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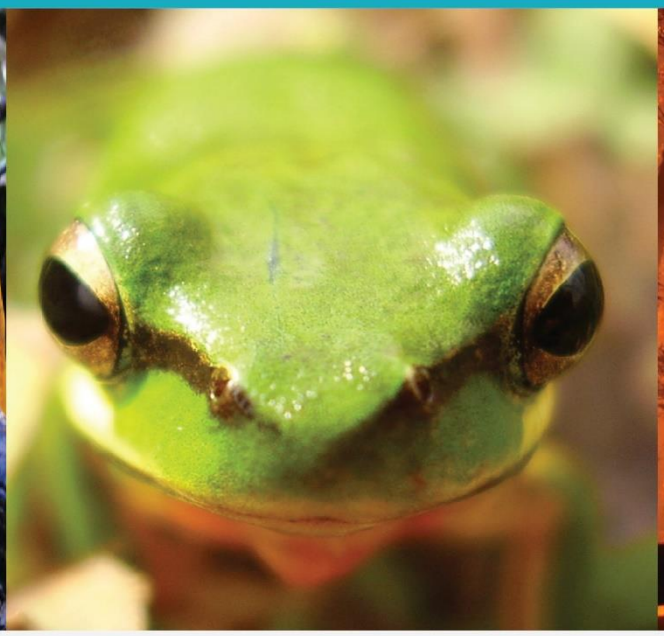


BUSHFIRE PROTECTION ASSESSMENT

Proposed Wyong Hospital WCEoLP Development

Lot 4, DP 1248441

664 Pacific Highway

Hamlyn Terrace

Under Part 5 of the EP&A Act (1979)

13 March 2024

(REF:23CAPIN02)

BUSHFIRE PROTECTION ASSESSMENT

Proposed Special Fire Protection Purpose Development (residential care)

Lot 4, DP 1248441 at 664 Pacific Highway, Hamlyn Terrace

Report Authors:	Luke Simpson - Bushfire Consultant
Plans prepared:	Wayne Davis - GIS Officer
Checked by:	Dr. Grahame Douglas AM - Principal Bushfire Consultant
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The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features is to be confirmed by a registered surveyor.

EXECUTIVE SUMMARY

Travers bushfire & ecology (TBE) has been engaged to prepare a bushfire protection assessment for the proposed Special Fire Protection Purpose (SFPP) development located at Wyong Hospital, 664 Pacific Highway, Hamlyn Terrace. The development will involve the refurbishing and repurposing of the existing Building C into the future Wyong Palliative Care Unit which forms a part of the Wyong Hospital World Class End of Life Program (WCEoLP).

Although the proposed development is consistent with being a SFPP development under *s100B* of the *Rural Fires Act 1997 (RF Act)* the proposal is an activity under Part 5 of the *Environmental Planning & Assessment Act 1979 (EP&A Act).* This classification does not require the NSW Rural Fire Service (RFS) to consider whether to issue a bushfire safety authority (BSA). The proposal has however, been assessed in accordance with *Planning for Bush Fire Protection 2019 (PBP)* as if it were a SFPP development. Further, the building is not sited within an area identified as being mapped as bush fire prone land under section 10.3 of the *EP&A Act.*

PBP dictates that the subsequent extent of bushfire attack that can potentially impact a SFPP building must not exceed a radiant heat flux of 10kW/m^2. This rating assists in determining the size of the asset protection zone (APZ) to provide the necessary defendable space between hazardous vegetation and a building.

This assessment has found that bushfire can potentially affect the proposed development from Forested Wetland vegetation to the north and east of the development. This has the potential to result in future buildings being exposed to potential radiant heat and ember attack. In recognition of the bushfire risk posed to the site by the surrounding bushland, *TBE* proposes the following combination of bushfire measures;

- APZs in accordance with the minimum setbacks outlined within *PBP* for the northern and eastern aspects as indicated in section 2.3 and generally depicted in Schedule 1.
- Provision of access in accordance with the acceptable solutions outlined in *PBP*.
- Water, electricity and gas supply in compliance with the acceptable solutions outlined in *PBP.*
- Future building construction in compliance with the appropriate construction sections of *AS3959-2009*, and *PBP.*
- Updating the existing BEEP for Wyong Hospital to incorporate future patients and staff of the Wyong Palliative Unit development.

GLOSSARY OF TERMS

AHIMS	Aboriginal Heritage Information System
APZ	asset protection zone
AS1596	*Australian Standard – The storage and handling of LP Gas*
AS2419	*Australian Standard – Fire hydrant installations*
AS3745	*Australian Standard – Planning for emergencies in facilities*
AS3959	*Australian Standard – Construction of buildings in bushfire-prone areas 2018*
BAL	*bushfire attack level*
BCA	*Building Code of Australia*
BC Act	*Biodiversity Conservation Act 2016*
BEEP	Bushfire Emergency & Evacuation Plan
BFSA	Bush fire safety authority
DA	development application
DLUP	Development Land Use Plan
EEC	Endangered ecological community
EP&A Act	*Environmental Planning & Assessment Act 1979*
EP&A Regulation	*Environmental Planning & Assessment Regulation 2021*
EPBC act	*Environment Protection & Biodiversity Conservation Act 1999*
FFDI	forest fire danger index
IPA	inner protection area
LEP	Local Environmental Plan
LGA	local government area
m	metres
NCC	*National Construction Code*
OPA	outer protection area
PBP	*Planning for Bush Fire Protection 2019*
RF Act	*Rural Fires Act 1997*
RFS	NSW Rural Fire Service
SFPP	special fire protection purpose
TBE	*Travers bushfire & ecology*

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1. INTRODUCTION

Travers bushfire & ecology (TBE) has been engaged by Capital Insight Pty Limited on behalf of Wyong Public Hospital to undertake a bushfire protection assessment for the proposed World Class End of Life Project (WCEoLP) development located at 664 Pacific Highway, Hamlyn Terrace. The proposed development site is not identified as being located on Bush Fire Prone Land (BFPL) mapped by *Central Coast Council*. (Refer Figure 1-1). Therefore, a formal assessment by the NSW Rural Fire Service (RFS) policy against the provisions of *Planning for Bush Fire Protection 2019 (PBP)* is not required. The proposal falls within the provisions of Part 5 of the *Environmental Planning & Assessment Act 1979 (EP&A Act)* and referral of the proposal to the NSW RFS for consideration of bush fire is not considered necessary. The site is somewhat remote from any bushfire hazards onsite (north of the site).

