

# Bush Fire Assessment Report

## *Planning Proposal*

**365 Marshall Mount Road,  
Marshall Mount NSW**

*Reference Number: 211219D*

*Prepared For:*  
**Maker ENG Pty Ltd**

**7 November 2024**



*Prepared By:*  
**Building Code & Bushfire  
Hazard Solutions Pty Limited**

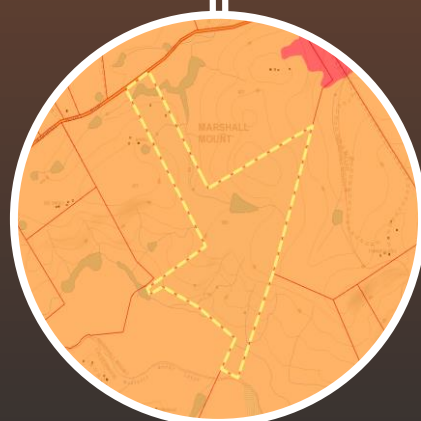
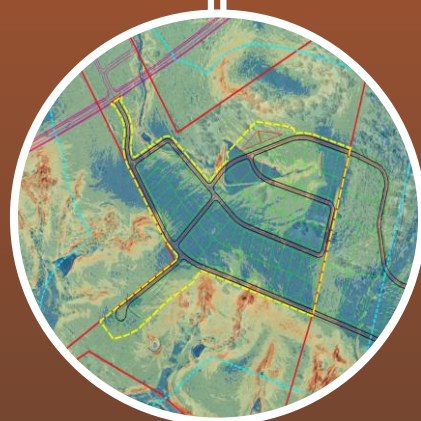
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Version Control				
Version	Date	Author	Reviewed by	Details
1	09/06/2023	Andrew Muirhead	Stuart McMonnies	Final Report
2	06/02/2024	Andrew Muirhead	Stuart McMonnies	Updated Layout
3	07/11/2024	Andrew Muirhead		BPLM Update

## List of Abbreviations:

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APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018 as amended
BAL	Bushfire Attack Level
BPMs	Bushfire Protection Measures
BPLM	Bush Fire Prone Land Map
Council	Wollongong City Council
DA	Development Application
EP&A Act	Environmental Planning and Assessment Act - 1979
FRNSW	Fire & Rescue NSW
IPA	Inner Protection Area
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Places
OPA	Outer Protection Area
PBP	Planning for Bush Fire Protection – 2019 as amended
ROW	Right of Way
RF Act	Rural Fires Act - 1997
RFS	NSW Rural Fire Service
SBFS	Strategic Bush Fire Study
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

## Executive Summary

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Building Code and Bushfire Hazard Solution P/L has been commissioned by Maker ENG Pty Ltd to prepare an independent Bushfire Assessment Report for a Planning Proposal which will facilitate a future residential development at 365 Marshall Mount Road, Marshall Mount.

The subject site comprises of an existing allotment (Lot 8 DP 626078), zoned C2: Environmental Conservation, C3: Environmental Management, C4: Environmental Living and R2: Low Density Residential.

The subject site is located within the West Dapto Urban Release Area which is intended to provide approximately 19,500 dwellings and an additional population of 56,500 people once fully developed over 50 plus years.

In accordance with the Wollongong Development Control Plan 2009 – December 2018, Chapter D16: West Dapto Release Area the subject site is within Stage 5 Yallah Marshall Mount.

The proposal will facilitate a future Development Application seeking approval for the creation of seventy-two (72) new residential allotments and associated infrastructure.

In this instance the subject site is depicted on Wollongong City Council's Bushfire Prone Land Map as Category 3 Vegetation. The subject site is therefore considered 'bushfire prone'.

In relation to this planning proposal Wollongong City Council is required to apply section 9.1(2) of the Environmental Planning and Assessment Act 1979. Direction 4.4 Planning for Bushfire Protection identifies matters for consideration for proposals that affect or are in proximity to land mapped as bushfire prone. Under these directions the following objectives apply:

- i. to protect life, property and the environment from bush fire, by discouraging the establishment of incompatible land uses in bush fire prone areas; and*
- ii. to encourage sound management of bush fire prone areas.*

A Strategic Bush Fire Study has been undertaken and concluded the proposal is appropriate in the bushfire hazard context.

In addition to the Strategic Bush Fire Study an assessment of the proposal against Planning for Bush Fire Protection 2019 has concluded the future Development Application has the capacity to satisfy this document.

A key consideration for planning proposals in bushfire prone areas is limiting or excluding incompatible development commensurate with the level of risk. In this regard the subject site is considered to have a low bushfire risk when considering the characteristics of the vegetation and the fact there have been no recorded wildfires within the immediate area (closest recorded wildfires approximately 5km to the west).

It is of our opinion that the proposal satisfies all relevant specifications and requirements of Planning for Bush Fire Protection 2019.

## 1.0 Introduction

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Building Code and Bushfire Hazard Solution P/L has been commissioned by Maker ENG Pty Ltd to prepare an independent Bushfire Assessment Report for a Planning Proposal which will facilitate a future residential development at 365 Marshall Mount Road, Marshall Mount.

The subject site comprises of an existing allotment (Lot 8 DP 626078) zoned C2: Environmental Conservation, C3: Environmental Management, C4: Environmental Living and R2: Low Density Residential.

The site is currently zoned C4 Environmental Living under the Wollongong Local Environmental Plan 2009 and is subject to a minimum Lot Size of 4,999m<sup>2</sup>. By contrast the existing R2 Low Density Residential land to the west is subject to a Minimum Lot Size of 449m<sup>2</sup>.

This report has been prepared to accompany a Planning Proposal and associated Neighbourhood Plan for the land holding which will deliver a broader range of housing which is site responsive and responds to servicing capabilities.

Generally, the Planning Proposal seeks to adopt an implied lot size of 1,000m<sup>2</sup> (mapped as 999m<sup>2</sup>) over the western portion of the and retain the current 4,999m<sup>2</sup> minimum lot size of the eastern portion of the land. This will deliver a transition in the lot size and housing arrangements.

The Neighbourhood Plan will address more detailed design outcomes as prescribed under the Wollongong DCP consistent with the lot sizes sought under the Planning Proposal.

In this instance the subject site is depicted on Wollongong City Council's Bushfire Prone Land Map as Category 3 Vegetation. The subject site is therefore considered 'bushfire prone'.

In relation to this planning proposal Wollongong City Council is required to apply section 9.1(2) of the Environmental Planning and Assessment Act 1979. Direction 4.4 Planning for Bushfire Protection identifies matters for consideration for proposals that affect or are in proximity to land mapped as bushfire prone. Under these directions the following objectives apply:

- i. to protect life, property and the environment from bush fire, by discouraging the establishment of incompatible land uses in bush fire prone areas; and*
- ii. to encourage sound management of bush fire prone areas.*

The proposal must demonstrate compliance with the s9.1(2) Directions and the relevant specification and requirements of Planning for Bush Fire Protection 2019 (PBP).

The application of PBP requires satisfactory demonstration of the aim and objectives and the specific objectives and bushfire protection measures relevant to the type of development.

