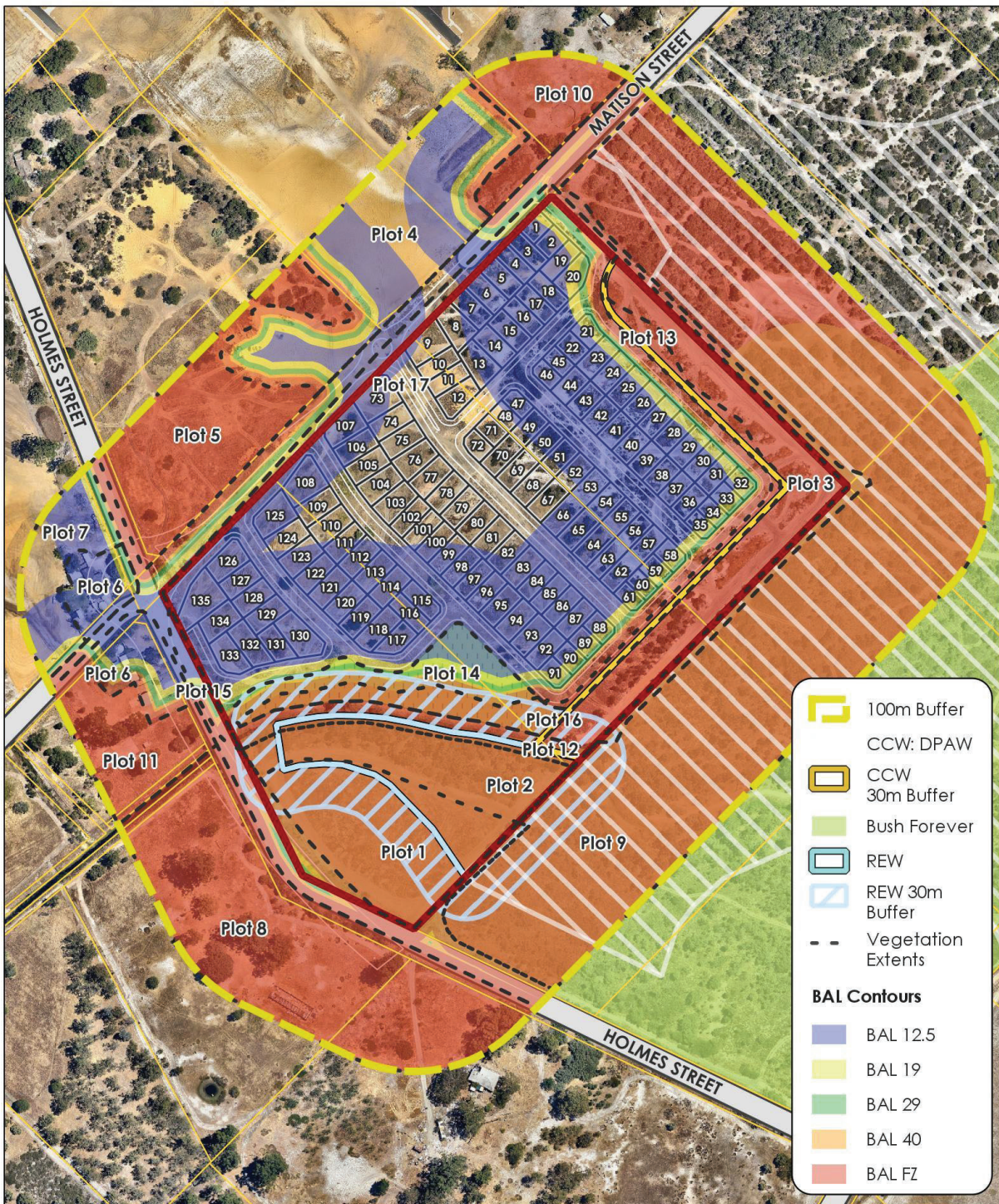
Vegetation Plot	Vegetation Classification	Effective Slope	Separation	BAL
Plot 1	Class B Woodland	Flat	62m	BAL-12.5
Plot 2	Class B Woodland	Flat	42m	BAL-12.5
Plot 3	Class D Scrub	Flat	13m	BAL-29
Plot 4	Exclusion 2.2.3.2(e)	N/A	N/A	N/A
Plot 5	Class G Grassland	Flat	24m	BAL-12.5
Plot 6	Exclusion 2.2.3.2(e) & (f)	N/A	N/A	N/A
Plot 7	Exclusion 2.2.3.2(e)	N/A	N/A	N/A
Plot 8	Class G Grassland	Flat	51m	BAL-LOW
Plot 9	Class B Woodland	Flat	49m	BAL-12.5
Plot 10	Class G Grassland	Flat	20m	BAL-19
Plot 11	Class G Grassland	Flat	30m	BAL-12.5
Plot 12	Class B Woodland	Flat	33m	BAL-12.5
Plot 13	Class C Shrubland	Flat	10m	BAL-29
Plot 14	Exclusion 2.2.3.2 (f)	N/A	N/A	N/A
Plot 15	Exclusion 2.2.3.2(f)	N/A	N/A	N/A

Vegetation Plot	Vegetation Classification	Effective Slope	Separation	BAL
Plot 16	Class C Shrubland	Flat		
Plot 17	Exclusion 2.2.3.2 (e) & (f)	N/A	N/A	N/A
<b>Worst case BAL</b>				<b>BAL-29</b>

Table 2B lists the worst case BAL applicable to each proposed developable lot.

**Table 2B:** Worst case BAL that applies to each lot Post-Development

Lot	BAL
10-12, 67-72, 75-80, 102-105,	BAL-LOW
3-9, 13-18, 22, 36-57, 62-66, 73-74, 81-87, 92-101, 106-135	BAL-12.5
1, 2, 19	BAL-19
20, 21, 23-35, 58-61, 88-91	BAL-29
<p><b>Note:</b> Individual lot BALs are indicative only and are for the purposes of demonstrating compliance with the bushfire protection criteria of SPP 3.7. BALs are subject to the implementation of the bushfire management strategies detailed within this report and are to be re-assessed post civil works/prior to building licence issue.</p>	



	100m Buffer
	CCW: DPAW
	CCW 30m Buffer
	Bush Forever
	REW
	REW 30m Buffer
	Vegetation Extents
<b>BAL Contours</b>	
	BAL 12.5
	BAL 19
	BAL 29
	BAL 40
	BAL FZ



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**BUSHFIRE MANAGEMENT PLAN MAP**  
 Lots 1793 - 1795 Matison Street,  
 Southern River

