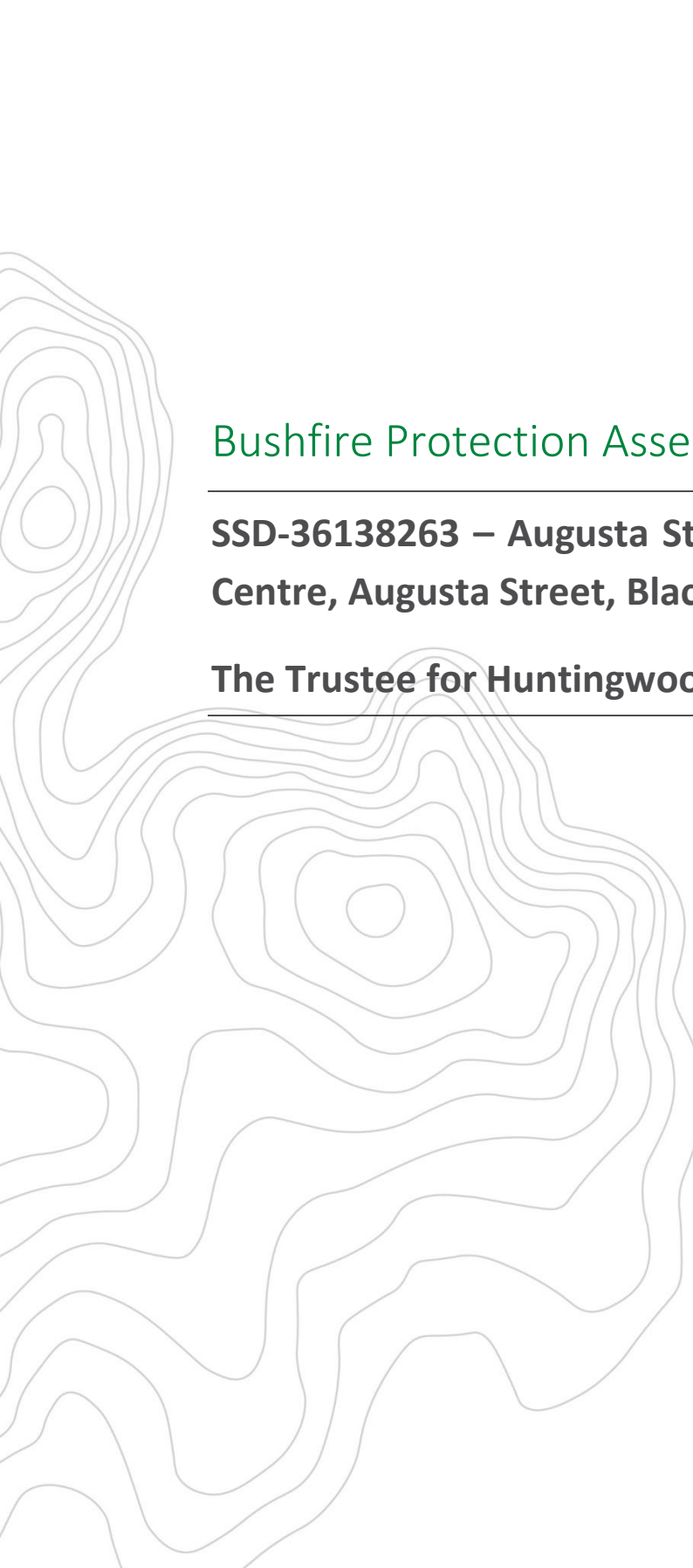


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Bushfire Protection Assessment

**SSD-36138263 – Augusta Street Warehouse and Distribution
Centre, Augusta Street, Blacktown**

The Trustee for Huntingwood Property Trust

DOCUMENT TRACKING

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Template 2.8.1

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Abbreviations

Abbreviation	Description
AS 3959	Australian Standard AS 3959-2018 'Construction of buildings in bushfire prone areas'
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BFPL	Bush fire prone land
BPM	Bushfire protection measures
DA	Development Application
DtS	Deemed-to-Satisfy
FDI	Fire Danger Index
IPA	Inner Protection Area
NASH	National Association of Steel-framed Housing
NCC	National Construction Code
PBP	'Planning for Bush Fire Protection 2019' and 'Planning for Bushfire Protection Addendum 2022'
RFS	NSW Rural Fire Service
SSD	State Significant Development

1. Property and proposal

1.1 Introduction

Eco Logical Australia Pty Ltd (ELA) has been commissioned by The Trustee for Huntingwood Property Trust to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the State Significant Development Application (SSD- 36138263) for the proposed Augusta Street Warehouse and Distribution Centre at Augusta Street, Blacktown.

The site is located at Augusta Street, Blacktown, within the Blacktown local government area (LGA). The site area covers approximately 26.64 ha and is approximately 3.3 km south of the Blacktown commercial centre. The site is identified in Figure 1 below.

