AEP

BIODIVERSITY | BUSHFIRE | ARBORICULTURE

NEWCASTLE SYDNEY

Bushfire Threat Assessment

Precinct Entry Works, Williamtown Drive, Williamtown NSW

Prepared for: **Built Pty Ltd**

3 September 2024

AEP Ref: **4313**

Revision: **02**

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

Document Control

Document Name	4313 Proposed Precinct Entry Works, Williamtown Drive, Williamtown NSW.
Project Number	4313
Client Name	Built Pty Ltd
AEP Project Team	Chris Wark

Revision

Revision	Date	Author
01	16-08-2024	Chris Wark
02	03-09-2024	Chris Wark

Distribution

Revision	Date	Name	Organisation
01	16-08-2024	Sita Vasanthakumar	Built Pty Ltd
02	03-09-2024	Sita Vasanthakumar	Built Pty Ltd

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1.0 Introduction

Development for demolition of a building, construction of site access and a car park with associated security building, gates and fencing and landscaping is proposed within Part of Proposed Lot 100, and Proposed Lot 101, and 102 in Lot 11, DP 1036501, 38 Cabbage Tree Road, and part Lot 43, DP 1045602 and part Lot 103, DP 873512, located at Williamtown Drive, Williamtown NSW in the Port Stephens Council LGA. At the request of Built 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 development is for demolition of a building, construction of site access and a car park with associated security building, gates and fencing and landscaping. 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 Precinct Entry Works at Williamtown Drive, WIlliamtown NSW.* Unpublished report for Built Pty Ltd, Revision, September 2024.

2.0 Site Particulars

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

Table 1 – Site Particulars

Items	Comments
Client	Built Pty Ltd
Address	Williamtown Drive, Williamtown NSW, 2250
Title(s)	Part of Proposed Lot 100, and Proposed Lot 101, and 102 in Lot 11, DP 1036501, 38 Cabbage Tree Road, and part Lot 43, DP 1045602 and part Lot 103, DP 873512
Subject Site	Entirety of Lot
LGA	Port Stephens Council
Zoning	Under the Port Stephens Local Environment Plan 2013 (the LEP), the Subject Site and Study Area are zoned B7 – Business Park.
Current Land Use	Vacant Land
Surrounding Land Use	The proposed development is surrounded by cleared land to the south and west. Managed drainage to the east and Industrial infrastructure associated with RAAF Newcastle to the north.

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

3.0 Proposed Development

The development is for demolition of a building, construction of site access and a car park with associated security building, gates and fencing and landscaping.

The site is located on Part of Proposed Lot 100, and Proposed Lot 101, and 102 in Lot 11, DP 1036501, 38 Cabbage Tree Road, and part Lot 43, DP 1045602 and part Lot 103, DP 873512, Williamtown Drive, Williamtown NSW.

Figure 2 depicts the proposed development plan.