**BAL Contours**

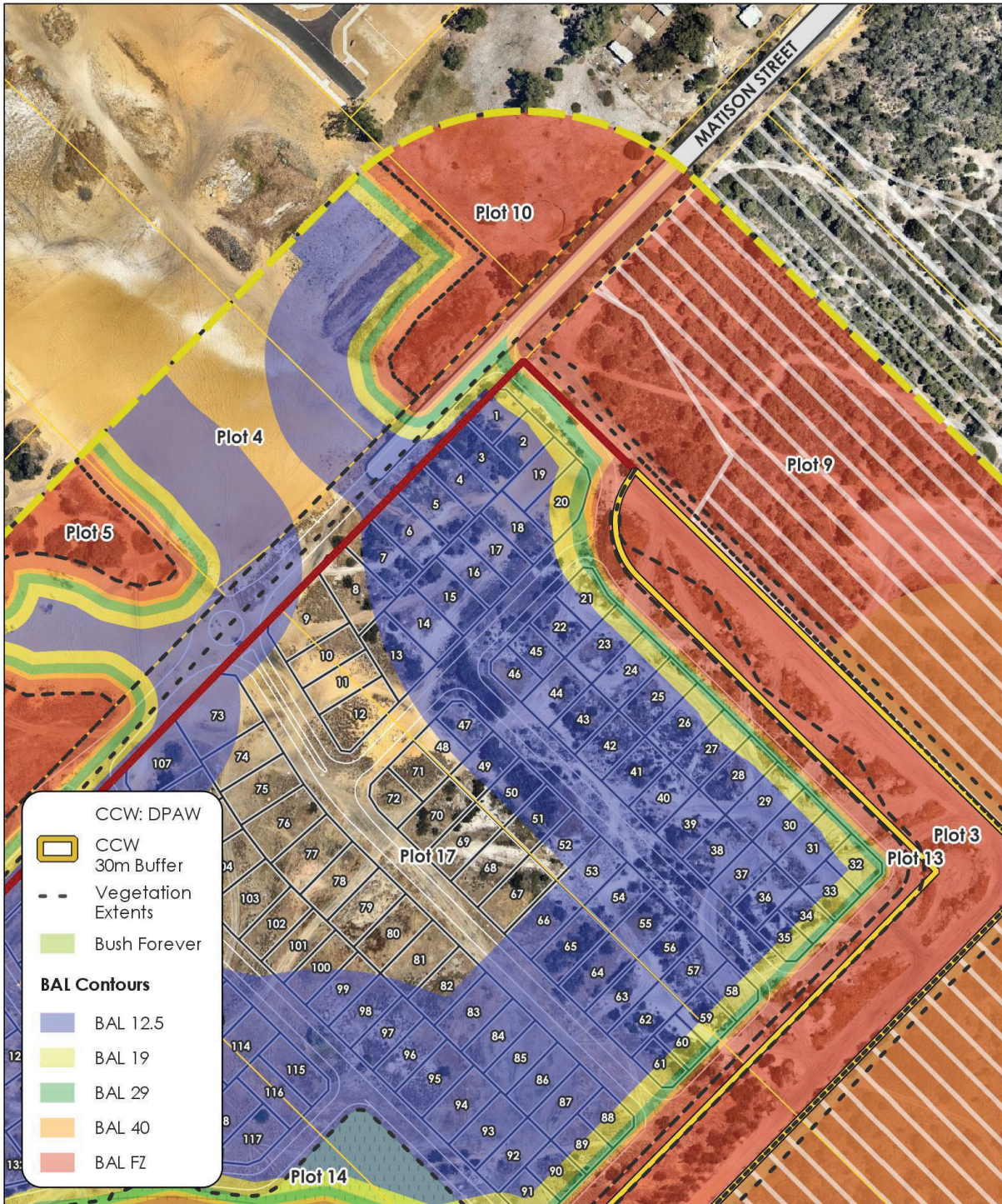
0 50 100 150 m

- Site Boundary
- Cadastre
- Main Road

Ref: 5615\_003\_03\_BAL\_20161219  
 Projection: GDA94 MGA50  
 Author: MMA - RUIC | Date: 2017-01-31  
 Data Source: Cadastre - Landgate; Imagery -  
 Nearmap; Roads, Site Boundary, Veg, BAL Buffers,  
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**Figure 2B: BAL Contour Map**



