Bushfire Attack Level (BAL) Hazard Assessment report

Determined in accordance with *Planning for Bushfire Protection* 2019 and AS 3959-2018

This Bushfire Attack Level (BAL) Assessment Report has been prepared by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

This proposal has been prepared in accordance with PBP 2019 in its entirety and the development complies with all relevant Acceptable Solutions in PBP2019

Site Details

Address:	545 Peel Street (Part Lot 73, DP 1107041)		
Suburb:	Tamworth	State:	NSW
Local Government Area:	Tamworth Regional Council		
Report / Job Number:	ARM 23/42	Report Date:	12/07/2023

Bushfire Hazard Assessment

Vegetation Classification	Effective Slope	Separation Distance	BAL
Grassland (south)	upslope	>50 metres	BAL-LOW
Low Threat (west, north, east)	0-<5° down	>10 metres	BAL-LOW

BPAD Accredited Practitioner Details

Name:	**Stephen Cotter**		
Accreditation Number:	**BPAD20505**	**Accreditation Expiry Date:**	**31/05/2024**

Signature:

BUSHFIRE HAZARD ASSESSMENT

TAMWORTH CAMPUS

545 PEEL STREET, TAMWORTH

12TH JULY 2023

REPORT PREPARED FOR UNIVERSITY OF NEW ENGLAND

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EXECUTIVE SUMMARY

Touchstone Partners on behalf of the University of New England (UNE) has requested a bushfire hazard assessment and report that fully considers the site-specific parameters and vegetation structure of any bushfire hazard that would impact the proposed Tamworth campus redevelopment in accordance with section 4.14 of the Environmental Planning & Assessment Act (1979). The assessment followed the guidelines recommended in Planning for Bushfire Protection (PBP2019) and AS 3959-2018 Construction of buildings in bushfire prone areas (AS3959-2018).

Property Description

The subject site is located at the corner of Peel Street and Roderick Street on the decommissioned Tamworth velodrome. The property is part of public lands along the northern bank of the Peel River that flows through the Tamworth CBD. The subject property is zoned RE1 'Public Recreation' in the Tamworth Regional Local Environmental Plan (Tamworth Regional Council, 2010).

The subject site is surrounded by existing commercial development along Peel and Roderick Street to the north and west, by New England Highway bypass to the east and Peel River, bike path and open space to the south. The land to the south of Peel River is flood prone and used for fodder crop production. The development proposal is for the redevelopment of the Tamworth velodrome site to create an educational space as part of UNE.

Vegetation assessment

This Bushfire Risk Assessment was conducted through an on-site inspection undertaken on 17th June 2023 using the methodology set out in PBP. The on-site assessment included traversing the subject property and all lands within 140 metres from the proposed development. The property inspection identified forest areas surrounding the development as bushfire prone vegetation within 140m affecting these dwellings. The table below summarises the slope assessments for each vegetation community observed over the subject land.

Aspect	Vegetation	Classification (PBP / AS 3959-2018)	Slope	Comments
N	Commercial	Low Threat	Upslope	.
S	Crops / Peel River	Grassland	0-<5° Down	
E	Commercial	Low Threat	0-<5° Down	
W	Commercial	Low Threat	0-<5° Down	

Asset Protection Zones

Based on the assessment of the vegetation communities and slopes present on and adjacent to the subject property; the entire development site shall be maintained as the APZ to provide a separation from any bushfire prone vegetation.

The APZ shall exceed the requirements outlined in Table A1.12.6 of PBP2019 and provide a defendable space for firefighters.

The APZ shall be maintained to the standard of an Inner Protection Area (IPA) outlined in Appendix 4 of PBP.

Services

The protection of the Tamworth campus will require a supply of water. As NSW Fire and Rescue are likely to be the first respondent to any (bush)fire emergencies and these vehicles do not carry a store of water, access to a reliable water supply is required.

This bushfire protection measures can be achieved by.

- *Accessing the ring distribution system in accordance with Tamworth council requirements.*
- *Ensure that hydrants are installed in accordance within AS2419.1*
- *Ensure hydrant pressure exceeds the required level in AS2419.1 for hydrant system flow tests*

Any reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596.2014. All fixed gas cylinders are kept clear of flammable materials for a distance of 10 metres, shielded on the hazard side with connections to and from the gas cylinders being metal

Access

The Tamworth campus will provide visitor car parking in an area away from any bushfire hazards.

Direct access for emergency vehicles is provided from the public roads with suitable areas for vehicle turn around.

Construction Standards

The proposed Tamworth campus does not include a residential component.

No bushfire prone vegetation occurs within 50 metres of any building and

The area separating any bushfire prone vegetation from the Tamworth campus buildings is managed land or includes the Peel River waterway.