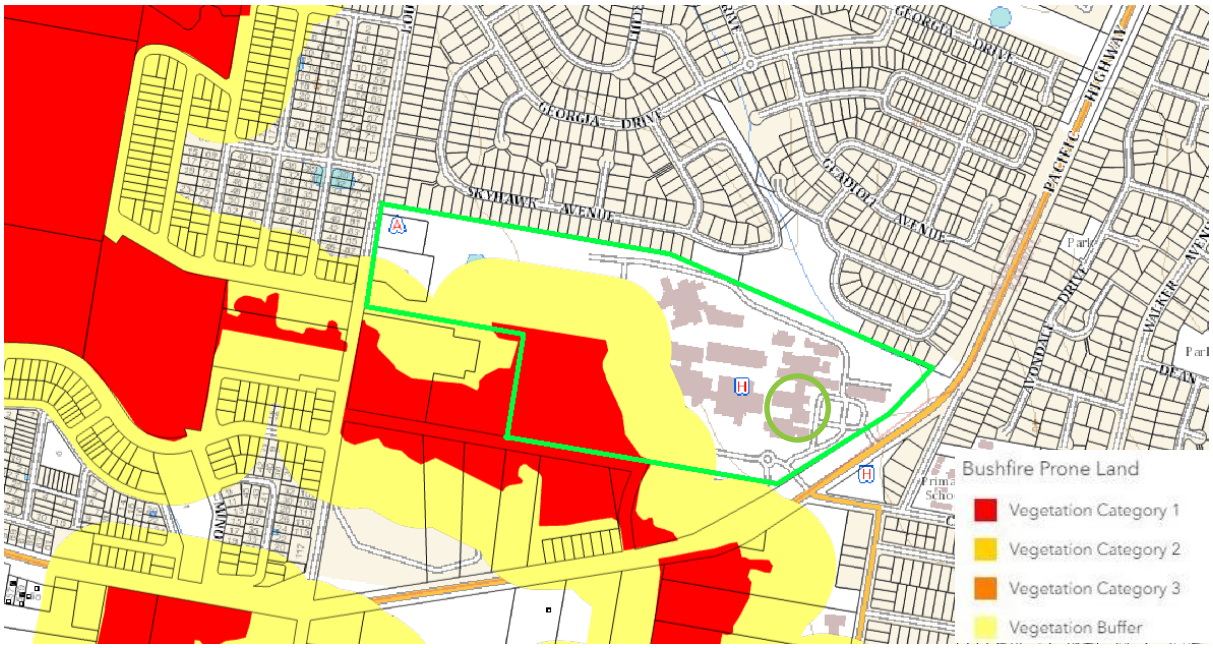

Figure 1-1 – Bushfire Prone Land Map (site circled in green)

(Source: NSW Planning Portal, edits by Luke Simpson 29/12/2023)

1.1 Aims of the assessment

The aims of the bushfire protection assessment are to:

- review the bushfire threat to the activity;
- undertake a bushfire attack assessment in accordance with *PBP;*
- provide advice on bush fire protection measures, including the provision of asset protection zones (APZs), construction standards and other specific fire management issues; and
- review the potential to carry out hazard management over the development site.

1.2 Information collation

Information sources reviewed for the preparation of this report include the following:

- Australian Standard 3959 Construction of buildings in bushfire-prone areas (2018).
- BVN (2023). 'World Class End of Life Program- Wyong Concept Design Report', rev. 03, dated: 27.11.2023.
- Central Coast Local Environmental Plan 2022.
- Mecone Mosaic.
- NearMap aerial photography.
- NSW Planning Portal.
- NSW SEED Portal.
- *Planning for Bush Fire Protection 2019 (PBP).*
- *Travers bushfire & ecology* (2023). 'Bushfire Emergency Management & Evacuation Plan', no. 19RIC05BMP, dated: April 2021.

An inspection of the proposed development site and surrounds was undertaken by Luke Simpson on 2 November 2023 to assess the topography, slopes, aspect, drainage, vegetation and adjoining land use. The identification of existing bushfire measures and a visual appraisal of potential bushfire hazards and risks were also undertaken.

1.3 Proposed activity

The proposed activity involves the construction of the Wyong Pallative Care Unit located at Wyong Hospital, which forms a part of the facilities World Class End-of-Life Program (WCEoLP). The project aims to address a significant prevalence of chronic diseases within the Central Coast area with a growing ageing population. The project will provide an end-of-life and palliative care unit to help meet this demand.

The existing Building C (education centre building) on the Wyong Hospital campus is the preferred option (option 3) for the facility. This will involve its refurbishment and repuposing. According to the Wyong Concept Design Report (BVN, 2023), the architectural design in section 8 states that option 3 will be a 10/2 bed configuration and will involve the following:

- bedrooms maximised north (10 high care patients);
- private courtyards to all bedrooms;
- central main staff station with staff-sub to high care area;
- clinical support centrally located access to outdoors from communal spaces;
- separate staff courtyard accessed from staff room;
- distance to low activity bedrooms from staff station.

The building will only have one level and is anticipated to require a 780m^2 gross department area, plus an additional 120m^2 for a courtyard. Furthermore, existing chillers and pumps will be relocated, as well as two carparks to the north will be relocated to allow for a 4-6 outdoor area. (Refer to figure 1-2 and 1-3).

The site has a SP2- Infrastructure (Health Facilities) zoning in which the objectives of the zone under the *Central Coast Local Environmental Plan 2022 (Central Coast LEP)* involve:

- to provide infrastructure and related uses;
- to prevent development that is not compatible with or that may detract from the provision of infrastructure;

- to recognise existing railway land, major roads and utility installations and to enable their future development and expansion;

Under Chapter 2 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* bush fire matters are considered and extend only to the following.

