



Bush fire assessment report

Wyong Hospital
redevelopment Stage 3
(adaptive reuse)

Lot 4 DP 1248441

664 Pacific Highway, Hamlyn Terrace

REF: W23043

Date: 8 August 2023



WARATAH BUSHFIRE

PLANNING | GIS | ASSESSMENT

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664 Pacific Highway, Hamlyn Terrace

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File:	A23043	Version 1.0 Final
BAL rating	Block B & C are located over 100m from bush fire prone vegetation and therefore in accordance with AS3959 (2018) are considered BAL Low (no construction standards). These buildings may be used as assembly areas in a bush fire event. Therefore, this report recommends BAL 12.5 for new works.	

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EXECUTIVE SUMMARY

This bush fire assessment report has been undertaken for the proposed Stage 3 refurbishment works associated with the adaptive reuse of existing decanted spaces within Blocks B & C that form part of the existing Wyong Hospital, located at 664 Pacific Highway, Hamlyn Terrace.

The property is mapped by Central Coast Council as bush fire prone which triggers a formal assessment in respect of the NSW Rural Fire Service (RFS) guideline *Planning for Bush Fire Protection (PBP) 2019*.

The proposed development has been considered under the *State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP 2021)*. Section 2.16 (2) of the SEPP 2021 states that a public authority, or a person acting on behalf of a public authority, must consider PBP before carrying out the development in an area that is bush fire prone land.

This assessment has found that Blocks B & C are located over 100m from bush fire prone land and that the minor external alterations (i.e. new window and door) are exposed to BAL Low (insufficient risk to warrant specific bushfire construction requirements). As outlined in Section 6.5 of PBP, the proposed modifications do not have any influence on potential bushfire impacts or the bushfire protection of the buildings and therefore the NSW RFS does not consider that a bush fire safety authority is necessary for the proposed minor non-structural building alterations.

The proposal however will result in an intensification of use which will result in an increase in occupancy with an additional 48 staff and 46 patients.

Section 6.4 of PBP states that an intensification of the use or increase in occupancy must consider the risk to occupants and firefighters. Existing SFPP facilities constructed without the benefit of current bush fire requirements need to consider providing a designated safe refuge building to accommodate all occupants. The safe refuge shall provide a radiant heat threshold of no greater than 10kW/m².

Waratah Bushfire Planning proposes the following combination of bushfire measures to address the bush fire risk;

- Proposed new works (window and door) are to comply with BAL 12.5 (noting new works are located over 200m from the bush fire hazard)

- Implement landscaping guidelines to comply with Appendix 4 of *Planning for Bush Fire Protection 2019*
- Review and update of Bush Fire Emergency Evacuation Plan in consultation with emergency authorities and other current operating emergency plans relevant to the site. This must include a review of the proposed assembly areas within the hospital and the potential for upgrading buildings for ember protection (if necessary).

The proposed extent of new works is exposed to BAL Low. As a result, we recommend an exemption from the application of Appendix B of the Addendum to PBP and the provisions of the National Construction Code (NCC) 2022 in consultation with the NSW RFS.

GLOSSARY

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
BSA	bushfire 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 and Assessment Regulation 2000
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 2019	Planning for Bush Fire Protection 2019
RF Act	Rural Fires Act 1997
RFS	NSW Rural Fire Service
SEPP	<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>
SFPP	special fire protection purpose

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1. INTRODUCTION

Waratah Bushfire Planning has been commissioned by Colliers to undertake a bush fire assessment report for the proposed Stage 3 refurbishment works within Blocks B & C that form part of the existing Wyong Hospital, located at 664 Pacific Highway, Hamlyn Terrace.

The property is identified as bushfire prone on the Central Council bush fire prone land map. This triggers a formal assessment with respect to the NSW Rural Fire Service (RFS) policy against the provisions of *Planning for Bush Fire Protection (PBP) 2019*.

