



Bushfire Assessment

**Proposed Warehouse and
Logistics Hub: Concept
Approval for the Estate and
Stage 1 Works**

585 Mamre Road, Orchard Hills

Altis Property Partners

16 March 2016

(Ref: 15013)

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

1	Introduction	3
2	Bushfire hazard assessment	8
3	Defendable space.....	10
4	Building construction	12
5	Access	13
6	Water supply and utilities	13
7	Conclusion and recommendations	13
	References	15
	Appendix 1 – Site photographs	16

1 Introduction

Street or property name:	585 Mamre Road		
Suburb, town or locality:	Orchard Hills	Postcode:	2748
Lot/DP no:	Lot 2171 DP 1153854		
Local Government Area:	Penrith City Council		
Type of development:	Warehouse / industrial facilities		

1.1 Background

Altis Property Partners commissioned *Peterson Bushfire* to prepare a bushfire assessment for the Concept Approval and Stage 1 works of a proposed warehouse and logistics hub located in Orchard Hills, Western Sydney. This report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (No. BPD-L3-18882). Site assessment took place on Thursday 29th October.

1.2 Location and description of proposal

As shown in Figure 1, the subject site is located on the western side of Mamre Road opposite the Erskine Business Park. The site and surrounding lands are cleared and have been actively grazed.

Figure 2 features the proposed development layout. The proposal consists of:

- Concept Approval for the estate as well as Stage 1 works including bulk earthworks, infrastructure, and estate roads; and
- Built form for Precinct 1 being three warehouses each with office space, parking and hardstand areas.

1.3 Secretary's Environmental Assessment Requirements (SEARs)

This assessment has been prepared to support a development application and Environmental Impact Statement of the proposal which is considered a State Significant Development (SSD). Secretary's Environmental Assessment Requirements (SEARs) have been prepared in consultation with the relevant public authorities, listing 'bushfire' as an issue requiring consideration.

This technical report addresses the following SEAR:

SEAR Application Number 7173 (Issued 11 September 2015):

Key Issue

- *'Bushfire' – including:*
 - *Assess the level of hazard posed to future development by the land or adjacent land and how the hazards may change as a result of development; and*
 - *Address the requirements of Planning for Bushfire Protection 2006 (RFS), and in particular, the provision of access (including perimeter roads) and provision of water supply for firefighting purposes.*

The assessment of the bushfire hazard can be found in Section 2 and the requirements of *Planning for Bushfire Protection 2006* have been addressed in the following sections:

- Defendable space – Section 3;
- Building construction standards – Section 4;
- Access and perimeter roads – Section 5; and
- Water supply for firefighting – Section 6.



Figure 1: Location of subject land



Figure 2: Development proposal site plan

1.4 Assessment requirements

As the development does not involve habitable dwellings (Class 1, 2 or 3) or Special Fire Protection Purpose (SFPP) development, the proposal is to be assessed under the provision of Section 79C of the *Environmental Planning and Assessment Act 1979* (EP&A Act), which includes the consideration of the NSW Rural Fire Service (RFS) document *Planning for Bushfire Protection 2006* (NSWRFS 2006), referred to within this report as 'PBP'.

The assessment requirements are consistent with the Mamre West Land Investigation Area Development Control Plan (DCP). Section 6.9 'Bushfire Risk Management' of the DCP refers to bushfire prone land mapping and PBP as the controls for minimizing bushfire risk to life and property.

The following detailed assessment is strictly based on the methodology and requirements of PBP and supporting RFS policy.

As stated within Section 4.3.6.f of PBP, the Building Code of Australia (BCA) does not provide for any bushfire specific performance requirements for the development type proposed. As such the Asset Protection Zone and building construction requirements of PBP and AS 3959-2009 *Construction of buildings in bushfire-prone areas* do not apply as deemed-to-satisfy provisions for bushfire protection. However the aim and objectives of PBP still apply in relation to other matters such as access and the provision of water for fire-fighting commensurate with the nature of the development proposal and the bushfire threat.

The assessment requirements were confirmed with NSW Rural Fire Service Development and Planning Officer Doug Stevens over the phone during October 2015.

2 Bushfire hazard assessment

In accordance with PBP the predominant vegetation class and effective slope has been determined for a distance of at least 140 m out from the proposed development.