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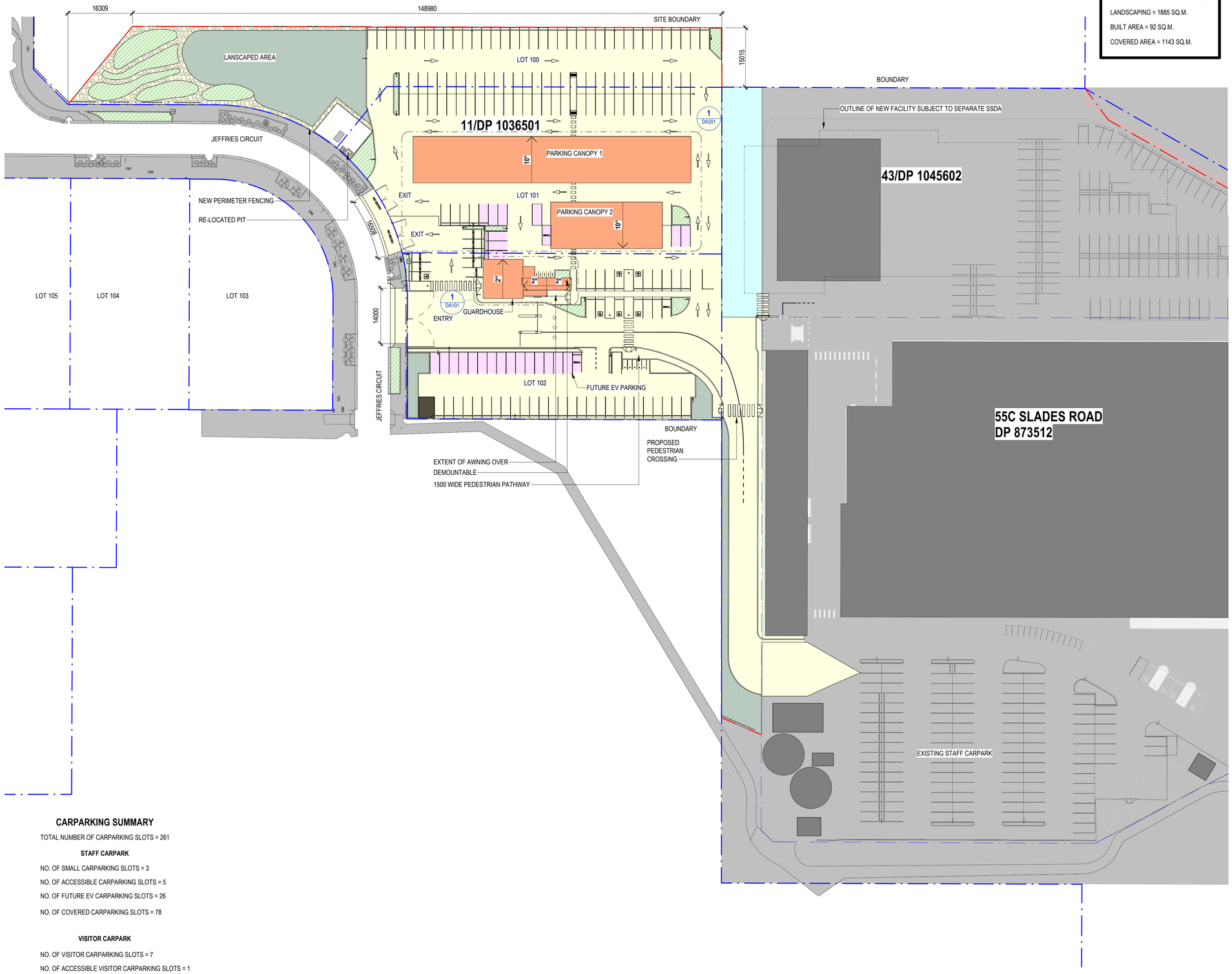
Figure 1 - Site Location

Date: Sept 2024

Location: 55C Slades Road, WIlliamtown

Client: Built Pty Ltd

AEP Ref: 4313



CARPARKING SUMMARY

TOTAL NUMBER OF CARPARKING SLOTS = 261

STAFF CARPARK

NO. OF SMALL CARPARKING SLOTS = 3

NO. OF ACCESSIBLE CARPARKING SLOTS = 5

NO. OF FUTURE EV CARPARKING SLOTS = 26

NO. OF COVERED CARPARKING SLOTS = 78

VISITOR CARPARK

NO. OF VISITOR CARPARKING SLOTS = 7

NO. OF ACCESSIBLE VISITOR CARPARKING SLOTS = 1

AREA CALCULATION

LOT 100, 101 & 102 = 9914 SQ.M.

BAE PRECINCT = 1,809 SQ.M.

TOTAL PEW SITE AREA = 11723 SQ.M.

LANDSCAPING = 1885 SQ.M.

BUILT AREA = 92 SQ.M.

COVERED AREA = 1143 SQ.M.

