



Bushfire Assessment Report

Lots 208, 209 & 210 Automated Distribution Centre
475 Badgerys Creek Road, Bradfield NSW 2556

Prepared for

Urbis Ltd

11 May 2026 | Version 1.0



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Contents

1. Abbreviations	4
2. Glossary	4
3. Summary	5
4. Executive summary	6
5. Introduction	7
6. Site context	10
7. Legislative Framework	18
8. Bushfire Prone Land	18
9. Planning for Bushfire Protection 2019	19
9.1. Bushfire Protection Measures	21
10. Bushfire Threat Assessment	22
10.1. Bushfire Hazard	22
10.2. Methodology	22
10.3. Fire Danger	23
10.4. Vegetation Analysis	23
10.5. Slopes Influencing Bushfire Behavior	28
10.6. Asset Protection Zones and Bushfire Attack Levels	29
10.7. Access	32
10.8. Water Supply & Utilities	32
10.9. Evacuation and Emergency Management	32
10.10. Landscaping	32
11. Aim & Objectives Summary Table	34
12. Mitigation Measures	35
13. Conclusion	35
Appendix 1 References	36
Appendix 2 Staff Curriculum vitae	37
Appendix 3 Overview of bushfire attack mechanisms	38
Appendix 4 Asset Protection Zone Requirements	41

1. Abbreviations

APZ	Asset protection zone
AS2419	Australian Standard – Fire hydrant installations
AS3745	Australian Standard – Planning for emergencies in facilities
AS3959	Australian Standard – Construction of buildings in bushfire-prone areas 2018
BAL	Bushfire Attack Level
NCC	National Construction Code
BFSA	Bush Fire safety authority
EP&A Act	Environmental Planning & Assessment Act 1979
EPA Reg	Environmental Planning and Assessment Regulation 2000
GTA	General terms of approval
PBP	Planning for Bush Fire Protection 2019
RF Act	Rural Fires Act 1997
RFS	NSW Rural Fire Service
RFR	Rural Fires Regulation 2013
SFPP	Special fire protection purpose

2. Glossary

AS3959	Australian Standard AS 3959 Construction of buildings in bushfire-prone areas, Standards Australia, 2018, that outlines construction standards applicable to residential developments in bush fire prone areas
Bushfire Prone Area	An area of land that can support a bush fire or is likely to be subject to bush fire attack.
Bush fire safety authority	An approval of the Commissioner of the RFS required for a subdivision for residential or rural residential purpose or for a special fire protection purpose listed under section 100B of the RF Act.
Special Fire Protection Purpose	Refers to the development of land for which the end user/s are people who are considered to be at-risk members of the community, and thus more susceptible to the impacts of bushfire. These include schools, hospitals, nursing homes and tourist accommodation.

3. Summary

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

Table 1: Summary

Planning for Bushfire Protection 2019 Classification	Other Development – Automated Distribution Centre
NCC Classification	Class 5 – Office and Gatehouse Class 7b – Warehouse Class 8 - Truck wash Class 10a - Pump room
Location	475 Badgerys Creek Rd, Bradfield NSW 2556 Lots 208,209, & 210
Local Government Area	Liverpool City Council
Can this proposal comply with AS3959:2018	Yes
Does this development comply with the requirements of Planning for Bushfire Protection 2019?	Yes
Does this development comply with the Aims and objectives of Planning for Bushfire Protection 2019?	Yes
Is the proposal on Bushfire Prone Land	Yes
Is referral to the NSW RFS required?	Yes – referral via Department of Planning, Housing and Infrastructure as State Significant Development
Is a Bush Fire Safety Authority (BFSA) required?	No

Assessment Framework

- ☒ Planning for Bushfire Protection 2019:
- ☒ Meets the deemed to satisfy provisions
- ☐ Alternate solution/ performance-based assessment

4. Executive summary

This Bushfire Assessment Report (BAR) has been prepared by Blackash Bushfire Consulting to accompany a detailed State Significant Development Application (SSDA) for the construction of a warehouse or distribution facility (as defined), referred to throughout this report as an automated distribution centre (ADC).

The land to which this report relates is referred to as 475 Badgerys Creek Road, Bradfield, legally described as Part Lot 102 and Lot 105 in DP 1316278, which is adjacent to the Western Sydney International Airport (WSI). It is noted that the ADC will be located on proposed Lots 208-210 within the 475 Badgerys Creek Road landholding. For this BAR, reference to 'the site' will relate primarily to the area within the broader lot proposed to be developed for the ADC, unless otherwise specified.

This Project-Specific BAR has been prepared in response to agency feedback received from the NSW Rural Fire Service (letter dated 17 February 2026) and Planning Secretary's Environmental Assessment Requirements (SEARs) (SSD-105499958 dated 2 March 2026).

This report is to be read in conjunction with the Blackash Bushfire Consulting Bushfire Assessment Report (Version 3.0, dated 17 June 2024) which has been prepared for the approved IPG Master Plan.

This report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures:

- The entire site shall be managed to the standard of an Inner Protection Area APZ in accordance with Appendix 4 of *Planning for Bushfire Protection 2019*.
- A Bushfire Emergency Management and Evacuation Plan shall be prepared prior to occupation of the development.

Following the implementation of the above mitigation measures, the remaining impacts are appropriate.

5. Introduction

This Bushfire Assessment Report (BAR) has been prepared to accompany an SSDA for the construction, fit-out and operation of a warehouse or distribution facility (automated distribution centre) with associated car parking, landscaping, driveway accesses, utility service connection, minor bulk earthworks and other related works. This is referred to throughout this report as an automated distribution centre (ADC) at 475 Badgerys Creek Road, Bradfield (the site).

As the proposal has an estimated development cost (EDC) of more than \$30 million, the proposed development is State Significant Development (SSD) pursuant to Clause 29 of Schedule 1 of State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP). The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the SSDA and this application is lodged with the NSW Department of Planning, Housing and Infrastructure (DPHI) for assessment.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) 2 March 2026 issued for SSD-105499958. The SSD status is currently at "Prepare EIS" stage. This Project-Specific BAR has been prepared in response to agency feedback received from the NSW Rural Fire Service (letter dated 17 February 2026). Specifically, this BAR has been prepared to respond to the SEARs requirements outlined in Table 2.

Table 2: SEARs compliance statement and summary

I David Lermcke, confirm this Bushfire Assessment Report (BAR) addresses the requirement of SEAR No. SSD-105499958 and relevant State and local legislation, policies, and guidelines including Planning for Bushfire Protection 2019 (PBP). I further confirm that none of the information contained in the BAR is false or misleading.

David Lermcke

SEARS Item – Bushfire Management	Report Reference
<i>Bush Fire – a bush fire assessment report that addresses the aims and objectives of Planning for Bush Fire Protection 2019, (PBP), and includes:</i> <i>a bush fire attack assessment in accordance with Appendix 1 of PBP 2019</i> <i>details of proposed operational access for emergency services personnel</i> <i>a Bush Fire Emergency Management and Evacuation Plan prepared in accordance with relevant RFS guidance.</i>	Sections 10-12. Sections 10-12. To be completed prior to occupation.

Consultation with NSW Rural Fire Service (RFS):

The RFS was contacted by phone and email and have advised via email (19/3/26) their assessment requirements remain as per the SEARs advice (RFS Ref: DA20260206000468-SEARS-1):

'It is advised that a site-specific Bushfire Assessment Report is prepared to guide the preparation of an Environmental Impact Statement (EIS) that will accompany a State Significant Development Application (SSDA). In this regard, the NSW RFS has reviewed and supported the recommendations provided in the Bushfire Assessment Report prepared by Blackash Bushfire Consulting (version 3.0, dated 17 June 2024) for the Ingham Property Group (IPG) Masterplan.'

Site Description

The land to which this Report relates is referred to as 475 Badgerys Creek Road, Bradfield, which has direct interface with the Western Sydney International Airport (WSI). It is noted that the ADC will be located on future lots within the 475 Badgerys Creek Road landholding.

The lots are located within a broader parcel of land known as 475 Badgerys Creek Road, Bradfield.

The wider site was formerly used for intensive poultry farming operated by current landowner Ingham Property Group (IPG) and is characterised as a largely cleared agricultural site transitioning to a master planned enterprise zone. The wider site contains the remaining internal road network within the site which had connected the sheds and ancillary structures dispersed across the site.

The wider IPG Master Plan site comprises approximately 184 hectares, however the project site proposed to accommodate the ADC is approximately 172,000m².

The project site is currently cleared of any structure, is vacant and undergoing estate earthworks in accordance with the approved Master Plan (addressed under separate CDC applications)

Project Objectives

It is the proposed client's intent to construct and operate a new ADC within the western portion of the IPG site (super lot 102). The ADC will be a distribution centre for e-retail goods storage and distribution direct to offsite third-party sortation service providers.

The facility will have a footprint of approx. 130,000 m² with a large central building surrounded by vehicle parking and manoeuvring areas, landscaping and ancillary infrastructure.

IPG Master Plan Bushfire Assessment and Western Sydney Airport DCP

The wider IPG Masterplan site of 184ha has been assessed for bushfire risk and mitigation measures applied across the site and the Bushfire Assessment Report prepared by Blackash Bushfire Consulting (version 3.0, dated 17 June 2024) underpinned this approval. Both the Master Plan assessment and this project assessment were undertaken based on the future ultimate vegetation types including fully restored riparian corridors required by the Master Plan.

The Master Plan Bushfire Assessment Report does not specify any Bushfire Attack Level (BAL) construction standards that must be applied to individual site, properly requiring this assessment at development stage of individual sites. This BAR provides that assessment.

Both the Master Plan and this assessment are compliant with the Western Sydney Aerotropolis Precinct Plan (Sept 2024) and the Western Sydney Aerotropolis DCP 22 (Sept 2024). Asset Protection Zones (APZ) are on the development site and the project complies with PBP. This satisfies relevant performance outcomes including 2.4.2 Protection of Biodiversity PO2, PO6 and 3.3.2 Building Setbacks PO1.

6. Site context

The wider site is zoned ENT – Enterprise, is approximately 17.17ha in size, and is part of the 184ha Ingham Property Group (IPG) Master Plan site. The Western Sydney International Airport (Nancy Bird Walton Airport) is located directly northwest across Badgerys Creek Road. This is currently under construction on a site of approximately 1,780ha which has almost entirely removed any bushfire vegetation in that direction. The site is shown in context at Figures 1-4.

The wider site is bound by two riparian corridors with South Creek to the east and Badgerys Creek to the north-west. The immediate surroundings of the wider site are characterised by large rural landholdings used predominately for agricultural and light industrial purposes. The wider site is predominantly grassland and is clear of vegetation reflective of its historic use for agricultural purposes. The Master Plan has provided significant design detail regarding the future rehabilitation of the riparian corridors, including significant stormwater management and recreational facilities. This work is relied upon to establish the ultimate vegetation and slopes to be assessed with respect to bushfire. Although the wider site is largely cleared, the future vegetation assemblages and development will be assessed.

