

Bushfire Risk Assessment

NSW Biathlon at the Jindabyne Sports
and Recreation Centre, 207 Barry
Way, Jindabyne NSW 2627



Prepared for
NSW Biathlon

Project Name:	NSW Biathlon at the Jindabyne Sports and Recreation Centre,
Site Details	207 Barry Way, Jindabyne NSW 2627
Client Details:	NSW Biathlon c/- Vision Property Development Hub 53 Redfern St, Cowra
BlackAsh Contact Details	
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Version	Primary Author(s)	Description	Date Completed
1.0	Lew Short	Final	1 September 2023



Lew Short | Director

Blackash Bushfire Consulting

B.Sc., Grad. Dip. (Design for Bushfire Prone Areas)

Fire Protection Association of Australia BPAD Level 3 – 16373



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Bushfire Certificate

Determined in accordance with s4.14 of the *Environmental Planning & Assessment Act, 1979* and *Planning for Bushfire Protection 2019*

This Certificate has been issued by a person accredited by Fire Protection Association Australia (FPA Australia) under the Bushfire Planning and Design (BPAD) Accreditation Scheme who is recognised by the NSW Rural Fire Service as a qualified consultant in bushfire risk assessment.

This Certificate is issued in accordance with Section 4.14 of the *Environmental Planning and Assessment Act, 1979*, that the development conforms to the relevant specifications and requirements of *Planning for Bushfire Protection 2019*.

Property Details and Description of Works

Address Details	Unit no	Street no	Street name		Lot/Sec/DP
		207	Barry Way		Lot101/-/DP1019527
	Suburb Jindabyne			State NSW	Postcode 2627
Local government area	Snowy River Shire Council				
BCA class of the building	NA sporting facilities				
Description of the proposal	Construction of biathlon tracks, clubroom facility, and associated carpark				
Plan Reference	Figure 2				

Bushfire Assessment Report

A detailed Bushfire Assessment Report is attached which includes the submission requirements set out in <i>Appendix 2</i> of <i>Planning for Bushfire Protection 2019</i> together with recommendations as to how the relevant specifications and requirements are to be achieved.	☒ YES ☐ NO
Report Reference and date	
The Bushfire Assessment Report prepared for the abovementioned site can be relied upon by Council as the basis for ensuring that the bushfire risk management aspects of the proposed development have been addressed in accordance with <i>Planning for Bush Fire Protection 2019</i>	BPAD 16373 YES ☐ NO

BPAD Certification

Name	I hereby certify, in accordance with Section 4.14 of the <i>Environmental Planning and Assessment Act 1979</i> that:	
Company Details & ABN		
BPAD Accreditation Number BPAD 16373	Signature	Date
		10 August 2023

1. Summary

Table 1 is a summary of compliance with relevant documents and approaches to limit bushfire attack and meet the requirements of the NSW planning framework for new development in Bushfire Prone Areas.

Table 1: Summary

Planning for Bushfire Protection 2019 Classification	"Other" sporting facility
Location	NSW Biathlon at the Jindabyne Sports and Recreation Centre, 207 Barry Way, Jindabyne NSW 2627
Local Government Area	Snowy River Shire Council
Can this proposal comply with AS3959, 2009	YES
Does this development comply with the requirements of <i>Planning for Bushfire Protection 2019</i> ?	YES
Does this development comply with the Aims and objectives of <i>Planning for Bushfire Protection 2019</i> ?	YES
Is referral to the NSW RFS required?	NO

Assessment Framework	☒ <i>Planning for Bushfire Protection 2019</i>
	☒ Meets the deemed to satisfy provisions
	☐ Alternate solution/ performance-based assessment

2. Introduction

Blackash Bushfire Consulting has been engaged by NSW Biathlon for new facilities at the Jindabyne Sports and Recreation Centre, 207 Barry Way, Jindabyne NSW 2627 (the site) which is legally known as Lot101/-/DP1019527 (Figure 1). The proposal seeks the construction of biathlon tracks, clubroom facility, and associated carpark as shown in Figure 2.

The development, which exceeds \$3 million in capital investment value, is one which is submitted directly to the Department of Planning and Environment for assessment as the area is an activation precinct. The Department of Planning have requested information which includes:

Bushfire. In support of the development is a Bushfire Management Plan dated from 2011. Reference is also made in the statement of environmental effects to the Strategic Bushfire Study, which was prepared in support of the Master Planning process. Since those reports were written an amended Bushfire Prone Map has been certified by the NSW Rural Fire Service which maps the land as Bushfire Prone Land. In order to satisfy s4.14 of the EP&A Act 1979, a current bushfire report is required which considers the proposed development against the relevant matters contained within Planning for Bushfire Protection 2019.