Table 1 identifies the subject property and outlines the type of development proposed. The proposed development is identified in Figure 2

Table 1: Subject site and development proposal summary

Street address:	Augusta Street, Blacktown
Postcode:	2148
Lot/DP no:	Lot 1 DP835264 Lots 218-219 DP457024 Lot 2151 DP135859 Lot 2 DP516449 Lot 163-164, 168-188 and 216 DP8716 Lot 1 DP119616 Lots 4-6 DP226294 Lots 50-52 DP1144623 Lot 7 DP803359 Lots 6-10 DP801210 Lot 4 DP585492 Lot 4 DP583442 ▪ Lot 2 DP1263824.
Local Government Area:	Blacktown City Council
Fire Danger Index (FDI)	100
Current land zoning:	IN1 and IN2 Blacktown City Council LEP IN1 general industrial under SEPP (Industry and Employment) 2021
Type of development proposed:	State Significant Development (SSD) of a warehouse and distribution facility (Commercial / Industrial)

The project has been assessed against industry specific Secretary's Environmental Assessment Requirements (SEARs) for warehouses and distribution centres. The SEARs (warehouses and distribution centres) require an assessment of bushfire. These requirements are addressed in Table 2 below.

1.1.1 The Secretary's Environmental Assessment Requirements

The SEARs have been issued in respect of the proposal. Table 2 below indicates the areas of the report that address each of these components.

Table 2: How the report addresses the SEARS

Key issue of SEARS	Addressed by Section of the Report
If the development is on bush fire prone land, or a bush fire threat is identified on or adjoining the site, provide a bush fire assessment that details proposed bush fire protection measures and demonstrates compliance with Planning for Bush Fire Protection.	Section 1.3 presents requirements of Planning for Bush Fire Protection Section 2 presents the bushfire hazard assessment Section 3 presents bushfire protection measures

1.1.2 Huntingwood Precinct Development Control Plan

This report demonstrates compliance with the Huntingwood Precinct Development Control Plan (DCP; Blacktown City Council 2011 and as amended 2020). Table 3 below indicates how these requirements have been met.

Table 3: Compliance with Huntingwood Precinct Development Control Plan

Reference	Objectives	Report Section	Proposal Compliance
Section 6.2 Bushfire Management	Ensure the protection of life and property from the threat of fire.	Section 3	Complies The proposal meets the specific aims and objectives for industrial and commercial development. Compliance has been assessed and determined based on achieving the requirements of Section 8 of PBP.
	Manage fire risk in the Precinct so as to minimise inappropriate fire regimes that may affect the core habitat conservation area	Section 3	Complies Fire risk is managed by the application of the requirements of Section 8 of PBP for industrial and commercial development, thus minimising the risk of inappropriate fire regimes within conservation areas.



Figure 1: Site location

1.2 Description of proposal

The proposal is for a commercial/industrial development with a gross floor area of approximately 134,565 m².

The proposed SSDA seeks approval to redevelop the site to accommodate a warehouse and distribution centre with the following:

- Site establishment works, including tree removal, minor excavation / bulk earthworks;
- Construction and operation of four (4) new warehouses comprising a multi-level warehouse building on the eastern part of the site and multiple warehouse buildings on the western part of the site. The buildings will include ancillary office space;
- The warehouse and distribution tenancies are proposed to be operated 24 hours/day 7 days a week;
- Other associated works including landscaping, at-grade parking and general site improvements;
- Business identification signage and wayfinding signage;
- Vehicle access provided via Augusta Street and a new proposed access from the Great Western Highway;
- Lot consolidation of properties; and
- Riparian planting and landscaping will be provided within the Conservation Areas and along the site boundaries.

1.3 Assessment process

The development is located on land identified as bushfire prone on the Bushfire Prone Land layer within the ePlanning Spatial Viewer¹

The proposal was assessed in accordance with *Planning for Bush Fire Protection 2019* (RFS 2019), and *Planning for Bushfire Protection Addendum 2022* (RFS 2022) herein collectively referred to as PBP. The proposal is for a commercial development and therefore, has been assessed in accordance with the aims and objectives of PBP. Chapter 7 of PBP has been utilised as a guide in developing relevant bushfire protection measures (BMP) commensurate with the bushfire risk to the site.

This assessment is based on the following information sources:

- Background documentation provided by LOGOS PROPERTY;
- Information contained within the site plan prepared by Pace Architects dwg no. 220207-DA-001 issue D (dated 21 August 2023);
- Information contained within the Landscape Strategy prepared by Habit8 project no.H8-22032 revision I (dated 6 September 2023);
- GIS analysis including online spatial resources (i.e. Nearmap and the NSW Government Planning Portal); and
- Site inspection undertaken by ELA bushfire consultant on 29 April 2022

¹ <https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>

Table 4 identifies the BPM assessed in this report.

Table 4: Summary of bushfire protection measures assessed

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☐	☒	3.3
Access	☐	☒	3.4
Water supplies	☐	☒	3.5
Electricity services	☐	☒	3.6
Gas services	☐	☒	3.7
Construction standards	☐	☒	3.8
Landscaping	☐	☒	3.9

1.4 Significant environmental features

An assessment of significant environmental features, threatened species, populations or ecological communities under the *Biodiversity Conservation Act 2016* that may potentially be affected by the proposed bushfire protection measures has not been undertaken in this report as it is covered by other parts of the SSD (DA) process.

The impact footprint of the BPM (e.g. Asset Protection Zone (APZ)) is clearly identified within this report and therefore capable of being assessed by suitably qualified people as required. Department of Planning and Environment is the determining authority for this development; they will assess more thoroughly any potential environmental issues.