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Size: A4  
 Scale: 1:2,000

**BUSHFIRE MANAGEMENT PLAN MAP**  
**Lots 1793 - 1795 Matison Street,**  
**Southern River**

**BAL Contours, Close In - North**

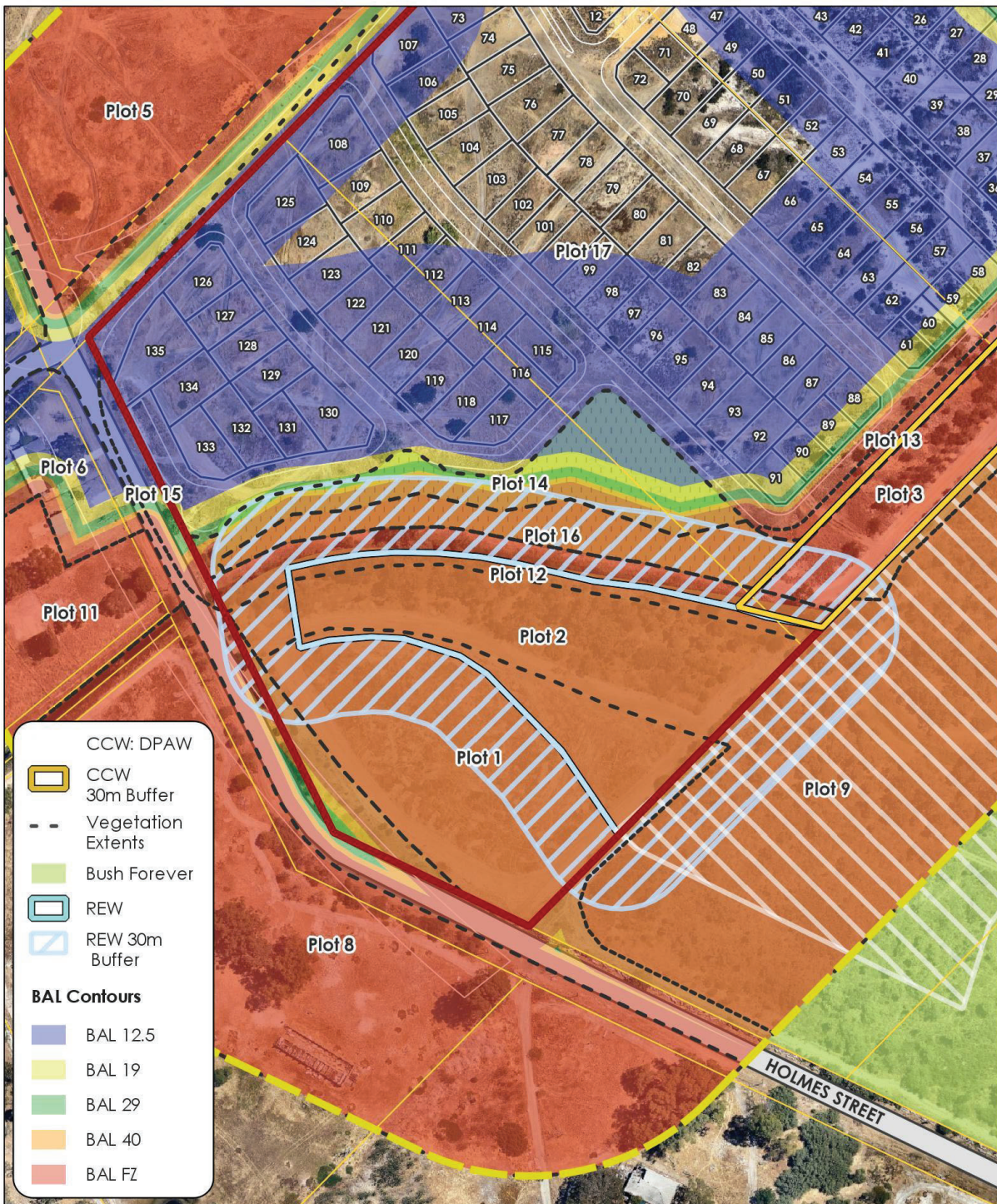


Ref: 5615\_004\_03\_BAL\_North\_20161219  
 Projection: GDA94 MGA50  
 Author: MMA - RUIC | Date: 2017-01-31  
 Data Source: Cadastre - Landgate; Imagery -  
 Nearmap; Roads, Site Boundary, Veg, BAL, Buffers,  
 BMS - RUIC.

- Site Boundary
- Cadastre
- Main Road

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**Figure 2C: BAL Contour Map – Detailed view (north)**



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Size: A4  
 Scale: 1:2,000

**BUSHFIRE MANAGEMENT PLAN MAP**  
**Lots 1793 - 1795 Matison Street,**  
**Southern River**

**BAL Contours, Close In - South**

0 20 40 60 80 100 m

Ref: 5615\_005\_03\_BAL\_South\_20161219  
 Projection: GDA94 MGA50  
 Author: MMA - RUIC | Date: 2017-01-31  
 Data Source: Cadastre - Landgate; Imagery -  
 Nearmap; Roads, Site Boundary, Veg, BAL, Buffers,  
 BMS - RUIC.

- Site Boundary
- Cadastre
- Main Road

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**Figure 2D: BAL Contour Map – Detailed view (south)**



## 2.4 Bushfire Context

A bushfire impacting the site is most likely to originate in vegetation external to the north eastern and south eastern lot boundaries. Vegetation to the south west and north west is predominantly grassland and land cleared for future development that poses a lesser bushfire threat to the site.

## 2.5 Bushfire Hazard Issues

From the BAL Contour Map, the following bushfire hazard issues have been identified.

- The proposed development is subject to a BAL above BAL-LOW.
- The BAL ratings provided in the BAL Contour map and Tables 2A and 2B are indicative only and are for the purposes of demonstrating compliance with the bushfire protection criteria of SPP 3.7. The BAL Contour map is to be updated following the implementation of the bushfire strategies contained within this report. Alternatively, individual BAL assessments are to be completed prior to the issue of each building permit.
- Future residential BCA Class 1, 2, 3 and associated Class 10a buildings are to be constructed to the applicable construction standard of AS 3959.

The bushfire selection criteria relevant to the development are addressed in Section 4 of this report.

## 3.0 Proposal Compliance and Justification

### 3.1 State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP 3.7)

SPP 3.7 applies to all subdivision applications in designated bushfire prone areas.

#### 3.1.1 Objectives

Policy Measure 5 contains the objectives of SPP 3.7. The following demonstrates how the proposed development meets each of the objectives.

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

#### Development Response

Objective 1 is satisfied through the compliance of the proposed development with all required Policy Principles as detailed below and all Performance Principles of the Guidelines as detailed in Section 4 of this report.

**Objective 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.***

#### Development Response

Objective 2 is satisfied through the appropriate identification and assessment of all relevant bushfire hazards as detailed in Section 2 of this report, specifically the BAL Contour Mapping.

**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.***

#### Development Response

Objective 3 is satisfied through the compliance of the proposed development with all required Policy Principles as detailed below and all Performance Principles of the Guidelines as detailed in Section 4 of this report.

**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.***

#### Development Response

Objective 4 is satisfied through the appropriate consideration of all biodiversity and environmental assets as detailed in Section 1 of this report in the development of bushfire related risk mitigation strategies detailed in Section 4 of this report.

#### 3.1.2 Policy Measures

##### 3.1.2.1 Strategic Planning Proposals

Policy Measure 6.2 requires that Strategic Planning Proposals located within a designated bushfire prone area and that have a BAL above BAL-LOW are to comply with Policy Measure 6.3.

### 3.1.2.2 Subdivision Applications

Policy Measure 6.2 requires that subdivision applications within designated bushfire prone areas and that have a BAL above BAL-LOW are to comply with Policy Measure 6.4.

### 3.1.2.3 Information to Accompany Strategic Planning Proposals & Subdivision Applications

Policy Measure 6.3 applies to Strategic Planning Proposals and Policy Measure 6.4 applies to subdivision applications. They require certain information to be provided with such applications. The following table (Table 3A) outlines where the required information has been provided.

**Table 3A:** Compliance of the proposed development with the Policy Measures of SPP 3.7

Policy Measure	Description	Development Response
<b>Policy Measure 6.3 – Strategic Planning Proposals</b>		
<b>a</b>	(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  (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	The lot layout is known. Figures 2B to 2D provide the BAL Contour Maps.
<b>b</b>	The identification of any bushfire hazard issues arising from the relevant assessment; and	Section 2.5 addresses the bushfire hazard issues.
<b>c</b>	Clear demonstration that compliance with the bushfire protection criteria in the Guidelines can be achieved in subsequent planning stages	Section 4 provides an assessment of the development against the bushfire protection criteria and demonstrates that compliance can be achieved in subsequent planning stages.
<b>Policy Measure 6.4 – Subdivision Applications</b>		
<b>a</b>	A BAL Contour Map to determine the indicative acceptable BAL ratings across the subject site, in accordance with the Guidelines. BAL Contour Maps should be prepared by an accredited Bushfire Planning Practitioner	Figures 2B to 2D provide the BAL Contour Maps.
<b>b</b>	The identification of any bushfire hazard issues arising from the BAL Contour Map;	Section 2.5 addresses the bushfire hazard issues

Policy Measure	Description	Development Response
<b>c</b>	An assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the subdivision site.	Section 4 provides an assessment of the development against the bushfire protection criteria

### 3.1.2.4 Vulnerable or High Risk Land Uses

The proposed subdivision does not contain any vulnerable or high risk land uses.

