AEP

BIODIVERSITY | BUSHFIRE | ARBORICULTURE

NEWCASTLE SYDNEY

Bushfire Threat Assessment

Part of Proposed Lots 200-212 Newton Parade, Astra Aerolab, Williamtown, NSW

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

14 August 2024

AEP Ref: **3433**

Revision: **03**

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Image on Front Page: Indicative view of final cleared area from a separate nearby Lot

Document Control

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Project Number	3433
Client Name	Greater Newcastle Aerotropolis Pty Ltd
AEP Project Team	Natalie Black, Chris Wark

Revision

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00	19/12/2023	Chris Wark	Natalie Black	Natalie Black
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00	19/12/2023	Kathy Gresham	EJE Architecture
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Contents

Tables

Figures

Appendix

1.0 Introduction

Construction of a High Technology Industrial Development is proposed within Lot 200-212, located on Newton Parade located within the Astra Aerolab precinct, 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 2022 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, comprising office and industrial facilities. The development is assessed under Section 4.14 of the Environmental Planning and Assessment Act 1979. 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 *Bushfire Threat Assessment for High Technology Industrial Development, Part Lot 200-212 Newton Parade, Williamtown, NSW.* Unpublished report for Greater Newcastle Aerotropolis Pty Ltd. Rev 3, August 2024.

2.0 Site Particulars

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

Table 1 – Site Particulars

Items	Comments
Client	Greater Newcastle Aerotropolis Pty Ltd
Address	Newton Parade, Astra Aerolab, Williamtown
Title(s)	Part of Proposed Lots 200-212 in the subdivision of Lot 11 DP 1036501 and Lot 1 DP 1147810
Subject Site	2.28ha
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.

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

3.0 Proposed Development

The development is for a secure high technology industry within the Astra Aerolab Precinct, adjacent to Newcastle Airport.

The site is located on part of proposed Lot 200 and 212 in the subdivision of Lot 11 DP 1036501 ('Lot 11'), and Lot 1, DP 1147810, being 38 Cabbage Tree Road, Williamtown.

The site will front Newton Parade to be constructed as part of the Stage 2A and 2C subdivision works in Development Consent 16-2009-324-3. The approved subdivision works include the clearing of existing vegetation, the filling of land to an RL of a minimum of 4m AHD, remediation, construction of Newton Parade and associated stormwater drainage, installation of utilities, pedestrian pathways, street lighting and public domain areas and landscaping.

The proposed development is for a high technology industry comprising of office and workshop areas, and associated development. This includes a car park providing one hundred and eighty three (183) car parking spaces, driveway, manoeuvring area for B-double trucks, ring road, fire services, hardstand areas, and landscaping. The facility will be highly secure with perimeter fencing, and secure truck, vehicle and pedestrian entry and exit points. The development will be connected to potable water, sewer, stormwater drainage, electrical services, and communications services.