The development is within the existing Jindabyne Sports and Recreation Centre which provides a range of facilities and accommodation options. The proposal will utilise many of the facilities and includes purpose-built tracks for biathlon purposes. The site has bushfire prone Category 3 vegetation and associated buffers. This report will demonstrate that an appropriate combination of protection measures has been considered and achieved to provide compliance with the intent and performance measures within the NSW Rural Fire Service (RFS) document *Planning for Bushfire Protection 2019* (PBP).

This assessment has been prepared by Lew Short (FPAA BPAD Level 3 Certified Practitioner No. BPAD 16373) who is recognised by the RFS as qualified in bushfire risk assessment and have been accredited by the Fire Protection Association of Australia as a suitably qualified consultant to undertake alternative solution proposals.

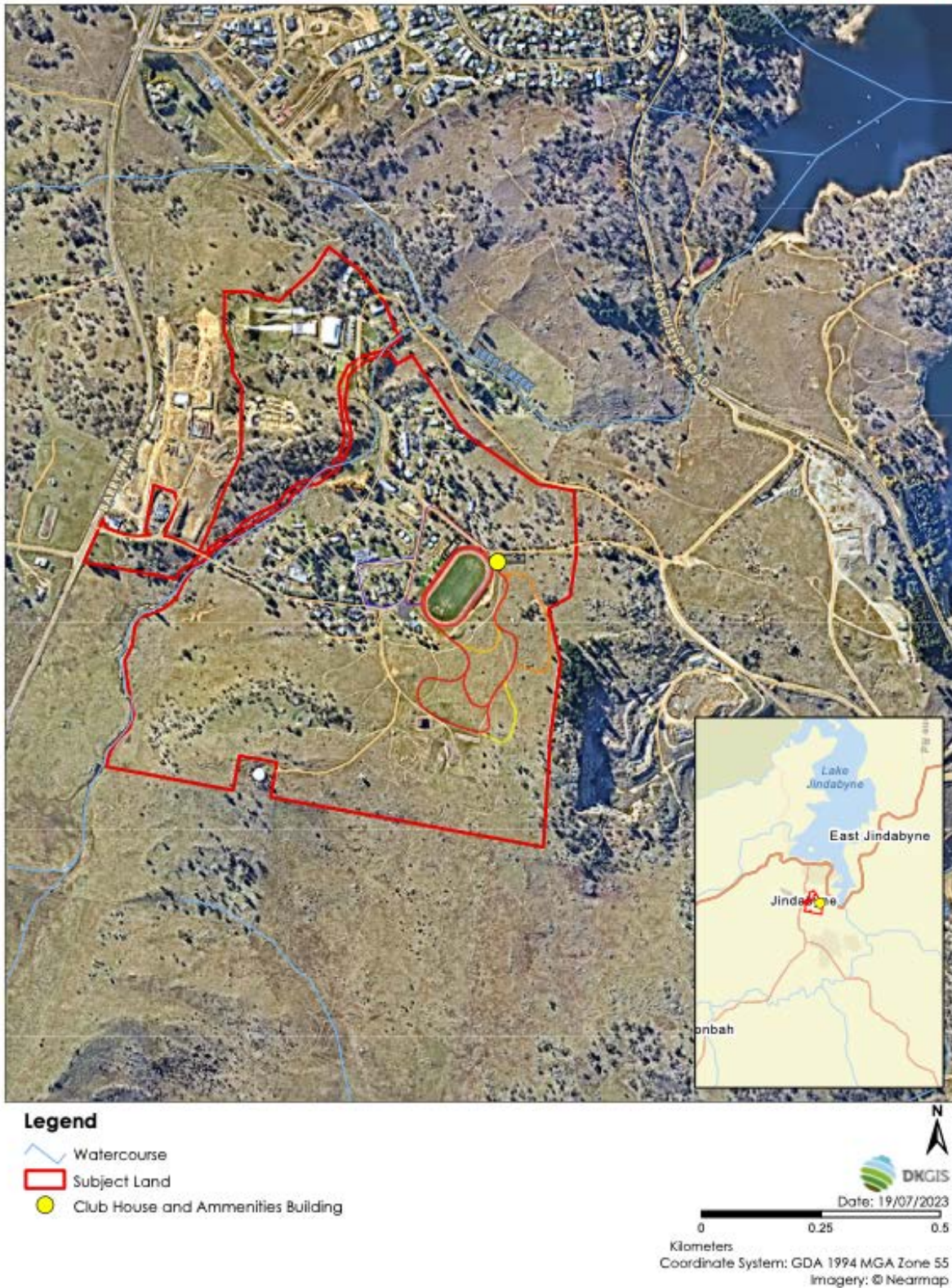


Figure 1: Site Location

3. Proposed Development

The development involves the additions and alterations to the existing facilities at the Jindabyne Sport & Recreation Centre. The proposed project involves the construction of roller-ski and cycleway tracks, establishment of laser biathlon facilities, and installation of a sports administration office, storage facilities, and amenities at Jindabyne Sport & Recreation Centre.