### 3.1.2.5 Applications in BAL-40/BAL-FZ Areas

On completion of development, the developable land would not be subject to BAL-40 or BAL-FZ as outlined in Section 2.2.

### 3.1.2.6 Advice of State/Relevant Authority/s for Emergency Services to be Sought

The proposed development:

- Complies with the SPP3.7 Policy measures;
- Does not propose any additional/alternative measures;
- Does not contain unavoidable development, vulnerable or high risk land uses; and
- **Is a strategic planning proposal.**

Therefore, the advice of State/Relevant Authorities for Emergency Services **is required** to be sought for this application.

### 3.1.2.7 Advice of State/Relevant Agencies/Authorities for Environmental Protection to be Sought

The proposed development:

- Is not known to propose clearing of vegetation within environmentally sensitive areas as the development area is in a degraded condition;
- Is not known to propose clearing of locally significant native vegetation; and
- **Abuts vegetated land managed by the Department of Parks and Wildlife;**

Therefore, the advice of State/Relevant Agencies/Authorities for Environmental Protection **is required** to be sought for this application.

## 3.2 Guidelines for Planning in Bushfire Prone Areas (the Guidelines)

The Guidelines apply to strategic planning proposals and subdivision applications located within designated bushfire prone areas. The Guidelines provide supporting information for implementation of SPP3.7. Specifically, they provide the Bushfire Protection Criteria to be addressed for all applications.

This report has also been developed in order to comply with the requirements of all referenced and applicable documents. No non-compliances have been identified.

## 4.0 Bushfire Risk Management Measures

The bush fire risk mitigation strategies detailed in this report are designed to comply with the Bushfire Protection Criteria detailed in *Guidelines for Planning in Bushfire Prone Areas* (the Guidelines) Appendix 4 (2015).

- i. The notation (P3) refers to Performance Principle 3 of the Guidelines Appendix 4.
- ii. The notation (A3.1) refers to Acceptable Solution 3.1 of the Guidelines Appendix 4.
- iii. The notation (E3.1) refers to Explanatory Note 3.1 of the Guidelines Appendix 4.
- iv. Where discrepancy occurs between State and Local bushfire planning provisions the higher standard of mitigation has been selected.

### 4.1 Element 1 - Location

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

**Performance Principle (P1):** The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low, or a BAL-29 or below, and the risk can be managed. For minor or unavoidable development in areas where BAL-40 or BAL-FZ applies, demonstrating that the risk can be managed to the satisfaction of the Department of Fire and Emergency Services and the decision-maker.

*The following table outlines the Acceptable Solutions (AS) that are relevant to the proposal; identifies where a Performance Solution (PS) has been used instead of an AS; and states, where applicable, the reason why the AS is not relevant to the proposal.*

Solution	AS	PS	N/A	Comment
A1.1 Development location	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Acceptable Solution 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.

#### Development Response/Recommendations

As outlined in Table 2B, and Figures 2B – 2D, the subdivision would ensure all future habitable buildings are, upon completion of development, located in an area subject to BAL-29 or lower.

## 4.2 Element 2 - Siting and design of Development

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

**Performance Principle (P2):** The siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire threat that applies to the site. That it minimises the bushfire risk to people, property and infrastructure, including compliance with AS 3959 if appropriate.

The following table outlines the Acceptable Solutions (AS) that are relevant to the proposal; identifies where a Performance Solution (PS) has been used instead of an AS; and states, where applicable, the reason why the AS is not relevant to the proposal.

Solution	AS	PS	N/A	Comment
A2.1 Asset Protection Zone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
A2.2 Hazard Separation Zone	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No BAL will exceed BAL-29. Habitable buildings constructed to AS 3959. HSZ not required.

### Acceptable Solution A2.1 Asset Protection Zone (APZ)

Every building is surrounded by an Asset Protection Zone (APZ), depicted on submitted plans, which meets the following requirements:

- a. Width: 20 metres measured from any external wall of the building or building envelope. Where the slope increases above 10 degrees, the APZ should be increased to ensure the potential radiant heat impact of a fire does not exceed 29kW/m<sup>2</sup>. Where a full 20 metre APZ is not possible, the APZ should be sufficient enough to ensure the potential radiant heat impact of a fire does not exceed 29kW/m<sup>2</sup>;
- b. Location: within the boundaries of the lot on which the building is situated;
- c. Fine fuel load: reduced to and maintained at 2 tonnes per hectare;
- d. Trees (crowns) are a minimum distance of ten metres apart. A small group of trees within close proximity to one another may be treated as one crown provided the combined crowns do not exceed the area of a large or mature crown size for that species;
- e. No tall shrubs or trees located within 2 metres of a building;
- f. No tree crowns overhanging the building;
- g. Fences and sheds within APZ are constructed using non-combustible materials (eg. iron, brick, limestone, metal post and wire); and
- h. Sheds within the APZ should not contain flammable materials.

### Development Response/Recommendations

The Asset Protection Zone (APZ) is a low fuel area immediately surrounding a building and is designed to minimise the likelihood of flame contact with buildings.

Features such as driveways, footpaths, roads, vegetable patches, lawn or landscaped garden (including deciduous trees and fire resistant plant species) may form part of asset protection zones. Areas of vegetation deemed Low Threat Vegetation and managed in a reduced fuel state inclusive of Public Open Space and nature strips may form part of a buildings defendable space. Isolated shrubs and trees may be retained within asset protection zones.

The APZ(s) proposed as part of this subdivision are illustrated in Figure 4A. Each lot with a BAL of BAL-12.5 or above (see Table 2B) is to be managed entirely as an APZ.

#### Implementation

- i. APZs to be implemented prior to the clearance of subdivision for affected lots in accordance with Figure 4A and provisions a-h above.
- ii. It is the responsibility of the developer to ensure the APZ standard is established.
- iii. It is the responsibility of the individual property owner to ensure the APZ standard continues to be achieved post completion of the construction.

#### **Acceptable Solution A2.2 Hazard Separation Zone (HSZ)**

Every building and its contiguous APZ is surrounded by a Hazard Separation Zone (HSZ), depicted on submitted plans, that meets the following requirements:

- a. Minimum width: 80 metres, measured from the outer edge of the APZ, for any vegetation classified in AS 3959 as forests, woodlands, closed shrub, open shrub, mallee/mulga and rainforest; OR 30 metres, measured from the outer edge of the APZ, for unmanaged grassland;
- b. Location: within the boundaries of the lot on which the building is situated or, where this is not possible or desirable, within the boundaries of the development precinct in which the building is proposed to be located; and
- c. Fine Fuel load (Dead Material <6mm diameter and <3mm for live material): reduced to and maintained at between five and eight tonnes per hectare for jarrah/marri dominated forest and woodlands, below 12-15 tonnes per hectare in mallee heath and below 15 tonnes per hectare in karri forest.

