

Bush Fire Assessment Report

75 Warnervale Road, Warnervale NSW
2259

Ref: 128723 - 20190633



2 August 2019

Prepared for:

Billard Leece

Level 6/72-80 Cooper Street
Surry Hills, NSW 2010

Bush Fire Assessment Report

75 Warnervale Road, Warnervale NSW 2259

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Please note:

This report is prepared in accordance with current accepted practice as described in the NSW Rural Fire Service Guide Planning for Bushfire Protection, 2006 – a Guide for Councils, Planners, Fire Authorities, Developers and Home Owners, AS 3959–2009 Construction of buildings in bushfire-prone areas, and the National Construction Code (NCC).

This report is not an insurance policy. Owing to the unpredictable nature of bushfires and of weather conditions at the time of a bushfire, this report cannot be taken as a warranty that the recommended bushfire mitigation measures will protect the property from damage in every possible bushfire event. Ultimately, the onus is on the land owner to accept the risks associated with development on the site in light of the identified bushfire threat.

Document Control:

Version	Date	Author	Technical Review	Peer Review
1.0	24 May 2018	Anthony Hawkins	Dan Pedersen	Brad Deane
2.0	30 May 2018	Anthony Hawkins	Dan Pedersen	Brad Deane
3.0	2 August 2019	Anthony Hawkins	Dan Pedersen  BPAD Bushfire Planning & Design Accredited Practitioner Level 3 (Accreditation No. 16293)	

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EXECUTIVE SUMMARY

Report Type	BAL Assessment
Applicant's Name	Billard Leece
Applicant Contact Details	michaelc@blp.com.au
Site Address	75 Warnervale Road, Warnervale NSW 2259
Lot No.	Lot 71
Deposited Plan No.	DP 7091
Local Government Area	Central Coast Council
Zoning under LGA LEP	R1– General Residential
Fire Danger Index Area Name	Greater Hunter Region, FDI 100
Bushfire Prone Land	Yes
Source methodology/s	NSW Rural Fire Service (2006), Planning for Bushfire Protection guidelines. Australian Standard 3959–2009: Construction of Buildings in Bushfire-Prone Areas.
Site visit date	22 May 2018
Document date	2 August 2019
Site plan/s attached	Yes

The proponent is seeking bushfire assessment and information to determine the site constraints and feasibility for a proposed school development (a SFPP development), planned as a State Significant Development. The site contains an existing school which is currently used for disability services, and considered as a SFPP use.

This assessment outlines the land characteristics that determine the minimum required APZ setbacks to achieve the performance criteria for SFPP (i.e. 10kW/m required for a Bush Fire Safety Authority), and acceptable access and emergency provisions.

1. SCOPE OF ASSESSMENT

This report assesses the Bushfire Attack Level (BAL) to assist in design and planning for the feasibility study for the development (New Primary School at Warnervale) on Lot 71(DP 7091) 75 Warnervale Road, Warnervale NSW 2259 (hereafter referred to as the 'subject site').

The key features of the New Warnervale School project include:

- New Core 35 Hall (potential emergency assembly shelter)
- New Core 21 Administration & Staff Building
- New Core 21 OOSH
- New Core 21 Canteen
- New Core 21 Library
- New Core 21 (2x) Special Programs
- New Teaching Spaces 20 (includes 2 Special Education Teaching Spaces)
- New Core 21 Student Amenities
- New Core 21 COLA
- Considerations for Future Expansion
- Staff Carpark 21 Spaces
- Visitor 5 Spaces
- Accessible 2 Spaces
- Related Road Works & Drop off/pick up Zone
- New Games Court

The proposed development of the New Primary School at Warnervale is to be considered as a State Significant Development. This report is provided to assist those reporting to the NSW Government Minister for Planning for the purposes of determination.

The subject site location, surrounding vegetation and landscape characteristics are shown in **Figure 1**.

This report cannot be used for any other design unless authorised and amended by the author of this report. A full statement of Limitations is attached in **Appendix 1**.

