



Bushfire Assessment

Concept Proposal and Stage 1 Administration Building: Medowie Christian School

Prepared for
EPM Projects Pty Ltd

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BPAD
Bushfire
Planning & Design
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1 Property and Proposal

Name:	EPM Project Pty Ltd		
Street or property name:	Medowie Christian School		
Suburb or locality:	Medowie	Postcode:	2318
Lot/DP no:	Lot 1 DP 1036306		
Local Government Area:	Port Stephens Council		
Type of development:	Concept Proposal to existing Special Fire Protection Purpose (SFPP) facility and new Administration development		

1.1 Background

EPM Projects Pty Ltd commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire assessment (BPA) for the Concept Proposal and Stage 1 Administration Building to Medowie Christian School (hereafter referred to as the subject land).

This assessment has been prepared by the ELA Senior Bushfire Consultant, Mark Hawkins and quality reviewed by ELA Senior Bushfire Consultant Daniel Copland (FPAA BPAD Level 3 Certified Practitioner No. BPD-L3-28853). Daniel is recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment.

1.2 Location and description of subject land

The subject land is located in the Port Stephens suburb of Medowie, approximately 8.7 kilometres southwest of Raymond Terrace. **Figure 1** shows the subject land in a local context. **Figure 2** shows the subject land in relation to the nearest bushfire prone vegetation. **Figure 3** shows the proposed layout and relevant BALs and **Figure 4** shows the proposed demountable building layout.

The Port Stephens LGA has a fire danger index (FDI) of 100.

1.3 Description of Proposal

Stage 1 DA of the proposed development will involve the removal of two portable, one-storey demountable buildings which includes the current administration building and construction of a new 2 storey administration building.

The Concept Proposal involves the relocation of a single storey portable demountable (East Demountable) to a new location as proposed Block A and the construction of a centrally located new two storey Discovery Centre and the construction of a two storey building (Block E) in the place of the previous East Demountable. In addition, a larger two storey building (Block F) will be constructed over the location of what was previously the Block F Demountable.

This report will provide assessments for both the Stage 1 DA for the administration building and the concept proposals for new Special Fire Protection Purpose (SFPP) facilities.

