terramatrix

BARANDUDA CATHOLIC SCHOOL
MASTERPLAN
BUSHFIRE DEVELOPMENT REPORT
INCORPORATING A
BUSHFIRE MANAGEMENT STATEMENT

Prepared for
Catholic Education Sandhurst
March 2026

WWW.TERRAMATRIX.COM.AU

Terramatrix project: CatholicEducationSandhurstLimited-2025-01 C9_NCC_BMO-Baranduda
Cover image: Looking north across the site from the entry on John Schubert Drive.

Terramatrix Pty. Ltd.
ACN 129 163 373
ABN 44 129 163 373
PO Box 1391, Collingwood VIC 3066
P: 03 9417 2626
www.terramatrix.com.au

Version Control

Version	Completion date	Comments	Name
0.1	2026-03-23	Mapping and report compilation	Angus Barbary Senior Analyst
0.1	2026-03-24	Peer review	Hamish Allan Manager, Bushfire Planning and Design
1.0	2026-03-26	Bushfire Development Report (BDR)	To client

Disclaimer
This report has been made with careful consideration and with the best information available to Terramatrix at the time of writing. Before relying on information in this report, users should carefully evaluate the accuracy, completeness and relevance of the information provided for their purposes. Terramatrix Pty Ltd, its directors and employees do not guarantee that it is without flaw or omission of any kind or is wholly appropriate for your particular purposes and therefore disclaim all liability for any error, loss or other consequence that may arise from you relying on any information in this report.

Spatial Data
Most spatial data were supplied from the State Government of Victoria. Care was taken with the creation of maps used in this report, however the accuracy cannot be guaranteed. Users of the maps should make appropriate enquiries to ascertain the accuracy of the information presented before relying on it.

TABLE OF CONTENTS

INDEX OF TABLES

INDEX OF MAPS

INDEX OF FIGURES

GLOSSARY & ACRONYMS

BAL	*Bushfire Attack Level* - A means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, and the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire e.g. a building constructed to a BAL-12.5 standard is designed to be exposed to radiant heat not exceeding 12.5 kW/m^2.
BMO	*Bushfire Management Overlay* - A planning scheme provision used to guide the development of land in areas of high bushfire hazard. The BMO applies to areas where there is potential for extreme bushfire behaviour, such as a crown fire and extreme ember attack and radiant heat.
BPA	*Bushfire Prone Area* - An area that is subject to, or likely to be subject to, bushfire attack as determined by the Minister for Planning.
Bushfire	An unplanned fire burning in vegetation; sometimes referred to as wildfire. A generic term which *includes grass fires*, forest fires and scrub fires.
Bushfire attack	Attack by wind, burning embers, radiant heat or flame generated by a bushfire.
Bushfire hazard	A source of potential damage or harm, typically one or more of three key elements; vegetation, weather and topography.
Bushfire risk	The chance or probability of damage or harm if exposed to a bushfire hazard and the severity of the impact i.e. consideration of the likelihood and consequences of impacts from bushfire.
CES	Catholic Education Sandhurst Pty Ltd
CFA	*Country Fire Authority*
Classified vegetation	Vegetation deemed to be a bushfire hazard in accordance with the Bushfire Management Overlay (BMO) and/or AS 3959:2018 *Construction of buildings in bushfire prone areas*.
Defendable space	An area of land around a building where vegetation is modified and managed to reduce the effects of flame contact and radiant heat associated with bushfire.
DEECA	*Department of Environment, Energy and Climate Action*
DTP	*Department of Transport and Planning*
Effective slope	The slope of the land (gradient, measured in degrees) under the classified vegetation which most influences the bushfire attack. The slope is determined on the basis of the fire moving towards the building and the rate of spread of the fire and not solely on the basis of the relative elevation of the vegetation.

Ember attack	Attack by smouldering or flaming windborne debris that is capable of entering or accumulating around a building, and that may ignite the building or other combustible materials and debris.
EMV	*Emergency Management Victoria*
EVC	*Ecological Vegetation Class* - The standard unit for classifying vegetation types in Victoria. EVCs are described through a combination of floristics, lifeforms and ecological characteristics, and through an inferred fidelity to particular environmental attributes. Each EVC includes a collection of floristic communities (i.e. lower level in the classification) that occur across a biogeographic range and, although differing in species, have similar habitat and ecological processes operating.
FBI	*Fire Behaviour Index* – A mathematically calculated scale of potential fire behaviour that ranges from 0 to 100+, based on fire behaviour models. Fire agencies use the FBI to inform decisions about the Fire Danger Rating (FDR) for a district.
FDR	*Fire Danger Rating* – The FDR is set by fire agencies based on FBIs and indicates how difficult it will be to control or suppress a fire and communicate the level of bushfire risk. There are four FDRs; Moderate, High, Extreme and Catastrophic. 'No rating' may be shown when there is low risk.
FFDI	*Forest Fire Danger Index* – A numerical index representing the chance of a fire starting, its rate of spread, its intensity and the difficulty of its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long- and short-term drought effects.
FFMVic	*Forest Fire Management Victoria*
FRV	*Fire Rescue Victoria*
LGA	*Local Government Area*
RHF	*Radiant heat flux* - The heat transfer rate per unit area from thermal (electromagnetic) radiation, expressed as kilowatts per metre squared (kW/m^2). Calculated or measured for a specific surface to determine the radiant heat received by that surface from flames associated with a bushfire.
WCC	*Wodonga City Council*

1 Introduction

Catholic Education Sandhurst Pty Ltd (CES) propose to develop a new secondary school at Ellen McDonald Drive, Baranduda VIC 3691 (see Figure 1). The proposal comprises buildings, sporting fields/courts, car parking and associated infrastructure and is to be developed in stages according to a masterplan for the site (see Figure 2). The proposed building stages are generally:

Stage 1: Administration and Learning buildings
Stage 2: Learning and science building
Stage 3: Learning and arts centre
Stage 4: Learning and technology building, oval and outdoor courts
Stage 5: Gymnasium and covered courts

The aim of this report is to identify how the proposal responds to the bushfire risk and the applicable planning and building controls that relate to bushfire, specifically the objective and applicable strategies of the State planning policy for bushfire at Clause 13.02-1S *Bushfire Planning,* Clause 44.06 *Bushfire Management Overlay* (BMO) and associated Clause 53.02 *Bushfire Planning* in the Wodonga Planning Scheme. This report includes a 'Pathway 2' Bushfire Management Statement response to the BMO, with bushfire hazard site and landscape assessment plans and a Bushfire Management Plan (BMP).

The entire site is designated as a Bushfire Prone Area (BPA). The BMO applies to land in the northeastern corner of the property where a sport field is proposed and an area in the southeast of the site where an access/egress point will be located on John Schubert Drive (see Figure 1). None of the proposed buildings will be within areas on the site that are covered by the BMO.

The assessment incorporates as appropriate, applicable guidance for the assessment of and response to bushfire risk provided in *Planning Permit Applications – Bushfire Management Overlay,* Technical Guide (DELWP, 2017).

Lot and Plan Number	Lot 4 PS533382
Address:	Ellen McDonald Drive, Baranduda VIC 3691
Site area:	12.72 ha
Local Government Area:	City of Wodonga
Zone/s	Urban Growth Zone – Schedule 1 (UGZ1)
Overlay/s	Development Contributions Overlay – Schedule 1 (DCPO1) Vegetation Protection Overlay - Schedule 4 (VPO4) *(partial site coverage)* Bushfire Management Overlay (BMO) *(partial coverage)*

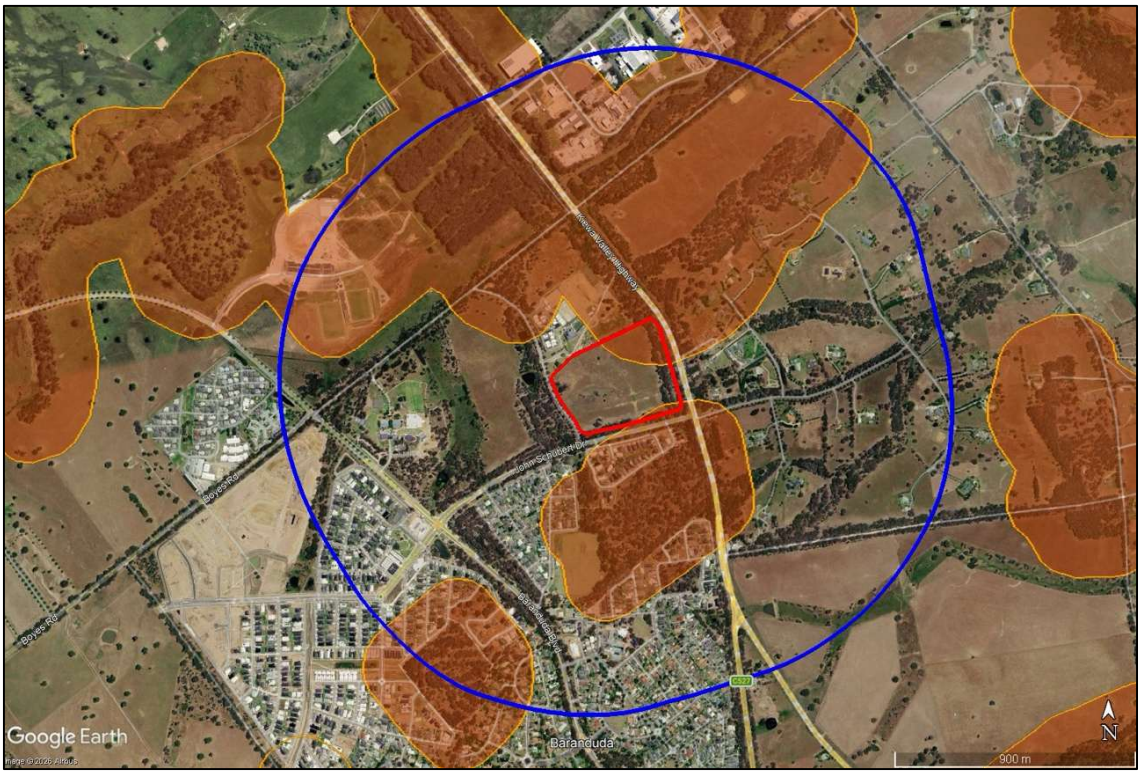


Figure 1 - Location of school site (site in red outline, 1 km buffer of site in blue outline and BMO coverage in semi-transparent orange; Google Earth imagery 2025-12-03).

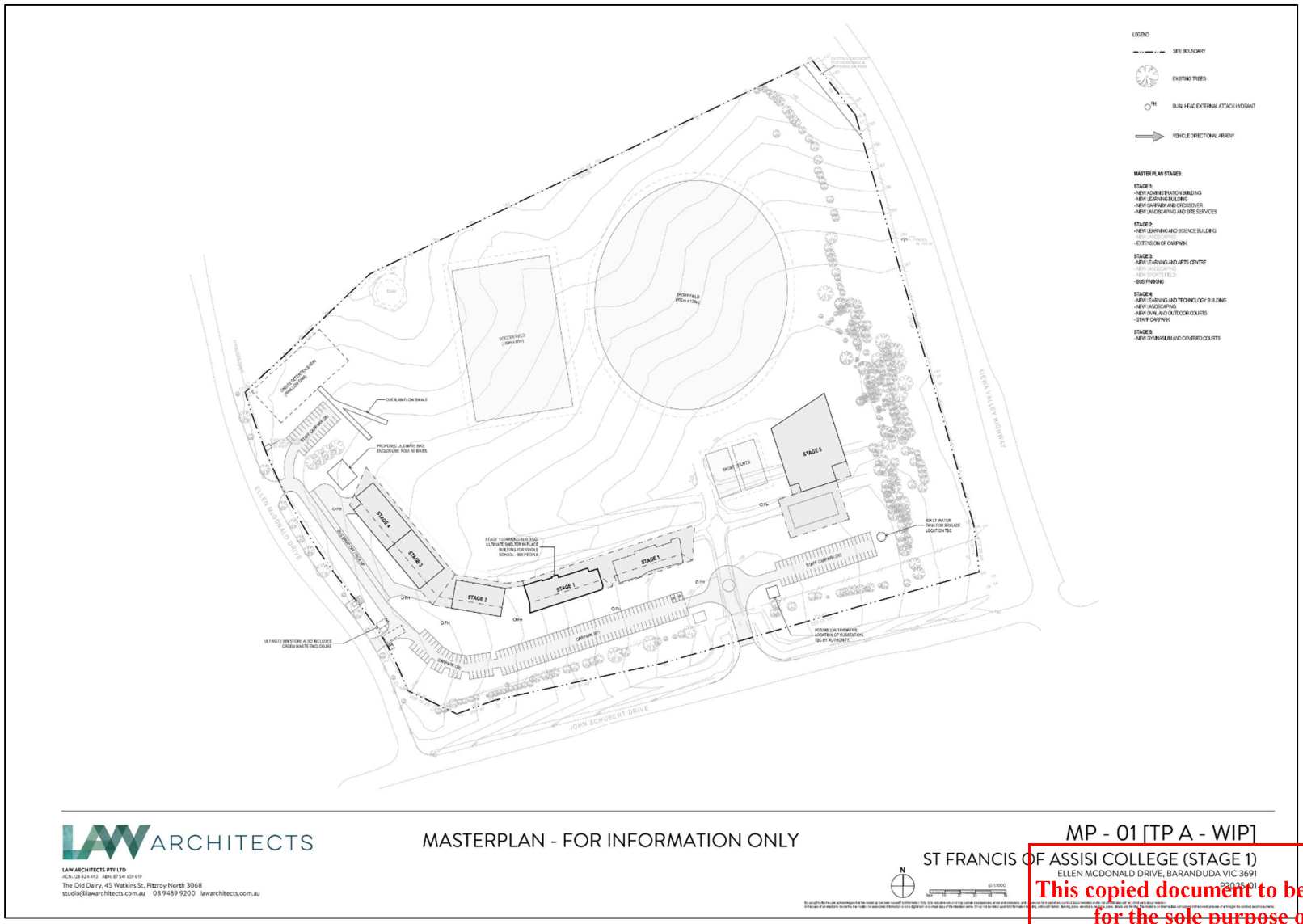


Figure 2 – Baranduda Catholic School - Masterplan (LAW Architects, undated).

2 Bushfire planning and building context

This section summarises the applicable planning and building strategies and controls that relate to bushfire.

2.1 Wodonga Planning Scheme

2.1.1 Clause 02 Municipal Planning Strategy

The Municipal Planning Strategy (MPS) in the Wodonga Planning Scheme, identifies the site is in the southeastern corner of the Leneva-Baranduda growth area (see Map 1), with land to the north and west identified as a future urban area (Wodonga Planning Scheme, Cl. 02.04).

In relation to bushfire the MPS notes:
'*The municipality has areas of significant bushfire hazard, including areas identified for future settlement such as the Leneva Valley and Baranduda growth corridor. The southern and western boundaries of Wodonga City directly interface with vegetated hillsides and associated bushfire hazard areas. There are also small lots and rural-residential lots that are close to bushfire hazard areas. To address bushfire risks, Council will:*

- *Ensure development, including in Leneva Valley and Baranduda growth corridor, mitigates high bushfire risk to an acceptable level.*
- *Encourage development only where bushfire protection measures can be implemented, including through the provision of interface treatments such as roads between residential subdivisions and reserves subject to bushfire risk'* (Wodonga Planning Scheme, Cl.02.03-3).

