

# **Bushfire Threat Assessment**

Lot 109 Aerospace Avenue, Newcastle Airport, Williamtown, NSW



Prepared for: Greater Newcastle Aerotropolis Pty Ltd

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### **1.0 Introduction**

Construction of multiple industrial workshops is proposed within Lot 109, located at Aerospace Avenue, Newcastle Airport within Port Stephens LGA. At the request of Greater Newcastle Aerotropolis Pty Ltd (the client), Anderson Environment & Planning (AEP) have undertaken the necessary investigations to inform the production of a Bushfire Threat Assessment (BTA) report addressing the proposed development.

This report is specifically intended to assess the bushfire protection measures required by the NSW Rural Fire Service's "Planning for Bushfire Protection 2019" (PBP) and the construction requirements of the proposed development in accordance with the provisions of the Building Code of Australia – Volume 2, Edition 2010 and Australian Standard 3959-2018 (AS 3959) – "Construction of buildings in bushfire-prone areas".

The proposed development involves mixed use development in accordance with the PBP 2019, with proposed commercial. The development is assessed under 100B of the Rural Fires Act. When such development can be shown to comply with the deemed-to-satisfy provisions of the National Construction Code (NCC), then the certifying authority can determine compliance and issue the relevant construction certificate without referral to the RFS. This BTA addresses the required heads of consideration relevant to obtaining approval.

For the purposes of referencing, this document should be referred to as:

Anderson Environment & Planning (2021). *Bushfire Threat Assessment for a commercial / Industrial Development, Lot 109 Aerospace Avenue, Williamtown, NSW.* Unpublished report for Greater Newcastle Aerotropolis Pty Ltd. September 2022



# 2.0 Site Particulars

Table 1 – Site Particulars		
Items	Comments	
Client	Greater Newcastle Aerotropolis Pty Ltd	
Address	Aerospace Avenue, Newcastle Airport, Williamtown	
Title(s)	Lot 109/1, 109/2, 109/3, 109/4	
Study Area	2.388ha	
LGA	Port Stephens	
Zoning	B7 Business Park	
Current Land Use	Open space within industrial parkland	
Surrounding Land Use	Newcastle International Airport, light industrial and farming.	

The details of the Subject Site are provided in Table 1.

Figure 1 depicts the extent of the site overlain on an aerial photograph of the locality.

### 3.0 Proposed Development

The proposal is for a Commercial / Industrial development featuring, four (4) workshops and office facilities and associated civil works.

Figure 2 depicts the proposed development plan within the Study Area.



**AEP** 

Figure 1 - Site LocationDate: Sept 2022Location: Aerospace Avenue, Newcastle Airport, Williamtown, NSWClient: Greater Newcastle Aerotropolis Pty LtdAEP ref: 2711



1 LOT 109 - SITE PLAN 1:500

### Lot 109/4 - Facility Site Area 2,954m<sup>2</sup> Building Area 1,068 Vehicle Movement 105.8m<sup>2</sup>



### Lot 109/1 - Facility

Site Area	7,290m²
Vehicle Movement	2,695m²
Building Area	
Workshop Area	2,000m <sup>2</sup>
Offices Area	985 m²
Foyer Area	2 2 6 m <sup>2</sup>
Total	3,211m <sup>2</sup>

#### Lot 109/2 - Facility

Site Area	6,396m <sup>2</sup>
Vehicle Movement	1,551m <sup>2</sup>
<b>Building Area</b> Workshop Area	2.415m <sup>2</sup>
Offices Area	1,137m <sup>2</sup>
Foyer Area	100 m <sup>2</sup>
Total	3,652 m <sup>2</sup>

#### Lot 109/3 - Facility

Site Area	7,217m <sup>2</sup>
Vehicle Movement	1,310 m <sup>2</sup>
<b>Building Area</b> Workshop Area Offices Area <b>Total</b>	4 , 0 0 8 m <sup>2</sup> 2 5 5 m <sup>2</sup> 4 , 2 6 3 m <sup>2</sup>



# 4.0 Fire Hazard Assessment

#### 4.1 Bushfire Prone Land Mapping

Examination of NSW Planning Portal, Bushfire Prone Land (BPL) Mapping (2021) confirmed that the Study Area is mapped as "Bushfire Prone Land – Vegetation Category 3". This designation has triggered the need for the assessment (**Figure 3**).