In this instance the proposal relates to a Planning Proposal to facilitate a future residential subdivision and therefore in addition to the aim and objectives detailed in Chapter 1 'Introduction' the proposal must satisfy Chapter 4 'Strategic Planning' of PBP. The bushfire protection measures detailed in Chapter 5 'Residential and Rural Residential Subdivisions' of PBP have also been considered for the future subdivision application.



## 2.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide an independent bushfire assessment together with appropriate recommendations for bushfire mitigation measures considered necessary having regard to development within a designated 'bushfire prone' area.

## 3.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject site. Where reference has been made to the surrounding lands, this report does not purport to directly assess those lands; rather it may discuss bushfire impact and/or progression through those lands and possible bushfire impact to the subject site.

## 4.0 Aerial Image, BPLM, Conceptual Lot Layout & Zoning

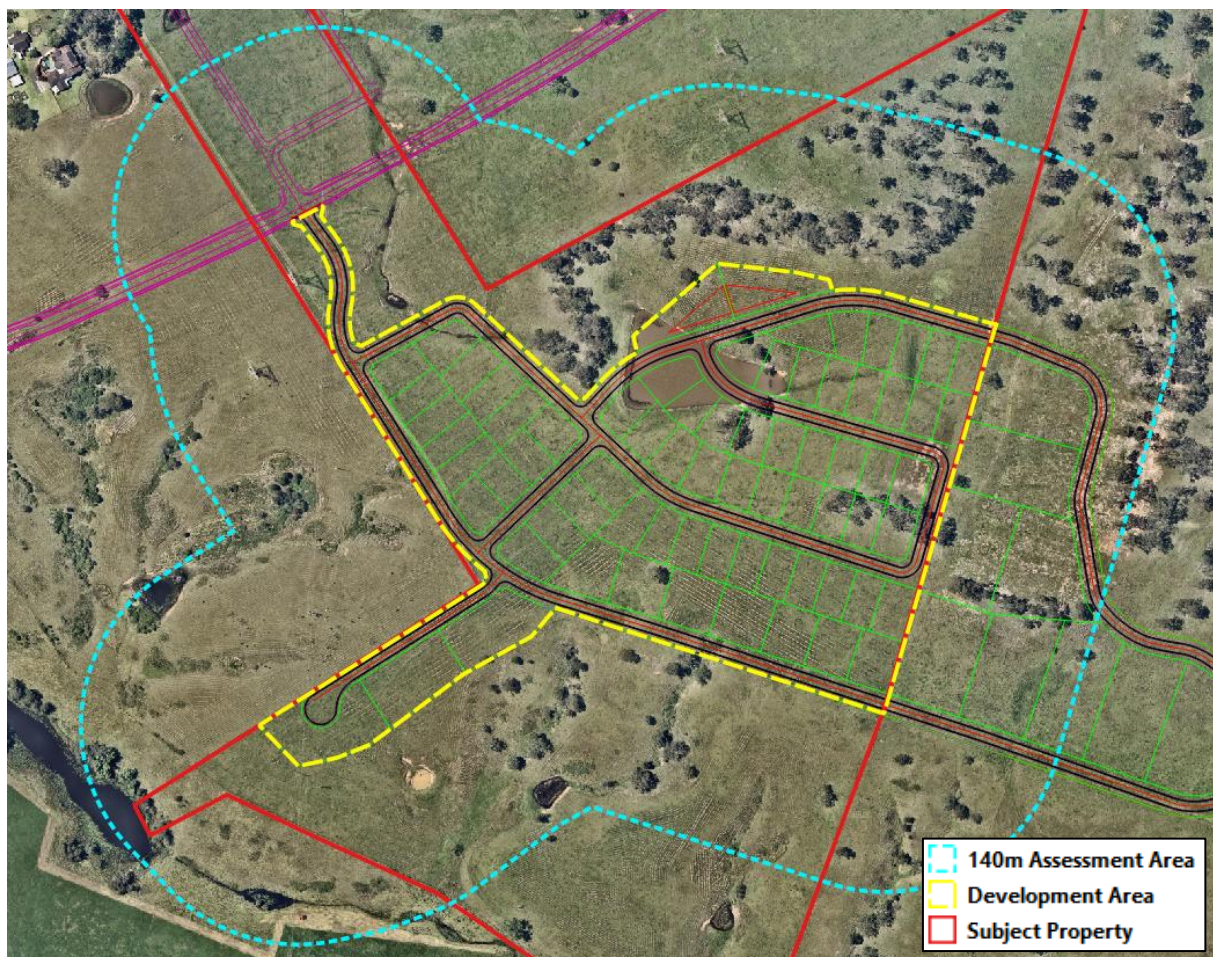


Figure 01: Aerial view of the subejct area (Nearmap December 2023)