A municipal wide bushfire risk assessment undertaken for WCC by Terramatrix, identified the site as a medium to high risk location based on its current level of hazard exposure (Terramatrix, 2026). However, as land to the north and west continues to be transformed into an urban-residential landscape, in accordance with Leneva-Baranduda Precinct Structure Plan (LBPSP), the risk will reduce significantly and evolve to become low to very low risk (see further in Section 3).

2.1.2 Clause 12 Environmental and Landscape Values

The local policy at Clause 12.01-1L *Protection of biodiversity* supports the State biodiversity policy with two strategies:

- *'Identify and protect significant native vegetation and habitat corridors prior to rezoning for urban development.*
- *Encourage the retention of native vegetation patches within reserves, open spaces, road reserves and wildlife corridors'* (Wodonga Planning Scheme, Cl.12.01-1L).

A Native Vegetation Precinct Plan (NVPP) was prepared for the Leneva & Baranduda PSP area, which the school site is within (CoW, 2014), and is incorporated into the Wodonga Planning Scheme. The NVPP includes precincts identified in the Wodonga Retained Environment Network Strategy (WRENS).

that established reserves for protecting areas of biodiversity significance in growth areas south and east of the Wodonga township. The NVPP identifies 3 categories of vegetation:

1. Native vegetation that may be removed without a permit subject to the conditions and requirements of the NVPP.
2. Native vegetation that should be retained but may be removed subject to a planning permit and will require offsets.
3. Native vegetation that is to be retained and permanently protected as the offsets for the native vegetation removed in Category 1 (CoW, 2014).

Vegetation along the southern and eastern side of the site is identified as Category 3 vegetation to be protected, and it is covered by the VPO4. The development proposal avoids and minimises impacts on this vegetation by achieving minimum building setbacks from it of 40 m (see Map 2 and Map 3).

The LBPSP implements the NVPP and specifies a requirement that '*Landscaping adjacent to retained native vegetation or habitat must be complementary to conservation and bushfire management objectives and use appropriate native species to the satisfaction of the responsible authority*'; and a guideline that '*Landscaping adjacent to retained native vegetation or habitat should be complementary to conservation objectives, use native planting where appropriate and consider bushfire risk*' (CoW and VPA, 2018).

It is proposed that all landscaping on the school site within the 40 m proposed defendable space area around the buildings will meet the BMO vegetation management standards for defendable space in Table 6 to Clause 53.02-5 (see Section 4 and Appendix A).

2.1.3 Clause 13.01-1S Natural hazards and climate change

The objective of this Clause in the Planning Policy Framework (PPF) is to minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning.

Specified strategies to achieve the objective are:

- *'Respond to the risks associated with climate change in planning and management decision making processes.*
- *Identify at risk areas using the best available data and climate change science.*
- *Integrate strategic land use planning with emergency management decision making.*
- *Direct population growth and development to low risk locations.*
- *Develop adaptation response strategies for existing settlements in risk areas to accommodate change over time.*
- *Ensure planning controls allow for risk mitigation and climate change adaptation strategies to be implemented.*
- *Site and design development to minimise risk to life, health, property, the natural environment and community infrastructure from natural hazards'* (Wodonga Planning Scheme, Cl. 13.01-1S).

The Australian and New Zealand Council for Fire and Emergency Services (AFAC) identity that climate change has already influenced the frequency and severity of dangerous bushfires. More dangerous bushfire weather conditions are being experienced, including a longer and more severe fire season, especially in southern and southeastern Australia (AFAC, 2020). Further, a failure of building codes and land use planning to adequately adapt to climate change is identified as a risk (AFAC, 2018).

The influence of climate change on bushfire varies by region and depends largely on the predominant type of vegetation, but impacts include:

- Lengthening of the fire season, e.g. season starting earlier and/or ending later.
- Increased number of days of elevated fire danger, e.g. increase in number of days with a Forest Fire Danger Index above the 90th percentile.
- More days with weather conducive to generating thunderstorms within smoke plumes. Such fire-generated thunderstorms can lead to extreme fire behaviour.
- Changes in the type, amount, and dryness (availability to burn) of vegetation (fuel).
- Changes in the frequency of lightning events, which may result in a bushfire ignition (CSIRO/BOM, 2024).

The site is in the Murray Basin natural resource management region of Australia, where there is high confidence that climate change will result in a harsher fire-weather climate in the future, but a low confidence in the magnitude of the expected change, which depends on the rainfall projection and its seasonal variation (CSIRO/BOM, 2026).

Victoria's latest Climate Science report identifies that changes in fire regimes, activity and drivers in Victoria have already been observed, including:

- More frequent and severe large fires
- A longer fire season
- A greater frequency of days of significant fire danger
- That these changes are likely to escalate with increasing temperatures (DEECA, 2024).

Continued trends will change the quantity, composition and moisture content of flammable vegetation but there is uncertainty about the magnitude of change. Fuel loads across forested and grassy landscapes may increase by the end of the century, however these effects may be counteracted by nutrient limitations and drought. There is confidence that climate change is causing increasing fire weather and fuel dryness, but some uncertainty about the effects on fuel load and ignition risk (DEECA, 2024).

In the absence of specific direction or policy from fire authorities or other agencies (e.g. to adopt a higher projected FFDI threshold for strategic planning), climate change trends support the adoption of a precautionary and conservative approach in identifying and responding to bushfire risk in accordance with the State planning policy for bushfire at Clause 13.02-1S.

2.1.4 Clause 13.02-1S Bushfire planning

Clause 13.02-1S has the objective '*To strengthen the resilience of settlements and communities to bushfire through risk based planning that prioritises the protection of human life*' (Wodonga Planning Scheme, Cl. 13.02-1S). The policy must be applied to all planning and decision making under the Planning and Environment Act 1987, relating to land which is:

- Within a BPA;
- Subject to a BMO; or
- Proposed to be used or developed in a way that may create a bushfire hazard.

Priority must be given to the protection of human life by:

- *'Prioritising the protection of human life over all other policy considerations.*
- *Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.*
- *Reducing the vulnerability of communities to bushfire through consideration of bushfire risk in decision-making at all stages of the planning process'* (Wodonga Planning Scheme, Cl. 13.02-1S).

Key strategies are stipulated that require strategic planning documents, planning scheme amendments and development plan approvals to properly assess bushfire risk and include appropriate bushfire protection measures.

The 'Use and Development Control in a Bushfire Prone Area' strategy applies to planning permit applications for uses and developments that are:

- Subdivisions of more than 10 lots
- Accommodation
- Child care centre
- Education centre
- Emergency services facility
- Hospital
- Indoor recreation facility
- Major sports and recreation facility
- Place of assembly
- Any application for development that will result in people congregating in large numbers.

This strategy states that when assessing a planning permit application for the above uses and development:

- *'Consider the risk of bushfire to people, property and community infrastructure.*
- *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
- *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts'* (Wodonga Planning Scheme, Cl. 13.02-1S).

This study assesses the bushfire hazard in accordance with hazard identification and assessment strategies of Clause 13.02-1S, considers the risk and proposes appropriate bushfire protection measures to acceptably mitigate it based on BMO compliance, prudent emergency management planning and compliance with the provisions of the National Construction Code (NCC) Part G5.

A summary response to each applicable strategy of Clause 13.02-1S is provided in Section 4.5.

Note that building setbacks will be achieved to ensure that development will not be exposed to radiant heat flux (RHF) above 12.5 kW/m^2 under AS 3959:2018 *Construction of buildings in bushfire-prone areas* (Standards Australia, 2020), i.e. commensurate with a Bushfire Attack Level (BAL)-12.5 construction standard (see Map 3).

The maximum 12.5 kW/m^2 safety threshold is required in settlement planning as the upper radiant heat limit for acceptable risk (Wodonga Planning Scheme, Cl. 13.02-1S), and for applying the deemed-to-satisfy measures to meet the bushfire performance requirements in the NCC (ABCB, 2023).

2.1.5 Clause 44.06 Bushfire Management Overlay

The purposes of Clause 44.06 *Bushfire Management Overlay (BMO)* are:

- *'To implement the Municipal Planning Strategy and the Planning Policy Framework.*
- *To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.*
- *To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.*
- *To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level'* (Wodonga Planning Scheme, Cl. 44.06).

The BMO largely applies to patches of treed vegetation greater than 4 ha in size, where head fire intensity has been modelled to be 30,000 kW/m or more. It also extends over land 150 m around those areas, based on research into house loss from bushfires which has found that 92% of house loss occurs within 150 m of the bushfire hazard (DELWP, 2019).

The BMO requires a planning permit for all subdivision of land, and buildings and works associated with specific uses including Child care or Education centre (some exemptions apply). BMO applications must be accompanied by:

- A *Bushfire hazard site assessment*, including a plan that describes the bushfire hazard within 150m of the site in accordance with the site assessment methodology of *AS 3959:2018 Construction of buildings in bushfire-prone areas* and Clause 44.06;
- A *Bushfire hazard landscape assessment,* including a plan that describes the bushfire hazard of the general locality more than 150 m from the site; and
- A *Bushfire management statement*, detailing how the development responds to the bushfire risk and the requirements and objectives of Clauses 44.06 and 53.02.

Only relatively minor works are inside the BMO coverage of the site as shown in Map 2. Map 1 comprises a Bushfire hazard landscape assessment plan in accordance with the BMO requirements and Map 2 comprises a Bushfire hazard site assessment plan. Section 4 addresses compliance with the BMO and Clause 53.02 requirements and a Bushfire Management Plan is provided as Appendix F.

2.1.6 Clause 71.02-3 Integrated decision making

Clause 71.02-3 states that planning and responsible authorities should endeavour to integrate planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development. However, in bushfire affected areas this clause states the protection of human life must be prioritised over all other policy considerations (Wodonga Planning Scheme, Cl. 71.02-3).

2.1.7 Zones and other overlays

The whole site is in the Urban Growth Zone - Schedule 1 (UGZ1) that applies to land within the LBPSP area. The urban growth boundary borders the southern and eastern boundaries of the site (see Map 1).

One of the objectives of the LBPSP is to '*Ensure that bushfire risk is considered in the layout, staging and design of development and the local street network*' (CoW and VPA, 2018).

The zoning has no intrinsic implications for bushfire safety. However, the UGZ designation facilitates intensive development in a BPA, which could result in an increase in risk if people or assets are exposed to a bushfire hazard without appropriate mitigation measures commensurate with the level of hazard exposure.

The overlays, other than the BMO, have no appreciable bushfire risk implications. It is noted that buildings will be provided with a minimum 40 m setback from vegetation along the south of the site that is controlled by the VPO4. Two relevant objectives of the VPO4 are:

- *'To ensure development and use does not impact on significant native vegetation by the incremental removal of remnant vegetation or inappropriate development in identified areas.*
- *To ensure siting and design of development and works maintains the physical and biological integrity of the natural system'* (Wodonga Planning Scheme, Cl. 42.02-s4-2.0).

2.2 Bushfire Prone Area (BPA)

BPAs are those areas subject to or likely to be subject to bushfire, as determined by the Minister for Planning. Those areas of highest bushfire risk within a BPA are designated as BMO areas.

All the site is designated as a BPA, where the Building Act 1993 and associated Building Regulations 2018, through application of the National Construction Code 2022 (NCC), require specific design and

construction standards for new Class 1, 2 and 3[1] buildings, certain Class 9 and 4 buildings[2], and Class 10A buildings[3] or decks adjacent to, or connected with, these classes of buildings.

Class 9b early childhood centre, primary school or secondary school buildings must satisfy the applicable bushfire performance requirements of the National Construction Code (NCC) 2022 that are:

VIC G5P1 Bushfire Resistance

'A building that is constructed in a designated bushfire prone area must be designed and constructed to-

(a) reduce the risk of ignition from a design bushfire with an annual exceedance probability not more than 1:100 years, or 1:200 years for a Class 9 building; and

(b) take account of the assessed duration and intensity of the fire actions of the design bushfire; and

(c) be designed to prevent internal ignition of the building and its contents; and

(d) maintain the structural integrity of the building for the duration of the design bushfire' (ABCB, 2023).

VIC G5P2 Additional bushfire requirements for certain Class 9 buildings

'A building that is constructed in a designated bushfire prone area and occupied by people who may be unable to readily evacuate the building prior to a bushfire must, to the degree necessary-

(a) reduce the risk of an untenable indoor environment for occupants during a bushfire event, appropriate to the-

(i) location of the building relative to fire hazards, including-

(A) classified vegetation; and

(B) adjacent buildings, structures and movable objects; and

(C) carparking areas and allotment boundaries; and

(D) other combustible materials; and

(ii) number of occupants to be accommodated within the building; and

(iii) intensity of bushfire attack on the building; and

(iv) duration of occupancy; and

(v) intensity of potential consequential fires; and

(vi) occupant tenability within the building before, during and after the bushfire event; and

(vii) combined effects of structural, fire exposure and other effects to which the building may reasonably be subjected; and

(viii) provision of fire fighting equipment and water supply to facilitate protection of the building; and

(b) be provided with vehicular access to the site to enable firefighting and emergency personnel to defend or evacuate the building; and

[1] Class 1, 2 and 3 buildings are defined in the NCC and are generally those used for residential accommodation, including houses and other dwellings, apartments, hotels and other buildings with a similar function or use.

[2] Applicable Class 9 buildings are Class 9a health-care buildings, Class 9b early childhood centres, primary and secondary schools, Class 9c residential care buildings, and any Class 4 parts of a building associated with these Class 9 buildings.

[3] Class 10a buildings are defined in the NCC as non-habitable buildings including sheds, carports, and private garages.

(c) have access to a sufficient supply of water for firefighting purposes on the site; and

(d) provide safe access within the site to the building (including carparking areas), as well as safe egress after the bushfire event' (ABCB, 2023).

The performance requirements can be deemed to be satisfied by compliance with Specification 43 in the NCC 2022. This includes achieving minimum setbacks from hazards and construction to a minimum Bushfire Attack Level (BAL[4])-19 standard with the additional requirement to use non-combustible materials for all external building elements.

A BAL is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact. There are six BALs defined in AS 3959, which range from BAL-LOW, which has no bushfire construction requirements, to BAL-FZ (Flame Zone) where flame contact with a building is expected (see Figure 3).

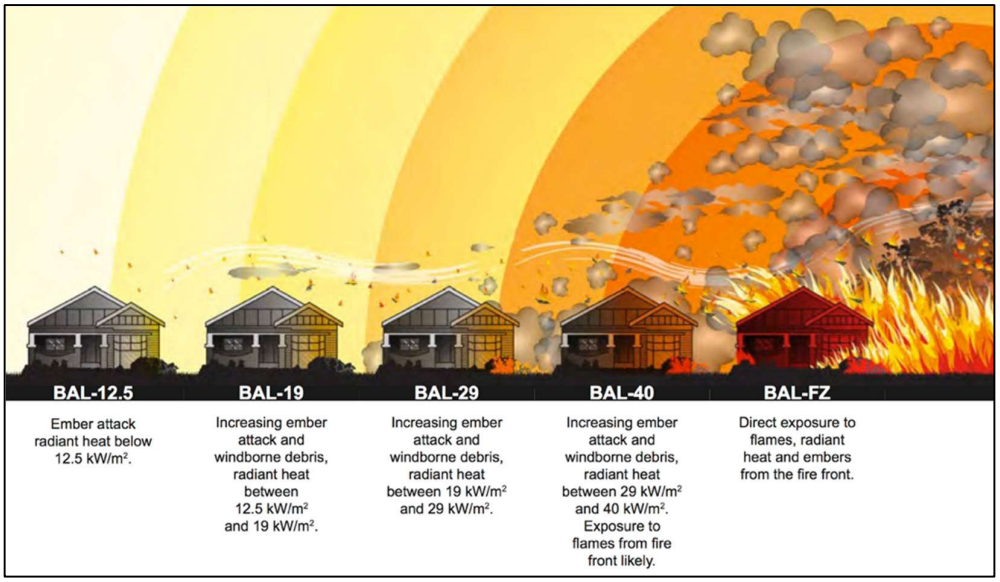


Figure 3 - Bushfire Attack Levels (CFA, 2012).

