



Bushfire Assessment

**Storage and distribution
warehouse (SSD-81434988)**

**Lot 11 - Alspeg Industrial
Business Park (AIBP)**

HBB Property

15 May 2025

(Ref: 20074)

report by
david peterson

0455 024 480

david@petersonbushfire.com.au

po box 391 terrigal nsw 2260

petersonbushfire.com.au

FPA AUSTRALIA (NO.BPAD18882)
BPAD LEVEL 3 ACCREDITED PRACTITIONER

ABN 28 607 444 833

Contents

Executive summary	3
1 Introduction	4
1.1 Introduction and project description.....	4
1.2 Purpose of the report.....	4
1.3 The site.....	5
1.4 Assessment requirements.....	9
2 Bushfire prone land	11
3 Bushfire hazard	13
3.1 Predominant vegetation.....	13
3.2 Effective slope.....	13
4 Bushfire protection measures	15
4.1 Access.....	17
4.2 Construction standards.....	18
4.3 Landscaping and vegetation management.....	20
4.4 Emergency and evacuation.....	20
4.5 Water supply and other utilities.....	20
4.6 Hazardous materials.....	20
5 Conclusion and recommendations	21
References	24

Executive summary

This Bushfire Assessment Report has been prepared by Peterson Bushfire to accompany a State Significant Development Application (SSDA) SSD-81434988 for a Storage and Distribution Warehouse. The project seeks detailed approval for a new Storage and Distribution Warehouse within the Alspeg Industrial Business Park (AIBP) at 221-235 Luddenham Road, Orchard Hills (the site). The site is legally described as Lot 1 in DP 1293805.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-81434988).

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

1. With the exception of landscape screening along boundary locations, the subject land is to be maintained to achieve the performance requirement of an Inner Protection Area (IPA) as described by Appendix 4 of PBP. The following landscaping specifications have been designed to achieve the IPA at this site:
 - a. Trees at maturity should not touch or be within 2 m of the building;
 - b. Tree canopies should be separated by a minimum of 2 m;
 - c. Ensure gaps in the vegetation, such as between garden beds, to prevent the spread of fire towards the building;
 - d. Landscaping should be separated from the building by at least 1 m;
 - e. Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
 - f. Leaves and vegetation debris should be regularly removed.
2. Fire hydrants are to be installed to comply with *AS 2419.1 – 2021 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).
3. Gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas*.

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

1 Introduction

Street or property name:	221-235 Luddenham Road	
Suburb, town or locality:	Orchard Hills	Postcode: 2748
Lot/DP no:	Lot 1 DP 1293805	
Local Government Area:	Penrith City Council	
Type of development:	Warehouse development	

1.1 Introduction and project description

This report has been prepared in support of a development at 221-235 Luddenham Road, Orchard Hills (the site as shown on Figures 1 and 2), including detailed approval for a Storage and Distribution Centre. The project seeks to deliver a new a new Storage and Distribution Warehouse within the Alspec Industrial Business Park (AIBP).

Specifically, the project comprises the following (refer to Figure 3 for layout plan):

- Construction of a new warehouse with a two-level ancillary office. The warehouse is predominantly 14.7 metres in height, with a high-bay warehouse component at the western portion of the building which achieves a maximum height of 39 metres.
- A total building area of 45,512 sqm; broken down as follows:
 - Warehouse area: 43,607 sqm
 - Office Area: 1,905 sqm
- Loading areas at the north and south sides of the warehouse, with hardstand surrounding the perimeter of the warehouse. Hardstand and carpark areas are accessed via four new driveways from the AIBP internal estate road.
- Provision of vehicular parking onsite to accommodate cars, vans, semi-trailers and B-doubles. It is envisaged that approximately 329 spaces will be provided on site within the proposed hardstand and carparking areas.
- Perimeter landscaping and tree planting with a total area of 10,236sqm (10%).

1.2 Purpose of the report

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 4th April 2025 and issued for the SSDA (SSD-81434988). Specifically, this report has been prepared to respond to the SEARs requirement and government agency comments as listed in Table 1 on the following page.