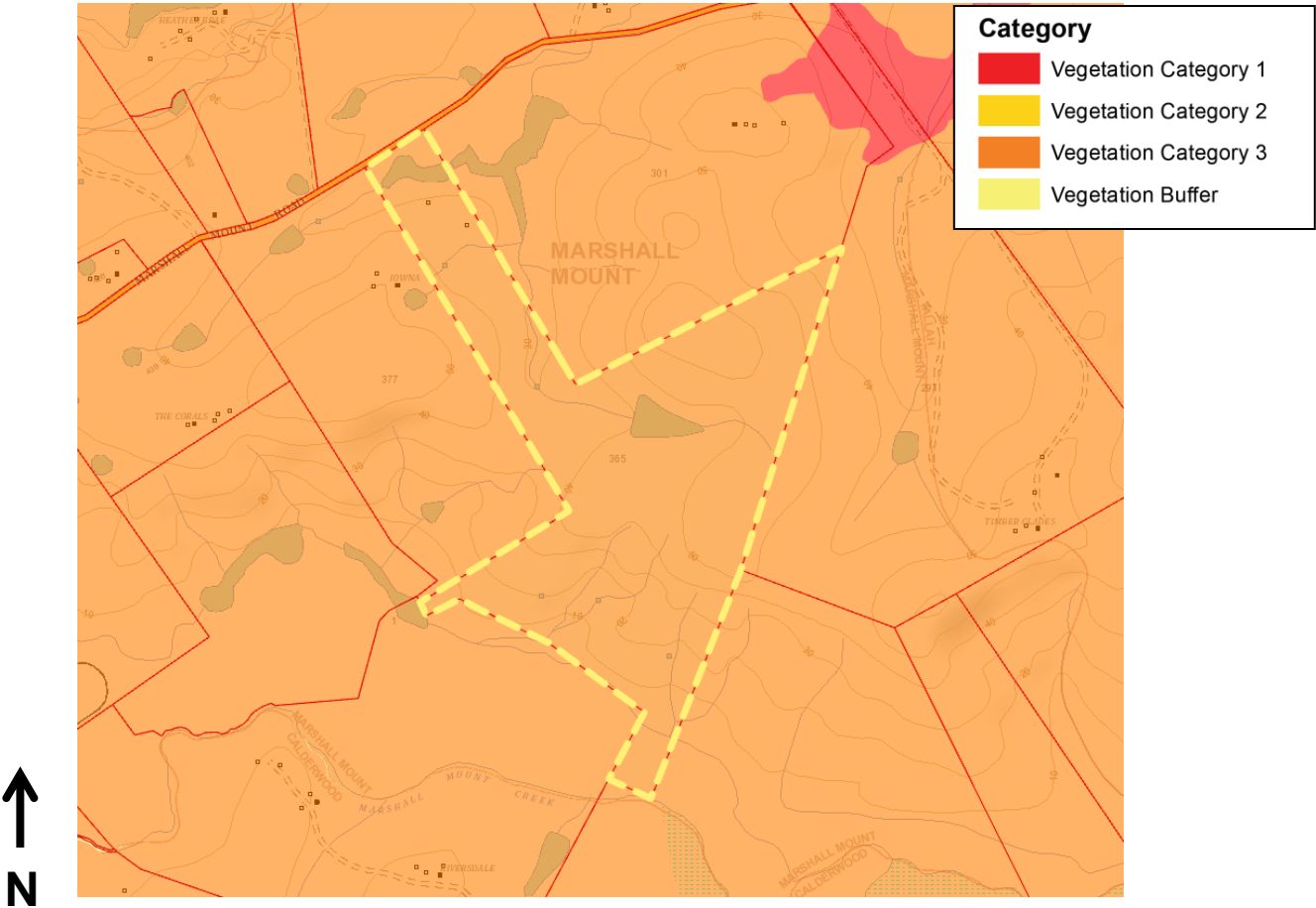


Figure 02: Extract from Wollongong City Council’s Bushfire Prone Land Map





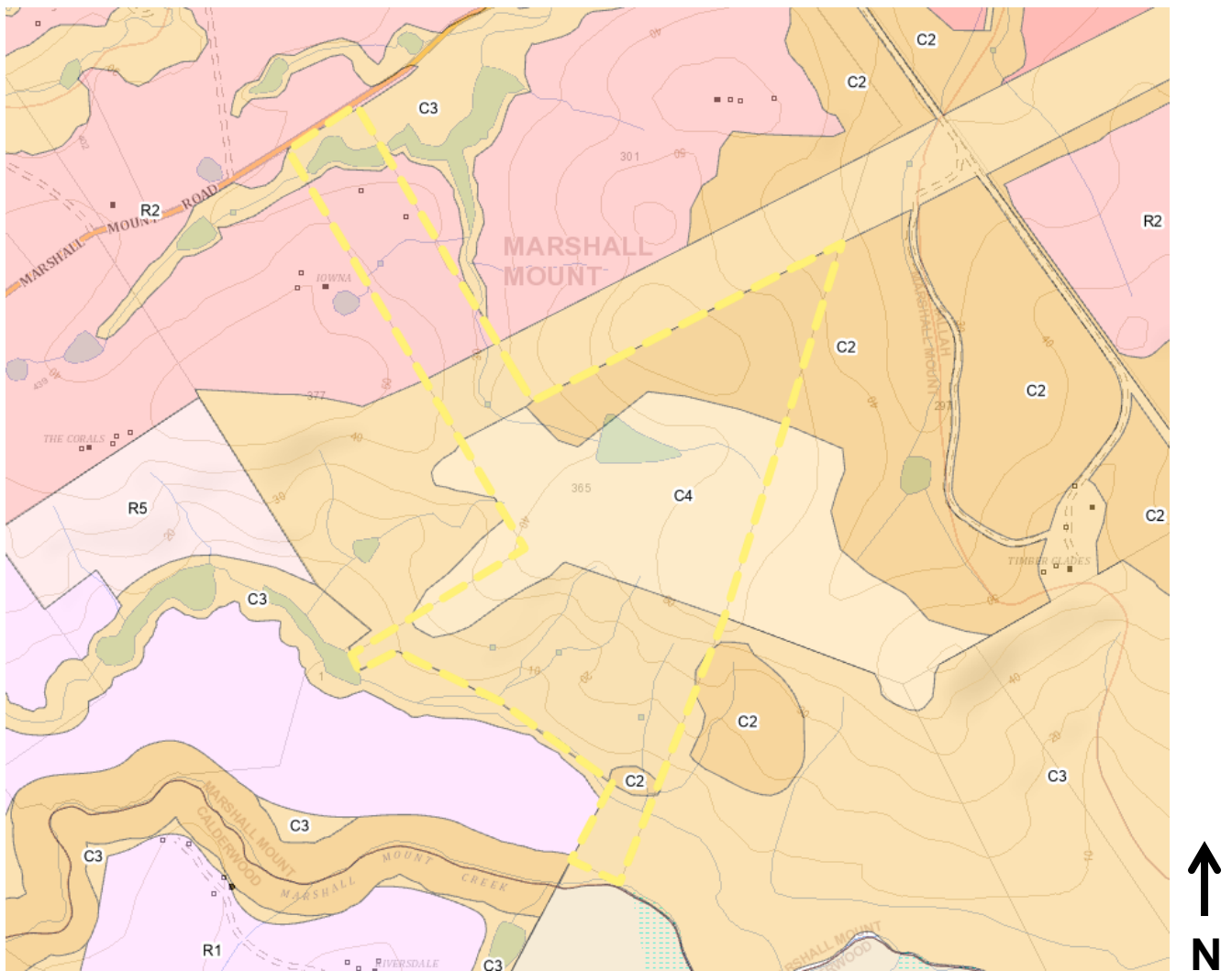


Figure 04: Land zoning of the subject area

Subject site (outlined in yellow)

## 5.0 Bushfire Assessment

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### 5.01 Preface

Properties considered to be affected by possible bushfire impact are determined from the local Bushfire Prone Land Map as prepared by Council and/or the Rural Fire Service. All development within affected areas is subject to the application of the relevant specifications and requirements of 'Planning for Bush Fire Protection - 2019' (PBP).

PBP formally adopted on the 1<sup>st</sup> March 2020 provides for the protection of property and life (including fire-fighters and emergency service personnel) from bushfire impact.

In this instance the subject site is depicted on Wollongong City Council's Bushfire Prone Land Map as Category 3 Vegetation. The subject site is therefore considered to be 'bushfire prone'.

When preparing a planning proposal s9.1(2) of the EP&A Act is required to be applied. Direction 4.4 'Planning for Bushfire Protection' of the s9.1(2) Direction, applies when a Council prepares a draft LEP that affects, or is in proximity to, land mapped as bushfire prone. Under these directions the following objectives apply:

- i. to protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas; and
- ii. to encourage sound management of bush fire prone areas.

Under direction 4.4 the Commissioner of the NSW RFS must be consulted and any comments taken into account. As part of the consultation process with the NSW RFS, a bush fire assessment is required to be submitted to demonstrate compliance with the s9.1(2) Directions and PBP.

Consideration must be given to limiting or excluding incompatible development in bushfire affected areas commensurate with the level of risk. A key principle to ensure this is that future development is designed and sited capable of complying with PBP.

The NSW Rural Fire Service also encourages the application of zones that limit or exclude inappropriate development in bushfire prone areas where:

- *the development area is exposed to a high bush fire risk and should be avoided;*
- *the development is likely to be difficult to evacuate during a bush fire due to its siting in the landscape, access limitations, fire history and/or size and scale;*
- *the development will adversely effect other bush fire protection strategies or place existing development at increased risk;*
- *the development is within an area of high bush fire risk where density of existing development may cause evacuation issues for both existing and new occupants; and*
- *the development has environmental constraints to the area which cannot be overcome.*

We provide the following assessment in consideration of the above and Planning for Bush Fire Protection 2019 to highlight the suitability of the site for residential development and the relevant bushfire protection measures.