The project will upgrade and provide new sporting summer cycling, roller-skiing and laser biathlon target facilities to Jindabyne Sport and Recreation Centre.

Included in the proposal is the development of a bitumen pathway which will service biathlon and cross country roller-skiers, bike riders, roller-bladers across all levels and ages of the local cycling club, school and the local community.

The proposed tracks to be constructed will have a 5.0 metre wide bitumen surface with at least 1.5 metres clear either side to allow for any fill to be installed and taper off away from a path on a slope.

The proposed development also includes an amenities and administration/storage space for Little Athletics, Cycling and Biathlon together with amenities constructed from suitable manufactured materials, the plans for which are submitted with the development application.

The development also proposes lighting to conform to the Australian Standard - Sports Lighting (AS2560) as follows:

TRACK LIGHTING:

These figures are approx. only and subject to final design by a qualified lighting consultant

Energy Efficient LED
Main Oval 200-250 Lux
Other tracks & Laser Shooting Range 15-20 Lux
Pole height: 4.5m
Pole spacing: 13.5m

APPROX. NUMBER OF LIGHTS:

Primary Loop: 81
Short Cut : 42
Climb A: 13
Climb B: 37
Climb C: 24
Short Road Loop: N/A
Extended Road Loop: N/A
Penalty Loop: 2 (secondary light heads on Main Oval light poles)
Laser Shooting Range: 2 (secondary light heads on Main Oval light poles)

Source: A001 Site Plan 12-07-23, Vision Property Development Hub.

The development has been designed to link to the existing sports track and oval as well as be constructed in an area within the sport and Recreation Centre with the least amount of environmental impact.

Lastly, the development incorporates one concept component which is Climb B, as displayed on the plans submitted with the Development Application depicting the location of the proposed loops.

The client has confirmed that the trees immediately adjacent to the rollerski/cycleway track and associated penalty loop will not be removed as part of the development.

Note:
This plan is diagrammatic only.
All dimensions and areas must be considered
approximate only and subject to confirmation by
a registered surveyor before being relied upon.

UTILITIES KEY

- Water line to connect to existing
- Sewer line to connect to existing
- Electrical & communications to connect to existing
- Concrete spoon drain to connect to existing storm water system

TRACK KEY - for track widths and cross grades refer to survey drawings

- Primary 1100m loop
- Short Cut 575m loop
- Climb A 180m
- Climb B 130m
- Climb C 325m
- Short Road loop 350m
- Extended Road loop 415m
- Penalty Loop 150m

TRACK LIGHTING:

These figures are approx only and subject to final design
by a qualified lighting consultant

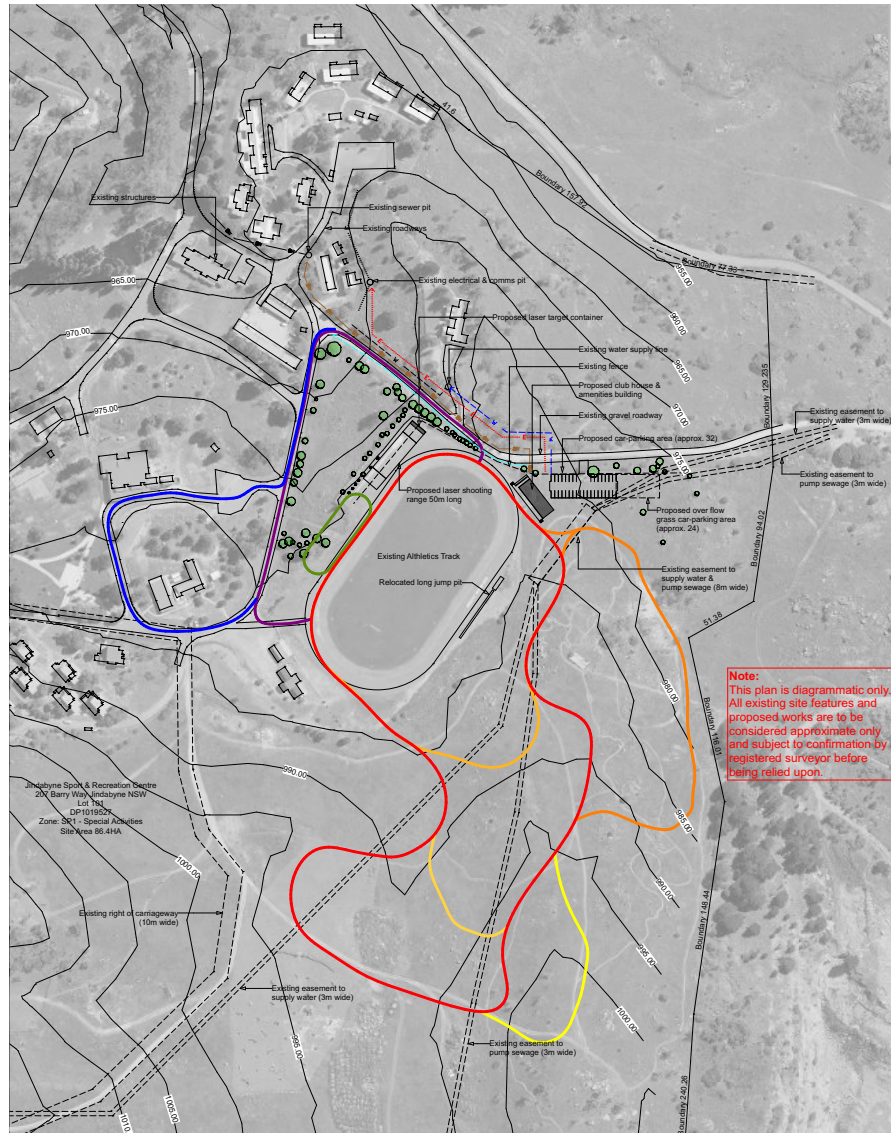
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- Penalty Loop 2 (secondary light heads on Main Oval light poles)
- Laser Shooting Range: 2 (secondary light heads on Main Oval light poles)