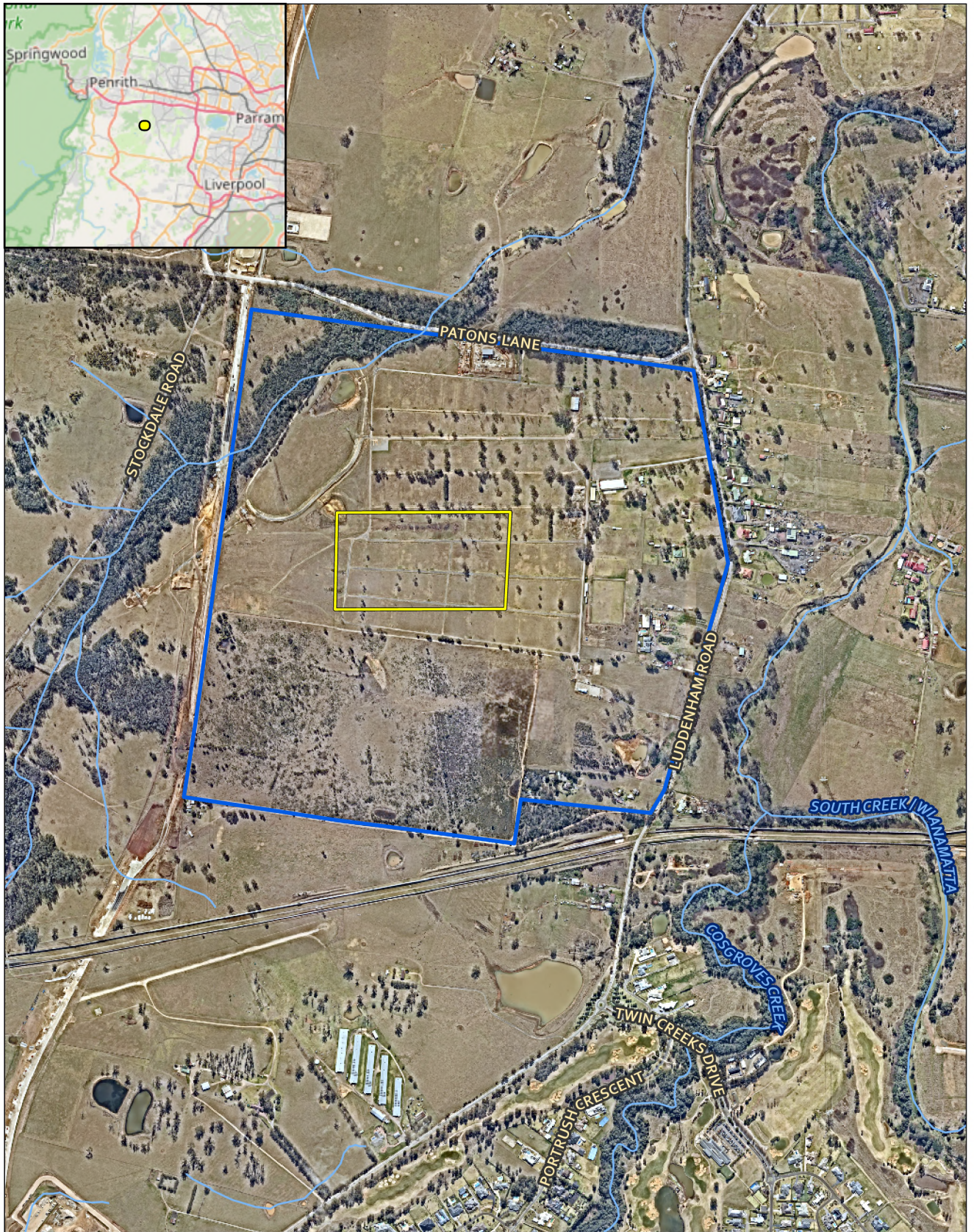
Table 1: SEARs requirements and government agency comments

Item	Description of requirement	Section reference (this report)
22. Bush Fire Risk	If the development is on mapped 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 <i>Planning for Bush Fire Protection</i> .	Section 3 outlines the assessment of bushfire protection measures. Section 4 summarises how the proposal complies including recommendations to ensure compliance.




1.3 The site

The site is located at 221-235 Luddenham Road, Orchard Hills within the Penrith Local Government Area (LGA). The site is legally described as Lot 1 in DP 1293805.

It is important to note the broader site is known as the Alspeck Industrial Business Park (AIBP) and is subject to another SSD and multiple DAs seeking approval for medium to large format industrial warehouses.



