

APPENDIX F

Bush Fire Assessment Report



Bush Fire Assessment Report

Client: [REDACTED]

Site Address: 2 Premiers Street, Nemingha

19 February 2025

Our Reference : 43564-BR01_A

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Project Name:	Bush Fire Assessment Report for proposed Childcare Centre at 2 Premiers Street, Nemingha
Client:	
Project Number:	43564
Report Reference:	43564-BR01_A
Date:	19 February 2025

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1. INTRODUCTION

1.1. Background

Barnson Pty Ltd has been engaged by [REDACTED] to prepare a Bush Fire Assessment Report (BFAR) in support of a Development Application (DA) for a proposed childcare centre on Lot 111 DP 1272283, known as 2 Premiers Street, Nemingha.

The subject site is located on the corner of Nundle Road and Premiers Street and has an area of 1 hectare. The site is currently vacant and consists of managed weeds and grasses.

The project will consist of the construction of a new childcare centre and associated infrastructure.

The purpose of this report is to provide a bushfire assessment for the proposed development, and to ensure the development is consistent with *Planning for Bushfire Protection 2019*.

1.2. Proposed Development

The development site is located in a new residential estate within proximity to the city of Tamworth and within the Tamworth Regional Local Government Area. The proposed development is for a new childcare centre consisting of the following; 168 place childcare centre, carparking, verandah and breakout areas, playgrounds and landscaped areas.

Refer to the Development Plans in Appendix A of this report.

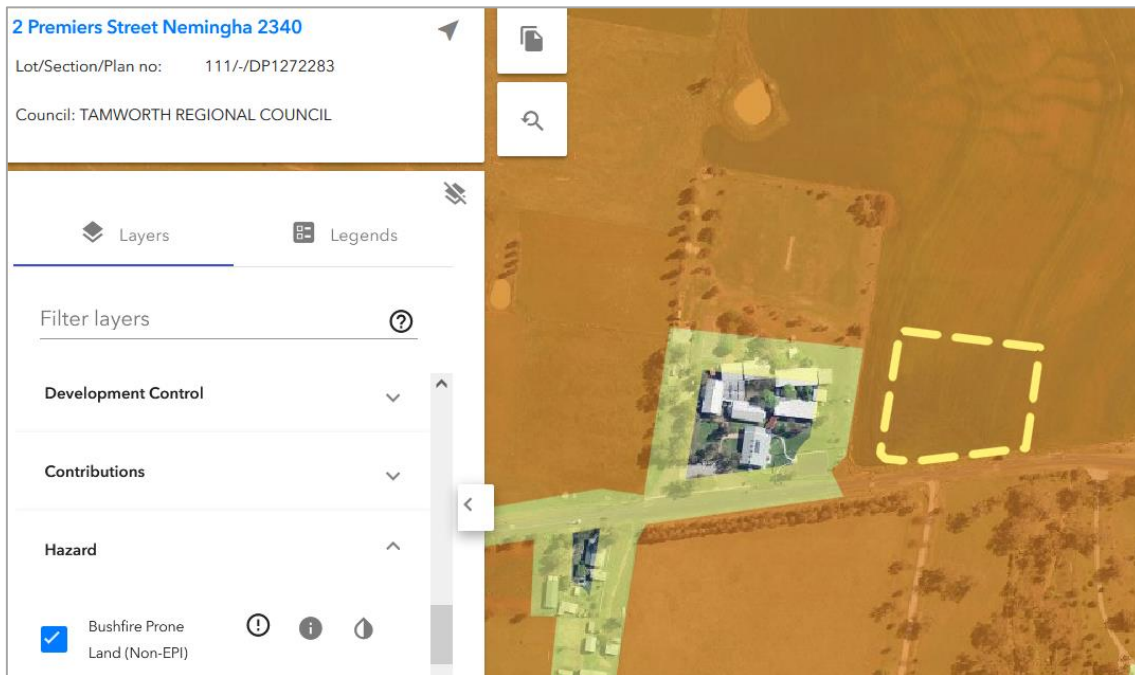
1.3. Legislative Requirements

1.3.1. Environmental Planning and Assessment Act 1979

The proposed development is integrated development by virtue of Section 4.46 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as it requires both development consent and authorisation under Section 100B (Bushfire Safety Authority) of the *Rural Fires Act 1997* in order for it to be carried out.