1.1.1 Special Fire Protection Purpose (SFPP) Development

The development of a school is classified by NSW RFS as a Special Fire Protection Purpose (SFPP) development and is assessed under Section 4.46 (formerly Section 91) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Section 4.46 requires compliance with the *Rural Fires Act 1997* Section 100B and a Bush Fire Safety Authority (BFSA) is required to be issued by the NSW Rural Fire Service (RFS) for SFPP developments.

Assessment of bush fire safety measures is required for a SFPP development pursuant to the guidelines under *Planning for Bush Fire Protection* (PBP 2006) (NSW RFS, 2006).

As the new primary school at Warnervale is a State Significant Development, the provisions of Section 4.46 of the EP&A Act do not apply. However, the Minister for Planning may request that bushfire safety measures for the proposal be reviewed by the NSW RFS and seeking RFS concurrence.

Key issues stated within the PBP 2006 guidelines relating to SFPP development include adequate Asset Protection Zones (APZ), access provisions, design and construction of services and emergency and evacuation planning.

1.1.2 Infill Development

Previous uses of the subject land include Warnervale Public School, and these buildings still stand. Warnervale Public School was established in 1958 by the NSW Department of Education. The School operation was relocated in 2008 to the corner of Warnervale Road and Minnesota Road.

Current use of the site includes:

- The Australian Air League (Toukley Squadron) which conducts weekly (minimum) meetings and training events. This use of the building(s) is a Class 9b Classification.
- Options Disability Support who conduct training and support care (non-residential) for disabled persons. This use of the building(s) is a Class 9b Classification.

From the above, it can be demonstrated that the use of the site since 1958 has, although for various purposes, been of a SFPP nature. PBP 2006 *Section 4.2.6* supports the assessment

that the current and proposed use should be treated as SFPP. Further, *Section 4.2.6* states that no specific bush fire provisions apply under the BCA, but their location should be carefully considered.

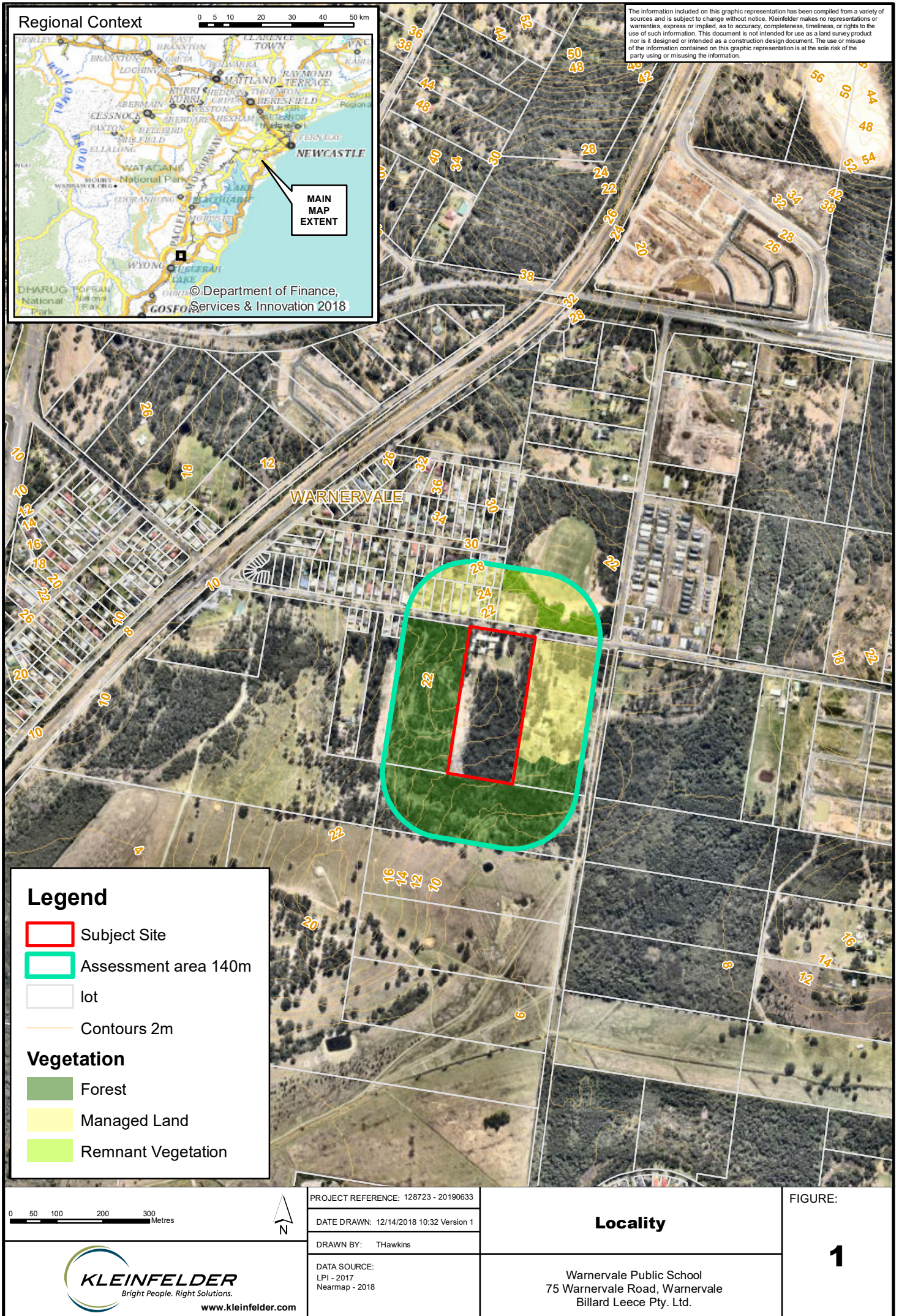
As the proposed re-development is a continuation of the existing classification (Class 9b SFPP) it is appropriate that it should be classified as 'Infill Development' and can be assessed under Section 4.14 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