## 5.02 Strategic Bush Fire Study

Planning proposals which relate to bushfire prone properties require the preparation of a Strategic Bush Fire Study. The Strategic Bush Fire Study (SBFS) provides opportunity to assess the broader landscape and ultimately assesses whether the new zone and proceeding development is appropriate in the bushfire hazard context.

Once these strategic issues have been addressed in the SBFS, an assessment of whether the proposal can comply with PBP must then be carried out. The assessment against PBP is addressed in section 5.03 of this report.

The following assessment details the components in Table 4.2.1 of PBP which must be addressed in a SBFS.

### Bushfire Landscape Assessment

The Bushfire Landscape Assessment component considers the likelihood of a bushfire and its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape.

#### Location

The subject site comprises of one (1) existing allotment (zoned C2: Environmental Conservation, C3: Environmental Management, C4: Environmental Living and R2: Low Density Residential), being:

Street Address	Lot and DP
365 Marshall Mount Road, Marshall Mount	Lot 8 DP 626078

The subject site is located within Wollongong City Council's local government area and is captured in the West Dapto Urban Release Area.

In accordance with the Wollongong Development Control Plan 2009 – December 2018, Chapter D16: West Dapto Release Area the subject site is within Stage 5 Yallah Marshall Mount.

The subject site has street frontage to Marshall Mount Road to the northwest and abuts similar neighbouring private allotments to all remaining aspects.

The rezoning application relates to the central portion of subject site and will facilitate the creation of seventy-two (72) new residential allotments and associated infrastructure (roads, realigned watercourse, riparian zones and active open space).



## Vegetation

The subject site was found to largely comprise of grazed / slashed pastures with more pronounced bushland along the existing watercourses.

Historically the use of the site has been for agricultural purposes, including the cultivation of arable crops and breeding and raising livestock. These farming practices have resulted in significantly modified vegetation within the subject site.

As part of this bushfire assessment process consideration has been given to all existing vegetation within neighbouring allotments and any retained or proposed vegetated areas within the subject site.

We are advised that this riparian zone will comprise of Grassy Woodland and Forested Wetland. As a conservative assessment we have applied the highest hazard, being a Grassy Woodland classification, for the entire length of the riparian zone.

It is acknowledged that the future riparian zone may be eligible for assessment as a Remnant hazard under A1.11.1 'Simplified Approach' of PBP due to the limited fire development period toward the development site. In the absence of knowing the extent of future planting / conservation areas within the adjoining property to the east a precautionary approach was adopted.

Similar to the subject site the neighbouring properties to the north, east, south and west were largely found to comprise of grazed / slashed pastures with more pronounced bushland along the existing watercourses.

The only bushland found within the 140-metre assessment area was found to be located to the north of the proposed development area within the C2 zone. While the vegetation has been significantly modified due to farming practices, we have taken a conservative assessment.

As a conservative assessment, areas within the C3 zoning outside the development area have been assessed as Grassland hazards.

The potential hazards are depicted on Figure 05 overleaf.



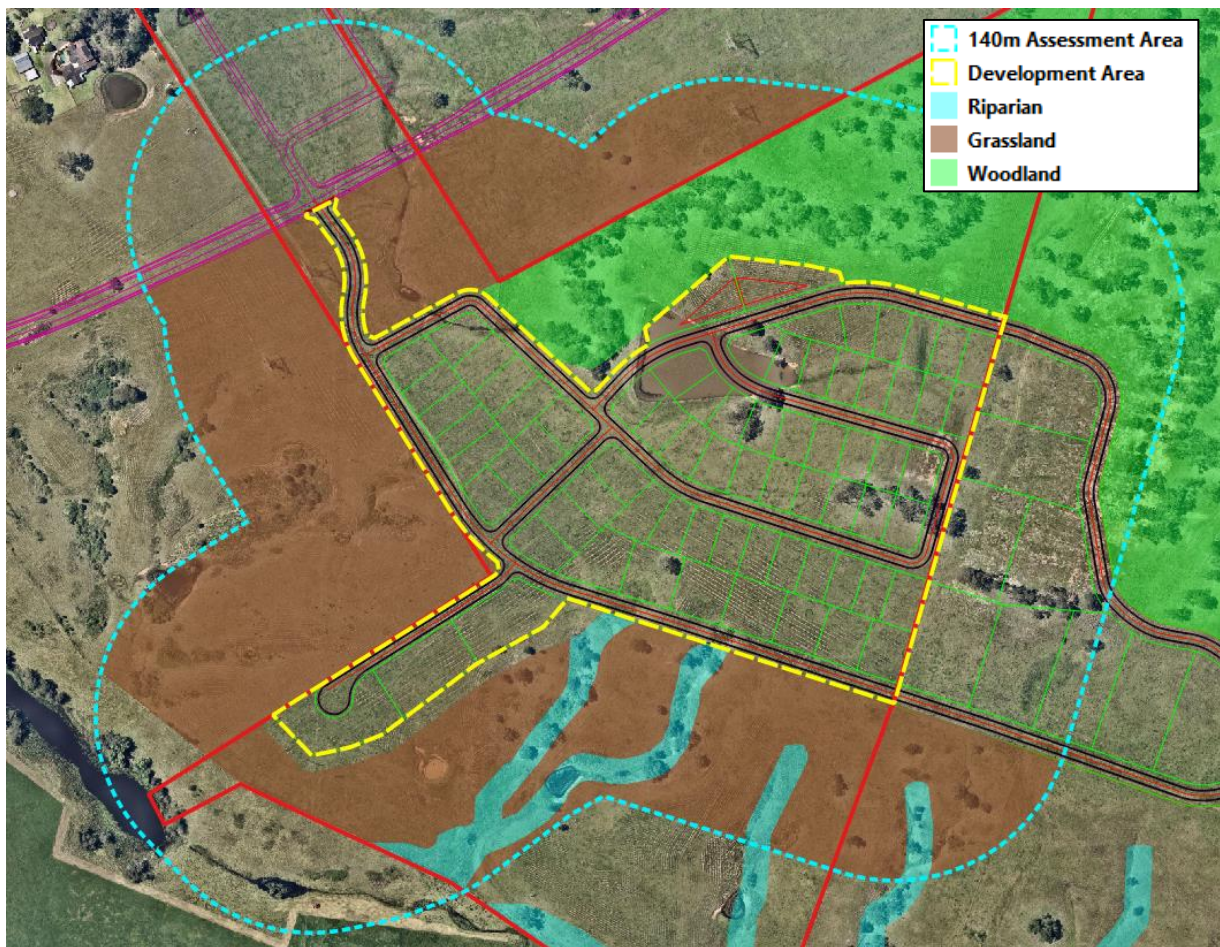


Figure 05: Aerial view of the subject area with vegetation assessment



## Slope and Topography

The slope of the land under the classified vegetation has a direct influence on the forward rate of spread, fire intensity and radiant heat exposure. The effective slope is considered to be the slope under the classified vegetation which will most significantly influence bushfire behaviour toward the development site.