Bush Fire Prone Land

The subject site is designated as bush fire prone land, pursuant to Section 10.3 of the EP&A Act. The site is identified as containing Category 3 vegetation on the Bush Fire Prone Land Map as shown in Figure 1 below



Source: (NSW Planning & Environment, 2024)

Figure 1 – Bush Fire Prone Land Map

Rural Fires Act 1997

Section 100B of the *Rural Fires Act 1997* (RF Act) requires a Bush Fire Safety Authority to be obtained before developing bushfire prone land for certain purposes. These purposes include development of bush fire prone land for a Special Fire Protection Purpose, which encompasses the proposed development.

Clause 44 of the *Rural Fires Regulation 2013* outlines the requirements for inclusion in any application for a Bush Fire Safety Authority. This report has been prepared to provide the information required by Clause 44. A checklist for the Clause 44 matters is provided in Appendix B.

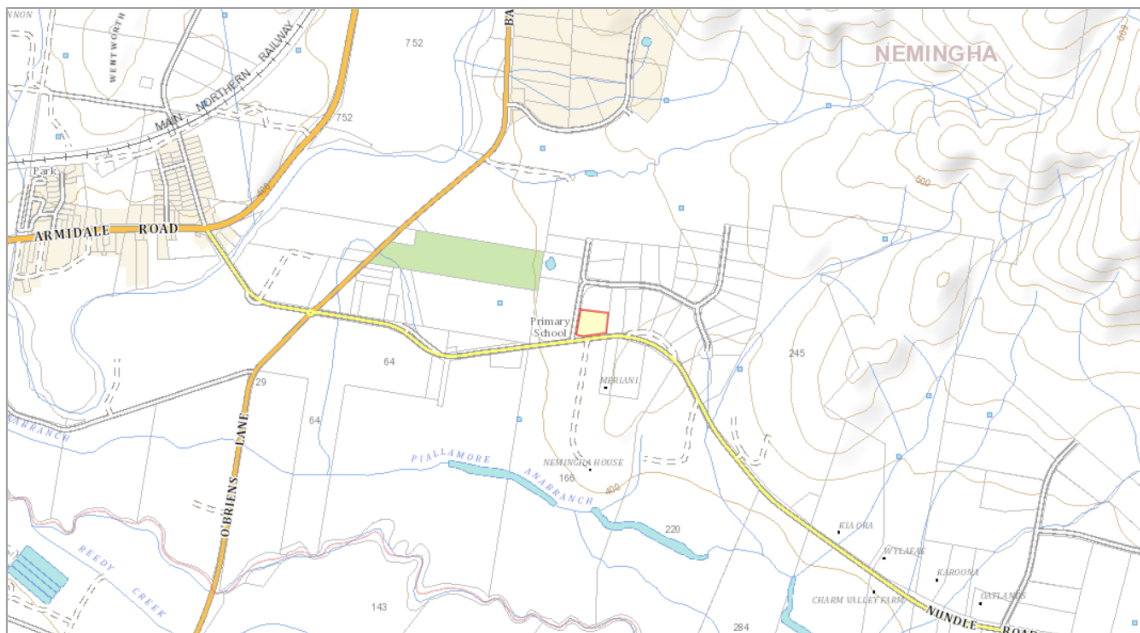
Planning for Bush Fire Protection

The New South Wales's Rural Fire Service's (RFS) *Planning for Bushfire Protection 2019* (PBP) applies to all DAs in bush fire prone land. This report has been prepared to address the requirements of BP, specifically as a Special Fire Protection Purpose (SFPP). Considering the nature of the development proposal, a merit's based assessment of PBP has also been undertaken.

