BAL ASSESSMENTS | BUSHFIRE MANAGEMENT PLANS | CONSULTANCY

RUIC FIRE

BUSHFIRE MANAGEMENT PLAN

State Planning Policy 3.7

Subdivision Development

Lot 26 River Ave, Maddington

Version: 1.3 Reference: 5095 August 2016

DISCLAIMER AND LIMITATION

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The mitigation strategies contained in this Bushfire Management Plan are considered to be prudent minimum standards only, based on the writer's experience as well as standards prescribed by relevant authorities. It is expressly stated that RUIC Fire and the writer do not guarantee that if such standards are complied with or if a property owner exercises prudence, that a building or property will not be damaged or that lives will not be lost in a bush fire.

Fire is an extremely unpredictable force of nature. Changing climatic factors (whether predictable or otherwise) either before or at the time of a fire can also significantly affect the nature of a fire and in a bushfire prone area it is not possible to completely guard against bushfire.

Further, the growth, planting or removal of vegetation; poor maintenance of any fire prevention measures; addition of structures not included in this report; or other activity can and will change the bushfire threat to all properties detailed in the report. Further, the achievement of the level of implementation of fire precautions will depend on the actions of the landowner or occupiers of the land, over which RUIC Fire has no control. If the proponent becomes concerned about changing factors then a new Fire Risk Management Plan should be requested.

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This report is valid for a period of three years only from the date of its issue. All BAL ratings identified in this report are indicative and are required to be verified at the time of construction of individual buildings to ensure appropriate setbacks identified in the proposed development have been achieved.

RUIC Fire is a trading name of

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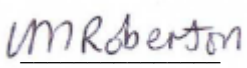
ABN: 48 151 451 713

Contents Page

1.0 Document Details

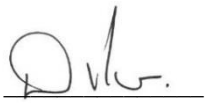
1.1 Background Information

Project Number:	5095
Project Name:	Lot 26 River Ave
Author:	Louisa Robertson, BPAD36748, Level 1
Approved by:	Darrel Krammer, Grad Cert Bushfire Protection, BPAD33412, Level 1
Version:	1.3 FINAL RELEASE
Date of issue:	23rd August 2016



Author:

Date: 22/06/2016



Approved by:

Date: 23/08/2016

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.

1.2 Development Description

The development involves the subdivision (the development) of Lot 26 River Ave, Maddington (the site), into 15 individual residential lots. The development is located within the municipality of the City of Gosnells. The site and overall development plan is illustrated in Figure 1A on page 7 of this report.

The site is identified as Bushfire Prone through the State Bushfire Prone Maps triggering the application of AS 3959 in accordance with the Building Code of Australia.

1.3 Vulnerable / High Risk Land Use

The development does not contain any vulnerable or high risk land uses as defined in SPP 3.7.

1.4 Unavoidable Development

The development is not considered unavoidable development as defined in SPP 3.7.

1.5 Minor Development

The development is not considered minor development as defined in SPP 3.7.

1.6 Environmental Considerations

The proponent has not identified any relevant environmental considerations (wetlands, foreshores, Bush Forever sites, remnant vegetation, threatened species, ecological communities, nature reserves or coastal reserves) within the site or being affected by the development.

Revegetation works extending from the river foreshore to the development Public Open Space (POS) have been considered within this Bushfire Management Plan, and BAL Contour modelling has been determined on the mature state of the revegetation areas.

A detailed Landscaping Management Plan (Calibre Consulting, 2016) has been developed for the site and should be read in conjunction with this report.

1.7 Risk Assessment

Risk assessment was completed in accordance with ISO31000:2009 (Standards Australia, 2009) and COAG's National Inquiry on Bushfire Mitigation and Management (Ellis, Kanowski & Whelan, 2004) (Table 1A). The risk assessment demonstrates that after application of the risk management strategies incorporated into the design of the development, the residual bushfire related risk post subdivision is significantly reduced compared to the current state.