Note:
Site features, boundary information & contours
from survey produced by Project Surveyors
14-08-2007

Track locations from survey produced by Jack
Atkinson Surveyors 09-06-23



GENERAL NOTES

Do not scale from drawings. Use figured dimensions only.

All existing conditions, dimensions and levels are approximate only and are to be checked & verified by contractor prior to the commencement of work or the manufacture of any item.

All items not shown in the scope of works or drawings, but necessary for the proper completion of the works are deemed to be included.

All work will be carried out in accordance with the NCC, EP&A Act 1979 (as amended), Local Government Act 1993, Regulations under the Acts, relevant Australian Standards, and local authority conditions.

All work to be carried out by qualified and licensed tradespeople.

ISSUE

For Approval

Revision Changes Date

PROJECT
Proposed Sports Facilities

CLIENT
NSW Biathlon Association

LOCATION
Jindabyne Sport & Recreation Centre
207 Barry Way Jindabyne NSW

DATE **SCALE**

12 July 2023 1:2000

Sheet size: A2

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10 Rutherford Street,
Cavers NSW 2794
t: 02 486 827
e: office@visiongroup.com.au
web: visiongroup.com.au



JOB NUMBER
132/22

DRAWING
Site Plan **A001**



This drawing is not intended to be read on a screen. Please be read printed at 100% print scale on the intended sheet size.

Figure 2 Proposal

4. Legislative Framework

The site is identified as 'bushfire prone land' (see Figure 3) for the purposes of Section 10.3 of the *Environmental Planning and Assessment Act, 1979* (EPA Act) and the legislative requirements for development on bushfire prone lands are applicable.

All development on bushfire prone land must consider and comply with PBP 2019. The proposal is for sporting tracks which are exempt under Planning for Bushfire Protection 2019. The proposed overflow car park is non-combustible and is managed land. The proposed clubhouse and amenities building is considered "other" development by PBP and must meet the aim and objective of PBP.

The proposed works are assessed under section 4.14 of the *Environmental Planning and Assessment Act, 1979* and a Certificate has been issued with this report stating that the development complies with the requirements of PBP.

5. Bushfire Prone Land

The site has bushfire prone Category 3 vegetation and associated buffers. Bushfire prone land maps provide a trigger for the development assessment provisions and consideration of sites that are bushfire prone.

Bushfire prone land (BFPL) is land that has been identified by council, which can support a bushfire or is subject to bushfire attack. Bushfire prone land maps are prepared by local council and certified by the Commissioner of the NSW RFS.

The designation of land as Category 3 is supported.



Figure 3 Bushfire Prone Land Map

6. Site Assessment Methodology

The Bushfire Assessment Report is based on a desktop and site assessment of the site utilising the following resources:

- Planning for Bush Fire Protection (NSW RFS, 2019)
- Bushfire Prone Land Map
- Aerial mapping
- Detailed GIS and site analysis

This assessment is based on mapping of vegetation formations and slope assessment in accordance with PBP 2019. The methodology used in this assessment is in accordance with PBP 2019 and is outlined in the following sections.

6.1. Bushfire Hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone (APZ) locations and dimensions and future building levels.

The vegetation formations (bushfire fuels) and the topography (effective slope) combine to create the bushfire threat that may affect bushfire behaviour at the site, and which determine the planning and building response of PBP.

6.2. Fire Weather

The fire weather is dictated by PBP 2019 and assumes a credible worst-case scenario and an absence of any other mitigating factors relating to aspect or prevailing winds. The site has a Fire Danger Index (FDI) of 80 as per PBP 2019.