Terramatrix understands for at least Stage 1, the proposal will seek a performance solution to satisfy the NCC performance requirements, which includes complying with the Specification 43 measures for:

- Siting the buildings to provide separation from classified vegetation such that radiant heat flux on exposed building elements will not exceed 10 kW/m^2 (see Section 4 and Map 3).
- Providing a water supply for fire fighting purposes via a compliant hydrant system.
- Constructing the building envelope to a minimum BAL-19 in accordance with AS 3959:2018, enhanced with non-combustible materials for all external building elements.

[4] A BAL is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact. There are six BALs that range from BAL-LOW, which has no bushfire construction requirements, to BAL-FZ (Flame Zone) where flame contact with a building is expected (see Appendix - BALs & RHF).

3 Hazard assessment

One of the bushfire hazard identification and assessment strategies in Clause 13.02-1S, is to use the best available science to identify the hazard posed by vegetation, topographic and climatic conditions (Wodonga Planning Scheme, Cl. 13.02-1S). The basis for the hazard assessment should be:

- *'Landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site;*
- *Local conditions - meaning conditions within approximately 1 kilometre from a site;*
- *Neighbourhood conditions - meaning conditions within 400 metres of a site; and*
- *The site for the development'* (Wodonga Planning Scheme, Cl. 13.02-1S).

Development applications responding to the state planning policy for bushfire at Clause 13.02-1S and BMO applications, typically require an assessment of the site scale risk within 150 m of the development, and the risk associated with the landscape beyond the site.

This section includes an assessment of the hazard posed by vegetation and topography at the:

- Broader landscape scale, considering conditions beyond 1 km and up to 5 km around the site;
- The local and neighbourhood scale up to 1 km around the site; and
- The site scale up to 150 m around the site boundaries, including classifying vegetation and topography to determine radiant heat flux and BAL setbacks.

In relation to climatic conditions, the potential influence of climate change has been considered and the 'default' Forest Fire Danger Index (FFDI) 100 in the planning and building system has been applied. An FFDI 100 is analogous to the benchmark for a Catastrophic fire danger rating (see fire danger ratings explained in Appendix E).

Note that the FFDI 100 value is one of the inputs applied for calculating defendable space[5] setback distances for BALs, to ensure development (buildings) are setback an appropriate distance from classified vegetation such that radiant heat flux (RHF) will not exceed acceptable levels.

Neither CFA nor DTP have any published policy or guidance on FFDI recurrence intervals and so there is no compelling reason to apply a different FFDI/GFDI from the FFDI 100/GFDI 130 threshold typically applied in the Victorian planning and building system[6]. If required for a performance solution for building compliance, an FFDI based on the 1:200 year return interval in the NCC Vic G5P1 (a) can be determined and applied (see Section 2.2).

The topography was analysed by site assessment and publicly available contour data.

[5] Defined at Clause 73.01 as '*An area of land around a building where vegetation is modified and managed to reduce the effects of flame contact and radiant heat associated with bushfire*' (Wodonga Planning Scheme, Cl. 73.01).
[6] In Alpine areas of Victoria an FFDI 50 applies for determining BALs using Method 1 of AS 3959:2018.

The BPA coverage invokes AS 3959:2018 *Construction of buildings in bushfire prone areas* to determine the BAL and building setbacks, which requires assessment of the vegetation and topography up to 100 m around a building or site (Standards Australia, 2020). The BMO requires a 150 m site assessment area. Both these site scale assessment areas are shown in Map 2 that comprises a Bushfire hazard site assessment plan in accordance with the BMO application requirements.

Map 1 comprises a Bushfire hazard landscape assessment plan (as required by a BMO application) showing broad landscape and bushfire hazard information up to 5 km around the site, including within the 1 km local conditions area.

3.1 Broad and local landscape conditions

3.1.1 Landscape context

Figure 4 shows the broader landscape for at least 20 km around the site. It shows the relatively large area of land associated with the main Wodonga urban residential area just over 5 km to the northwest, that is not designated as a Bushfire Prone Area. Similarly, the Albury city area just to the north in NSW, is a large area of non-vegetated and low threat land. Both areas of offer reliable safety from bushfire and mitigate the landscape risk to the north and west.

Just over 2.5 km to the north via the Kiewa Valley Highway, is another non-BPA location comprising the low threat and non-vegetated parts of Bandiana.

The non-BPA land occurs to the north and west, which are directions typically associated with high bushfire threat on days of elevated fire danger in Victoria. The threat from these directions within the local and neighbourhood areas, is diminished by low threat and non-vegetated land associated with the developing subdivision that abuts the northern site boundary (see Map 1 and Map 2).

As the LBPSP is implemented and the land is developed, almost all bushfire hazards to the west and north will be removed. The only enduring hazards in these directions will be the proposed conservation reserves, which that will largely be restricted to creeks and drainage lines, including remnant vegetation along the drainage line immediately west of Ellen McDonald Drive (see the proposed Future Urban Structure in Figure 5).

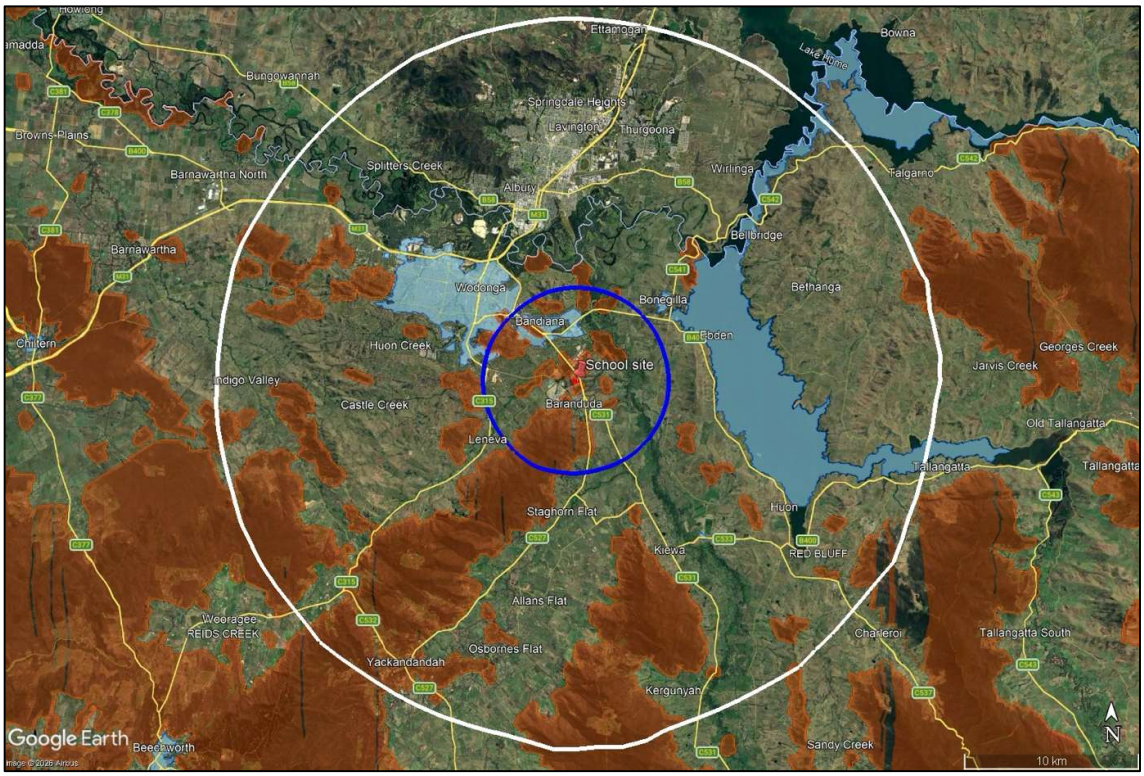
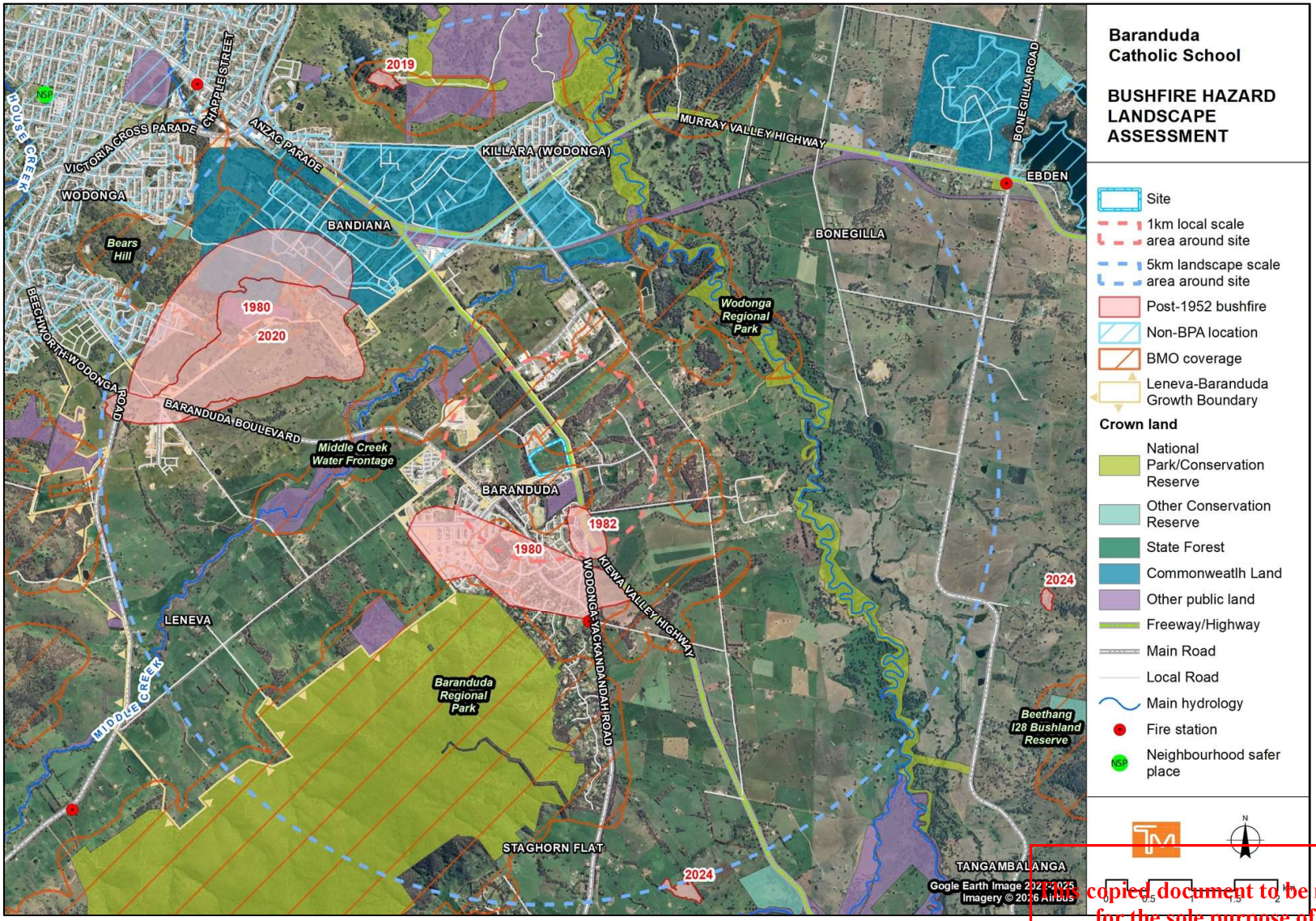
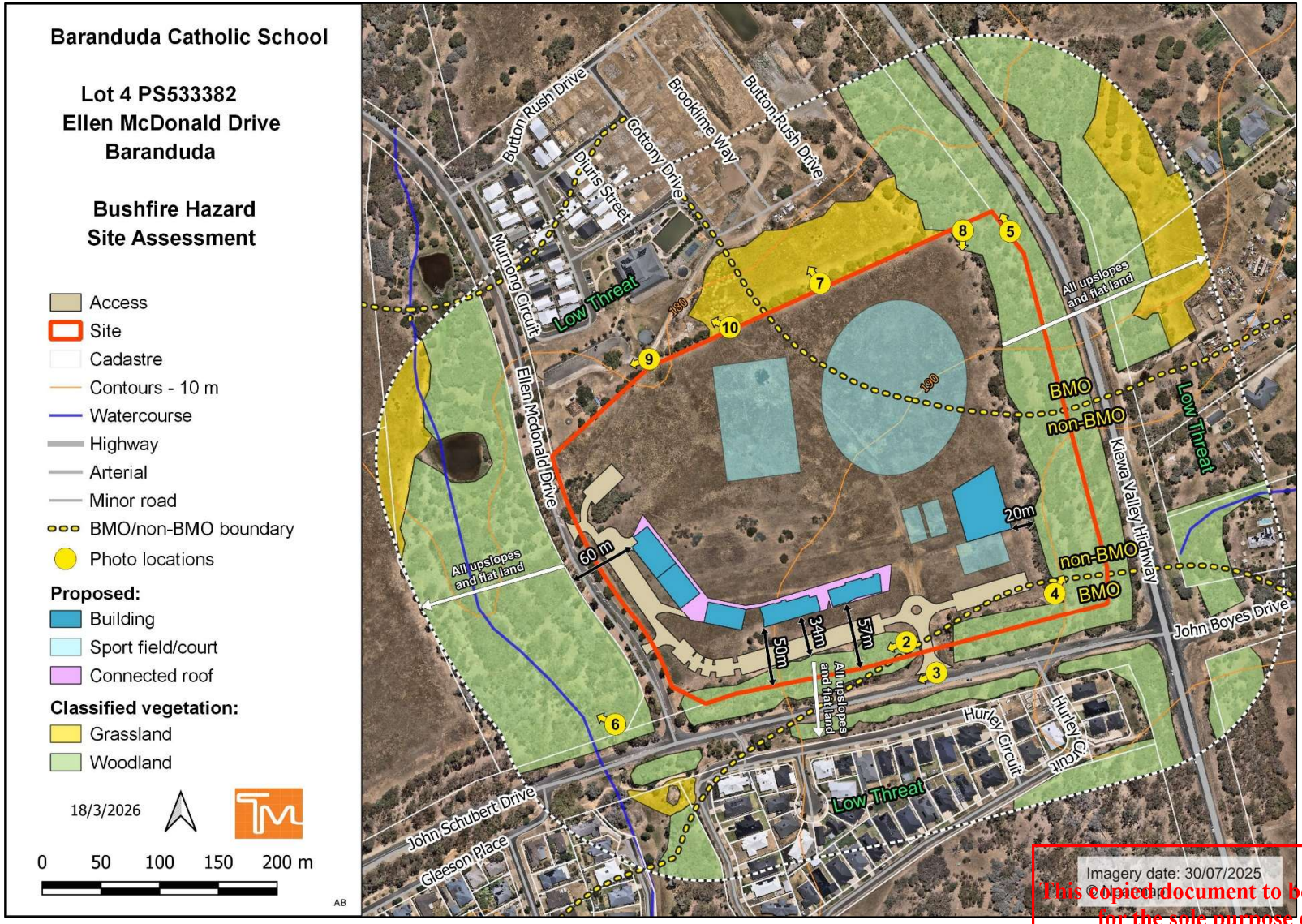


Figure 4 - Broad landscape context of the site (in red with red pin) showing 20 km and 5 km extents around the area (in blue and white respectively). Non-BPA land is shown with semi-transparent blue fill and BMO coverage with semi-transparent orange fill.