LEGEND

- BOUNDARY
- SITE BOUNDARY
- EXISTING
- PROPOSED TURF
- PROPOSED GROUNDCOVER
- LOW GROUND COVER SHURBS & GROUNDCOVER
- 1M WIDE DECO GRANITE VERGE
- PROPOSED SITE WORKS STAGE 1
- PROPOSED BUILDING
- PROPOSED WORKS STAGE 2
- PROPOSED EV PARKING

1 OVERALL SITE PLAN

SCALE BAR - 1:500 (0, 5, 10, 15, 20, 25 m)

PLOTTED : 30/08/2024 9:25:32 PM

DRAWING TO BE PRINTED IN COLOUR

OFFICIAL

BAE SYSTEMS PROPRIETARY

No	DATE	REVISIONS	BY
A	14/06/2024	FOR INFORMATION	SG
B	15/07/2024	FOR INFORMATION	SG
C	16/07/2024	FOR INFORMATION	SG
D	26/07/24	Draft DA	SG
E	23/08/2024	FOR INFORMATION	SG
F	30/08/2024	DEVELOPMENT APPLICATION ISSUE	SG/CK

ENVIRONMENTAL ENGINEER: sonversa

PROJECT MANAGER: rps

GEOTECHNICAL ENGINEER: PSM

TRAFFIC ENGINEER: ptc.

BCA / DDA CONSULTANT: JENSEN HUGHES

PCA CONSULTANT: newcert

ENGINEER: NORTHROP

D&C CONTRACTOR: Built

ARCHITECT: DesignInc

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Nominated Architects
Ian Armstrong 7260
Cathryn Drew-Bredin 7269
Mary Anne McGirr 10946
Cameron Martin 9194

CLIENT: BAE SYSTEMS

PROJECT
PRECINCT ENTRY WORKS

WILLIAMTOWN, NSW

DETAILS

DRAWN	SG	SCALE
CHECKED	CK	
APPROVED	CDB	1:500 @ A1

TITLE
OVERALL SITE PLAN

STATUS
DEVELOPMENT APPLICATION

DRAWING NUMBER: DA006

REVISION: F

NOT FOR CONSTRUCTION

4.0 Fire Hazard Assessment

4.1 Bushfire Prone Land Mapping

Examination of NSW Planning Portal, Bushfire Prone Land (BPL) Mapping (2024) confirmed that the Subject Site is mapped as "Bushfire Prone Land – Vegetation Category 3" noting that the hazard profile of the entire Astra locality has changed extensively since the maps were created. 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 defined in NSW Rural Fire Service (2017) NSW Local Government Areas FDI and an associated Grass Fire Danger Index (GFDI) of 130.

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.** Note that slope is not shown in **Figure 4** due to a lack of council contour data from the area and the general flatness of the locality. It should also be noted that the assessment buffers are based off the location of the carpark and guardhouse structure and that the northern section is not included as it is only road infrastructure.

Table 2 – Hazard Vegetation and Slope Assessment

Aspect	Hazard Vegetation (140m)	Slope (100m)	Defendable Space
North	Industrial	Upslope flat	10m
North East	Managed / Forest	Upslope flat	10m
East	Managed	Upslope flat	10m
South East	Managed / Grassland	Upslope flat	10m
South	Managed	Downslope 0-5	10m
South West	Managed / Freshwater Wetlands / Grassland	Downslope 0-5	10m
West	Managed	Downslope 0-5	10m
North West	Managed	Downslope 0-5	10m