Section 4.14 requires compliance with Planning for Bush Fire Protection (PBP 2006) (NSW Rural Fire Service, 2006). **Where an infill proposal does not comply with acceptable solutions, consultation by the consent authority with the NSW Rural Fire Service (RFS) is required.**

Key issues stated within the PBP 2006 guidelines relating to infill development include adequate Asset Protection Zones (APZ), building location, design and construction standards.

Consultation has been held with the NSW RFS, Department of Education, architects and designers and planners, and bushfire consultant. It was determined through this consultation that the school development does constitute an infill development, however, the area available for construction can also provide for acceptable solutions for setback and construction. The NSW RFS position requires the design to comply with PBP 2006 performance criteria for SFPP development.

This report will demonstrate that the development design does comply with the aims and objectives of PBP 2006 Sections 4.2.4 (a) and 4.3.5 and will meet the performance criteria as set out in PBP 2006.



2. BUSHFIRE ATTACK LEVEL ASSESSMENT

2.1 BUSHFIRE HAZARD (VEGETATION)

The Central Coast Council (Wyang) Bush Fire Prone Land Map (2014), has classified the vegetation surrounding the subject site as both Category 1 (High risk) and Buffer Zone bushfire prone vegetation as shown on **Plate 1 (Section 4)**.

The principal bushfire hazard is situated to the west and south of the proposed re-development site.

The adjacent property to the east has managed vegetation via slashing and grazing and landscaping for residential dwelling (as acknowledged by NSW RFS).

The Warnervale Road separation and the new RFS Brigade/Fire Station has removed the bushfire prone vegetation in this direction. The remnant vegetation surrounding the sporting oval has been considered as Low Threat vegetation due to limited fire run potential.

Vegetation classification has been undertaken as per Appendix 2 of PBP (2006). Where applicable, vegetation that does not possess a significant bushfire threat has been classified as *low threat vegetation* and / or *non vegetated areas* if it meets parameters listed under section 2.2.3.2 of AS3959-2009.

Classified Vegetation to a distance of 140 metres in each direction from the subject site are outlined in **Table 1** below.

Table 1 Classified vegetation within 140 m of the subject site

Aspect	Vegetation Classification	Justification
North	Low Threat Vegetation / Non Vegetated Areas	Managed land (sporting oval, RFS fire station) and insignificant fire run potential.
East	Managed vegetation	Residential development and grazed/managed vegetation
South	Forest	Classified as per PBP (2006)
West	Forest	Classified as per PBP (2006)

Classified vegetation within 140 metres of the subject site are shown in **Figure 1**.