The proposed ADC footprint is wholly reliant on the road network to be established by the IPG Master Plan. The current planning for the project site sees the ADC being accessed from Roads No. 2 and 3 on the northern part of the wider site. The physical delivery of these roads is proposed to be undertaken by the current landowner, IPG, and will be completed and operational prior to the completion of the ADC.

The wider site and project site are designated Bushfire Prone Land (BPL) and is mapped at Figure 5. All new development on bushfire prone land, must comply with PBP.

The proposed ground floor layout design is shown at Figure 6.

There is a history of bushfire within the wider area, however none that has directly impacted the project site, and further noting the Western Sydney International Airport removes any risk of significant bushfire from the northwest aspect of the site. This is shown at Figure 7.

This bushfire hazard assessment details the proposed bush fire protection measures and demonstrates compliance with PBP. This assessment has been prepared by David Lemcke (Senior Planner & Bushfire Specialist) who holds a Master of Environmental Planning and Graduate Diploma of Bushfire Protection. David is recognised by the RFS as qualified in bushfire risk assessment and has been accredited by the Fire Protection Association of Australia as a FPAA BPAD Level 3 Certified Practitioner No. BPAD 68670. David's curriculum vitae is provided as Appendix 2.

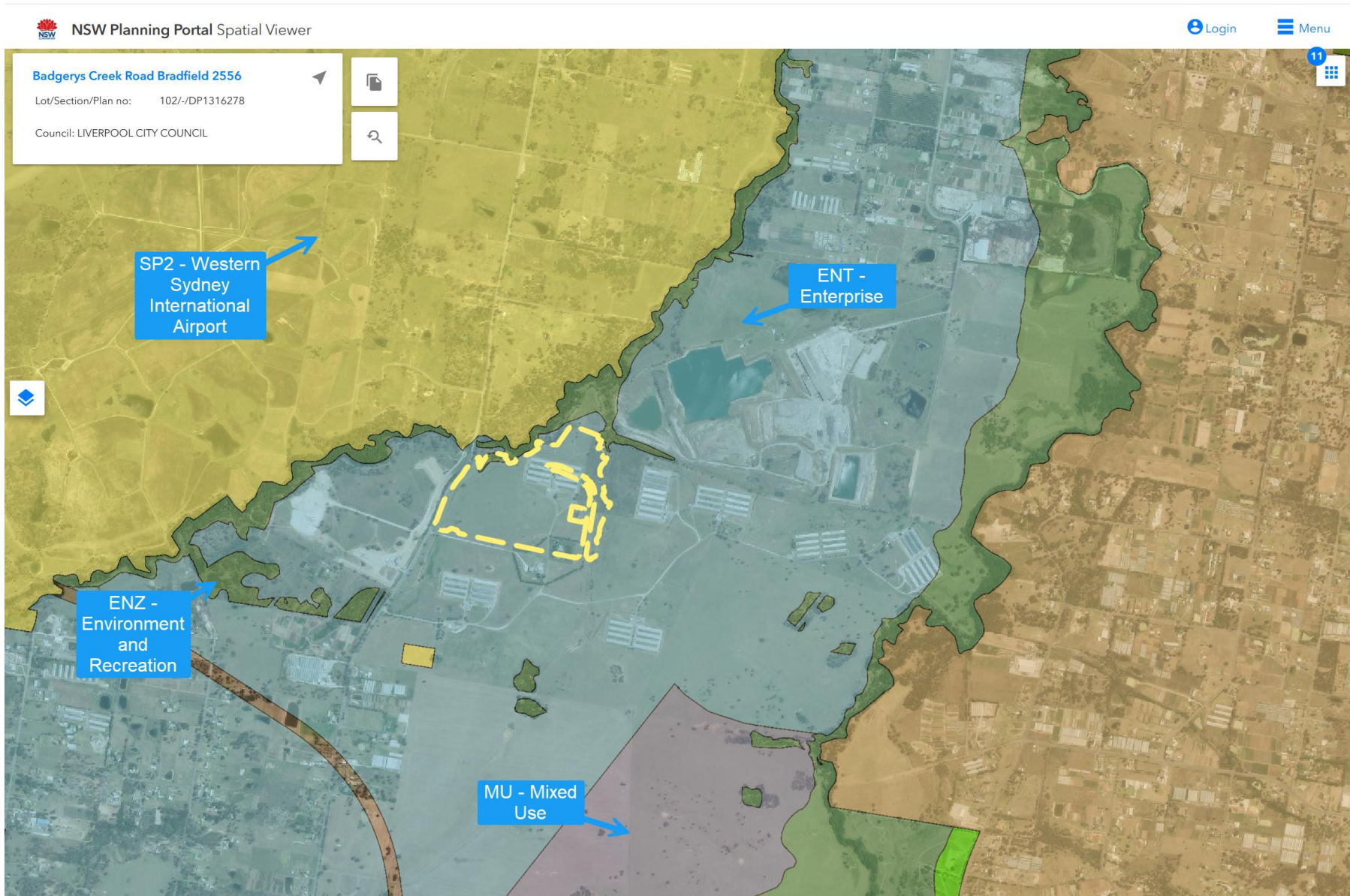


Figure 1: Site in context and current zoning





Figure 3: Subject site (Urbis, 2025)