Table 1A: Risk assessment of development

Risk Number	Risk Statement	Impact Category	Pre-development Risk Level	Prevention Controls (Planning Specific)	Post-development Residual Risk Level
1.	There is the potential that a bushfire will impact the proposed development which in turn will cause death or injury to persons.	People	**Moderate**	• Enhanced construction in accordance with AS 3959 to provide shelter during passage of the fire front. • Multiple egress routes for residents to evacuate to areas greater than 100m from the vegetation interface. • Reticulated firefighting water supply • Potential bushfire impact restricted to the creek boundaries.	**Low**

2.	There is the potential that a bushfire will impact the proposed development, which in turn will cause destruction of or damage to the proposed habitable buildings.	Infrastructure	**Moderate**	• Enhanced construction in accordance with AS 3959. • Maximum BAL-29 rating to any lot boundary. • Reticulated firefighting water supply • Potential bushfire impact restricted to the creek boundaries.	**Low**
3.	There is the potential that a bushfire will impact the proposed development, which in turn will cause destruction of or damage to environmental assets.	Environment	**Low**	• Development does not include the removal of any environmentally significant vegetation.	**Low**

1.8 Bushfire Design Criteria

All bushfire related design criteria are addressed in Section 3 of this report. The Bushfire Management Plan Strategies Map is illustrated in Figure 1C on page 9 of this report.

Acceptable Solutions applied: A1.1, A2.1, A3.1, A3.2, A3.3, A4.1

Acceptable Solutions not applicable: A2.2, A3.4, A3.5, A3.6, A3.7, A3.8, A4.2, A4.3

Non-compliances: Nil

Performance Based Solution Summary None

1.9 Specific Bushfire Planning requirements:

Required bushfire planning design requirements are summarised as:

(i) Future habitable BCA Class 1, 2 3 or 10a buildings to be constructed in accordance with AS 3959;

(ii) Temporary turnaround point to be installed on Pinot Street, until future development occurs in neighbouring lots;

(iii) Reticulated fire hydrant installation within development area, and

(iv) A s70A notice on each title is required stating that the lot is subject to the requirements of a Bushfire Management Plan.