Appendix 1 of the PBP provides the steps required to determine the level of bushfire hazard that applies to the site. Factors influencing the hazard level include:

- The formation of vegetation surrounding the site (as defined by Keith 2004);
- The distance between vegetation and the site (or proposed buildings therein);
- The effective slope for each patch of vegetation; and
- The Fire Danger Index (FDI) of the council area within which the development occurs.

These factors together provide an indication of the level of threat posed to the development from any vegetation retained within the site and surrounding vegetation in the event of a bushfire, and the required mitigation measures to be taken in the form of defendable space. These measures are detailed further in **Section 5** below.

### 4.2 Vegetation and Slope Analysis

The Study Area and surrounds occur within the Greater Hunter Region, with existing vegetation subsequently classified with a Fire Danger Index (FDI) of 100 as NSW Rural Fire Service (2017) NSW Local Government Areas FDI.

In the vicinity of the Study Area there is an Aboriginal Significant Site in the form of a vegetated sand dune. Vegetation communities present within the 140m surrounding the development and slope assessment within 100m from hazard vegetation are shown in **Table 2** and **Figure 4**.

Aspect	Hazard Vegetation (140m)	Slope (100m)
North	Non-hazard	-
North East	Forest	Upslope flat
East	Non-hazard	-
South East	Short Heath, Freshwater Wetland	Upslope flat
South	Grassland	Upslope flat
South West	Forest	Upslope flat
West	Forest, Short Heath	Upslope flat
North West	Non-hazard	-

Table 2 – Hazard Vegetation and Slope Assessment

**Appendix A** contains photos showing the vegetation types within the 140m vegetation assessment buffer around the Study Area.



Location: Aerospace Avenue, Newcastle Airport, Williamtown, NSW Client: Greater Newcastle Aerotropolis Pty Ltd



**AEP** 

Title: Figure 4 - Vegetation and SlopeDate: Sept 2022

Location: Aerospace Avenue, Newcastle Airport, Williamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd



### 4.3 PBP Performance Criteria Assessment

**Tables 3** shows the assessment for the following in accordance with the PBP for both commercial buildings.

Performance Criteria	Assessment
Afford buildings and their occupants protection from exposure to a bush fire.	Design provides adequate access and egress. Defendable space of 10m will be provided where possible between the facilities and the hazard vegetation. There areas with reduced defendable space will be hardstand, ensuring access, there will be no landscaping in these areas to reduce ember attack. The design will ensure clear pathways and hydrants ensuring the areas are free from combustible items and obstructions. It is noted that the proposal is not located within flame zone due to the mature height of the vegetation, hence ember protections are recommended.
Provide for a defendable space to be located around building.	Defendable space of 10m will be provided where possible between the facilities and the hazard vegetation. There areas with reduced defendable space will ensure be hardstand, ensuring access, there will be no landscaping in these areas to reduce ember attack. The design will ensure clear pathways and hydrants ensuring the areas are free from combustible items and obstructions.
Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings.	The current design provides adequate separation between the proposed buildings and the hazard vegetation in the south, west and east. Areas where defendable spaces do not meet 10m will provide hardstand, ensuring access, there will be no landscaping in these areas to reduce ember attack. The design will ensure clear pathways and hydrants ensuring the areas are free from combustible items and obstructions.
Ensure that appropriate operational access and egress for emergency service personnel and occupants is available.	Access is adequate via sealed internal roads and from Aerospace Avenue.
Provide for ongoing management and maintenance of BPMs.	Defendable space will be managed and maintained to prevent the spread of a fire to the building.
Ensure that utility services are adequate to meet the needs of firefighters.	The capacity of access roads will provide access for firefighting vehicles.
Water supply should aim to meet the objectives of Section 8.3.1 of Planning for Bushfire Protection (2019).	Reticulated water is to be provided to the development.
Fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2017.	Hydrants will be provided in accordance with the relevant clauses of AS 2419.1:2005;
Location and distance to nearest Fire Station	Firefighting services are available from Newcastle Airport. The next closest Fire Station is at Medowie which is approximately 9.5km to the north-east.