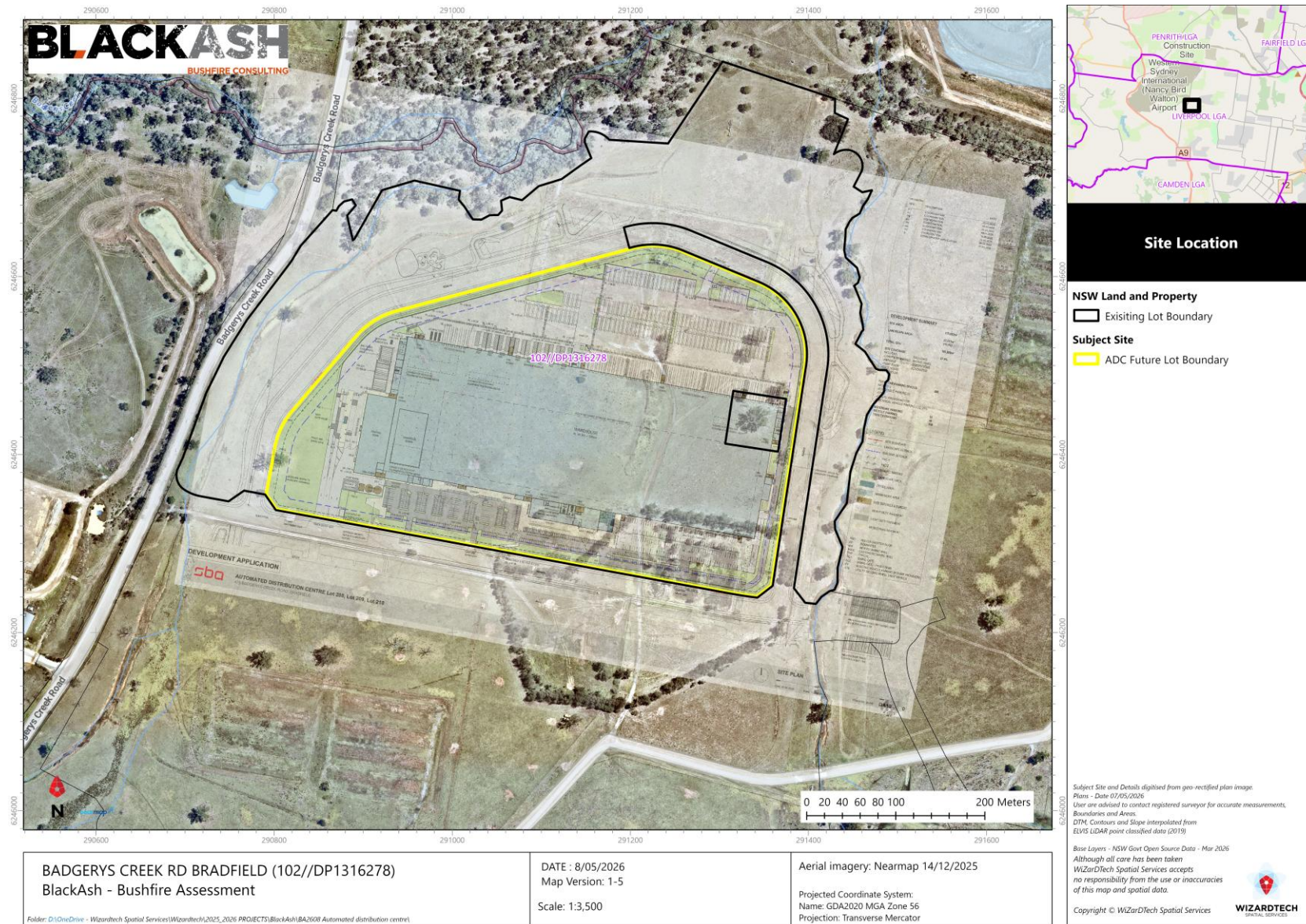


Figure 4: Automated Distribution Centre site context

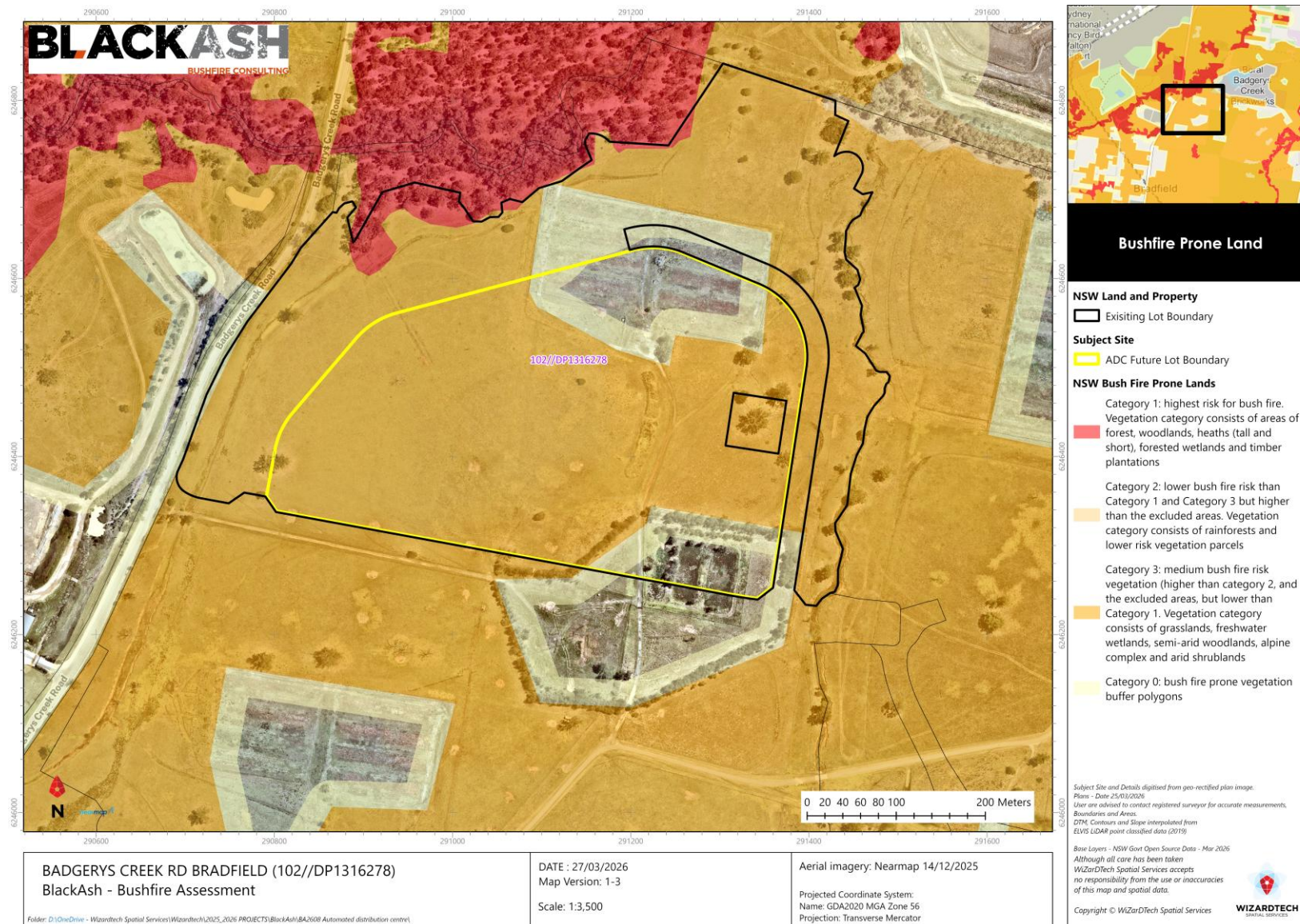
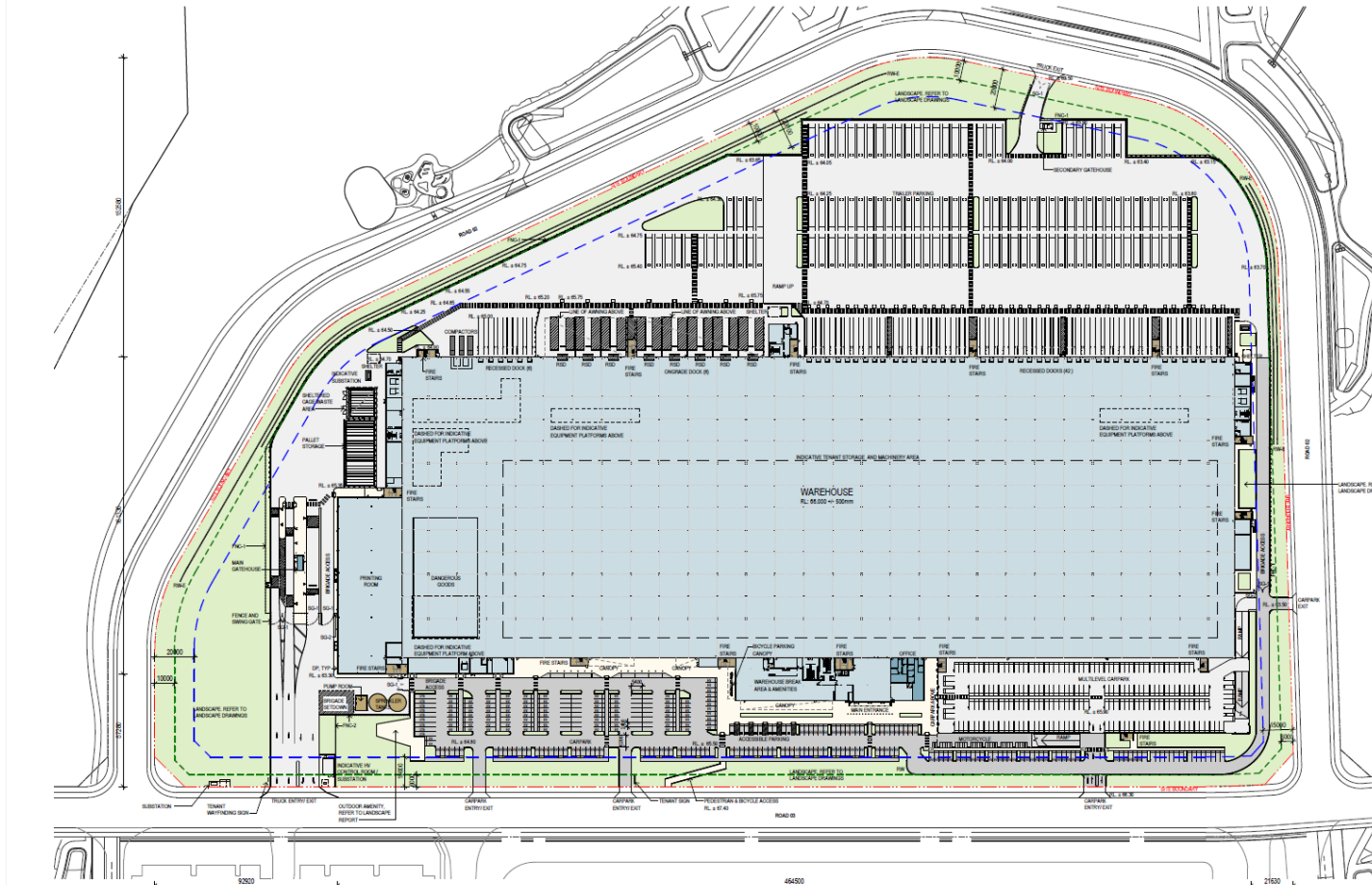
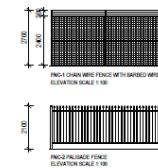


Figure 5: Bushfire Prone Land Map

REVISIONS	DESCRIPTION	DATE
REV		
PS	COORDINATION	23.03.2028
PS	COORDINATION	27.03.2028
PS	COORDINATION	27.03.2028
PS	COORDINATION	06.04.2028
PS	COORDINATION	10.04.2028
PS	COORDINATION	14.04.2028
PS	COORDINATION	14.05.2028
PS	COORDINATION	15.05.2028
0	DEVELOPMENT APPLICATION	07.05.2028

DEVELOPMENT SUMMARY	
SITE AREA:	171,802m ²
LANDSCAPE AREA:	27,811m ² (16.1%)
TOTAL GFA:	195,829m ²
SITE COVERAGE:	47.9%
INCLUDES:	EXCLUDES:
- CANOPY/SHEDS	- WATER TANKS
- JANNINGS	- SUBSTATION
- PUMP ROOM	- GENERATOR
- GATE HOUSE	- WAREHOUSE
TOTAL CAR PARKING SPACES:	888
INCLUDES:	
- ACCESSIBLE PARKING (5)	
- UTILITY	
- FUTURE PROVISIONS FOR ELECTRICAL VEHICLE PARKING (22) 25%	
MOTORBIKE PARKING:	32
BICYCLE PARKING:	40
TRAILER PARKING:	120

LEGEND	
---	SITE BOUNDARY
---	LANDSCAPE SETBACK
---	BUILDING SETBACK
---	PNC-1
---	PNC-2
---	TRAFFIC BARRIER
---	LANDSCAPE AREA
---	OFFICE AREA
---	WAREHOUSE AREA
---	FIRE SERVICES & EGRESS
---	HEAVY DUTY PAVEMENT
---	LIGHT DUTY PAVEMENT
---	PEDESTRIAN PAVEMENT
ROD	ROLLER SHUTTER DOOR
OP	DOWNPIPE
RW	NEW RETAINING WALL
RWE	EXISTING RETAINING WALL
TYP	TYPICAL
SG1	DRIVING GATE
SG2	DRIVING GATE - PEDESTRIAN
EV	ELECTRIC VEHICLE PARKING (FUTURE PROVISION)
UTE	UTILITY OF LONG WHEEL LIGHT VEHICLE



DEVELOPMENT APPLICATION



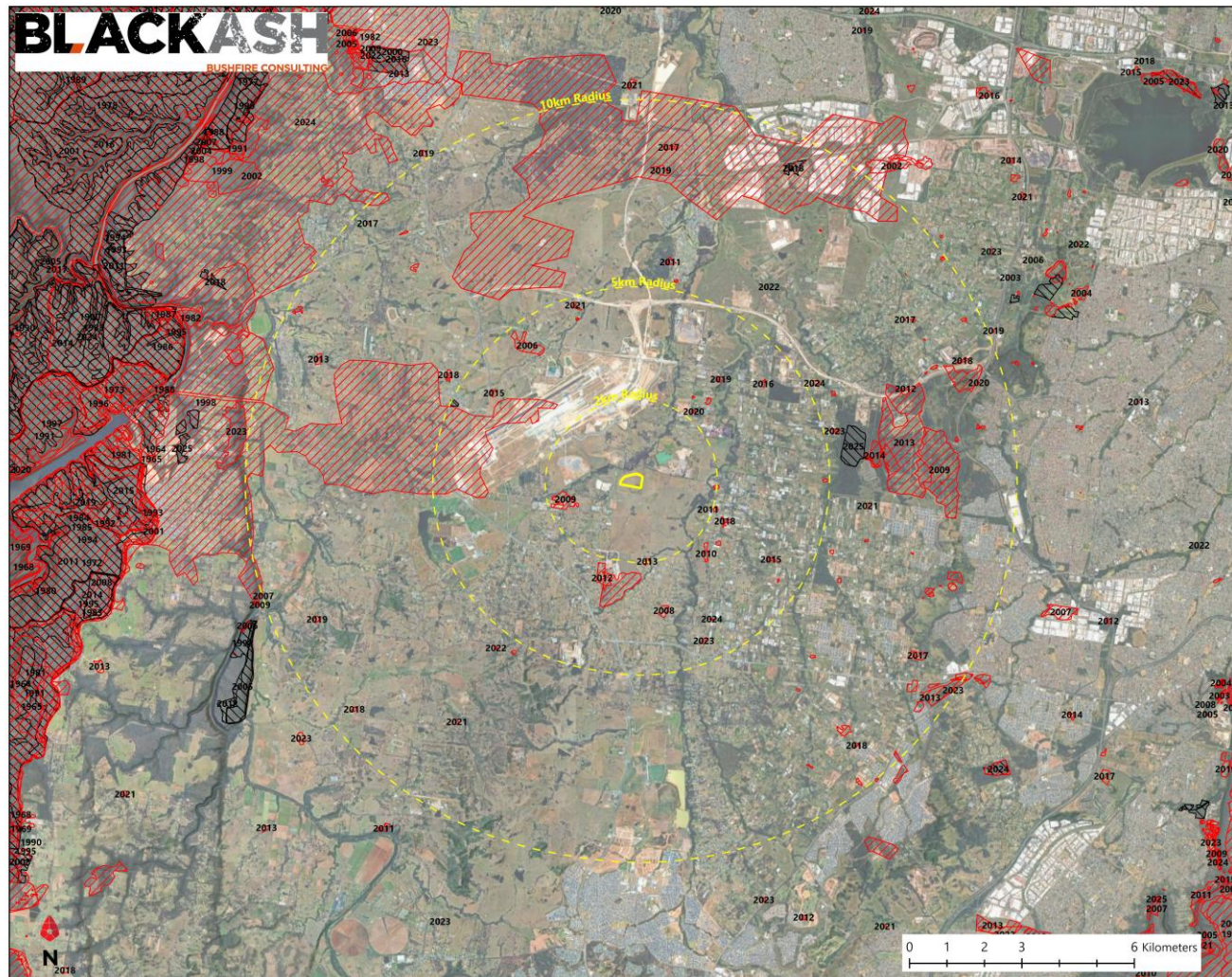
AUTOMATED DISTRIBUTION CENTRE Lot 208, Lot 209, Lot 210
475 BADGERYS CREEK ROAD, BRADFELD