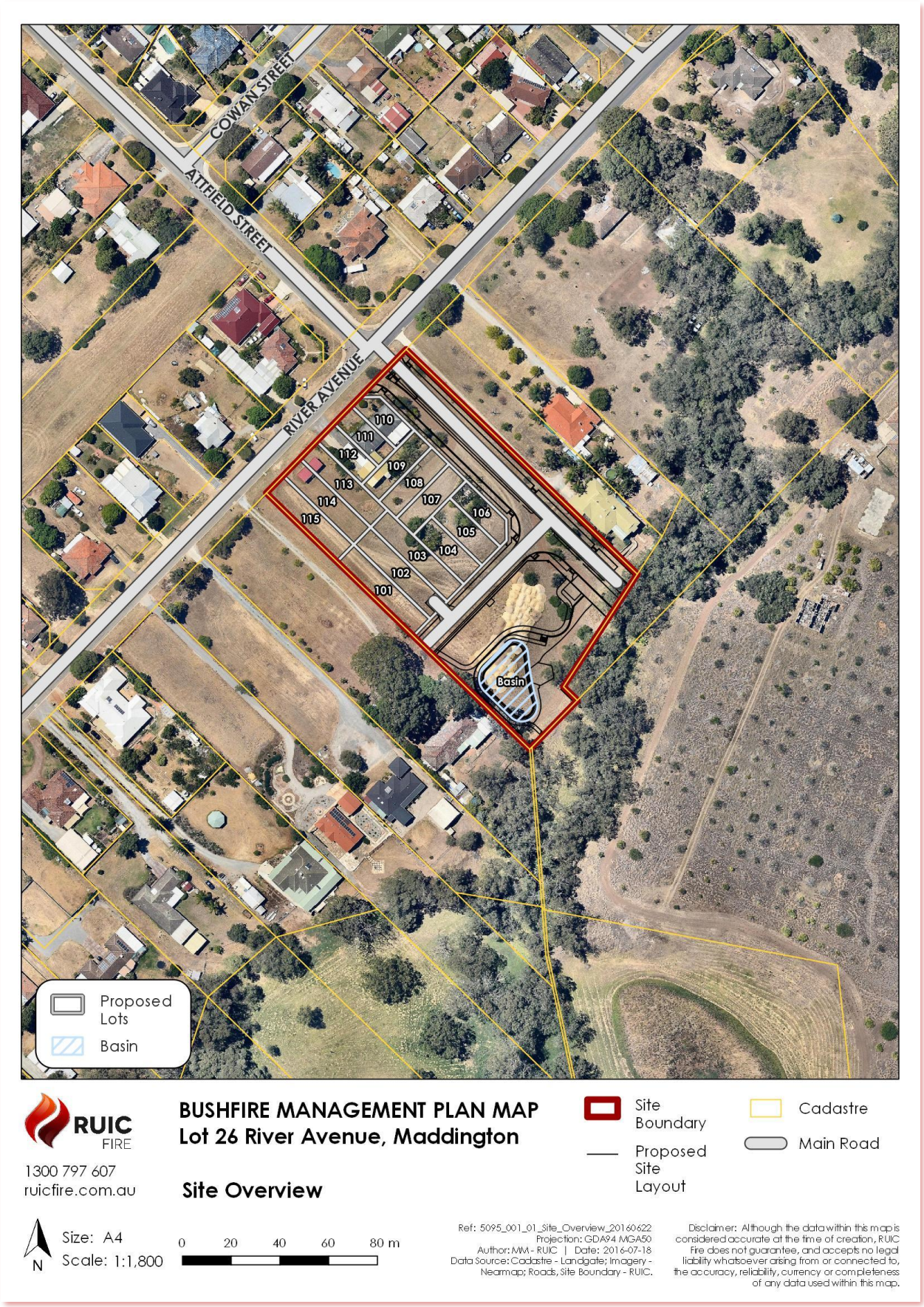


Figure 1A: Site Map

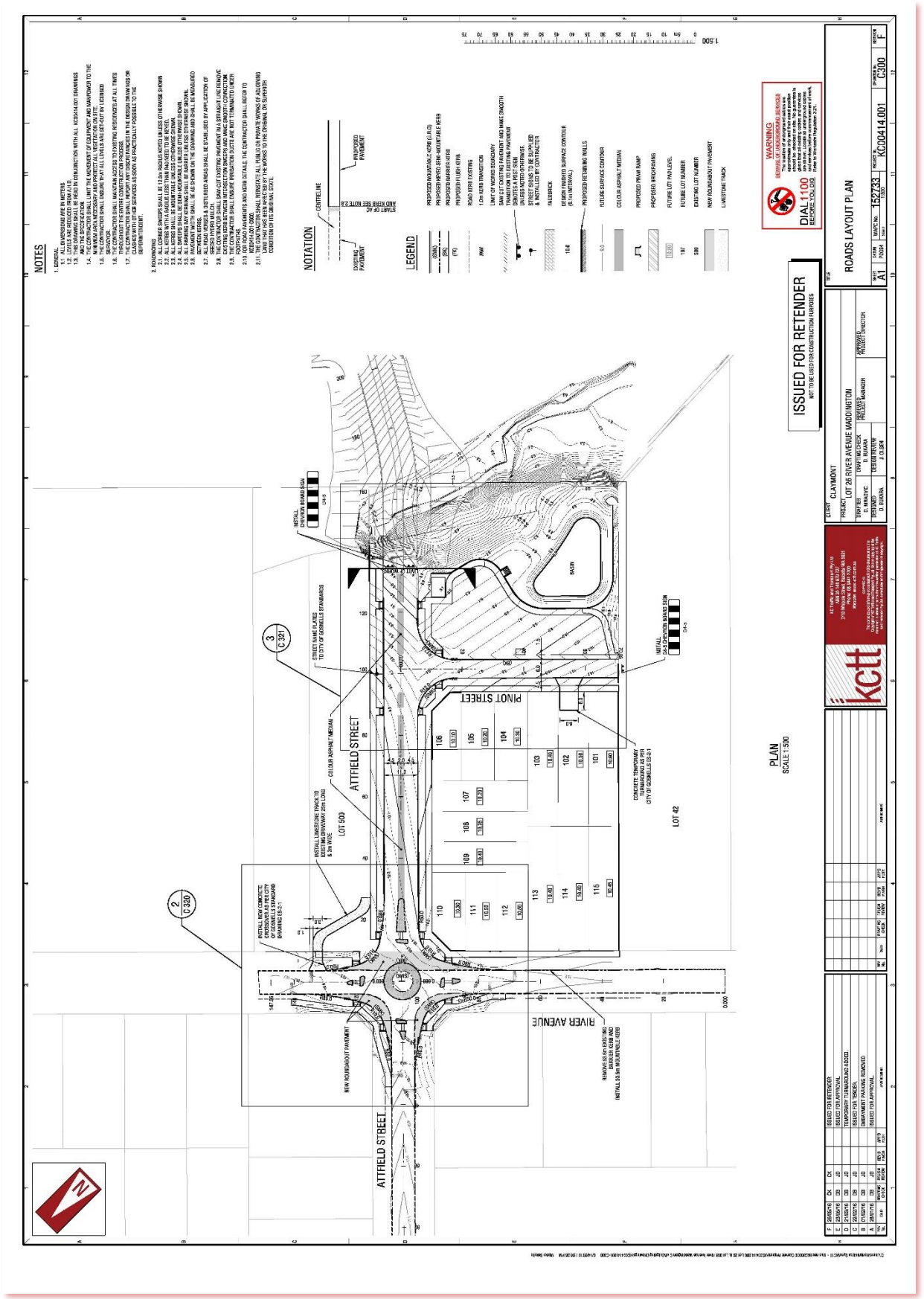


Figure 1B: Development Plan (Client, 2016)

Figure 1C: Bushfire Management Strategies Map

2.0 Spatial consideration of bushfire threat

2.1 Bushfire Fuels and Potential Bushfire Impact

The location and extent of AS 3959 vegetation structures, including low fuel areas, within 100m of the site are mapped in Figure 2A and illustrated in the associated plates. 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.

In accordance with SPP 3.7, a BAL Contour Map is utilised as opposed to a Bushfire Hazard Level Map. 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 lots in the proposed development in the event of bushfire within vegetation classifiable in accordance with AS 3959.

The BAL Contour Map (Figure 2A, Table 2A) identifies that through the implementation of the required Asset Protection Zone and separation afforded by vegetation structures satisfying AS 3959 c2.2.3.2, the maximum potential radiant heat impact for each lot boundary in the proposed development is BAL-19. This satisfies GPBPA Element 1: Location, A1.1.

Table 2A: Maximum BAL rating that applies to each lot boundary

Lot	Vegetation Classification	Effective Slope	Separation (m)	BAL Rating	Setback for next lower BAL	BAL after setback
Lot 101	Class C Shrub	Downslope >0 to 5°	10 to less than 15m	BAL-29	2.5m 9.5m From SE bdy	BAL-19 BAL-12.5
