



Bushfire Assessment

**Horsley Drive Business Park -
CFC**

SSD 10404

Charter Hall

19 February 2020

(Ref: 16128-2)

report by
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1 Introduction

Street address:	Cowpasture Road and Trivet Street	
Suburb:	Wetherill Park	Postcode: 2164
Lot/DP no:	Lots 20-22 DP 13961 and Lot 2 DP 1212087	
Council:	Fairfield City Council	

1.1 Background

Charter Hall commissioned Peterson Bushfire to prepare a Bushfire Assessment Report for a State Significant Development (SSD 10404) application for a warehouse development at the above site. The subject lots are identified as 'bushfire prone land', therefore the application must address any potential bushfire hazards that may be adjacent the proposed development.

This report presents the assessment and recommendations to ensure compliance with the relevant bushfire protection legislation for development proposals on bushfire prone land.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

1.2 Location and land description

As shown in Figure 1, the subject land is located within the Western Sydney Parklands Trust estate bordering the western edge of the Wetherill Park Industrial Precinct north of Horsley Drive. The land has frontage to and access from Cowpasture Road and Trivet Street to the east.

1.3 Development proposal

Approval was issued in November 2017 for the Concept Plan and Stage 1 earthworks for warehouse and distribution uses (SSD 7664). This proposal relates to the construction and operation of the first warehouse building on the site for the receipt, storage, handling and distribution of food and groceries associated with on-line retail. The warehouse is referred to as the 'Customer Fulfilment Centre' (CFC). Figure 2 contains the site plan for the CFC warehouse.

1.4 Assessment requirements

As the proposal does not involve the construction of habitable dwellings (Class 1, 2 or 3) or Special Fire Protection Purpose (SFPP) development, it is to be assessed under the provision of Section 4.15 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 Bush Fire Protection 2006* (NSWRFS 2006), referred to within this report as 'PBP'.

As stated within Section 4.3.6.f of PBP, the National Construction Code (NCC) 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 of the bushfire hazard can be found in Section 2 and the requirements of PBP have been addressed in Section 3.



Legend

Subject Land



Date: 9/01/2020

0 250 500 1,000
Metres

Figure 1: The Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



Legend

Subject Land



Date: 19/02/2020

0 25 50 100
Metres

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

Figure 2: Proposal

2 Bushfire hazard

In accordance with PBP, the bushfire hazard has been evaluated through an analysis of a combination of slope and vegetation, as discussed in this section. Site assessment occurred on 3rd November 2016.

2.1 Predominant vegetation

In accordance with PBP the predominant vegetation class has been determined for a distance of at least 100 m out from the proposed development areas. The site assessment involved:

- Field assessment (hazard validation took place on 3rd November 2016);
- Desk-top review using aerial imagery (Nearmap imagery dated 27 October 2019);
- Analysis of vegetation mapping (OEH 2013 & Ecoplanning 2016); and
- Analysis of topographic map with 2 m contours (see Figure 4).

