



# AEP

ECOLOGY | BIODIVERSITY OFFSETS | BUSHFIRE

# Bushfire Threat Assessment

Commercial Premises at Proposed Lot 106 in existing  
Lot 11 DP 1036501, Aerospace Avenue, Newcastle  
Airport, Williamtown, NSW



Prepared for: **Greater Newcastle  
Aerotropolis Pty Ltd**

**5 October 2022**

**AEP Ref: 3004**

**Revision: 02**

## Document Control

<b>Document Name</b>	Commercial Premises at Proposed Lot 106 in existing Lot 11 DP 1036501, Aerospace Avenue, Newcastle Airport, Williamtown, NSW
<b>Project Number</b>	3004
<b>Client Name</b>	Greater Newcastle Aerotropolis Pty Ltd
<b>AEP Project Team</b>	Natalie Black Simon Purcell Andrew Harker Alissa Rogers Angela Metcalfe

## Revision

Revision	Date	Author	Reviewed	Approved
00	09/09/2022	Andrew Harker	Natalie Black	Natalie Black
01	30/09/2022	Angela Metcalfe	Simon Purcell	Simon Purcell
02	05/10/2022	Angela Metcalfe	Natalie Black	Natalie Black

## Distribution

Revision	Date	Client	Organisation
00	09/09/2022	Greater Newcastle Aerotropolis Pty Ltd C/- John Ferendinos	COX Pty Ltd
01	30/09/2022	Greater Newcastle Aerotropolis Pty Ltd C/- John Ferendinos	COX Pty Ltd
02	05/10/2022	Greater Newcastle Aerotropolis Pty Ltd C/- John Ferendinos	COX Pty Ltd

## Contents

1.0	Introduction.....	1
2.0	Site Particulars .....	2
3.0	Proposed Development.....	2
4.0	Bushfire Hazard Assessment.....	5
4.1	Bushfire Prone Land Mapping.....	5
4.2	Vegetation and Slope Analysis .....	5
4.3	PBP Performance Criteria Assessment .....	8
5.0	Bushfire Hazard Assessment.....	9
5.1	Construction Standards – AS 3959-2021 .....	9
6.0	Other Considerations .....	11
7.0	Conclusion.....	12
8.0	References .....	13

## Tables

Table 1 – Site Particulars .....	2
Table 2 – Hazard Vegetation and Slope Assessment .....	5
Table 3 – Performance Criteria Measures for Class 5-8 and Class 10 Building .....	8
Table 4 – Other Considerations .....	11

## Figures

Figure 1 – Site Location .....	3
Figure 2 – Proposed Development Plan .....	4
Figure 3 –Bushfire Prone Land Mapping .....	6
Figure 4 – Vegetation and Slope Assessment.....	7
Figure 5 – Defendable Space .....	10

## Appendix

Appendix A – Study Area Photos

## 1.0 Introduction

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. The development consists of commercial premises within proposed Lot 106 in existing Lot 11 DP 1036501, located at Aerospace Avenue, Newcastle Airport within Port Stephens LGA.

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 (2022). *Bushfire Threat Assessment for a Commercial Premises at Proposed Lot 106 in Existing Lot 11 DP 1036501, Aerospace Avenue, Newcastle Airport, Williamtown, NSW*. Unpublished report for Greater Newcastle Aerotropolis Pty Ltd. September 2022

## 2.0 Site Particulars

The details of the Study Area are provided in **Table 1**.

**Table 1 – Site Particulars**

Particulars	Assessment
Client	Greater Newcastle Aerotropolis Pty Ltd
Address	Aerospace Avenue, Newcastle Airport, Williamtown
Title(s)	Lot 106 in existing Lot 11 DP 1036501
Study Area	Approximately 0.20ha
LGA	Port Stephens City Council
Zoning	B7 - Business Park
Current Land Use	Open space within industrial parkland
Surrounding Land Use	Newcastle International Airport, with accompanying light industrial development and agricultural landscape.

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

## 3.0 Proposed Development



The proposal is for an eight (8) storey commercial / retail development within proposed Lot 106 and associated civil works.