1.1 Legislation and planning instruments

Proposed development type for the purposes of PBP	Special Fire Purpose Development (SFPP) – (infill development). Adaptive reuse of Blocks C & D resulting in an additional 100 staff and patients. External minor non-structural building alterations.
Does the development need to consider Appendix B of Addendum to <i>Planning for Bush fire Protection 2019</i> and the amendments of the <i>National Construction Code (NCC) 2022</i> that commenced on 1 May 2023	The new external works is exposed to BAL Low. As a result, we recommend an exemption from the application of Appendix B of the Addendum to PBP and the provisions of the National Construction Code (NCC) 2022 and in consultation with the NSW RFS as required.
Is the development considered integrated for the purposes of Section 100B of the Rural Fires Act 1997?	The proposed development has been considered under Section 2.13 (2) of the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP 2021)</i> . Section 6.5 of PBP states, that proposed minor non-structural building alterations do not have any influence on bushfire protection. However, as a result of the increased occupancy and request for exemption from the application of Appendix B of the Addendum to PBP and the provisions of the NCC 2022, referral to the NSW RFS for a BSA is recommended.
Zoning under the Central Coast Local Environmental Plan (2022)	SP2 – Infrastructure (Health Services)
Significant environmental features & biodiversity values	The proposal does not involve the removal of native vegetation.

1.2 Aims and objectives of the assessment

The aims of the bush fire assessment report are to:

- undertake a site bush fire attack assessment in accordance with *PBP*.
- provide advice on bush fire protection measures, including the provision of asset protection zones (APZs), landscaping, building construction standards, access design, water supply and utilities.
- review the potential to provide for ongoing management and maintenance of bushfire protection measures.

The specific objectives of SFPP development are to:

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

1.3 Proposal

The proposed Wyong Hospital Redevelopment Stage 3 Refurbishment works include the adaptive reuse of existing decanted spaces within both blocks B and C.

Block B will be refurbished to accommodate the following departments and staff/patient increases:

- Nunyara Aboriginal Health Unit
 - 10 staff / 4 patients
- Wyong Women's Centre Clinics
 - 18 staff / 16 patients
- Medical Staff Workspace
 - Maintain 13 staff (no increases)

- New South Wales Health Pathology
 - 2 staff

Block C will be refurbished to accommodate the following departments and staff / patient increases:

- Expanded Cancer Day Unit
 - 16 staff / 26 patients
- Carer Support Unit
 - 2 staff

In total the proposal will see an increase of 48 staff and 46 patients.

Proposed external works involve a new door on the eastern end of the Carer Support Unit and a new window and brick wall on the eastern end of the Cancer Day Unit.

The Bush Fire Management Plan in Appendix 1 shows the proposed development and bushfire protection measures, including landscaping guidelines.