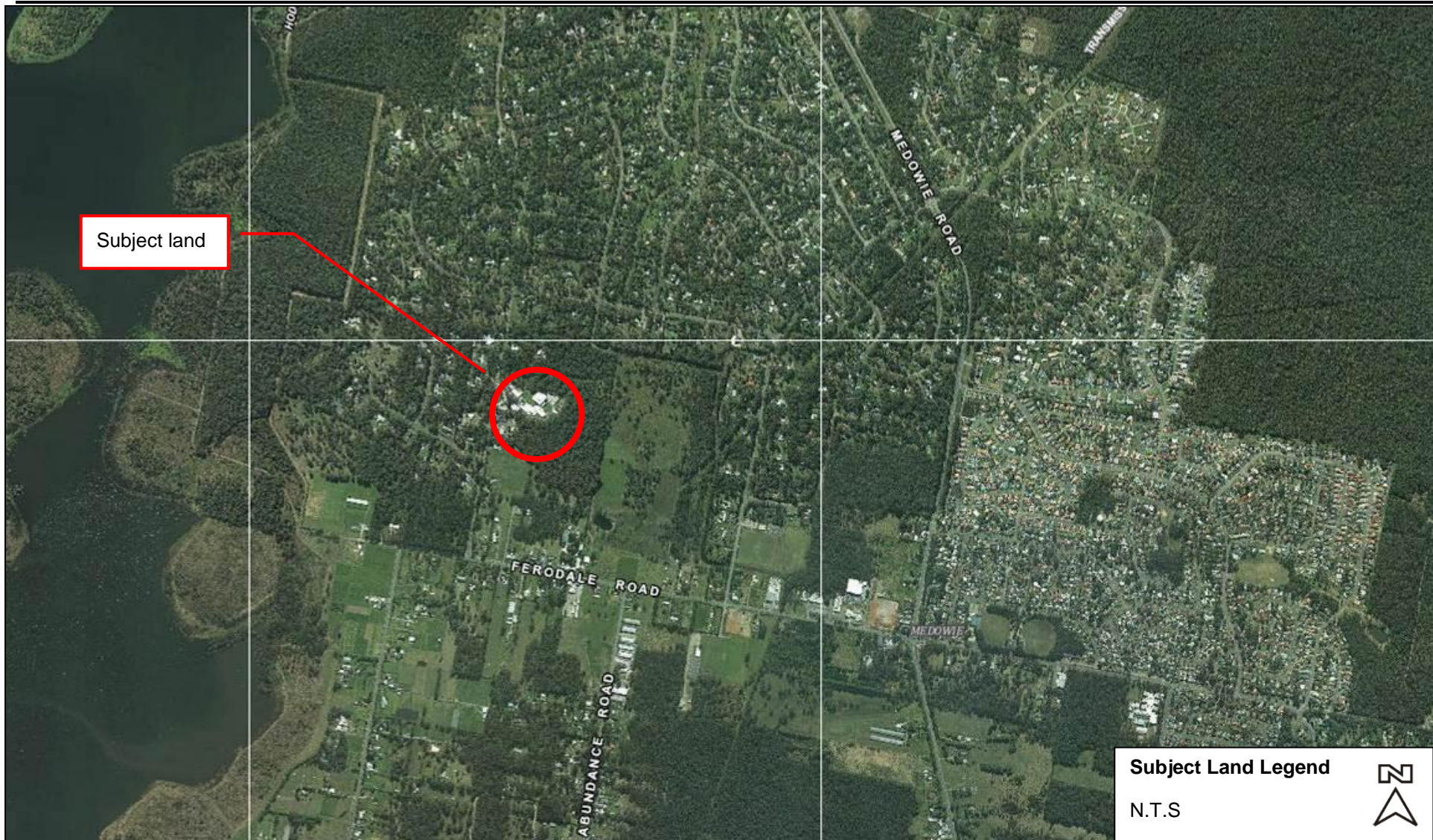


Figure 1: Aerial photograph depicting the subject land

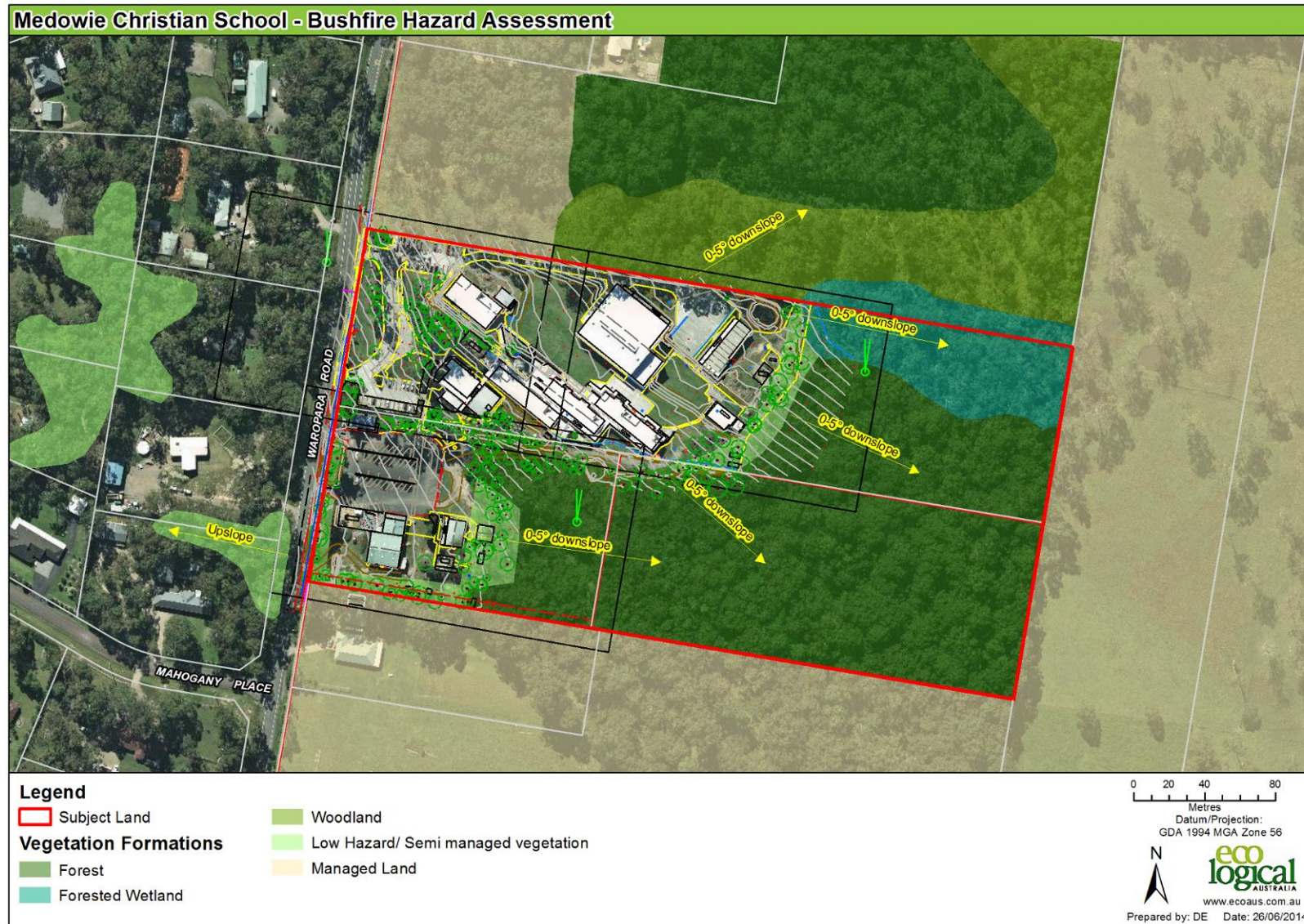


Figure 2: Aerial photograph depicting the vegetation and slope relating to the proposed development