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



Disclaimer: While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

#### Legend

 Study Area  
 Cadastre



# AEP

Figure 1 - Site Location

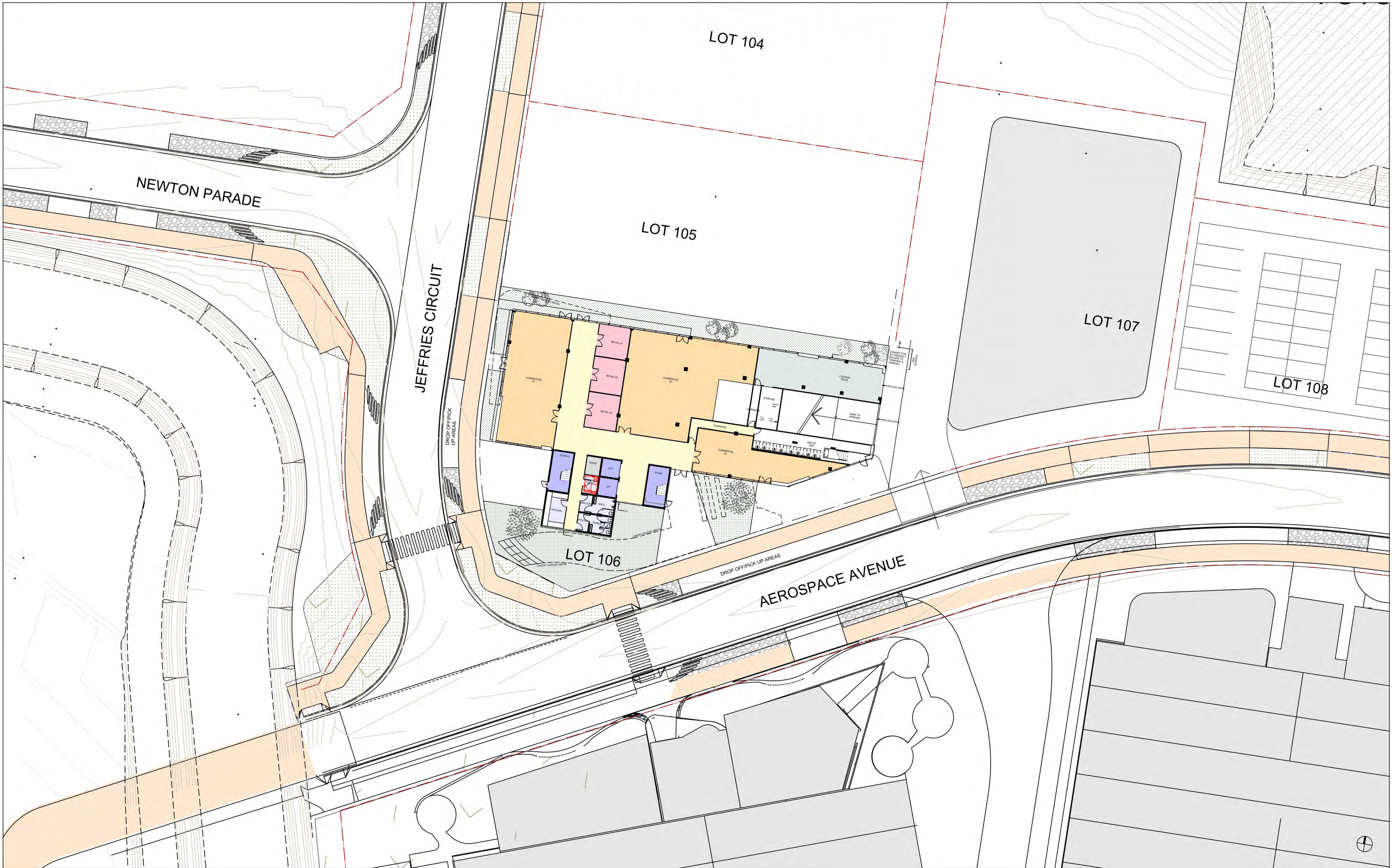
Date: Sept 2022

Location: Aerospace Avenue, Newcastle Airport, Williamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP ref: 3004







## 4.0 Bushfire 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 2 and Vegetation Buffer”. 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 defensible 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 cultural Heritage 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**.