Lot 102	Class D Scrub	Downslope >0 to 5°	22 to less than 31m	BAL-19	7.7m From SE bdy	BAL-12.5
Lot 103	Class D Scrub	Downslope >0 to 5°	22 to less than 31m	BAL-19	6.3m From SW bdy	BAL-12.5
Lot 104	Class D Scrub	Downslope >0 to 5°	22 to less than 31m	BAL-19	6.3m From SE bdy	BAL-12.5
Lot 105	Class D Scrub	Downslope >0 to 5°	22 to less than 31m	BAL-19	6.3m From SE bdy	BAL-12.5
Lot 106	Class D Scrub	Downslope >0 to 5°	22 to less than 31m	BAL-19	6.6m From SE bdy	BAL-12.5
Lot 107	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5	-	-
Lot 108	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5	-	-
Lot 109	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5	-	-
Lot 110	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5		
Lot 111	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5		

Lot 112	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5	-	-
Lot 113	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5	-	-
Lot 114	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5	-	-
Lot 115	Class D Scrub	Downslope >0 to 5°	31 to less than 100m	BAL-12.5	-	-

2.2 Bushfire Hazard Issues

The following bushfire hazard issues are identified from the BAL Contour Map, Figure 2A:

- All lots are located in an area subject to radiant heat impacts and ember attack in the event of a bushfire impacting the site.
- Site access is temporarily limited to one access point.

Section 4 of this report details mitigation strategies for the above points.