Legend

-  Watercourse
-  Subject Land
-  Estate Boundary



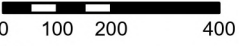
  **DKGIS**
 Date: 7/03/2025

 0 100 200 400
 Metres

Figure 1: The Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

1.4 Assessment requirements

The subject land is identified as bushfire prone land as shown by the bushfire prone land mapping on Figure 4. The proposal is therefore to comply with the NSW Rural Fire Service (RFS) document 'Planning for Bush Fire Protection 2019' (PBP) and Key Issue 22 'Bush Fire Risk' listed in the SEARs as listed in Table 2. Key Issue 22 also requires compliance with PBP.

The development does not involve habitable uses (Class 1, 2 or 3) or Special Fire Protection Purpose (SFPP) development as defined by PBP. Section 8.3 of PBP prescribes the assessment methodology and bushfire protection measures for other uses that do not involve a habitable dwelling or SFPP development.

In order to comply with PBP, the following conditions must be met:

- *satisfy the aim and objectives of PBP outlined in Chapter 1;*
- *consider any issues listed for the specific purpose for the development set out in this chapter; and*
- *propose an appropriate combination of bushfire protection measures.*

It is also important to ensure that a 'defendable space' is provided for the size and scale of the development.

The aim and objectives of PBP are listed below:

1. *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.*
2. The objectives are to:
 - a) *afford buildings and their occupants protection from exposure to a bush fire;*
 - b) *provide for a defendable space to be located around buildings;*
 - c) *provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;*
 - d) *ensure that appropriate operational access and egress for emergency service personnel and occupants is available;*
 - e) *provide for ongoing management and maintenance of BPMs; and*
 - f) *ensure that utility services are adequate to meet the needs of firefighters.*

Section 8.3.1 of PBP lists the issues specific to Buildings Class 5-8. As stated in PBP, the NCC does not provide for any bushfire specific performance requirements for these building classes. As such the Asset Protection Zones (APZ) and Bushfire Attack Levels (BAL) do not apply as deemed-to-satisfy provisions for bushfire protection. The general fire safety construction provisions of the NCC are taken as acceptable solutions however construction requirements for

bushfire protection (i.e. BALs) are to be considered on a case-by-case basis in order to satisfy the aim and objectives of PBP.

The specific issues to be assessed for Buildings Class 5-8 are in relation to access, water supply and services, and emergency and evacuation planning as follows:

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;*
2. *Provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development;*
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; and*
4. *Provide for the storage of hazardous materials away from the hazard wherever possible.*