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

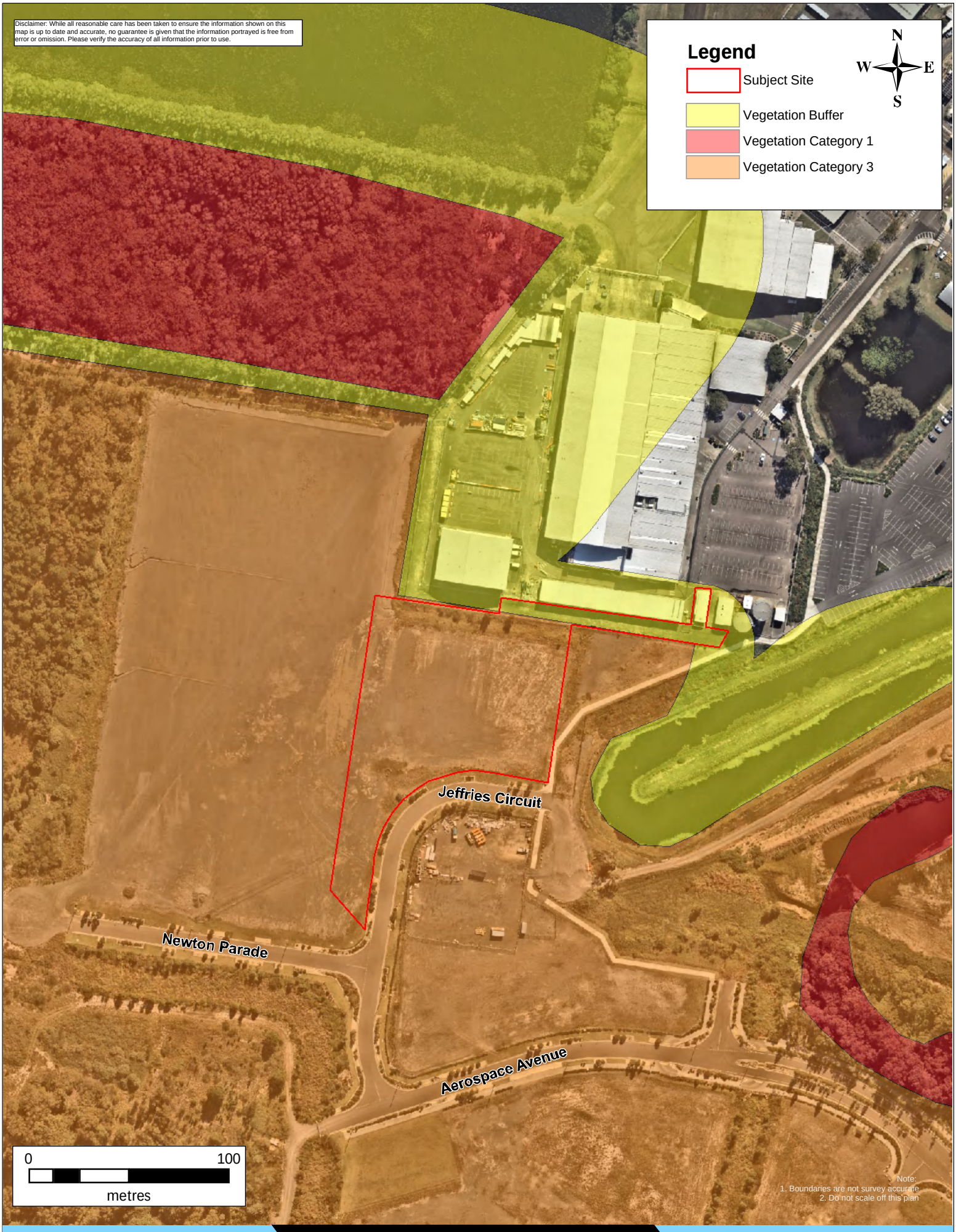

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Figure 3 - Bushfire Prone Land