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

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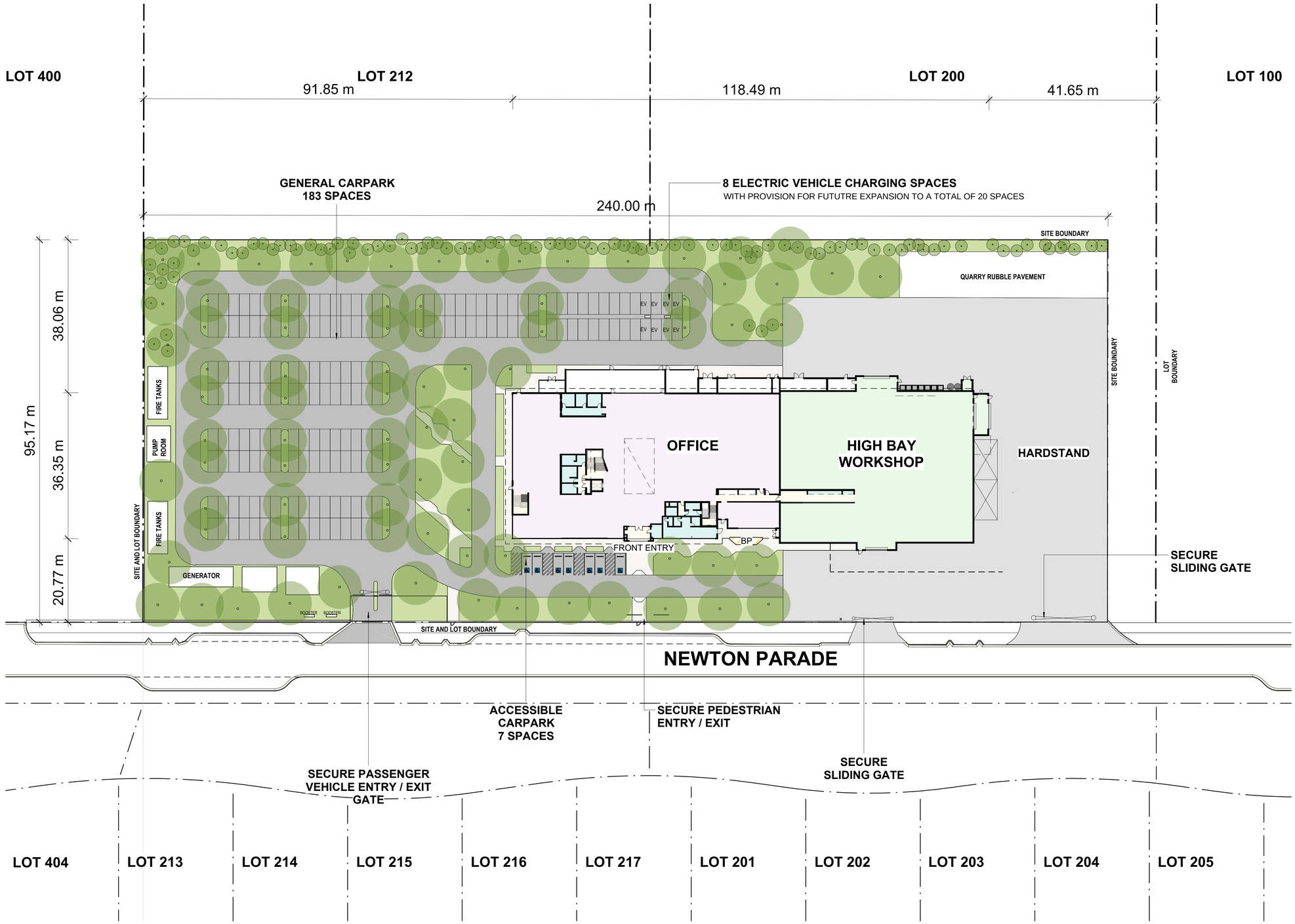
Figure 1 - Site Location

Date: Feb 2024

Location: Lot 200-212 Newton Pde, WIlliamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP Ref: 3433



LEGEND

30x BICYCLE PARKING SPACES	BP
TREE REFER TO LANDSCAPE DOCUMENTAITON	
LANDSCAPE DEEP SOIL ZONE	

SITE AREA SUMMARY

PROPOSED GROSS FLOOR AREA

WORKSHOP	1,885m²
OFFICE TOTAL	4,090m²
OFFICE (GROUND)	2,390m²
OFFICE (LEVEL 1)	1,700m²
TOTAL GFA	5,975m²

PROPOSED SITE AREAS

SITE AREA (PROPOSED LOT)	22,840m²
BUILDING FOOTPRINT	4,390m²
TOTAL CARPARK (183 SPACES)	7,020m²
HARDSTAND (INCL. VEHICLE MNVR)	4,790m²
SPACING (WALKWAY + PLANT)	1,870m²
LANDSCAPE DEEP SOIL AREA	4,770m²

1 SITE PLAN

1 : 500

ACN 002 912 843 I **ABN** 82 644 649 849 Nominated Architect - Bernard Collins NSW Architects Registration No.4438
A 412 KING STREET, NEWCASTLE, NSW, 2300 **P** +61 2 4929 2353 I **F** +61 2 4926 3069 I **E** mail@eje.com.au I **W** www.eje.com.au

0 20mm 100mm 200mm ON ORIGINAL A1

REV	DATE	COMMENTS	DRN	CHKD	VRFD
H	24/01/2024	DEVELOPMENT APPLICATION	MM	KG	
J	07/02/2024	DRAFT DA	MM	KG	
K	14/02/2024	DRAFT DA	MM	KG	
L	27/02/2024	UPDATED DEVELOPMENT APPLICATION	MM	KG	
M	09/04/2024	DA - RFI AMENDMENT	MM	KG	
N	29/04/2024	FOR INFORMATION	MM	KG	
P	12/08/2024	FOR COORDINATION	SE	KG	
Q	14/08/2024	FOR COORDINATION	SE	KG	