6.3. Vegetation

Predominant Vegetation is classified by structure or formation using the system adopted by Keith (2004) and by the general description using PBP 2019. Vegetation types give rise to radiant heat and fire behaviour characteristics.

The predominant vegetation is determined over a distance of at least 140 metres in all directions from the proposed site boundary or building footprint on the development site. Where a mix of vegetation types exist, the type providing the greater hazard is said to predominate.

The mapped bushfire hazard within the site is temperate montane grassland. Interspersed remnant trees are within the site but the predominant vegetation affecting fire behaviour is grassland. (see Figure).

6.4. Slopes Influencing Bushfire Behavior

The 'effective slope' influencing fire behaviour approaching the sites has been assessed in accordance with the methodology specified within PBP 2019. This is conducted by measuring the worst-case scenario slope where the vegetation occurs over a 100 m transect measured outwards from the development boundary or the existing/ proposed buildings. The clubhouse has been used as the defined built asset. The slopes are at Figure 4 and are:

- Northeast 8° downslope
- Southeast 2.3° downslope
- South 1.1° upslope
- West managed land in the form of athletics track



Figure 4 Vegetation and Slope

7. Bushfire Protection Measures

PBP 2019 recognises the unique attributes of “other” development and promotes detailed site analysis and the application of a combination of bushfire protection measures (BPMs) to achieve an acceptable outcome.

The BPMs work in combination to provide a suite of measures that meet the aim and objective and Section 6 of PBP 2019. Appropriate combinations depend upon geographic location and site circumstances. The BPMs are shown in Figure 5.

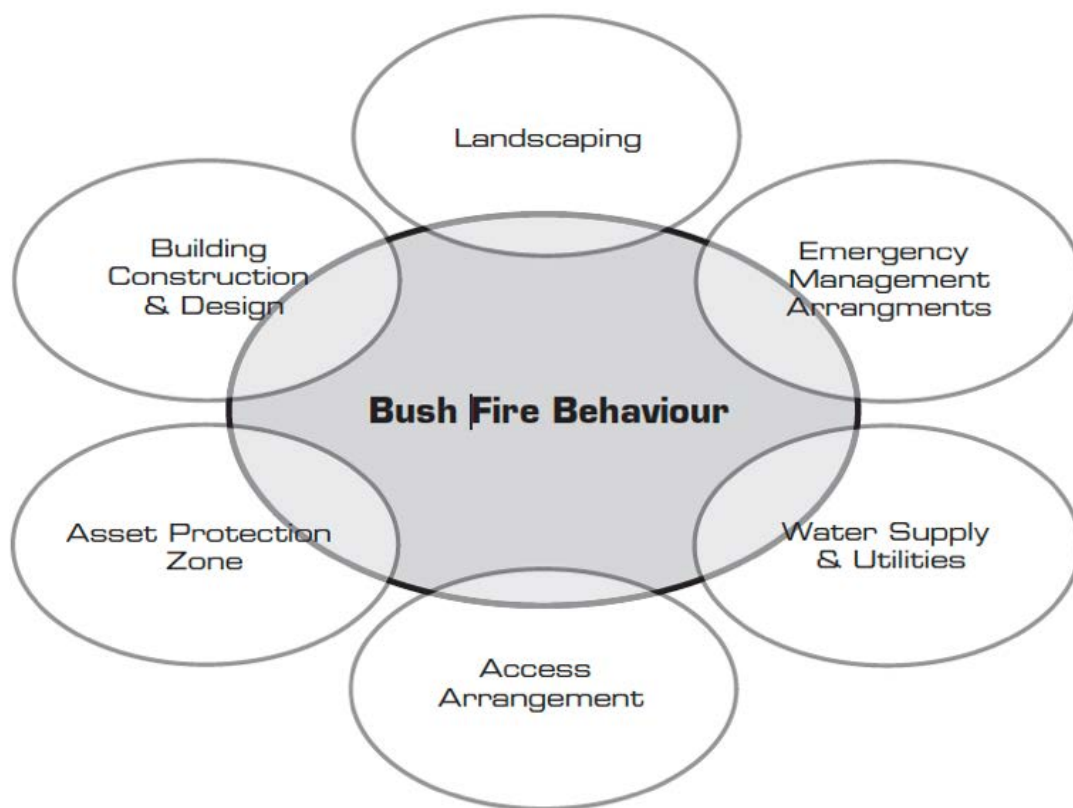


Figure 5 Bushfire Protection Measures in Combination (source PBP 2019 p. 26)

7.1. Asset Protection Zones

An Asset Protection Zone (APZ) is a buffer zone between a bush fire hazard and buildings. The APZ is managed progressively to minimise fuel loads and reduce potential radiant heat levels, flame, smoke and ember attack. The appropriate APZ distance is based on vegetation type, slope and the nature of the development.