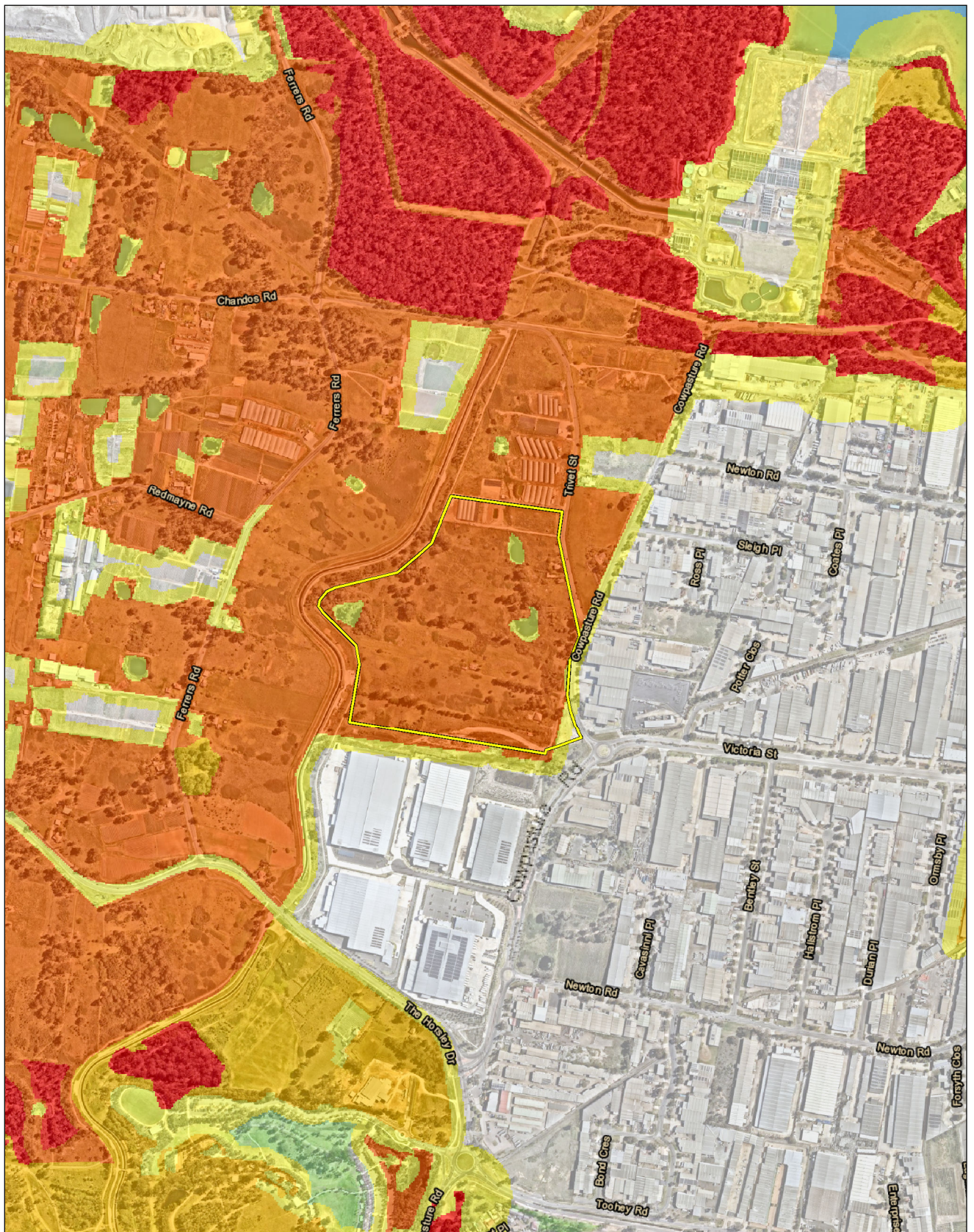
As shown on Figure 4, the land within 100 m of the site is cleared of native bushland and consists of agricultural land to the north, Sydney Water Canal and paddocks to the west, and adjoining light industrial development to the south and east.

Figure 4 identifies small, disturbed patches of Shale Plains Woodland and scattered paddock trees within the Western Sydney Parklands estate to the west between the subject land and the canal. These patches are very small and fragmented and considered a low threat, to be excluded from the hazard assessment. The area to the west and the adjacent paddock to the north could be perceived to present a 'grassland' hazard depending on future management regime, growth rates, rainfall and curing. (i.e. fuel accumulation and availability).

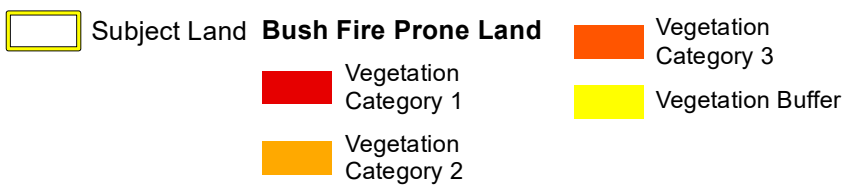
2.2 Effective slope

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 occurs within 100 m of the development site. The slope was determined using a 2 m contour layer as shown on Figure 4.

In accordance with PBP the effective slope to the north and west is within the PBP slope class of 'upslope/flat' as indicated on Figure 4.



Legend



Date: 19/02/2020

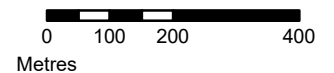


Figure 3: Bushfire Prone Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



Legend

	Subject Land	Vegetation Formations
	Contour-2m	Grassland
		Woodland Remnant



Date: 19/02/2020

0 25 50 100

Metres

Figure 4: Bushfire Hazard Analysis

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

3 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 bushfire prone land. The measures required to be assessed for the development types proposed are listed in Table 1 below and are discussed in detail in the remainder of this section.

Table 1: PBP bushfire protection measures for developments other than dwellings and SFPP

Bushfire protection measures	Considerations
Defendable space	Providing fire-fighter access between buildings and the hazard.
Vegetation management and landscaping	Vegetation removal from defendable space and landscape design across the site.
Construction standards	Consideration of ember protection to new building works.
Access	Assessment to include access and egress for emergency response, perimeter access and design standards of internal roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.

3.1 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 dimension would stipulate a building construction standard under Australian Standard 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 prescribe an Asset Protection Zone dimension. The general fire safety requirements of the NCC are accepted as adequate bushfire protection for the development of building Class 5 to 8 which includes industrial facilities, warehouses and office space.