> *"2.16 Consideration of Planning for Bush Fire Protection.*
>
> *(1) This section applies to development for the following purposes that this Chapter provides may be carried out without development consent—*
>
> *(a) health services facilities,*
>
> *(b) correctional centres,*
>
> *(c) residential accommodation.*
>
> *(2) A public authority, or a person acting on behalf of a public authority, must consider Planning for Bush Fire Protection before carrying out the development in an area that is bush fire prone land.*
>
> *(3) In this section — bush fire prone land means land recorded for the time being as bush fire prone land on a map certified under the Act, section 10.3(2). Planning for Bush Fire Protection means the document prescribed by the Environmental Planning and Assessment Regulation 2021, section 271."*

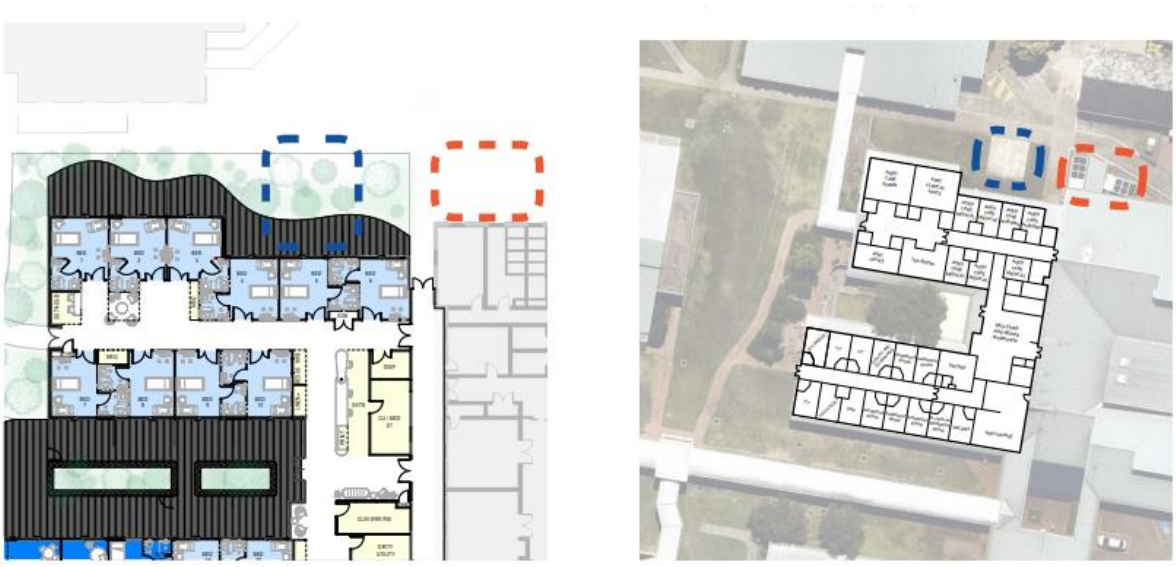

Figure 1-2 – Indicative location of impacted car parks (blue) and chiller/ pumps (orange)

(Source : BVN, Wyong Concept Design Report, s7.6, pg. 47, dated:27.11.2023)

1.4 Site description

The Wyong Hospital Campus is a part of the Central Coast Local Health District (CCLHD). The site is located approximately 2.5km north-east of North Wyong, 6km north-east of Wyong town center and 23km north-east of Gosford. The site is bounded by the Pacific Highway to the west, Louisiana Road to the east, residential dwellings to the north, and an aged-care facility and Kanwal medical village to the south. Zoning of the surrounding areas is a mixture of C2- Environmental Conservation, C3- Environmental Management, R1-General Residential, R2- Low Density Residential, RE1- Public Recreation RU6- Transition, E3- Productivity Support, SP2- Road and SP2- Classified Road.

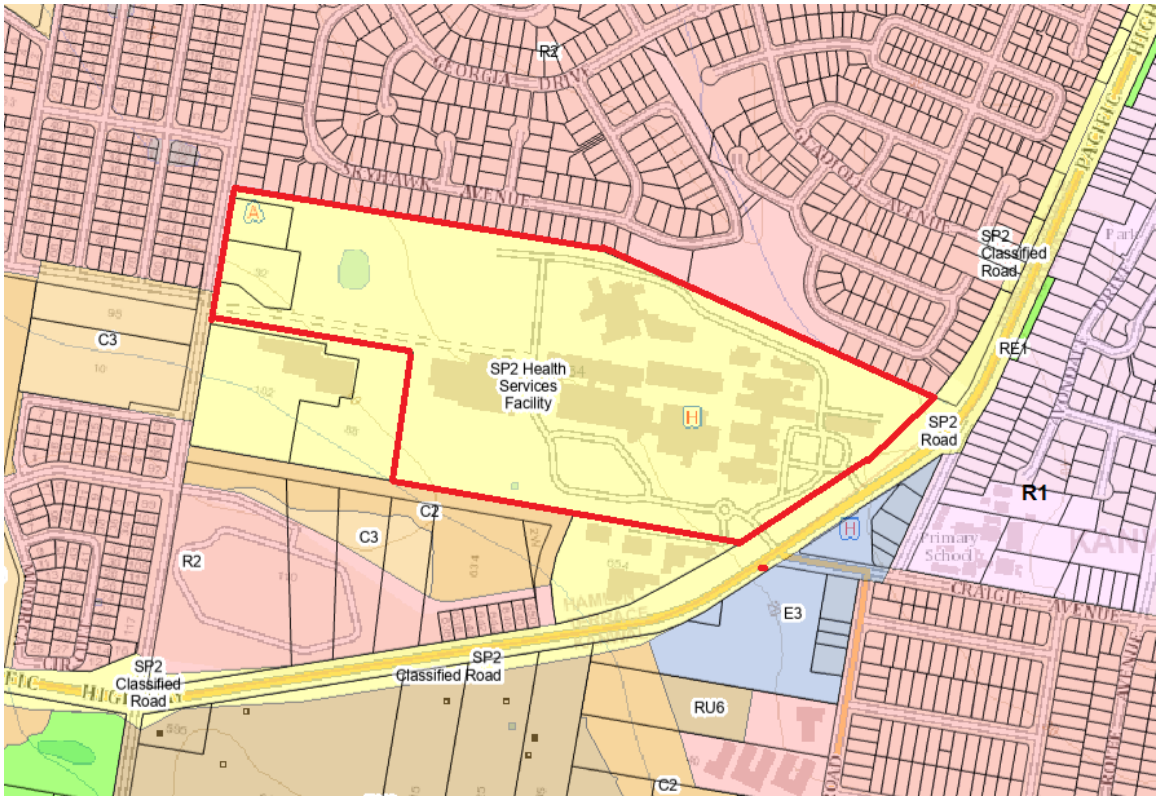

Figure 1-3 – Zoning

(Source: NSW Planning Portal, edits by Luke Simpson dated: 02/01/2023)

The proposed refurbishment is located within the north-eastern section of the site and has an access road which links to the internal ring road Henry Moore Drive. There are also three main carparks within the site, with the eastern carpark being with closest proximity to the proposed development building. (Refer to Figures 1-3 and 1-4).