2. THE SITE & ITS SURROUNDS

2.1. Site Location

The site is located in an established area, approximately 9km southeast of Tamworth, as shown in Figure 2 below. The site is located in the Tamworth Regional Local Government Area.



Source: (NSW Government Spatial Services, 2024)

Figure 2 – Site Location

2.2. Site Details

The subject site of this application is Lot 111 DP 1272283, commonly known as 2 Premiers Street, Nemingha. The site has an overall area of approximately 1ha (Refer to Deposited Plan in Appendix C). The site is vacant land.

The site has direct frontage to Premiers Street road, which is a bitumen sealed road. There are no trees on the site, but managed grasslands, as shown in Figure 3 below.



Source: (NSW Government Spatial Services, 2024)

Figure 3 – Site Aerial

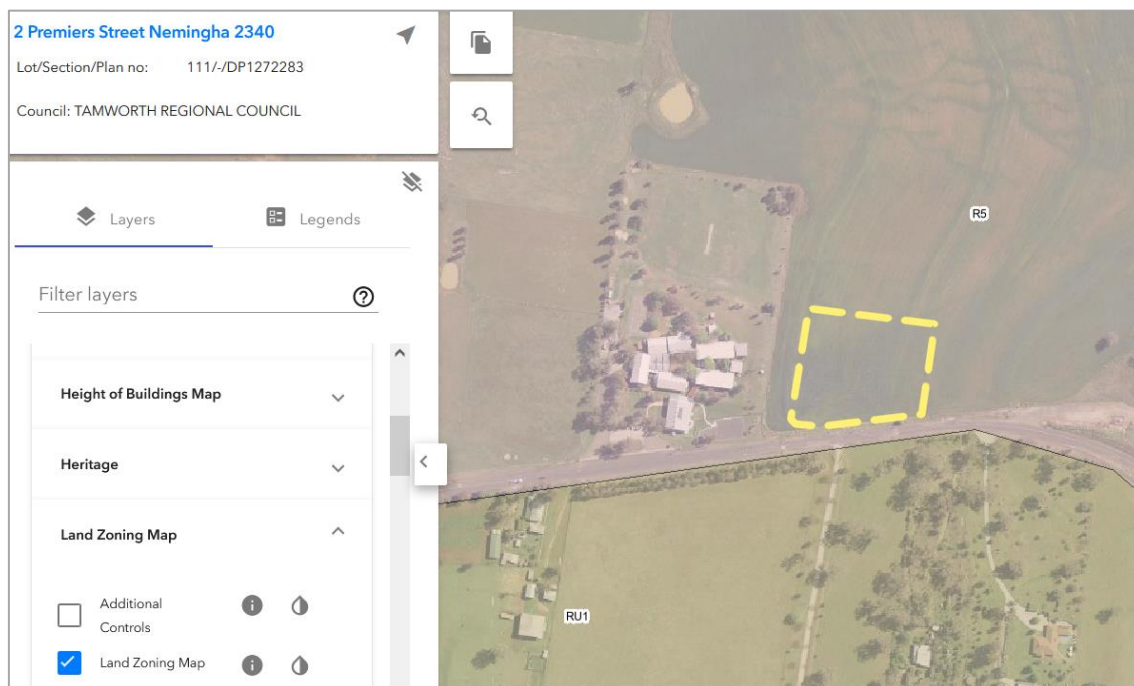


Figure 4 – Zoning Map

The site is zoned R5 Large Lot Residential, pursuant to the provisions under the *Tamworth Regional Local Environmental Plan 2010* as shown in Figure 4 above. The wider locality is generally zoned R5 Large Lot Residential and RU1 Primary Production.

2.3. Environmental Considerations

2.3.1. Environmentally Significant Features

No matters of environmental significance have been identified for the site and there is no known areas of high biodiversity on the site or within proximity.

2.3.2. Threatened Species, Populations and Ecological Communities

No ecological assessments are known to have been undertaken for the site. The site is however heavily disturbed as a result of the previous and current land uses.