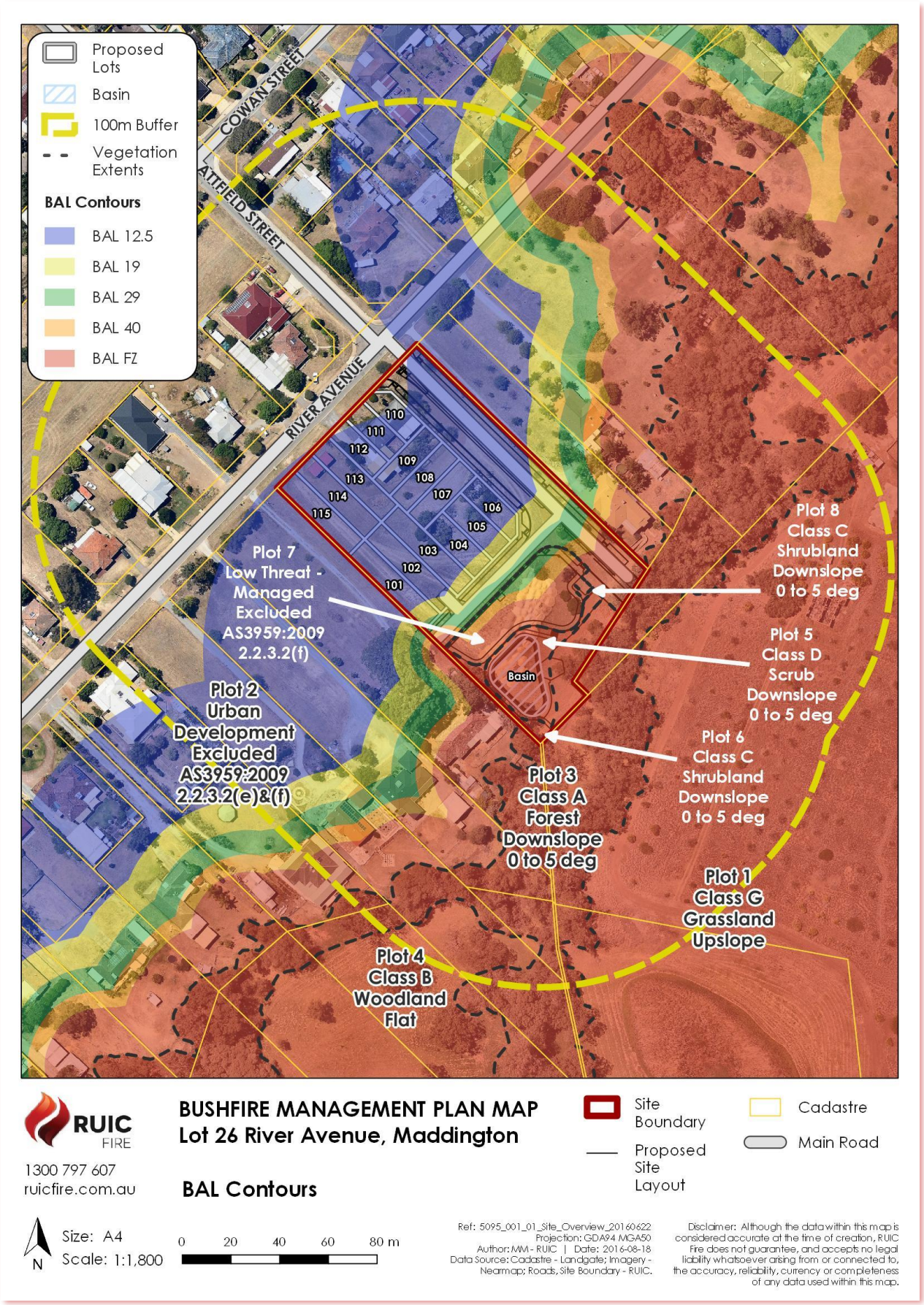


Figure 2A: BAL Contour Map

Plate i: Plot 1 Open Woodland (Assessed as Class G Grassland)

Plate ii: Plot 1 Open Woodland (Assessed as Class G Grassland)

Plate iii: Plot 3 Class A Forest

Plate iv: Plot 3 Class A Forest

Plate v: Plot 4 Class B Woodland

Plate vi: Plot 4 Class B Woodland

3.0 Proposal compliance and justification

3.1 Compliance with the objectives of SPP 3.7

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

Objective 1 is satisfied through the compliance of the proposed development with all required Policy Principles as detailed in Table 3A and all GPBPA Performance Principles as detailed in section 4 of this report.

Objective 2: Reduce vulnerability of bushfire through the identification and assessment of bushfire hazards in decision-making at all of stages of the planning and development process.

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 planning proposals and development applications take into account bushfire protection requirements and include specified bushfire protection measures where land has or will have a moderate or extreme bushfire hazard level, and or where a rating higher than Bushfire Attack Level (BAL)- LOW applies.

Objective 3 is satisfied through the compliance of the proposed development with all required Policy Principles as detailed in Table 3A and all GPBPA Performance Principles as detailed in section 4 of this report.

Objective 4: Achieve a responsible approach between bushfire management measures and landscape amenity and biodiversity conservation values, with consideration of the potential impacts of climate change.