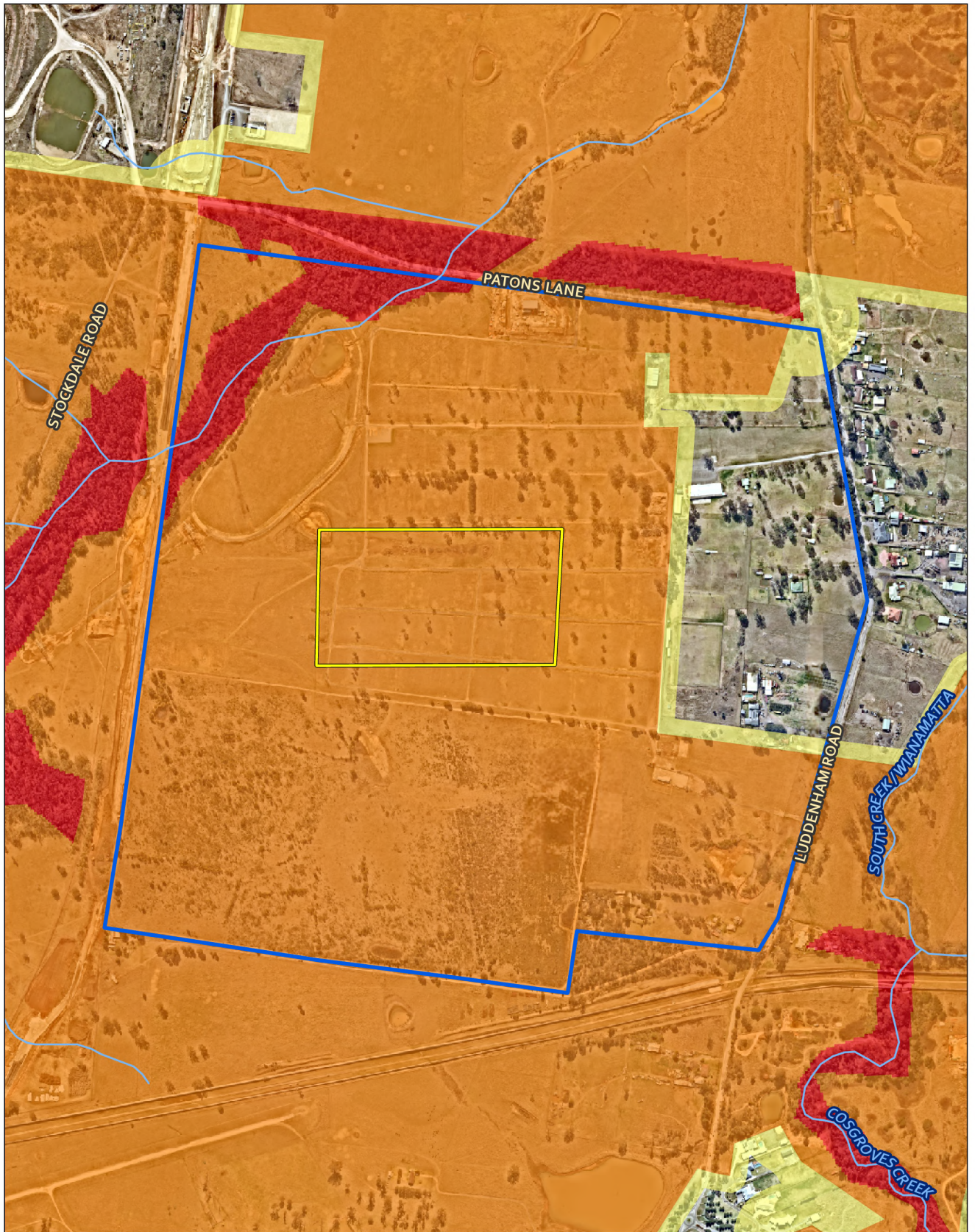
2 Bushfire prone land

The purpose of bushfire prone land mapping is to identify lands that may be subject to bushfire risk based simply of the presence of vegetation that could act as a hazard. The maps are a planning tool used to trigger further detailed assessment. They do not present a scalable measure of hazard, threat or risk. These parameters are to be determined under further assessment in accordance with PBP (i.e. this Bushfire Assessment Report).







The bushfire prone land mapping presented in Figure 4 identifies the presence of bushfire prone vegetation throughout the AIBP and surrounding lands. Any development proposal within a lot containing mapped bushfire prone land (i.e. bushfire prone property) is to comply with the requirements of PBP.

The maps are produced at a broad scale by desk-top Geographic Information Systems (GIS) covering an entire Local Government Area (LGA). They are often conservative and are designed to identify any potential bushfire threat of all levels. The identification of hazards is discussed in the following Section 3.

Most importantly, the identification of bushfire prone land does not preclude development. The maps are not prescriptive and simply trigger further detailed assessment.



Legend

-  Watercourse
-  Subject Land
-  Estate Boundary
- Bushfire Prone Land**
-  Vegetation Category 1
-  Vegetation Category 3
-  Vegetation Buffer



Date: 7/03/2025



Figure 4: Bushfire Prone Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

3 Bushfire hazard

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as APZ location and dimension. This section provides a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour.

3.1 Predominant vegetation

In accordance with PBP the predominant vegetation class has been determined for a distance of at least 140 m out from the subject land. As shown on Figure 5, the bushfire hazard within the assessment area is primarily grassland adjoining the western boundary of the AIBP and woodland to the south-west.

Lands adjoining to the north, east and south within the AIBP development area will be cleared and modified prior to the construction of the proposed warehouse.

3.2 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most significantly influence fire behaviour where the hazard has been identified within 100 m of the subject land. The effective slope was measured using a 2 m contour layer as shown on Figure 5. The effective slope class underneath the identified hazards is 'downslope 0-5 degrees'.