2.2 SLOPE ASSESSMENT

Land under the classified remnant vegetation to the north and east is flat to upslope (**Figure 1** and **plates 2 and 3**).

To the south and west land under the classified forest vegetation is downslope $>0^{\circ}$ - 5° as shown in **Figure 1** and **Plates 4 and 5**.

2.3 ACCESS

Access to the Subject Site is via Warnervale Road, which currently provides the minimum required width (an 8m wide sealed road).

Site access is proposed within a boundary realignment, whereby the roundabout and the drop off and pick up designated zone extending south from Warnervale Road within the required APZ area, would be excised from the school landholding boundary. This specific school service road design will be required to demonstrate acceptable solution compliance with the performance criteria for public roads as detailed in Section 4.1.3 (PBP 2006). **Section 3.2** below details the acceptable solution for compliance of the public road.

2.4 SERVICES

Electrical services are available to the Subject site and it is recommended that any future development be supplied with electrical services placed underground.

Reticulated water is available to the site via water mains located in Warnervale Road, and can meet required specifications.

2.5 ASSET PROTECTION ZONES

The asset protection zones have been negotiated through liaison with the NSW RFS and are detailed in the supplied site plans (**Appendix 2**). The site design has been based around these negotiations.

All SFPP use buildings will apply adequate APZ setback to achieve $\leq 10\text{kW/m}^2$.

The design provides the Core 21 administration and staff building within the required 70m SFPP APZ (west). This building is considered as a Class 5 building (an office or professional purpose building), and acceptable APZ is detailed in Table 2.4.2 of AS3959-2009. The APZ can be constructed to higher

Table 2 shows the required setback to achieve $\leq 10\text{kW/m}^2$ (taken from PBP 2006 Table A2.6).

Table 2 APZ required to achieve $\leq 10\text{kW/m}^2$ (PBP 2006 Table A2.6).

Aspect	Vegetation Classification	Effective Slope	Setback required for $\leq 10\text{kW/m}^2$
North	Low Threat Vegetation / Non Vegetated Areas	Flat to upslope	N/A
East	Managed Vegetation	N/A	N/A (11m provided on site)
South	Forest	Downslope 0 - 5 Degrees	70m
West	Forest	Downslope 0 - 5 Degrees	70m

2.6 BUILDING CONSTRUCTION AS3959-2009

The SFPP building will be constructed to a minimum construction level BAL29 as detailed in AS3959-2009.

The Core 21 administration and staff building will be located within 50m from forest vegetation west and will apply minimum BAL19 construction standards as detailed in AS3959-2009.

2.7 EMERGENCY AND EVACUATION MANAGEMENT

The proposal to construct a New Primary School at Warnervale will require a Bushfire Emergency Management and Evacuation Plan to assist school and Department of Education management to protect life in the event of a bushfire. No Plan has been prepared at this stage of the approval process, however, prior to occupation, a Plan would need to be prepared in consultation with relevant stakeholders (Department of Education, emergency services and planning authority). The Plan would comply with the Departments requirements for bushfire evacuation and be approved by the relevant fire authority for the area.

3. THE SFPP COMPLIANCE SUMMARY

3.1 AIMS AND OBJECTIVES OF PBP (2006)

See **Table 3** for an assessment of the New Primary School at Warnervale at 75 Warnervale Road, Warnervale NSW 2259 against the aim and objectives of PBP 2006.