SITE PLAN

Date: 07.05.2028 Scale: 1:1000 @A1 Project No: 25234 DA10 0

Figure 6: Proposed design (SBA Architects, 7/5/26)



Fire History

Subject Site

Automated Distribution Centre

Fire History - NPWS and AFAC

Prescribed Burn
Wildfire

Subject Site and Details digitised from geo-rectified plan image.
Plans - Date 25/03/2026
User are advised to contact registered surveyor for accurate measurements,
Boundaries and Areas.
DTM, Contours and Slope interpolated from
ELVIS LIDAR point classified data (2019)
Base Layers - NSW Govt Open Source Data - Mar 2026

Although all care has been taken
WizardTech Spatial Services accepts
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BADGERYS CREEK RD BRADFIELD (102//DP1316278)
BlackAsh - Bushfire Assessment

DATE : 27/03/2026
Map Version: 1-2
Scale: 1:100,000

Aerial Imagery: Google Satellite 2026
Projected Coordinate System:
Name: GDA2020 MGA Zone 56
Projection: Transverse Mercator

Folder: D:\OneDrive - WizardTech Spatial Services\WizardTech\2025_2026 PROJECTS\BlackAsh\BA2608 Automated distribution centre\

Figure 7: Local fire history per National Parks & Wildlife Service and Geoscience Australia Fire History data

7. Legislative Framework

The site is located on designated BPL, mapped by Liverpool City Council and certified by the RFS Commissioner. BPL is designated in accordance with s.10.3 of the EP&A Act. BPL is land which can support a bushfire or is subject to bushfire attack. The BPL maps are a hazard map only and provide a trigger for formal assessment of new development and compliance with the NSW RFS document *Planning for Bushfire Protection 2019 (PBP)*.

This BAR has been completed to support the development application and demonstrate compliance with PBP. As an SSD the development application process is managed by DPHI, and whilst RFS advice is sought, no Bush Fire Safety Authority (BFSA) is required. The proposal complies with PBP requirements and does not rely on any performance solutions. Compliance with PBP and the National Construction Code (NCC) is required.

8. Bushfire Prone Land

BPL maps provide a trigger for the development assessment provisions and consideration of sites that are bushfire prone (Figure 5). The map identifies Category 1 and Category 3 vegetation and the bushfire prone land buffer across the wider IPG Master Plan site and impacting the ADC development site. As noted above however, the IPG Master Plan works will significantly modify the vegetation on the wider site, removing most of the vegetation and rehabilitating the riparian corridors.

The specific BPL mapping is therefore not relevant other than requiring a bushfire assessment to be undertaken.

The project site will be managed ongoing, meeting the definition of managed land as defined within PBP (p. 112):

Managed land is land that has vegetation removed or maintained to limit the spread and impact of bush fire. It may include existing developed land (i.e. residential, commercial or industrial), roads, golf course fairways, playgrounds or sports fields, vineyards, orchards, cultivated ornamental gardens and commercial nurseries. Most common will be gardens and lawns within curtilage of buildings. These areas will be managed to meet the requirements of an Asset Protection Zone.

9. Planning for Bushfire Protection 2019

The PBP guidelines are performance-based, seeking to achieve a safe outcome based on innovation and the specific circumstances of the individual site and development proposal. PBP provides a planning framework for developments in rural and urban areas close to land, which is likely to be affected by bushfire.

PBP sets out an overall framework consisting of an aim and objectives, specific objectives for defined development types, types of bushfire protection measures (BPM), which may be employed in a development, and performance criteria for each BPM. In this regard, the structure of PBP is similar to the structure of the NCC and provides considerable flexibility for outcomes. However, the aim of PBP in terms of ensuring appropriate consideration of risk and protection is paramount.

The proposal is categorised within PBP as 'other development'. As 'other development', it must meet the aim and objectives of PBP and the specific objectives for Buildings of Class 5-8 under the NCC (Figure 8).

The aim of PBP is:

to protect people and property from the impact of bushfires. It also helps ensure that the firefighters who come to their aid in an emergency are not placed in greater danger because of unsuitable or unsafe developments.

The objectives are to:

- i. *Afford buildings and their occupants protection from exposure to a bush fire*
- ii. *Provide for a defensible space to be located around buildings*
- iii. *Provide appropriate separation between a hazard and buildings which, in combination with other measures, minimises material ignition*
- iv. *Ensure that appropriate operational access and egress for emergency service personnel and residents is available*
- v. *Provide for ongoing management and maintenance of BPMs*
- vi. *Ensure that utility services are adequate to meet the needs of firefighters.*

8.3.1 Buildings of Class 5 to 8 under the NCC

Under the building classification system within the NCC, Class 5 to 8 buildings include offices, shops, factories, warehouses, public car parks and other commercial and industrial facilities.

The NCC does not provide for any bush fire specific performance requirements for these particular classes of buildings. As such AS 3959 and the NASH Standard are not considered as a set of Deemed to Satisfy provisions, however compliance with AS 3959 and the NASH Standard must be considered when meeting the aims and objectives of PBP.

Whilst bush fire is not captured in the NCC for Class 5-8 buildings, the following objectives will be applied in relation to access, water supply and services, and emergency and evacuation planning:

- to provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation;
- to provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;
- to provide adequate services of water for the protection of buildings during and after the passage of bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building; and
- provide for the storage of hazardous materials away from the hazard wherever possible.

The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for bush fire protection will need to be considered on a case-by-case basis.

Where a mixed use development is proposed to have a SFPP component, an appropriate mix of BPMs should be applied consistent with the SFPP provisions in Chapter 6.

Figure 8: Specific objectives for Class 5-8 buildings (PBP, p. 76)

9.1. Bushfire Protection Measures

PBP identifies a suite of Bushfire Protection Measures (BPM) that are used in combination to improve life safety, property protection and community resilience to bushfire attack. PBP promotes detailed site analysis and the application of a combination of BPM to achieve an acceptable outcome. The BPM work in combination to provide a suite of measures that meet the Aim and Objectives, and Chapter 8 "Other Development" of PBP. Appropriate combinations depend upon the bushfire risk, type of development, and the specific geographic location and site circumstances.

The types of protection measures include Asset Protection Zones (APZ), access, landscaping, water supply, building design and construction and emergency management arrangements as shown in Figure 9. These measures assist building and occupant survival during a bushfire. They also contribute to the safety of firefighters and members of the community occupying buildings during the passage of a bushfire front. These work in conjunction with building fire safety requirements under the NCC.

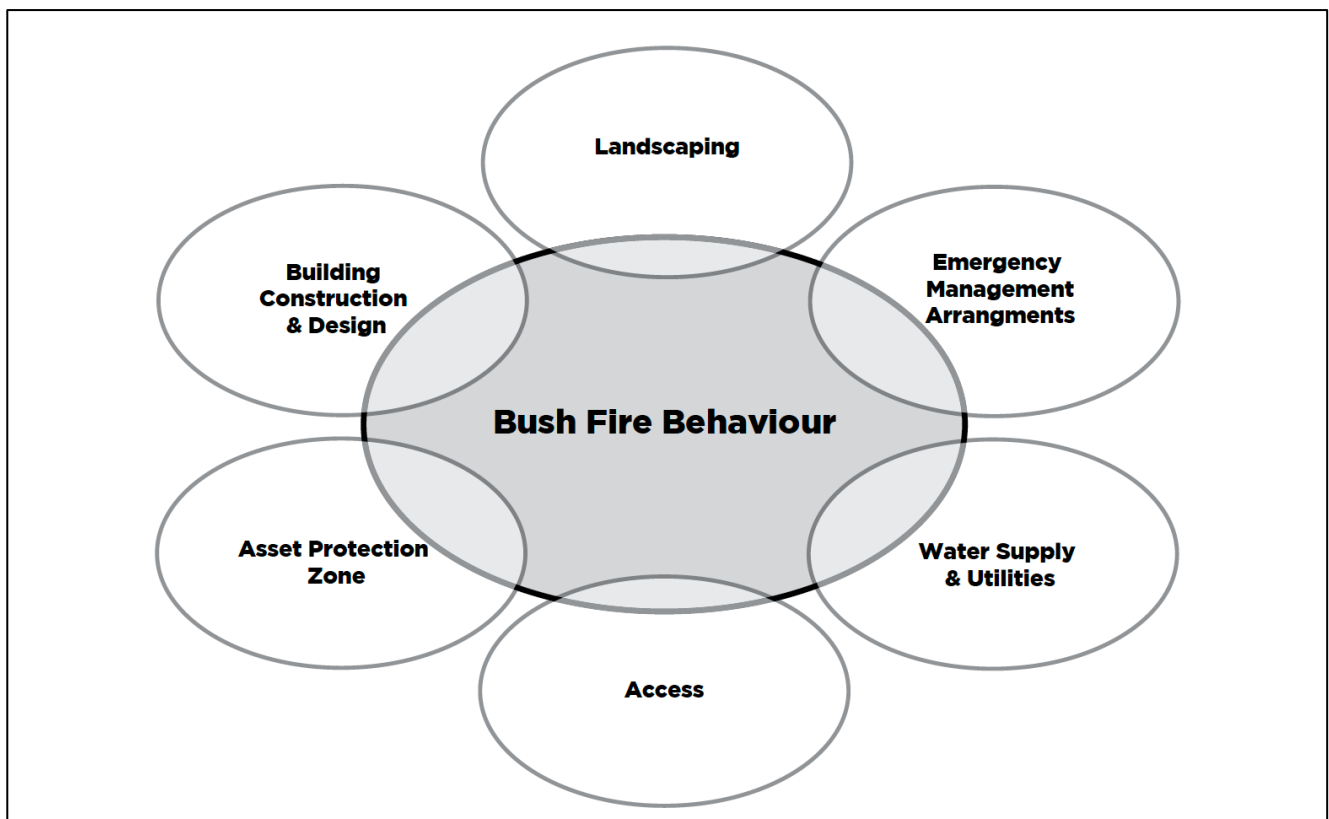


Figure 9: Bushfire Protection Measures in combination (PBP p.26)

10. Bushfire Threat Assessment

10.1. Bushfire Hazard

An assessment of the Bushfire prone land is necessary to determine the application of bushfire protection measures such as APZ locations, risk and Bushfire Attack Levels (BAL).