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 materials are typically non-combustible and meet NCC building and structural fire requirements.

The CFC warehouse will have a defendable space to the boundary and potential external hazards that will consist of a minimum 6 m wide fire access road that is required around the site

boundary. Although not required, the zone of defensible space increases beyond the minimum 6 m in areas where buildings will be setback further from the boundary, such as along the western boundary where hardstand and parking will create a significant buffer to the potential grassland hazards and woodland remnants located on adjacent lands.

The defensible space will allow continuous thoroughfare around the perimeter of the building ensuring fire-fighters can gain access to conduct property defence if required. The defensible space is also required to ensure fire-fighters can access all sides of the building for structural fire control.

3.2 Vegetation management and landscaping

The 6 m defensible space is to be clear of vegetation and will therefore satisfy the fuel management performance requirements of an Asset Protection Zone (APZ) as described by PBP. The site will be cleared and subject to bulk earthworks resulting in the removal of all vegetation. Additional clearing of vegetation is not required.

Landscaping across the business park is to comply with the performance objectives of an Inner Protection Area (IPA) standard as described by PBP.

3.3 Building construction

As introduced in Section 1.4 and 3.1, building construction provisions for bushfire protection within Australian Standard AS 3959-2009 *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 the access routes should an evacuation be necessary.

Consideration of building construction provisions are based on the following parameters:

- Proximity of the building to the hazard (e.g. buildings greater than 100 m from a hazard, and greater than 50 m from a grassland hazard do not require consideration);
- The design fire behaviour depending on the type of hazard (e.g. forest vegetation would result in a more intense fire front and significant ember attack compared to that of a grassland hazard);
- Vulnerable elements exposed to the hazard (e.g. pre-cast concrete walls on warehouses are not a concern as compared to large expanses of glazing facing the hazard); and
- The NCC general fire requirements do not incorporate building protection from ember attack, which may be a concern to particular building types or hazard types. Measures such as ember mesh screening to vents and weepholes and ember guards around vehicle access doors may be recommended for individual buildings.

Given the construction type of the proposed customer fulfilment centre and the low threat presented by any adjacent grassland, it is determined that there is insufficient risk to warrant the application of specific bushfire construction requirements.

3.4 Access

The assessment of access is to consider the adequacy of public road access, property access roads and perimeter access (defendable space). The following information demonstrates that the proposed access design complies with PBP.

Adequacy of access and egress

The development will be accessed by a new public road link from Cowpasture Road on the eastern side of the site. The road will comply with the public road design and construction standards specified by PBP. Additional access provisions are not required.

Internal access

The proposed access layout within the site is such that adequate access will be provided for emergency vehicles. The access roads have been designed to cater for large truck movements and will therefore be suitable for fire and emergency authorities as well as evacuation if required. Expansive hard-stand areas also provide ample maneuvering options for fire crews. The layout complies with PBP property access road requirements. Additional access provisions are not required.

Perimeter access (defendable space)

All sides of the site will have perimeter access within the defendable space described in Section 3.1. At a minimum, the access will be a 6 m wide fire access road designed suitable for the thoroughfare of Fire & Rescue NSW pumpers. The fire access roads will link back to the internal roads. Additional access provisions are not required.

3.5 Water supply and utilities

Water supply

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 sides of a building envelope are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).

Electrical supply

Electricity will be supplied underground and therefore complies with PBP.

Gas supply

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

4 Conclusion and recommendations

4.1 Conclusion

The proposal consists of an SSD (10404) application for the construction of the first warehouse (Customer Fulfilment Centre) at the Horsley Drive Business Park.

This bushfire assessment has concluded that the proposed 6 m wide fire access road around the site between warehouse location and boundaries sufficiently provides defensible space to any adjoining potential grassland hazard. Similarly, the proposed layout, roads and hardstand areas provide adequate and compliant access.

This assessment concludes that the proposal for the Customer Fulfilment Centre can comply with the provisions of *Planning for Bush Fire Protection 2006* by adopting the recommendations listed in Section 4.2 below.

4.2 Recommendations

The recommendations made within this assessment are repeated below:

1. The warehouse site is to have a defensible space between the building and the site boundary including the following:
 - a. A minimum 6 m wide carriageway fire access road located between the warehouse and the boundary.
 - b. Continuous thoroughfare for fire pumpers between the warehouse and site boundary linking back to the internal access road.
 - c. The defensible space is to be clear of vegetation.
2. Vegetation and landscaping across the business park is to comply with the performance objectives of an Inner Protection Area (IPA) standard as described by PBP.
3. The site requires 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 sides of a building envelope are within 70 m of a hydrant by lay of the hose (or 90 m with a tanker parked in-line maximum 20 m from the hydrant).
4. Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2014 *The storage and handling of LP gas*.



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.

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