Map 1 - Bushfire hazard landscape assessment plan.



Map 2 - Bushfire hazard site assessment plan.

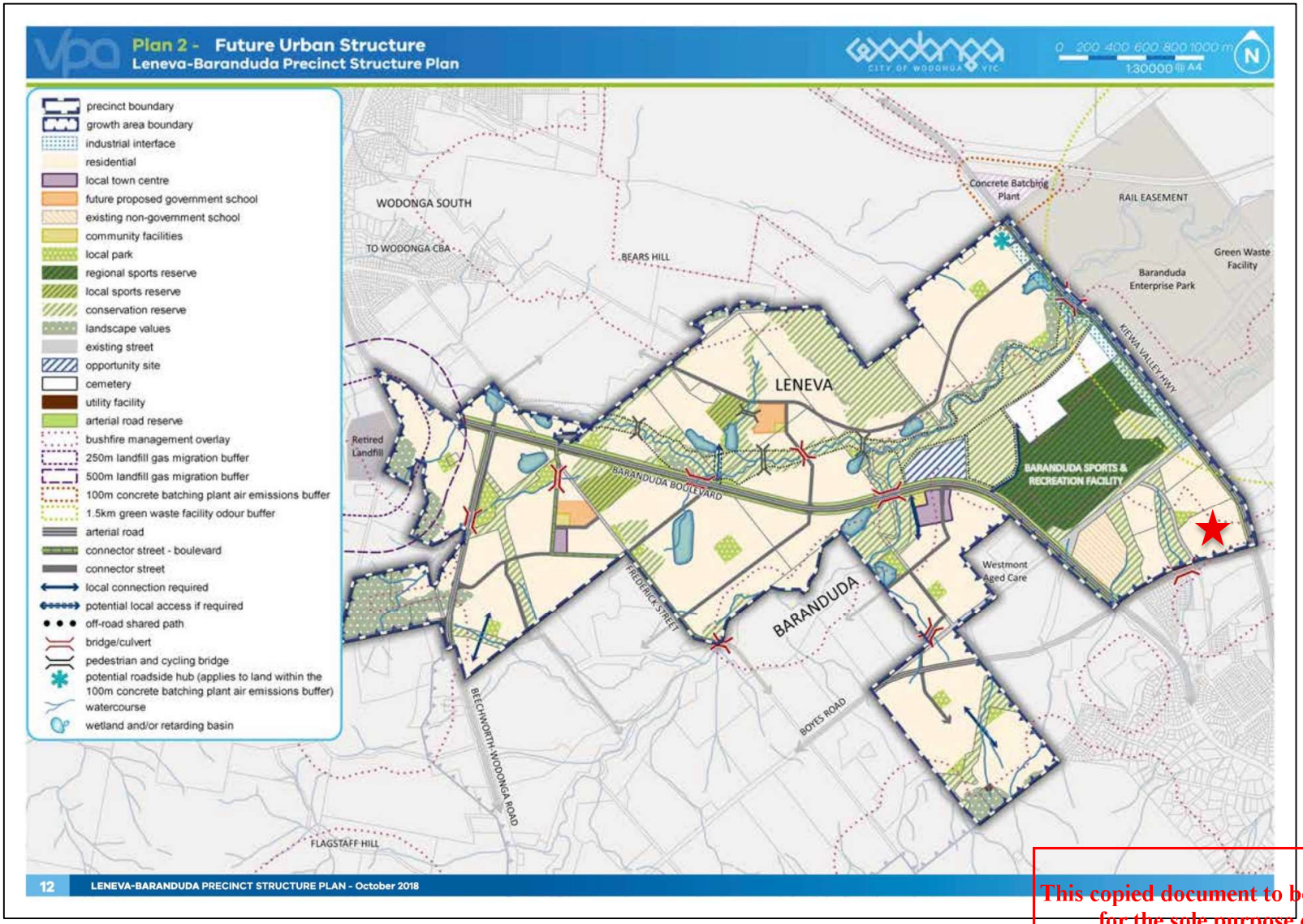


Figure 5 - Future Urban Structure for the Leneva-Baranduda Precinct (CoW and VPA, 2018; site shown with red star).

3.1.2 Landscape risk typologies

To assist in assessing landscape risk, four 'Broader Landscape Types' (BLT), representing different landscape risk levels, are described in the technical guide *Planning Applications Bushfire Management Overlay*. These are intended to streamline decision-making, and support more consistent decisions based on the landscape risk (DELWP, 2017).

The four types range from lower risk landscapes, where there is little hazardous vegetation beyond 150 m of a site except grasslands and extreme bushfire behaviour is not credible, to extreme risk landscapes with limited or no evacuation options, and where fire behaviour could exceed BMO/AS 3959 presumptions (see Table 1).

Table 1 - BMO landscape risk typologies (from DELWP, 2017).

Broader Landscape Type 1	Broader Landscape Type 2	Broader Landscape Type 3	Broader Landscape Type 4
• *There is little vegetation beyond 150 metres of the site (except grasslands and low-threat vegetation).* • *Extreme bushfire behaviour is not possible.* • *The type and extent of vegetation is unlikely to result in neighbourhood- scale destruction of property.* • *Immediate access is available to a place that provides shelter from bushfire*	• *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site.* • *Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition.* • *Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area.*	• *The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site.* • *Bushfire can approach from more than one aspect.* • *The site is located in an area that is not managed in a minimum fuel condition.* • *Access to an appropriate place that provides shelter from bushfire is not certain.*	• *The broader landscape presents an extreme risk.* • *Evacuation options are limited or not available.* • *Fires have hours or days to grow and develop before impacting.*
I N C R E A S I N G R I S K →			

Mapping of these landscape types for WCC, shows the site is in a landscape with bushfire characteristics at the lower end of the BLT 3 spectrum (BLT 3A in Terramatrix, 2026).

The hazard exposure is predominantly Grassland and/or smaller areas of Woodland or Forest. The only exception to this is the Baranduda Regional Park, which is the most significant hazard within 5 km of the site and comprises a large area of high fuel vegetation on rugged terrain. However, this hazard is over 1.5 km away and the site is well separated from it by the low threat and developed

urban area of Baranduda, such that impacts directly associated with a bushfire in the park would be limited to embers and smoke.

As development continues in the LBPSP area and currently hazardous vegetation around the site is further removed, and good access to places of relative safety from bushfire is provided, the risk will reduce and accord with the BLT 2 and BLT 1 bushfire characteristics (see Figure 5).

Whilst the landscape and hazards to the east are expected to stay more or less the same over time, as the land in this direction is beyond the UGB, there are no significant areas of high hazard vegetation in this direction and a bushfire approach from the east is not typically associated with the prevailing winds on days of elevated fire danger (Long, 2006).

The fire history evident in Map 1 shows large fires have occurred in proximity to the site, but as identified above, the current medium to high landscape risk for the site will significantly diminish as development continues.

3.2 Neighbourhood and site scale conditions

The neighbourhood scale conditions (i.e. within 400 m around the site) are essentially the same as the site scale conditions within 150 m, as shown in Map 2.

The topography is benign from a bushfire perspective and will not exacerbate bushfire behaviour, being largely flat with only minor changes in elevation and slope.

Occurrences of hazardous tree and shrub vegetation are restricted to relatively small patches that lack connectivity to larger, contiguous areas that could support the landscape scale design fire presumed in the BMO/AS 3959 model.

Vegetation within the 150 m assessment area around the site (and within the 100 m BAL assessment area around the proposed buildings) has been classified in accordance with the BMO/AS 3959 methodologies. Classified vegetation is vegetation that is deemed hazardous from a bushfire perspective.

The classification system is not directly analogous to Ecological Vegetation Classes (EVCs) but uses a generalised description of vegetation based on the AUSLIG (Australian Natural Resources Atlas: No. 7 - Native Vegetation) classification system. The classification is based on the likely fire behaviour the vegetation will generate.

3.2.1 Woodland

Areas of tree and shrub vegetation along the eastern and southern site boundaries and west, south and east of the site, including in the road reserves along Ellen McDonald Drive, John Schubert Drive and the Kiewa Valley Highway (see Map 2), best accord with a Woodland classification.

Woodland typically comprises areas with trees up to 30 m tall, 10–30% foliage cover dominated by eucalypts (and/or callitris) with a prominent grassy understorey, may contain isolated shrubs (Standards Australia, 2020).

DEECA mapping of extant Ecological Vegetation Classes (EVCs) identifies treed vegetation on and around the site as EVC 55 Plains Grassy Woodland and EVC 190 Plains Grassy Woodland / Valley Grassy Forest / Grassy Woodland Complex (see Figure 6). The bioregional benchmarks for these EVCs favour a classification as Woodland, as the tree canopy cover is 15-20% and the understorey is predominantly grassy with only sparse shrubs (DSE, 2004).

The canopy cover present is greater than the EVC benchmark, but the low fuel load grassy understorey supports a Woodland classification.

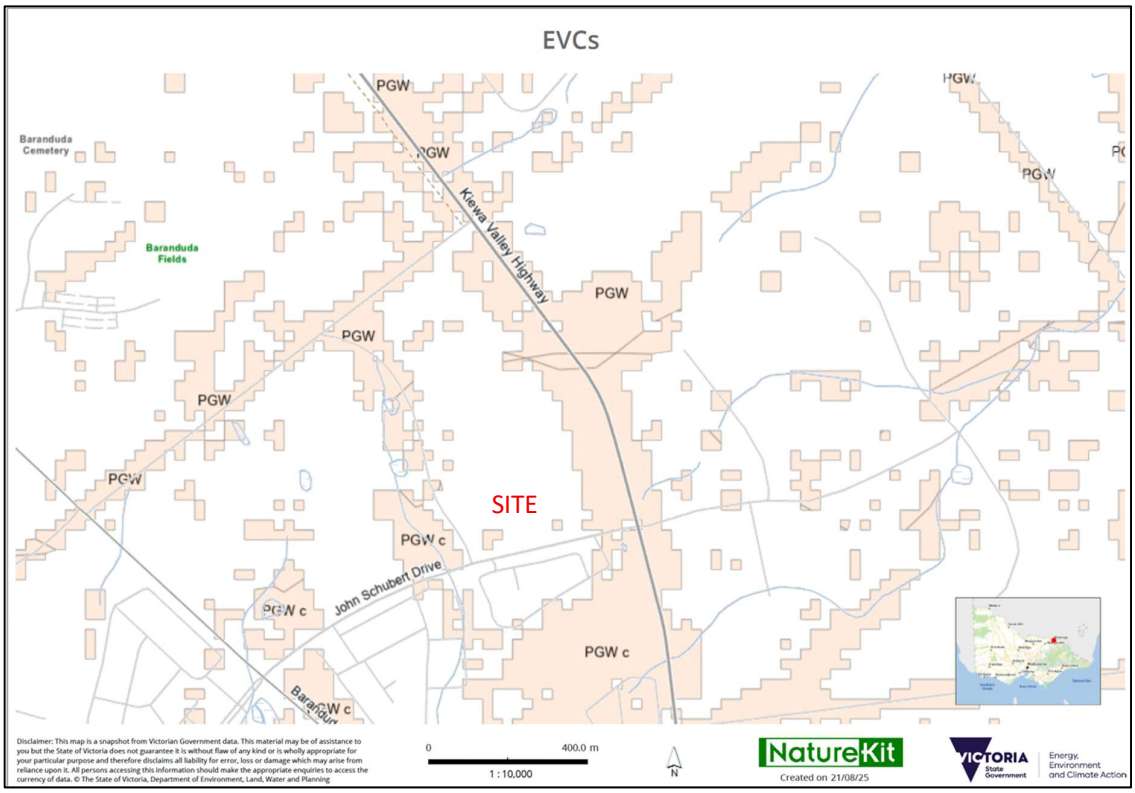


Figure 6 - EVCs within and around the site (DEECA, 2025).

Figure 7 - Woodland between the fence line and John Schubert Drive, to the west of the gate.

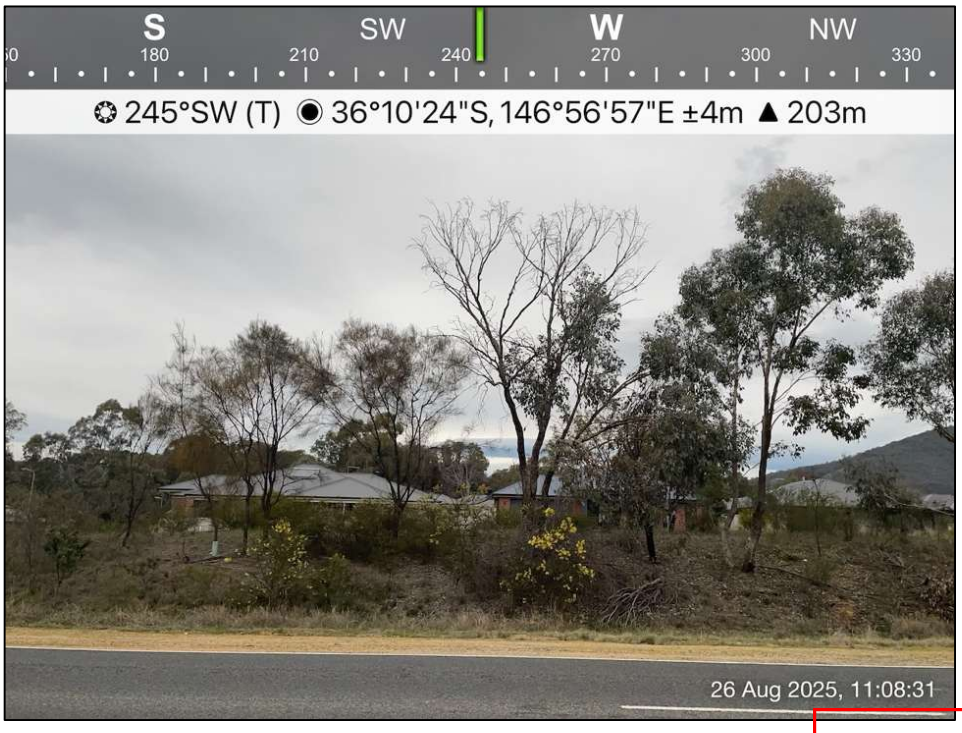


Figure 8 - Strip of Woodland on the southern road reserve of John Schubert Drive.