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.

3.2 SPP 3.7 Policy Measures applicable to the proposal

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

Policy Measure	Description	Compliance	
6.1	Higher order strategic planning	☑	Site has been identified as being subject to potential bushfire impact. This Bushfire Management Plan demonstrates compliance of the development with all bushfire related planning requirements
6.2	Application of Policy Measures	☑	Site has a BAL rating above BAL-LOW. Policy Measures 6.4 and 6.5 apply.
6.3	Supporting information for Strategic Planning Proposals	☑	N/A – Development is at subdivision level
6.4	Supporting information for Subdivision Applications	☑	This BMP supports the proposed development. BAL Contour Map is provided in Section 2.1; Section 2.2 identifies bushfire hazard issues. Compliance against GPBPA detailed in section 3.3 of this report.
6.5	Supporting information for Development Applications	☑	This BMP supports the proposed development. BAL Contour Map is provided in Section 2.1; Section 2.2 identifies bushfire hazard issues. Compliance against GPBPA detailed in section 3.3 of this report..
6.6	Vulnerable / High Risk Land Use	☑	N/A
6.7	Minor / Unavoidable Development in BAL-40 and BAL-FZ areas	☑	N/A
6.8	Advice of State/relevant Authorities for Emergency Services to be sought where Policy Measures are not achieved or where development includes Unavoidable, Vulnerable or High Risk Land Use	☑	N/A
6.9	Advice of State/relevant Authorities for Environmental Protection sought	☑	The relevant agency responsible for biodiversity conservation management has been consulted with in the development and endorsement of this report.
6.10	Bushfire conditions may be imposed	☑	An s70A notification on the title is to advise all future owners that this Bushfire Management Plan is applicable to the site and may be enforced through the Local Government Firebreak Notice or other statutory avenue. All additional bushfire

			conditions imposed by the relevant authorities have been addressed in section 1.4 of this report.
6.11	Precautionary Principle	☑	Precautionary principles have been adopted throughout this report. The relevant decision maker is encouraged to adopt an informed precautionary approach in accordance with SPP 3.7

3.3 Guidelines for Planning in Bushfire Prone Areas Compliance

Table 3B: Compliance with Guidelines for Planning in Bushfire Prone Areas (GPBPA)

Element	BMP section	Acceptable Solution (A) or Performance Based (PB) Solution	Compliance	Notes
1. Location	4.1	A1.1 Development location	☑	Max BAL-19 to lot boundary's
2. Siting and Design of Development	4.2	A2.1 Asset Protection Zone (APZ)	☑	
		A2.2 Hazard Separation Zone (HSZ)	N/A	
3. Vehicular Access	4.3	A3.1 Two access routes	☑	
		A3.2 Public road	☑	
		A3.3 Cul-de-sac	☑	Temporary turnaround area to be provided on Pinot St
		A3.4 Battle-axe	N/A	
		A3.5 Private driveway longer than 50m	N/A	
		A3.6 Emergency access way	N/A	
		A3.7 Fire service access routes	N/A	
		A3.8 Firebreak width	N/A	
4. Water	4.4	A4.1 Reticulated areas	☑	
		A4.2 Non-reticulated areas	N/A	
		A4.3 Individual lots within non-reticulated areas	N/A	

3.4 Areas of non-compliance with other relevant documents

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 (GPBPA) Appendix 4 (2015).

i. The notation (P3) refers to Performance Principle 3 of GPBPA Appendix 4. Where a Performance Based Solution is offered detailed justification is provided in Appendix 1 of this report.

ii. The notation (A3.1) refers to Acceptable Solution 3.1 of GPBPA Appendix 4.

iii. The notation (E3.1) refers to Explanatory Note 3.1 of GPBPA 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 the subdivision, development or land use is located in areas with the least possible risk of bushfire, to facilitate the protection of people, property and infrastructure.

Performance Principle (P1): The subdivision, development or land use 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.

Acceptable Solution A1.1 Development location

The strategic planning proposal, subdivision and development application is located in an area that on completion will be subject to a BAL–19 or below for all habitable buildings.

Development Response/Recommendations

As outlined in Figure 2B and Table 2A, the development would ensure that all future habitable development areas are, upon completion of development, located in an area subject to BAL-19 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.