Table 3: Planning for Bush Fire Protection (2006) – Aims and Objectives Compliance summary

PBP 2006 - Aims and Objectives	Compliance Summary
3.1 Aim of PBP (2006)	
<i>To use the NSW development assessment system to provide for the protection of human (including firefighters) and to minimize impacts of property from the threat of bushfire, while having regard to development potential, onsite amenity and protection of the environment.</i>	<p>Complies with PBP (2006): YES</p> <p>A proposed development can provide adequate protection for construction and residents. Setbacks as described provide separation from flame contact and construction standards, as recommended, protection from radiant heat and ember attack.</p>
3.2 Objectives of PBP (2006)	
<i>Afford occupants of any building adequate protection from exposure to a bush fire.</i>	<p>Complies with PBP (2006): YES</p> <p>APZ's in accordance with Table 2 provide adequate protection</p>
<i>Provide for a defendable space to be located around buildings.</i>	<p>Complies with PBP (2006): YES</p> <p>APZ's in accordance with Table 2 provide adequate protection</p>
<i>Provide for appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact with material ignition.</i>	<p>Complies with PBP (2006): YES</p> <p>APZ's in accordance with Table 2 provide adequate protection</p>
<i>Ensure that safe operational access and egress for emergency service personnel and residents is available.</i>	<p>Complies with PBP (2006): YES</p> <p>Property access is via a complying urban road.</p> <p>Proposal and recommendations for Internal roads comply in regard to length and, width and turning circles.</p> <p>Section 2.3 of this report.</p>

<i>Provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ).</i>	<p>Complies with PBP (2006): YES</p> <p>Achieved by normal maintenance of grounds and landscaping</p>
<i>Ensure that utility services are adequate to meet the needs of firefighters (and other assisting in bush fire fighting).</i>	<p>Complies with PBP (2006): YES</p> <p>Future development will be serviced by electrical services located underground.</p> <p>Reticulated water is available to the site.</p>
Specific Objectives for infill PBP (2006) 4.3.2	Compliance summary
<i>Ensure that the bush fire risk to adjoining land is not increased.</i>	<p>Complies with PBP (2006): YES</p> <p>The proposed development will not result in an increased bushfire threat to adjoining properties.</p>
<i>Provide a minimum defensible space.</i>	<p>Complies with PBP (2006): YES</p> <p>APZ's in accordance with Table 2 provide adequate protection</p>
<i>Provide better bush fire protection, on a re-development site, than the existing situation. This should not result in the new works being exposed to a greater risk than an existing building.</i>	<p>Complies with PBP (2006): YES</p> <p>The existing buildings on site were constructed prior to BCA construction standards were introduced and do not comply with current standards. The proposed buildings, constructed to BAL 12.5 construction standard, will result in a safer bushfire safety outcome.</p>
<i>Ensure that the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighboring land.</i>	<p>Complies with PBP (2006): YES</p> <p>Existing buildings on neighboring land are located in closer proximity to the hazard than the proposed development. The removal of vegetation to the south of the proposed building(s) as recommended will result in a lower bushfire threat to existing buildings to the east of the subject site.</p>
<i>Not result in increased bush fire management and maintenance responsibility on adjoining land owners unless they have agreed to the development.</i>	<p>Complies with PBP (2006): YES</p> <p>No additional maintenance will be required by adjoining landowners. All APZ areas are located within the subject site.</p>
<i>Ensure building design and construction enhance the chances of occupant and building survival.</i>	<p>Complies with PBP (2006): YES</p> <p>Construction to BAL 12.5 standards will result in increased bushfire safety outcomes for occupants and buildings.</p>