Bushfire Assessment

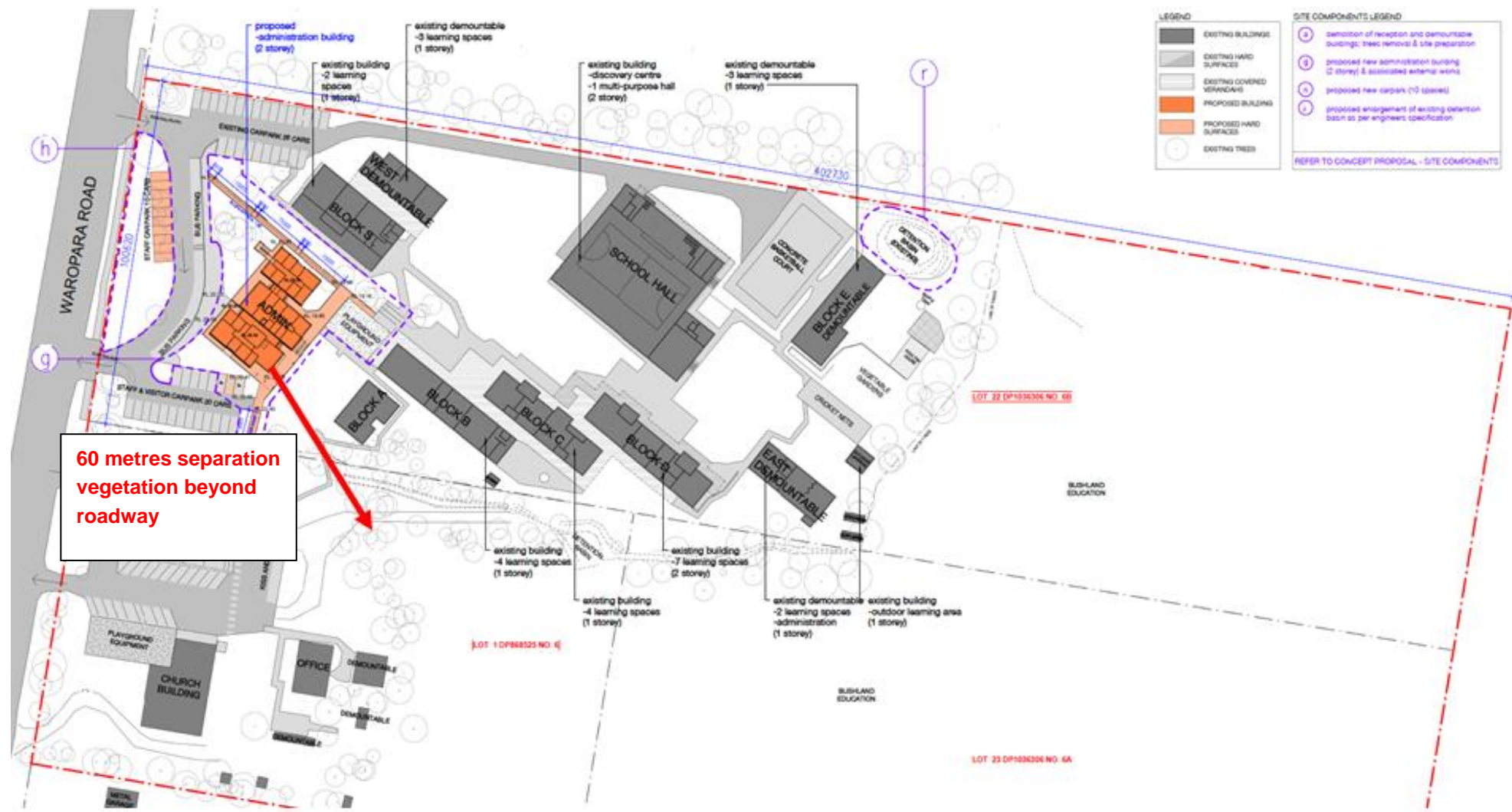


Figure 3: Proposed Stage 1 DA Administration building layout

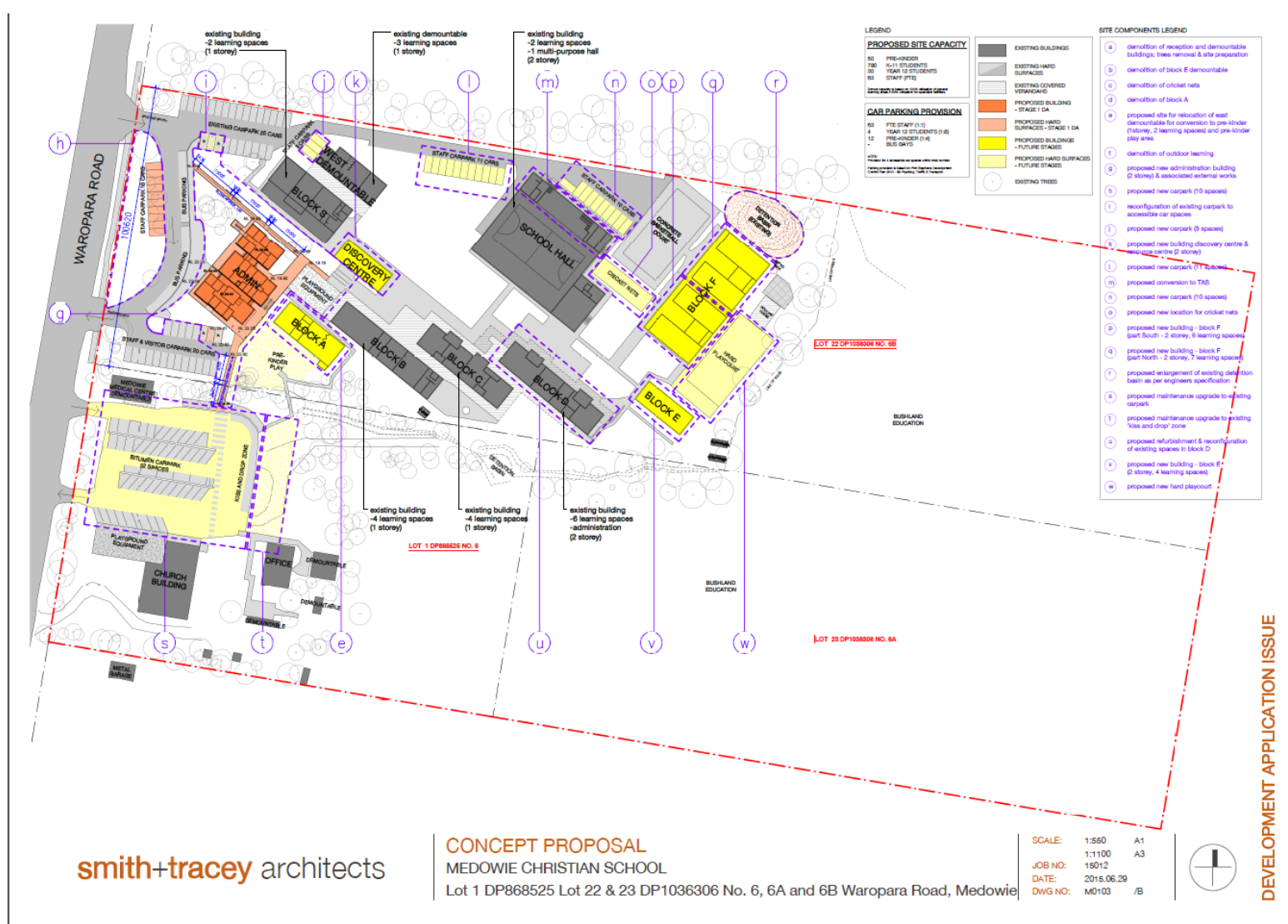


Figure 4: Proposed Concept Plan layout

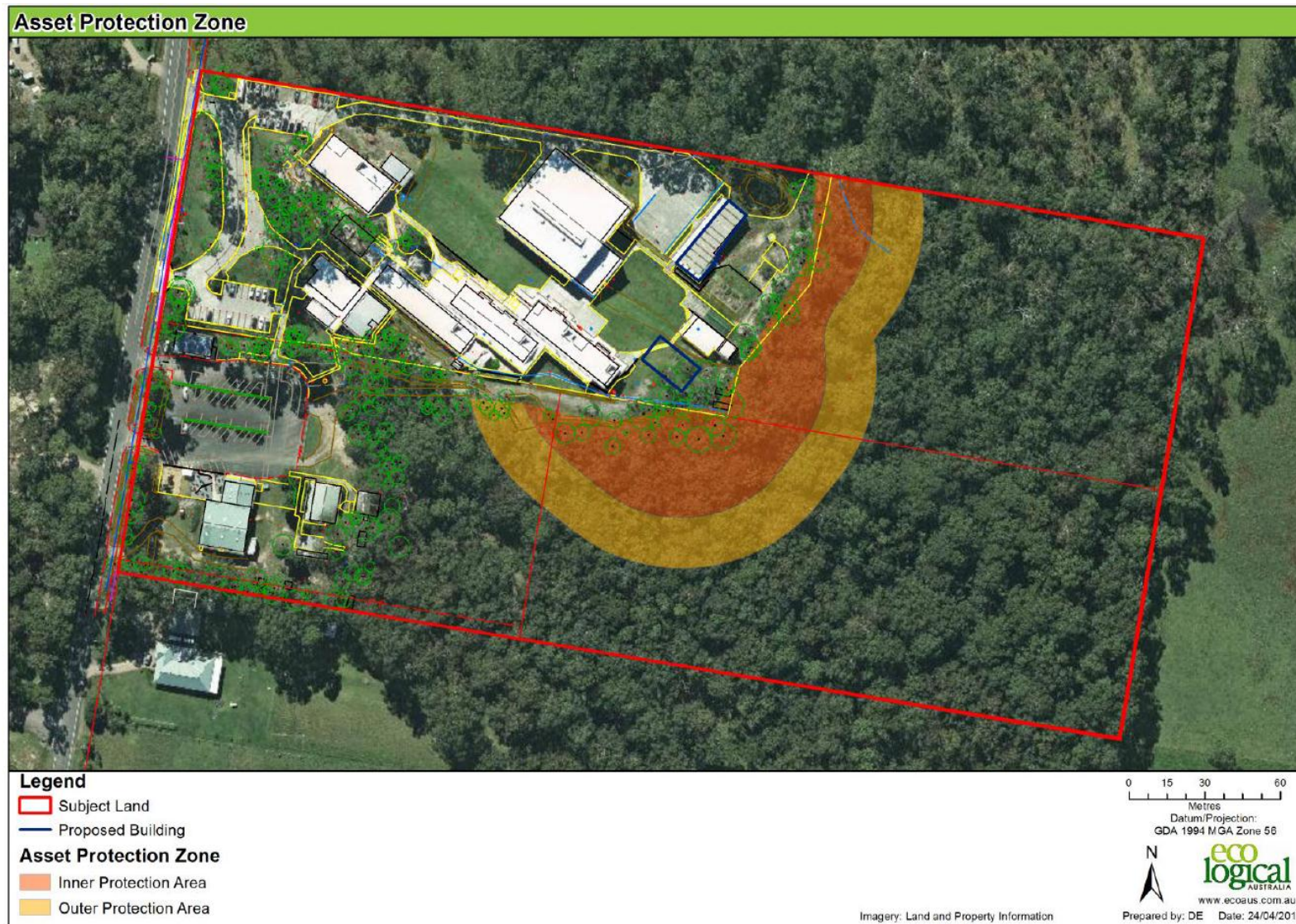


Figure 5: Proposed Concept Plan building APZ

2 Assessment requirements

It is proposed for the development to be approved under the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP). The purpose of ISEPP is to provide opportunities for a streamlined development process for critical infrastructure projects that may otherwise be delayed by the usual planning processes through the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Clause 16(f) of the ISEPP requires consultation with public authorities, in this case the RFS should be consulted:

(f) development for the purposes of an educational establishment, health services facility, correctional centre or group home, or for residential purposes, in an area that is bush fire prone land (as defined by the Act)—the NSW Rural Fire Service.

Note. The Act defines bush fire prone land, in relation to an area, as land recorded for the time being as bush fire prone land on a map certified as referred to in section 146 (2) of the Act.

Note. When carrying out development of a kind referred to in paragraph (f), consideration should be given to the publication of the NSW Rural Fire Service Planning for Bush Fire Protection 2006.

The above clause provides a consultation process that may highlight various risks, concerns and recommendations of the other parties, and also highlights the relevant legislative documents that should be 'considered', however, there is no legal requirement within the SEPP itself to implement their comments and recommendations.

The most significant consideration in adopting this pathway within a bushfire prone area is the inherent risk and liabilities that rest with the school in terms of their ongoing responsibilities and duty of care to staff, parents and particularly students (who are considered as vulnerable occupants).

A bushfire assessment must consider the requirements of 'Planning for Bush Fire Protection 2006' (NSW Rural Fire Service 2006). Section 4.2 of 'Planning for Bush Fire Protection 2006' (PBP) addresses the assessment and bushfire protection requirements for development involving schools. The proposal constitutes an infill Special Fire Protection Purpose (SFPP) development as per PBP Section 4.2.5. As such the specific objectives for infill development (PBP Section 4.3.2) have been relied upon.

SFPP developments are treated and assessed differently to other developments, and they require a higher standard of bushfire protection due to one or more of the following reasons:

- Occupants may not originate from the area and therefore may be less educated in relation to bushfire impacts;
- They may have a reduced capacity to evaluate risk and respond adequately to the bushfire threat;
- They may be more vulnerable to stress arising from bushfire threat; and
- They may present logistical difficulties for evacuation, due to reduced mobility, larger numbers of people, communication barriers and the requirement for increased supervision.