Note: A HSZ may not be required if the proposed construction meets the standard appropriate to the BAL for that location, and does not exceed BAL-29.

#### **Development Response/Recommendations**

No BAL on site exceeds BAL-29. Construction standards will be applied to relevant buildings in accordance with AS 3959 as part of the Building Permit. In this regard a HSZ is not required for this subdivision.



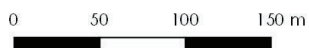
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Size: A4  
 Scale: 1:3,500

**BUSHFIRE MANAGEMENT PLAN MAP**  
 Lots 1793 - 1795 Matison Street,  
 Southern River

**Bushfire Management Strategies**



Ref: 5615\_007\_03\_BM6\_20161219  
 Projection: GDA94 MGA50  
 Author: MM - RUIC | Date: 2017-01-31  
 Data Source: Cadastre - Landgate; Imagery -  
 Nearmap; Roads, Site Boundary, Veg, BAL, Buffers,  
 BM6 - RUIC.

- Site Boundary
- Cadastre
- Main Road

Disclaimer: Although the data within this map is considered accurate at the time of creation, RUIC Fire does not guarantee, and accepts no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any data used within this map.

**Figure 4A: Bushfire Management Strategies Map**



### 4.3 Element 3 - Vehicular Access

**Intent:** To ensure that the vehicular access serving a subdivision/ development is safe in the event of a bush fire occurring.

**Performance Principle (P3):** The internal layout, design and construction of public and private vehicular access in the subdivision/development allows emergency and other vehicles to move through it easily and safely at all times.

The following table outlines the Acceptable Solutions (AS) that are relevant to the proposal; identifies where a Performance Solution (PS) has been used instead of an AS; and states, where applicable, the reason why the AS is not relevant to the proposal.

Solution	AS	PS	N/A	Comment
A3.1 Two access routes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
A3.2 Public road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
A3.3 Cul-de-sac (including a dead-end road)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not included in development
A3.4 Battle-axe	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not included in development
A3.5 Private driveway longer than 50 metres	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not included in development
A3.6 Emergency access way	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not included in development
A3.7 Fire service access routes	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Not included in development
A3.8 Firebreak width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Acceptable Solution 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.

#### Development Response/Recommendations

Figures 4A and 4B illustrate access available to the site on completion of the development. The unconstructed portion of Matison Street that lies adjacent to the north western site boundary will be constructed as part of the subdivision works. This will result the connection of the two currently separate portions of Matison Street which will enhance access to the site as well as for surrounding properties.

On completion of the development, the site will be accessed by four (4) access points from Matison Street and one (1) emergency access way (EAW) access point from Holmes Street. Matison Street provides access to the west as well as the north and joins Southern River Drive approximately 1.2km north east of the site. Holmes Street provides access to the north and south, joining with Southern River Drive approximately 650 metres north west of the site.

Therefore, the development achieves at least two different vehicular access routes, both connecting to the public road network to provide egress to two different destinations at all times, including during staging of the subdivision.



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**BUSHFIRE MANAGEMENT PLAN MAP**  
**1793 & 1795 Matison Street,**  
**Southern River**

-  Direction
-  Site Boundary
-  Roads

**Access**



Size: A4  
 Scale: 1:10,000



Ref: 5615\_006\_01\_Access\_20161116  
 Projection: GDA94 MGA50  
 Author: MW - RUIC | Date: 2017-01-19  
 Data Source: Cadastre - Landgate; Imagery -  
 Nearmap; Roads, Site Boundary, Veg, BAL, Buffers -  
 BMV6 - RUIC.

Disclaimer: Although the data within this map is considered accurate at the time of creation, RUIC Fire does not guarantee, and accepts no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any data used within this map.

**Figure 4B: Site Access**

**Acceptable Solution A3.2 Public road**

A public road is to meet the requirements in Table 4A, Column 1.

**Table 4A:** Vehicular access technical requirements

Technical Requirement	Public road	Cul-de-sac	Private driveway	Emergency access way	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	N/A	4.5	4.5	4.5
Maximum grade over <50m	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

**Development Response/Recommendations**

All public road constructed as part of the proposed subdivision are to comply with A3.2.

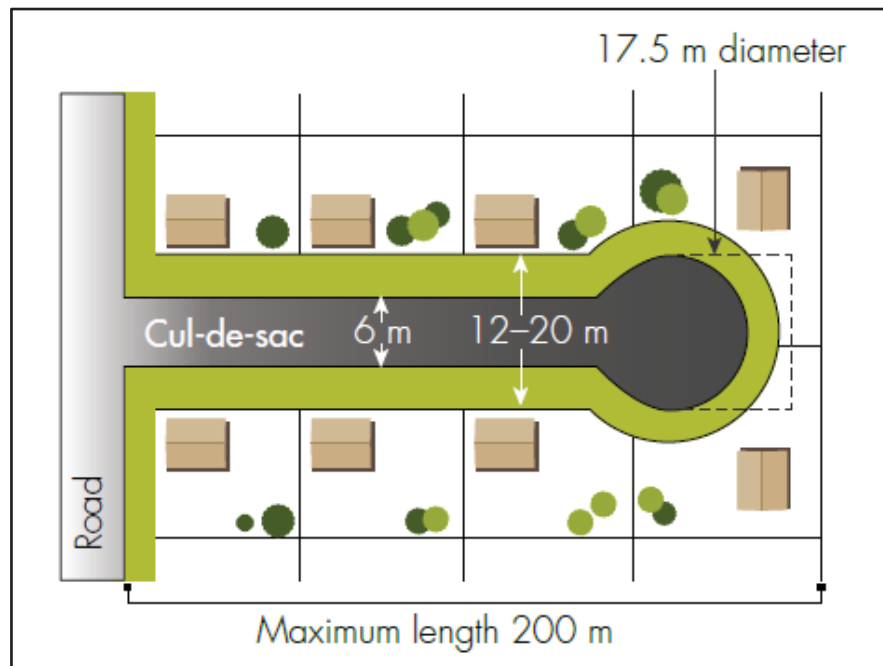
Implementation

- i. Public roads are to be constructed prior to the clearance of subdivision for affected lots serviced by the public road.
- ii. It is the responsibility of the developer to ensure the public road standard is established in accordance with Table 4A.
- iii. It is the responsibility of Local and State Government (as appropriate) to ensure the maintenance of public roads vested within their jurisdiction.

**Acceptable Solution 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), the following requirements are to be achieved:

- a. Requirements in Table 4A, Column 2;
- b. Maximum length: 200 metres (if public emergency access is provided between cul-de-sac heads maximum length can be increased to 600 metres provided no more than eight lots are serviced and the emergency access way is no more than 600 metres); and
- c. Turn-around area requirements, including a minimum 17.5 metre diameter head.