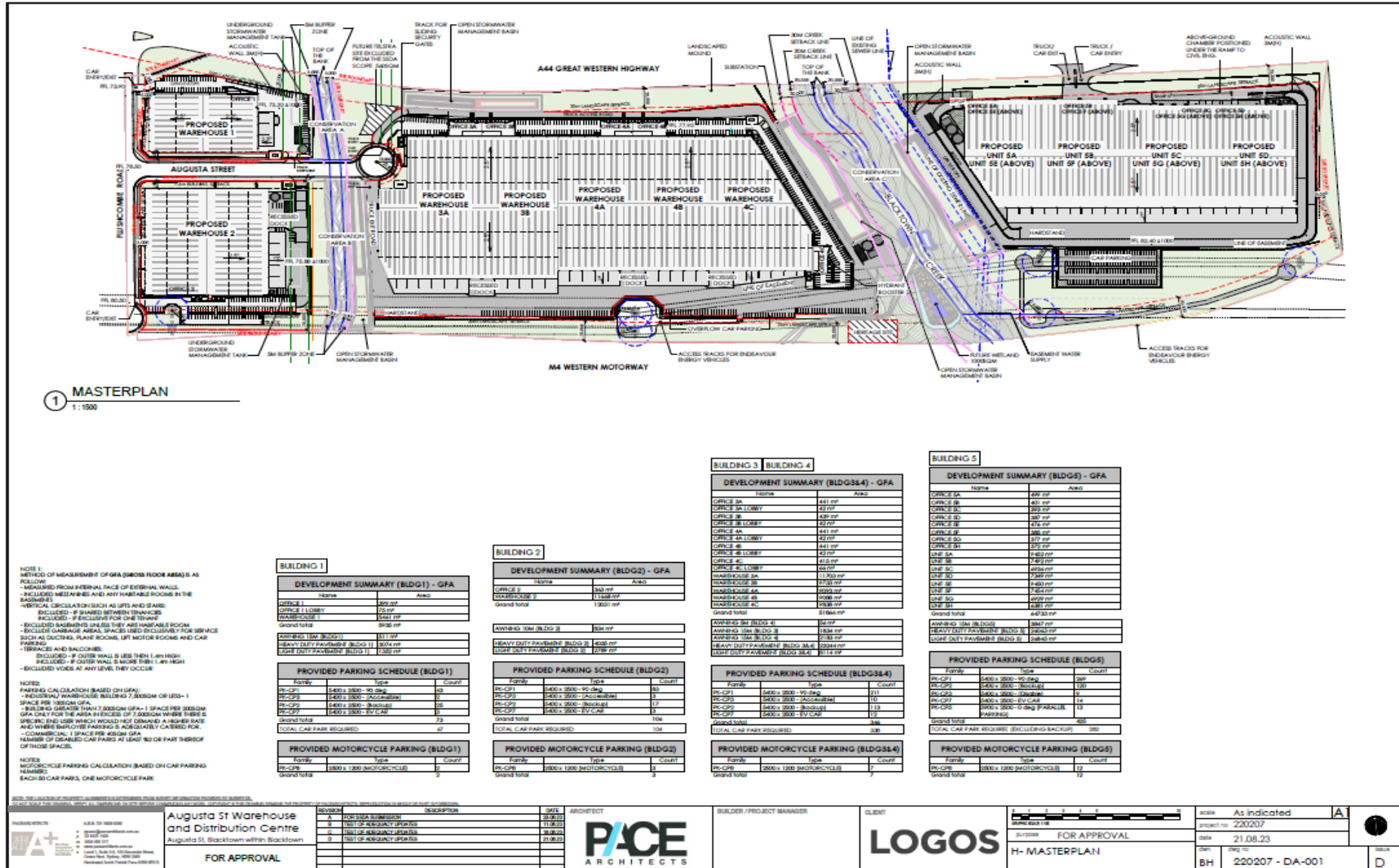


Figure 2: Proposed development

2. Bushfire hazard assessment

2.1 Process

The site assessment methodology set out in Appendix 1 of PBP has been utilised in this assessment to determine the APZ requirements.

Figure 4 and Table 5 show the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the development from various directions.

2.2 Vegetation assessment

In accordance with PBP, the predominant vegetation formation has been assessed for a distance of at least 140 m from the subject land in all directions.

The predominant vegetation has been determined from online vegetation mapping (DPIE 2016) and revised by site assessment.

2.3 Slope assessment

In accordance with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development under the classified vegetation.

The effective slope has been determined from 2 m contour data.

2.4 Summary of assessment

Figure 4 shows the effective slope and predominant vegetation representing the highest bushfire threat potentially posed to the development from various directions as well as bushfire hazard vegetation contained within the subject land.

The predominant bushfire hazard vegetation is identified as PCT 849 (DPE 2016) Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion which is classified as ‘grassy woodland’ under PBP.

The external bushfire hazards are separated from the subject land by major road infrastructure to the north, east, south and west, and suitable separation distances to these hazards is provided by these roads.

The Masterplan design proposes conservation areas, riparian planting and landscaped buffers along the northern boundary of the subject land between the Great Western Highway and existing residential development, an area to the east adjacent to the Prospect Hwy and along the southern and western boundaries. Figure 3 shows the proposed landscape strategy.