Prior to 2015 the subject land was not mapped bushfire prone as it is cleared and adjoins cleared lands for hundreds of metres. Penrith City Council updated its bushfire prone land map in February 2015 and mapped all undeveloped land as 'grassland' as a conservative measure to capture these lands to require a further detailed bushfire assessment of development proposals to assess whether unmaintained or unmanaged paddocks could pose a bushfire (grassfire) threat to development. As such, the subject land and adjoining undeveloped properties are mapped as containing bushfire prone vegetation being 'grassland'.

Inspection of the lands has shown that the paddocks are managed by grazing such that they are not capable of sustaining a fire that would be significant enough to threaten adjoining development. Figure 3 displays the nature of surrounding fuels and photographs of the subject land and surrounding lands are contained in Appendix 1.

The surrounding paddocks are not considered a grassland hazard commensurate with the fuel loads assumed by grassland hazards prescribed by PBP and AS 3959-2009 *Construction of buildings in bushfire-prone areas*.

The closest bushfire hazard is a large woodland remnant located well over 200 m to the south of the development separated by managed pasture that will form later stages of the estate and the Sydney Catchment Authority (SCA) pipeline easement visible on Figure 3. The surrounding paddocks and woodland are on flat land and therefore within the PBP slope class of 'Upslope/Flat'.



Figure 3: Bushfire hazard summary

3 Defendable space

3.1 Defendable space requirements

For habitable development types such as dwellings, an asset protection zone (APZ) dimension is related to the vulnerability of an asset typically in terms of combustibility of external materials or the nature of the occupants. The resulting APZ would stipulate a construction standard under AS 3959-2009 *Construction of buildings in bushfire-prone areas* (AS 3959).

As the proposal does not include a dwelling or habitable building, PBP does not list an APZ requirement. However PBP does require the consideration of a managed hazard-separation area referred to as 'defendable space' for fire-fighting purposes. A defendable space is defined by PBP as *"an area within the asset protection zone that provides an environment in which a person can undertake property protection after the passage of a bushfire with some level of safety"*. Therefore the defendable space dimension is defined by the ability to gain access around an asset and conduct defensive fire-fighting operations. This is deemed acceptable in the instance of industrial and commercial development whereby construction materials are typically non-combustible.

3.2 Proposed defendable space

The bushfire hazard analysis in Section 2 concluded that the surrounding paddocks do not act as a bushfire threat due to their management as grazing land. Therefore a defendable space is not required as the hazard is not present and not expected to be present in the future. The Stage 1 proposal is situated within the centre of the subject land and will be surrounded by future stages of warehouses within the same logistics hub. The paddocks surrounding future stages are also not currently considered to be a grassland hazard, however this is to be reassessed as part of subsequent applications.

Notwithstanding the above, the Stage 1 warehouses will have ample defendable space between them and the surrounding paddocks in the unlikely event that a grassland hazard eventuates. The defendable space is summarised in Table 1 on the following page and consists of a proposed access road that circumnavigates the entire development, complemented by car-parking, turfed areas and hard-stand.

Table 1: Summary of hazard and defensible space

Direction ¹	Slope ²	Vegetation ³	Defendable space ⁴	Comment
East	Flat	Developed land	>100 m	Mamre Road and Erskine Business Park exist to the east.
North	Flat	Grazed paddocks	>40 m	Grazed paddocks that will be developed by future stages. Proposed internal access road, hard-stand and parking provide interim defensible space. The office space is approximately 40 m from the development boundary yet the warehouses are greater than 60 m from the boundary.
West	Flat	Grazed paddocks	>40 m	Grazed paddocks that will be developed by future stages. Proposed internal access road, hard-stand and parking provide interim defensible space. The warehouses are greater than 40 m from the boundary.
South	Flat	Grazed paddocks	>40 m	Grazed paddocks that will be developed by future stages. Proposed internal access road, hard-stand and parking provide interim defensible space. The office space is approximately 40 m from the development boundary yet the warehouses are greater than 60 m from the boundary.

¹ Direction of assessment from proposed development.

² Effective slope assessed over 100 m from proposed development where the bushfire hazard occurs.

³ Predominant vegetation classification over 140 m from proposed development.

⁴ Managed separation distance provided between structure and hazard containing suitable vehicular fire-fighter access way.