Legend

- M Managed Land
- Estate Boundary
- Subject Land
- Easement
- Contour - 2m
- Cadastre
- Woodland
- Grassland

Date: 7/03/2025

0 12.5 25 50
 Metres

Figure 5: Bushfire Hazard Analysis

Coordinate System: GDA 1994 MGA Zone 56
 Imagery: © Nearmap

4 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for development proposals on bush fire prone land. The measures required to be assessed for the development type proposed are listed in Tables 2 and 3 below and are discussed in detail in the remainder of this section.

Table 2: Generic PBP bushfire protection measures

Aim & Objectives (PBP Section 1.1)	Measures
Aim	
<p><i>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.</i></p>	<ul style="list-style-type: none"> • Achieving the objectives below will satisfy the aim.
Objectives	
<p>1. <i>Afford buildings and their occupants protection from exposure to a bush fire;</i></p>	<ul style="list-style-type: none"> • Building setbacks from bushfire hazards.
<p>2. <i>Provide for a defensible space to be located around buildings;</i></p>	<ul style="list-style-type: none"> • Building construction specifications or standards.
<p>3. <i>Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;</i></p>	<ul style="list-style-type: none"> • Defensible space - Providing fire-fighter access between buildings and the bushfire hazard.
<p>4. <i>Ensure that appropriate operational access and egress for emergency service personnel and occupants is available;</i></p>	<ul style="list-style-type: none"> • Access to public road • Adequacy of internal property roads • Assessment of perimeter access
<p>5. <i>Provide for ongoing management and maintenance of BPMs; and</i></p>	<ul style="list-style-type: none"> • Design and layout to ensure maintenance can occur by occupants without reliance on other parties

Aim & Objectives (PBP Section 1.1)	Measures
6. <i>Ensure that utility services are adequate to meet the needs of firefighters.</i>	<ul style="list-style-type: none"> • Water supply for fire-fighting including provisions for hydrants or static water supplies. • Ensuring installation of electricity and gas supplies do not contribute to the risk of fire to a building.

Table 3: Specific PBP bushfire protection measures for buildings Class 5-8

Objectives (PBP Section 8.3.1)	Measures
1. <i>Provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation.</i>	<ul style="list-style-type: none"> • Access to public road • Adequacy of internal property roads including assessment of perimeter access • Defendable space - Providing fire-fighter access between buildings and the hazard
2. <i>Provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development.</i>	<ul style="list-style-type: none"> • Bushfire Emergency Management and Evacuation Plan • Adequacy of internal property roads
3. <i>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.</i>	<ul style="list-style-type: none"> • Water supply for fire-fighting including provisions for hydrants or static water supplies. • Ensuring installation of electricity and gas supplies do not contribute to the risk of fire to a building.
4. <i>Provide for the storage of hazardous materials away from the hazard wherever possible.</i>	<ul style="list-style-type: none"> • Appropriate storage of hazardous materials away from bushfire hazards.

4.1 Access

4.1.1 Public road access

The public road access will consist of the new estate road that will link Patons Lane in the north to Luddenham Road in the south-east. The new estate road will be constructed and operational prior to the proposed development and will comply with the acceptable solutions for the standard of public roads in bushfire prone areas (in accordance with Table 5.3b of PBP).

The new estate road will provide alternate points of access for bushfire emergency response and evacuation.

4.1.2 Internal roads

The internal access roads consist of separate car and truck thoroughfares as described below:

- The car access and associated parking will be on the eastern side of the warehouse fronting the estate road. The roads will be 6 m wide and flanked by parking spaces. The road design complies with the acceptable solutions for property access roads in bushfire prone areas as per Table 5.3b of PBP.
- The truck access road will enter the subject land along the southern side of the warehouse and loop around the western side to exit on the northern side of the warehouse. The road will integrate with large hardstand areas and parking. The road design complies with the acceptable solutions for property access roads in bushfire prone areas as per Table 5.3b of PBP. The road has been designed to be suitable for heavy vehicle movements.

4.1.3 Defendable space

For habitable development types such as dwellings, the application of a bushfire hazard building setback (i.e. Asset Protection Zone) is related to the vulnerability of an asset typically in terms of combustibility of external materials or the nature of the occupants. The resulting Asset Protection Zone (APZ) dimension would stipulate a building construction standard (i.e. Bushfire Attack Level – BAL) under Australian Standard ‘AS 3959-2018 Construction of buildings in bushfire-prone areas’.