The PBP specific objectives for SFPP development are to:

- *Provide for the special characteristics and needs of occupants. Unlike residential subdivisions, which can be built to withstand the fire event, enabling occupants and firefighters to provide property protection after the passage of fire, occupants of SFPP developments may not be able to assist in property protection. They are more likely to be adversely affected by smoke or heat while being evacuated.*
- *Provide for safe emergency evacuation procedures. SFPP developments are highly dependent on suitable emergency evacuation arrangements, which require greater separation from bushfire threats. During emergencies, the risk to firefighters and other emergency services personnel can be high through prolonged exposure, where door-to-door warnings are being given and exposure to the bushfire is imminent.*

3 Bushfire Hazard

The hazard assessment provides the basis for the calculation for asset protection zones and building construction standards. These are defined in the following sections.

For the purposes of PBP, bushfire hazard is the combination of vegetation type and slope. PBP requires the assumption that a worst-case scenario bushfire can occur within all vegetation types of a significant size regardless of direction, aspect, fire history and the general risk of fire.

3.1 Vegetation types

There is land that is consistent with managed land to the northwest, east and south of the subject land (refer to photos 1 & 5). The area to the south is managed through extensive grazing which restricts the fuel loads in the ground and mid-storey providing for limited fuel loads (refer to photos 7 & 8).

To the northeast is vegetation that is consistent with the RFS category of a 'Grassy Woodland' (refer to photo 2).

To the east is an area of vegetation dominated by Melaleuca species and consistent with a forested wetland which is assessed by PBP as having the same fuel loads and bushfire characteristics of a 'Forest' (refer to photo 4). To the east, southeast and south are areas of vegetation that are grouped under the PBP category of 'Forest'.

3.2 Effective slope

There are gentle slopes to the northeast, east and southeast in the PBP slope class of 'Downslope 0-5 degrees'.

Photo 1: Managed land adjacent to NW school boundary



Photo 2: Woodland vegetation to the NE



Photo 3: Area where infill development is applicable



Photo 4: Melaleucas forming part of 'Forested Wetland' to the E

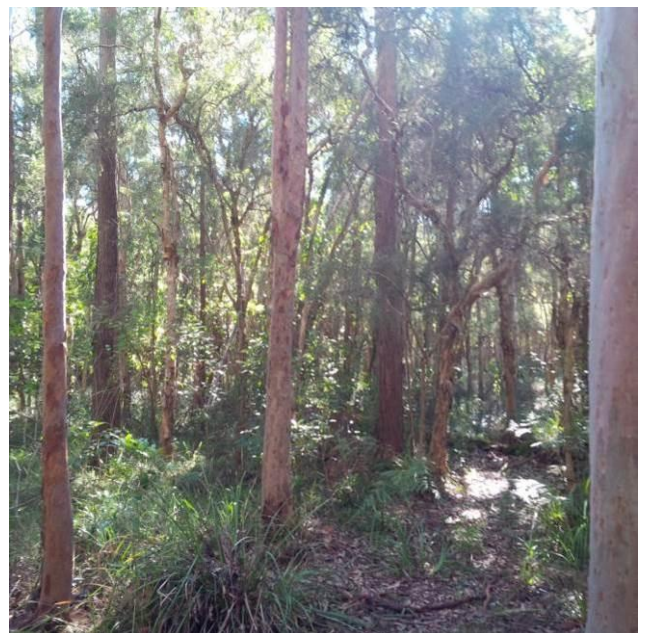


Photo 5: Looking S along E boundary



Photo 4: Semi Managed area to the E of the church



Photo 7: Looking S from S boundary of church land at managed understorey



Photo 8: Looking SE from S boundary of church land at managed understorey



4 Asset Protection Zones (APZ)

PBP has been used to determine the width of Asset Protection Zones (APZ) using the vegetation and slope data identified in Section 2.1. **Table 1** shows the proposed APZ for the Stage 1 DA for the administration Building and Table 2 shows the proposed APZ for the Concept Plan.

4.1 Stage 1DA – Administration Building

The Administration Building component of the school is not classified the same as those buildings which house school children and therefore is not assessed the same as a standard SFPP building. Regardless the required APZ for a SFPP development against Forest vegetation on a 'Downslope 0-5 degrees' is 70 metres according to Table A2.6 in PBP. There is an existing separation distance of 60 metres between the proposed building and the hazard (boundary). The separation distances consist of managed grounds and hard surfaces associated with the existing access at the rear eastern fringe of the adjoining bitumen carpark.

The proposed Administration Building location is assessed under the infill development provisions of PBP (refer to Section 4.1).

Table 1: Threat assessment, APZ and bushfire attack level Stage 1

Direction from envelope	Slope ¹	Vegetation ²	PBP required APZ ³	Proposed APZ	AS3959 Construction Standard ⁴	Comment
Southeast	Downslope 0-5 ⁰	Forest	70 m	60 m	BAL-12.5	PBP APZ setback for infill development is achievable
All other directions	Managed lands					

¹ Effective slope assessed over 100 m from proposed development where the bushfire hazard occurs.

² Predominant vegetation classification over 140 m from proposed development.

³ Minimum APZ required by PBP acceptable solution for SFPP.

⁴ Bushfire Attack Level (BAL) corresponding to construction requirements under AS 3959-2009 'Construction of Buildings in Bushfire Prone Areas'.

4.1.1 Specific Objectives

While the proposed development does not meet the minimum APZ for SFPP development, it complies with the aim and objectives of PBP for infill development. The Specific Objectives for infill development and a comment as to how they are achieved by the proposed development is provided below:

Specific Objective 1 for infill developments is to "ensure that the bushfire risk to adjoining lands is not increased". The development would not increase the bushfire risk to adjoining lands and will be constructed to minimise material ignition including BCA requirements. This objective is satisfied.

Specific Objective 2 for infill developments is to “*provide a minimum defensible space*”. The land between the proposed Administration Building and the property boundary consists of existing managed lands and roads. This will provide an adequate defensible space between it and the hazard. This objective is satisfied.