2.3.3. Indigenous Heritage

An Aboriginal Heritage Information Management System (AHIMS) Search was undertaken for the site which revealed that no items of indigenous heritage have been recorded as being identified on the site.

3. BUSH FIRE ASSESSMENT

3.1. Methodology

The methodology utilised for the bush fire assessment is outlined in A1.1 of the PBP. The following provides the required information in accordance with the methodology.





3.2. Bush Fire Fuels





Pursuant to Appendix 1 of PBP, all vegetation within 140m of the site (assessment area) has been classified in accordance with *Ocean Shores to Desert Dunes* (Keith, 2004) and Figure 2.3 of AS3959. Figure 5 below shows the assessment area and relevant plots. Photographs of the vegetation from the site inspection carried out on 21 October 2024 are provided in the following plates for each assessment plot.



Figure 5 – Vegetation Classification

Plot 1	
Existing Classification:	Managed Land
Post Development Classification:	Managed Land
Description:	Consists of Premiers Street road reserve with some well managed grasses either side of the bitumen.

	
Plate 1 – Plot 1	Plate 2 – Plot 1
Plot 2	
Existing Classification:	Grassland
Post Development Classification:	Grassland
Description:	Consists of grassland vegetation that is managed periodically. This Plot encompasses other residential Lots within the recent subdivision, some of which are yet to be developed. Grasses are generally over 10cm in height.
	
Plate 3 – Plot 2	Plate 4 – Plot 2

Plot 3	
Existing Classification:	Managed Land
Post Development Classification:	Managed Land
Description:	Consists of the Nundle Road road reserve with some well managed grasses either side of the bitumen.
	
Plate 5 – Plot 3	Plate 6 – Plot 3
Plot 4	
Existing Classification:	Woodland
Post Development Classification:	Woodland
Description:	Consists of established eucalypt trees and managed understory.
	
Plate 7 – Plot 4	Plate 8 – Plot 4





Plot 5	
Existing Classification:	Grassland
Post Development Classification:	Grassland
Description:	This plot predominately consists of grassland vegetation. There are some established street trees fronting the road reserve, however the plot has been characterised as grassland as the trees are sparse and the dominant vegetation and therefore dominant bushfire threat within the plot is grassland.
	
Plate 9 – Plot 5	Plate 10 – Plot 5
Plot 6	
Existing Classification:	Managed Land
Post Development Classification:	Managed Land
Description:	The Plot encompasses the existing Nemingha Public School and is generally very well managed throughout.
	
Plate 11 – Plot 6	Plate 12 – Plot 6

Table 1 – Asset Protection Zone Determination			
Plot	Vegetation Class	Effective Slope	APZ
1	Managed Land	N/A*	N/A*
2	Grassland	Upslope	36m
3	Managed Land	N/A*	N/A*
4	Woodland	Upslope	42m
5	Grassland	Downslope 0-5°	40m
6	Managed Land	N/A*	N/A*

**Managed land is excluded from the assessment in accordance with PBP.*

The worst case APZ required for any existing or proposed structures is 42m.

The grassland deeming provisions within PBP do not apply as they are only relevant to residential infill development (Section 7 of PBP).

3.6. Bushfire Attack Level Assessment

The Bushfire Attack Level (BAL) assessment has been determined as per Table A1.12.6 of PBP. The inputs used in the calculation of the BAL are outlined in Table 2 below. The relevant BAL is applicable to the proposed buildings on the site.

Table 2 – BAL Inputs	
Requirement	Input Used
Relevant FDI (table 2.1 of AS3959)	80
Classified vegetation	As per Section 3.2 of this report, Keith (2004) and Figure 2.3 of AS3959.
Separation Distance	As provided below.
Effective Slope	As per Table 1.

Using the inputs outlined above, the BAL has been calculated for each of the Plots identified in Section 3.2. Plots 1, 3 and 6 have not been included as these plots are considered managed land and are not relevant to the assessment, in accordance with the provisions under PBP.