Acceptable Solution A2.1 Asset protection zone (APZ)

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.

a) Standard:

i. Width and location: due to the small lot sizes, the APZ is to be established and maintained across the full lot, to the lot boundary's;

ii. Fine fuel load: reduced to and maintained at 2 tonnes per hectare and maintained in accordance with AS 3959-2009 s2.2.3.2 (f) stated here as:

"Including grassland managed in a minimal fuel condition, maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks. NOTE: Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm.";

iii. 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;

iv. No tall shrubs or trees located within 2 metres of a building;

v. No tree crowns overhanging the building;

vi. Fences and sheds within APZ are constructed using non-combustible materials (eg. iron, brick, limestone, metal post and wire); and

vii. Sheds within the APZ should not contain flammable materials.

Development Response/Recommendations

The entire subject site is to be managed as an APZ, which will ensure that Building Envelopes are located to ensure the potential radiant heat impact of a fire does not exceed 29kW/m². Therefore, the development can achieve the requirements of A2.1.

Implementation

i. APZs to be implemented prior to the clearance of subdivision for affected lots in accordance with provisions b-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 (private land)/local government (in road reserves/reserves) to ensure the APZ standard continues to be achieved post completion of the subdivision.

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 Building Envelope on site will have a BAL that exceeds BAL-29. Construction standards will be applied to relevant buildings in accordance with AS3959 as part of the future Building Permits. In this regard a HSZ is not required for this development. The development can achieve the requirement of A2.2.

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.

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

As detailed in Figure 1C, 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.

The development directly connects to River Ave, which provides access to Albany Highway to the north east and north west via Phillip and Attfield Streets. Attfield St provides access away from the bushfire threat and as such meets the intent of Performance Principle P3.

Acceptable Solution A3.2 Public roads

All new public roads meet the minimum requirements of Acceptable Solution A3.2 as detailed in Table 4A, Column 1.

a) Specific Considerations

i. Construction is required prior to the habitation of the any habitable buildings serviced by the public road.

ii. It is the responsibility of the developer to ensure the public road standard is established.

iii. It is the responsibility of Local Government 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:

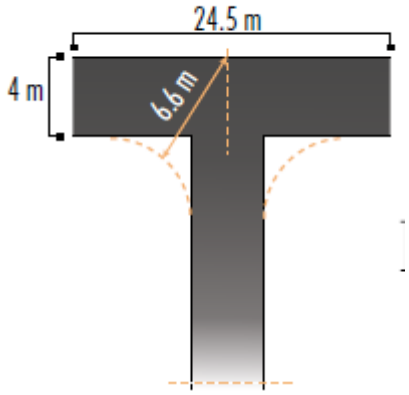
a. Requirements in Table 4A, Column 2;

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.

Development Response/Recommendations

The development includes one temporary turnaround, located on the south west corner of the development on Pinot St. A turn around solution has been selected from the options referring to Private Driveways (A3.5) as a temporary solution, that will accommodate a 3.4 fire appliance. The greater area is proposed to be developed and this temporary turnaround will be removed when future road construction connections are constructed. The temporary turnaround is required to meet the standard of Acceptable Solution A3.3. Turnaround from Attfield St is able to be achieved using the same 'T' principle and Pinot St.



Implementation

i. Temporary turn-around to be implemented prior to the clearance of subdivision.

ii. It is the responsibility of the developer to ensure the temporary-turnaround standard is established.

iii. It is the responsibility of the individual property owner (private land)/local government (in road reserves/reserves) to ensure the temporary turn-around continues to be achieved post completion of the subdivision.

Acceptable Solution A3.4 Battle-axe

Battle-axe access leg should be avoided in bushfire prone areas. Where no alternative exists, (this will need to be demonstrated by the proponent) all of the following requirements are to be achieved:

a. Requirements in Table 4A, Column 3;

b. Maximum length: 600 metres; and

c. Minimum width: six metres.

Development Response/Recommendations

No additional battle-axe lots are to be provided as part of the development. The existing battle-axe handle is approximately 65m in length and 8m in width. The existing driveway is approximately 1 in 10 and has a minimum trafficable width of 3m and horizontal clearance of more than 6m. A3.4 is not strictly applicable to this development as it would only be retrospective for the existing dwelling. Nevertheless, the battle-axe complies with the minimum requirements.