Specific Objectives for SFPP PBP (2006)	Compliance summary
<p>The intent may be achieved where:</p> <ul style="list-style-type: none"> ○ Radiant heat levels of greater than 10kW/m² will not be experienced by occupants or emergency services workers entering or exiting the building. ○ Applicants demonstrate that issues relating to slope are addressed: maintenance is practical, soil stability is not compromised and the potential for crown fires is negated. ○ APZ's are managed and maintained to prevent the spread of a fire towards the building. ○ Vegetation is managed to prevent flame contact and reduce radiant heat to buildings, minimize the potential for wind driven embers to cause ignition and reduce the effect of smoke on residents and firefighters. 	<p>Complies with PBP (2006): YES</p> <p>The subject site and design provides suitable APZ from the classified vegetation, in accordance with PBP 2006.</p> <p>The APZ consists of landscaping and infrastructure which is maintained by normal landscaping and property maintenance.</p>
<p>The intent may be achieved where:</p> <ul style="list-style-type: none"> ○ Internal road widths and design enable safe access for emergency services and allow crews to work with equipment about the vehicle 	<p>Complies with PBP (2006): YES</p> <p>Proposed access provisions provide safe access.</p>
<p>The intent may be achieved where:</p> <ul style="list-style-type: none"> ○ Reticulated water supply: Water supplies are easily accessible and located at regular intervals. ○ Electricity: Location of electricity services will not lead to ignition of surrounding bushland or the fabric of buildings or risk to life from damaged electrical infrastructure. ○ Gas: Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings. 	<p>Complies with PBP (2006): YES</p> <p>Reticulated water is available to the subject site.</p> <p>Electricity and gas services are to be located underground.</p>
<p>The intent may be achieved where:</p> <ul style="list-style-type: none"> ○ An emergency and evacuation management plan is approved by the relevant fire authority for that area. ○ Suitable management arrangements are established for consultation and implementation of the emergency and evacuation plan. 	<p>Complies with PBP (2006): YES</p> <p>An emergency management plan will be developed for the school prior to occupation.</p> <p>Infrastructure specified in the Emergency management plan such as signage will be implemented as per the plan.</p>

3.2 PUBLIC ROAD ACCESS (PBP 2006)

Table 4: Intent of measures: to provide safe operational access to structures and water supply for emergency services, while residents are seeking to evacuate from an area.

Performance Criteria	Acceptable solutions	Performance
firefighters are provided with safe all weather access to structures (thus allowing more efficient use of firefighting resources)	public roads are two-wheel drive, all weather roads.	Proposed public road meets acceptable solution
public road widths and design that allow safe access for firefighters while residents are evacuating an area.	urban perimeter roads are two-way, that is, at least two traffic lane widths (carriageway 8 metres minimum kerb to kerb), allowing traffic to pass in opposite directions. Non perimeter roads comply with Table 4.1 – Road widths for Category 1 Tanker (Medium Rigid Vehicle).	The design is not a perimeter road. Will apply a 8m trafficable carriageway. Proposed public road meets acceptable solution
	the perimeter road is linked to the internal road system at an interval of no greater than 500 metres in urban areas.	No perimeter road. Proposed public road meets acceptable solution
	traffic management devices are constructed to facilitate access by emergency services vehicles	No traffic management devices proposed. Proposed public road meets acceptable solution
	public roads have a cross fall not exceeding 3 degrees	Proposed public road meets acceptable solution
	all roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end and direct traffic away from the hazard.	Proposed public road meets acceptable solution with provision of a 12m outer radius turning circle
	curves of roads (other than perimeter roads) are a minimum inner radius of six metres and minimal in number, to allow for rapid access and egress.	Proposed public road meets acceptable solution

	the minimum distance between inner and outer curves is six metres.	Proposed public road meets acceptable solution
	maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient.	Proposed public road meets acceptable solution
	there is a minimum vertical clearance to a height of four metres above the road at all times.	Proposed public road meets acceptable solution
the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles.	the capacity of road surfaces and bridges is sufficient to carry fully loaded firefighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes or 9 tonnes per axle for all other areas). Bridges clearly indicate load rating.	Public road meets acceptable solution
roads that are clearly sign- posted (with easily distinguishable names) and buildings/properties that are clearly numbered.	public roads greater than 6.5 metres wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water for fire suppression.	Proposed public road meets acceptable solution
	public roads between 6.5 metres and 8 metres wide are No Parking on one side with the services (hydrants) located on this side to ensure accessibility to reticulated water for fire suppression.	Proposed public road meets acceptable solution
there is clear access to reticulated water supply	public roads up to 6.5 metres wide provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.	Proposed public road meets acceptable solution
	one way only public access roads are no less than 3.5 metres wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression.	Not applicable
parking does not obstruct the minimum paved width	parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement. No services or hydrants are located within the parking bays.	Proposed public road will meet acceptable solution
	public roads directly interfacing the bush fire hazard vegetation provide roll top kerbing to the hazard side of the road.	Proposed public road can meet acceptable solution

4. CONCLUSION AND RECOMMENDATIONS

The site is currently utilised for SFPP purposes and the proposed development is a continuation of SFPP use. The proposal to construct a New Primary School at Warnervale would demolish the existing buildings and construct new buildings.