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

The bushfire hazard affecting the investigation area was assessed during site inspections and using recent aerial photographs for at least a distance of 140m from the perimeters of the investigation area (in line with PBP).

This assessment identifies the potential bushfire threat from outside of the site. The method used for this assessment is outlined in PBP and relies on the combination of vegetation, slope and design fire weather factors and is outlined below along with results.

10.2. Methodology

PBP provides a methodology to determine the bushfire threat and commensurate size of any APZ that may be required to offset possible bushfire attack. These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation.

The following assessment is prepared in accordance with the requirements of the *Environmental Planning and Assessment Act 1979* and the *Rural Fires Act 1997*. The methodology used in this assessment is in accordance with PBP Appendix 1 Site Assessment Methodology.

This assessment is based on the following resources:

- Planning for Bush Fire Protection 2019
- Council Bushfire Prone Land Map
- Aerial mapping
- Detailed GIS analysis

10.3. Fire Danger

For new development, PBP has designated the appropriate fire areas and corresponding Forest Fire Danger Rating (FFDI). The FFDI within PBP is based on a historical fire weather assessment which assumes a credible worst-case scenario and an absence of any other mitigating factors relating to aspect or prevailing winds. The site is in the Greater Sydney Region Fire Weather District and has an FFDI of 100.

10.4. Vegetation Analysis

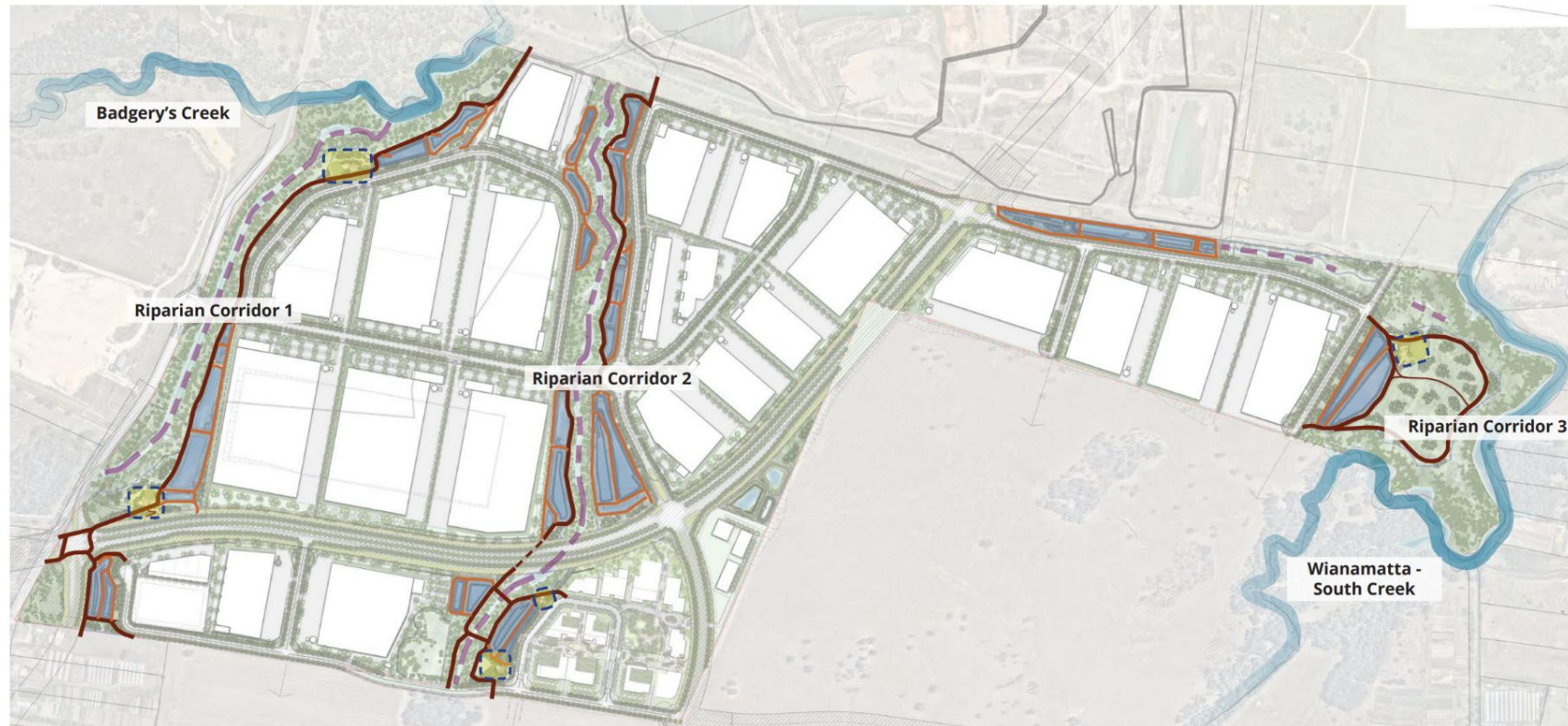
PBP requires a classification of the vegetation on and surrounding the site out to a distance of 140 metres from the boundaries of the property in accordance with the system for classification of vegetation contained in PBP.

The predominant vegetation is classified by structure or formation using the system adopted by *Ocean Shores to Desert Dunes* (Keith, 2004) and by the general description using PBP. There are 7 vegetation formations (with sub-formations) identified in PBP. Vegetation types give rise to radiant heat and fire behaviour characteristics. The predominant vegetation is determined over a distance of at least 140 metres in all directions from the proposed site boundary. Where a mix of vegetation types exist, the type providing the greater hazard is said to predominate.

The future vegetation formations based on the IPG Master Plan are used for this assessment. This is characterised by managed land to the north and south of the site, and the riparian corridors to the east and west of the site. The makeup of the riparian corridors is explored in detail in the BAR for the IPG Master Plan (Blackash, 13 February 2025). These corridors are characterised by narrow strips of core riparian land that will be restored as Forested Wetlands, a process that will take 20+ years to achieve. The overall corridors are narrow and linear, generally 90-120m wide with the core riparian vegetation typically 60-90m wide. These corridors will be re-established in accordance with detailed stormwater and landscape design, and large sections of these corridors will be actively managed in perpetuity.

There is significant managed land between the core riparian zone and the project site including shared pathways for active transport, active recreation areas and significant stormwater management infrastructure. The stormwater infrastructure is a mixture of permanent water (retention ponds) that are "managed land", and detention ponds that are periodically wet and dry and are characterised as Freshwater Wetlands for the purposes of bushfire assessment. Main shared paths are 4m wide and suitable for RFS tankers. The site itself will be managed land. Figure 10 is a plan view of the riparian corridors from the IPG Master Plan (2024), Figures 11 & 12 are sections showing the vegetation fragmentation, and the final vegetation for assessment is shown in Figure 13.

Riparian Corridors - Masterplan



Plan 1:8000 @ A3

Legend - Riparian Typologies

- 4m Wide Active Transport Corridor (within corridors)
- Gravel Maintenance Access paths (Publicly accessible)
- Existing 4th Order Stream
- Rehabilitated watercourse (1st, 2nd, 3rd Order Streams)
- ▭ Proposed Basin
- Open Space/ Amenity node

NOTE:

Please refer to the Landscape documentation set for Riparian Corridors (Appended to this report) for further/ more technical details on riparian corridor design, particularly in relation to civil design.



IPG Masterplan Bradfield
Public Domain Landscape Strategy



Figure 10: Riparian corridors from IPG Master Plan showing impact of managed areas (Site Image, 2024 p. 34).

Riparian Corridor 1 - Sections



Landscape Section 1:200 @ A3



Landscape Section 1:200 @ A3

Figure 11: Riparian corridor 1 sections showing paths, roads and setbacks forming part of effective APZ (Site Image, 2024. P. 50)

Riparian Corridor 2 - Sections



KEY PLAN



Landscape Section A 1:400 @ A3



Landscape Section B 1:400 @ A3

Figure 12: Riparian corridor 2 sections. Note bushfire risk reduced by fragmentation and access provision (Site Image, 2024, p. 58)