**Table 2 – Hazard Vegetation and Slope Assessment**







Aspect	Hazard Vegetation (140m)	Slope (100m)
North	-	-
North East	Freshwater Wetland	Upslope/flat
East	-	-
South East	-	-
South	-	-
South West	Forest	Upslope/flat
North West	-	-

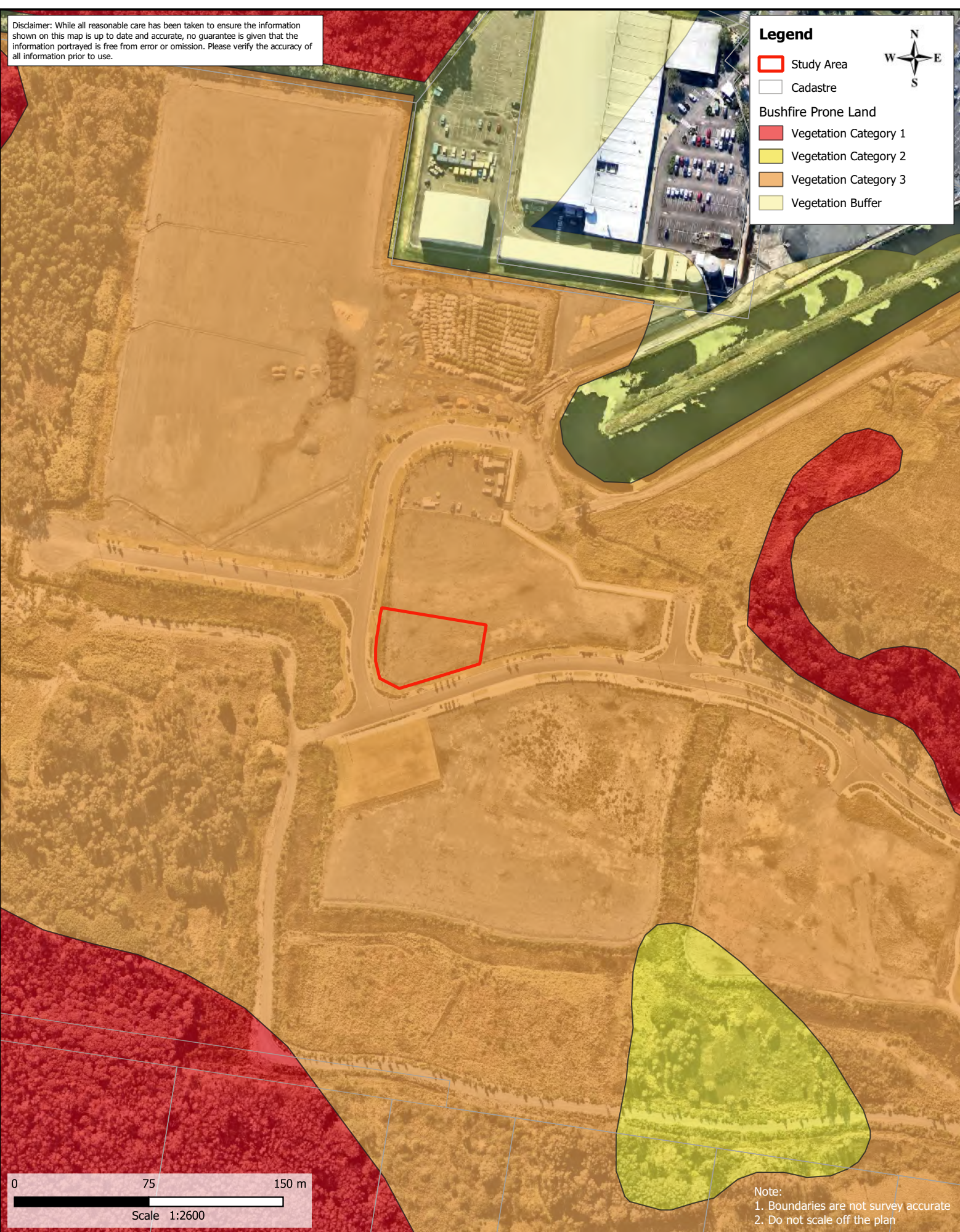
**Appendix A** contains photos showing the vegetation types within the 140m vegetation assessment buffer around the Study Area.



Disclaimer: While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

### Legend

-  Study Area
-  Cadastre
- Bushfire Prone Land**
  -  Vegetation Category 1
  -  Vegetation Category 2
  -  Vegetation Category 3
  -  Vegetation Buffer



# AEP

Figure 3 - Bushfire Prone Land

Date: Sept 2022

Location: Aerospace Avenue, Newcastle Airport, Williamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP ref: 3004



Disclaimer: While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.



Figure 4 - Slope and Hazard Assessment

Date: Sept 2022

Location: Aerospace Avenue, Newcastle Airport, Williamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP ref: 3004



### 4.3 PBP Performance Criteria Assessment

Class 5-8 and 10 buildings assessment criteria in accordance with the PBP 2019 is focused on adhering to the Objectives. **Tables 3** assesses the proposed development against the Objectives, demonstrating compliance.