Date: Sept 2024

Location: 55C Slades Road, WIlliamtown

Client: Built Pty Ltd

AEP Ref: 4313

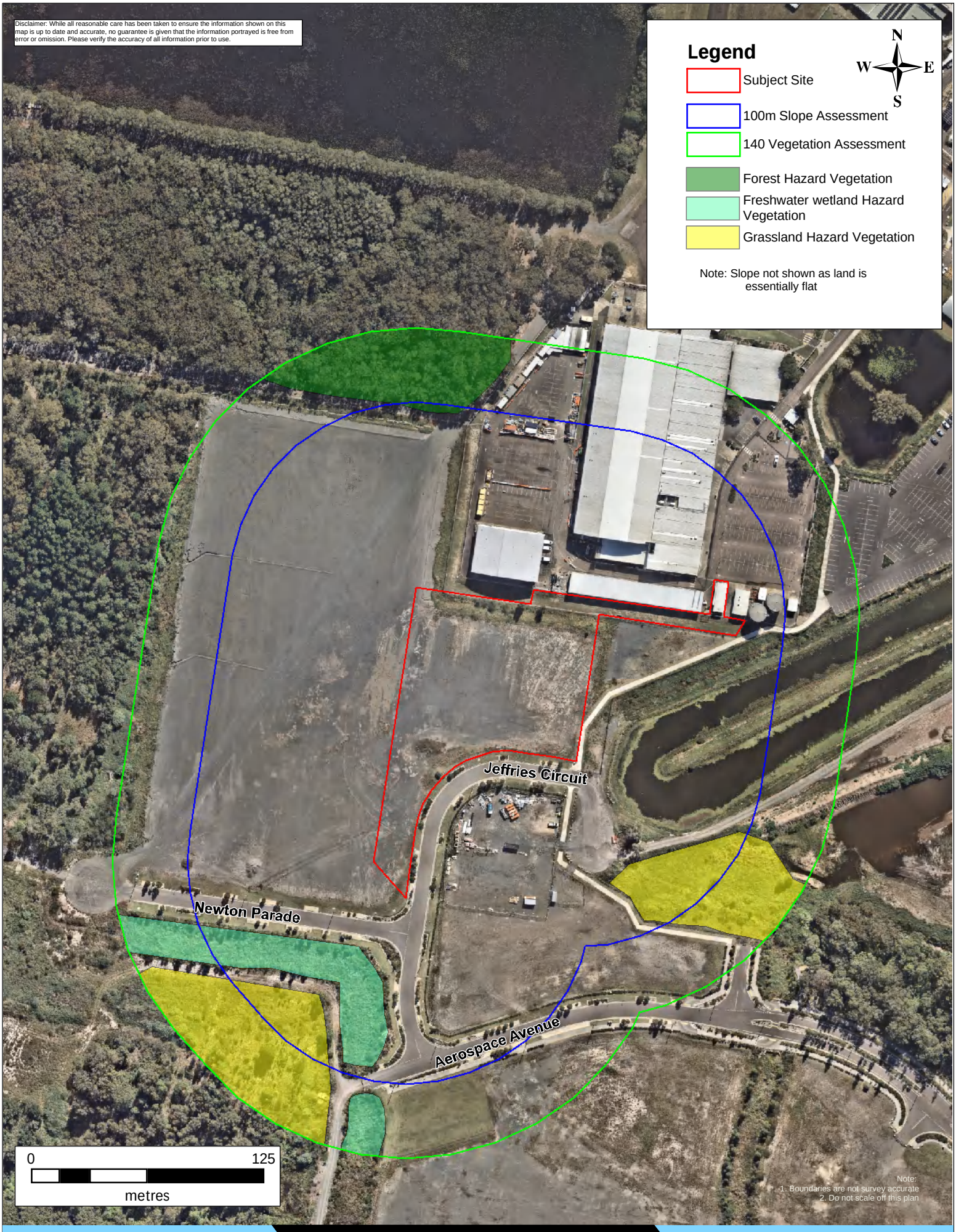

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Figure 4 - Slope and Vegetation Assessment

Date: Sept 2024

Location: 55C Slades Road, WIlliamtown

Client: Built Pty Ltd

AEP Ref: 4313

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 the proposed development is surrounded by vacant lots and managed lands. All defendable space areas are proposed as hardstand, carparking or roads, 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 provides clear pathways for such vehicles throughout the site which would also accommodate Firefighting vehicles.
Provide for a defendable space to be located around building.	Suitable defendable space of 10m is currently present between the development and hazard vegetation. Proposed structures are surrounded by carparking and road infrastructure. As the proposal will involve the movement of heavy vehicles the design provides clear pathways for such vehicles throughout the site, which would also accommodate Firefighting vehicles Suitable defendable space is provided around the structures within the proposed development however there is also additional defendable areas that are present between the development and the hazard vegetation and it is highly likely that these areas will be built out in the following years further increasing access and protection for this site.
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 building and the hazard vegetation surrounding the proposed development. Where areas of hazard vegetation are present these are separated from the development by roads or other infrastructure which will provide an additional buffer between the development and hazard vegetation. Hardstand will be present between all areas of hazard vegetation and the proposed structures. Landscaping in the southern section will have more than 10m of defendable space between vegetation in this area and structures.
Ensure that appropriate operational access and egress for emergency service personnel and occupants is available.	Proposed access is adequate from the public road, Jeffries Circuit, which links to Aerospace Avenue. As the wider precinct development is designed to accommodate large trucks it is considered that operational access and egress for emergency service personnel is provided. There is also a secondary access that could be utilised in an emergency that connects directly to the airside of Newcastle Airport and RAAF Williamtown if required. As this is a secure facility the entire site will be surrounded by a security fence and gate and entry will be controlled by the guardhouse, which will be manned 24 hours a day, 7 days a week.
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.
Ensure that utility services are adequate to meet the needs of firefighters.	The proposed development is being developed to be capable of truck movements through the Subject Site and is essentially a large carpark surrounding a small office. Where required, Hydrants are to be spaced and installed in accordance