As the land use does not include a dwelling or habitable building, PBP does not prescribe an APZ dimension. The general fire safety requirements of the NCC are accepted as adequate bushfire protection for the developments involving Class 5 to 8 buildings.

However, PBP does require the consideration of a managed hazard-separation area for fire-fighting purposes referred to as ‘defendable space’. A defendable space is an area between the building and the bushfire hazard that provides an environment in which fire-fighters can undertake property protection after the passage of a bushfire with some level of safety. The defendable space dimension is defined by the ability to gain access around an asset and conduct defensive fire-fighting operations. Relying on a defendable space in lieu of an APZ is deemed acceptable whereby construction satisfies NCC building and structural fire requirements.

An adequate defensible space of more than 30 m is provided between the warehouse and grassland hazard to the west, incorporating the proposed landscape screen to be planted along the western boundary. The defensible space is shown on Figure 5 and consists of the internal truck access road and hardstand areas. The woodland hazard to the south-west will be separated from the warehouse by at least 100 m.

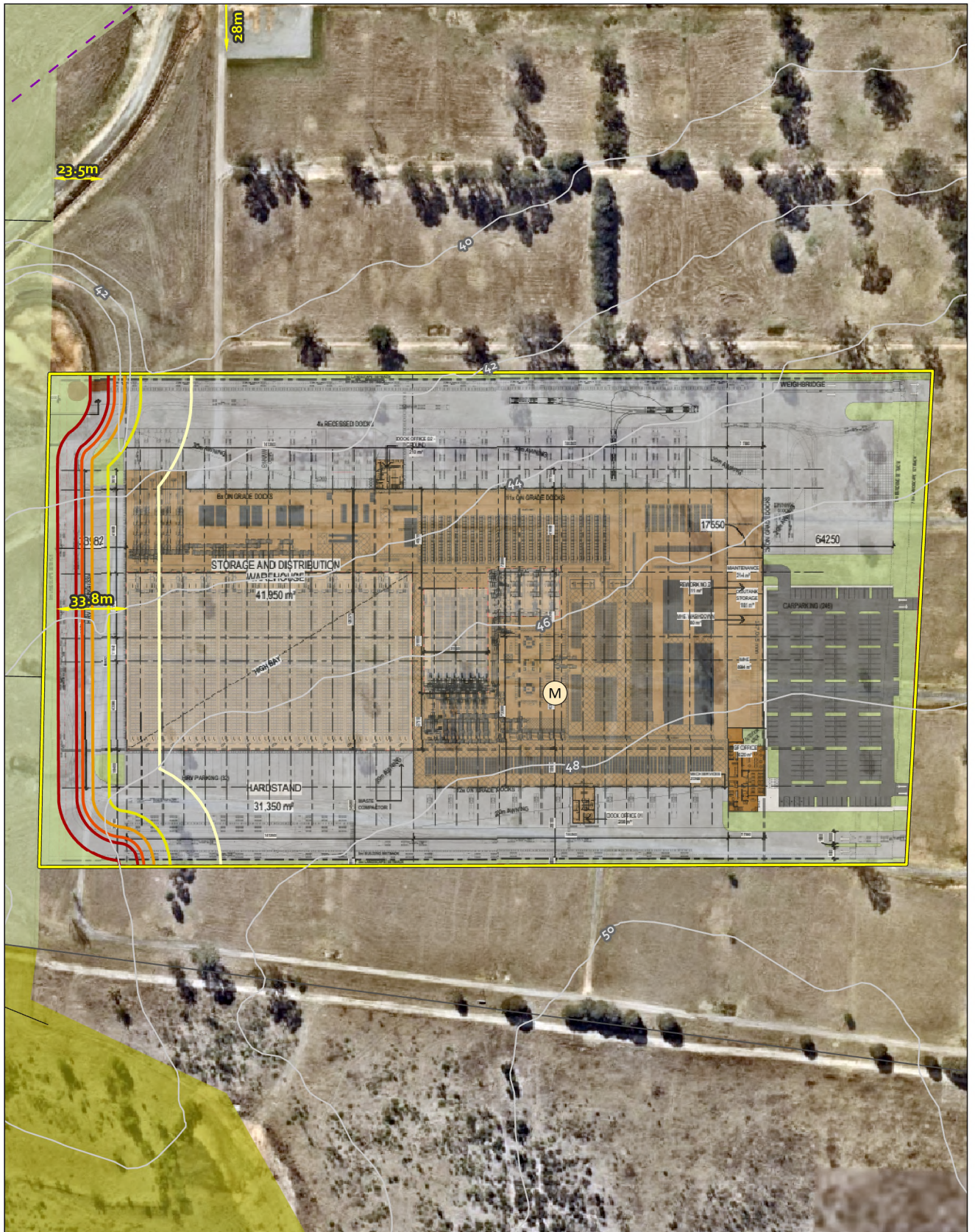
4.2 Construction standards

As introduced in Section 1.3, building construction provisions for bushfire protection within Australian Standard 'AS 3959-2018 Construction of buildings in bushfire-prone areas' (AS 3959) do not apply to developments of the type proposed as a deemed-to-satisfy requirement under the NCC. Due to the type of development and compliance with NCC requirements for building and structural fire, it is generally accepted that buildings will survive bushfire attack. In addition, staff will not reside at the site and will be familiar with evacuation routes.

However, as stated within Section 8.3.1 of PBP, consideration of building construction provisions is required to satisfy the aim and objectives of PBP and the assessment of which is to be made on a case-by-case basis.

The Bushfire Attack Levels (BAL) impacting the proposal are mapped on Figure 6 and shows that only the western façade of the warehouse is subject to the lowest BAL being BAL-12.5. This BAL is the result of grassland only. The woodland hazard is more than 100 m away from the warehouse.

Applying BAL compliance to a warehouse is not warranted in this case as the only hazard within the assessment area is grassland. Ember attack is not a significant concern at the site due to the low risk attributes of grassland including significant separation between the building and the grassland.



Legend

- | | | | | |
|--|-----------------|------------------------------|--|----------------|