While the proposed conservation planting areas are expected to be revegetated as grassy woodland, some of these areas can be considered low hazard (reduced APZ dimensions) due to their shape and size that does not provide a fire run greater than 50 m towards the proposed buildings. Figure 4 shows the proposed landscaping and bushfire hazard assessment.

Those areas of proposed landscaping identified as entry feature planting and carpark and office planting are considered to meet the specifications of low threat vegetation and have been excluded in accordance with A1.10 of PBP. Proposed conservation areas (setback) between Flushcombe St and

proposed buildings 1 and 2 are also considered to meet the specifications of low threat vegetation (windbreak) and excluded in accordance with A1.10 of PBP. These areas will be subject to ongoing management to APZ standards.

LANDSCAPE STRATEGY

KEY

Entry Feature Planting 1,943.22 sqm	Conservation 23,411.38 sqm
Conservation (Setback) 14,664.62 sqm	Conservation (Under Electrical Easement) 38,610.03 sqm
Carpark and Office Planting 3,616.13 sqm	Conservation Planting (Bioretention Basins) 11,672.90 sqm

- NOTE:
1. Refer to Plant Schedules for species lists.
 2. All Conservation Areas are subject to VMP.

PROPOSED CONSERVATION OUTCOME ON SITE:

STRATEGY	APPROXIMATE AREA
AREA FOR CONSERVATION	
Conservation setback from roads	1.5 ha
Conservation associated with drainage lines (excl area under Electricity Easement)	2.3 ha
Conservation (under Electricity Easement)	3.5 ha
Conservation Planting (bioretention basins)	1.2 ha
TOTAL	8.6 ha
Area not included in area calculated for conservation (these area provide some potential habitat, especially arboreal and vitiferae)	
Entry Feature Planting	0.2 ha
Carpark and Office Planting	0.6 ha
TOTAL	0.8 ha
TOTAL LANDSCAPE AREA	9.4 ha



PROJECT HUNTINGWOOD LOGISTICS ESTATE AUGUSTA ST, HUNTINGWOOD EAST, NSW	DRAWING TITLE LANDSCAPE STRATEGY	PROJECT NO. H8-22032	PURPOSE CLIENT REVIEW NTS	SCALE	REVISION I	DATE 06.09.2023	DRAWN DG	CHECKED DV	PAGE LD7	CLIENT LOGOS	0 10 50 100 150m SCALE 1:3000 AT A3	HABIT8 LANDSCAPE ARCHITECTURE & PLANNING SYDNEY AUSTRALIA BELLINGHAM AUSTRALIA MELBOURNE AUSTRALIA PERTH AUSTRALIA www.habit8.com.au
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Figure 3: Landscape Strategy

Table 5: Bushfire hazard assessment, APZ requirements and BALs

Slope Interface #	Slope	Vegetation Formation	Residential APZ	Available APZ	Bushfire Attack Level (BAL)	Comments
Building 1						
1 North	All upslope and flat land	Low Hazard (Rainforest)	11 m	≥11 m	BAL-29	APZ and defensible space provided by perimeter access, car parking and existing public roads.
1 East	All upslope and flat land	Low Hazard (Rainforest)	11 m	≥40 m	BAL-12.5	APZ and defensible space provided by perimeter access and car parking
Building 2						
2 East	All upslope and flat land	Low Hazard (Rainforest)	11 m	≥30 m	BAL-12.5	APZ and defensible space provided by perimeter access
Buildings 3 and 4						
3 West	All upslope and flat land	Low Hazard (Rainforest)	11 m	≥20 m	BAL-19	APZ and defensible space provided by perimeter access and car parking.
4 Northwest	All upslope and flat land	Low Hazard (Rainforest)	11 m	≥25 m	BAL-12.5	APZ and defensible space provided by perimeter access
5 North	>0° to 5° downslope	Low Hazard (Rainforest)	14 m	≥20 m	BAL-19	APZ and defensible space provided by perimeter access and car parking.
6 East	>0° to 5° downslope	Grassy and semi-arid woodland	16 m	≥16 m	BAL-29	APZ and defensible space provided by perimeter access
7 South	All upslope and flat land	Low Hazard (Rainforest)	11	≥45 m	BAL-12.5	APZ and defensible space provided by perimeter access and car parking.
Building 5						
8 West	>0° to 5° downslope	Grassy and semi-arid woodland	16 m	≥16 m	BAL-29	APZ and defensible space provided by perimeter access and car parking.

Slope Interface #	Slope	Vegetation Formation	Residential APZ	Available APZ	Bushfire Attack Level (BAL)	Comments
9 North	>0° to 5° downslope	Low Hazard (Rainforest)	14 m	≥14 m	BAL-29	Defendable space provided by perimeter access and APZ provided by the proposed fire brigade access.
10 East	All upslope and flat land	Grassy and semi-arid woodland	12 m	≥20 m	BAL-19	APZ and defendable space provided by perimeter access
11 South	>0° to 5° downslope	Grassy and semi-arid woodland	16 m	≥41 m	BAL-12.5	APZ and defendable space provided by perimeter access and car parking.
12 North	>0° to 5° downslope	Grassy and semi-arid woodland	16 m	≥70 m	BAL-12.5	APZ provided by major road.
All other directions			Managed lands			