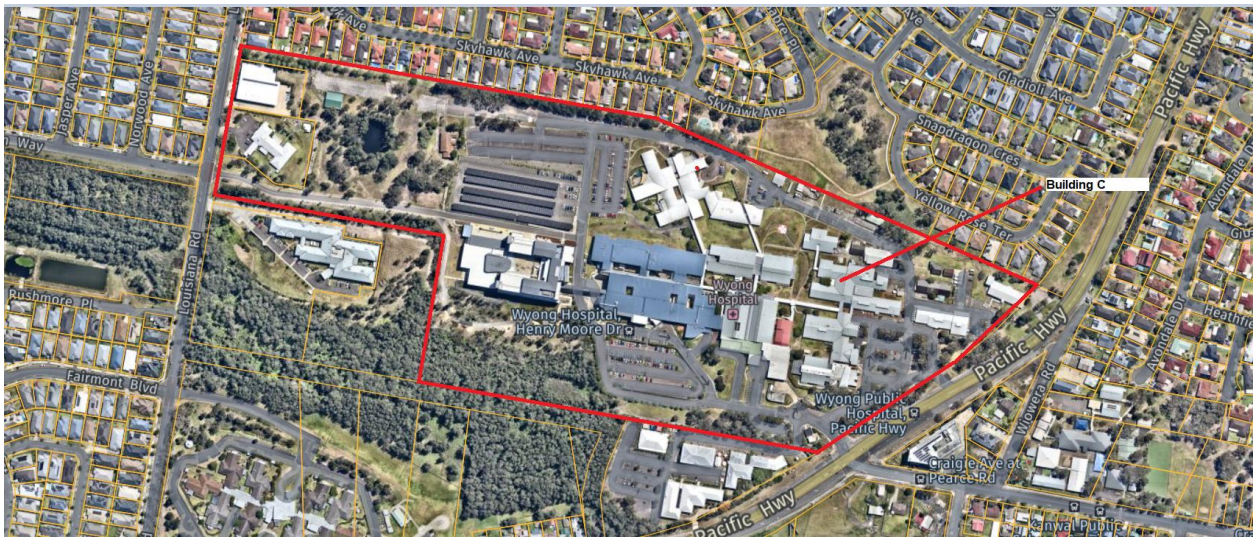

Figure 1-4 – Aerial appraisal

(Source: NearMap, edits by Luke Simpson 02/01/2024)

Figure 1-5 – Concept design

(Source: BVN, WCEoLP- Education Centre Building- Refurbishment, rev. 1, dated: 28/09/2023)

1.5 Legislation and planning instruments

Is the site mapped as bush fire prone?	The building site is not bush fire prone however, part of the Hospital grounds is identified as being on bush fire prone land.
Proposed development type	Class 9a- Health Care
Is the development considered integrated for the purposes of Section 100B of the *Rural Fires Act 1997?*	No – not mapped as being bush fire prone. The development is subject to Part 5 of the EP&A Act.
Is the proposal located in an Urban Release Area as defined under Clause 273 of the EP&A Regulations?	No.
Does the proposal rely on an performance solution?	Partial. The requirement for BAL 19 is not applied due to the low risk of the site. Ember protection only applied.

1.5.1 Planning for Bush Fire Protection 2019 (PBP)

All development on BFPL must satisfy the provisions stipulated within *PBP* which is designed 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. According to *PBP,* health care is considered to be a Special Fire Purpose Protection (SFPP) development which under *s100B* of the *RF Act.* However, being an activity under Part 5 of the *EP&A Act* a referral to RFS is not required, nor is a BFSA required.

Health-care is considered an SFPP development (hospital) because buildings can be occupied by at-risk members of the community such as children, the elderly and those with a disability. Due to their vulnerable nature, occupants of SFPP developments are considered to be more at-risk during a bush fire attack for one or more of the following reasons:

- they may be less aware in relation to bush fire impacts;
- they may have reduced capacity to evaluate risk and respond adequately to the bush fire threat;
- they may present operational difficulties for evacuation and or management;
- they may be more vulnerable to stress and anxiety arising from bush fire threat and smoke;
- there may be significant communication barriers;
- supervision during a bush fire may be difficult; and
- they may be unfamiliar with the area.

As a result, SFPP developments involve more reliance on the provision of an APZ and emergency management. SFPP developments are required to have a minimum APZ setback that ensures buildings are not exposed to a radiant heat-level greater than 10kW/m^2. In the case of this project involving an existing SFPP facility, the intention is to achieve a better bush fire outcome than if the development did not proceed. This may require a combination of measures such as improved construction standards, APZs and emergency management. The objectives that apply to existing SFPP facilities are as follows:

- provide an appropriate defendable space;

- site the building in a location which ensures appropriate separation from the hazard to minimise potential for material ignition;
- provide a better bush fire protection outcome for existing buildings;
- new buildings should be located as far from the hazard as possible and should not be extended towards or situated closer to the hazard than the existing buildings (unless they can comply with section 6.8);
- ensure there is no increase in bush fire management and maintenance responsibility on adjoining land owners without their written confirmation;
- ensure building design and construction enhances the chances of occupant and building survival; and
- provide for safe emergency evacuation procedures including capacity of existing infrastructure (such as roads).

1.5.2 Planning for Bush Fire Protection Addendum 2022

PBP Addendum 2022 came into effect on 1 May 2023 to coincide with the adoption of the *National Construction Code 2022*. *Appendix B* of *PBP Addendum 2022* indicates a key change relating to construction, water and access standards for certain SFPP developments.