Appendix 2 provides the most recent site plan available for the proposed development, which has been designed based on consultation with NSW RFS.

Future development will apply APZs of 70m on site south and west (**Table 2**) such that radiant heat levels of greater than 10kW/m² will not be experienced by occupants or emergency services workers entering or exiting any SFPP building.

All SFPP buildings would be constructed to BAL12.5 construction standards (AS3959-2009).

The Core 21 administration staff building is not a SFPP building and can be constructed within the SFPP APZ. This building is sited in a position that it would require BAL19 construction standards.

The public road access and services would be constructed to meet the acceptable solutions of PBP 2006.

The proposed New Primary School at Warnervale will be required to prepare a Bushfire Emergency Management and Evacuation Plan designed to assist emergency management, to protect life in the event of a bushfire. No Plan has been prepared at this stage of application.

This bushfire assessment concluded that a proposed re-development (New Primary School at Warnervale) on Lot 71(DP 7091) 75 Warnervale Road, Warnervale NSW 2259, when assessed as SFPP Development, can comply with SFPP performance criteria and the aims and objectives of PBP 2006,.

4.1 SITE PHOTOS:

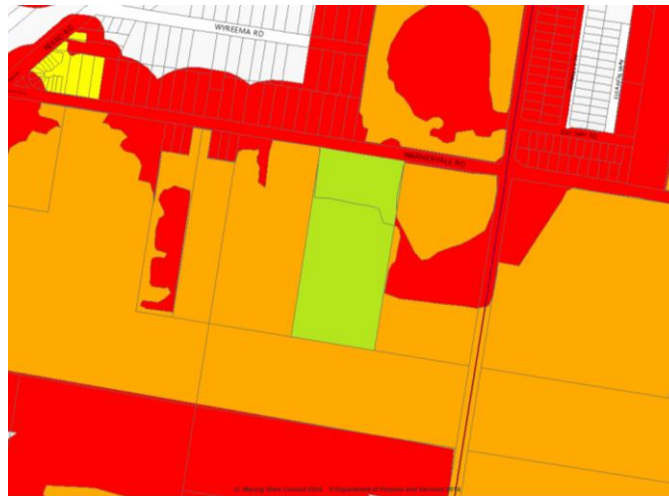


Plate 1: Wyong Council Bush Fire prone Land Map 2014.



Figure 2: Warnervale Road and effective slope on northern side of subject site.



Figure 3: Mnage3d lands and effective slope on eastern side of subject site



Plate 4: Cleared zone and effective slope on southern side of subject site



Figure 5: Forest vegetation and effective slope on western side of subject site.

5. REFERENCES

Environmental Planning and Assessment Act 1979 (NSW).

NSW Rural Fire Service 2006, *Planning for bush fire protection*. NSW Rural Fire Service, Lidcombe NSW 2141, ISBN 0 9751033 2 6.

Standards Australia 2009, *Construction of buildings in bushfire-prone areas* (AS3959 – 2009), Committee FP-020, ISBN 0 7337 9051 8

APPENDIX 1 STATEMENT OF LIMITATIONS

This report has been prepared by Kleinfelder Australia Pty Ltd (Kleinfelder) and may be used only by the Client and its designated representatives or relevant statutory authorities and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

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The findings and conclusions contained within this report are relevant to the conditions of the site and the state of legislation currently enacted in the relevant jurisdiction in which the site is located as at the date of this report.

Additionally, the findings and conclusions contained within this report are made following a review of certain information, reports, correspondence and data noted by methods described in this report including information supplied by the client or its assigns. Kleinfelder has designed and managed the program for this report in good faith and in a manner that seeks to confirm the information provided and test its accuracy and completeness. However, Kleinfelder does not provide guarantees or assurances regarding the accuracy, completeness and validity of information and data obtained from these sources and accepts no responsibility for errors or omissions arising from relying on data or conclusions obtained from these sources.

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APPENDIX 2 SITE PLANS