Table 3 – Bushfire Attack Levels				
Plot	Vegetation Class	Separation Distance	Effective Slope	BAL
2	Grassland	25m (setback to northern boundary)	Upslope	BAL-12.5
4	Woodland	35m (15m southern setback + road reserve)	Upslope	BAL 12.5
5	Grassland	35m (15m southern setback + road reserve)	Downslope 0-5°	BAL 12.5
Worst Case BAL				BAL 12.5

Therefore the worst case BAL applicable to the proposed development is BAL 12.5.

4. BUSH FIRE PROTECTION MEASURES

4.1. Introduction

Section 6 of PBP Special Fire Protection Purpose Developments applies to the proposal. The key Bush Fire Protection Measures under Section 6 are as follows:

- Asset Protection Zones;
- Landscaping;
- Construction Standards;
- Access;
- Water Supply;
- Electricity Services;
- Gas Services; and
- Emergency Management.

The relevant BFPs are addressed throughout Section 4 of this report.

4.2. Aims and Objectives of PBP

The aim of PBP is:

to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.

The objectives of PBP are to:

afford buildings and their occupants protection from exposure to a bush fire;

- *provide for a defensible space to be located around buildings;*
- *provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;*
- *ensure that appropriate operational access and egress for emergency service personnel and occupants is available;*
- *provide for ongoing management and maintenance of BFPs;*
- *and ensure that utility services are adequate to meet the needs of firefighters.*

The proposal has considered radiant heat levels of less than 29kW/m² to avoid flame contact, that would provide for appropriate separation to the hazards. The development in conjunction with the bush fire protection measures will provide for safe operational access and egress for emergency services personnel and residents, as well as sufficient water supply. Therefore, the proposed development is considered to be consistent with the objectives of PBP.

4.3. Objectives for Infill Development

Section 6.2 of PBP contains the specific objectives for special fire protection purposes:

- Minimise levels of radiant heat, localised smoke and ember attack through increased APZ, building design and siting;
- Provide an appropriate operational environment for emergency service personnel during firefighting and emergency management;
- Ensure the capacity of existing infrastructure (such as roads and utilities) can accommodate the increase in demand during emergencies as a result of the development; and
- Ensure emergency evacuation procedures and management which provides for the special characteristics and needs of occupants.

In being consistent with the BFPs, the proposed development complies with objectives for SFPP developments, as outlined above.

4.4. Asset Protection Zones

The following table outlines the Performance Criteria and associated Acceptable Solutions for the APZ BFP in accordance with Table 6.8a of PBP.

Table 4 Asset Protection Zones		
Performance Criteria	Acceptable Solution/Comment	Compliance
Radiant heat levels of greater than 10kW/m ² (calculated at 1200k) will not be experienced on any part of the building.	<p>As discussed in Section 3.5 of this report, the minimum APZ for the proposed development is 42m. The proposed building enjoys the following setbacks;</p> <ul style="list-style-type: none"> • North – 25.6m • East – 45m • South – 15m + 20m road reserve = 35m • West – 33.5m + 25m road reserve = 58.5m <p>As such, the Asset Protection Zones for the proposed development do not strictly comply with PBP. Therefore a fully compliant APZ cannot be established within the boundaries of the site in accordance with PBP. As such a Performance Solution is required for the reduced APZ for the development.</p>	Performance Solution