All hospitals, schools, childcare centres and residential care buildings within bush fire prone areas are to be assessed to meet an APZ to achieve 10kW/m^2 and have to be built to BAL-19 or greater under *AS 3959* (previously BAL-12.5 under *PBP 2019)*. In addition, PBP 2019 extends the requirements for access and water for firefighting purposes. The building is not mapped as being bush fire prone, nor is it considered at significant risk. However, the refurbishment of the building may be upgraded for ember protection and sealing of gaps in the fabric of the building.

1.5.3 National Construction Code 2022

From 1 May 2023, the NCC has adopted bushfire requirements referred to as the Specification 43 provisions. Although strictly related to building requirements, these requirements have implications for planning outcomes for hospitals such as that at Wyong Hospital. Schedule 43 requirements include separation of buildings from other buildings as well as from a boundary, separation from vegetation (APZs), access and water supplies.

In considering the requirements of the NCC, NSW has a State variation to the definition of *designated bushfire prone area* which is:

> *Land that has been:*
>
> *a) has been designated under legislation; or*
> *b) has been identified under an environmental planning instrument, development control plan, or in the course of processing and determining a development application,*
>
> *as land that can support a bushfire or is likely to be subject to bushfire attack*. (NCC, 2022).

As the land (site) is not mapped under section 10.3 of the EP&A Act, and the matter is not subject to development consent (nor does the Wyong LEP or DCP provide for bushfire designation), then the land is not subject to the requirements of G5 or Specification 43 to the NCC.

In NSW, the requirements for construction setbacks and minimum BAL, access and water supplies of Special Fire Protection Purposes are subject to PBP2019 rather than Specification

43. Specification 43 only applies where the actual building site is mapped a being bushfire prone. In relation to this building Specification 43 therefore does not apply.

1.6 Environmental and Aboriginal heritage constraints

Submission requirements requires the following environmental and heritage considerations that have the potential to be a constraint for implementing APZs within the site and may require further assessments before construction proceeds within a site:

- identification of any significant environmental features on the property;
- the details of any threatened species, population or ecological community identified under the Biodiversity Conservation Act 2016 that is known to the Applicant to exist on the property;
- the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the Applicant to be situated on the property;

The following database sources were reviewed to determine whether any environmental and Aboriginal heritage constraints were present within the proposed site:

Potential Constraint	Database
Aboriginal Heritage significant sites and places	Aboriginal Heritage Information Management System (AHIMS)
Threatened Ecological Communities (TECs)	Threaten Ecological Communities Greater Sydney Dataset (NSW SEED Portal)
Threatened Species (flora and fauna)	NSW BioNet Species Sightings Data Collection (NSW SEED Portal)
Watercourses	NSW Hydrography Dataset (NSW SEED portal)

A basic search of the AHIMS database conducted on 11 December 2023 and identified no-known significant Aboriginal sites or places within a 50m buffered area from the site's boundaries. There were two unnamed watercourses identified within a 50m buffered area of the site's boundaries; a second-order type to the south-west of the site and a first-order watercourse type within the north-eastern section of the site which require 10m and 20m vegetation retention zones (VRNs) either side of the channel width under the *Water Management Act (WM 2000)*. However, the riparian corridors of both watercourses do not fall within the minimum required APZ setback areas. (Refer to section 2.3 and schedule 1).

No-known threatened ecological communities were identified within the site. However, a number of threatened species were identified as being observed within the site boundaries. Only two threatened species were observed as being present within the 140m vegetation assessment area for the proposed building location:

- Koala *(Phascolarctos cinreus)*- Endangered under both *EPBC act* and *BC act*
- Grey-headed Flying-fox (*Pteropus poliocephalus)*- Vulnerable under both *EPBC act and BC act*

These desktop assessments are only indicative and should not be relied upon as the basis of further clearance of vegetation. Therefore, further assessments should be completed before any further clearing of vegetation for APZ purposes takes place.

2. BUSHFIRE THREAT ASSESSMENT

To assess the bushfire threat and to determine the required width of an APZ for a development, an assessment of the vegetation and the effective slope within the vegetation is required. This also include the identification of the relevant climatic region for the Central Coast.

2.1 Predominant vegetation

PBP guidelines require the identification of the predominant vegetation formation in accordance with David Keith (2004) when using the simplified acceptable solutions in PBP. The vegetation is calculated for a distance of at least 140m from a proposed building envelope. The identified vegetation within 140m of the proposed building location was identified from the Geocortex viewer within the NSW SEED Portal which includes layers relating to NSW BioNet PCT sites and NSW State Vegetation Mapping. The vegetation formations were then assessed in light of Appendix 1 of PBP 2019 and a site visit.

There is a large area of Forested Wetland vegetation south-east of Building C, as well as a small parcel within the western section of the site. However, these areas fall outside of the 140m assessable area. There are managed grass areas to the north and west of Building C that are kept mowed. The area south of the site is eastern carpark and also managed land.

The main vegetation that has the potential to be a bushfire threat is a parcel of unidentified Forested Wetland to the north and east of the site. This parcel of vegetation is primarily dominated by Casuarinas trees with eucalypts present as scattered individuals and a dense understory comprised of a continuous layer of sedges. (Refer to figure 2-1).

2.2 Effective slope

The site also has a gentle downslope topography from north to south and exhibits vegetation to along its northern and southern borders, as well as within the eastern and southern sections of the site.

The Forested Wetland is upslope with respect to Building C. The effective slope has been assessed for up to 100m from the development site. Effective slope refers to that slope which provides the most effect upon likely fire behaviour. A mean average slope may not in all cases provide sufficient information such that an appropriate assessment can be determined.

The effective slope within the hazardous vegetation is described in detail within Table 2-1 below.

2.3 Climatic region

The site is located within the Central Coast which is found within the broader Sydney Fire Weather Region. The relevant fire weather is assessed as being set at a Fire Danger Index (FDI) of 100. For assessment purposes, the relevant table which should be used for SFPP developments can be found in *PBP* is Table A1.12.1 (p.89).

Figure 2-1 – Photos of assessment area vegetation

Managed-land north of Building C (top) & Forested Wetland north of the site (bottom)

Figure 2-2 – Photos of assessment area vegetation

Source: Managed-land east of the site (top) & Forested Wetland east of the site (bottom)

2.4 Bushfire attack assessment

Table 2-1 provides a summary of the bushfire attack assessment based on an SFPP development and the methodologies used. The following assessment has determined the minimum APZ setbacks via Table A1.12.1 of *PBP*.