Source: *Guidelines for Planning in Bushfire Prone Areas, Appendix 4, Fig. 18*

### **Development Response/Recommendations**

The proposed development includes one (1) dead-end road, being Road 6 (see Figure 1C). This dead-end road has been included in the subdivision design as Main Roads have advised that an entry/ exit point onto Holmes Street would not be suitable.

In order to comply with A3.3, a minimum 17.5m turnaround area will be provided. Further to this an emergency access way (EAW) will link the turnaround area with Holmes Street to the west. The EAW will be relatively short (less than 10m long) and will provide the public and emergency vehicles with alternative access to a public road in the event of an emergency.

Road 6 continues north of the turnaround area for approximately 40m to service lots 133 to 135. This extension of Road 6 terminates in a dead-end. The turnaround area has been strategically sited further south of the end of Road 6 in order for the EAW extending from it to be located a suitable distance (approximately 65m) away from the future Matison Street/ Holmes Street roundabout. The northern extension of Road 6 is considered to have a primary purpose of servicing Lots 133 to 135 and will be sign posted as a “no through road”. The general public would therefore have no need to use this road in the event of an emergency. Additionally, firefighters would not need to gain vehicular access to this portion of Road 6 as fire appliances can typically operate up to 50m from a house (as described in E3.5 of the Guidelines). As the turnaround is located within 50m of Lots 133 to 135, fire appliances would be able to use this to turn around safely rather than gaining entry to the northern portion of Road 6.

The proposed dead-end road with accompanying turnaround area and EAW are therefore considered to meet the intent of P3 to ensure that the internal layout, design and construction of public vehicular access and egress in the development allows emergency and other vehicles to move through it easily and safely at all times.

### Implementation

- i. To be implemented prior to the clearance of subdivision for affected lots that the cul-de-sac services.
- ii. It is the responsibility of the developer to ensure the cul-de-sac meets the required standard in accordance with Table 4A.
- iii. It is the responsibility of the Local Government to ensure the cul-de-sac continues to meet the required standard.

#### **Acceptable Solution A3.4 Battle-axe**

##### ***Development Response/Recommendations***

The proposed development does not include any battle-axe lots. Therefore, A3.4 is not applicable to this development.

#### **Acceptable Solution 3.5 Private driveway longer than 50 metres**

##### ***Development Response/Recommendations***

The proposed development would not require private driveways to be greater than 50 metres in length. Therefore, A3.5 is not applicable to this development.

#### **Acceptable Solution 3.6 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 all of the following requirements:

- a. Requirements in Table 4, Column 4;
- b. No further than 600 metres from a public road;
- c. Provided as right of way or public access easement in gross to ensure accessibility to the public and fire services during an emergency; and
- d. Must be signposted.

##### ***Development Response/Recommendations***

An emergency access way (EAW) is proposed to connect the turnaround area provided on Road 6 with Holmes Street to the west. The location of the proposed EAW is illustrated in Figure 4A.

### Implementation

- i. To be implemented prior to the clearance of subdivision for affected lots that the emergency access way services.
- ii. It is the responsibility of the developer to ensure the emergency access way meets the required standard in accordance with Table 4A and provisions b-d above.
- iii. It is the responsibility of the Local Government to ensure the emergency access way continues to meet the required standard.

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**Acceptable Solution 3.7      Fire service access routes (perimeter roads)*****Development Response/Recommendations***

The proposed subdivision does not include any fire service access routes. Therefore, A3.7 is not applicable to this development.

**Acceptable Solution 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.

***Development Response/Recommendations***

All residential and POS lots within the proposed development are less than 0.5ha in area, therefore, firebreaks are not required for these lots.

The Bush Forever Reserve and CCW buffer are greater than 0.5ha in area. The proposed internal public road network will form a permanent minimum 4m wide firebreak around the western perimeter of the CCW buffer. Existing firebreaks are located around the eastern boundaries of the CCW buffer, however, these may be revegetated as part of conservation efforts within the buffer area. The Bush Forever reserve also contains existing firebreaks that may be revegetated. Management of this area will be the responsibility of the Department of Parks and Wildlife (DPaW). A firebreak around the Bush Forever reserve is not considered to be required as Holmes Street forms a permanent firebreak to the west and the managed POS area and adjacent public road within the site creates significant separation between this area and the proposed residential lots to the north.

#### 4.4 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.

**Performance Principle (P4):** The subdivision, development or land use is provided with a permanent and secure water supply that is sufficient for firefighting purposes.

The following table outlines the Acceptable Solutions (AS) that are relevant to the proposal; identifies where a Performance Solution (PS) has been used instead of an AS; and states, where applicable, the reason why the AS is not relevant to the proposal.

Solution	AS	PS	N/A	Comment
A4.1 Reticulated Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
A4.2 Non-reticulated Areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Reticulated area
A4.3 Individual lots within non-reticulated areas	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Reticulated area

##### **Acceptable Solution 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.

##### **Development Response/Recommendations**

The site will be serviced by reticulated scheme water and firefighting hydrants, satisfying Acceptable Solution A4.1. Indicative hydrant locations are shown in Figure 4A.

##### Implementation

- i. To be implemented prior to subdivision clearance.
- ii. It is the responsibility of the developer to ensure the firefighting hydrants meet the required standard.
- iii. It is the responsibility of the Water Corporation to ensure the firefighting hydrants continue to meet the required standard.

##### **Acceptable Solution A4.2 Non-reticulated areas**

##### **Development Response/Recommendations**

The site will be serviced by reticulated scheme water and firefighting hydrants. Therefore, A4.2 is not applicable to this development.

##### **Acceptable Solution A4.3 Individual lots within non-reticulated areas (Only for use if creating one additional lot and cannot be applied cumulatively)**

##### **Development Response/Recommendations**

The site will be serviced by reticulated scheme water and firefighting hydrants. Therefore, A4.3 is not applicable to this development.