Table 3 – Performance	Critoria	Moasuros fo	r Class	5-8 and	Class 10 Bi	uilding
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Performance Criteria	Assessment				
The provisions of public roads in section 8.3.1 in relation to parking are met	Adequate public roads are provided in accordance with Australian Standards.				
The access road into the development would need to meet access road requirements under Section 8 of the PBP.	Adequate access roads are provided in accordance with Australian Standards.				
Internal roads would also need to comply with Section 8 of the PBP	Internal roads will be sealed and suitable for heavy vehicles.				

### **5.0 Bushfire Hazard Assessment**

### 5.1 Construction Standards – AS 3959-2018

The National Construction Code (NCC) does not provide for any bushfire specific performance requirements for a commercial class of building. As such AS 3959 Standards are not considered as a set of 'deemed to satisfy' provisions, however compliance with AS 3959 and National Association of Steel-frame Housing (NASH) should be considered when meeting the aims and objectives of PBP. Given the distance from the hazard it is recommended that the construction be with ember protection.





## 6.0 Other Considerations

The following analysis applied to the site in reference to environmental features present re listed in **Table 3**.

 Table 3 – Other Considerations

Item	Comments
Riparian Corridors	There are no corridors within Study Area. Drainage lines run along western, southern and eastern boundaries.
State Environmental Planning Policy (Resilience and Hazards) 2021	Not mapped under this SEPP
State Environmental Planning Policy (Biodiversity Conservation) 2021	No vegetation clearing is required
Areas of geological interest	None present in Study Area
Environmental protection zones or steep lands (>189	None present in Study Area
Land slip or flood prone areas	Stormwater management already in place
National Parks estate or various other reserves	None present in vicinity
Threatened species matters	None present in Study Area
Aboriginal Heritage	Significant site 100m outside study area currently under management



### 7.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment have revealed that the proposed development will be affected by hazardous vegetation to the north and south.

The proposed industrial facilities have been assessed for surrounding hazard vegetation.

A minimum 10m defendable area will be provided between the commercial structures and any bushfire prone vegetation. This must be sealed to allow fire fighting access and must not be vegetated. Where Defendable space around the perimeter is not able to be met, ember protection must be in place.

Construction of the proposed commercial structures should comply with non-combustible materials and withstand ember attack.

AEP understands that the development will be serviced by static water supply meeting AS 3959 and fire hose reels will be constructed in accordance with AS/NZS 1221:1997, and installed in accordance with the relevant clauses of AS 2441:2005.

Access and egress are provided by an access road at the north of Study Area to Williamtown Drive. It is considered that the proposed access and egress arrangements are appropriate and no issues have been identified with evacuation, safe haven zones, or firefighting logistics.

It is considered that the distance between the hazard vegetation and the proposed development construction standards will provide adequate defendable space to comply with the requirements of PBP.

When applied, these measures should provide adequate protection to life and property within the proposed development in the event of a bushfire occurring in the immediate locality. However, it can never be guaranteed that the site and property therein will not at some stage be affected by a bushfire event.



### 8.0 References

Australian Building Codes Board. International Fire Engineering Guidelines. Edition 2005.

Keith, D (2004) Ocean Shores to Desert Dunes. OEH, Sydney.

NSW Rural Fire Service (2019). *Planning for Bushfire Protection: A guide for councils, planners, fire authorities and developers*. November 2019.

NSW Government (1979) *Environment and Planning & Assessment Act 1979*. NSW Government, Sydney.

NSW Government (2021) Rural Fires Act 1997. NSW Government, Sydney.

NSW Government (2019). Planning Portal website. Accessed 07/09/2022.

Standards Australia (2018) AS-3959 *Construction of Buildings in Bushfire-Prone Areas.* Standards Australia, Sydney. November 2018.

Standards Australia (2010) AS-3745 Planning for Emergencies in Facilities. Standards Australia, Sydney. November 2010.

Standards Australia (2017), AS-2419.1 Fire Hydrant Installations – Part 1: System Design, Installation and Commissioning. Standards Australia, November 2017.



# Appendix A – Study Area Photos





Above: Looking North. Below: Looking North East.







Above: Looking East. Below: Looking South East.







Above: Looking South. Below: Looking South West







Above: Looking West. Below: Looking North West