PROJECT : **HIGH TECHNOLOGY INDUSTRIAL DEVELOPMENT**
CLIENT : **ASTRA AEROLAB**
DRAWING : **SITE PLAN**

ADDRESS : **PART OF PROPOSED LOTS 200 / 212 - NEWTON PARADE, WILLIAMTOWN**
NAME OF COUNTRY : **WORIMI NATION**

DRAWN : MM
DATE : 12/01/23
SCALES : 1 : 500@ A1, 1:1000@ A3
C:\Users\semon\Documents\15111 - High Technology Industrial Development - Site Model (Not Central File) [R24]_semon39RXC.rvt
PROJECT No : 15111
PHASE : DA
DRAWING No : DA-A-003
REV : Q

EJE Integrity Innovation Inspiration

4.0 Fire Hazard Assessment

4.1 Bushfire Prone Land Mapping

Examination of NSW Planning Portal, Bushfire Prone Land (BPL) Mapping (2023) confirmed that the Subject Site is mapped as “Bushfire Prone Land – Vegetation Category 1” and “Bushfire Prone Land – Vegetation Category 3”. It should be noted that the vegetation and topography has changed significantly since the bushfire prone land mapping was produced. 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 and equivalent Grassland Fire Danger Index (GFDI) of 130, as defined in NSW Rural Fire Service (2017) NSW Local Government Areas FDI.

To the east of the Subject Site 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.**

Table 2 – Hazard Vegetation and Slope Assessment

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

Appendix A contains photos showing the vegetation types within the 140m vegetation assessment buffer around the Subject Site.

It is to be noted that the site is surrounded by land that will be developed in the future, as such it is likely that hazard vegetation currently present will not remain in the long term, however the vegetation within the Aboriginal heritage area will remain along with the freshwater channels – both of which will offer a very limited hazard profile.