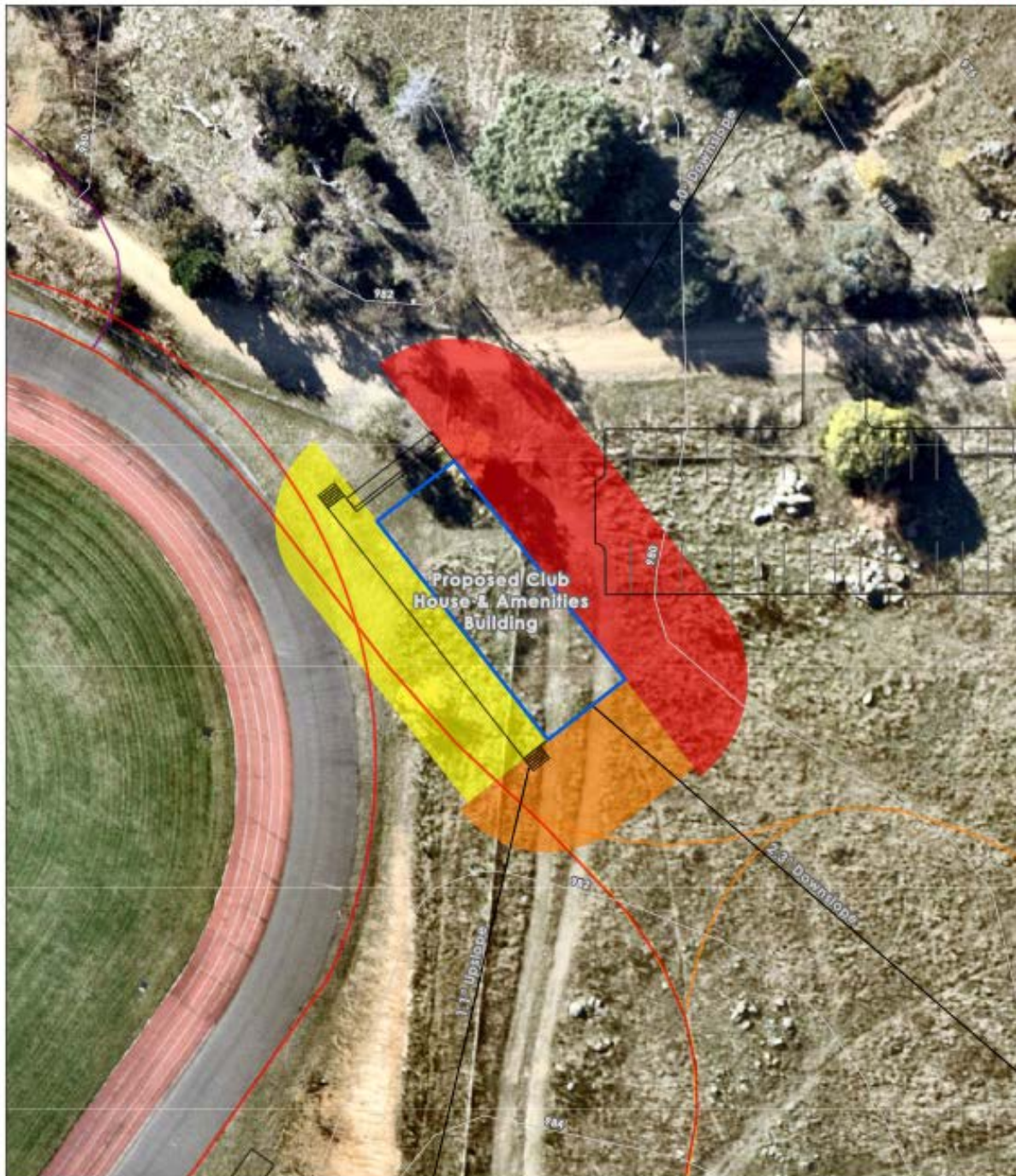
The APZ can include roads or properties managed to be consistent with APZ standards set out in the NSW RFS document *Standards for Asset Protection Zones*. The APZ provides a fuel-reduced, physical separation between buildings and bush fire hazards is a key element in the suite of bush fire measures and dictates the type of construction necessary to mitigate bushfire attack.

The area around the club house and amenity building will be managed and maintained to prevent the spread of a bushfire towards the building. The area around the buildings is cleared and maintained parkland or non-combustible surfaces and is not a fire hazard.

The required APZ club house and amenity building is shown in Figure 5. APZs can be comfortably provided for the building. The APZ for the club house and amenity building is:

- North – nil due to managed land
- East 12m
- South 11m
- West 10m

The APZs are based on the building being constructed to BAL 29 in accordance with the Australian Standard for Construction of Buildings in Bushfire Prone Areas 2018 (AS3959).