## 5.0 Implementation and Enforcement

**Table 5A:** Schedule of Works

Strategy	Implementation		Maintenance	
	Responsible	Time Frame	Responsible	Time Frame
Amendments to BMP	Any amendments to this BMP shall be approved by the relevant Jurisdiction Having Authority			
Asset protection zone	Developer	Prior to clearance of subdivision	Individual land owner	Ongoing
Hazard separation zone	N/A	N/A	N/A	N/A
Construction to AS 3959	Individual land owner & Local Government	On construction of all habitable buildings	Individual land owner	Ongoing
Public roads	Developer	Prior to clearance of subdivision	State and/ or Local Government	Ongoing
Cul-de-sacs	Developer	Prior to clearance of subdivision	Local Government	Ongoing
Battle-axes	N/A	N/A	N/A	N/A
Private driveways longer than 50m	N/A	N/A	N/A	N/A
Emergency access ways	Developer	Prior to clearance of subdivision	Local Government	Ongoing
Fire service access routes	N/A	N/A	N/A	N/A
Firebreaks	N/A	N/A	N/A	N/A
Firefighting water (hydrants)	Developer	Prior to clearance of subdivision	Water Corporation	Ongoing
Firefighting water (private tanks)	N/A	N/A	N/A	N/A
Public Open Space, REW buffer & CCW buffer	Developer	Prior to clearance of subdivision	Developer for two summers and the City of Gosnells thereafter	Ongoing
Bush Forever	Developer	Prior to clearance of subdivision	DPAW	Ongoing
Firefighting services and response	DFES and Local Government	Ongoing	DFES and Local Government	Ongoing
Fuel load reduction and firebreak notice works	Local Government	In accordance with firebreak notice	Local Government	In accordance with firebreak notice



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Strategy	Implementation		Maintenance	
	Responsible	Time Frame	Responsible	Time Frame
Inspection and issue of works orders or fines	Local Government	Ongoing	Local Government	Ongoing

## 6.0 References

- LD Total. (2016). Matison Street – Southern River Landscape Master Plan. LD Total, Perth, WA.
- OBRM. (2016). Map of Bush Fire Prone Areas 2016. Office of Bushfire Risk Management, Perth, WA.
- Standards Australia. (2009). AS 3959-2009 Construction of buildings in bushfire prone areas. SAI Global.
- WALGA. (2016). Environmental Planning Tool. Western Australian Local Governments Association, Perth, WA.
- WAPC. (2015a). State Planning Policy 3.7 Planning in Bushfire Prone Areas. Western Australian Planning Commission & Department of Planning.
- WAPC. (2015b). Guidelines for Planning in Bushfire Prone Areas. Western Australian Planning Commission, Department of Planning & Department of Fire and Emergency Services.
- WAPC. (2015c). Guidelines for Planning in Bushfire Prone Areas Appendices. Western Australian Planning Commission, Department of Planning & Department of Fire and Emergency Services.
- WAPC. (2015d). Planning Bulletin 111/2015 Planning in Bushfire Prone Areas. Western Australian Planning Commission.
- WAPC. (2015e). Planning Bulletin 111/2016 Planning in Bushfire Prone Areas. Western Australian Planning Commission.

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## 7.0 Appendices

## 7.1 Appendix A

# LANDSCAPE MASTER PLAN

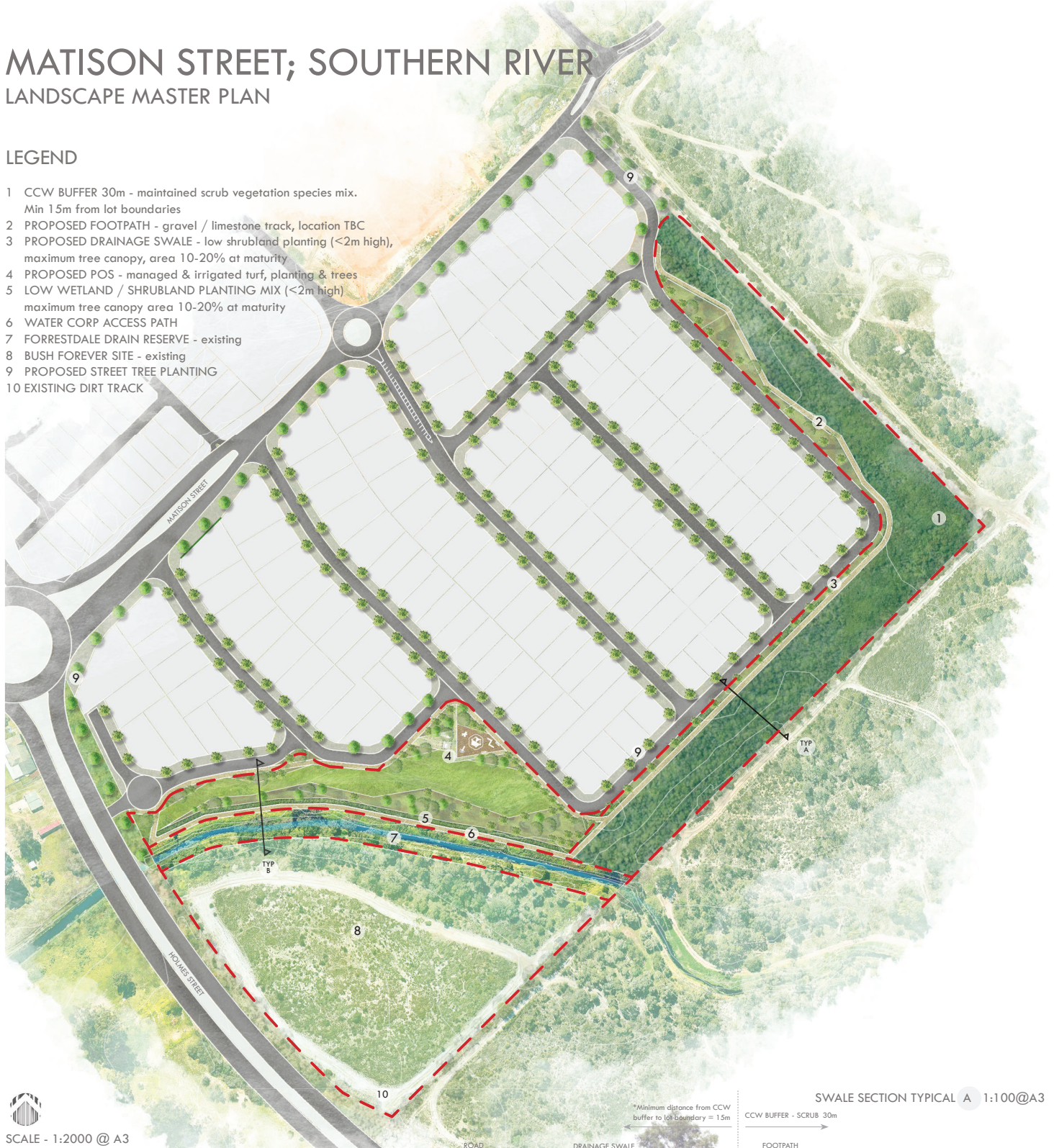
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# MATISON STREET; SOUTHERN RIVER