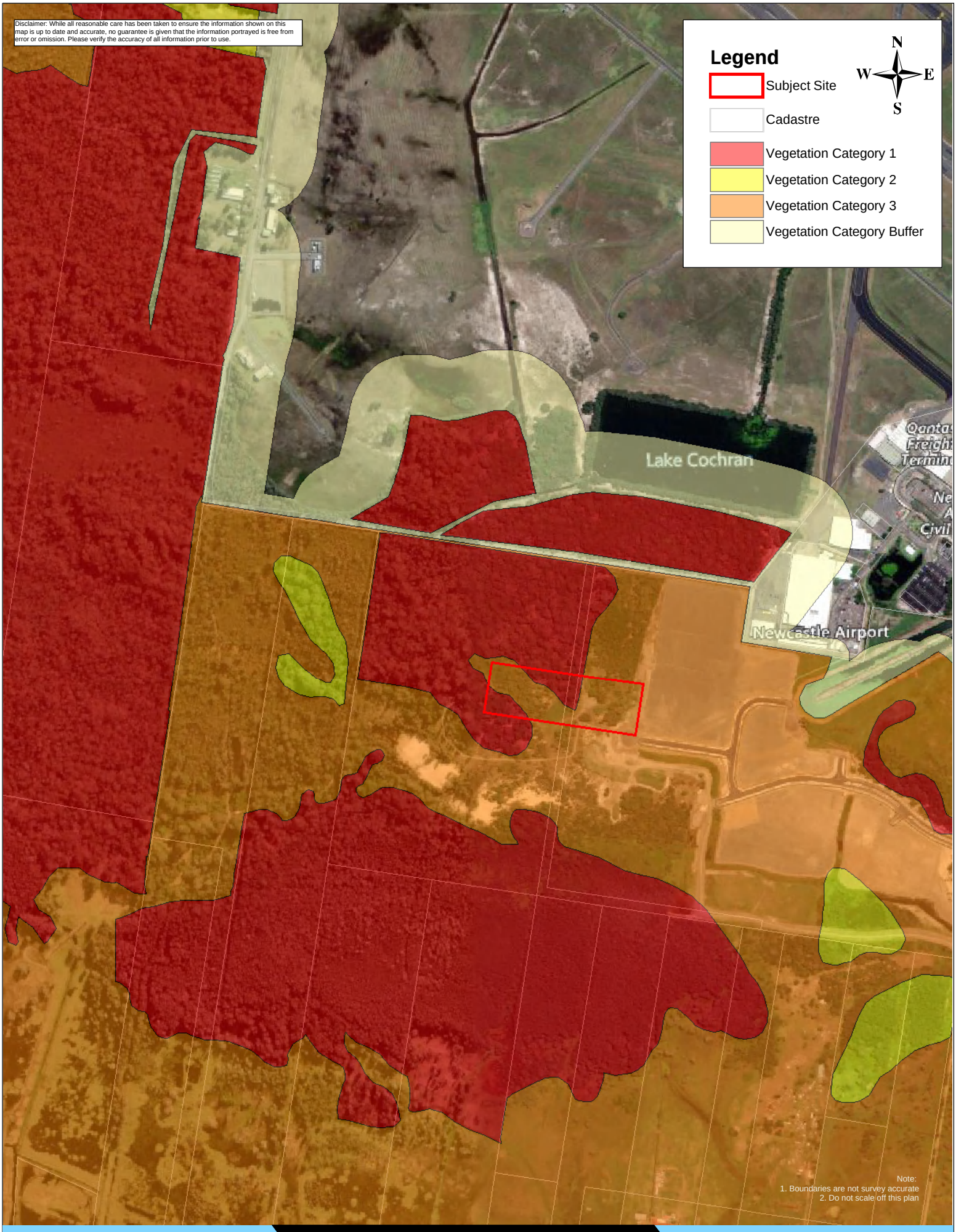


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Figure 3 - Bushfire Prone Land Map

Date: Feb 2024

Location: Lot 200-212, Newton Pde, WIlliamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP Ref: 3433