Specific Objective 3 for infill developments is to “*provide a better bushfire protection, on a re-development site, than the existing situation. This should not result in new works being exposed to greater risk than the existing building*”. The proposal involves a new building rather than a redevelopment. The building will not be closer to the hazard than the existing building lines. This objective is satisfied.

Specific Objective 4 for infill developments is to “*ensure that the footprint of the proposed building does not extend towards the hazard beyond existing building lines on neighbouring land*”. The proposed development does not extend beyond the footprint of the school buildings in the subject land. This objective is satisfied.

Specific Objective 5 for infill developments is to “*not result in an increased bushfire management and maintenance responsibility on adjoining land owners unless they have agreed to the development*”. The development does not increase or offset bushfire management onto neighbouring lands. This objective is satisfied.

Specific Objective 6 for infill developments is to “*ensure building design and construction enhances the chances of occupant and building survival*”. Section 5 outlines the requirement to comply with construction standards for bushfire protection. The proposed building will be constructed to comply with the relevant BAL under AS 3959. This objective is satisfied.

4.2 Concept Plan Proposal

The required APZ for an SFPP development against ‘Forest’ vegetation on a ‘Downslope 0-5 degrees’ is 70 metres according to Table A2.6 in PBP. There will need to be vegetation clearing to support the construction and relocation of new buildings in this stage of the proposed development.

Table 2: Threat assessment, APZ and bushfire attack level Concept Plan

Direction from envelope	Slope ¹	Vegetation ²	PBP required APZ ³	Proposed APZ	AS3959 Construction Standard ⁴	Comment
North, East & South	Downslope 0-5 ⁰	Forest	70 m	70 m	BAL-12.5	Vegetation clearing is required to support this development.
All other directions	Managed lands					

¹ Effective slope assessed over 100 m from proposed development where the bushfire hazard occurs.

² Predominant vegetation classification over 140 m from proposed development.

³ Minimum APZ required by PBP acceptable solution for SFPP.

⁴ Bushfire Attack Level (BAL) corresponding to construction requirements under AS 3959-2009 ‘Construction of Buildings in Bushfire Prone Areas’.

4.2.1 APZ maintenance plan

The proposed APZ area involving a minimum of 70 metres from the proposed Concept Plan development is to be managed as follows:

- No tree or tree canopy is to occur within 2 m of future building rooflines;
- The presence of a few shrubs or trees in the APZ is acceptable provided that they:
 - are well spread out and do not form a continuous canopy;
 - are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
 - are located far enough away from future buildings so that they will not ignite the buildings by direct flame contact or radiant heat emission.
- Any landscaping or plantings should preferably be local endemic mesic species or other low flammability species;
- A minimal ground fuel is to be maintained to include less than 4 tonnes per hectare of fine fuel (fine fuel means ANY dead or living vegetation of <6 mm in diameter e.g. twigs less than a pencil in thickness. 4 t/ha is equivalent to a 1 cm thick layer of leaf litter); and
- Any structures storing combustible materials such as firewood (e.g. sheds) must be sealed to prevent entry of burning debris.

5 Construction standard

The building construction standard is based on the determination of the Bushfire Attack Level (BAL) in accordance with Method 1 of AS 3959-2009 '*Construction of Buildings in Bushfire Prone Areas*' (Standards Australia 2009). The BAL is based on known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard.

5.1 Stage 1 Administration Building

In response to the predicted bushfire attack, the western demountable is to be constructed to comply with BAL-12.5 under Australian Standard AS 3959-2009 '*Construction of buildings in bushfire-prone areas*'. It is important that the most recent and current version of AS 3959 is consulted. Additionally, the NSW variation to AS 3959 as outlined in PBP 2010 Appendix 3 Addendum is to be applied as applicable to the proposed development. These measures are included in Appendix 1.

5.2 Concept Plan

In response to the predicted bushfire attack, the buildings proposed as per the Concept Plan are to be constructed to comply with BAL-12.5 under Australian Standard AS 3959-2009 '*Construction of buildings in bushfire-prone areas*'. It is important that the most recent and current version of AS 3959 is consulted. Additionally, the NSW variation to AS 3959 as outlined in PBP 2010 Appendix 3 Addendum is to be applied as applicable to the proposed development. These measures are included in Appendix 1.

6 Water supply

There are hydrants located throughout the school and along Waropara Road which supply reticulated water. The furthest point from the proposed development to a hydrant will be less than 90 m easily allowing for a firefighting tanker to be within 20 metres of the hydrant and all parts of the proposed development being within 70 metres of the tanker.

7 Gas and electrical supplies

Where new powerlines are proposed they are to be in accordance with PBP, where electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed:

- Lines are to be installed with short pole spacing, unless crossing gullies; and
- No part of a tree should be closer to a powerline than the distance specified in “*Guideline for managing vegetation near power lines*” issued by Department of Energy, Utilities and Sustainability (ISSC 3, December 2005).

Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia, 2008).

8 Access

The property is directly accessible from Waropara Road to the west, which is a sealed two-way public road which can be utilised to attend an incident on the subject land. Waropara Road also offers several alternate routes into Medowie and to the north, south and west. Additional access provisions in regards to bushfire protection are not required for this proposal.

9 Assessment of environmental issues

An Ecological Constraints Assessment (Eco Logical Australia 2014) was prepared for the subject land and it was found that the most significant ecological values on the site are contained in the north east corner. This area contains Swamp Sclerophyll Forest EEC, habitat for threatened plants, breeding and foraging habitat for some threatened fauna and forms part of a buffer to preferred Koala habitat mapped within the CKPoM.

The remainder of the site is divided into disturbed or cleared land and forest vegetation. The forest vegetation provides foraging habitat for a wide range of threatened fauna. However, the threatened fauna that are predicted to occur would only expected to use the site on occasion and no species were recorded on the site.

10 Bushfire maintenance plans and fire emergency procedures

Any existing bushfire maintenance plans and fire emergency procedures will need to be amended to incorporate the new development prior to occupation.