In accordance with A1.4 'Determine slope' of PBP the slope assessment is to be derived from the most detailed contour data available.

The slope that would **most significantly** influence bushfire behaviour was determined from topographic imagery (1 metre contours sourced from ELVIS - Geoscience Australia) in conjunction with site observations to be:

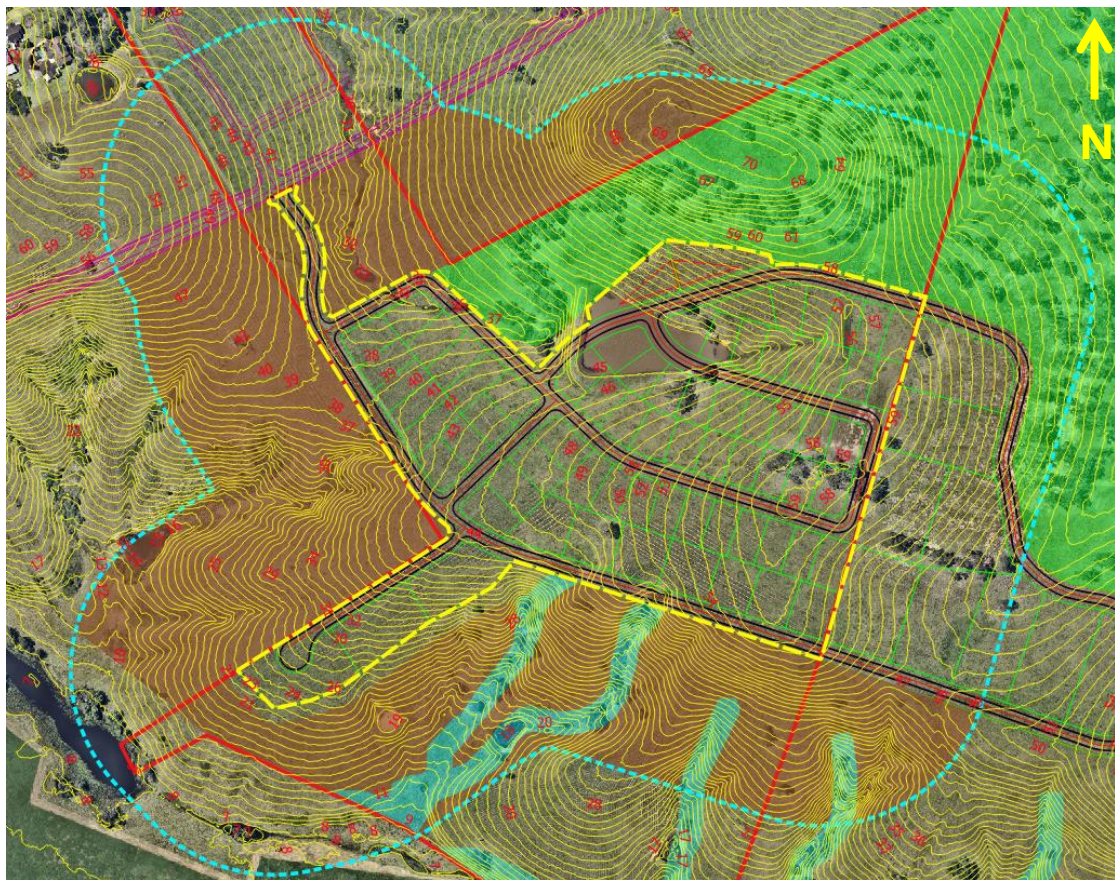


Figure 06: LiDar contour mapping of subject area (1 metre)



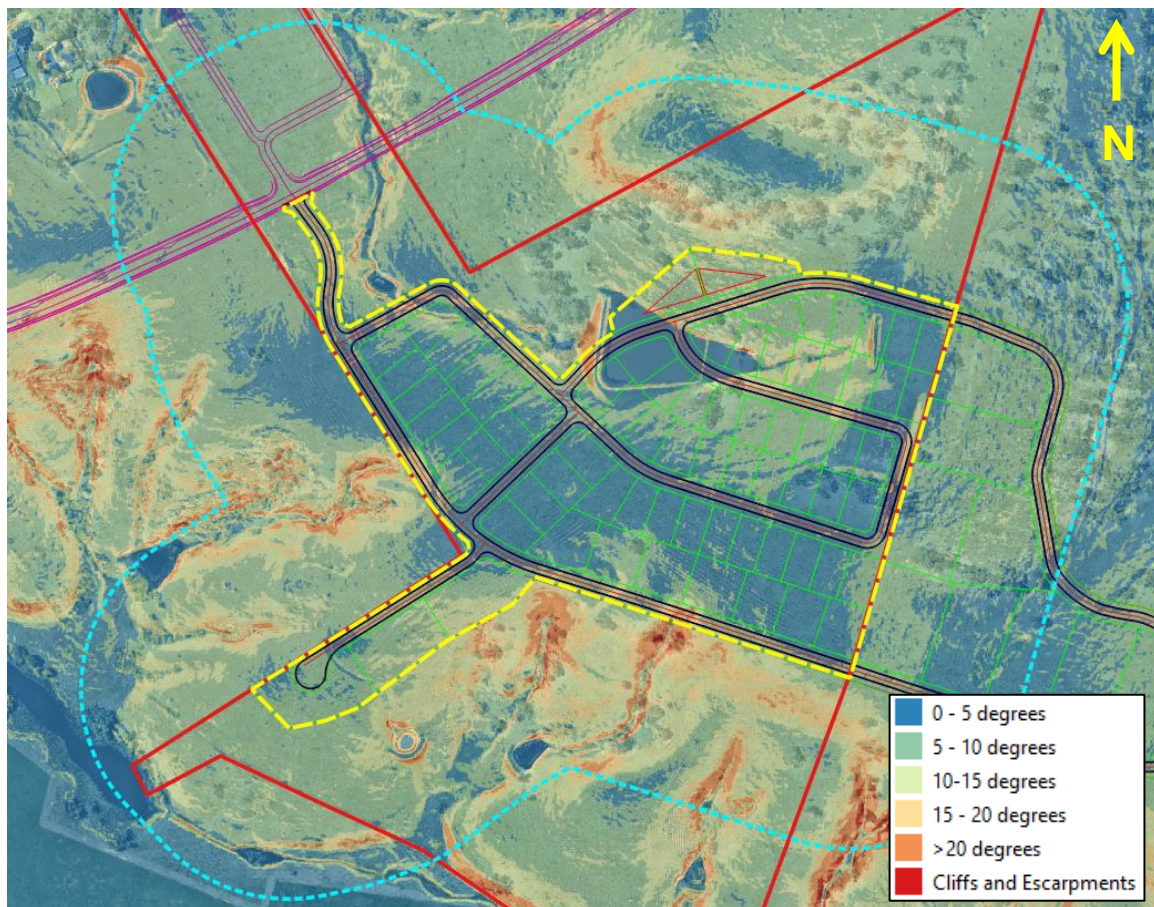


Figure 07: LiDar contour mapping of subject area

### Fire Weather

All development which attracts an Asset Protection Zone under PBP requires the identification of the relevant Fire Danger Index (FDI). The FDI required to be used for development assessment purposes is based on the local government boundaries, being Wollongong City Council in this instance.