## LANDSCAPE MASTER PLAN

### LEGEND

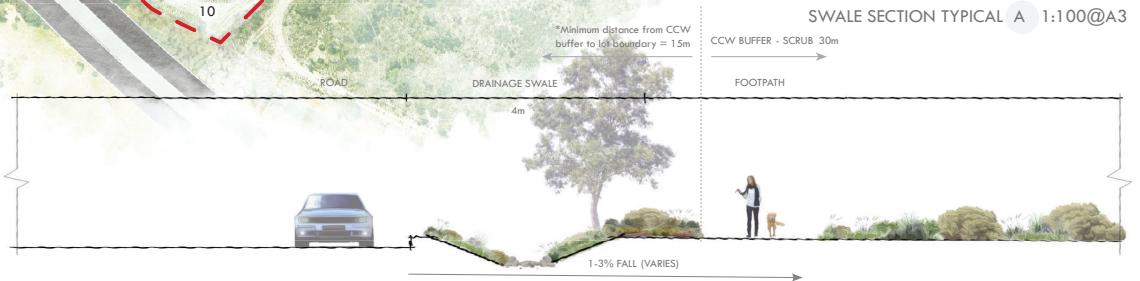
- 1 CCW BUFFER 30m - maintained scrub vegetation species mix.  
Min 15m from lot boundaries
- 2 PROPOSED FOOTPATH - gravel / limestone track, location TBC
- 3 PROPOSED DRAINAGE SWALE - low shrubland planting (<2m high), maximum tree canopy, area 10-20% at maturity
- 4 PROPOSED POS - managed & irrigated turf, planting & trees
- 5 LOW WETLAND / SHRUBLAND PLANTING MIX (<2m high) maximum tree canopy area 10-20% at maturity
- 6 WATER CORP ACCESS PATH
- 7 FORRESTDALE DRAIN RESERVE - existing
- 8 BUSH FOREVER SITE - existing
- 9 PROPOSED STREET TREE PLANTING
- 10 EXISTING DIRT TRACK



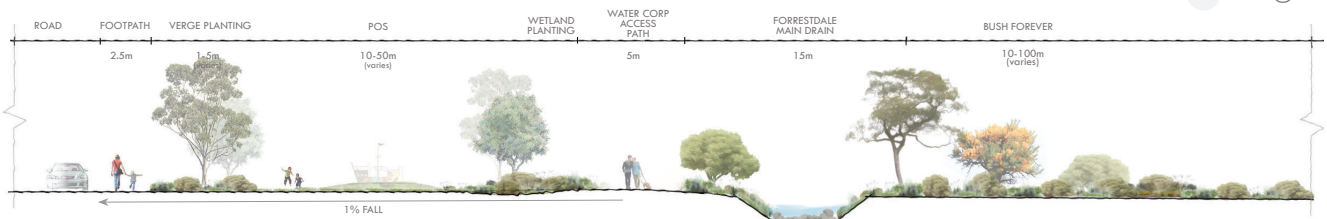
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0m 20m 40m 100m

SWALE SECTION TYPICAL A 1:100@A3



REW BUFFER SECTION TYPICAL B 1:250@A3

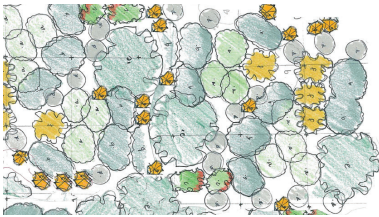


# MATISON STREET; SOUTHERN RIVER

## LANDSCAPE PLANTING PALETTE

### CCW Buffer Planting:

- All existing healthy vegetation to be retained
- Areas to be infill planted with species endemic to the site according to survey data provided by 360 Environmental.
- All species fall into the West Australian Department of Planning's Visual Guide for Bushfire Risk Assessment - Class D - Scrub (Less than 2m tall)
- Planting to be done during winter months to aid establishment
- Planting in clusters to mimic surrounding bush



Sketch 01: Infill planting



### PLANT IMAGES

SPECIES	HABIT	MATURE SIZE (m)
<i>Lyginia barbata</i>	Grass / Sedge	1
<i>Lyginia imberbis</i>	Grass / Sedge	0.7
<i>Trachymene pilosa</i>	Shrub	0.4
<i>Chamaescilla corymbosa</i>	Shrub	0.4
<i>Laxmannia squarrosa</i>	Shrub	0.1
<i>Lomandra hermaphrodita</i>	Grass / Sedge	0.45
<i>Lomandra micrantha</i>	Grass / Sedge	0.7
<i>Lomandra preissii</i>	Grass / Sedge	0.6
<i>Lomandra sericea</i>	Grass / Sedge	0.4
<i>Burchardia congesta</i>	Shrub	0.8
<i>Crassula colorata</i>	Groundcover	0.2
<i>Lepidosperma longitudinale</i>	Grass / Sedge	2
<i>Schoenus curvifolius</i>	Grass / Sedge	0.4
<i>Schoenus sublateralis</i>	Grass / Sedge	0.4
<i>Dasyogon bromeliifolius</i>	Grass / Herb	1.5
<i>Drosera erythrorhiza</i>	Groundcover	0.15
<i>Drosera pallida/menziesii</i>	Groundcover	0.18
<i>Aotus intermedia</i>	Shrub	2
<i>Bossiaea eriocarpa</i>	Shrub	1
<i>Gomplobium tomentosum</i>	Shrub	1
<i>Hovea trisperma</i>	Shrub	0.7
<i>Jacksonia gracillima</i>	Shrub	1
<i>Kennedia coccinea</i>	Shrub / Climber	2
<i>Dampiera linearis</i>	Shrub	0.6
<i>Anigozanthos manglesii</i>	Herb	1.1
<i>Blancoa canescens</i>	Herb	0.4
<i>Conostylis juncea</i>	Grass / Herb	0.4
<i>Phlebocarya ciliata</i>	Grass	0.6
<i>Tricoryne elatior</i>	Grass	0.8
<i>Patersonia occidentalis</i>	Herb	1.5
<i>Calytrix flavescens</i>	Shrub	0.8
<i>Eremaea pauciflora</i>	Shrub	2
<i>Hypocalymma angustifolium</i>	Shrub	1.2
<i>Melaleuca thymoides</i>	Shrub	2
<i>Scholtzia involucreata</i>	Shrub	1.5
<i>Caladenia flava</i>	Herb	0.3
<i>Caladenia latifolia</i>	Herb	0.45
<i>Pterostylis sanguinea</i>	Herb	0.3
<i>Adenanthos obovatus</i>	Shrub	2
<i>Alexgeorgea nitens</i>	Herb	0.3
<i>Cytogonidium leptocarpoides</i>	Herb	0.5
<i>Desmocladius fasciculatus</i>	Sedge	0.3
<i>Desmocladius flexuosus</i>	Sedge	1.5
<i>Hypolaena exsulca</i>	Herb	0.75
<i>Meeboldina decipiens</i>	Herb	0.6
<i>Philotheca spicata</i>	Shrub	1.2
<i>Stylidium repens</i>	Groundcover	0.1
<i>Pimelea rosea</i>	Shrub	1