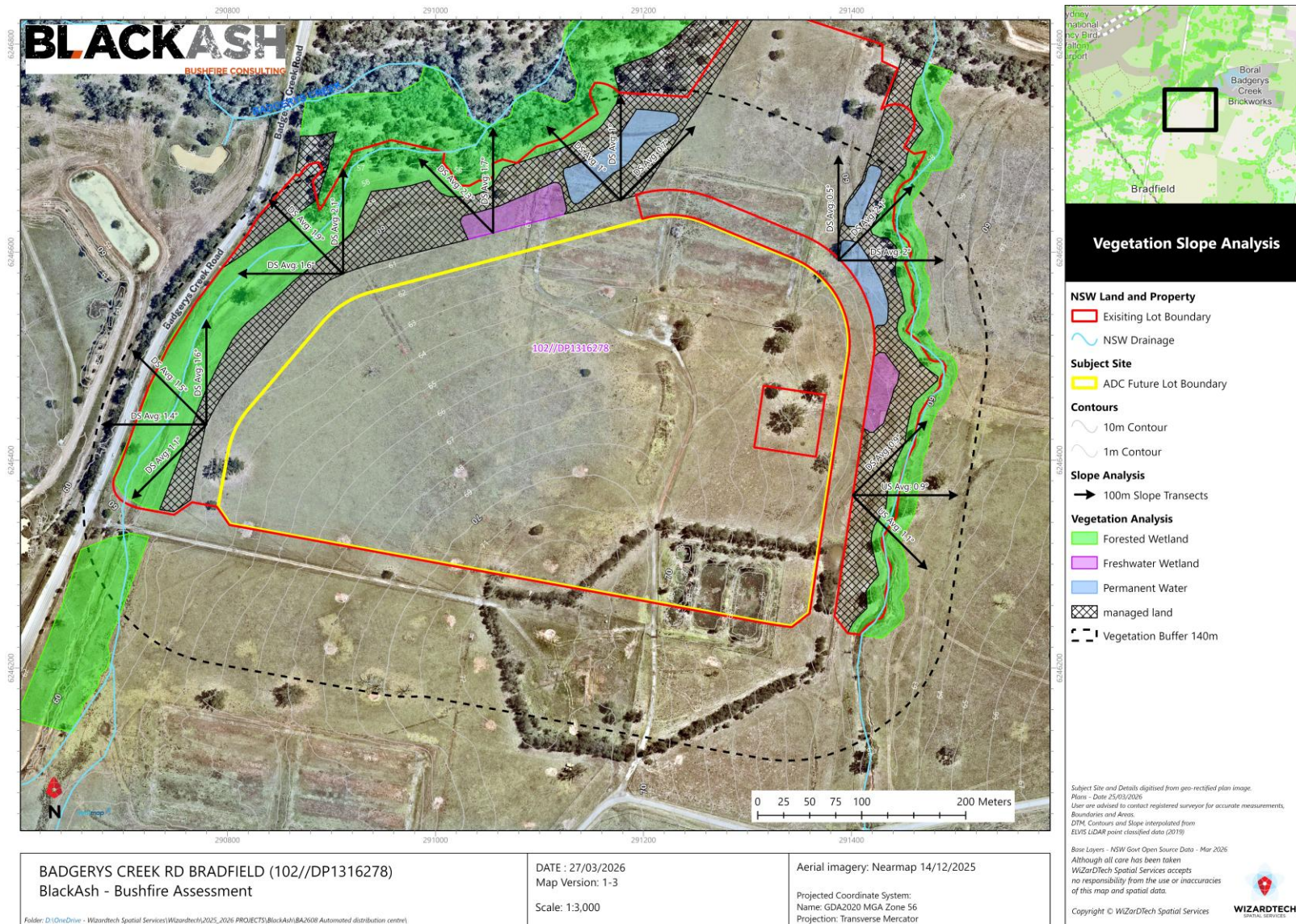


Figure 13: Vegetation and slope assessment

10.5. Slopes Influencing Bushfire Behavior

The RF Reg requires an assessment of the slope of the land on and surrounding the property out to a distance of 100 metres from the boundaries of the property or from the proposed development footprint.

The 'effective slope' influencing fire behaviour approaching the sites has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the worst-case scenario slope where the vegetation occurs over a 100 metre transect measured outwards from the development boundary or the existing/ proposed buildings.

In accordance with the methodology the slopes on the site are put into relevant classifications to enable the use of PBP acceptable solutions (deemed-to-satisfy) for simplicity and a conservative approach to managing bushfire risk.

The effective slopes for the site are shown in Figure 13.

10.6. Asset Protection Zones and Bushfire Attack Levels

An Asset Protection Zone (APZ) is a fuel-reduced area surrounding a built asset or structure which provides a buffer zone between a bushfire hazard vegetation and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The proposed ADC grounds would be managed to APZ standards for operational, movement, safety and maintenance purposes.

An APZ is land that has vegetation removed or maintained to a level that limits the spread and impact of bushfire. This may include:

- developed land (residential, commercial, or industrial),
- permanent roads, bike paths, parking areas, golf course fairways, playgrounds, sports fields,
- vineyards, orchards, cultivated ornamental gardens and commercial nurseries,
- most common will be gardens and lawns within curtilage of buildings.

As the APZ provides a fuel-reduced, physical separation between buildings and bush fire hazards, it is a key element in the suite of bushfire measures and the balance between size of APZ and construction standard is one that allows for some flexibility to incorporate less vegetation clearing and/or reduce costs through lower construction standards. The future core riparian vegetation (Forested Wetland) is already separated from the project site by infrastructure that effectively provides the required APZ offsite (managed for other primary purposes). In practical terms, the remaining vegetation needing an APZ is the Freshwater Wetland vegetation in the detention basins. The retention basins will contain permanent water. The required APZ setbacks are entirely managed through future roads surrounding the site. No formal APZ is required onsite, however the landscaping remaining onsite will be managed to APZ standards, with most of the site developed and therefore managed land. The entire site will be maintained to the standard of an Inner Protection Area as detailed in PBP Appendix 4 (p. 107).

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

Figure 14 shows most of the site and the buildings are BAL-Low and no specific bushfire construction standard requirements are applicable. No bushfire construction standard is needed to satisfy the aim and objectives of PBP, or to satisfy the specific requirements detailed in PBP Section 8.3.1 – buildings of Class 5 to 8 under the NCC.

Following discussion with, and confirmation by, the client and project team no specific BAL construction standard will be applied to this development.

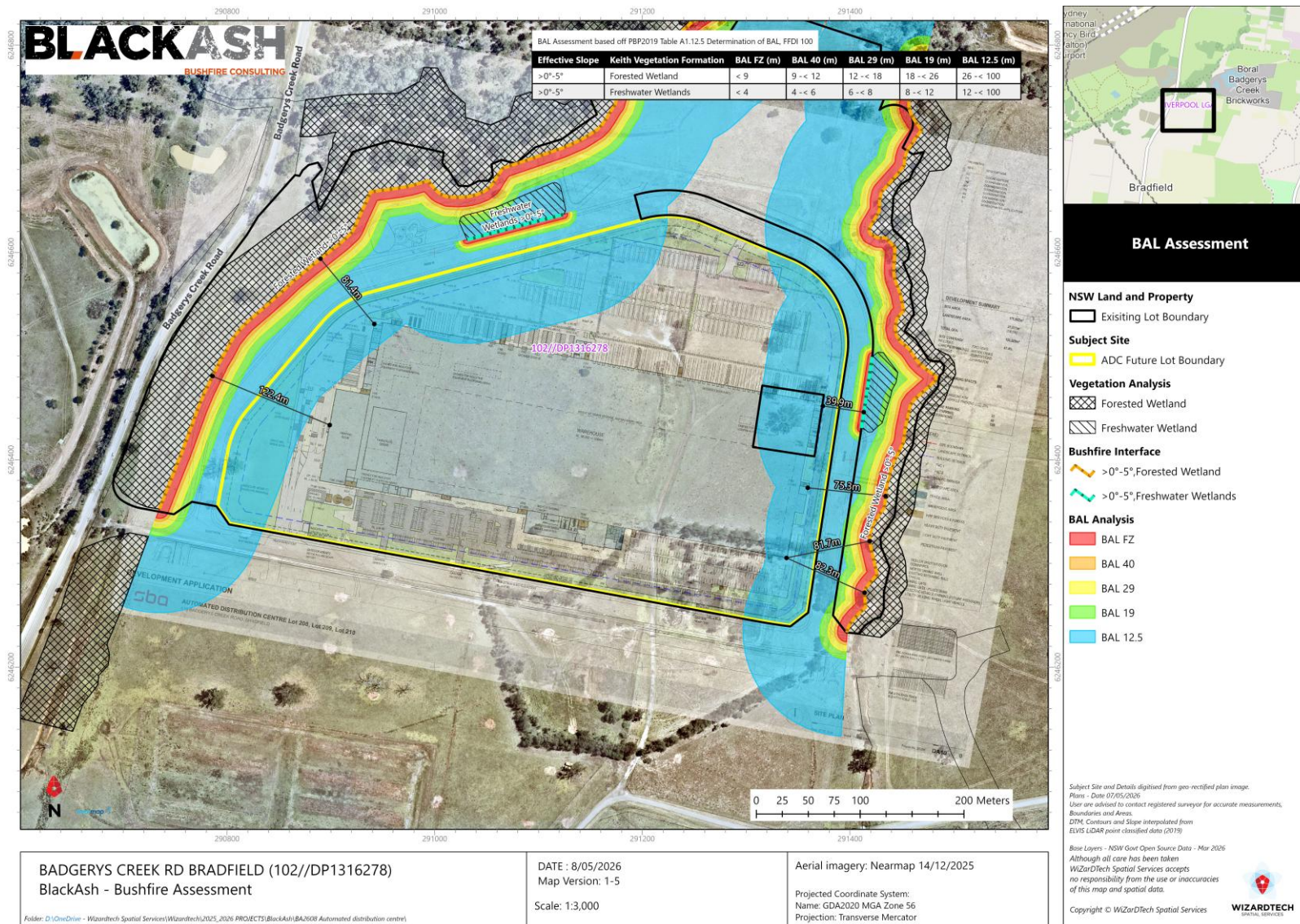


Figure 14: BAL ratings – majority of site is BAL-Low and extended distances between building and future hazard vegetation

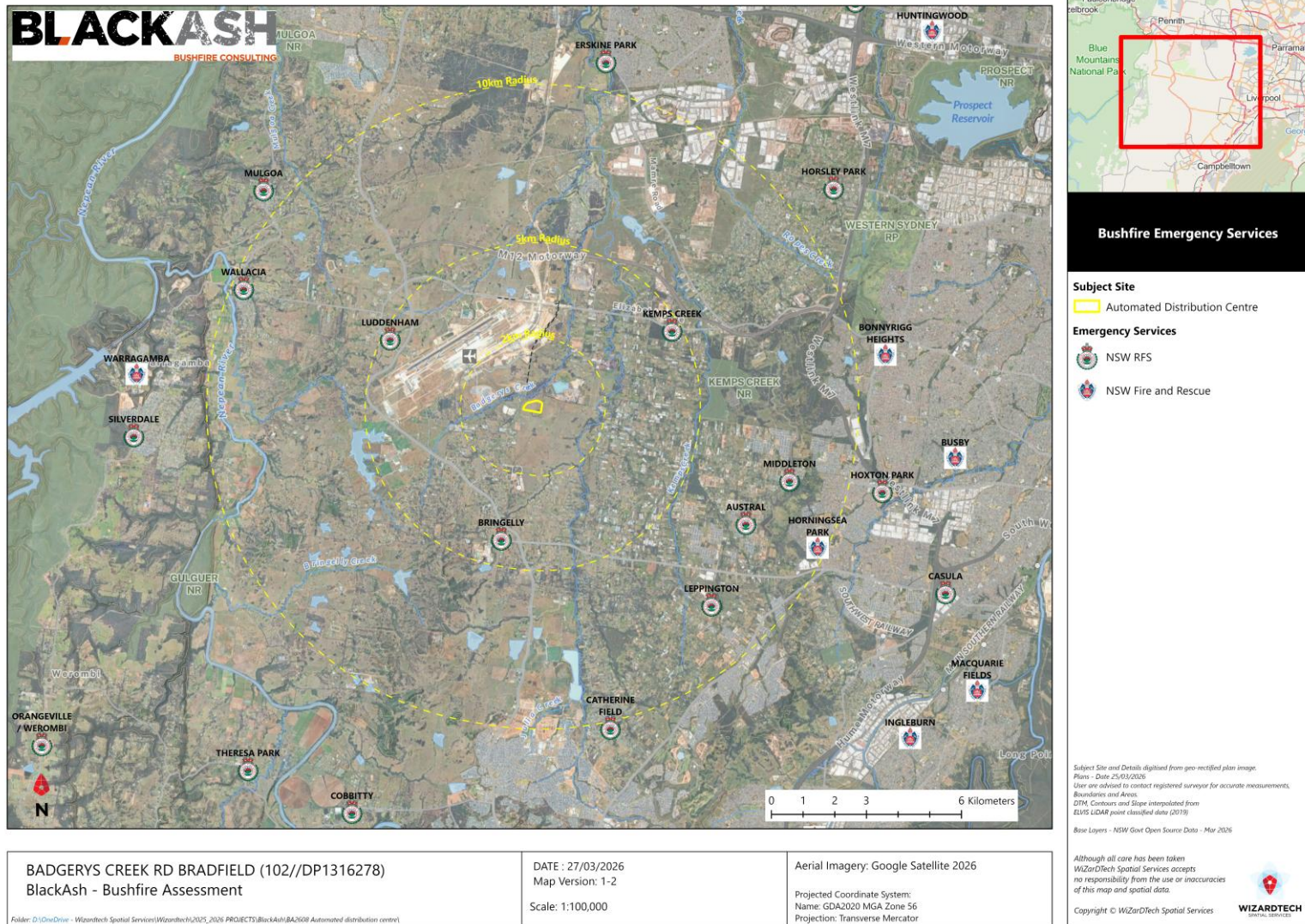


Figure 15: Existing fire services in local area

10.7. Access

The road infrastructure to be constructed to service the proposal is suitable for heavy vehicle movements and exceeds the minimum standards required for new subdivision in PBP. Multiple access points are provided to the future public road system. There is an internal perimeter road access provided to service the operation that exceeds all PBP standards, and the National Construction Code (NCC) access standards for large isolated buildings will be required which also exceed PBP standards.