**Table 3 – Performance Criteria Measures for Class 5-8 and Class 10 Building**

Performance Criteria	Assessment
Afford buildings and their occupants protection from exposure to a bush fire.	<p>Design provides adequate access and egress. Defendable space of 10m will be provided where possible between the facilities and the hazard vegetation. The 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.</p> <p>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.</p> <p>As stated within the Statement of the Environmental Effects <i>the mapped hazard vegetation within 140m from the proposed development is proposed to be cleared as part of the construction of Stage 2A in Development Consent DA 16-2009-324-1(3). This is the next is likely to commence in April 2023, and be completed in December 2023.</i></p> <p>Therefore, it has been determined that landscaping can be incorporated into the proposed development when the hazard vegetation has been cleared. It is recommended that the General Terms of Approval require evidence be provided the Certifier confirming clearing of the hazard vegetation has been completed prior to commencement of Landscaping within the Subject Site.</p>
Provide for a defendable space to be located around building.	<p>Defendable space of 10m will be provided where possible between the facilities and the hazard vegetation. There areas with reduced defendable space 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.</p> <p>As stated within the Statement of the Environmental Effects <i>the mapped hazard vegetation within 140m from the proposed development is proposed to be cleared as part of the construction of Stage 2A in Development Consent DA 16-2009-324-1(3). This is the next is likely to commence in April 2023, and be completed in December 2023.</i></p> <p>Therefore, it has been determined that landscaping can be incorporated into the proposed development when the hazard vegetation has been cleared. It is recommended that the General Terms of Approval require evidence be provided the Certifier confirming clearing of the hazard vegetation has been completed prior to commencement of Landscaping within the Subject Site.</p>
Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings.	<p>The current design provides adequate separation between the proposed buildings and the hazard vegetation in the south, west and east. There areas with reduced defendable space 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.</p> <p>As stated within the Statement of the Environmental Effects <i>the mapped hazard vegetation within 140m from the proposed development is proposed to be cleared as part of the construction of Stage 2A in Development Consent DA 16-2009-324-1(3). This is the next is likely to commence in April 2023, and be completed in December 2023.</i></p> <p>Therefore, it has been determined that landscaping can be incorporated into the proposed development when the hazard vegetation has been cleared. It is recommended that the General Terms of Approval require evidence be provided the Certifier confirming clearing of the hazard vegetation has been completed prior to commencement of Landscaping within the Subject Site.</p>
Ensure that appropriate operational access and egress for emergency	Access is adequate via sealed internal roads and from Aerospace Avenue.



Performance Criteria	Assessment
service personnel and occupants is available.	
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 2419.1:2021;
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.
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 3959-2021

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 Framed Housing (2021) should be considered when meeting the aims and objectives of PBP. Given the distance from the hazard vegetation, it is recommended that the development should use materials that maximise ember protection.



Disclaimer: While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.