4 Building construction

As introduced in Section 1.4, building construction provisions within AS 3959 do not apply to the type of development proposed as a deemed-to-satisfy requirement under the BCA. Due to the type of development and compliance with BCA requirements for building fire, it is generally accepted that the development will survive bushfire attack.

A Bushfire Attack Level (BAL) assessment is undertaken to provide an understanding of the level and type of bushfire attack the buildings could experience in a worst-case (design) bushfire scenario. The BAL assessment provides a platform on which to develop any further recommendations specific to the bushfire threat, modes of bushfire attack (such as considering embers or wind) or the proposed buildings, if deemed appropriate.

A determination of the BAL has been made in accordance with Method 1 of AS 3959. The BAL is based on known vegetation type, effective slope and managed separation distance between the development and the bushfire hazard. In comparison, BAL-12.5 extends 50 m from a grassland hazard source. Table 1 demonstrates that 10 m of the office spaces and 10 m of the western end of the warehouses will be within 50 m of the development boundary. However, given that the hazard has been assessed as having a management regime preventing a fuel load significant enough to constitute a grassland hazard, and future stages will develop the paddocks in due course, the rating is considered to be BAL-LOW rather than BAL-12.5. There is insufficient risk to warrant specific bushfire construction requirements for developments rated BAL-LOW. As such, building construction recommendations surrounding ember attack specific to the proposal have not been made in this instance.

5 Access

The assessment of access is to consider the adequacy of public road access, property access roads and defensible space such as perimeter access roads.

The development will be accessed from Mamre Road to the east by a new road that will link to James Erskine Drive to the north. Internal access roads will lead from the main road flanked by car-parking, turfed areas and hard-stand.

The proposed access road layout and widths are such that ample and adequate access will be provided for emergency vehicles. The layout complies with PBP road requirements. Additional access provisions are not required to support the proposed development.

6 Water supply and utilities

The development will require fire hydrants to be installed to comply with *AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all buildings are within 70 m of a hydrant (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

In accordance with PBP, electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed no part of a tree should be closer to a powerline than the distance specified in “*Guideline for managing vegetation near power lines*” issued by Department of Energy, Utilities and Sustainability (ISSC 3, December 2005).

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2008 The storage and handling of LP gas*.

7 Conclusion and recommendations

The proposal consists of the first stage of a State Significant Development being a warehouse and logistics hub opposite the Erskine Business Park on Mamre Road, Orchard Hills.

Although mapped as being bushfire prone land, the site and surrounding lands consist of actively grazed and well maintained paddocks and yards such that there is minimal grass fuel to sustain the spread of fire and cause impact of fire to a future development. Consequently the proposal has been rated BAL-LOW.

Planning for Bushfire Protection 2006 does not require specific asset protection zone measures or construction standards under *AS 3959-2009 Construction of buildings in bushfire prone-areas* for the development type proposed. Nonetheless, the development will have adequate separation and defendable space between it and the surrounding paddocks which are also subject to future stages of the logistics hub.

The proposed defendable space, access and recommended water supply and utility measures are considered adequate as addressing the bushfire risk to the proposed development as required by Section 4.3.6.f of *Planning for Bushfire Protection 2006*. The recommendations are repeated below:

1. The development will require fire hydrants to be installed to comply with AS 2419.1 – *2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419) so that all buildings are within 70 m of a hydrant (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).
2. In accordance with PBP, electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed no part of a tree should be closer to a powerline than the distance specified in “*Guideline for managing vegetation near power lines*” issued by Department of Energy, Utilities and Sustainability (ISSC 3, December 2005).
3. Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2008 *The storage and handling of LP gas*.

In the author’s professional opinion the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development consistent with *Planning for Bushfire Protection 2006*.



David Peterson



References

NSW Rural Fire Service (RFS). 2006. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Australian Government Publishing Service, Canberra.

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2008. *The storage and handling of LP Gas*, AS/NZS 1596-2008, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2009 (Amendment 3). *Construction of buildings in bushfire-prone areas*, AS 3959, Third edition 2009, Standards Australia International Ltd, Sydney.

Appendix 1 – Site photographs



Photograph 1: View of site from western side.



Photograph 2: View of managed paddocks to the north of the site



Photograph 3: View of managed paddocks to the west of the site



Photograph 4: View of managed easement to south of site