	<p>Pursuant to section 1.4.5 of PBP a performance based solution "must provide substantiated evidence and clearly demonstrate how the specific objectives and performance criteria are to be satisfied".</p> <p>The intent of measures for APZ BPM is as follows:</p> <p><i>"To provide sustainable building design, construction and sufficient space to ensure that radiant heat levels do not exceed critical limits for firefighters and other emergency services personnel undertaking operations, including supporting or evacuating occupants."</i></p> <p>To achieve the above intent, it is necessary to demonstrate that the performance solution provides an adequate solution to varying the standard.</p> <p>PBP articulates that the risk posed by grass fires is different to that of fires in other vegetation types. Grass fires burn at a higher intensity and spread more rapidly with a shorter resistance time. In contrast, fire behaviour in woodlands is generally slower than in grasslands, particularly in areas where the woodland is not densely vegetated, which is the case in this instance.</p> <p>The following measures are recommended for the proposed development to address the departure from the acceptable solutions:</p> <ul style="list-style-type: none"> • There is a separate entry and exit point proposed, which allows RFS and passenger vehicles to safely access the site without any queuing; • All trafficable access driveways/roads shall be established with a 5.5m carriageway and minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; • The nominated APZ's for the proposed building shall be strictly managed in accordance with Appendix 4 of PBP. It is recommended that minimal vegetation is established to the north and south of the building, being the positioned with the reduced/non-compliant setback; • Free access to the nominated water tank with firefighting fittings shall be retained at all times; and • A new Bush Fire Evacuation Plan must be prepared and endorsed by the NSW RFS. <p>Therefore, with the above provisions implemented, the Performance Solution (reduced APZ) is considered suitable in this instance.</p>	
APZ maintenance is practical, soil	There are no lands within the proposed APZ with a slope exceeding 18 degrees.	✓

stability is not compromised and the potential for crown fires is minimised.		
APZs are maintained to prevent the spread of fire to the building. The APZ is provided in perpetuity.	The nominated APZ shall be maintained in accordance with PBP requirements. It has been recommended that the following APZ's are applied: <ul style="list-style-type: none"> • North – 25m • East – 45m • South – 15m • West – 33m 	✓

4.5. Landscaping

The following table outlines the Performance Criteria and associated Acceptable Solutions for Landscaping in accordance with Table 6.8a of PBP.

Table 5 Landscaping		
Performance Criteria	Acceptable Solution/Comment	Compliance
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Landscaping on the site shall be established and maintained in accordance with Appendix 4 of PBP. There shall be no branches overhanging the roof and new plantings shall be established to ensure that there are no continuous tree canopies. Any proposed fencing shall be constructed in accordance with Section 7.6 of PBP.	✓

4.6. Construction Standards

The following table outlines the Performance Criteria and associated Acceptable Solutions for Construction Standards in accordance with Table 6.8a of PBP.

Table 6 Construction Standards		
Performance Criteria	Acceptable Solution/Comment	Compliance
The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact.	As detailed in Section 3.6, the worst case and therefore the applicable BAL for the proposed development is BAL 12.5. BAL 12.5 Construction (Section 3 and 5 of AS3959) is required for the development.	✓

4.7. Access Standards

The following table outlines the Performance Criteria and associated Acceptable Solutions for Access in accordance with Table 6.8b of PBP.

Table 7 Access		
Performance Criteria	Acceptable Solution/Comment	Compliance
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Access throughout the site shall be designed and constructed as follows: <ul style="list-style-type: none"> • Two wheel drive, all weather access roads and internal driveways; • Any traffic management devices shall not prohibit access for emergency service vehicles; • The proposed carparking area shall act as a turning area for RFS vehicles; • All access roads and driveways are to be a minimum 5.5m width with a dedicated hardstand area near the proposed bushfire storage tank. 	✓
The capacity of access roads is adequate for firefighting vehicles.	The capacity of the proposed driveways and parking/manoeuvrability areas will be sufficient to carry fully loaded firefighting vehicles up to 23 tonnes. No bridges or causeways are required.	✓
There is appropriate access to water supply.	Reticulated water is available to the development. However, given that the site is located within a Low Flow Trickle Feed area, a 45,000L rainwater tank dedicated to fire fighting purposes has been recommended.	✓