The APZs are required to be wholly within the site's boundaries and should not rely on being on adjoining land. APZs can extend beyond a site's boundaries in cases where structures or features of a landscape are considered permanent and act as barriers against fire spread. Examples are road carriageways, urban landscapes or land with vegetation that is considered managed. The minimum APZ setback required for an SFPP development (residential care) must ensure buildings are not exposed to a radiant heat flux exceeding 10kW/m^2 and be built to BAL-19 or greater construction standards (although this may not need to apply if an activity under Part 5 of the *EP&A Act*).

Table 2-1 – Bushfire attack assessment

Aspect	Vegetation Formation	Effective Slope	Minimum APZ required (>10kW/m^2)	APZ provided	Comments
North	Forested Wetland (remnant)	Upslope	34m	64m	Managed land includes surrounding buildings, internal roads and spaces regularly mowed.
East	Forested Wetland (remnant)	Upslope	34m	49m	Managed land includes surrounding buildings and internal roads.
South and west	Managed-land	N/A			Managed land includes surrounding buildings, as well as mowed spaces to the west and the eastern carpark to the south.

In summary, the risk of bush fire to the proposed development is low as a result of majority of the adjoining land being managed, and existing managed land providing large enough setbacks that exceed the minimum requirements to ensure buildings are not exposed to a radiant heat-level exceeding 10kW/m^2.

Although a conservative approach has been taken referring to the Hospital site as bush fire prone land, the actual building site has not been identified as being on bush fire prone land and has minimal exposure to radiant heat and/or ember attack.

3. SPECIFIC PROTECTION ISSUES

3.1 Asset protection zones (APZs)

The minimum APZ setbacks required for the proposed SFPP development, as well as the APZs provided are indicated within section 2.3 and generally depicted in Schedule 1. Table 3.1 outlines the proposal's compliance with the performance criteria for APZs.

Table 3-1 – Performance criteria for asset protection zones (PBP 2019 guidelines)

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
Radiant heat levels of greater than 10kW/m² (calculated at 1200K) will not be experienced on any part of the building	The building is provided with an APZ in accordance with Table A1.12.1	☑	☐	Complies. Refer to section 2.3.
APZ maintenance is practical, soil stability is not compromised and potential for crown fires is minimised	The APZ is not located on lands with a slope exceeding 18°	☑	☐	Complies. All slopes do not exceed 18°.
APZs are managed and maintained to prevent the spread of a fire towards the building	The APZ is managed in accordance with the requirements of Appendix 4 of this document, and is wholly within the boundaries of the development site	☑	☐	APZs will be wholly within the site boundaries and APZ are to be managed in accordance with *Appendix 4* of *PBP.* No additional clearance is proposed subject to Arborist requirements.
	Other structures located within the APZ need to be located further than 6m from the refuge building	☑	☐	Building C is an existing SFPP development which will be refurbished for the purposes of the Wyong Palliative unit. It is also directly connected to existing buildings to its north, east and south.
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 is in accordance with Appendix 4	☑	☐	Complies. Refer to the 'site sketch plan' within the landscaping report attached as appendix 10.7 in BVN (2023) Wyong Concept Design report.

In summary: Schedule 1 identifies the area to be maintained as an APZ. This area is already considered to be 'managed land' and as such meets the requirements for an APZ. No further land clearance is required, subject to an Arborist report associated with tree removal.

3.2 Construction standards

3.2.1 Planning for Bush Fire Protection

In accordance with *Appendix B* of *PBP Addendum 2022* all Class 9c residential care buildings in bush fire prone areas are normally required to be built to a construction standard of BAL-19 or greater under *AS 3959* and *section 7.5* of *PBP.* However, the refurbishment lies outside of mapped bush fire prone land and considered low bushfire risk. There is no need for additional APZs or vegetation management, other than that recommended by an Arborist. The refurbishment falls outside of the requirements for PBP Addendum 2022, and subject to ember protection measures being implemented, are not recommended as requiring strict compliance with BAL 19.

Table 3-2 – Class 9a Construction Standards

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
The proposed building can withstand bush fire attack in the form of wind, embers, radiant heat and flame contact.	A construction level of BAL-19 or greater under AS 3959 and section 7.5 of PBP is applied.	☐	☑	Deviates. Building will need to be upgraded where necessary to meet ember protection only under Section 3.6 of AS3959-2018. All new sarking to the roof and walls (where replaced) is to be non-combustible (rather than meeting a flammability index of less than 5).

Note that the refurbished building is proposed as Type C construction. Internal fire separation is to comply with 90/90/90 for walls (and -/90/90 for doors). The area of 'new' works associated with the refurbishment is required to meet ember protection only. Refurbishment associated with the new centre should be maintained to prevent ember entry through gaps and seals, including windows, doors, subfloors and roof spaces (see section 3.6 of AS3959). Prior to commencement, it is recommended that a qualified bushfire practitioner undertake an inspection to ensure all gap are identified in any existing building and the areas identified with gaps to be sealed.

3.3 Access for firefighting operations

The proposed development is largely reliant on the existing internal road network at Wyong Hospital campus. The main access/ egress point to the site is from Pacific Highway in the south-east corner. This links up to Wyong Hospitals ring road Henry Moore Drive which is a perimeter road for the entire site, providing frontage access to the main bush fire threat to the north-east and allows firefighters to keep moving in a forward direction.

There is also a dead-end road which branches off from Henry Moore Drive to parking lots north of Building C. Furthermore, there are two access/ egress points from the site's south-

east corner and a third point in the western section of the site that links up Louisiana Road. The site also has four main parking areas in the north, east, south-west and north-western areas of the site. (Refer to Schedule 1).

The proposal's compliance with the acceptable solutions outlined in *PBP* is detailed within Table 3-3 below.