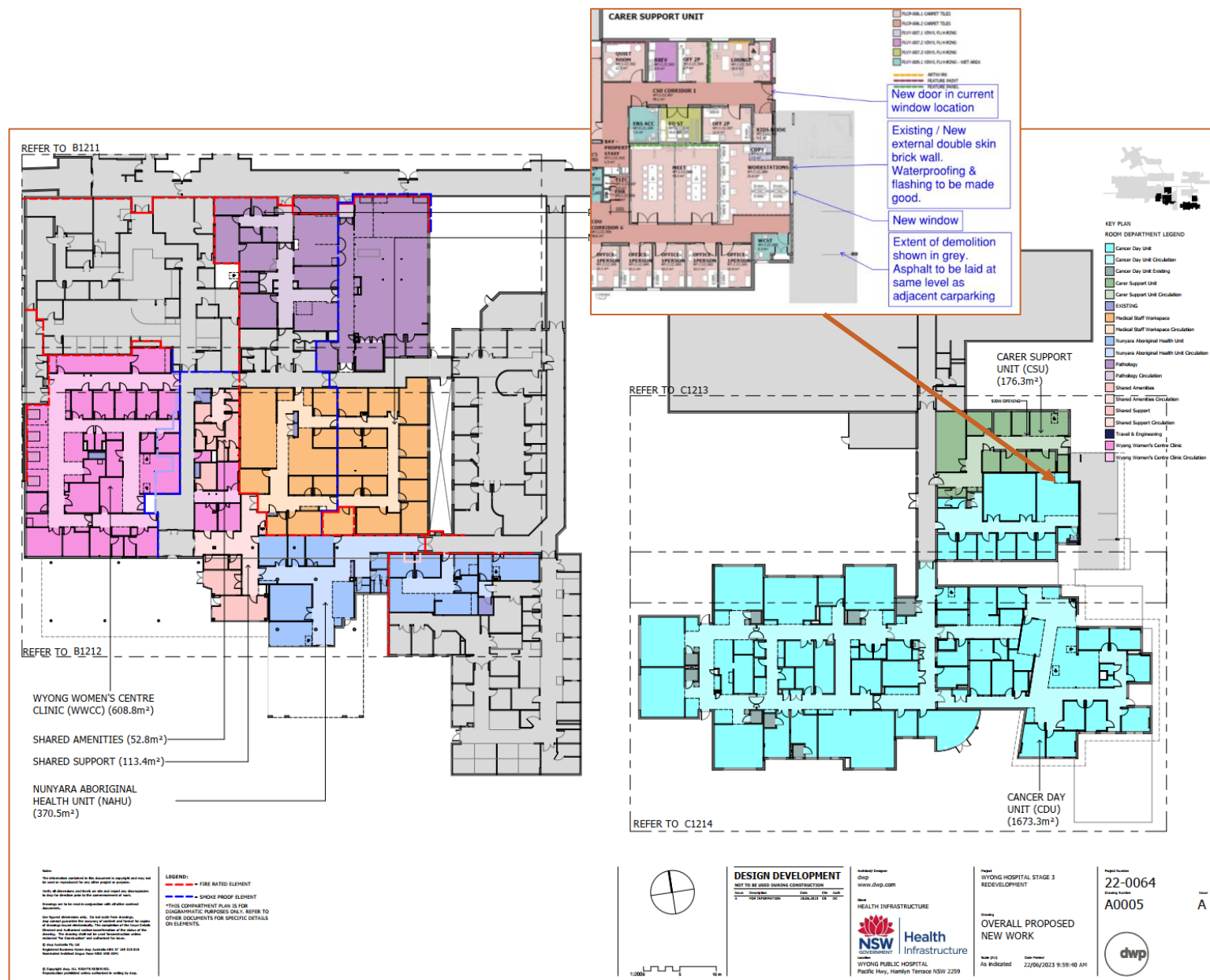
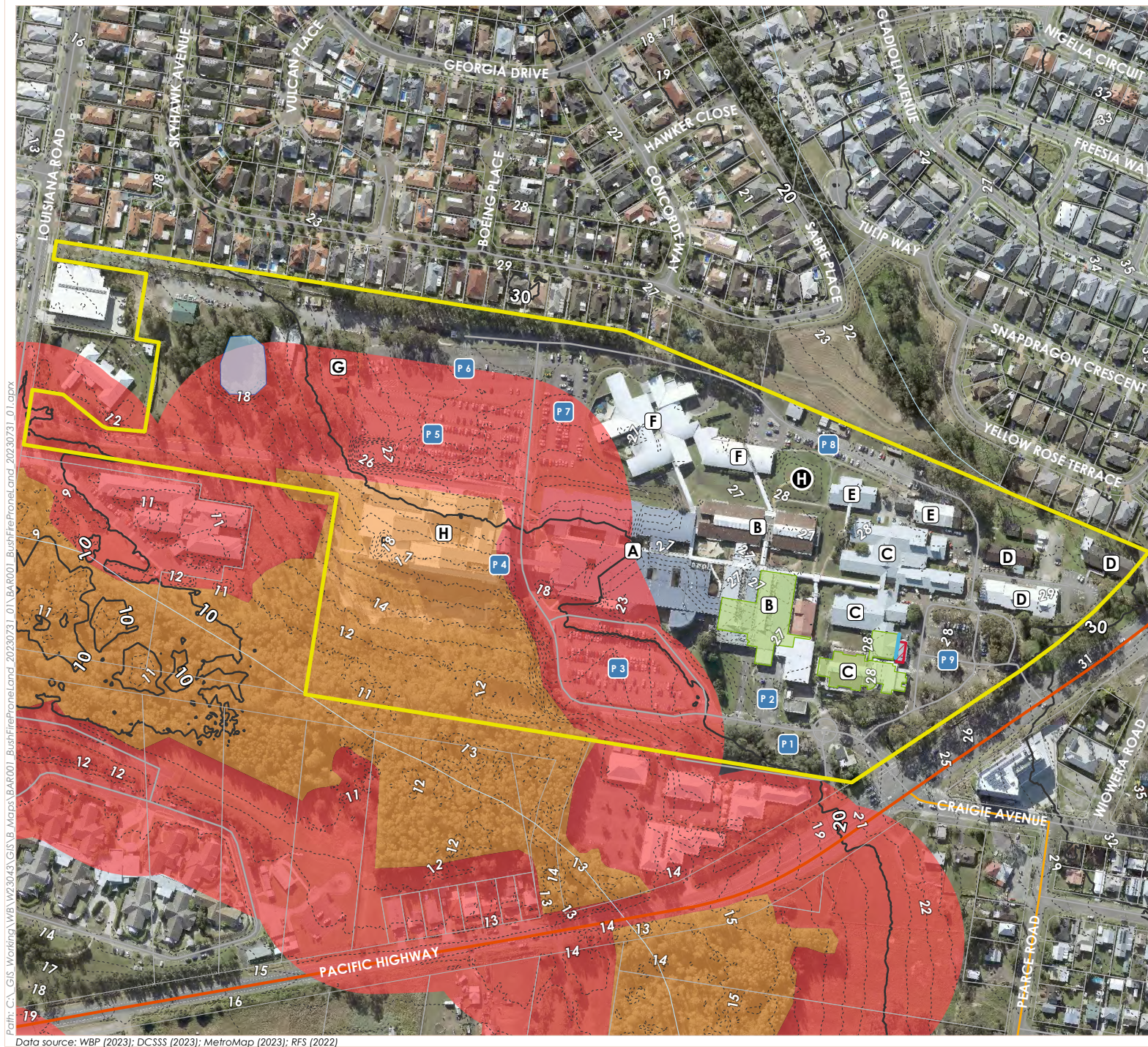