10.8. Water Supply & Utilities

PBP (p. 47) requires that adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. The existing reticulated water service will be available to the proposed development and services provided in accordance with PBP. Additional fire protection required by the NCC for large isolated buildings will provide additional water as required and sprinkler systems etc as developed by the fire engineering team.

10.9. Evacuation and Emergency Management

As shown in Figure 15, there are significant fire services located within an approximate 15 minute response time of the site. Prior to occupation a *Bushfire Emergency Management and Evacuation Plan* (BEMEP) will be completed.

The SEARs require a BEMEP, however this is more suitably provided prior to occupation, allowing for detailed construction design in future stages to be taken into consideration and a greater understanding of operational issues within the ADC to be incorporated.

It is noted that similar approvals such as the ALDI Foods ADC development (SSD-76913969, approved 26 February 2026) directly south of this site have been conditioned in this way.

10.10. Landscaping

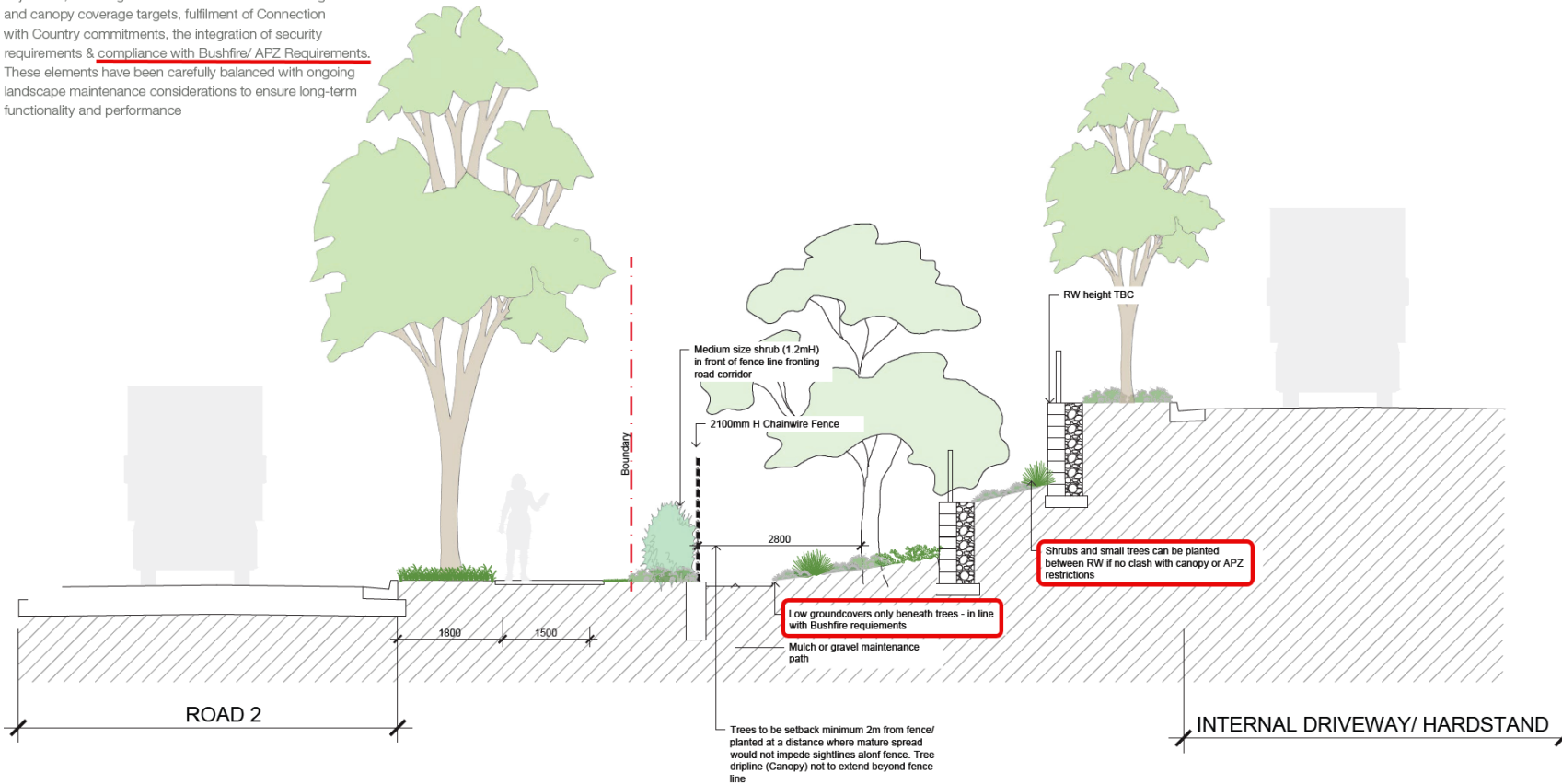
As discussed in 10.6 above, the entire site landscaping will be consistent with APZ standards. This has been coordinated with the landscape design and demonstrated in the landscape design report and plans from Site Image including the Landscape Design Approach shown as Figure 16.

Landscape Design Approach

Warehouse Security and Landscape Management

The landscape design has been developed to support the safety and security of facilities, in alignment with the client's regulated facilities management systems.

Key design considerations respond to multiple project objectives, including the achievement of urban cooling and canopy coverage targets, fulfilment of Connection with Country commitments, the integration of security requirements & compliance with Bushfire/ APZ Requirements. These elements have been carefully balanced with ongoing landscape maintenance considerations to ensure long-term functionality and performance



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Figure 16: Landscape Design Approach – annotated to highlight coordination with bushfire (Site Image, 2026)

11. Aim & Objectives Summary Table

The RF Reg requires an assessment of the extent to which the proposed development conforms with or deviates from the standards, aim and objectives and performance criteria set out in Chapter 8 of PBP. All development in Bushfire Prone Areas needs to comply with the aim and objectives of PBP. Table 3 is an assurance approach summary using expert judgement.

Table 3: Aim and Objectives of PBP (Section 1.1)

Aim	Meets Criteria	Comment
The aim of PBP is to use the NSW development assessment system to provide for the protection of human life (including fire fighters) and to minimise impacts on property from the threat of bushfire, while having due regard to development potential, onsite amenity and the protection of the environment.	Yes	The entire site will be managed land or APZ standard landscaping. The site is well located, Low Risk, and no specific construction standards are required for this type of development. A detailed <i>Bushfire Emergency Management and Evacuation Plan</i> should be developed prior to occupation to manage the site ongoing.
Objectives	Meets Criteria	Comment
Afford occupants of any building adequate protection from exposure to a bushfire.	Yes	The entire site is managed as an APZ.
Provide for defensible space to be located around buildings.	Yes	Provided by building setbacks.
Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent direct flame contact and material ignition.	Yes	Provided by building setbacks.
Ensure that safe operational access and egress for emergency service personnel and occupants is available.	Yes	The site has access to public roads, and access and egress for emergency vehicles and evacuation is adequate.
Provide for ongoing management and maintenance of bushfire protection measures, including fuel loads, in the asset protection zone.	Yes	The entire site will be managed land or APZ standard landscaping.
Ensure that utility services are adequate to meet the needs of firefighters (and others assisting in bushfire fighting).	Yes	Reticulated water is available to the site.

12. Mitigation Measures

1. The entire site shall be managed to the standard of an Inner Protection Area APZ in accordance with Appendix 4 of *Planning for Bushfire Protection 2019*.
2. A Bushfire Emergency Management and Evacuation Plan shall be prepared prior to occupation of the development.

13. Conclusion

This Bushfire Assessment Report demonstrates the proposed site, and design meets the requirements of the regulatory framework with respect to bushfire risk management. Consultation with RFS via email confirms this assessment will address all requirements. This assessment has demonstrated that the proposed development can comply with *Planning for Bushfire Protection 2019* when constructed in accordance with the recommendations.



David Lemcke | Senior Planner & Bushfire Specialist

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Fire Protection Association of Australia BPAD Level 3 – 68670

Master of Environmental Planning; Grad. Dip. Bushfire Protection; Grad. Dip. Urban & Regional Planning; B.A.; Adv. Dip. Public Safety (Emergency Management); Dip. Management.



Appendix 1 References

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

Standards Australia. 2021. *Fire hydrant installations - System design, installation and commissioning*, AS 2419.1:2021, SAI Global, Sydney

Standards Australia. 2014. *The storage and handling of LP Gas*, AS/NZS 1596:2014, SAI Global, Sydney.

Standards Australia. 2018. *Construction of buildings in bushfire-prone areas*, AS 3959:2018. SAI Global, Sydney.

Australian Building Codes Board *Building Code of Australia Volumes 1&2*

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change

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

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

Appendix 2 Staff Curriculum vitae



Curriculum Vitae

David Lemcke

Senior Planner & Bushfire Specialist

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Summary

David is an experienced bushfire, planning and land management professional with over 20 years in local government and 4 years as a private sector bushfire consultant. He has undertaken a wide range of development assessments and strategic planning projects in both regulatory and proponent roles. He was Central Coast Council's bushfire subject matter expert for over 15 years, including representation in the Land & Environment Court and numerous working groups. He has a deep understanding of contemporary, practical bushfire management from a range of perspectives due to decades of experience as a public land manager and a Rural Fire Service (RFS) volunteer, and now applies this expertise with a range of clients across the private and public sectors.