In accordance with the NSW Rural Fire Service publication 'NSW Local Government Areas FDI' (2017) Wollongong City Council is located within the Illawarra / Shoalhaven Fire Weather District which attracts a Fire Danger Index (FDI) of 100 for bushfire planning purposes.

Table 5.1.4a of PBP was used to determine a Grassland Fire Danger Index (GFDI) of 130.

### Previous Bushfire History

There are areas within NSW that have significant fire history and are recognised as known fire paths. In a planning context it is important to identify these locations and ensure incompatible development is not proposed.

In this instance there have been no recorded wildfires within the subject site or immediate surrounding area (source NPWS Fire History dataset).

There were also no visual indicators of previous bushfires at the time of our inspection.



The closest recorded wildfires were found to be located approximately 5 kilometres to the west of the subject site which occurred in 2002.

The subject site is therefore not considered to be within a known fire path. Furthermore in consideration of the previous bushfire history the likelihood of a bushfire occurring within the immediate area is considered unlikely.

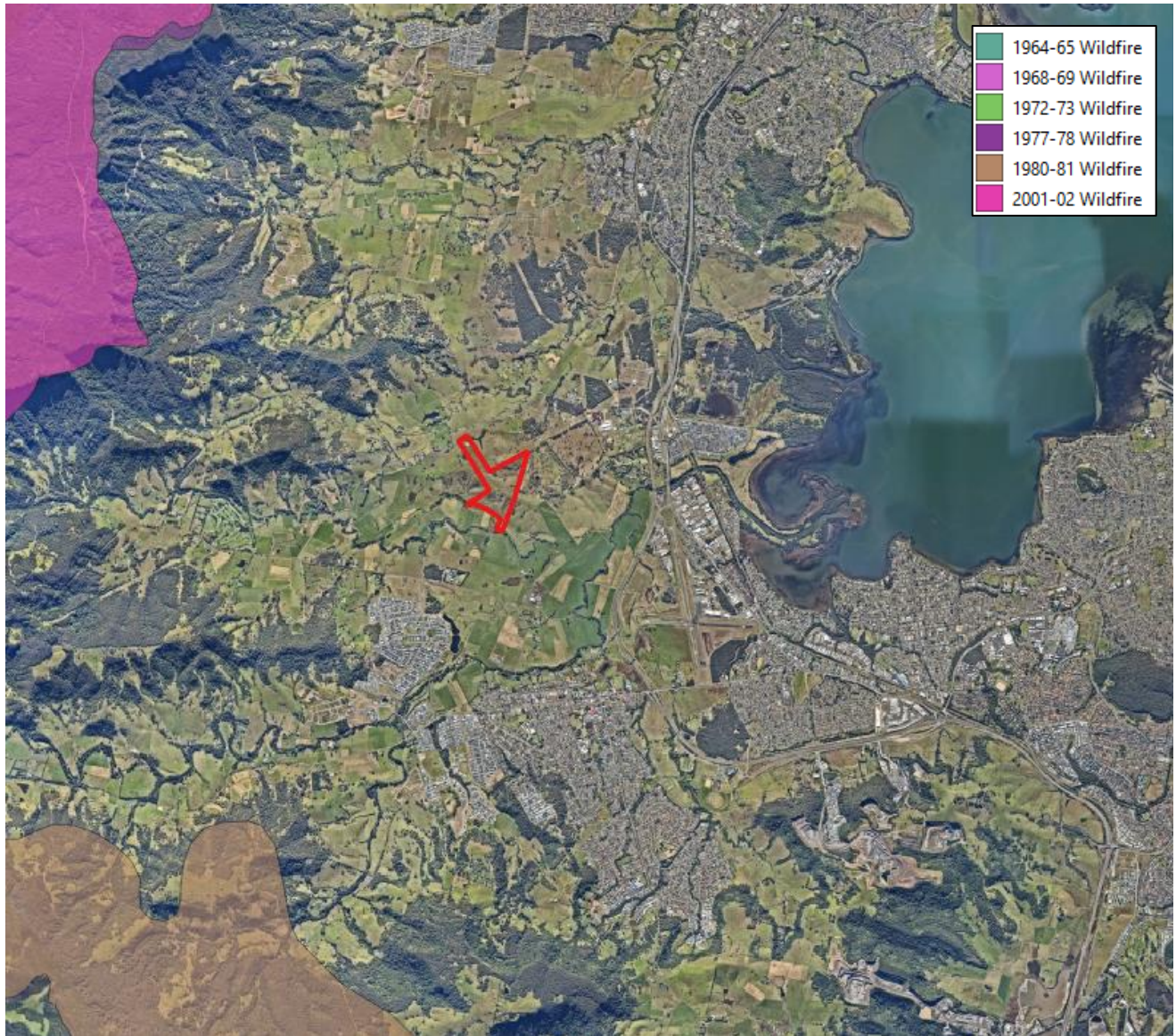


Figure 08: Aerial view of the subject area overlaid with NPWS Fire History dataset



## Potential Fire Behaviour

The most significant bushfire threat to the subject site is considered to be from the northeast within the subject site and neighbouring private allotment. This vegetation will be fragmented from other bushfire hazards within the broader locality and does not provide a significant fire development period.

In applying the parameters described in this section and accepted assessment methodology described in PBP bushfire design modelling was undertaken to determine the intensity of two potential fires. These being:

1. A bushfire burning from the northeast through the vegetation associated with the areas of retained vegetation within the subject property and neighbouring allotments. While the vegetation to this aspect is fragmented this is the largest catchment. While a fire burning in this direction is expected to have a reduced Fire Danger Index as a margin of safety an FDI 100 was adopted;