| | Managed Land | Vegetation Formation | | BAL 40 |
| | Contour - 2m | | | BAL 29 |
| | Cadastral | | | BAL 19 |
| | Estate Boundary | | | BAL 12.5 |
| | Subject Land | Bushfire Attack Level | | |
| | | | | BAL Flame Zone |

Figure 6: Bushfire Attack Level



Date: 10/03/2025



Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

4.3 Landscaping and vegetation management

With the exception of landscape screening along boundary locations, the subject land is to be maintained to achieve the performance requirement of an Inner Protection Area (IPA) as described by Appendix 4 of PBP. The following landscaping specifications have been designed to achieve the IPA at this site:

- Trees at maturity should not touch or be within 2 m of the building;
- Tree canopies should be separated by a minimum of 2 m;
- Ensure gaps in the vegetation, such as between garden beds, to prevent the spread of fire towards the building;
- Landscaping should be separated from the building by at least 1 m;
- 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 regularly removed.

4.4 Emergency and evacuation

A 'Bushfire Emergency Management and Evacuation Plan' is typically prepared for facilities within bushfire prone areas depending on the level of bushfire risk. A plan is prepared in accordance with the NSW Rural Fire Service document 'A Guide to Developing a Bushfire Emergency Management and Evacuation Plan' (RFS 2014).

Due to the low risk nature of the site, the preparation of a 'Bushfire Emergency Management and Evacuation Plan' is not recommended and is not a requirement of the SEARs.

4.5 Water supply and other utilities

4.5.1 Water supply

The warehouse will require fire hydrants to be installed to comply with *AS 2419.1 – 2021 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).

4.5.2 Electricity supply

The supply of electricity will be provided underground. Compliance is therefore achieved.

4.5.3 Gas supply

Any gas services are to be installed and maintained in accordance with Australian Standard *AS/NZS 1596-2014 The storage and handling of LP gas*.

4.6 Hazardous materials

There are no recommended restrictions to the storage of hazardous or combustible materials at the site.

5 Conclusion and recommendations

The proposal consists of a storage and distribution warehouse on a lot that has been identified as bushfire prone land. The bushfire hazard within 100m m of the warehouse consists of grassland adjoining to the west.

As stated within Section 8.3.1 of PBP, the NCC does not provide for any bushfire specific performance requirements for the type of development or use proposed. As such APZs and BALs do not apply as deemed-to-satisfy provisions for bushfire protection. However, PBP requires a defensible space and assessment of construction measures.