11 Recommendations & conclusion

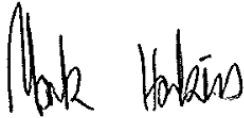
The proposal consists of the relocation and construction of buildings over two stages. The Stage 1 additions can comply with the PBP specific objectives for infill development of an existing SFPP facility of PBP. The Stage 2 additions will need to meet the requirements for a new SFPP development.

This assessment has been prepared by the ELA Senior Bushfire Consultant, Mark Hawkins and quality reviewed by ELA Senior Bushfire Consultant Daniel Copland (FPAA BPAD Level 3 Certified Practitioner No. BPD-L3-28853). Daniel is recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment.

The following recommendations apply:

- a. The proposed Stage 1 Administration Building be constructed to comply with BAL-12.5 under Australian Standard AS 3959-2009 '*Construction of buildings in bushfire-prone areas*' (Standards Australia 2009).
- b. The proposed Concept Plan buildings be constructed or retrofitted (if relocated) to comply with BAL-12.5 under Australian Standard AS 3959-2009 '*Construction of buildings in bushfire-prone areas*' (Standards Australia 2009).
- c. The NSW variation to AS 3959 as outlined in PBP (within the 2010 Appendix 3 Addendum) are to be implemented as applicable to the proposed developments (refer to Appendix 1 of this report).
- d. An APZ of minimum 70m is to be established around the proposed Administration Building and the new buildings as per the Concept Plan consistent with the maintenance plan in Section 4.2.1 of this report.
- e. Electricity should be under ground where practicable. Otherwise, lines are to be installed with short pole spacing, unless crossing gullies and no part of a tree should be closer to a powerline than the distance specified in "*Guideline for managing vegetation near power lines*" issued by Department of Energy, Utilities and Sustainability (ISSC 3, December 2005).
- f. Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia, 2008).
- g. Any existing bushfire maintenance plans and fire emergency procedures will need to be amended to incorporate the new development prior to occupation.

In the author's professional opinion the proposed development can comply with '*Planning for Bush Fire Protection*' (NSWRFS 2006) for infill SFPP development.



Mark Hawkins
Senior Bushfire Consultant



Eco Logical Australia (ELA) is recognised by the NSW Rural Fire Service and the NSW Department of Planning as a suitably qualified consultant as the company is listed as a Certified Business (BPD-BA-18882) under the Fire Protection Association of Australia's BPAD program.

References

Department of Energy, Utilities and Sustainability (ISSC 3, December 2005) *Guideline for managing vegetation near power lines*.

Eco Logical Australia 2014. *Medowie Christian School and Baptist Community Church Ecological Constraints Assessment*. Prepared for EPM Projects Pty Ltd.

NSW Rural Fire Service (RFS). 2006. *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Australian Government Publishing Service, Canberra.

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2008. *The storage and handling of LP Gas*, AS/NZS 1596-2008, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2009 (Amendment 3). *Construction of buildings in bushfire-prone areas*, AS 3959, Third edition 2009, Standards Australia International Ltd, Sydney.

Appendix 1

Appendices

Table A3.5.1 – Conversion of vegetation classification from David Keith's *Ocean Shores to Desert Dunes* (used in PBP) to the AUSLIG Pictorial Analysis in AS3959-2009. This conversion is based on what is considered the best representation of similar bush fire behavior potential.

David Keith's <i>Ocean Shores to Desert Dunes</i>	AUSLIG (1990) Pictorial Analysis (AS3959-2009)
Forests (Wet & Dry Sclerophyll)	Forest
Pine Plantations	
Forested Wetlands	
Woodlands (Grassy, Semi-Arid)	Woodland
Tall Heath (Scrub)	Scrub
Freshwater Wetlands	
Short Heath (Open Scrub)	Shrubland
Arid Shrubland	Mallee/Mulga
Alpine Complex (Sedgeland)	Tussock Moorland
Rainforest	Rainforest
Grassland	Grassland

For the purposes of Table A2.6 in Appendix 2, the requirements for Alpine Resorts should be developed using Table 2.4.4 of AS3959-2009. Generally, most development applications within the Alpine Resorts consist of alterations and additions to existing buildings and therefore would be treated as infill development. Developments involving new leases or new alpine resorts must contact the RFS to determine the APZ requirements.

A3.6 Construction Considerations within the Flame Zone

There is potential for flames to ignite the external facade of a building which can continue to burn after the passage of the fire front. Therefore some degree of conservatism in relation to the exposure period is appropriate.

In NSW there are no recognized deemed-to-satisfy arrangements for construction of buildings within the Flame Zone. Where sustained flame contact is likely, the radiant heat and convective heat exposures are considerable and overwhelms most materials.

While AS3959 can be used as a guide to improve building safety, this is subject to additional control measures not included in this document. The design and construction of a building is just one means of mitigating the bush fire risk and will normally require supplementation by a range of other mitigation measures to the satisfaction of the authority having jurisdiction. The extent of additional measures required will be dependent upon the bush fire hazard and its proximity to the buildings. In addition to the construction requirement of AS3959, applicants should also address the Performance Requirements of the BCA and consider the siting and the design principles in Section 4.3.5 of PBP.

Where new testing regimes are developed and deemed appropriate by the NSW Rural Fire Service, these may be incorporated as part of

the process of developing alternative solutions. Alternative solutions will be considered on their merits.

A3.7 Additional Construction Requirements

Planning for Bush Fire Protection is designed to provide for improved bush fire protection outcomes through the planning system, whereas the construction requirements are established through the operation of the BCA. However, based on a review of AS3959-2009 and recent developments through the interim findings from the Victorian Royal Commission, the RFS has concerns over the levels of safety for ember protection at lower BAL levels (BALs 12.5 and 19) provided by AS3959-2009. The RFS is concerned that by adopting the new Standard there would be a reduction in safety created from that afforded by the previous NSW application of AS3959-1999 in relation to ember protection. In this regard, the RFS will aim to maintain the safety levels previously provided by AS3959-1999. In particular, the areas of concern arise from requirements for:

- Sarking
- Sub floor screening
- Floors
- Verandas, Decks, Steps, Ramps And Landings

In addition, in order to provide a suitable combination of bush fire protection measures the NSW Rural Fire Service will, as part of the planning assessment process, recommend / require additional construction requirements beyond those prescribed in AS3959-2009 as deemed appropriate.