	The tank is positioned towards the front of the site near the carparking area and shall be fitted with suitable appliances for RFS vehicles.	
Perimeter Road	Given the urban locality of the proposed development and emerging residential land uses within proximity, it is considered that a perimeter road is not required in this instance. The carpark arrangement acts as a smaller version of a perimeter road, allowing easy and fluent access to the site. The proposed access point and onsite manoeuvrability shall provide for safe access for fire fighting vehicles and evacuation for residents and staff.	N/A
Non-Perimeter Road	<p>The proposed access arrangement complies with this part in that:</p> <ul style="list-style-type: none"> • The entry and exit points have a width of 6m; • Parking is provided within the designated carpark area on the subject site; • A dedicated static water supply is proposed and easily accessible for RFS vehicles; • The dual access provides a 'through access', which allows RFS vehicle to enter and exit the site efficiently; • Curves of the internal access network would have a minimum inner radius of 6m; • The grades shall be less than stipulated; • Road crossfall would not exceed 3 degrees; and • A minimum 4m vertical clearance shall be established at all times. <p>A dedicated evacuation point is recommended to ensure this internal road is kept clear at all times.</p>	✓

4.8. Water Supplies

The following table outlines the Performance Criteria and associated Acceptable Solutions for Water supply in accordance with Table 6.8c of PBP.

Table 8 Water Supply		
Performance Criteria	Acceptable Solution/Comment	Compliance
An adequate water supply is provided for firefighting purposes.	Reticulated water supply shall be provided for the development via a low flow trickly feed supply. A new dedicated firefighting tank shall be positioned on the site within proximity to the proposed carpark for ease of	✓

	access for RFS vehicles. The low flow supply shall ensure that the tank is always full.	
water supplies are located at regular intervals; and the water supply is accessible and reliable for firefighting operations.	The water supply shall be easily accessible for fire fighting vehicles.	✓
Flows and pressure are appropriate.	As the site is within a low flow trickle feed supply area, a dedicated fire fighting tank is proposed on the site. The low flow supply shall ensure that the tank is always full.	✓
The integrity of the water supply is maintained.	All above-ground water service pipes including taps etc shall be constructed of metal material.	✓
Water supplies are adequate in areas where reticulated water is not available.	N/A reticulated area.	N/A

4.9. Electricity and Gas Services

The following table outlines the Performance Criteria and associated Acceptable Solutions for the Electricity and Gas Services in accordance with Table 6.8c of PBP.

Table 9 Electricity and Gas Services		
Performance Criteria	Acceptable Solution/Comment	Compliance
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	It is recommended that any new powerlines are to be constructed underground. Vegetation around existing/new transmission lines are to be maintained in accordance with the specifications in <i>ISSC3 Guideline for Managing Vegetation Near Powerlines</i> .	✓
Location and design of gas services will not lead to ignition of	The structure is to be connected to bottled gas (if required). The following recommendations are provided:	✓

surrounding bushland or the fabric of buildings.	<ul style="list-style-type: none"> • Installed and maintained in accordance with AS/NZS 1596:2004 with metal piping used; • All fixed cylinders are to be kept clear of flammable materials to a distance of 10m; • All connections to be metal construction; • Safety valves are to be directed away from the building and at least 2m away from any combustible material; • Polymer-sheathed flexible gas supply lines are to be used; • Aboveground gas service pipes external to the building are to be metal. 	
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4.10. Emergency Management Planning

The following table outlines the Performance Criteria and associated Acceptable Solutions for Construction Standards in accordance with Table 6.8d of PBP.

Table 10 Construction Standards		
Performance Criteria	Acceptable Solution/Comment	Compliance
A Bush Fire Emergency Management and Evacuation is prepared.	A Bush Fire Emergency Management and Evacuation Plan is to be prepared in accordance with RFS requirements, AS3745:2010 and AS4083:2010. The plan should include planning for the early relocation of occupants.	✓
Appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan.	<p>An Emergency Planning Committee is required to be established for the facility who will consult with residents and staff in developing and implements an Emergency Procedures Manual.</p> <p>Details of all emergency assembly areas including onsite and off-site arrangement shall be established, and an annually emergency evacuation is to be conducted.</p>	✓

5. RECOMMENDATIONS

The assessment of the proposed development carried out in this report has assumed the development will be carried out in accordance with a number of bush fire protection measures (BFPMs). The following provides a summary of the recommended BFPMs that must be incorporated into the development to ensure it best protects the development from the effects of bushfire in accordance with the requirements of PBP and other best practice guidelines.