Figure 1-1 – Overall proposed new work



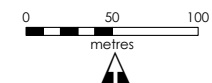
LEGEND

- Site boundary
- Building block/letter
- H Helipad
- P Parking area/number
- Proposed new external works (window and door)
- Proposed internal refurbishment
- Proposed demolition
- Major road
- Minor road
- Local road
- Topographic contour (1 m)
- Topographic contour (10 m)
- Watercourse/drainage line
- Waterbody
- Lot boundary
- Bush fire prone land (RFS, 2022)
 - Vegetation Buffer
 - Vegetation Category 1

Figure 1.2 – Bush fire prone land map

Wyong Hospital – Stage 3

31/07/2023 (v1) 1:4,400 @A4 GDA2020 MGA Zone 56



Disclaimer: mapping is indicative only and the data shown has an inherent level of inaccuracy that is dependent on the data source. The location of all mapped features and boundaries should be confirmed by a registered surveyor.



1.4 Referenced documents & information collation

Documents reviewed for the preparation of this report include the following:

- Overall proposed new drawings prepared by DWP, Issue A, Project no. 22-0064, drawing number A0005, issue 06, dated 20/6/2023
- *Metro Map* aerial photography
- Australian Standard 3959 Construction of buildings in bushfire-prone areas (2018)
- Planning for Bush Fire Protection 2019 (PBP)

An inspection of the proposed development site and surrounds was undertaken by Nicole van Dorst to assess the bushfire risk and adjoining land use.

1.5 Site description

Wyong Public Hospital is surrounded by residential development to the north, east and west with the Pacific Highway running parallel to the site's eastern boundary.

The primary access to the hospital is provided via the Pacific Highway with public access roads (minimum width 5.5m) providing access to the internal car parking facilities throughout the site effectively providing a link road around the hospital buildings back to the Pacific Highway. Secondary emergency access is provided via Louisiana Road in the west. A fire trail provides fire fighting access to the vegetation in the south-west.

The proposed adaptive reuse is limited to Blocks C & D located within the central eastern portion of the site over 122 from mapped bush fire prone land. These blocks are adjoined by managed hospital grounds on all aspects. The nearest bushfire hazard is the forested wetland community located 122m to the south-west.