Performance Criteria	Assessment
	with AS 2419.2021. Hydrants are provided along the public roads as part of the approved subdivision works.
Water supply should aim to meet the objectives of Section 8.3.1 of Planning for Bushfire Protection (2019).	The development is to be serviced by reticulated water, hydrants, where required, are to be installed in accordance with AS 2419.2021.
Fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2021.	Any hydrants installed as part of the development are to be spaced, sized and ensure pressures comply with AS 2419.2021.
Location and distance to nearest Fire Station	Firefighting services are available from Williamtown Airport, adjacent to the development. The next closest Fire Station is at Medowie which is approximately 9.5km away.
The provisions of public roads in section 8.3.1 in relation to parking are met	The Astra Aerolab subdivision has installed public roads that meet the requirements for the provision of public roads. There is an 8m wide carriageway currently present and no parking is allowed along the length of the road leading to the development entrance.

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 the location of the development it is unlikely that the office or guardhouse will be subject to direct flame attack and will have limited exposure to radiant heat it is still recommended that the proposed office and guardhouse be made of non-combustible materials, where possible, to further reduce the risk of embers impacting the buildings.

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Figure 5 - Defendable Space

Date: Sept 2024

Location: 55C Slades Road, WIlliamtown

Client: Built Pty Ltd

AEP Ref: 4313

6.0 Other Considerations

Consideration of other matters that could affect the development is summarised in **Table 4**.

Table 4 – Other Considerations

Item	Comments
Riparian Corridors	There are no riparian corridors within Subject Site.
State Environmental Planning Policy (Resilience and Hazards) 2021	This was considered under the approved subdivision application and the land is now completely cleared.
State Environmental Planning Policy (Biodiversity Conservation) 2021	This was considered under the approved subdivision application and the land is now completely cleared.
Areas of geological interest	None present in the Subject Site
Environmental protection zones or steep lands (>18º)	None present in the Subject Site
Land slip or flood prone areas	None present in the Subject Site
National Parks estate or various other reserves	None present in vicinity
Threatened species matters	This was considered under the approved subdivision application and the land is now completely cleared.
Aboriginal Heritage	Aboriginal heritage was assessed at the subdivision stage. No Aboriginal heritage was determined as being present within the area proposed for this development.

7.0 Conclusion

Investigations undertaken for this Bushfire Threat Assessment have revealed that the proposed development could potentially be affected by hazard vegetation to the northwest and southeast of the Subject Site.

10m of 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, road or carparking. Hardstand areas are provided between the hazard vegetation and the proposed development that would allow for firefighting activities.

It is recommended that the building be constructed of non-combustible material and have ember protection on windows and doors where practicable to further protect the structures from possible ember attack.

AEP understands that the development will be serviced by a reticulated water supply. Hydrants, if required to be installed as part of BCA requirements, are to be installed in accordance with AS-2419.1:2021.

Access and egress are provided from Jeffries Circuit, connecting to Aerospace avenue which connects to Slades Road, all of which have been designed for industrial use and have carriageway widths greater than 8m. A secondary access is present which is directly connected to the airside area of Newcastle Airport that could be used in an emergency. As this is a secure facility a security fence and security gate will be present with access controlled by the guardhouse at all times. 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, the proposed defendable space and an appropriate emergency evacuation procedure in the case of a bushfire event 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 July 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: Northwest corner of site looking across managed area, North towards Forest Hazard

Below: Northern Boundary looking north towards industrial facility

Below: Northeast corner of the site looking east

Below: Eastern boundary looking east towards water area

Below: Southeast corner looking south across Jeffries Circuit and ongoing development

Below: Southern boundary looking west along Jeffries Circuit

Below: Southwest corner looking west across managed lands

Below: Western boundary looking west across managed lands