- Asset Projection Zone/Defendable Space:
 - It is recommended that an Asset Protection Zone of 25m to the north, 45m to the east, 15m to the south and 33m to the west be applied.
 - The site is to be managed in accordance with Appendix 4 of PBP;
 - Ongoing monitoring of vegetation within other areas of the site (i.e. outdoor play area, carpark area etc) is recommended and if any vegetation becomes a potential threat, it is managed in accordance with PBP.
- Landscaping:
 - Landscaping shall be established and maintained in accordance with Appendix 4 of PBP and the applicable *Asset Protection Zone Standards*;
 - There shall be no branches overhanging the roof of any proposed structures and new plantings shall be established to ensure that there are no continuous tree canopies;
 - Any proposed fencing shall be constructed in accordance with Section 7.6 of PBP.
- Construction Standards:
 - The proposed development is to be constructed to a BAL-12.5 standard and in accordance with PBP/AS 3959:2009. The BAL does not apply to any class 10a storage structures unless positioned within 6m of the proposed childcare centre building.
 - Any class 10a structure positioned within 6m of the childcare centre building shall be constructed in accordance with BAL-12.5 standards.
- Access
 - Access to the dedicated bushfire tank shall be kept clear at all times. A dedicated hardstand bay shall be established within proximity to the tank for firefighting vehicles to access the supply without obstruction;
 - Any traffic management devices shall not prohibit access for emergency vehicles;

- The access roads shall be constructed to be capable of carrying a fully loaded firefighting vehicle up to 23 tonnes;
- All internal roads are to be at least 5.5m in width and no bridges or causeways are to be constructed, however if required, shall be constructed and maintained in accordance with PBP provisions.
- A dedicated evacuation point is recommended to ensure this internal road is kept clear at all times;
- No tree plantings or obstructions shall occur on either side of the access roads that would prohibit access to and from the site in the event of fire.
- Services
 - Water:
 - Reticulated water supply shall be provided to the site and a dedicated 45,000L firefighting tank that is easily accessible from the proposed carpark. The tank shall be provided with the appropriate connections for RFS vehicles. The water supply shall be easily accessible for fire fighting vehicles;
 - Hardened driveways are to be provided in front of the proposed dedicated firefighting tank;
 - All aboveground water service pipes including taps etc shall be constructed of metal material;
 - The tank shall be provided with a Storz fitting with ball valve;
 - All aboveground water service pipes including taps etc shall be constructed of metal material.
 - Electricity and Gas:
 - It is recommended that any new powerlines are to be constructed underground;
 - Vegetation around existing/new transmission lines are to be maintained in accordance with the specifications in *ISSC3 Guideline for Managing Vegetation Near Powerlines*;
 - Any proposed gas bottles shall be installed and maintained in accordance with AS/NZS 1596:2004 with metal piping used;
 - All fixed cylinders are to be kept clear of flammable materials to a distance of 10m (or appropriately shielded);
 - All connections are to be of metal construction.
- Bushfire Danger Period:
 - Before the commencement of the Bushfire Danger Period, a review of the vegetation on the site and applied BFPs is recommended to be

undertaken. Fuel reduction measures are recommended throughout the site.

- Emergency Evacuation Plans:
 - Preparation of a Bush Fire Emergency Management and Evacuation Plan, in accordance with RFS requirements;
 - An Emergency Planning Committee is required to be established for the facility in accordance with PBP requirements;
 - A Fire Management Plan (FMP) should be prepared for the property that is reviewed and updated annually.

6. CONCLUSION

The proposed development, on completion, will ensure that the proposed development is located in an area that has a low to moderate bushfire hazard level. With the implementation of the recommendations, as outlined in Section 5, it is considered that the proposed development is appropriately protected from bushfire and complies with the requirements of PBP. The proposed development is not expected to increase the bushfire risk.

7. REFERENCES

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