**Legend**  

Study Area

Cadastre

10m Defendable Space

N

W

E

S

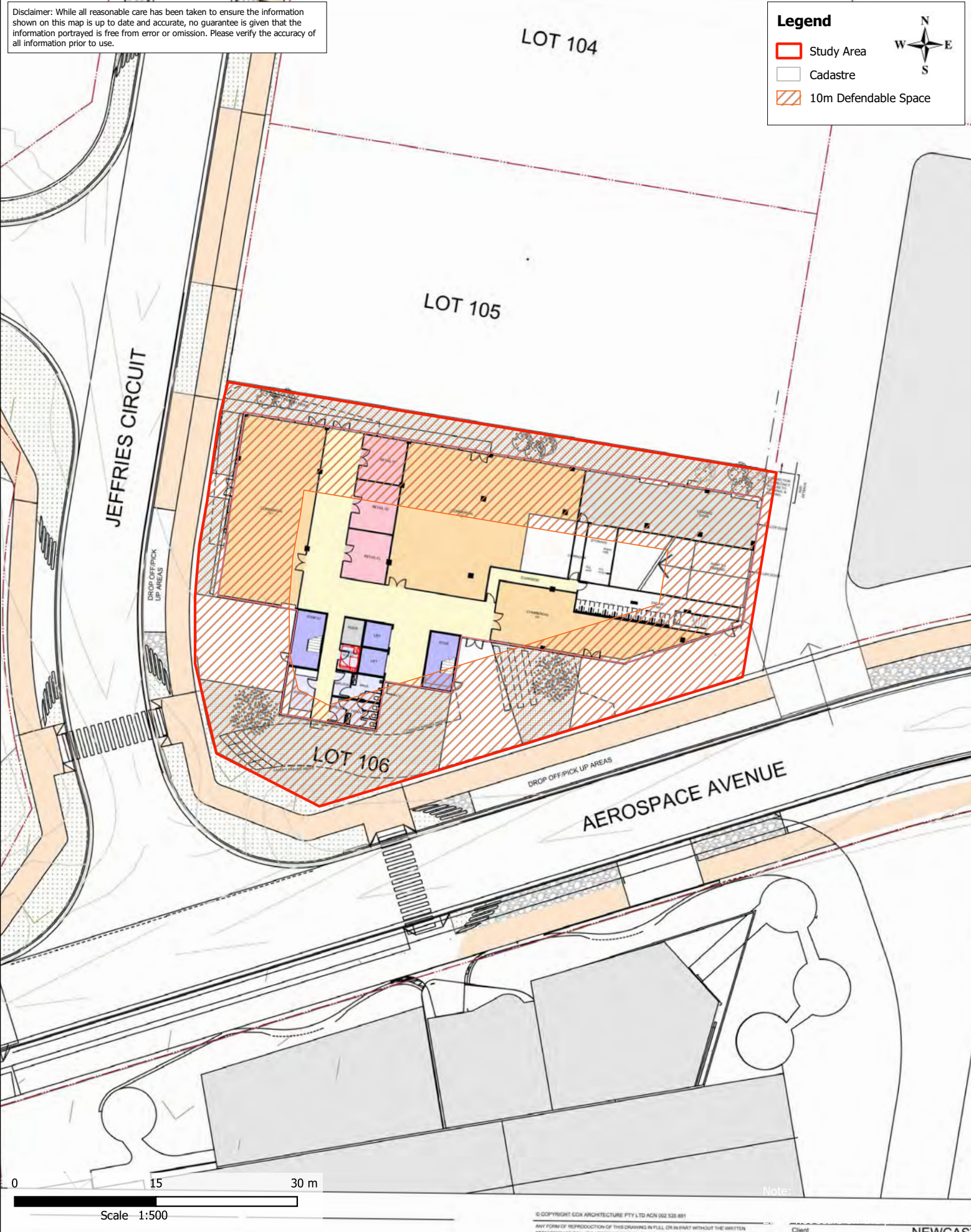


Figure 5 - 10m Defendable Space

Date: Sept 2022

Location: Aerospace Avenue, Newcastle Airport, Williamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP ref: 3004



## 6.0 Other Considerations

The following analysis applied to the site in reference to environmental features present are listed in **Table 4**.

**Table 4 – Other Considerations**

Item	Comments
<b>Riparian Corridors</b>	An unmapped drainage line linking the wastewater treatment plant in the north-east to the drainage reserve to the east runs approximately 20m from the north-east corner to approximately 80m from the eastern boundary of Lot 107.
<b>State Environmental Planning Policy (Resilience and Hazards) 2021</b>	Not mapped under this SEPP.
<b>State Environmental Planning Policy (Biodiversity Conservation) 2021</b>	No vegetation clearing is required.
<b>Areas of geological interest</b>	None present in study area.
<b>Environmental protection zones or steep lands (&gt;18°)</b>	None present in study area.
<b>Land slip or flood prone areas</b>	Stormwater management already in place.
<b>National Parks estate or various other reserves</b>	None present in vicinity.
<b>Threatened species matters</b>	None present in study area.
<b>Aboriginal Heritage</b>	Significant site outside of study area approximately 150m to the south-east which is 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 firefighting access and must not be vegetated. Where Defendable space around the perimeter is not able to be met ember protection must be in place. Areas within the defendable space must include a strict landscaping plan that incorporate minimal vegetation and free from combustible items and obstructions, this may be varied and landscaping can be incorporated when evidence is provided to the Certifier confirming clearing of the hazard vegetation as per DA 16-2009-324-1(3) has been completed.

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 Williamstown 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 Rural Fire Service (2022). *Addendum September 2022: Planning for Bushfire Protection: A guide for councils, planners, fire authorities and developers*. September 2022.
- 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 (2022) AS-3959 *Construction of Buildings in Bushfire-Prone Areas*. Standards Australia, Sydney. September 2022.
- Standards Australia (2010) AS-3745 *Planning for Emergencies in Facilities*. Standards Australia, Sydney. November 2010.
- Standards Australia (2021), AS-2419.1:2021 *Fire Hydrant Installations – Part 1: System Design, Installation and Commissioning*. Standards Australia, September 2021.



## **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**