Figure 9 - Woodland along the eastern boundary of the site, with the Kiewa Valley Highway beyond.

Figure 10 - Woodland on the western road reserve of the Kiewa Valley Highway and on the adjacent property to the north.

Figure 11 - Woodland in the WREN reserve west of Ellen McDonald Drive.

3.2.2 Grassland

A patch of long grass in the Baranduda Lifestyle Estate north of the site, grass to the west, and small areas beyond the Kiewa Valley Highway to the east and John Schubert Drive to the south (see Map 2), match the AS 3959:2018 classification of Grassland, which is defined as all forms of vegetation (except Tussock Moorlands) including situations with shrubs and trees, if overstorey foliage cover is less than 10%. Includes pasture and cropland (Standards Australia, 2020).

Grassland vegetation is considered hazardous, and therefore classifiable, when it is not managed in a minimal fuel condition. Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (e.g. short-cropped grass, to a nominal height of 100 mm) (Standards Australia, 2020). Grassland areas are assumed to be unmanaged and classifiable unless there is 'reasonable assurance' that they will be managed in perpetuity, in a low threat state, no more than 100 mm high.

Grassy areas within the site will be hazardous and classifiable as Grassland unless they are regularly mown or otherwise maintained. It is feasible that some or all the Grassland to the north will be rendered low threat through further development of the Baranduda Lifestyle Estate.

Figure 12 - Grassland on the adjacent property to the north.

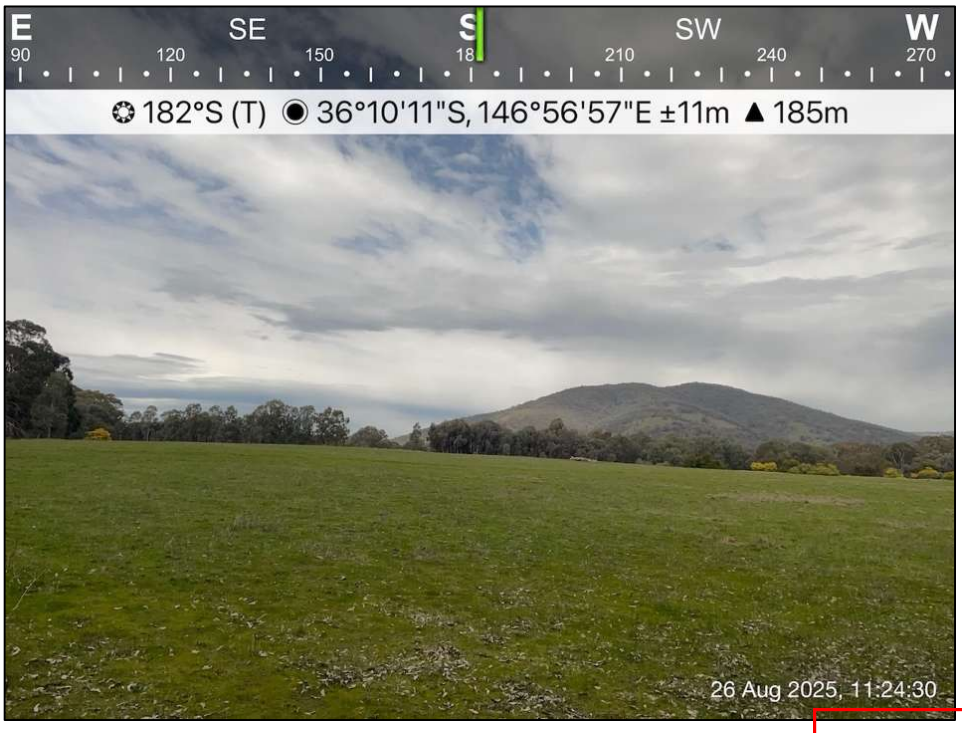


Figure 13 - Looking south from the northern boundary of the site. Pasture within the site would currently be classified as Grassland but is anticipated to be rendered low threat as the school is developed.

3.2.3 Excluded vegetation and non-vegetated areas

Areas of low threat vegetation and non-vegetated areas can be excluded from classification in accordance with Section 2.2.3.2 of AS 3959:2018, if they meet one or more of the following criteria:

(a) 'Vegetation of any type that is more than 100 m[7] from the site.
(b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.
(c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other, or of other areas of vegetation being classified vegetation.
(d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.
(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
(f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition[8], mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks[9]' (Standards Australia, 2020).

Low-threat areas excluded from classification include the cultivated gardens and developed or developing lots to the north, east and south of the site (see Map 2). Non-vegetated areas include the roads, driveways, structures and waterbodies within the 150 m site assessment area.

[7] This distance extends to 150 m in BMO areas.
[8] Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack, short-cropped grass, for example, to a nominal height of 100 mm (Standards Australia, 2020).
[9] A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees (Standards Australia, 2020).

Figure 14 - Low threat mown lawn in the Baranduda Lifestyle Village, near Ellen McDonald Drive.

Figure 15 - Low threat residential area of the Baranduda Lifestyle Village.

3.2.4 Topography

The 'effective slope' is the slope of the land under the classified vegetation[10] that will most significantly influence the bushfire attack. Two broad types apply:

- Flat and/or Upslope - land that is flat or on which a bushfire will be burning downhill in relation to the development. Fires burning downhill (i.e. on an upslope) will generally be moving more slowly with a reduced intensity.
- Downslope - land on which a bushfire will be burning uphill in relation to the development. As the rate of spread of a bushfire burning on a downslope (i.e. burning uphill towards a development) is significantly influenced by increases in slope, downslopes are grouped into five classes in 5˚increments from 0˚up to 20˚.

As the land is essentially flat from a bushfire perspective, the applicable slope class in all directions is the 'All upslopes and flat land' slope class (see Map 2).

[10] The slope of the land between the classified vegetation and the building is called the site slope, which is assumed to be the same as the effective slope.

4 Bushfire Management Statement (BMO compliance)

This section identifies how the proposed development responds to the bushfire risk and the requirements of Clause 44.06 and associated Clause 53.02 of the Wodonga Planning Scheme.

4.1 Landscape, siting and design objectives

'Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.

Development is sited to minimise the risk from bushfire.

Development is sited to provide safe access for vehicles, including emergency vehicles.

Building design minimises vulnerability to bushfire attack' (Wodonga Planning Scheme, Cl. 53.02-4.1).

Compliance with these objectives can be achieved via the following approved measures.

4.1.1 Approved measure 2.1 – Landscape

'The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level' (Clause 53.02-4.1, Wodonga Planning Scheme).

The landscape risk is currently medium-high, however, as the LBPSP is developed, the long-term landscape bushfire risk will be significantly lessened (see Section 3.1.2). Bushfire behaviour at the site will be within BMO expectations and design parameters. Accordingly, it is proposed to mitigate the risk to an acceptable level through implementing BMO approved measures as specified in this report.

4.1.2 Approved measure 2.2 - Siting

'A building is sited to ensure the site best achieves the following:

- *The maximum separation distance between the building and the bushfire hazard.*
- *The building is in close proximity to a public road.*
- *Access can be provided to the building for emergency service vehicles'* (Wodonga Planning Scheme, Cl. 53.02-4.1).

The proposed siting is in a lesser hazard location on the property (i.e. outside the BMO covered areas on the site). There is a 60 m setback between the proposed buildings and the Woodland to the west. To the east, the gym currently has approximately a 20 m from the nearest Woodland, whilst to the south a minimum 40 m defendable space setback is proposed, which is anticipated to only require tree pruning.

A 40 m setback distance is required to ensure radiant heat flux (RHF) on building elements will not exceed 10 kW/m^2, which is the setback requirement for an 'education centre', as per Approved Measure 3.2 (Wodonga Planning Scheme, Table 3 to Cl. 53.02-5). The provision of this defendable

space setback will also comply with the Specification 43 measure S43C2 (1) (b), for siting buildings with adequate separation from classified vegetation[11] (ABCB, 2023).

The proposed location includes three points of access for emergency management vehicles; one crossover to John Schubert Drive to the south and two crossovers to Ellen McDonald Drive to the west. These access points all connect to an internal road with adjacent car parking, all of which can comply with the requirements of Table 5 to Clause 53.02-5 for emergency vehicle access.

4.1.3 Approved measure 2.3 Design

'A building is designed to be responsive to the landscape risk and reduce the impact of bushfire on the building' (Wodonga Planning Scheme, Cl. 53.02-4.1).

Terramatrix understands the school buildings will be designed and constructed to a minimum BAL-19 standard in accordance with AS 3959:2018, enhanced with the use of non-combustible materials for all external building elements, in compliance with the Specification 43 measure for construction of the building envelope (S43C10). This enhanced standard is above the minimum BAL-12.5 stipulated by Approved Measure 3.2 for education centres to meet the defendable space and construction objective at Clause 53.02-4.2 (Wodonga Planning Scheme, Cl. 53.02-4.2).

The designated shelter-in-place building, which is the Stage 1 Learning building (see Map 3), is shielded from bushfire exposure to the east and west by other buildings. A walkway with a connecting roof is adjacent to the buildings proposed in Stages 1-4. As is the case with external elements of the buildings, the connecting roof and walkway will be constructed entirely of non-combustible materials.

The layout of the proposed access and carparks between the buildings and the hazard also benefits the design by providing a constructed, non-vegetated area of separation and emergency vehicle access along the hazard interface.

All buildings are rated to withstand a greater radiant heat flux than should be experienced given the minimum 40 m defendable space setbacks to be provided on the site, which will reduce the radiant heat flux to 10 kW/m² as per Table 3 to Clause 53.02-5.

4.2 Defendable space and construction objective

'Defendable space and building construction mitigate the effect of flame contact, radiant heat and embers on buildings' (Wodonga Planning Scheme, Cl. 53.02-4.2).

This objective will be met by approved measure 3.2.

[11] Based on a Forest Fire Danger Index (FFDI) of 100.

4.2.1 Approved measure 3.2

'A building used for accommodation (other than a dwelling or dependent person's unit), a child care centre, an education centre, a hospital, leisure and recreation or a place of assembly is:

- *Provided with defendable space in accordance with Table 3 and Table 6 to Clause 53.02-5 wholly within the title boundaries of the land.*
- *Constructed to a bushfire attack level of BAL-12.5'* (Wodonga Planning Scheme, Cl. 53.02-4.2).

Defendable space will be provided for 40 m in all directions around the proposed buildings (see Bushfire Management Plan at Appendix F, Section 7) in accordance with Table 3 to Clause 53.02 based on Woodland in the 'All upslopes and flat land' slope class. The classified vegetation and commensurate defendable space distances are provided in Table 2 below.

The roofed walkway connecting the buildings in Stages 1, 2, 3 and 4 is considered part of a wider building footprint for the purposes of measuring the defendable space, meaning that the setback area is measured outward from the nearest edge of the building, roofed walkway and/or supporting posts (see Map 3).

Table 2 – Applicable Table 3 to Clause 53.02 defendable space distances.

Vegetation	Slope class	Defendable space distance (m)
Woodland	All upslopes and flat land	40
Grassland	All upslopes and flat land	35

The defendable space will meet the vegetation management requirements stipulated in Table 6 to Clause 53.02-5 (see the Table 6 requirements in Appendix A of this report).

It is noted that the defendable space provided for the buildings in Stages 3 and 4 overlaps the western property boundary onto the Ellen McDonald Drive reserve (see Map 3). The land within that overlap was low threat at the time of the hazard assessment and it is reasonable to assume that the land will remain in a condition that aligns with the objectives of providing defendable space for the proposed buildings.

Within the defendable space landscaping around all buildings is required to be managed in accordance with the vegetation management standards in Table 6 to Clause 53.02-5, and it is desirable this be extended to the whole school site. This could be implemented by a permit condition and requiring the preparation and endorsement of a landscape plan to the satisfaction of the responsible fire authority.

Note that management of vegetation in a low threat state is also a requirement of the Department of Education and Training (see Section 4.4).

4.3 Water supply and access objectives

'A static water supply is provided to assist in protecting the property.

Vehicle access is designed and constructed to enhance safety in the event of a bushfire' (Wodonga Planning Scheme, Cl. 53.02-4.3).

These objectives can be met via approved measure 4.2.

4.3.1 Approved measure 4.2

'A building used for accommodation (other than a dwelling or dependent person's unit), child care centre, education centre, hospital, leisure and recreation or place of assembly is provided with:

- *A static water supply for fire fighting and property protection purposes of 10,000 litres per 1,500 square metres of floor space up to 40,000 litres.*
- *Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5.*
- *An integrated approach to risk management that ensures the water supply and access arrangements will be effective based on the characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.*

The water supply may be in the same tank as other water supplies' (Wodonga Planning Scheme, Cl. 53.02-4.3).

Water

The total floor area of the proposed buildings will be approximately 5,000-6,000 m², therefore a static water supply of 40,000 L will be provided in a tank located at the easternmost extent of the driveway/access.

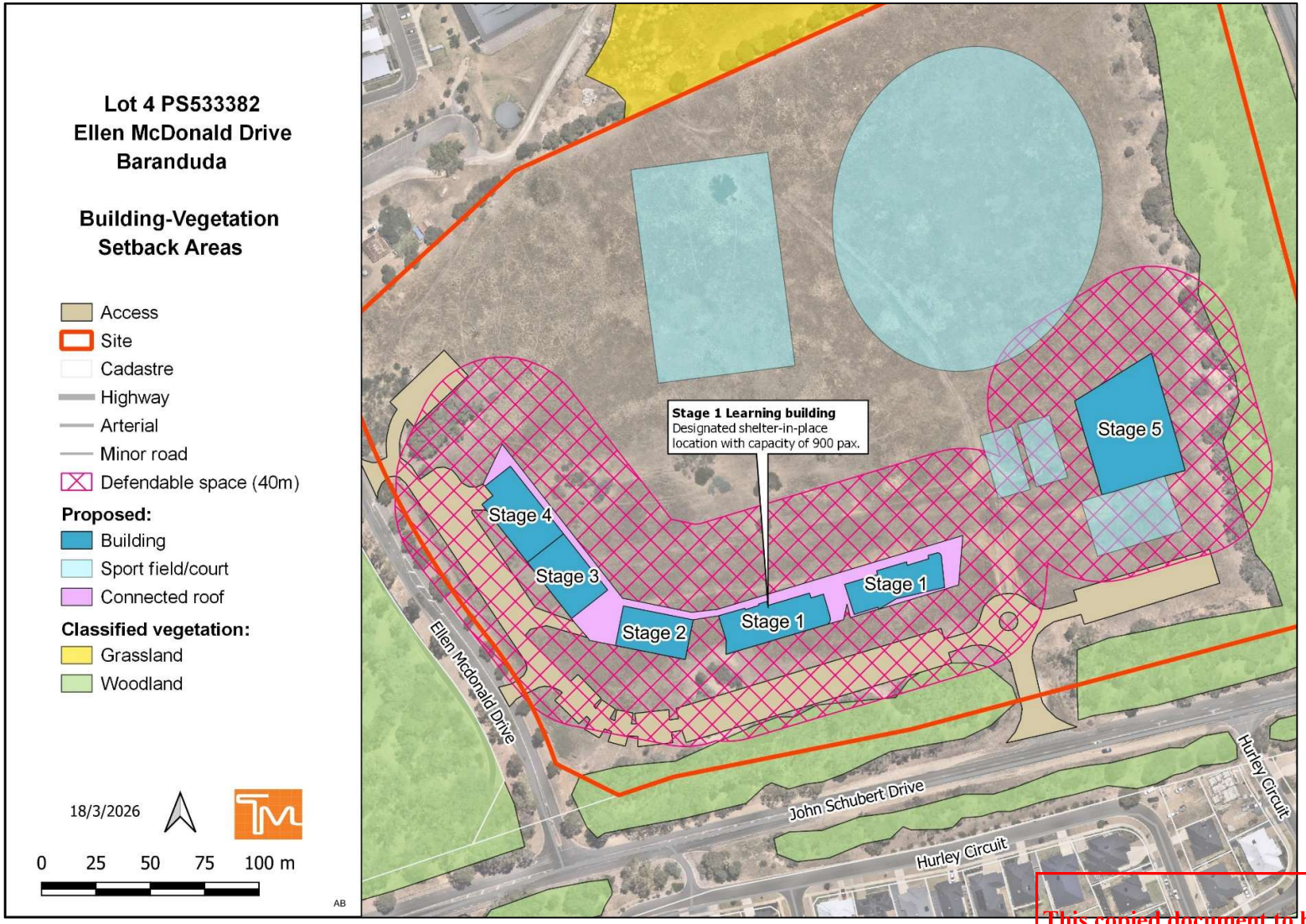
A fire authority compliant remote outlet will be provided on the tank within 4 m of the proposed access road. A fire hydrant system is also proposed for fire fighting in accordance with the Specification 43 measure for a compliant hydrant system.