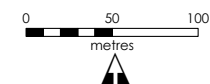
LEGEND

- Site boundary
- Building block/letter
- H Helipad
- P Parking area/number
- Proposed new external works (window and door)
- Proposed internal refurbishment
- Proposed demolition
- Major road
- Minor road
- Local road
- Watercourse/drainage line
- Waterbody
- Lot boundary

Figure 1.3 – Aerial appraisal

Wyong Hospital – Stage 3

31/07/2023 (v1) 1:4,400 @A4 GDA2020 MGA Zone 56



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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 potential hazardous vegetation and the effective slope within the vegetation is required.

2.1 Predominate vegetation

PBP guidelines require the identification of the predominant vegetation formation in accordance with David Keith (2004) if using the simplified acceptable solutions in PBP 2019. The hazardous vegetation is calculated for a distance of at least 140m from a proposed building envelope.

The vegetation posing a bushfire threat to the proposed development includes:

Table 2-1 - Vegetation

<i>Vegetation formation</i>	<i>Vegetation classification</i>	<i>Acceptable solution fuel loads (t/ha) (PBP 2019)</i>
Forested Wetland	Coastal Floodplain Wetland	8.2/15.1



Photo 1: Forested wetland vegetation located 122m to the southwest

2.2 Effective slope

The effective slope has been assessed for up to 100m from the development site and is described in detail within Table 2-2 below.

2.3 Bushfire attack assessment

The following assessment has determined the APZ and BAL levels via Table A1.12.1 of PBP 2019.

A fire danger index (FDI) of 100 has been used to calculate bushfire behaviour on the site based on its location within the Greater Sydney region. Table 2-2 provides a summary of the bushfire attack assessment and the methodologies identified above.

Table 2-2 – Bushfire attack assessment

<i>Aspect</i>	<i>Vegetation Formation</i>	<i>Effective Slope</i>	<i>Minimum APZ required (<10kW/m²)</i>	<i>APZ provided</i>	<i>BAL Rating</i>
North, south & east	Managed land	N/A	N/A	>100m	BAL 12.5*
Southwest	Forested wetland	0-5° downslope	42m	247m	

* Blocks B & C are identified as assembly areas within the Bushfire Emergency Management and Evacuation Plan. It is recommended that BAL 12.5 applies to the new works to increase bush fire resilience and improved safety for patients and staff in a bush fire event.



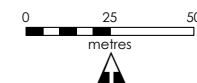
LEGEND

- Site boundary
- Building block/letter
- H Helipad
- P Parking area/number
- Proposed new external works (window and door)
- Proposed internal refurbishment
- Proposed demolition
- Major road
- Minor road
- Local road
- Topographic contour (1 m)
- Topographic contour (10 m)
- Watercourse/drainage line
- Lot boundary
- Slope buffer (100 m)
- Vegetation buffer (140 m)
- Vegetation class (SVTM)
 - Not classified
 - Coastal Floodplain Wetlands

Figure 2.1 – Vegetation and slope assessment

Wyong Hospital – Stage 3

31/07/2023 (v1) 1:2,250 @A4 GDA2020 MGA Zone 56



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3. BUSHFIRE PROTECTION MEASURES

3.1 Asset protection zones (APZs)

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)

Performance criteria	Acceptable solutions	Acceptable solution	Comment
Radiant heat levels of greater than 10kW/m ² (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 attached Bush Fire Management Plan for extent of approved APZs within the site
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°	☑	The APZ consists of landscaped areas, roads and turfed areas
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	☑	Complies. Refer attached Bush Fire Management Plan for extent of approved APZs within the site
The APZ is managed in perpetuity	Other structures located within the APZ need to be located further than 6m from the refuge building	N/A	The proposal involves internal adaptive reuse and external minor non-structural building alterations. There are no new buildings proposed.
Landscaping is designed and managed to minimise flame	Landscaping is in accordance with Appendix 4	☑	Can be a condition of consent. Refer attached Bush Fire Management Plan for landscaping guidelines.

Performance criteria	Acceptable solutions	Acceptable solution	Comment
contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions	Fencing is constructed in accordance with section 7.6	N/A	There are no fences proposed.
Note 1: All fences in bush fire prone areas should be made of either hardwood or non-combustible material. In circumstances where a fence is within 6m of a building, they should be made of non-combustible material only.			