Planning requirements for grasslands are contained within the main body of PBP.

As part of the planning requirements, the following will create part of the suite of protection

measures required to form compliance with *Planning for Bush Fire Protection*.

SARKING

Any sarking used for BAL-12.5, BAL-19, BAL-29 or BAL-40 shall be:

- a. Non-combustible; or
- b. Breather-type sarking complying with AS/NZS 4200.1 and with a flammability index of not more than 5 (see AS1530.2) and sarked on the outside of the frame; or
- c. An insulation material conforming to the appropriate Australian Standard for that material.

SUBFLOOR SUPPORTS

For BAL-12.5 and BAL-19, Clause 5.2 and 6.2 shall be replaced by the provisions of Clause 7.2. In this regard, Clause 7.2 states:

“7.2 SUBFLOOR SUPPORTS

This Standard does not provide construction requirements for subfloor supports where the subfloor space is enclosed with—

- a. *a wall that complies with (Clause 5.4 or 6.4 as appropriate); or*
- b. *a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion resistant steel, bronze or aluminium; or*
- c. *a combination of Items (a) and (b) above.*

Where the subfloor space is unenclosed, the support posts, columns, stumps, piers and poles shall be—

- (i) *of non-combustible material; or*
- (ii) *of bushfire-resisting timber (see Appendix F); or*
- (iii) *a combination of Items (i) and (ii) above.*

NOTE: *This requirement applies to the principal building only and not to verandas, decks, steps, ramps and landings (see Clause 7.7)."*

ELEVATED FLOORS

For BAL-12.5 and BAL-19, Clause 5.3 and 6.3 shall be replaced by the provisions of clause 7.3. In this regard, clause 7.3.2 states:

“7.3.2 Elevated floors

7.3.2.1 Enclosed subfloor space

This Standard does not provide construction requirements for elevated floors, including bearers, joists and flooring, where the subfloor space is enclosed with—

- a. *a wall that complies with (Clause 5.4 or 6.4 as appropriate); or*
- b. *a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion resistant steel, bronze or aluminium; or*
- c. *a combination of Items (a) and (b) above.*

7.3.2.2 Unenclosed subfloor space

Where the subfloor space is unenclosed, the bearers, joists and flooring, less than 400 mm above finished ground level, shall be one of the following:

- a. *Materials that comply with the following:*

- (i) *Bearers and joists shall be—*

- A. *non-combustible; or*
- B. *bushfire-resisting timber (see Appendix F); or*
- C. *a combination of Items (A) and (B) above.*

- (ii) *Flooring shall be—*

- A. *non-combustible; or*
- B. *bushfire-resisting timber (see Appendix F); or*
- C. *timber (other than bushfire-resisting timber), particleboard or plywood flooring where the underside is lined with sarking-type material or mineral wool insulation; or*
- D. *a combination of any of Items (A), (B) or (C) above. or*

- b. *A system complying with AS 1530.8.1*

This Standard does not provide construction requirements for elements of elevated floors, including bearers, joists and flooring, if the underside of the element is 400 mm or more above finished ground level."

VERANDAS, DECKS, STEPS, RAMPS AND LANDINGS

For BAL-12.5 and BAL-19, Clause 5.7 and 6.7 shall be replaced by the provisions of clause 7.7. In this regard, clause 7.7 states:

"7.7 VERANDAS, DECKS, STEPS, RAMPS AND LANDINGS

7.7.1 General

Decking may be spaced.

There is no requirement to enclose the subfloor spaces of verandas, decks, steps, ramps or landings.

7.7.2 Enclosed subfloor spaces of verandas, decks, steps, ramps and landings

7.7.2.1 Materials to enclose a subfloor space

The subfloor spaces of verandas, decks, steps, ramps and landings are considered to be 'enclosed' when —

- a. *the material used to enclose the subfloor space complies with **(Clause 5.4 or 6.4 as appropriate)**; and*
- b. *all openings greater than 3 mm are screened with a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium.*

7.7.2.2 Supports

This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.

7.7.2.3 Framing

This Standard does not provide construction requirements for the framing of verandas, decks, ramps or landings (i.e., bearers and joists).

7.7.2.4 Decking, stair treads and the trafficable surfaces of ramps and landings

Decking, stair treads and the trafficable surfaces of ramps and landings shall be—

- a. *of non-combustible material; or*
- b. *of bushfire-resisting timber (see Appendix F); or*
- c. *a combination of Items (a) and (b) above.*

7.7.3 Unenclosed subfloor spaces of verandas, decks, steps, ramps and landings

7.7.3.1 Supports

Support posts, columns, stumps, stringers, piers and poles shall be—

- a. *of non-combustible material; or*
- b. *of bushfire-resisting timber (see Appendix F); or*
- c. *a combination of Items (a) and (b) above.*

7.7.3.2 Framing

Framing of verandas, decks, ramps or landings (i.e., bearers and joists) shall be—

- a. *of non-combustible material; or*
- b. *of bushfire-resisting timber (see Appendix F); or*
- c. *a combination of Items (a) and (b) above.*

7.7.3.3 Decking, stair treads and the trafficable surfaces of ramps and landings

Decking, stair treads and the trafficable surfaces of ramps and landings shall be—

- a. *of non-combustible material; or*
- b. *of bushfire-resisting timber (see Appendix F); or*
- c. *a combination of Items (a) and (b) above.*

7.7.4 Balustrades, handrails or other barriers

Those parts of the handrails and balustrades less than 125 mm from any glazing or any combustible wall shall be—

- a. *of non-combustible material; or*
- b. *bushfire-resisting timber (see Appendix F); or*
- c. *a combination of Items (i) and (ii) above.*

Those parts of the handrails and balustrades that are 125 mm or more from the building have no requirements."



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