Access

The proposed access road will connect the buildings on the site to John Schubert Drive and Ellen McDonald Drive, which provides through access when combined with the multiple access/egress points.

The trafficable width of the road (not including car parking) is 6 m along the full length of the route, which meets the width required to allow emergency vehicles to pass (minimum 6 m wide x 20 m long at least every 200 m along the driveway). There are multiple turning areas near the proposed buildings that meet the fire authority requirements in Appendix C. The entire driveway will be designed and constructed in accordance with the specifications provided in Table 5 to Clause 53.02-5 and shown in Appendix C.

A Bushfire Management Plan (BMP) detailing the required bushfire protection measures for the development is provided as Appendix F.



Map 3 - Building and vegetation setback areas.

4.4 Emergency management and preparedness

An integrated approach to risk management can be taken based on the school having an approved Emergency Management Plan (EMP) as is required by the Victorian Registration and Qualification Authority (VRQA). Schools (and kindergartens and child care facilities) assessed to be at the risk of bushfire are placed on the Department of Education and Training (DET) Bushfire At-Risk Register (BARR).

Schools on the BARR are rated according to their level of bushfire risk, as either Category 0, 1, 2 or 3, with Category 0 having the highest bushfire risk. All schools on the BARR are required to close on days forecast with a Catastrophic fire danger rating, and those at highest risk may have to close under a High or Extreme fire danger rating for their local government area (see summary explanation of fire danger ratings in Appendix E). DET also maintain a list of facilities at a lower level of risk of bushfire and grassfire (Category 4 list), which are also required to be closed under a Catastrophic fire danger rating (DET, 2026a).

The VRQA requirements to address bushfire risk include the following '*Guidelines on bushfire preparedness - Registered schools and school boarding premises*' that all schools must comply with.

1. ***All schools and school boarding premises must maintain an Emergency Management Plan (EMP). The EMP must be reviewed at least annually and immediately after any significant incident.*** *The EMP should include policies and procedures for the planning and approval of off-site activities which consider the risk of bushfire in the activity location. The EMP for school boarding premises should also include closure or relocation plans that consider their location and Bushfire At-Risk Register category (if applicable).*
2. ***Schools and school boarding premises listed on the Bushfire At-Risk Register must have an EMP that details the school and school boarding premises response to managing bushfire risk including:***
   - *closing the school and/or school boarding premises on days forecast as Catastrophic fire danger rating in the relevant school district*
   - *on non-Catastrophic fire danger rating days, in the event of bushfire or elevated risk, maintain a heightened state of readiness and continuously monitor the situational bushfire risk by ensuring open lines of communication with local emergency services*
   - *be prepared/on standby to enact their EMP by:*
     - *relocating students and staff to a nominated 'shelter-in-place' within the school or school boarding premises site that is compliant with relevant regulations, and/or*
     - *evacuating students and staff to an off-site safe area*
     - *responding appropriately to instructions from emergency services.*
3. ***Schools and school boarding premises listed on the Bushfire At-Risk Register must inform all students, staff and parents/guardians about their specific bushfire preparedness arrangements and train relevant staff in their bushfire preparedness roles.*** *There must be records of:*
   - *the provision of information on bushfire preparedness policy and procedures to all staff (including relief staff) and parents/guardians*

- *the school and school boarding premises closure arrangements for Catastrophic fire danger rating days as per the school or school boarding premises EMP*
- *training of staff with specific roles and responsibilities in preparing for, monitoring and executing emergency bushfire procedures including the effective operation of relevant emergency equipment*
- *the practice of evacuation drills at least once per term during the October–April bushfire season. School and/or school boarding premises evacuation drills must involve all students and all staff moving to either a nominated on-site 'shelter-in-place' or an off-site evacuation point as per the school or school boarding premises EMP.*

4. ***Schools and school boarding premises listed on the Bushfire At-Risk Register must maintain a register updated at least once per school term during the October–April bushfire season of bushfire emergency equipment and ensure it is in working order.***
   Required evidence to be compliant or maintain compliance:
   - *an updated register of bushfire emergency equipment, in working order, which may include water supplies and equipment; fire hydrants, hose reels and extinguishers; sprinkler systems; alarms; first aid materials and medical equipment; fire blankets and communication systems.*
5. ***Schools and school boarding premises listed on the Bushfire At-Risk Register must maintain notices of bushfire evacuation procedures and bushfire emergency contact numbers and locate them appropriately around the school and school boarding premises.***
   Required evidence to be compliant or maintain compliance:
   - *notices of bushfire evacuation procedures and updated bushfire emergency contact numbers are appropriately located around the school and school boarding premises.*

In addition to their obligations under the buildings, facilities and grounds minimum standards, schools and school boarding premises must also meet particular requirements under these guidelines in relation to bushfire preparedness. Schools and school boarding premises should consider the different risks and circumstances at each of their school campuses or school boarding premises locations.

6. ***All schools and school boarding premises must regularly manage materials that may easily be ignited around buildings and facilities.***
   Required evidence to be compliant or maintain compliance:
   - *a schedule for monitoring and removal of materials that may be easily ignited including branches overhanging buildings, debris and rubbish around and under buildings including gutters and dry grass and vegetation*
   - *safe storage of flammable materials.*
7. ***All schools and school boarding premises must regularly monitor emergency access to buildings and grounds.***
   Required evidence to be compliant or maintain compliance:
   - *building exits are continuously kept clear of obstructions*
   - *assembly points are designated and have appropriate access to emergency equipment*
   - *there is access to facilities and grounds for emergency vehicles.*
8. ***Schools and school boarding premises listed on the Bushfire At-Risk Register must consult with relevant local agencies (the Country Fire Authority, Fire Rescue Victoria, local Council), where***

possible and appropriate, on their bushfire preparedness and compliance with local bushfire regulation of buildings, facilities and grounds.

Required evidence to be compliant or maintain compliance:

- *a record of annual visitation or consultation with relevant local agencies.*

9. ***Schools and school boarding premises listed on the Bushfire At-Risk Register with an on-site 'shelter-in-place' must meet the applicable standards, as outlined in the relevant guidelines published by the Victorian Building Authority, commensurate to the school or school boarding premises' categorisation of the Bushfire-At-Risk Register.***

   Required evidence to be compliant or maintain compliance:

   - *documentation demonstrating a completed assessment (and any subsequent schedule of remediation works) of any on-site shelter-in-place, against the Victorian Building Authority guidelines, 'A guide to retrofitting certain existing Class 9 buildings for better protection from bushfire ember attack', within the last 5 years'* (VRQA, 2024).

The DET requires all schools, regardless of their BARR status, to nominate a Shelter-in-Place (SIP) building or buildings on the school site that can provide temporary accommodation until emergency services arrive and/or as a building of last resort if there is insufficient time to evacuate (DET, 2026a).

Several performance requirements apply for SIP buildings, including additional requirements for schools that are on the BARR. The additional requirements stipulate that the SIP must:

- *'have enough exit doors that are not able to externally combust or require passage over combustible surfaces or decking with exits that allow for the timely exit of the building under bushfire conditions with consideration of the potential rate that the building could lose tenability in a bushfire*
- *have non-combustible external building elements and attachments*
- *consider specific building design details which limit the likelihood of ignition and limit the rate at which the building loses tenability (related to the effective evacuation or exit time) in a bushfire, such as avoiding:*
  - *hidden, unoccupied or unmonitored combustible building cavities or rooms*
  - *combustible external façade materials*
  - *attached buildings and building elements that are not built to the same requirements (a significant structure that is located near a SIP can present a higher ignition threat to the building than an ember attack. Radiant heat and/or flames from a nearby burning structure may be enough to ignite a building. It is recommended that a registered fire safety engineer is engaged to analyse the risks and provide appropriate advice)*
- *continue to be maintained at the same standard as stipulated in the SIP assessment guidelines. The annual maintenance of the SIP is the responsibility of the school with any changes beyond the annual maintenance approved by the Department's VSBA Operations and Programs Branch*
- *meet ESM maintenance and maintenance of exits and paths of travel based on when the building was built and may consider upgrades (funded by the school) that would align with newer construction dates*

- *have no combustible material within 10 metres of the building such as plastic equipment, rubbish skips, recycling bins, wood piles, gas cylinders and plants with the potential to produce localised flame contact with any vulnerable part of the building*
- *choose plants with low flammability and locate them correctly*

Where the SIP does not meet these criteria, the school's EMP must include alternate bushfire safety actions within their bushfire or grassfire response procedure (DET, 2026b).

It should also be noted that a BAL and condition assessment including identification of required maintenance works is undertaken every five years, with a desktop BAL assessment halfway through the 5-year cycle.

Additionally, schools with a bushfire or grassfire risk identified in their EMP must undertake vegetation maintenance activities, particularly around their SIP, in accordance with guidance for slashing or clearing all flammable undergrowth such as dry grass and vegetation to the site boundary unless it is greater than 50 m from buildings, evacuation routes and evacuation locations. The BMO defendable space standards (see Appendix A) are stipulated for a fuel reduced zone that should extend at least 20 m around buildings (DET, 2026b).

4.5 Clause 13.02-1S Bushfire Planning

The following sub-sections provide a summary response about how development in the site can respond to the objectives and strategies for bushfire safety in the PPF at Clause 13.02-1S.

4.5.1 Protection of human life strategies

Clause 13.02-1S requires that the priority be given to protection of human life.

Prioritising the protection of human life over all other policy considerations

The protection of human life can be prioritised by the application of the existing building and planning controls that relate to bushfire protection supplemented by emergency management planning as required for a school by the DET. Measures to achieve this are identified in this report as appropriate.

Directing population growth and development to low risk locations and ensuring the availability of, and safe access to, areas where human life can be better protected from the effects of bushfire.

As identified in the hazard assessment in Section 3, the site is currently medium to high risk at the landscape scale, however, as development continues in the LBPSP area to the north and west, and currently hazardous vegetation around the site is further removed and good access to places of relative safety from bushfire is available, the risk will reduce and accord with the lower risk BLT 1 and BLT 2 bushfire characteristics.

The site based risk can be mitigated to a level that satisfies safety thresholds for acceptable exposure to radiant heat, i.e. BAL-12.5 low risk locations as defined in the

State planning policy for bushfire and where radiant heat will not exceed 10 kW/m^2 in compliance with Specification 43 for satisfying bushfire performance requirements in Part G5 of the NCC (see Map 3).

Reducing the vulnerability of communities to bushfire through consideration of bushfire risk in decision-making at all stages of the planning process

This report provides the basis for incorporating bushfire risk into decision making associated with planning for development on the site.

4.5.2 Bushfire hazard identification and assessment strategies

Clause 13.02-1S-1 requires that the bushfire hazard be identified, and appropriate risk assessment be undertaken.

Applying the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard.

This report identifies the potential hazards in accordance with Clause 13.02-1S, the accepted methodologies of AS 3959:2018 and the BMO.

The type and extent of potentially hazardous vegetation within and 150 m around the site and 100 m around the buildings has been identified (see Map 2). Classification was based on the anticipated long-term state of the vegetation, modelled EVCs, aerial imagery, site assessment, published guidance on vegetation assessment for bushfire purposes and experience with the fuel hazard posed by the vegetation types present.

Publicly available contour data for the area was accessed, which along with the site assessment, determined that the land is generally flat and the topography is benign from a bushfire perspective.

In relation to climatic conditions and fire weather, the BMO/AS 3959:2018 default FFDI 100/GFDI 130 benchmark used in the Victorian planning and building system, has been applied as discussed in Section 2.1.3.

Considering the best available information about bushfire hazard including the map of designated bushfire prone areas prepared under the Building Act 1993 or regulations made under that Act.

The extent of BPA coverage has been considered (see Section 2.2) and is shown in Figure 1, Figure 4 and Map 1. This is based on the most recent BPA mapping for WCC.

Applying the Bushfire Management Overlay in planning schemes to areas where the extent of vegetation can create an extreme bushfire hazard.

BMO coverage reflects current mapping in the Wodonga Planning Scheme (see Figure 4 and Map 1. Map 1 comprises a Bushfire hazard landscape assessment plan in accordance

with the BMO requirements and Map 2 comprises a Bushfire hazard site assessment plan. Section 4 identifies compliance with the BMO and relevant Clause 53.02 objectives.

Considering and assessing the bushfire hazard on the basis of:

- **Landscape conditions - meaning the conditions in the landscape within 20 kilometres and potentially up to 75 kilometres from a site;**
- **Local conditions - meaning conditions in the area within approximately 1 kilometre from a site;**
- **Neighbourhood conditions - meaning conditions in the area within 400 metres of a site; and**
- **The site for the development.**

The hazard has been assessed and described at the landscape, local, neighbourhood and site scales (see Section 3).

Consulting with emergency management agencies and the relevant fire authority early in the process to receive their recommendations and implement appropriate bushfire protection measures.

It is anticipated that this report will be referred for comment to CFA and any feedback can be incorporated into an amended version of this report and/or reflected in permit conditions as appropriate.

Ensuring that strategic planning documents, planning scheme amendments, planning permit applications and development plan approvals properly assess bushfire risk and include appropriate bushfire protection measures.

DTP advisory and practice notes, Clause 13.02-1S, the building regulations invoked by the BPA coverage, and the BMO planning controls and associated guidance materials, specify the general requirements and standards for assessing the risk. These have been used in this report as appropriate and bushfire protection measures have been identified commensurate with the risk.

Not approving development where a landowner or proponent has not satisfactorily demonstrated that the relevant policies have been addressed, performance measures satisfied or bushfire protection measures can be adequately implemented.

Measures to satisfy the objective and strategies of Clause 13.02-1S and other bushfire controls are identified in this report. There are no anticipated barriers to implementing bushfire protection measures and they can be achieved via the typical planning and building controls including through permit conditions and endorsed plans.