3.2 Landscaping and APZ management

APZs are to be managed as an inner protection area (IPA) in accordance with RFS guidelines *Standards for Asset Protection Zones* (RFS, 2005), with landscaping design to comply with Appendix 4 of *PBP*. Appendix 1 of this document provides maintenance advice for vegetation within the APZ and landscaping guidelines that should be applied across the site. Examples are provided below.



Photo 2: Limit planting in the immediate vicinity of the building, and replace combustible mulch (i.e., with pebbles or scoria) within 1m of glazing.



Photo 3: Limit planting in the immediate vicinity of the building (shrubs should be separated from windows and doors by a distance of at least 2x the height of vegetation).

3.3 Building construction

Proposed external works involve a new door on the eastern end of the Carer Support Unit and a new window and brick wall on the eastern end of the Cancer Day Unit. These external alterations are located over 200m from bush fire prone vegetation. Blocks B & C are identified as assembly areas within the Bushfire Emergency Management and Evacuation Plan. To increase bush fire resilience and improved safety for patients and staff it is recommended that:

- New construction must comply with section 3 and section 5 (BAL 12.5) Australian Standard AS3959-2018 *Construction of buildings in bushfire-prone areas*.

3.4 Access for firefighting operations

Public access is provided via the existing internal road network extending from the Pacific Highway in the south-east and Louisiana Road in the west. No changes to the existing roads are proposed.

3.5 Water supply

A reticulated water and hydrant network exist within the site with hydrants located along the existing internal road and car park areas. The existing fire hydrant, spacing, design and sizing must comply with the relevant clauses of *Australian Standard AS 2419.1:2021 Fire hydrant installations- System design, installation and commissioning*.

No new water supply infrastructure is proposed.

3.6 Gas supply

There are no additional gas supplies proposed as part of this proposal.

3.7 Electricity supply

The electricity supply is existing underground. No additional measures are necessary.

3.8 Emergency management planning

The intent of measures is to provide suitable emergency and evacuation arrangements for occupants of SFPP developments. Table 3.2 outlines the required acceptable solutions for evacuation planning.

Table 3-2 – Performance criteria for emergency management plans (PBP 2019)

Performance criteria	Acceptable Solutions	Acceptable 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 NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan, and AS3745:2010; Australian Standard AS3745:2010 Planning for emergencies in facilities	<input checked="" type="checkbox"/>	The existing evacuation plan is to be updated to include the adaptive reuse and increase in staff / patient numbers.
	The Bush Fire Emergency Management and Evacuation Plan should include planning for the early relocation of occupants.	<input checked="" type="checkbox"/>	
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.			
Appropriate and adequate management arrangements are established for consultation and implementation of the Bush Fire Emergency Management and Evacuation Plan	An Emergency Planning Committee is established to consult with staff in developing and implementing an Emergency Procedures Manual.	<input checked="" type="checkbox"/>	To be a condition of consent.
	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.	<input checked="" type="checkbox"/>	

4. CONCLUSION & RECOMMENDATIONS

4.1 Conclusion

This bush fire assessment report has been undertaken for the proposed Stage 3 refurbishment works associated with the adaptive reuse of existing decanted spaces within Blocks B & C that form part of the existing Wyong Hospital, located at 664 Pacific Highway, Hamlyn Terrace.

This assessment has found that the proposed Blocks B & C are located over 122m from land mapped as bush fire prone and the minor external alterations (i.e., new window and door) are exposed to BAL Low in accordance with AS3959 (2018). The proposal however will result in an intensification of use which will result in an increase in occupancy with an additional 48 staff and 46 patients.

Blocks B & C are identified as assembly areas within the Bushfire Emergency Management and Evacuation Plan. The following recommendations are provided to ensure that the development is in accordance with, the requirements of PBP.

4.2 Recommended conditions

The following recommended conditions are based on the following documents/plans supplied by the client.

- Overall proposed new drawings prepared by DWP, Issue A, Project no. 22-0064, drawing number A0005, issue 06, dated 20/6/2023.

Recommendation 1 – The proposed development is exempt from the application of Appendix B of the Addendum to PBP and Specification 43 of the *National Construction Code 2022*.