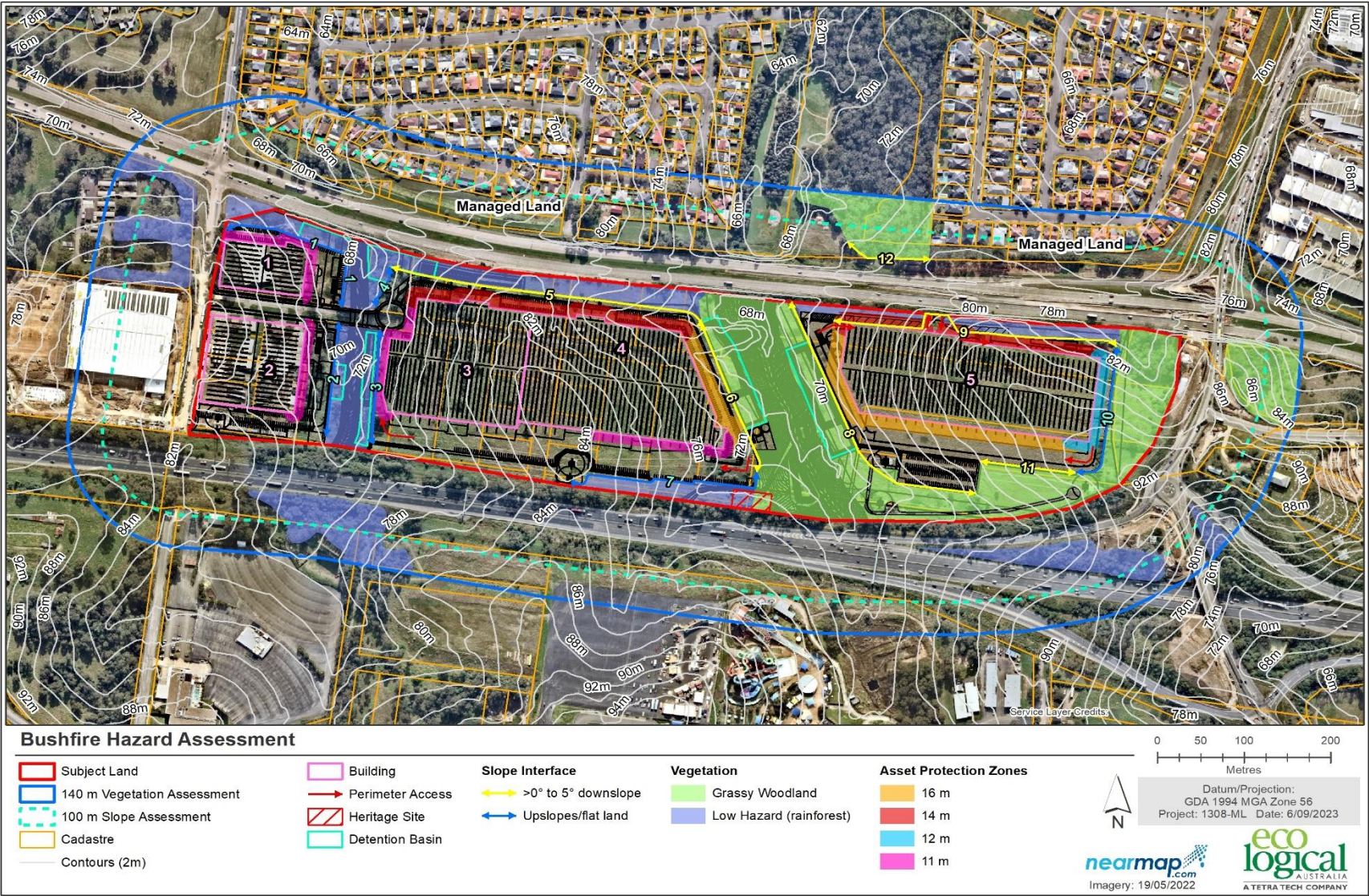


Figure 4: Bushfire hazard assessment

3. Bushfire Protection Measures

3.1 Specific aim and objectives for industrial/commercial development

Below is the Aim and Objectives of PBP as well as the Specific Objectives for industrial/commercial development and a comment on how they are achieved by the proposed development. As directed in section 8.3.10 of PBP, the BPM identified in Chapter 7 (of PBP) have been used as the baseline (where applicable), and either the acceptable solution or performance criteria has been achieved:

- **Aim** - The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.
 - The proposed development complies with the aim of PBP by achieving the specific objectives for PBP and industrial/commercial development identified below.

- **Specific Objective 1** - *afford buildings and their occupants protection from exposure to a bush fire;*

Building 1:

- The development provides protection from bushfire by way of perimeter access as shown in Figure 2, Figure 3 and Figure 4. The perimeter access links to the public road network to the south and west and complies with Section 7 of PBP providing safe evacuation routes for future occupants. Construction standards will also support this objective.

Building 2:

- The development provides protection from bushfire by way of perimeter access as shown in Figure 2, Figure 3 and Figure 4. The perimeter access links to the public road network to the north and west and complies with Section 7 of PBP providing safe evacuation routes for future occupants. Construction standards will also support this objective.

Building 3 and 4:

- The development provides protection from bushfire by way of perimeter access as shown in Figure 2, Figure 3 and Figure 4. The perimeter access links to the public road network to the west and complies with Section 7 of PBP providing safe evacuation routes for future occupants. Construction standards will also support this objective.