David has served as Council's staff representative on the Wyong and Central Coast Bushfire Management Committees since 2007 and was instrumental in developing and contributing to emergency management planning including preparation of Bush Fire Risk Management Plans, Fire Access & Fire Trail Plan, developing local policy and pre-incident planning, and delivering community engagement.

From 2010 he was the program manager for the Wyong Shire Council and then Central Coast Council (CCC) bushfire program. These programs won several awards, sponsored research and were renowned for innovation and improvement of local government bushfire management. The CCC program included management of over 220 fire trails, management of 275 mechanical Asset Protection Zones, Hazard Reduction burning, access management, environmental protection and community engagement using both contractors and internal staff teams.

David has been active in policy development at State level, being the Local Government NSW representative on numerous RFS policy committees including the Review of the Bushfire Environmental Assessment Code and delivering numerous conference presentations.

David is an active senior RFS volunteer, with 23 years in the service, having been a field officer for 18 years.

Areas of Expertise

- Rezoning and strategic bushfire studies
- Residential, commercial and industrial development assessment
- Infrastructure vulnerability and consequence management
- Bushfire planning, design & construction requirements in accordance with National Standards
- Bushfire Management Plans for large and small scale holdings
- Evacuation planning and implementation
- Technical and strategic advice
- Innovative policy development

Qualifications

Graduate Diploma of Bushfire Protection
Western Sydney University, 2025.

Advanced Diploma of Public Safety (Emergency Management)
Australian Emergency Management Institute, 2015

Diploma of Management
Management Consultancy International, 2012

Master of Environmental Planning
Macquarie University, 2005

Graduate Diploma Urban & Regional Planning
University of New England, 2000

Certificate 2 Bush Regeneration
Blue Mountains TAFE, 2000

Bachelor of Arts (Geography)
University of New England, 1998

Rural Fire Service
Various foundational, technical, specialist and incident management qualifications
2002 - current

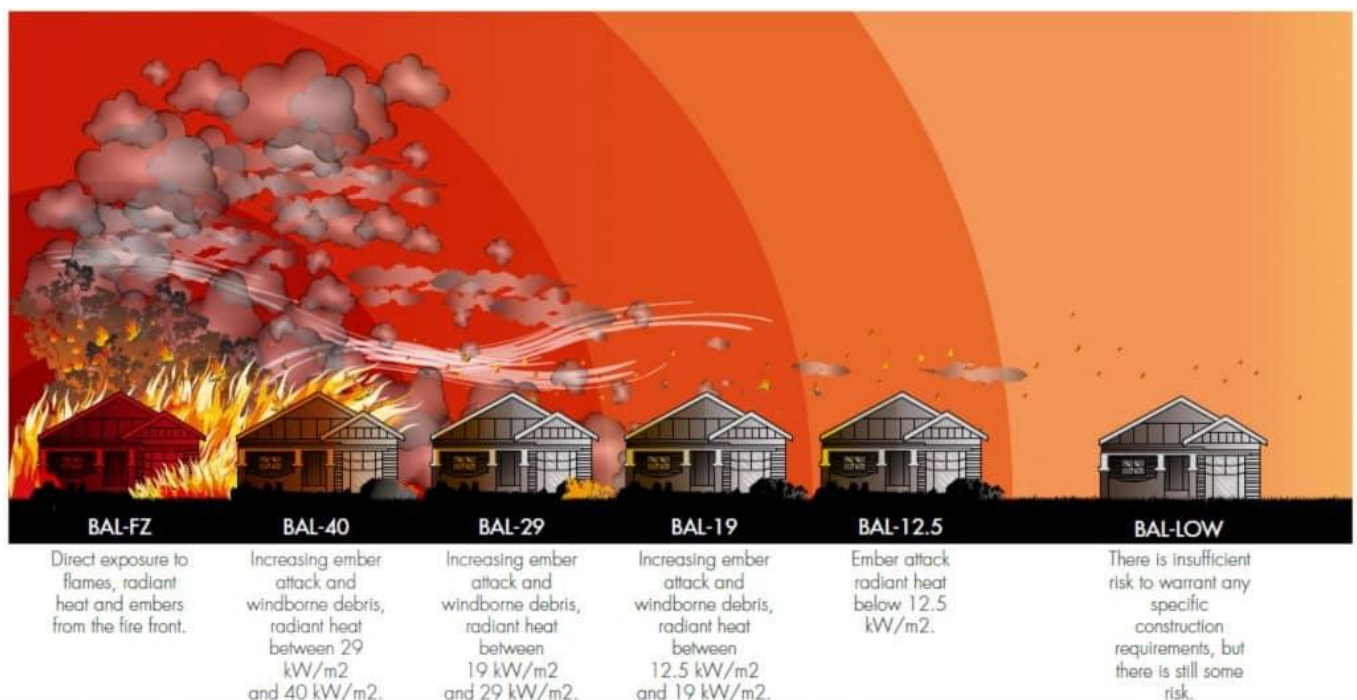
Appendix 3 Overview of bushfire attack mechanisms

Bushfires have long remained a fundamental characteristic of the Australian bush landscape, and likewise Australians have long retained a strong affinity with bush environments. There remain a number of common factors which are associated with bushfire hazard and events and these include the incidence of fire weather, availability of fuel along with its type, structure and continuity or fragmentation, and the context of development at the bushland interface.

Bushfire attack refers to the various methods in which bushfire may impact upon life and property and principally encompass:

- Direct flame contact
- Ember attack
- Radiant heat flux
- Fire-driven wind
- Smoke

In the progression of a bushfire event, these methods interact either exclusively or in concert and are explained in the following section.



Forms of bushfire attack with relation to BAL construction standards (CFA; AS3959:2018)

Direct flame contact

Direct flame attack refers to flame contact from the main fire front, where the flame which engulfs burning vegetation is one and the same as that which assumes contact with the building. It is the highest level of bushfire attack because of direct flame contact from the fire front in addition to heat flux and ember attack.

Ember attack

The convective forces of bushfire raise burning embers into the atmosphere on prevailing winds and deposit them to the ground ahead of the fire front. Typically, ember attack occurs approximately 30 minutes prior to the arrival of the fire front and continues during the impact of the fire front and for several hours afterwards, thus it is the longest lasting impact of bushfire attack.

Ember attack is attack by smoldering 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.

In essence, building loss via ember attack relates largely to the vulnerabilities and peculiarities of each building, its distance from hazardous vegetation and whether an occupant (or the like) is present to actively defend it. It is estimated by the CSIRO that approximately 80 to 90 per cent of buildings lost by bushfire are lost as a result of ember attack either in isolation or in combination with radiant heat impact.

Radiant heat flux

Exposure to radiant heat remains one of the leading causes of fatalities associated with bushfire events. Measured in kilowatts per square metre (kWm^2), radiant heat is the heat energy released from the fire front which radiates to the surrounding environment, deteriorating rapidly over distance.

In terms of impact on buildings, radiant heat can pre-heat materials making them more susceptible to ignition or can cause non-piloted ignition of certain materials if the energy transmitted reaches a threshold level. Radiant heat can also damage building materials such as window glazing, allowing openings into a building through which embers may enter. Radiant heat impact is an especially important factor in building-to-building ignition.

In terms of radiant heat exposure for humans, it can cause pain to unprotected skin in milder situations or life threatening and fatal injury in higher exposure thresholds. The effects of radiant heat are shown in Table 2.

Table 4 The effects of radiant heat (NSWRFS 2006; Drysdale, 1999; CFA, 2012)

Radiant heat flux kW/m ²	Observed effect
1	Maximum for indefinite skin exposure
3	Hazardous conditions, firefighters expected to operate for a short period (10 minutes)
4.7	Extreme conditions, firefighters in protective clothing will feel pain after 60 seconds of exposure
6.4	Pain after 8 seconds of skin exposure
7	Likely to be fatal to unprotected person after exposure for several minutes
10	Critical conditions, firefighters not expected to operate in these conditions although they may be encountered. Considered to be life threatening in less than 60 seconds in protective equipment. Fabrics inside a building could ignite spontaneously with long exposure.
12.5 (BAL-12.5)	Volatiles from wood may be ignited by pilot after prolonged exposure. Standard float glass could fail during the passage of a bushfire.
16	Blistering of skin after 5 seconds
19 (BAL-19)	Screened float glass could fail during the passage of a bushfire.
29 (BAL-29)	Ignition of most timbers without piloted ignition (3 minutes of exposure) during the passage of a bushfire. Toughened glass could fail.
40+	Flame zone – exposure to direct flame contact from fire front

Fire driven wind

The convective forces of bushfire typically result in strong to gale force fire-driven winds which in itself, can lead to building damage. The typical effects of fire driven wind include the conveyance of embers, damage from branches and debris hitting the building, as well as direct damage to vulnerable building components such as lifting roofs or roof materials and the damage / breakage of windows.

Smoke

Smoke emission remains a secondary effect of bushfire and is one which is typically not addressed by bushfire assessments. Irrespective, it is important to note the potentially severe impact of smoke emission on the human respiratory system. It can lead to difficulties in breathing, severe coughing, blurred or otherwise compromised vision, and can prove fatal. It is also important to note that toxic smoke can occur during bushfire, particularly where buildings or materials are ignited. With regard to evacuation, it can reduce visibility and create difficulties for particularly vulnerable persons.

Appendix 4 Asset Protection Zone Requirements

Source PBP 2019. P. 106-108

APPENDIX 4

ASSET PROTECTION ZONE REQUIREMENTS

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps to reduce vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

Careful attention should be paid to species selection, their location relative to their flammability, minimising continuity of vegetation (horizontally and vertically), and ongoing maintenance to remove flammable fuels (leaf litter, twigs and debris).

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset Protection Zones

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at the NSW RFS Website www.rfs.nsw.gov.au.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows for suppression of fire;
- an area from which backburning or hazard reduction can be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Bush fire fuels should be minimised within an APZ. This is so that the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the building;
- damage to the building asset from intense radiant heat; and
- ember attack.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type and bush fire threat. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an Inner Protection Area (IPA) and an Outer Protection Area (OPA).

A4.1.1 Inner Protection Areas (IPAs)

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

A4.1.2 Outer Protection Areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. It is an area where there is maintenance of the understorey and some separation in the canopy. The reduction of fuel in this area aims to decrease the intensity of an approaching fire and restricts the potential for fire spread from crowns; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

When establishing and maintaining an OPA the following requirements apply:

Trees

- tree canopy cover should be less than 30%; and
- canopies should be separated by 2 to 5m.

Shrubs

- shrubs should not form a continuous canopy; and
- shrubs should form no more than 20% of ground cover.

Grass

- grass should be kept mown to a height of less than 100mm; and
- leaf and other debris should be removed.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA as described above should be undertaken regularly, particularly in advance of the bush fire season.

Figure A4.1

Typical Inner and Outer Protection Areas.