Recommendation 2 – Proposed new external works (window and door) must comply with section 3 and section 5 (BAL 12.5) Australian Standard AS3959-2018 *Construction of buildings in bushfire-prone areas* or the relevant requirements of the *NASH Standard - Steel Framed Construction in Bushfire Areas* (incorporating amendment A - 2015). New construction must also comply with the construction requirements in Section 7.5 of *Planning for Bush Fire Protection 2019*.

Recommendation 3 – Implement landscaping guidelines within the site to comply with Appendix 4 of *Planning for Bush Fire Protection 2019*

Recommendation 4 – Review and update the Bush Fire Emergency Management and Evacuation Plan in accordance with Table 6.8d of *Planning for Bush Fire Protection 2019*. This must be undertaken in consultation with emergency authorities and other current operating emergency plans relevant to the site. This must include a review of the proposed assembly areas within the hospital and the potential for upgrading buildings for ember protection (if necessary).

5. REFERENCES

- Australian Building Codes Board (2010) – *Building Code of Australia, Class 1 and Class 10 Buildings Housing Provisions Volume 2*.
- Chan, K.W. (2001) – *The suitability of the use of various treated timbers for building constructions in bushfire prone areas*. Warrington Fire Research.
- Councils of Standards Australia AS3959 (2018) – *Australian Standard Construction of buildings in bush fire-prone areas*.
- Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change.
- Rural Fire Service (2019) - *Planning for bushfire protection – a guide for councils, planners, fire authorities and developers*. NSW Rural Fire Service.
- Tan, B., Midgley, S., Douglas, G. and Short (2004) - *A methodology for assessing bushfire attack*. RFS Development Control Service

APPENDIX 1. BUSH FIRE MANAGEMENT PLAN

Asset Protection Zone (Inner Protection Area)

Trees	<ul style="list-style-type: none"> Tree canopy cover should be less than 15% at maturity; Trees at maturity should not touch or overhang the building; Lower limbs should be removed up to a height of 2m above the ground; Tree canopies should be separated by 2 to 5m; and Preference should be given to retaining smooth barked and evergreen trees.
Shrubs	<ul style="list-style-type: none"> Large discontinuities or gaps in the vegetation should be provided to slow down or break the progress of fire towards buildings; Shrubs should not be located under trees; Shrubs should form less than 10% ground cover; and Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.
Grass and Leaf Litter	<ul style="list-style-type: none"> Grass should be kept mown to a height of less than 100mm; and Leaves and other debris should be removed.

Landscaping guidelines

- All weeds should be removed in accordance with best practice guidelines, and measures taken to prevent their further spread
- A minimum 1 metre wide area (or to the property boundary where the setbacks are less than 1 metre), suitable for pedestrian traffic, must be provided around the immediate curtilage of the building;
- Planting is limited in the immediate vicinity of the building;
- Planting does not provide a continuous canopy to the building (i.e. trees or shrubs are isolated or located in small clusters);
- Landscape species are chosen to ensure tree canopy cover is less than 15% (IPA), and less than 30% (OPA) at maturity and trees do not touch or overhang buildings;
- Avoid species with rough fibrous bark, or which retain/shed bark in long strips or retain dead material in their canopies;
- Use smooth bark species of trees species which generally do not carry a fire up the bark into the crown;
- Avoid planting of deciduous species that may increase fuel at surface/ ground level (i.e. leaf litter);
- Avoid climbing species to walls and pergolas;
- Locate combustible materials such as woodchips/mulch, flammable fuel stores away from the building;
- Locate combustible structures such as garden sheds, pergolas and materials such as timber garden furniture away from the building; and
- Low flammability vegetation species are used.

Path: C:\GIS Working\WB\W23043\GIS\B Maps\BAR004 BushFireManagement\20230808_03\BAR004 BushFireManagement\20230808_03.aprx



Data source: WBP (2023); DCSSS (2023); MetroMap (2023); ICSM (2014)

LEGEND

Site boundary	Major road	Asset Protection Zone (SDD 9536)
Building block/letter	Minor road	Bushfire Attack Level (BAL) rating:
Helipad	Local road	BAL 29
Parking area/number	Watercourse/drainage line	BAL 19
Proposed internal refurbishment	Waterbody	BAL 12.5
Proposed demolition	Lot boundary	