Building 5:

- The development provides protection from bushfire by way of perimeter access as shown in Figure 2, Figure 3 and Figure 4. The perimeter access links to the public road network to the north and complies with Section 7 of PBP providing safe evacuation routes for future occupants. Construction standards will also support this objective.

- **Specific Objective 2** - *provide for a defensible space to be located around buildings;*

All Buildings:

- Defensible space is provided by way of perimeter access around all the buildings and residential sized APZ. The provision of car-parking providing additional width to the defensible space as shown in Figure 2, Figure 3 and Figure 4.

- **Specific Objective 3** - *provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;*

All Buildings:

- The development achieves suitable defensible space between hazards and buildings with provision of residential sized APZ and perimeter access which allows emergency service

personal an adequate operational area for prevention of fire spread. In combination with NCC general fire safety provisions fire spread is unlikely.

- **Specific Objective 4** - *ensure that appropriate operational access and egress for emergency service personnel and occupants is available;*

All Buildings:

- The development provides access via existing public roads to the north and west, open carparking space and through access around all buildings which affords safe operational access/egress for emergency services as shown in Figure 2, Figure 3 and Figure 4 and is demonstrated further in Section 3.4.

- **Specific Objective 5** - *provide for ongoing management and maintenance of BPM; and*

All buildings:

- APZs are mostly incorporated into hard stand infrastructure and proposed landscaping that forms part of an APZ can be managed to Inner Protection Area (IPA) standards as per the specifications outlined in Appendix A.

- **Specific Objective 6** - *ensure that utility services are adequate to meet the needs of firefighters.*

All buildings:

- The development can comply with the acceptable solutions for utilities under Section 7 of PBP and the specific objectives outlined in Section 3.4 – 3.7 of this report.

3.2 Specific objectives for Class 5-8 buildings

Below are the Specific Objectives for Class 5 - 8 buildings and a comment on how they are achieved.

- **Specific Objective 1** - provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation.
 - As shown in Figure 4 and demonstrated further in Section 3.4 of this report, the proposed development has direct access to the public road system providing safe access/egress for both firefighters and occupants.
- **Specific Objective 2** - provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development.
 - An emergency plan meeting the requirements of the *Work Health Safety Regulation 2017* and any other relevant legislation is to be prepared for the buildings prior to Occupation Certificate.
- **Specific Objective 3** - 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.
 - The proposed development will be serviced by reticulated water with appropriate hydrants and an internal sprinkler system. Electricity to the development is underground and complies with PBP. Supply of gas (if any) will be installed and maintained in accordance with Section 3.7 of this report.
- **Specific Objective 4** - provide for the storage of hazardous materials away from the hazard wherever possible.
 - The buildings will be required to store any hazardous materials (if any) in accordance with the relevant safety guidelines and safety data sheets.

3.3 Asset Protection Zones

Table 5 shows the dimensions of the required APZ and where relevant, information on how the APZ is to be provided is included. The footprint of the APZ is also shown on Figure 4.

The compliance of the proposed APZ with regards to Section 7.4 of PBP, is detailed in Table 6

Table 6: APZ requirements and compliance (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
APZs are provided commensurate with the construction of the building; and A defensible space is provided.	An APZ is provided in accordance with Table A1.12.2 in Appendix 1 of PBP.	Complies APZ provided in accordance with Table A1.12.2 as shown in Table 5 and Figure 4.
APZs are managed and maintained to prevent the spread of a fire to the building	APZs are managed in accordance with the requirements of Appendix 4 of PBP.	Complies Appendix A provides IPA specifications.
The APZ is provided in perpetuity. APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised.	APZs are wholly within the boundaries of the development site.	Complies APZ located wholly within development site or existing public road infrastructure.
	APZ are located on lands with a slope less than 18 degrees.	Complies APZ is not located on slopes greater than 18°.

3.4 Access

No additional public roads are proposed as access to the proposed commercial development is via driveways off the Great Western Highway to the north and Augusta St to the west. There is perimeter access around all buildings and large areas of carparking providing for access to structures and hazard vegetation.

Perimeter access/egress is a minimum of 4 m wide with provision of suitable turning areas in accordance with Appendix 3 of PBP.

The compliance of the proposed property access with Section 7.4 of PBP is detailed in Table 7.

Table 7: Property access requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance notes
The intent may be achieved where:		
Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	Complies Development will be accessed by two-way, perimeter property access and open car-parking space to buildings and hazard vegetation.
The capacity of access roads is adequate for	The capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes),	To comply The advice of a relevant authority or suitably qualified professional should be sought, for

Performance Criteria	Acceptable Solutions	Compliance notes
firefighting vehicles	bridges and causeways are to clearly indicate load rating.	certification of design and installation in accordance with relevant legislation, Australian Standards and Table 7.4a of PBP.
There is appropriate access to water supply.	Hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005 [SA 2005]; There is suitable access for a Category 1 fire appliance to within 4 m of the static water supply where no reticulated supply is available.	To comply Not applicable
Firefighting vehicles can access the dwelling and exit the property safely.	Minimum 4 m carriageway width; In forest, woodland and heath situations, rural property access roads have passing bays every 200 m that are 20 m long by 2 m wide, making a minimum trafficable width of 6 m at the passing bay; A minimum vertical clearance of 4 m to any overhanging obstructions, including tree branches; Provide a suitable turning area in accordance with Appendix 3 of PBP; Curves have a minimum inner radius of 6 m and are minimal in number to allow for rapid access and egress; Minimum distance between inner/outer curves is 6 m; The crossfall is not more than 10 degrees; Maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads;	Complies Carriageway width is ≥ 4 m. Not applicable To comply Landscaping to comply with specifications of PBP. Complies Suitable turning areas are provided within car-parking areas and loading bays. To Comply The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and Table 7.4a of PBP.