Table 3-3 – Performance criteria for access within Class 9a/SFPP developments

Performance criteria		Acceptable solution	Acceptable solution	Performance solution	Comment
ACCESS	Firefighting vehicles are provided with safe, all-weather access to structures and hazardous vegetation. (*Table 3* of *PBP Addendum 2022).*	Vehicular access must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from a public road around the entire building; and.	☑	☐	Complies. (Refer to the above discussion).
		Must have a minimum unobstructed width of 6m with no part of its furthest boundary more than 18m from the building and in no part of the 6m width be built upon or used for any purpose other than vehicular or pedestrian movement; and.	☑	☐	Existing road.
		Must provide reasonable pedestrian access from the vehicular access to the building; and.	☑	☐	Complies. There are pedestrian pathways that connect Building C to the existing roadways.
		Must have a load bearing capacity and unobstructed height to permit the operation and passage of fire fighting vehicles; and.	☑	☐	Complies.
		Must be wholly within the allotment except that a public road complying with above may serve as the vehicular access or part thereof.	☑	☐	Complies.
ACCESS	The capacity of access roads is adequate for firefighting vehicles.	The capacity of road surfaces and any bridges / causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges and causeways are to clearly indicate load rating.	☑	☐	Complies. Existing road.

Performance criteria		Acceptable solution	Acceptable solution	Performance solution	Comment
	There is appropriate access to water supply.	Hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.	☑	☐	Complies. (Refer to *s7.1* of the site's *Hydraulics, fire, electrical & mechanical CD report* attached as *appendix 10.10* within BVN (2023) Wyong Concept Design Report).
		Hydrants are provided in accordance with *AS 2419.1:2021.*	☑	☐	Refer to discussion in section 3.4.
		There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	☑	☐	N/A
PERIMETER ROADS	Perimeter roads are designed to allow safe access and egress for firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface.	There are two-way sealed roads.	☑	☐	Existing road.
		Minimum 8m carriageway width kerb to kerb.	☑	☐	
		Parking is provided outside of the carriageway width.	☑	☐	Complies. (Refer to the above discussion).
		Hydrants are located clear of parking areas.	☑	☐	Complies.
		There are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	☑	☐	Complies. (Refer to the above discussion).
		Curves of roads have a minimum inner radius of 6m.	☑	☐	Existing roads. Inner radius curvatures of roads less than 6m. Grades are all relatively flat and crossfall less than 3º.
		The maximum grade road is 15° and average grade is 10°.	☑	☐	
		The road crossfall does not exceed 3°.	☑	☐	
		A minimum vertical clearance of 4m to any	☑	☐	Complies.

Performance criteria		Acceptable solution	Acceptable solution	Performance solution	Comment
		overhanging obstructions, including tree branches, is provided.			No identified obstructions.
NON-PERIMETER ROADS	Non-perimeter access roads are designed to allow safe access and egress for firefighting vehicles while occupants are evacuating	Minimum 5.5m width kerb to kerb.	☑	☐	Existing internal roads are greater than 5.5 m width.
		Parking is provided outside of the carriageway width.	☑	☐	Must comply. The existing carparks north of Building C are to be relocated as a result of refurbishment works. The new locations for such carparks should be located outside the road carriageway width.
		Hydrants are located clear of parking areas.	☑	☐	Refer to the discussion within section 3.4.
		There are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	☑	☐	Deviates. The existing internal road system has non-perimeter roads which are dead-end roads, including the access road north of Building C.
		Curves of roads have a minimum inner radius of 6m.	☑	☐	Existing road. Inner curvatures are 6m or greater. Maximum grades are less than 5º Crossfall is less than 3º.
		The maximum grade road is 15° and average grade is 10°.	☑	☐	
		The road crossfall does not exceed 3°.	☑	☐	
		A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.	☑	☐	Complies. No obstacles were identified.

3.4 Water supplies

Reticulated water will be provided to the development. According to BVN (2023) Wyong Concept Design Report, *s3.7* of the developments BCA CD Report attached as *appendix 10.8* indicates the existing hydrant system complies with the regulations at the time they were installed, ordinance 70 of *AS 2419.1-1994*. Where installations of future hydrants are proposed, compliance with *AS 2419.1-2021* for hydrant coverage and *AS 2441-2005* for hydrant flow is recommended.

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of bushfire. Table 3-4 outlines the proposal's compliance with the acceptable solutions for reticulated water supply.

Table 3-4 – Performance criteria for reticulated water supplies (Class 9a buildings)

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
An adequate water supply for firefighting purposes is installed and maintained.	Reticulated water is to be provided to the development, where available; and	☑	☐	Reticulated water is available to the development.
	Water for firefighting purposes must be made available and consist of A fire hydrant system installed in accordance with AS2419.1; or	☑	☐	Refer to the above discussion.
	Where no reticulated water is available, a static water supply consisting of tanks, swimming pools, dams or the like, or a combination of these, together with suitable pumps, hoses and fittings, determined in consultation with NSW RFS that is capable of providing the required flow rate for a period of not less than 4 hours or;	☑	☐	Not applicable. Reticulated water will be supplied to the site.
	has a volume of 10,000 litres for each occupied building.	☑	☐	
Water supplies are located at regular intervals. The water supply is accessible and reliable for	Fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard *AS 2419.1:2005.*	☑	☐	Refer to the above discussion.
	Hydrants are not located within any road carriageway.	☑	☐	

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
firefighting operations.	Reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.	☑	☐	
Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of *AS 2419.1:2005.*	☑	☐	
The integrity of the water supply is maintained.	All above-ground water service pipes are metal, including and up to any taps.	☑	☐	Must comply.

3.5 Gas

The intent of measures is to locate gas so as not to contribute to the risk of fire to a building. Table 3-5 outlines the required acceptable solutions for gas supply.

Table 3-5 – Performance criteria for gas supplies (PBP 2019 Guidelines)

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
Location of gas services will not lead to the ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas bottles are to be installed and maintained in accordance with *AS/NZS 1596 (2014)*, the requirements of relevant authorities and metal piping is to be used.	☑	☐	Must comply. The planned refurbishment will not require natural gas. However, it is assumed that due to the nature of the development gas services may be used in some capacity. Reticulated gas is recommended over bottled gas but where the use of bottled gas is a necessary requirement compliance is recommended.
	All fixed gas cylinders are to be kept clear of flammable materials to a distance of 10m and shielded on the hazard side.	☑	☐	
	Connections to and from gas cylinders are metal.	☑	☐	
	If gas cylinders need to be kept close to the building, safety valves are directed away from the building and at least 2m away from any combustible material, so they do not act as a catalyst to combustion;	☑	☐	
	Polymer sheathed flexible gas supply lines are not used.	☑	☐	

Performance criteria	Acceptable solutions	Acceptable solution	Performance solution	Comment
	Above ground gas service pipes are metal, including and up to any outlets.	☑	☐	

3.6 Electricity

The intent of measures is to locate electricity so as not to contribute to the risk of fire to a building.