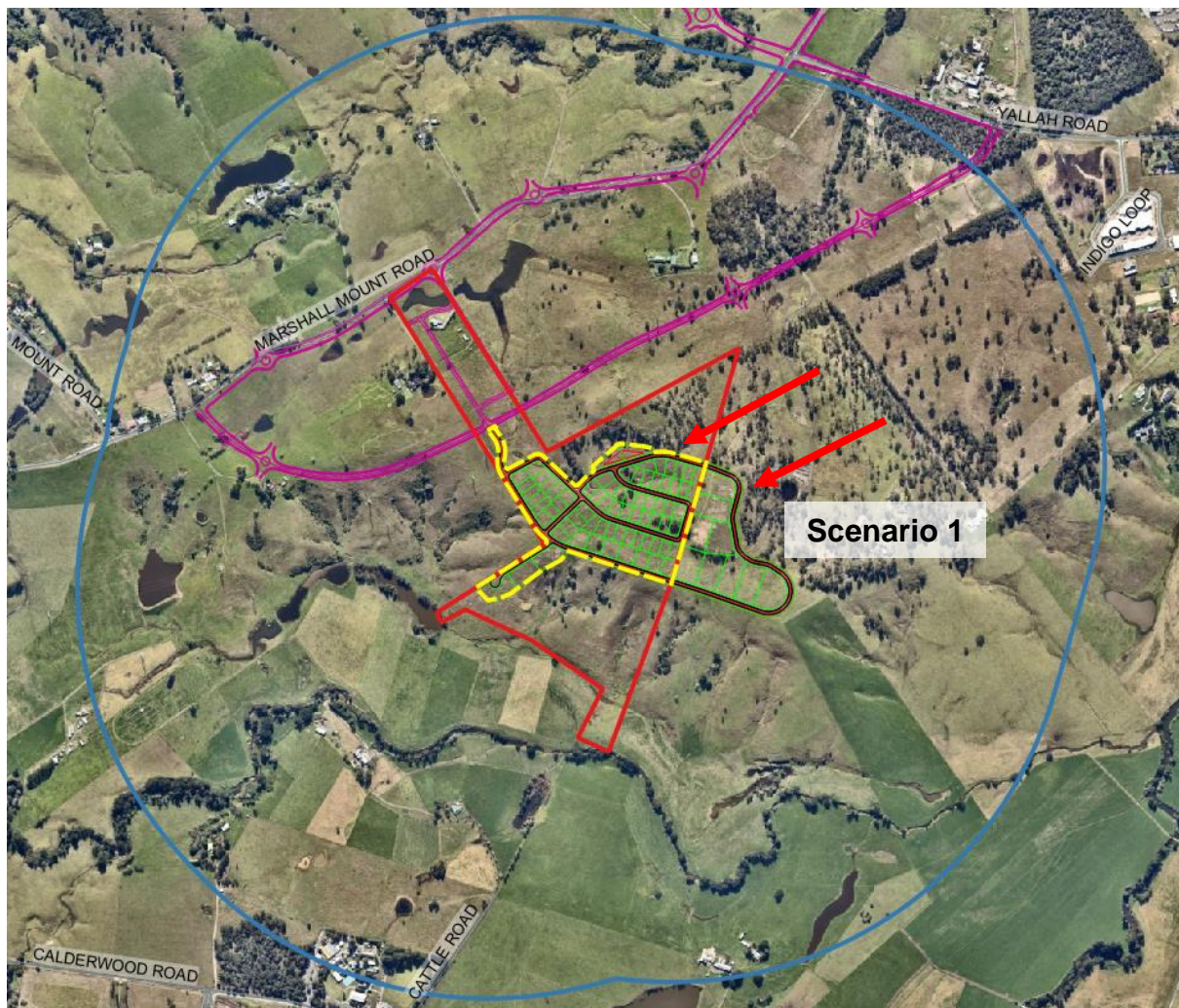


Figure 09: Aerial view of the subject area showing assessed fire runs  
Subject site (red outline) and 1 kilometer buffer (blue outline)



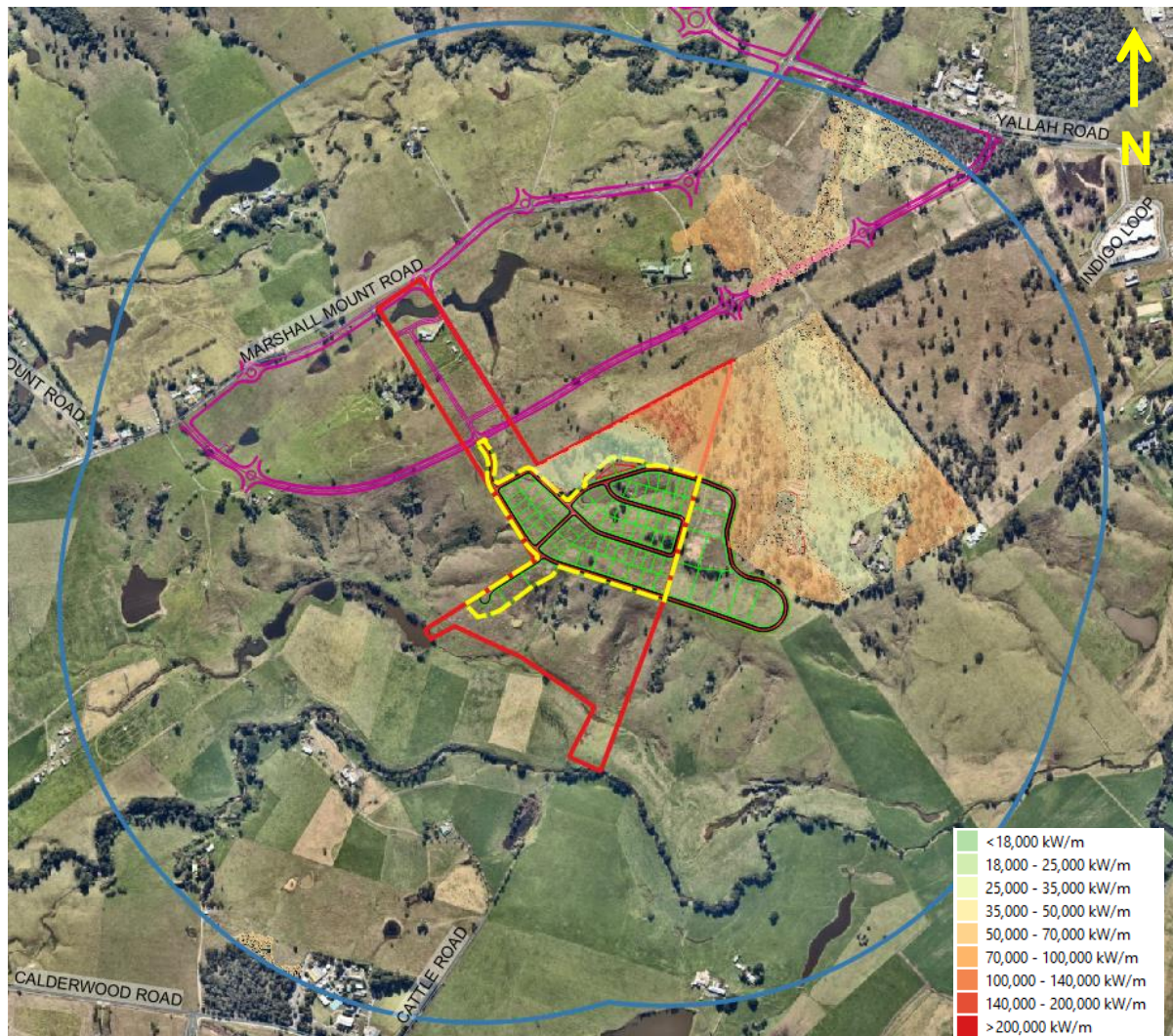


Figure 10: Fire intensity mapping of Scenario 1 (east)  
Subject site (red outline) and 1 kilometer buffer (blue outline)

### Access & Suppression

Access for attending fire services to undertake early suppression is a key factor in whether a fire has the opportunity to develop into a quasi-steady state at which point the opportunity to control / extinguish the fire becomes far more challenging.

Where good access is available it provides opportunity to control / extinguish a fire in its growth phase before developing further and consequently becoming more difficult to conduct direct attacks.

In this particular instance the majority of the future allotments will have street frontage to a perimeter road with all future allotments being within 70 metres of the proposed road satisfying the access requirements within section 7.4 of PBP.