Legend

- | | |
|--------------|------------------------------|
| Watercourse | Asset Protection Zone |
| Contour - 2m | Asset Protection Zone - 10m |
| Works Area | Asset Protection Zone - 11m |
| Subject Land | Asset Protection Zone - 12m |
| Cadastre | |

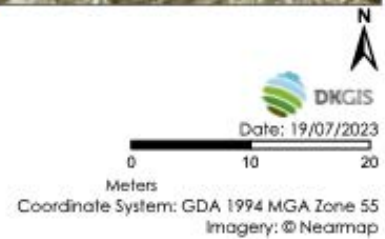


Figure 4 Asset Protection Zones & Bushfire Attack Level

7.2. Bushfire Attack Levels

The Bushfire Attack Level (BAL) is a means of measuring the severity of a building's or sites potential exposure to ember attack, radiant heat and direct flame contact. In the Building Code of Australia, the BAL is used as the basis for establishing the requirements for construction to improve protection of building elements.

Asset Protection Zones (see section 7.1) will be provided around the development that will include perimeter roads and hardstand areas. The buildings will be constructed to meet the relevant requirements of AS3959-2018 as identified in PBP 2019 for BAL 29.

The building requirements for design and construction vary according to the bushfire attack level for the building. The building requirements for each BAL are set out in *Australian Standard: 3959 Construction of buildings in bushfire-prone areas 2009 (AS3959)*.

Figure 5 shows that the accommodation building needs to be built to BAL 29 in accordance with AS3959.

7.3. Access

The access roads are in place and will not be altered as part of the application. The site has a range of access options with the main access directly to Barry Way. The existing road access provides safe access and egress for people attempting to leave the area at the same time that emergency service personnel are arriving to undertake firefighting operations.

Given the comprehensive nature of the existing road design, access complies with the requirements of PBP 2019.

7.4. Water Supply and Utilities

PBP 2019 (p. 47) requires that adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. Suitable water supply arrangements will be provided for firefighting that meet the NSW RFS requirements. The water main traverses the site (Figure 5) from a tank in an allotment which immediately adjoins the southern side of the site. The amenities facility will need to be connected to reticulated water and a hydrant point can be provided at the amenities building.