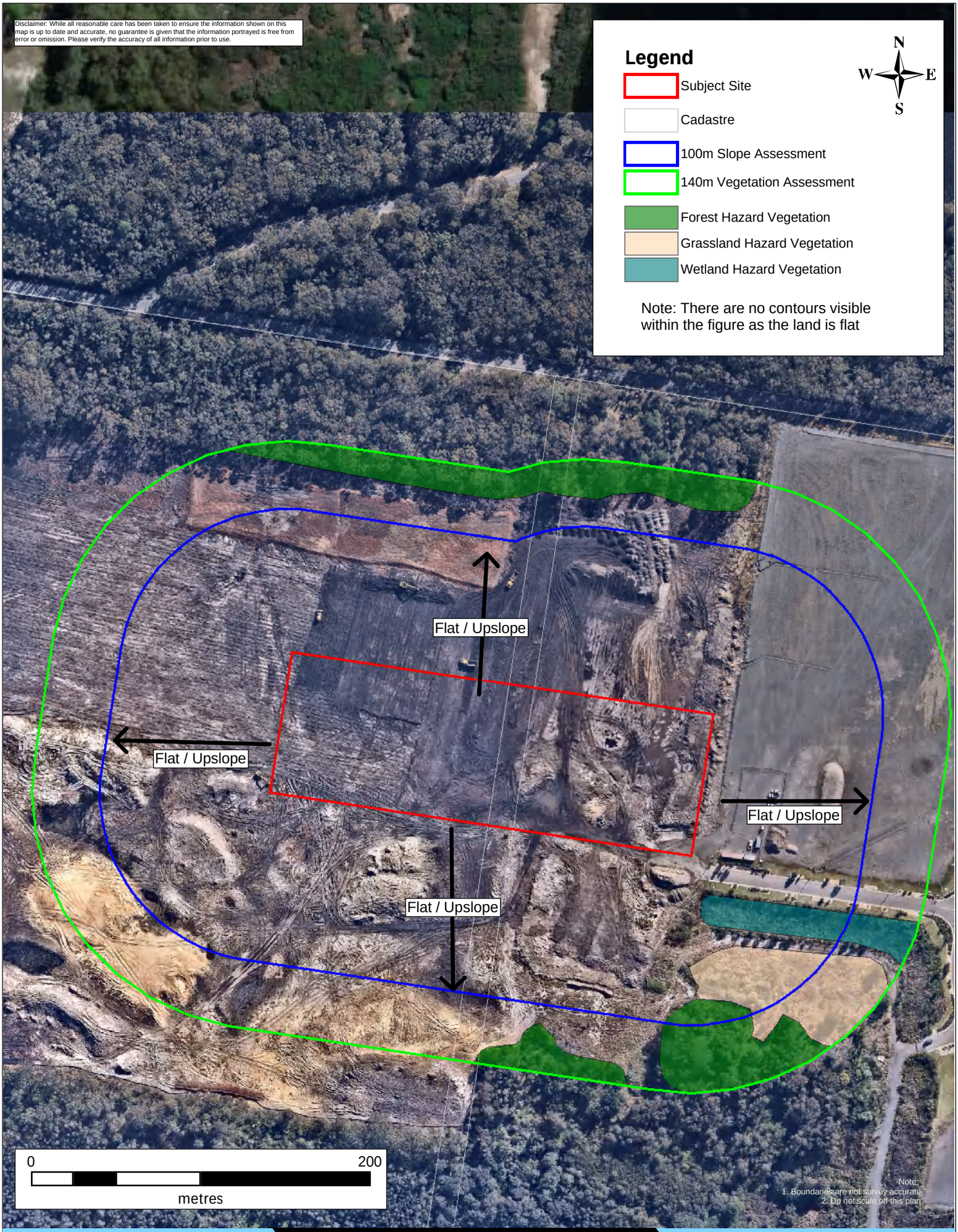

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Figure 4 - Slope and Vegetation Assessment

Date: Aug 2024

Location: Lot 200-212 Newton Pde, WIlliamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP Ref: 3433

4.3 PBP Performance Criteria Assessment

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

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.	Design provides adequate access and egress. Suitable defendable space is proposed between the facilities and the hazard vegetation, noting that land to the north is to be cleared as part of the Subdivision works preceding this development. In the most part there is approx. 10m however there are small constrictions with reduced defendable space along the northern boundary. All defendable space areas are proposed as hardstand, carparking or roads, ensuring access, there will be minimal to no landscaping in these areas to reduce ember attack. As the proposal will involve the movement of heavy vehicles the design will ensure clear pathways for such vehicles throughout the site which would also accommodate Firefighting vehicles. Hydrants are to be installed along Newton Parade as part of subdivision works and would be expected to be present, spaced and delivered according to AS 2419.1:2021.
Provide for a defendable space to be located around building.	Suitable defendable space of 10m will be provided where possible between the facilities and the hazard vegetation. All defendable space areas are proposed as hardstand, ensuring access, there will be no landscaping in these areas to reduce ember attack. As the proposal will involve the movement of heavy vehicles the design will ensure clear pathways for such vehicles throughout the site which would also accommodate Firefighting vehicles Defendable space to the south of the development will be provided by Newton Parade. Areas to the north of the development have been cleared as part of Stage 2 subdivision works and gravel base laid similar to the area to the east and as shown in the photos in the Appendix. The area to the west of the office will have a large carpark which will be suitable for use as an area to fight fires.
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 surrounding the proposed development. While areas of hazard vegetation are present surrounding the proposed development these are separated from the development by roads or other infrastructure. Hardstand will be present between all areas of hazard vegetation and the proposed structures noting that there is also a large area of cleared land between the proposed development and hazard vegetation.
Ensure that appropriate operational access and egress for emergency service personnel and occupants is available.	Proposed access is adequate via sealed internal roads and from Newton Parade. During daytime business hours the site will be accessible through three sliding gates, that will be left open. After hours these gates will be closed and access will be restricted. Three access and egress points are present and there is a through road throughout the site.
Provide for ongoing management and maintenance of BPMs.	Defendable space will be provided in the form of hardstand space which will be maintained to allow movement of heavy vehicles and cars throughout the Subject Site.