There are no construction requirements under AS3959-2018 for ***BAL-LOW*** *level.*

Emergency Management

To address the requirement for emergency management of the facility during a bushfire, a bushfire emergency management and evacuation plan should be prepared for the Tamworth campus in accordance with AS3745.2000 Planning for emergencies in facilities and the NSW RFS document: A guide to developing a bushfire emergency management and evacuation plan.

The preparation and acceptance of the Bushfire Emergency Management and Evacuation Plan should d form part of the emergency management plan for the Tamworth campus.

RECOMMENDATIONS

- *The entire development site shall be managed as an Inner Protection Area according to Appendix 4 of PBP2019 to provide separation from the bushfire prone vegetation.*
- *Water is provided through access to the Tamworth city centre distribution system with installed and located in accordance with AS2419.1.*
- *Property access shall exceed any provisions in PBP2019 for property access road. All egress paths should lead to the east and north, away from any bushfire hazard.*
- *No specific construction requirements for bushfires apply to any buildings.*
- *A Bushfire Emergency Management and Evacuation Plan should be prepared as a consent condition and approved prior to the operation of the facility. This plan would form part of the emergency management plan for the Tamworth campus.*

1. INTRODUCTION

1.0 Scope of the report

This bushfire assessment report provides detailed information that demonstrates how a proposed development on bushfire prone land in NSW will address the requirements of *Planning for Bushfire Protection* 2019 (PBP2019).

The proposed academic campus for Tamworth is located on bushfire prone land under the Tamworth Bushfire Prone land map. As such, there is a requirement to address the aim and objectives of PBP outlined in Chapter 1 of PBP2019. In particular, the proposal shall:

- Afford buildings and their occupants protection from exposure to a bushfire
- Provide for a defendable space to be located around buildings
- Provide appropriate separation between a hazard and building which, in combination with other measures, prevent the likely fire spread to buildings
- Ensure that appropriate operational access and egress for emergency service personnel and occupants is available
- Provide for ongoing emergency management and maintenance of bushfire protection measures
- Ensure that utility services are adequate to meet the needs of firefighters

A suite of bushfire protection measures will be proposed that, in combination, achieve the above objectives.

1.1 Background

Touchstone Partners on behalf of the University of New England (UNE) has requested a bushfire hazard assessment and report that fully considers the site-specific parameters and vegetation structure of any bushfire hazard that would impact the proposed development as part of the Tamworth campus of UNE in accordance with the *Environmental Planning & Assessment Act* (1979). The assessment followed the guidelines recommended in *Planning for Bushfire Protection* (PBP2019) and AS 3959-2018 *Construction of buildings in bushfire prone areas* (AS3959-2018).

1.2 Approval Pathway

The Tamworth campus buildings are not defined as a Special Fire Protection Purpose (SFPP) development under the Rural Fires Regulations and hence referral to the NSW Rural Fires Service (RFS) is not required. Approval for the development shall be assessed against State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP). A referral to a principal certifying authority is not required.

S.3.11 of the SEPP, a public authority must consider Planning for Bushfire Protection 2019 before carrying out any development on bushfire prone land. As un-managed cropping land to the south has the potential for a bushfire hazard from curing of cut fodder crops, the acceptable solutions outlined in Table 7.4a of PBP should be incorporated into the development.

1.3 Description of property

The subject site is located at the corner of Peel Street and Roderick Street on the decommissioned Tamworth velodrome. The property is part of public lands along the northern bank of the Peel River that flows through the Tamworth CBD (Figure 1).

The subject property is zoned RE1 ‘Public Recreation’ in the Tamworth Regional Local Environmental Plan (Tamworth Regional Council, 2010).

1.3.1 Surrounding land use

The subject site is surrounded by existing commercial development along Peel and Roderick Street to the north and west, by New England Highway bypass to the east and Peel River, bike path and open space to the south.

The land to the south of Peel River is flood prone and used for fodder crop production.

Figure 1: Aerial image showing the campus proposed to replace the velodrome on the northern side of Peel River, surrounded by commercial development within Tamworth CBD.

1.4 Proposal

The development proposal is for the redevelopment of the Tamworth velodrome site to create an educational space as part of UNE.

2. SITE ASSESSMENT

The vegetation of the subject property and adjacent properties up to 140m (where practicable) from the proposed development was assessed during a site visit on 17th June 2023. The vegetation communities present were identified and classified into formations as described in Keith (2004).

Appendix 1 of PBP2019 outlines the methodology for determining the predominant bushfire prone vegetation to the distance of at least 140 metres in all directions from the site of the proposed development. Vegetation is classified using Keith (2004) with reference to Figures A1.2 of PBP2019 that classifies vegetation types into the following groups:

(a) Rainforest

(b) Wet Sclerophyll Forests

(c) Dry Sclerophyll Forests

(d) Woodlands

(e) Tall Heath

(f) Short Heath

(g) Grassland

2.1 Vegetation communities present surrounding the proposed development

Community 1 Low Threat: Low threat commercial buildings, roads and managed parklands occur to the north, east and west of the site within Tamworth CBD.