4.5.3 Settlement planning strategies

- The development does not require a planning scheme amendment and is not settlement planning, therefore, the settlement planning strategies are not considered applicable. Accordingly, they are listed here but no response is provided.

Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959:2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).

Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959:2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.

Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.

Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reduce bushfire risk overall.

Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.

Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.

Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959:2018'

4.5.4 Areas of high biodiversity conservation value

Ensure settlement growth and development approvals can implement bushfire protection measures without unacceptable biodiversity impacts by discouraging settlement growth and development in bushfire affected areas that are of high biodiversity conservation value

Vegetation management to confirm achievement of the 40 m defendable space is required to the south and east. Other than that there are no anticipated biodiversity impacts associated with the findings of this bushfire assessment. The siting of development avoids and minimises impacts on vegetation by siting the works and defendable space largely beyond areas of significant vegetation.

4.5.5 Use and development control in a Bushfire Prone Area

Clause 13.02-1S requires that '*In a bushfire prone area designated in accordance with regulations made under the Building Act 1993, bushfire risk should be considered when assessing planning applications for the following uses and development:*

- *Subdivisions of more than 10 lots.*
- *Accommodation.*
- *Child care centre.*
- *Education centre.*
- *Emergency services facility.*
- *Hospital.*
- *Indoor recreation facility.*
- *Major sports and recreation facility.*
- *Place of assembly.*
- *Any application for development that will result in people congregating in large numbers'* (Wodonga Planning Scheme, Cl. 13.02-1S).

It further states that:
'When assessing a planning permit application for the above uses and development:

- *Consider the risk of bushfire to people, property and community infrastructure.*
- *Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk.*
- *Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts'* (Wodonga Planning Scheme, Cl. 13.02-1S).

The development has appropriately considered the risk and can mitigate it in accordance with the measures identified in this report. There are no apparent barriers to this being achievable.

5 Conclusion

This report has assessed the bushfire hazard and risk for the proposed Baranduda Catholic School at Ellen McDonald Drive, Baranduda, in relation to broader landscape considerations, neighbourhood and local conditions, and conditions at the site scale.

The proposed master plan includes several school buildings, sport fields/courts, access/carpark areas and associated landscaping.

The entire site is within a designated BPA. The BMO applies to land in the northeastern corner of the property where a sports field is proposed and an area in the southeast of the site where access to John Schubert Drive is proposed. None of the proposed buildings are located on land covered by the BMO.

It is considered that the surrounding landscape currently best accords with the characteristics at the lower end of the BLT 3 spectrum of the BMO. The hazard exposure is predominantly Grassland and/or smaller areas of Woodland or Forest, and as development continues in the LBPSP area to the west and north, and currently hazardous vegetation around the site is further removed, and good access to places of relative safety from bushfire is provided, the risk will reduce and accord with the lower risk BLT 2 and least risk BLT 1 bushfire characteristics.

The topography is benign from a bushfire perspective and will not exacerbate bushfire behaviour, being largely flat with only minor changes in elevation and slope.

Occurrences of hazardous tree and shrub vegetation within 150 m around the site (and beyond to at least 400 m) are restricted to relatively small patches of Woodland that lack connectivity to larger, contiguous areas, hence, they could not support the landscape scale design fire presumed in the BMO/AS 3959 model. Areas of Grassland occur but these are interspersed with a mosaic of development, roads and other low threat or non-vegetated features that break up the continuity of the hazard.

The proposed school buildings will be provided with a minimum 40 m defendable space setback from the classified Woodland, which will ensure radiant heat flux (RHF) on building elements will not exceed 10 kW/m^2 in accordance with the BMO approved measure for education centres and the Specification 43 (1) (b)measure for siting buildings with adequate separation from classified vegetation.

The 40 m setback is proposed as a defendable space area to be created and maintained in all directions around the buildings, in accordance with the vegetation management standards for defendable space in BMO areas, as stipulated in Table 6 to Clause 53.02-5 and DEP guidance for managing vegetation around school buildings in a low threat state.

The school buildings are proposed to be designed and constructed to a minimum BAL-19 standard in accordance with AS 3959:2018, enhanced with the use of non-combustible materials for all external building elements. This is in compliance with the Specification 43 measure for construction of the building envelope and exceeds the minimum BAL-12.5 stipulated by the applicable BMO approved measure for education centres for satisfying the defendable space and construction objective at Clause 53.02-4.2.

A static water supply of 40,000 L for fire fighting is proposed with all fire authority requirements for access and fittings to be met according to Clause 53.02-5 standards. This water supply will be supplemented via a conventional reticulated hydrant system with access for fire fighting appliances.

The BMO compliance measures are detailed in a Bushfire Management Plan included in this report at Appendix F.

We understand compliance with the performance requirements in the NCC Part G5 for Stage 1 is proposed via a performance solution in conjunction with some of the deemed-to-satisfy measures in Specification 43.

An integrated approach to risk management can be ensured by the school having an approved Emergency Management Plan (EMP) as is required by the VRQA and DET for schools on the BARR.

6 References

ABCB (2023) *Volume 2 of the National Construction Code (NCC) 2022,* Australian Building Codes Board (ABCB). Available at <https://ncc.abcb.gov.au/>.

AFAC (2018) *Fire and emergency services and climate change*. Position Paper v1.0, 24th October. Australasian Fire and Emergency Service Authorities Council (AFAC), Available at <https://knowledge.aidr.org.au/resources/emergency-management-and-climate-change/>.

AFAC (2020) *AFAC Climate Change and Disasters, Key Messages and Resources*. Australasian Fire and Emergency Service Authorities Council (AFAC). Available at <https://knowledge.aidr.org.au/resources/emergency-management-and-climate-change/>.

BOM (2022) *AFDRS Fire Danger Ratings Table* Bureau of Meteorology product guide. Downloaded from National Council for Fire and Emergency Management Services (AFAC) website, September 2022 at <https://www.afac.com.au/initiative/afdrs/article/bom-product-guides>.

CSIRO/BOM (2024) *State of the Climate 2024,* CSIRO and The Bureau of Meteorology (BOM), Commonwealth of Australia. Available at <https://www.csiro.au/en/research/environmental-impacts/climate-change/state-of-the-climate>.

CSIRO/BOM (2026) *Climate Change in Australia, Projections for Australia's NRM Regions* Online tool at <https://www.climatechangeinaustralia.gov.au/en/projections-tools/regional-climate-change-explorer/sub-clusters/>.

CoW (2014) *Leneva Valley and Baranduda Native Vegetation Precinct Plan*, Wodonga City Council, November.

CoW and VPA (2018) *Leneva & Baranduda Precinct Structure Plan*. City of Wodonga Vic (CoW) and Victorian Planning Authority (VPA), October.

DEECA (2024) *Victoria's Climate Science Report* 2024. © The State Government of Victoria Department of Energy, Environment and Climate Action (DEECA). Downloaded 2025 from <https://www.climatechange.vic.gov.au/victorias-changing-climate#downloads>.

DEECA (2025) *NatureKit*. Department of Energy, Environment and Climate Action (DEECA) online mapping portal accessed August 2025 at <https://maps2.biodiversity.vic.gov.au/Html5viewer/index.html?viewer=NatureKit>

DELWP (2017) *Planning Permit Applications Bushfire Management Overlay* Technical Guide. Department of Environment, Land, Water and Planning, Melbourne. Available at <https://www.planning.vic.gov.au/policy-and-strategy/bushfire-protection/bushfire-planning>.

DELWP (2019) *Bushfire Mapping Methodology and Criteria*, Fact Sheet. Department of Environment, Land, Water and Planning. Available at <https://www.planning.vic.gov.au/policy-and-strategy/bushfire/your-property/bmo-mapping-and-reviews>.

DET (2026a) *Bushfire and Grassfire Preparedness*. Department of Education and Training (DET) website viewed February 2026 at <https://www2.education.vic.gov.au/pal/bushfire-and-grassfire-preparedness/policy>.

DET (2026b) *Shelter-In-Place Buildings* Department of Education and Training (DET) website viewed February 2026 at <https://www2.education.vic.gov.au/pal/shelter-place-buildings/policy>.

DSE (2004) *EVC/Bioregion Benchmark for Vegetation Quality Assessment: Northern Inland Slopes bioregion*. Department of Sustainability and Environment, Melbourne. Available at <https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks>.

LAW Architects (undated) *Masterplan*. New Catholic School (Baranduda), MP 01 [TP A - WIP].

Long M (2006) A climatology of extreme fire weather days in Victoria. *Australian Meteorological Magazine*, **55**, 3-18.

Standards Australia (2020) *AS 3959:2018 Construction of buildings in bushfire-prone areas*. Incorporating Amendment No.2, Standards Australia, North Sydney.

Terramatrix (2026) *Wodonga Growth Strategy Review - Bushfire Assessment*. 'One Wodonga State of Play' Technical Report prepared for Charter Keck Cramer on behalf of Wodonga City Council, v1.1, January.

VRQA (2024) *2025 Guidelines on bushfire preparedness - Registered schools and school boarding premises.* Victorian Registration & Qualifications Authority (VRQA), August. Viewed February 2026 at <https://www2.vrqa.vic.gov.au/guidelines-and-standards-for-schools#bushfire-preparedness>

Wodonga Planning Scheme Clause 02.03-3 *Environmental risks and amenity.* Viewed January 2026 at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme Clause 02.04 *Wodonga Strategic Framework Plan.* Viewed February 2026 at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme Clause 13.01-1S *Natural hazards and climate change*. Viewed January 2026 at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme Clause 13.02-1S *Bushfire planning*. Viewed January 2026 at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme Clause 42.01-s4-2.0 *Schedule 4 to Clause 42.02 Vegetation Protection Overlay - Leneva Valley And Baranduda Retained Native Vegetation Areas*. Viewed February 2026 at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme. Clause 44.06-3 *Application requirements*.
Available at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme Clause 53.02-4.2 *Defendable space and construction objective*.
Available at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme. Clause 53.02-5 *Tables : Defendable space, construction, water supply, vehicle access, vegetation management and outbuilding construction requirements*. Available at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme Clause 71.02-3 *Integrated decision making*. Viewed January 2026 at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

Wodonga Planning Scheme Clause 73.01 *Meaning of Terms*. Viewed January 2026 at <https://planning-schemes.app.planning.vic.gov.au/Wodonga/ordinance>.

7 Appendices

Appendix A: Vegetation management

Requirements for defendable space in Table 6 to Clause 53.02-5:

'Defendable space is provided and is managed in accordance with the following requirements:

- *Grass must be short cropped and maintained during the declared fire danger period.*
- *All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.*
- *Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.*
- *Plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building.*
- *Shrubs must not be located under the canopy of trees.*
- *Individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres.*
- *Trees must not overhang or touch any elements of the building.*
- *The canopy of trees must be separated by at least 5 metres.*
- *There must be a clearance of at least 2 metres between the lowest tree branches and ground level*

Unless specified in a schedule or otherwise agreed in writing to the satisfaction of the relevant fire authority' (Wodonga Planning Scheme, Cl. 53.02-5).

Appendix B: Water supply requirements

'A building used for accommodation (other than a dwelling or small second dwelling), child care centre, education centre, hospital, leisure and recreation or place of assembly is provided with:

- A static water supply for fire fighting and property protection purposes of 10,000 litres per 1,500 square metres of floor space up to 40,000 litres.
- Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02-5.
- An integrated approach to risk management that ensures the water supply and access arrangements will be effective based on the characteristics of the likely future occupants including their age, mobility and capacity to evacuate during a bushfire emergency.
- The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for fire fighting water supplies.' (Clause 53.02-4.3, Campaspe Planning Scheme).

Fire Authority Requirements

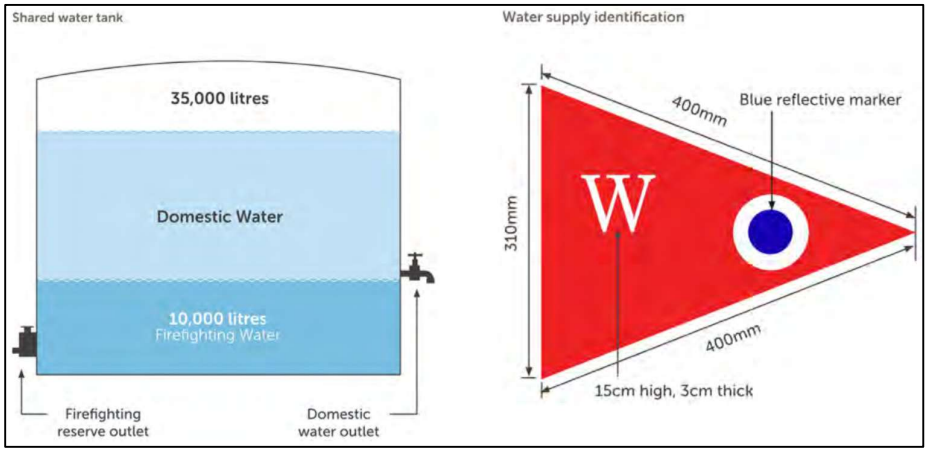
'Unless otherwise agreed in writing by the relevant fire authority, the water supply must:

- *Be stored in an above ground water tank constructed of concrete or metal.*
- *Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosive resistant metal.*
- *Include a separate outlet for occupant use.*

Where a 10,000 litre water supply is required, fire authority fittings and access must be provided as follows:

- *Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.*
- *Be located within 60 metres of the outer edge of the approved building.*
- *The outlet/s of the water tank must be within 4 metres of the accessway and unobstructed.*
- *Incorporate a separate ball or gate valve (British Standard Pipe (BSP 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).*
- *Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling)'* (Clause 53.02-5, Campaspe Planning Scheme).

The water supply may be provided in the same water tank as other water supplies, provided they are separated with different outlets. See figure below illustrating signage and an example of outlets where fire fighting water will be in the same tank as water for other use.



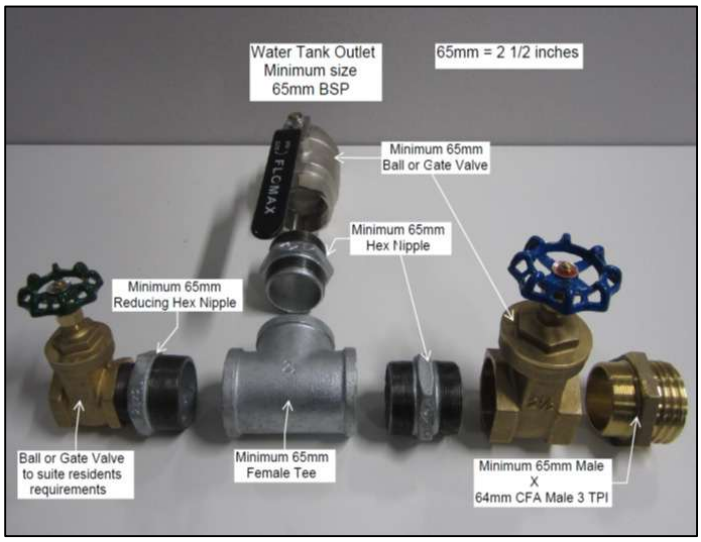
(DELWP, 2017).

Fire authority fittings

'If specified within Table 4 to Clause 53.02-5 (if fire brigade access to your water supply is required), CFA's standard BMO permit conditions require the pipe work, fittings and tank outlet to be a minimum size of 64 mm.