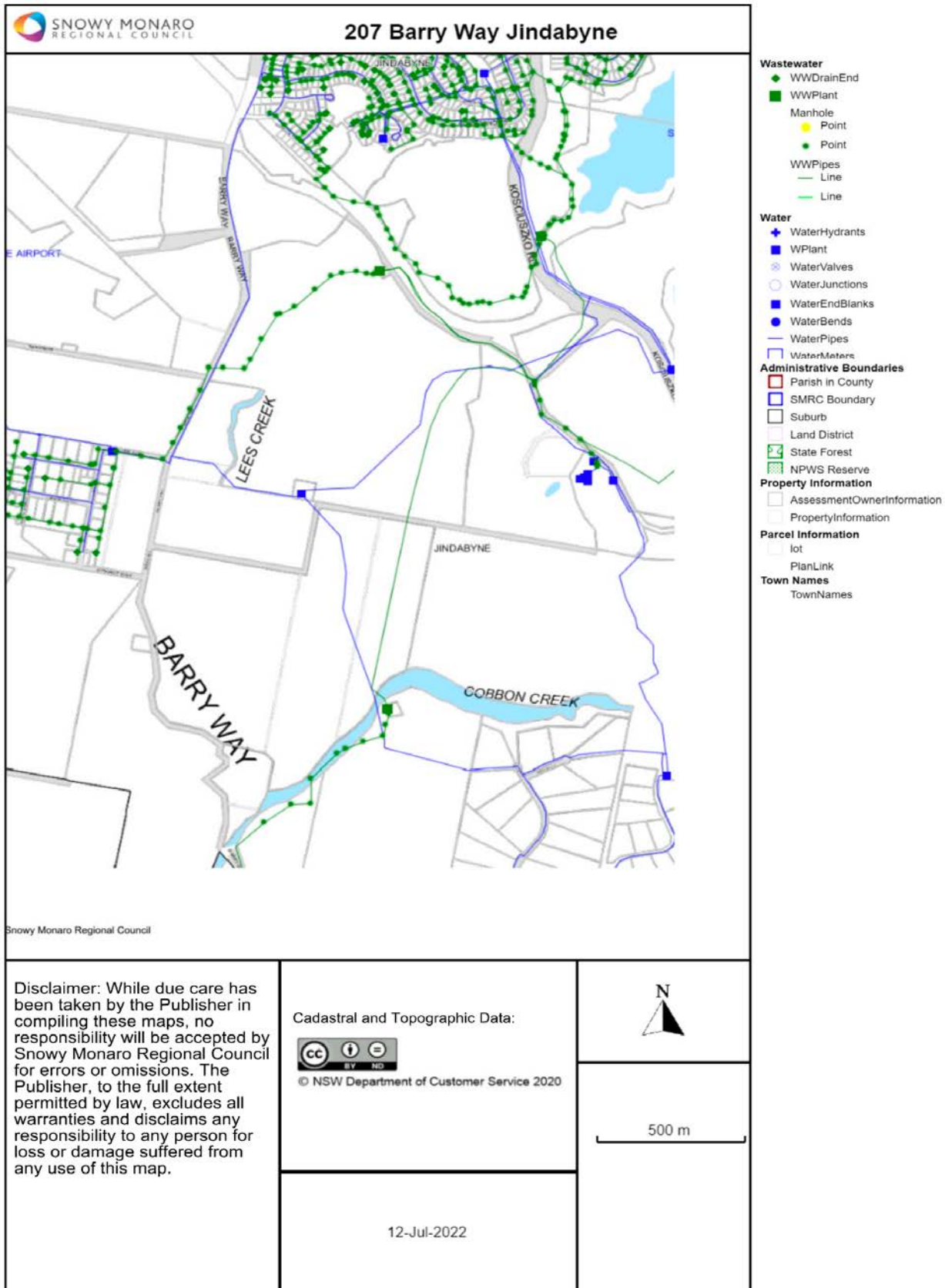


Figure 5 Available Water Mains within the site

8. Landscaping

Landscaping within the APZ as shown in Figure 5 must meet the Inner Protection Area requirements of PBP. This complies with PBP 2019.

9. Assessment Against the Aim and Objectives of PBP

All development on Bushfire Prone Land needs to comply with the aim and objectives of PBP. Table 2 shows the compliance with PBP.

Table 2: Compliance with Aim & Objectives of PBP

Aim	Meets Criteria	Comment
The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including fire fighters) and to minimise impacts on property from the threat of bushfire, while having due regard to development potential, onsite amenity and the protection of the environment.	Yes	Landscaping, defensible space, access and egress, emergency risk management and construction standards are in accordance with the requirements of PBP and the aims of PBP have been achieved.
Objectives	Meets Criteria	Comment
Afford occupants of any building adequate protection from exposure to a bushfire.	Yes	The proposed works do not provide for accommodation. The site can be closed in the event of bushfire.
Provide for a defensible space to be located around buildings.	Yes	Defensible space is provided on all sides of the proposed building in the form of complying asset protection zones.
Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent the likely fire spread to buildings.	Yes	The building is separated from the remnant vegetation areas and provide APZs and commensurate construction in accordance with AS3959.
Ensure that safe operational access and egress for emergency service personnel and occupants is available.	Yes	The site has direct access to public roads, and access and egress for emergency vehicles and evacuation is adequate.
Provide for ongoing management and maintenance of bushfire protection measures.	Yes	The APZ around the club house and amenity building will be managed including all APZ and landscaping in accordance with PBP.
Ensure that utility services are adequate to meet the needs of firefighters.	Yes	Utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting).

The suite of bushfire protection measures provided for the proposed development satisfies the objectives for of PBP.

10. Recommendations

The following recommendations are made to ensure the proposed development is provided with adequate bushfire protection in accordance with PBP:

Recommendation 1: At the commencement of building works and in perpetuity, the area around the building is managed as an Asset Protection Zone. The APZ shall be established and maintained as an inner protection area as outlined within *Planning for Bushfire Protection 2019* and the NSW RFS document '*Standards for Asset Protection Zones*'. The APZ is East 12m, South 11m, West 10m.

Recommendation 2: Fire hydrants is located near the amenity building for fire fighting purposes.

Recommendation 3: The building is constructed in accordance with BAL-29 of *Australian Standard AS 3959-2009 Construction of buildings in bushfire-prone areas* (AS 3959-2018).

11. Conclusion

The Bushfire Hazard Assessment supports a Development Application for the proposed development. The works are on bushfire prone land. The proposed new building and the APZ around the building is able to respond and implement an appropriate level of bushfire protection measures, as per PBP.

In the authors professional opinion, the bushfire protection measures demonstrated in this report comply with *PBP* and therefore the proposed development is considered suitable in the context of bushfire. The development conforms to the relevant specifications and requirements of *Planning for Bush Fire Protection 2019*.

A Certificate in accordance with Section 4.14 of the Environmental Planning and Assessment Act, 1979 is included at the front of this report.



Lew Short | Director
Blackash Bushfire Consulting
B.Sc., Grad. Dip. (Design for Bushfire Prone Areas)
Fire Protection Association of Australia BPAD Level 3 - 34603



Appendix 1 References

Australian Building Codes Board Building Code of Australia Volumes 1&2 Councils of Standards Australia AS3959 (2018) – Australian Standard Construction of buildings in bushfire-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

NSW Rural Fire Service (2015) Guide for Bushfire Prone Land Mapping.

NSW Rural Fire Service (RFS). 2019. Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners.

NSW Government (1979) Environmental Planning and Assessment Act 1979. NSW Government Printer.