3.5 Water supplies

The compliance of the proposed water supply with Section 7.4 of PBP is detailed in Table 8.

Table 8: Water supply requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
Adequate water supplies is provided for firefighting purposes.	Reticulated water is to be provided to the development where available; A static water supply is provided where no reticulated water is available.	Complies The development will be serviced by a reticulated water supply.
Water supplies are located at regular intervals; and The water supply is accessible and reliable for firefighting operations.	Fire hydrant, spacing, design and sizing complies with the relevant clauses of Australian Standard AS 2419.1 (SA 2021); Hydrants are not located within any road carriageway; and Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	To Comply The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and

Performance Criteria	Acceptable Solution	Compliance Notes
Flows and pressure are appropriate.	Fire hydrant flows and pressures comply with the relevant clauses of AS 2419.1 (SA 2021).	installation in accordance with relevant legislation, Australian Standards and Table 7.4a of PBP.
The integrity of the water supply is maintained.	All above-ground water service pipes are metal, including and up to any taps; and Above-ground water storage tanks shall be of concrete or metal.	To comply Not applicable

3.6 Electricity services

The compliance of the proposed supply of electricity services with Section 7.4 of PBP is detailed in Table 9.

Table 9: Requirements for the supply of Electricity services (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
Location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings.	Where practicable, electrical transmission lines are underground; Where overhead, electrical transmission lines are proposed as follows: • Lines are installed with short pole spacing (30 m), unless crossing gullies, gorges or riparian areas; and • No part of a tree is closer to a power line than the distance set out in ISSC3 Guide for the Management of Vegetation in the Vicinity of Electricity Assets (ISSC3 2016).	To comply Electricity services to the development will be located underground. Not applicable

3.7 Gas services

The compliance of the proposed supply of gas services (reticulated or bottle gas) with Section 7.4 of PBP is detailed in Table 10.

Table 10: Requirements for the supply of gas services (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solution	Compliance Notes
Location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	• Reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 – The Storage and handling of LP gas (2014), the requirements of relevant authorities, and metal piping is used; • All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 m and shielded on the hazard side; • Connections to and from gas cylinders are metal; • Polymer-sheathed flexible gas supply lines are not used; and • Above-ground gas service pipes are metal, including and up to any outlets.	To comply The advice of a relevant authority or suitably qualified professional should be sought, for certification of design and installation in accordance with relevant legislation, Australian Standards and Table 5.3c of PBP.

3.8 Construction standards

The building construction standard is generally based on the determination of the BAL in accordance with Appendix 1 of PBP. The BAL is based on known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard.

The compliance of the proposed construction with Section 7.4 of PBP is detailed in Table 11.

Table 11: Construction requirements (adapted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
The proposed building can withstand bush fire attack in the form of embers, radiant heat and flame contact.	BAL is determined in accordance with Tables A1.12.5 to A1.12.6 of PBP; and	Complies BAL determined using Table A1.12.5 of PBP.
	Construction provided in accordance with the NCC and as modified by Section 7.5 of PBP.	Complies with performance criteria No specific requirements for bushfire related construction under the NCC for this building class. See Section 3.8.2 and section 3.8.3 for further detail.
Proposed fences and gates are designed to minimise the spread of bush fire.	Fencing and gates are constructed in accordance with Section 7.6 of PBP.	Can comply Specification detailed in Section 3.8.4 3.8.4 of this report.
Proposed Class 10a buildings are designed to minimise the spread of bush fire.	Class 10a buildings are constructed in accordance with Section 8.3.2 of PBP.	Not applicable No Class 10a buildings proposed.

3.8.1 Bushfire Attack Level (BAL)

The proposed development is exposed to a maximum of **BAL-29** as identified in Table 5.

3.8.2 Construction requirements

As stated within Section 8.3.1 of PBP, Class 5 to 8 buildings (which include offices, factories, warehouses and other commercial or industrial facilities) do not have specific bushfire performance requirements under the NCC and as such building construction standards under AS 3959:2018 (SA 2018) or the NASH Standard (NASH 2021) do not apply as a set of deemed-to-satisfy provisions.

New construction shall be in accordance with the general fire safety provisions of the NCC and incorporate the additional ember protection measures listed in Section 3.8.3 below.

3.8.3 Ember Protection Measures

The additional ember protection measures based on the requirements of AS 3959 are as follows:

- The roof/wall junctions are to be sealed/screened with aluminium, steel or bronze mesh with a minimum aperture size of 2 mm;
- All openable portions of windows to be screened with aluminium, steel or bronze mesh with a minimum aperture size of 2 mm;
- The base of side-hung external doors shall be fitted with draught excluders/draught seals/weather strips;

- Gutters should be fitted with non-combustible gutter guard to prevent the build-up of combustible material;
- The rollers doors shall be protected with suitable weather strips/draught excluders/draught seals or brushes (Figure 5). If fitted with guide tracks no edge gap protection required; and
- Roller shutter doors with ventilation slots shall be protected with non-combustible mesh with 2 mm aperture.