65 mm BSP (British Standard Pipe) is the most common size available. A 65 mm fitting is equivalent to the old 21/2 inch. A 65 mm BSP (21/2 inch) fitting exceeds CFA's requirements and will therefore comply with CFA's standard permit conditions for the BMO.

The diagram below shows some common tank fittings available at most plumbing suppliers which meet the connection requirements. It includes a 65 mm tank outlet, two 65 mm ball or gate valves with a 65 mm male to 64 mm CFA 3 threads per inch male coupling. This is a special fitting which allows the CFA fire truck to connect to the water supply. An additional ball or gate valve will provide access to the water supply for the resident of the dwelling' (CFA, 2022).



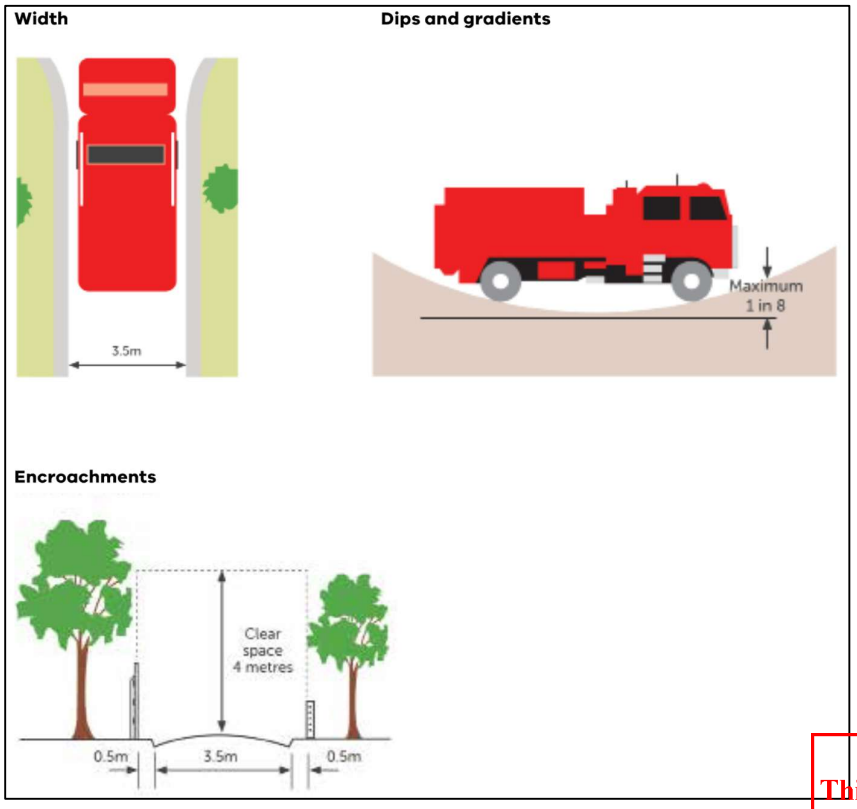
Appendix C: Access requirements

Driveways less than 30 m long have no specific requirements unless access to the water supply outlet is required, in which case the following apply as appropriate.

Access between 30 m and 100 m in length

Where the length of access is greater than 30 m the following design and construction requirements apply (*the length of access should be measured from a public road to either the building or the water supply outlet, whichever is longer* (Clause 53.02-5, Campaspe Planning Scheme)):

- Curves must have a minimum inner radius of 10 m.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum of no more than 1 in 5 (20%) (11.3°) for no more than 50 m.
- Dips must have no more than a 1 in 8 (12.5%) (7.1°) entry and exit angle.
- A load limit of at least 15 T and be of all-weather construction.
- Provide a minimum trafficable width of 3.5 m.
- Be clear of encroachments for at least 0.5 m on each side and at least 4 m vertically.
- A cleared area of 0.5 m is required to allow for the opening of vehicle doors along driveways.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

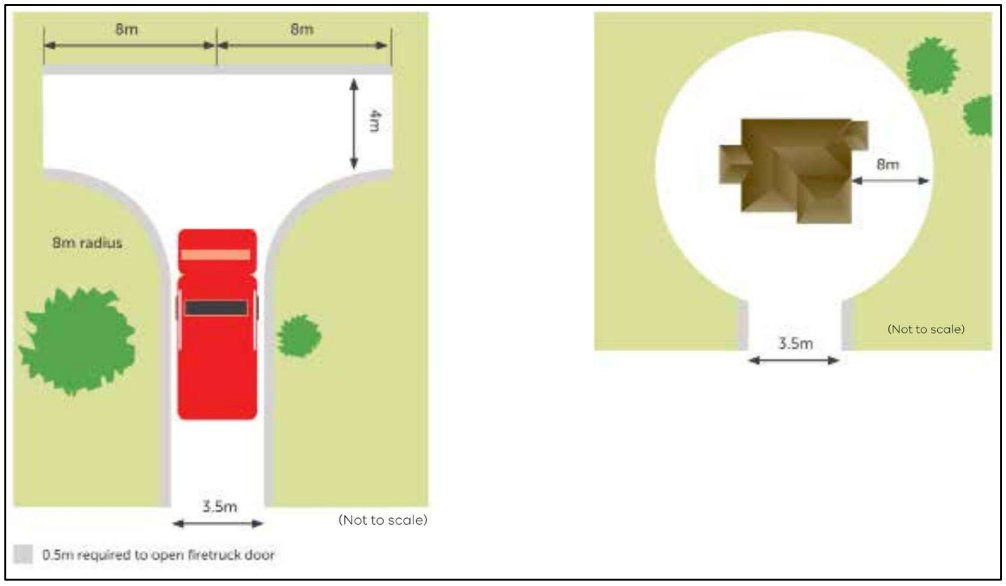


(DELWP, 2017).

Access between 100 m and 200 m in length

In addition to the 30 m-100 m requirements above, a turning area for fire fighting vehicles must be provided close to the building by one of the following:

- A turning circle with a minimum radius of 8 m.
- A driveway encircling the dwelling.
- Other vehicle turning heads such as a T or Y head which meet the specification of Austroad Design for an 8.8 m service vehicle.

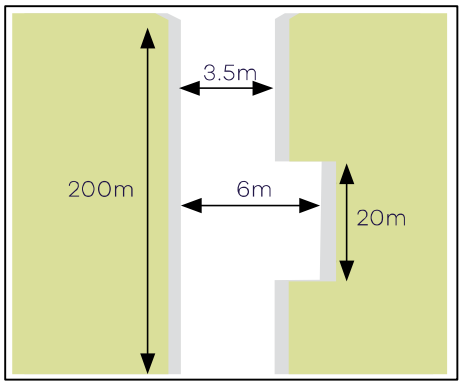


(DELWP, 2017).

Access greater than 200 m in length

In addition to the requirements above, passing bays are required at least every 200 m that are:

- A minimum of 20 m long.
- With a minimum trafficable width of 6 m.



(DELWP, 2017).

Appendix D: BALs & RHF

Table 3 - BALs explained.

Bushfire Attack Level (BAL)	Risk Level	Construction elements are expected to be exposed to…	Comment
BAL-LOW	VERY LOW: There is insufficient risk to warrant any specific construction requirements but there is still some risk.	No specification.	At 4 kW/m^2 pain to humans after 10 to 20 seconds exposure. Critical conditions at 10 kW/m^2 and pain to humans after 3 seconds. Considered to be life threatening within 1 minute exposure in protective equipment.
BAL-12.5	LOW: There is risk of ember attack.	A radiant heat flux not greater than 12.5 kW/m^2.	At 12.5 kW/m^2 standard float glass could fail and some timbers can ignite with prolonged exposure and piloted ignition.
BAL-19	MODERATE: There is a risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to radiant heat.	A radiant heat flux not greater than 19 kW/m^2.	At 19 kW/m^2 screened float glass could fail.
BAL-29	HIGH: There is an increased risk of ember attack and burning debris ignited by windborne embers and a likelihood of exposure to an increased level of radiant heat.	A radiant heat flux not greater than 29 kW/m^2.	At 29 kW/m^2 ignition of most timbers without piloted ignition after 3 minutes exposure. Toughened glass could fail.
BAL-40	VERY HIGH: There is a much increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front.	A radiant heat flux not greater than 40 kW/m^2.	At 42 kW/m^2 ignition of cotton fabric after 5 seconds exposure (without piloted ignition).
BAL- FZ (Flame Zone)	EXTREME: There is an extremely high risk of ember attack and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front.	A radiant heat flux greater than 40 kW/m^2.	At 45 kW/m^2 ignition of timber in 20 seconds (without piloted ignition).

Adapted from Standards Australia (2020).

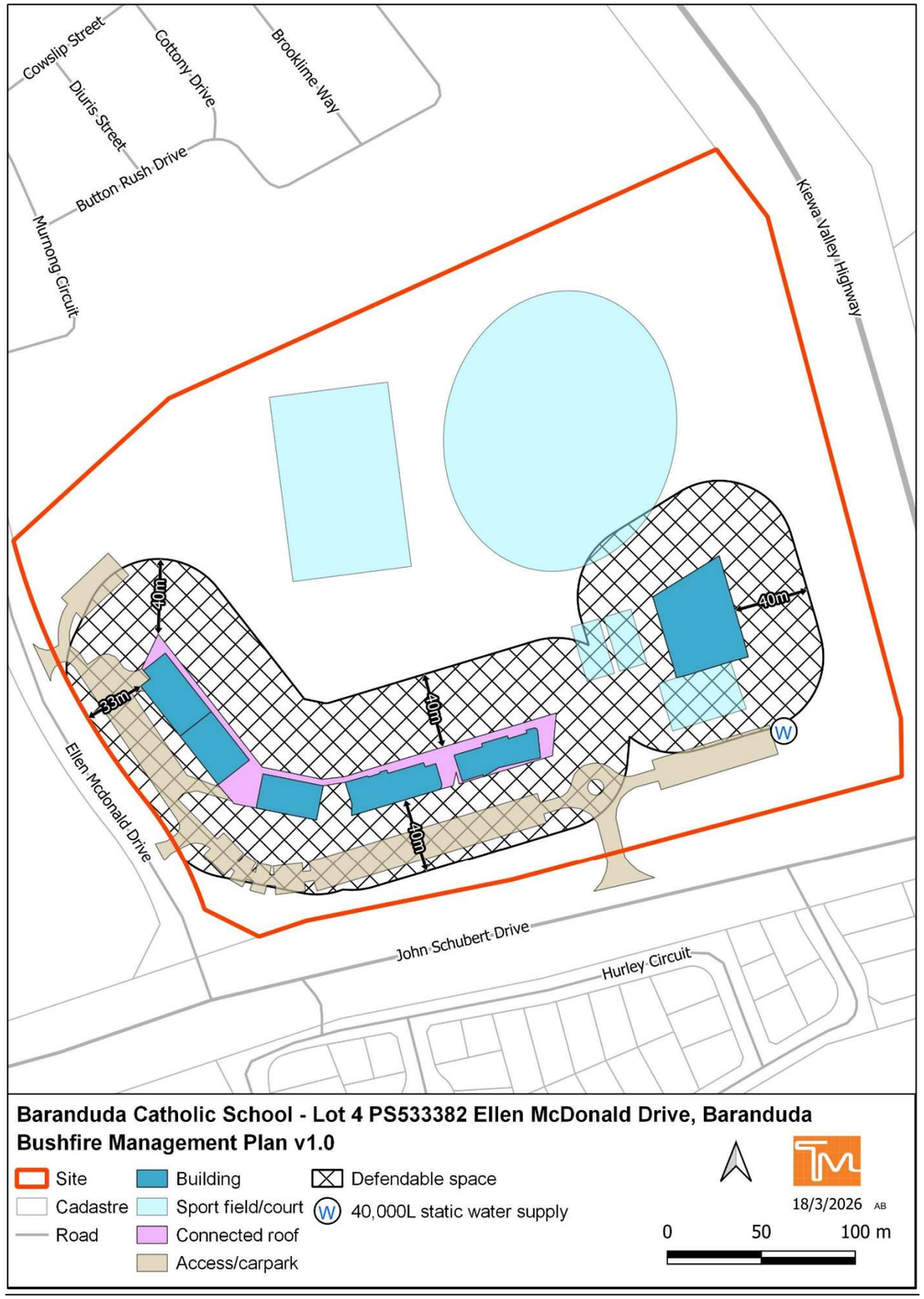
Appendix E: Summary of fire danger ratings

Table 4 - Fire danger ratings (BoM 2022).

Forest Behaviour Index	Fire Danger Rating (FDR)	Fire Behaviour	Action
>=100	**Catastrophic**	If a fire starts and takes hold, lives are likely to be lost.	• These are the most dangerous conditions for a fire. • Your life may depend on the decisions on you make, even before there is a fire. • For your survival, do not be in bushfire risk areas. • Stay safe by going to a safer location early in the morning or the night before. • If a fire starts and takes hold, lives and properties are likely to be lost. • Homes cannot withstand fires in these conditions. You may not be able to leave and help may not be available.
50-99	**Extreme**	Fires will spread quickly and be extremely dangerous.	• These are dangerous fire conditions. • Check your bushfire plan and that your property is fire ready. • If a fire starts, take immediate action. If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts. • Reconsider travel through bushfire risk areas. • Expect hot, dry and windy conditions. • Leaving bushfire risk areas early in the day is your safest option.
24-49	**High**	Fires can be dangerous.	• There is a heightened risk. Be alert for fires in your area. • Decide what you will do if a fire starts. • If a fire starts, your life and property may be at risk. The safest option is to avoid bushfire risk areas.
12-23	**Moderate**	Most fires can be controlled.	• Stay up to date and be ready to act if there is a fire.

Appendix F: Bushfire Management Plan

Version 1.0 2026-03-18



Construction Standard

The buildings must be designed and constructed to a minimum BAL-19 standard.

Defendable Space Management

Defendable space must be provided for a distance of 40 m (or to the site boundary) around the buildings and be managed in accordance with the following requirements:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 m of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 cm in height must not be placed within 3 m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 m^2 in area and must be separated by at least 5 m.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5 m.
- There must be a clearance of at least 2 m between the lowest tree branches and ground level.

Vehicle Access

Vehicle access to the buildings and the water supply remote outlet must be provided in accordance with the following requirements:

- All-weather construction.
- A load limit of at least 15 t.
- Provide a minimum trafficable width of 3.5 m.
- Be clear of encroachments for at least 0.5 m on each side and at least 4 m vertically.
- Curves must have a minimum inner radius of 10 m.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 m.
- Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

A turning area for fire fighting vehicles must be provided close to the building by one of the following:

- a turning circle with a minimum radius of 8 m.
- a driveway encircling the dwelling.
- other vehicle turning heads such as a T or Y head which meet the specification of Austroad Design for an 8.8 m service vehicle.

Passing bays are required at least every 200 m that are:

- a minimum of 20 m long.
- with a minimum trafficable width of 6 m.

Water Supply

A minimum 40,000 L of effective water supply for fire fighting purposes must be provided in accordance with the following requirements:

- Be stored in an above ground water tank/s constructed of concrete or metal.
- Have all fixed above-ground water pipes and fittings required for fire fighting purposes made of corrosive resistant metal.
- Include a separate outlet for site occupant use.
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the CFA.
- Be located within 60 metres of the outer edge of the approved building.
- The outlet/s of the water tank/s must be within 4m of the accessway and unobstructed.
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP) 65mm) and coupling (64 mm CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 mm (excluding the CFA coupling).