Table 3-6 outlines the required acceptable solutions for the subdivision's electricity supply.

Table 3-6 – performance criteria for electricity services (PBP 2019 Guidelines)

Performance criteria	Acceptable Solutions	Acceptable solution	Performance solution	Comment
Location of electricity services limit the possibility of ignition of surrounding bushland or the fabric of buildings.	Where practicable, electrical transmission lines are underground.	☑	☐	Electrical transmission lines are underground.
	Where overhead electrical transmission lines are proposed: lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in ISSC3 *Guideline for Managing Vegetation Near Power Lines*.	☑	☐	Not applicable.

3.7 Emergency and evacuation planning

Table 3.6 outlines the required performance criteria for the proposal's emergency procedures.

Table 3.6 – Performance criteria for emergency and evacuation planning (PBP 2019 Guidelines)

Performance criteria	Acceptable Solutions	Acceptable solution	Performance solution	Comment
A bush fire emergency and evacuation management plan is prepared	A bush fire emergency management and evacuation plan is prepared consistent with the: • The NSW RFS document: *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* • NSW RFS *Schools Program Guide* (where applicable) • Australian Standard *AS 3745:2010 Planning for emergencies in facilities*; and Australian Standard *AS 4083:2010 Planning for emergencies – Health care facilities* (where applicable),	☑	☐	Complies. A Bushfire Emergency Evacuation Plan (BEEP) was prepared by *TBE* in April 2021 for Wyong Public Hospital. It is recommended that the existing BEEP is updated to incorporate future patients and staff of the Wyong Palliative facility.
Note: A copy of the Bush Fire Emergency Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.				
Suitable management arrangements are established for consultation and implementation of the emergency and evacuation plan.	An Emergency Planning Committee is established to consult with residents (and their families in the case of aged care accommodation and schools) and staff in developing and implementing an Emergency Procedures Manual. Detailed plans of all emergency assembly areas including 'on-site' and 'off-site' arrangements as stated in AS 3745 are clearly displayed, and an annual (as a minimum) trial emergency evacuation is conducted.	☑	☐	Refer to the above discussion. In relation to the BEEP it is recommended that staff undertake training in relation to the BEEP once completed.

4. CONCLUSION & RECOMMENDATIONS

4.1 Conclusion

This bushfire protection assessment has been undertaken for the proposed Wyong Palliative Unit SFPP Development (residential care) located at Wyong Hospital, 664 Pacific Highway, Hamlyn Terrace. The proposal is a part of the Wyong Hospital WCEoLP program and will involve refurbishing and repurposing the existing Building C into an end-of-life care facility.

This assessment has found that bushfire can potentially affect the proposed development from the Forested Wetland vegetation to the north and east. This has the potential to result in future buildings being exposed to potential low levels of radiant heat and ember attack.

The proposal is an activity under Part 5 of the *EP&A Act* and subject to the requirements of Chapter 2 of *State Environmental Planning Policy (Transport and Infrastructure) 2021.* As such, a bush fire safety authority is not required from the RFS.

In recognition of the low bushfire risk posed to the site by the surrounding bushland, *Travers bushfire & ecology* propose the following combination of bushfire measures;

- APZs in accordance with the minimum setbacks outlined within *PBP* for the northern and eastern aspects as indicated in section 2.3 and generally depicted in Schedule 1.
- Provision of access in accordance with the acceptable solutions outlined in *PBP*;
- Water, electricity and gas supply in compliance with the acceptable solutions outlined in *PBP;*
- The refurbished part of the building to be maintained so as to prevent ember attack to the fabric of the building in accordance with section 3.6 of AS3959-2018 (including doors, windows, roof spaces, subfloors and gap/seals).
- Updating the existing BEEP for Wyong Hospital to incorporate future patients and staff of the Wyong Palliative Unit development, as well as training of relevant staff in the procedures in the BEEP.

The following recommendations are provided to ensure that the development is provided with protection from ember attack and low levels of radiant heat.

4.2 Recommendations

Recommendation 1 - The proposal is as generally indicated on the attached SCHEDULE 1 - Plan of Bushfire Protection Measures .Vegetation is to be maintained in perpetuity as outlined in Appendix 4 of *Planning for Bush Fire Protection 2019*.

Recommendation 2 - Building construction standards for the proposed refurbishment of Building C is to be in accordance with Sections 3.6 of *AS3959 Construction of buildings in bushfire prone areas (2018).* Sarking to walls and roofs shall be non-combustible if subject to replacement/refurbishment.

Recommendation 3 - The existing Bushfire Emergency Management and Evacuation Plan (BEEP) is to be updated to incorporate future patients and staff of the Wyong Palliative Unit in accordance with Section 6.8.4 of *PBP.* Staff of the Unit should have training in the procedures for the BEEP once revised.

5. BIBLIOGRAPHY

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SCHEDULE 1. PLAN OF BUSHFIRE PROTECTION MEASURES

Legend

- Site boundary
- Building assessment area 140m
- Vegetation management area to IPA standard
- Creek line
- Riparian zone
- Building footprint
- Managed land
- Forested wetland

Aerial source: Nearmap

0 50 100 m

Disclaimer: The mapping is indicative of available space and location of features which may prove critical in assessing the viability of the proposed works. Mapping has been produced on a map base with an inherent level of inaccuracy, the location of all mapped features are to be confirmed by a registered surveyor.

PROJECT & MXD REFERENCE	DATE & ISSUE NUMBER	SCALE & COORDINATE SYSTEM
Pacific Hwy HAMLYN TERRACE 23CAPIN02_BF001	31/01/2024 Issue 1 AG	1:2,700 @A3 GDA2020 MGA Zone 56

TITLE

Schedule 1 - Bushfire Protection Measures

Document Path: N:\GIS STORAGE\N Drive\1_GDA2020_MappingProjects\23CAPIN02_Pacific_Hwy_Hamlyn_Terrace\MXDs\23CAPIN02_BF001.mxd

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