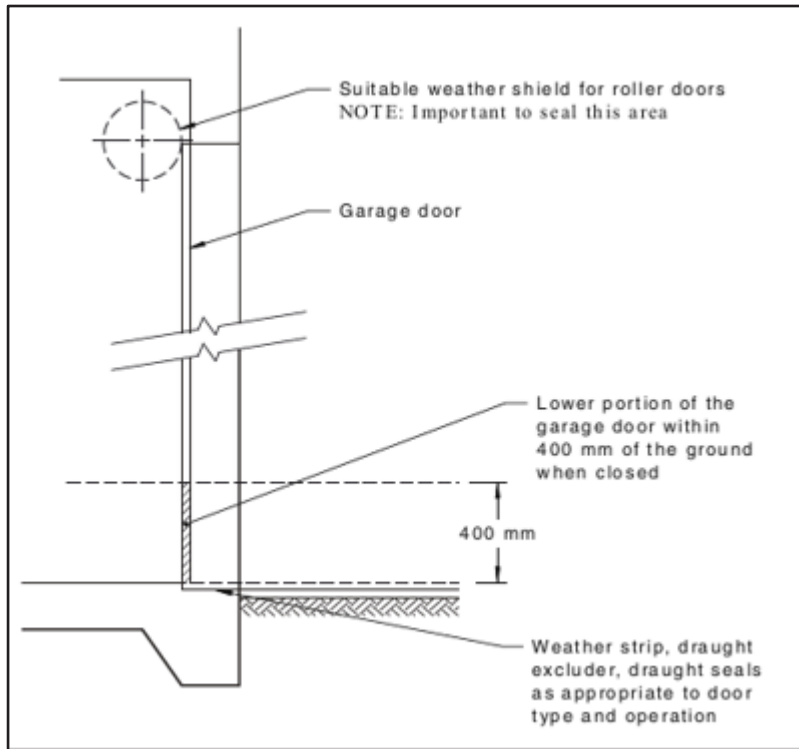


Figure 5: Roller shutter door installation (SA 2018)

3.8.4 Fences and gates

To comply with Section 7.6 of PBP, all fencing and gates are to be constructed of hardwood or non-combustible material. Where fencing connects directly to any proposed building or in areas of BAL-29 or greater, they should be made of non-combustible material.

3.9 Landscaping

The compliance of the proposed landscaping with Section 7.4 of PBP is detailed in Table 12.

Table 12: Landscaping requirements and compliance (adopted from Table 7.4a of PBP)

Performance Criteria	Acceptable Solutions	Compliance Notes
The intent may be achieved where:		
Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for wind-driven embers to cause ignitions.	Compliance with the NSW RFS 'Asset protection zone standards' (Appendix 4 PBP); A clear area of low-cut lawn or pavement is maintained adjacent to the buildings;	Complies Proposed landscaping outside of identified conservation areas and the area west of buildings 1 and 2 meets APZ standards or the low threat requirements of A1.10 of PBP. Hardstand pavement present around all buildings.

Performance Criteria	Acceptable Solutions	Compliance Notes
	Fencing is constructed in accordance with Section 7.6 of PBP.	To comply
	Trees and shrubs are located so that: - the branches will not overhang the roof; - the tree canopy is not continuous; and - any proposed wind break is located on the elevation from which fires are likely to approach.	Complies

4. Conclusion

The proposed development meets the specific aim and objectives of *'Planning for Bush Fire Protection 2019'*, as outlined in Table 13 below.

Table 13: Development Bushfire Protection Solutions and Recommendations

Bushfire Protection Measures	Recommendations	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	This assessment indicates the proposed development will comply with the PBP APZ performance criteria (Figure 4).	☐	☒	3.3
Access	Access to meet specific objectives as per Section 3.4 of this report.	☐	☒	3.4
Water supply	Reticulated water supply to meet PBP acceptable solution specifications.	☐	☒	3.5
Electricity service	Electricity supply located underground.	☐	☒	3.6
Gas service	Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014.	☐	☒	3.7
Construction standard	The development is to be constructed in accordance with the general fire safety provisions of the NCC and incorporate the additional ember protection measures listed in Section 3.8.3	☐	☒	3.8
Landscaping	All proposed landscaping outside of the identified conservation areas meets the requirements of PBP listed in Section 3.9.	☐	☒	3.9

5. Recommendations

It is recommended that the proposed development be approved with consent conditions based on the findings in Table 13.



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6. References

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Appendix A - Asset protection zone and landscaping standards

The following APZ management specifications in Table 14 apply to the APZs specified in Table 5. These APZ management specifications should be considered for any landscaping and ongoing management within the subject land.

The APZs identified in Table 5 are to be maintained in perpetuity and management undertaken on an annual basis (as a minimum) and prior to the commencement of the fire season.

Further details on APZ implementation and management can be found on the NSW RFS website (<https://www.rfs.nsw.gov.au/resources/publications>).

Table 14: APZ management specifications

Vegetation Strata	Inner Protection Area (IPA)
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 2 m above ground; Canopies should be separated by 2 to 5 m; 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	Should be kept mown (as a guide grass should be kept to no more than 100 mm in height); and Leaves and vegetation debris should be removed.