The vegetation within the Peel River is restricted to the southern bank. The northern bank consists of gabion retaining wall to prevent erosion with all land above the top of the bank being managed as part of the bicycle path and public space. The un-managed vegetation on the southern bank of Peel River less than 20 metres in width and not within 20 metres of the development. As such, this can be excluded from any assessment based on A1.10 of PBP2019.

Community 2 Grassland: Fodder crops occur on the rural land to the south of Peel River. There is the potential for this area to be a bushfire hazard due to curing of these crops on a regular basis. The cropping lands are located greater than 50 metres from the subject site.

2.1.1 Assessed bushfire prone vegetation affecting the proposed development

The grassland to the south of Peel River was assessed as the bushfire prone vegetation impacting on the proposed development.

Site photographs are provided in Figures 2, 3 and 4.

Figure 2a: Dis-used Tamworth Velodrome within city centre.

Figure 2c: View to east showing highway bypass and bridge over Peel River.

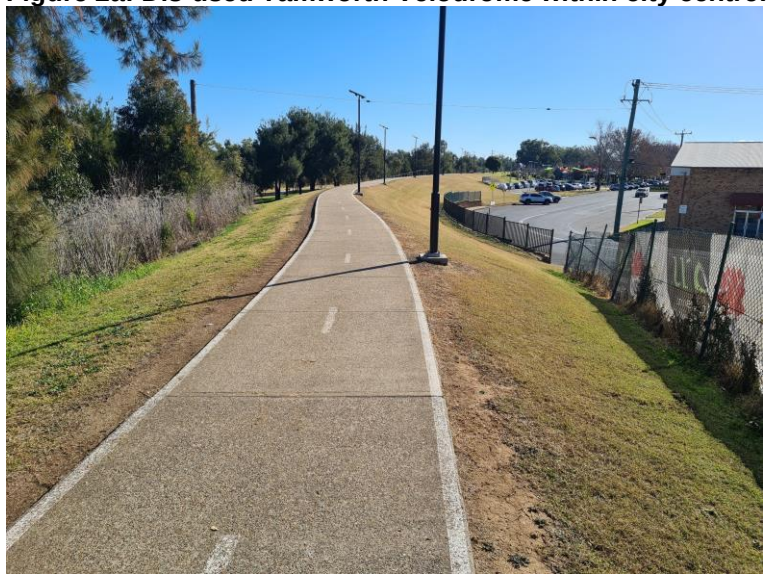

Figure 2b: Managed land including bike path on northern bank of Peel River.

Figure 2d: Commercial buildings to north and west of velodrome.

Figure 3a: Fodder crops grown on flood-prone land to south of Peel River.

Figure 3b: Erosion along southern bank of river restricts vegetation growth.

Figure 3c: Managed land along highway bypass

Figure 4: Gabion terracing along northern bank of Peel River to control erosion. No vegetation can establish on this bank.

2.2 Landform assessment

Appendix 1 of PBP2019 indicates that slopes should be assessed, over a distance of at least 100m from a development site and that the dominant gradient of the land should be determined on the basis for which will most significantly influence the fire behaviour at the site. Using

published topographic maps and preliminary survey plans to inform the on-site assessment, the land slopes gently away from the levee banks along the Peel River

Table 1 summarises the slope assessments for each vegetation community observed surrounding the existing dwellings. This information will be used as the basis for determining those aspects of the proposed development that may require provisions for, and implementation of appropriate Asset Protection Zones (APZ).

Table 1: Site Assessment Summary – vegetation communities

Aspect	Vegetation	Classification (PBP / AS 3959-2018)	Slope	Comments
N	Commercial	Low Threat	Upslope .	
S	Crops / Peel River	Grassland	0-<5° Down	
E	Commercial	Low Threat	0-<5° Down	
W	Commercial	Low Threat	0-<5° Down	

2.3 Assessed Bushfire Attack Level

The bushfire attack level applicable to the proposed development was assessed based on the site-specific attributes included above and compared with table A1.12.6 of PBP.

The Tamworth campus building site was assessed as having a **BAL-LOW** bushfire attack level.

- The property is in FDI 80 region
- Grassland occurs to the south, separated by at least 50 metres of managed land and waterway.
- Low Threat vegetation occurs in the other directions, separated by at least 10 metres from the development.

3. BUSHFIRE PROTECTION MEASURES

The following bushfire assessment follows the methodology outlined in AS 3959-2018 *Construction of buildings in bushfire prone areas* and PBP 2019. The following bushfire protection measures are proposed for the Tamworth campus redevelopment to achieve compliance with the aims and objectives and the measures recommended in Section 8 Other Development in PBP2019.