Adequate defensible space to the grassland hazard has been provided and will exceed 30 m consisting of the truck access road and hardstand. Due to the low risk nature of the site and adequate hazard separation distances, the application of BAL construction specifications to the warehouse is not warranted in this case.

PBP requires an assessment of the proposal against the aim and objectives of PBP and the four specific objectives for buildings Class 5-8. Tables 4 and 5 below summarise how the objectives have been satisfied. This assessment concludes that all objectives are satisfied with the adoption of the recommendations listed following Tables 4 and 5.

Table 4: Compliance with PBP aim and objectives

Aim & Objectives (PBP Section 1.1)	Compliance statement
Aim	
<i>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.</i>	Achieving the objectives below will satisfy the aim.
<i>Afford buildings and their occupants protection from exposure to a bush fire;</i>	<u>Section 4.1.3 and 4.2 demonstrates compliance.</u> Defensible space of at least 30 m which includes truck access and hardstand. BAL compliance not required due to low risk.
<i>Provide for a defensible space to be located around buildings;</i>	<u>Section 4.1.3 demonstrates compliance.</u> Defensible space of at least 30 m which includes truck access and hardstand.

Aim & Objectives (PBP Section 1.1)	Compliance statement
<i>Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;</i>	<u>Section 4.1.3 and 4.2 demonstrates compliance.</u> Defendable space of at least 30 m which includes truck access and hardstand. BAL compliance not required due to low risk.
<i>Ensure that appropriate operational access and egress for emergency service personnel and occupants is available;</i>	<u>Section 4.1.1 and 4.1.2 demonstrates compliance.</u> New estate and existing public road network complies. Proposed internal roads satisfy PBP Acceptable Solutions for property access roads.
<i>Provide for ongoing management and maintenance of BPMS; and</i>	<u>Section 4.3 demonstrates compliance.</u> Recommendation for compliant landscaping.
<i>Ensure that utility services are adequate to meet the needs of firefighters.</i>	<u>Section 4.5 demonstrates compliance.</u> Recommendation for compliant hydrant coverage and, if proposed, installation of gas supplies.

Table 5: Compliance with PBP Section 8.3.1 objectives

Objectives (PBP Section 8.3.1)	Compliance statement
<i>Provide safe access to/from the public road system for firefighters providing property protection during a bush fire and for occupant egress for evacuation</i>	<u>Section 4.1.1 and 4.1.2 demonstrates compliance.</u> Internal access roads comply.
<i>Provide suitable emergency and evacuation (and relocation) arrangements for occupants of the development</i>	<u>Section 4.4 demonstrates compliance.</u> Preparation of Bushfire Emergency Management and Evacuation Plan not recommended due to low risk.
<i>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</i>	<u>Section 4.5 demonstrates compliance.</u> Recommendation for compliant hydrant coverage and, if proposed, installation of gas supplies.

Objectives (PBP Section 8.3.1)	Compliance statement
<i>Provide for the storage of hazardous materials away from the hazard wherever possible</i>	<u>Section 4.6 demonstrates compliance.</u> There are no recommended restrictions to the storage of hazardous or combustible materials at the site.

The following recommendations were made within this report:

4. With the exception of landscape screening along boundary locations, the subject land is to be maintained to achieve the performance requirement of an Inner Protection Area (IPA) as described by Appendix 4 of PBP. The following landscaping specifications have been designed to achieve the IPA at this site:
 - g. Trees at maturity should not touch or be within 2 m of the building;
 - h. Tree canopies should be separated by a minimum of 2 m;
 - i. Ensure gaps in the vegetation, such as between garden beds, to prevent the spread of fire towards the building;
 - j. Landscaping should be separated from the building by at least 1 m;
 - k. Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
 - l. Leaves and vegetation debris should be regularly removed.
5. Fire hydrants are to be installed to comply with *AS 2419.1 – 2021 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).
6. Gas services are to be installed and maintained in accordance with *AS/NZS 1596-2014 The storage and handling of LP gas*.

In the author's professional opinion, with the adoption of the above recommendations, the proposed development will comply with *Planning for Bush Fire Protection 2019* (PBP) and the SEARs Key Issue 22 Bush Fire Risk.



David Peterson



References

NSW Rural Fire Service (RFS). 2019. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities and Developers*. State of New South Wales through the NSW Rural Fire Service.

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