Performance Criteria	Assessment
Ensure that utility services are adequate to meet the needs of firefighters.	The proposed development is being developed to be capable of B-double truck movement throughout the Subject Site. Utility services will be provided as per the precinct plan and are suitable for firefighters. Hydrants will be present along Newton Parade as part of the Subdivision development. Two Fire Storage Tanks are to be provided on the western side of the development along Newton Parade.
Water supply should aim to meet the objectives of Section 8.3.1 of Planning for Bushfire Protection (2019).	The development is serviced by reticulated water, it also has fire storage tanks and a pump system located within the design.
Fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2021.	Hydrants are to be provided as part of the subdivision development (separate to this DA) along Newton Parade. Two Fire Storage tanks and Pump station are provided as part of this development. While no hydrants are currently proposed any future hydrants provided as part of this development proposal are to 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, less than 1km away. 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. There is no parking along Newton Parade though there is a small layby area in front of the development to the south. Parking is located within the Subject Site and a separate traffic study will accompany the development application.
The access road into the development would need to meet access road requirements under Section 8 of the PBP.	Adequate access roads are provided by the public road – Newton Parade, which will be extended as part of Stage 2 of the subdivision development. Newton Parade is to be at least 8m in width and will have a temporary turning circle road is to be installed as part of the stage 2 subdivision works. A separate traffic study will accompany the development application.
Internal roads would also need to comply with Section 8 of the PBP	Internal areas on the eastern side of the development are designed to allow for movement of B-Double truck turning throughout the Subject Site. Access through the site is provided by a 4m wide one-way road at the back of the development (north) and front (south) which would allow through movement throughout the site in the case of an emergency. As such it is considered that internal roads and pavement will be suitable for Firefighting appliances.

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 or industrial classes of buildings. 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 that the proposed workshop and office space is surrounded by hazard vegetation it is recommended that ember protection be applied to windows and doors of the office structure. The Workshop should be constructed of non-combustible material and have ember protection on windows.

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Figure 5 - Defendable Space

Date: Aug 2024

Location: Lot 200-212 Newton Pde, WIlliamtown, NSW

Client: Greater Newcastle Aerotropolis Pty Ltd

AEP Ref: 3433

6.0 Other Considerations

Consideration of other matters that could affect the development is summarised in **Table 3**.

Table 3 – Other Considerations

Item	Comments
Riparian Corridors	There are no riparian corridors within Subject Site.
State Environmental Planning Policy (Resilience and Hazards) 2021	Not mapped under this SEPP
State Environmental Planning Policy (Biodiversity Conservation) 2021	While the site is currently vegetated, it will be cleared under the approved subdivision prior to the construction of this development.
Areas of geological interest	None present in Subject Site
Environmental protection zones or steep lands (>18º)	None present in Subject Site
Land slip or flood prone areas	Stormwater management will be put in place as part of the Stage 2 subdivision works.
National Parks estate or various other reserves	None present in vicinity
Threatened species matters	None will be present in Subject Site after approved clearing works.
Aboriginal Heritage	Aboriginal heritage was assessed at the subdivision stage. No Aboriginal heritage was determined to be present within the area proposed for this development.

7.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment have revealed that the proposed development will be affected by hazardous vegetation surrounding the Subject Site.

Defendable space is provided between areas of hazard vegetation and the proposed development. It is noted that all of the hazard is separated from the development by areas of hardstand and that clearing works will substantially modify what is currently present. Hardstand areas are provided between the hazard vegetation and the proposed development that would allow for firefighting activities.

It is recommended that ember protection be applied to windows and doors of the office structure while the workshop should be constructed of non-combustible material and have ember protection on windows and doors where practicable.

AEP understands that the development will be serviced by static water supply meeting AS 3959 and with hydrant installation as part of the subdivision installation is expected to comply with AS-2419.1:2021. It is proposed that there will be two fire tanks and a pump room for use in the case of an emergency.

Access and egress are provided by three access points at the south of the Subject Site (onto Newton Parade) linking to Jeffries Circuit and Aerospace Avenue and then out onto Williamtown Drive and then to Nelson Bay Road. 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. A separate traffic study will accompany the proposed development application to further assess the development.

It is considered that the distance between the hazard vegetation and the proposed defendable space will enable will provide adequate protection to buildings and occupants in the case of a fire.

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 13/08/2024.

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 (2021), AS-2419.1 Fire Hydrant Installations – Part 1: System Design, Installation and Commissioning. Standards Australia, November 2021.

Appendix A – Study Area Photos

Below: Indicative indication of how the site will be prepared post subdivision clearance works

Below: View of Aerospace Avenue looking west, showing the road leading up to Newtown Parade.