Acceptable Solution 3.5 Private Driveway longer than 50 metres

A private driveway is to meet all of the following requirements:

a. Requirements in Table 4A, Column 3;

b. Required where a house site is more than 50 metres from a public road;

c. Passing bays: every 200 metres with a minimum length of 20 metres and a minimum width of two metres (i.e. the combined width of the passing bay and constructed private driveway to be a minimum six metres);

d. Turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres) and within 50 metres of a house; and

e. Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes.

f. All-weather surface (i.e. compacted gravel, limestone or sealed).

Development Response/Recommendations

N/A - private driveways will be less than 50m.

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

No Emergency Access Ways are proposed as part of the development. Therefore, A3.6 is not applicable to the development.

Acceptable Solution 3.7 Fire Service Access Routes (Perimeter Roads)

Fire service access routes are to be established to provide access within and around the edge of the subdivision and related development to provide direct access to bushfire prone areas for

fire fighters and link between public road networks for firefighting purposes. Fire service access routes are to meet the following requirements:

a. Requirements Table 4, Column 5;

b. Provided as right of ways or public access easements in gross to ensure accessibility to the public and fire services during an emergency;

c. Surface: all-weather (i.e. compacted gravel, limestone or sealed)

d. Dead end roads are not permitted;

e. Turn-around areas designed to accommodate type 3.4 appliances and to enable them to turn around safely every 500 metres (i.e. kerb to kerb 17.5 metres);

f. No further than 600 metres from a public road;

g. Allow for two-way traffic and;

h. Must be signposted.

Development Response/Recommendations

No Fire Service Access Routes are proposed as part of the development. Therefore, A3.7 is not applicable to the 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

N/A - No lots are greater than 0.5 ha

Table 4A: Vehicular access technical requirements

Technical Requirement	Public road	Cul-de-sac	Private driveway (N/A)	Emergency access way (N/A)	Fire service access routes (N/A)
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

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.

Acceptable Solution A4.1 Reticulated areas

The site is to serviced by reticulated scheme water and firefighting hydrants in accordance with the Water Corporation's Design Standard No.63, satisfying Acceptable Solution A4.1. Two existing firefighting hydrants are located along River Ave, within 50m of the development boundary.

Acceptable Solution A4.2 Non-reticulated areas

Water tanks for fire fighting purposes with a hydrant or standpipe are provided and meet the following requirements:

a. Volume: minimum 50,000 litres per tank;

b. Ratio of tanks to lots: minimum one tank per 25 lots (or part thereof);

c. Tank location: no more than two kilometres to the further most house site within the residential development to allow a 2.4 fire appliance to achieve a 20 minute turnaround time at legal road speeds;

d. Hardstand and turn-around areas suitable for a type 3.4 fire appliance (i.e. kerb to kerb 17.5 metres) are provided within three metres of each water tank; and

e. Water tanks and associated facilities are vested in the relevant local government.

Development Response/Recommendations

The development will be connected to reticulated water supply. Therefore, A4.2 is not applicable to this development.

Acceptable Solution A4.3 Individual lots within non-reticulated areas

Single lots above 500 square metres need a dedicated static water supply on the lot that has the effective capacity of 10,000 litres.

Note - Only for use if creating one additional lot and cannot be applied cumulatively.

Development Response/Recommendations

The development will be connected to reticulated water supply. Therefore, A4.3 is not applicable to this development.

5.0 Implementation and Enforcement

Table 5A summarises the responsible party for each mitigation strategy and the time frame in which it must be completed.

Table 5A: Developer 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 subdivision clearance	Individual Land Owners	Ongoing
Hazard Separation Zone	NA	NA	NA	NA
Construction to AS 3959	Individual Land Owners & Local Government	On construction of all habitable buildings	Individual Land Owners	Ongoing
Temporary Turnaround	Developer	Prior to construction of any dwellings	Individual Land Owners	Ongoing
Battle Axes	NA	NA	NA	NA
Private Driveways	NA	NA	NA	NA
Emergency Access Ways	NA	NA	NA	NA
Firebreaks	NA	NA	NA	NA
Firefighting Water (hydrants)	Developer (if required)	Prior to construction of any dwellings	Water Corporation	Ongoing
Firefighting Water (private tanks)	NA	NA	NA	NA
Firefighting Services & Response	DFES and Local Government	Ongoing	DFES and Local Government	Ongoing
Fuel Load Reduction and Fire Break Notice	Local Government	Annually	Local Government	Annually
Inspection and Issue of Works Orders or Fines.	Local Government	Ongoing	Local Government	Ongoing

6.0 References

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