3.1 Asset Protection Zones

Based on the assessment of the vegetation communities and slopes present on and adjacent to the subject property; the entire development site shall be maintained as the APZ to provide a separation from any bushfire prone vegetation.

The APZ shall exceed the requirements outlined in Table A1.12.6 of PBP2019 and provide a defendable space for firefighters.

The APZ shall be maintained to the standard of an Inner Protection Area (IPA) outlined in Appendix 4 of PBP.

3.2 Access and egress

The public roads (Peel Street, Roderick Street) in the vicinity of the subject property are adequate to handle increased volumes of traffic in a bushfire emergency. These roads;

- have an all-weather surface;
- are two-way, allowing traffic to pass in opposite directions; and
- have the capacity to carry fully loaded fire fighting vehicles
- allow occupants to evacuate away from any bushfire hazard

3.2.1 Adequacy of Access and Egress in Bushfire Situations

The Tamworth campus will provide visitor car parking in an area away from any bushfire hazards.

Direct access for emergency vehicles is provided from the public roads with suitable areas for vehicle turn around.

3.3 Services (Electricity Supply, Water, Gas)

The protection of the Tamworth campus will require a supply of water. As NSW Fire and Rescue are likely to be the first respondent to any (bush)fire emergencies and these vehicles do not carry a store of water, access to a reliable water supply is required.

This bushfire protection measures can be achieved by.

- Accessing the ring distribution system in accordance with Tamworth council requirements.
- Ensure that hydrants are installed in accordance within AS2419.1
- Ensure hydrant pressure exceeds the required level in AS2419.1 for hydrant system flow tests

Any reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596.2014. All fixed gas cylinders are kept clear of flammable materials for a distance of 10 metres, shielded on the hazard side with connections to and from the gas cylinders being metal

3.4 Bushfire Construction Standards

The proposed Tamworth campus does not include a residential component.

No bushfire prone vegetation occurs within 50 metres of any building and

The area separating any bushfire prone vegetation from the Tamworth campus buildings is managed land or includes the Peel River waterway.

There are no construction requirements under AS3959-2018 for **BAL-LOW** level.

3.5 Landscaping and property maintenance – Bushfire provisions

The principles of landscaping for bush fire protection are to prevent flame impingement on the building; provide a defendable space for property protection; reduce fire spread; deflect and filter embers; provide shelter from radiant heat; and reduce wind speed. Careful consideration of the species selection, their location relative to their flammability, and on-going maintenance to readily remove flammable fuels (leaf litter, twigs and debris) is critical to providing for bushfire protection (RFS, 2019). The following measures should be considered:

- Only minimal bushfire fuel is present at ground level
- vegetation does not provide a path for the transfer of fire to the development
- trees at maturity should not touch or overhang the building with lower limbs removed to a height of at least two metres above ground
- any trees present are not species that retain dead material or deposit excessive amounts of ground fuel in a short time.
- There is a clear break, preferably using hard surfaces such as paving, between any bark chips or other combustible mulches and the building
- Highly flammable landscape plantings are not positioned next to the building
- The landscaped areas are regularly managed as part of the ground maintenance program for the campus

3.6 Emergency Management

To address the requirement for emergency management of the facility during a bushfire, a bushfire emergency management and evacuation plan should be prepared for the Tamworth campus in accordance with AS3745.2000 *Planning for emergencies in facilities* and the NSW RFS document: *A guide to developing a bushfire emergency management and evacuation plan*.

The preparation and acceptance of the Bushfire Emergency Management and Evacuation Plan should d form part of the emergency management plan for the Tamworth campus.

4. RECOMMENDATIONS

- The entire development site shall be managed as an Inner Protection Area according to Appendix 4 of PBP2019 to provide separation from the bushfire prone vegetation.
- Water is provided through access to the Tamworth city centre distribution system with installed and located in accordance with AS2419.1.
- Property access shall exceed any provisions in PBP2019 for property access road. All egress paths should lead to the east and north, away from any bushfire hazard.
- No specific construction requirements for bushfires apply to any buildings.
- A Bushfire Emergency Management and Evacuation Plan should be prepared as a consent condition and approved prior to the operation of the facility. This plan would form part of the emergency management plan for the Tamworth campus.

The bushfire protection measures included as part of the Tamworth campus redevelopment will achieve the aim and objectives of PBP for non-residential commercial buildings.

STEPHEN COTTER

BPAD 20505

5. REFERENCES

Keith, D., 2004. *Ocean shores to Desert Dunes*. Department of Environment and Conservation, Sydney

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Specht, R., 1970. Vegetation, in Leeper, G.W., *The Australian Environment*, Melbourne University Press, 4th Edition

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