In consideration of the comprehensive access available to the identified hazards and their exposure to the public the identification and subsequent early extinguishment of a bushfire in the area is considered probable.

## Land Use Assessment

The Land Use Assessment identifies the most appropriate locations in the masterplan area for the proposed land uses.

In this instance the proposal does not include a broad masterplan but rather a specific 'spot' lot size amendment to facilitate a future residential development.

The proposed Conceptual Lot Layout has located the future residential allotments away from the future retained vegetation with roads and active open space between.

We are therefore of the opinion the proposed land uses are appropriate.

## Access and Egress

It is important to assess the capacity of both the existing and proposed road networks both within and external to the masterplan area.

The overall subject site has street access to the adopted Iowna neighbourhood and connection to Marshall Mount Road to the northwest. The future subdivision will have connection to the proposed Marshall Mount Bypass Road which will be to the northwest and dissects the R2 and C4 zoned land within the property. These roads have been identified as important to the broader West Dapto Release Area with the DCP nominating the corresponding sections of Marshall Mount Road and the proposed bypass as Type 3 (2 lanes) and Yallah Road as Type 2 (4 lanes).

The key evacuation route from the subject site is to the west via Marshall Mount Road. From Marshall Mount Road residents / occupants can travel north toward the townships of Avondale and Dapto or south toward the township of Haywards Bay via Yallah Road.

These roads currently exceed the minimum carriageway requirements for non-perimeter roads as described in section 5.3.2 of PBP and will be further enhanced as West Dapto Release Area is delivered.

In consideration of the surrounding road network and proposed use, inclusive of modest population increase, the access and egress routes are considered acceptable.

## Emergency Services

In some circumstances the scale of a planning proposal warrants a need to include provisions for a new fire station.

The subject site is located within the NSW Rural Fire Service area with a station (Calderwood) located approximately 4 kilometres to the southwest.

NSW Fire & Rescue also have stations located within the nearby townships of Dapto and Albion Park.

In consideration of the relatively modest size of the future residential development the existing fire service coverage is considered acceptable.

## Infrastructure

An assessment of the issues associated with infrastructure and utilities must be undertaken. This assessment is to include the ability of the reticulated water system to deal with a major bushfire event in terms of pressures, flows and spacing of hydrants.

There are no hydrants available along Marshall Mount Road. The capabilities of the broader hydrant network is the responsibility of Sydney Water. The modest size of the future residential development is unlikely to have a significant adverse impact on this system.

The sizing, spacing and pressures of any future internal hydrant system must comply with AS2419.1-2021.

### 5.03 Planning for Bush Fire Protection

As the strategic issues have been satisfactorily addressed in the SBFS, an assessment of whether the proposal can comply with PBP is required. This section addresses the future residential subdivisions capacity to comply with the relevant specifications and requirements of PBP.

#### Asset Protection Zones

Asset Protection Zones (APZs) for residential subdivision are determined from Table A1.12.2 of Planning for Bush Fire Protection 2019 (PBP) or bushfire design modelling achieving a radiant heat impact of no more than 29 kW/m<sup>2</sup> at a building footprint.

The minimum required Asset Protection Zones for the future residential development were determined from Table A1.12.2 of PBP to be 12 metres to the northeast, 16 metres to the northwest, 13 metres to the southwest and 25 metres and 32 metres to the southern riparian. These minimum required APZs are depicted on Attachment 01.

The available APZs consist of the land within the subject site (including roads) and Marshall Mount Road.

The subject site has the capacity to comply with the minimum required Asset Protection Zones as detailed in PBP.

#### Fire Fighting Water Supply

There are no hydrants available along Marshall Mount Road.

The sizing, spacing and pressures of any future internal hydrant system must comply with AS2419.1-2021. Alternatively to achieve compliance with PBP each future allotment will require the installation of a Static Water Supply.

The subject site has the capacity to comply with the Water Supply requirements as detailed in section 5.3.3 of PBP.

## Property Access

The subject development will ultimately have street access to the Marshall Mount Bypass Road to the Northwest (Currently estimated to be delivered mid 2030's by Council). In the interim Street access will be through the Iowna Neighbourhood (Neighbourhood Plan was adopted in July 2024) through to Marshall Mount Road to the northwest.

Planning for Bush Fire Protection addresses design considerations for internal roads (public roads) for properties determined to be bushfire prone.

The proposed Conceptual Lot Layout prepared by Maker ENG Pty Ltd provides connection to the proposed Marshall Mount Bypass Road to the northwest.

The proposed Conceptual Layout Plan also includes a perimeter road adjacent the identified bushfire hazard and utilises through roads throughout the design, therefore satisfying the preferred design option.

The proposal does not include any dead-end roads which exceed 200 metres with the only dead-end road being approximately 170 metres.

It is also acknowledged that the one-way in and out does not travel through any Forest or Woodland hazards and therefore cannot be compromised in the times of bushfire. Therefore, the reduction in the minimum lot sizes should not affect the evacuation route in times of bushfire.

We are satisfied that the proposed internal road system has the capacity to comply with the requirements for Access under section 5.3.2 of PBP.



## 6.0 Conclusion

Building Code and Bushfire Hazard Solution P/L has been commissioned by Maker ENG Pty Ltd to prepare an independent Bushfire Assessment Report for a Planning Proposal which will facilitate a future residential development at 365 Marshall Mount Road, Marshall Mount.

The subject site comprises of an existing allotment (Lot 8 DP 626078), zoned C2: Environmental Conservation, C3: Environmental Management, C4: Environmental Living and R2: Low Density Residential.

In this instance the subject site is depicted on Wollongong City Council's Bushfire Prone Land Map as marginally containing Vegetation Buffer and therefore the subject site is considered 'bushfire prone'.

We are satisfied that the subject site and proposed Conceptual Lot Layout and the reduction in the minimum lot size has the capacity to comply with the relevant specifications and requirements of Planning for Bush Fire Protection 2019.

Furthermore, we are satisfied that the proposed Conceptual Lot Layout, in combination with the bushfire protection measures discussed herein will not result in areas that are difficult to evacuate, create control difficulties during a bushfire or adversely affect other bush fire protection strategies or place existing development at increased risk.

We are therefore in support of the rezoning application.

Should you have any enquiries regarding this project please contact me at our office.

Prepared by  
Building Code & Bushfire Hazard Solutions



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BPAD Accreditation No. BPAD9400





## 7.0 Annexure 01

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### List of Referenced Documents

Australian Building Codes Board (2022). *National Construction Code Volume Two - Building Code of Australia*. ABCB

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Acknowledgements to:

Geoscience Australia  
Nearmap  
[Street-directory.com.au](http://Street-directory.com.au)

### Attachments

Attachment 01: Asset Protection Zone Overlay





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[www.bushfirehazardsolutions.com.au](http://www.bushfirehazardsolutions.com.au)



**Legend**

- |                  |                  |
|------------------|------------------|
| 29 kW APZ        | Subject Property |
| Development Area | Woodland         |
| Grassland        | Riparian         |

**Minimum APZ Overlay**

BCBHS Ref: 211219D  
Drawn by: AM  
Dated: 07/02/2024  
Issue: 2  
Client: Maker Eng  
Address: 365 Marshall Mount Road, Marshall Mount