

Bush Fire Assessment Report

Proposed:
Subdivision

At:
**25-39 Wyndella Road
and 898 New England
Highway, Lochinvar**

Reference Number: 230176

Prepared For:
Lochinvar Developments Pty Ltd

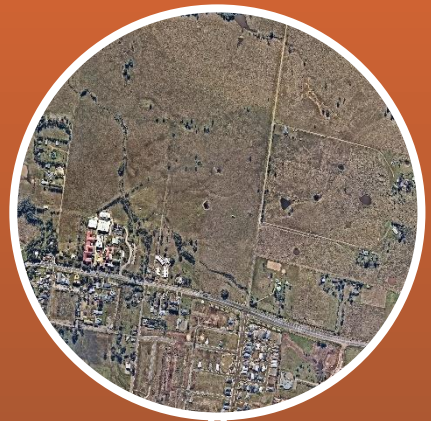
25 July 2023



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Version Control				
Version	Date	Author	Reviewed by	Details
1	20/03/2023	Andrew Muirhead	Ian Tyerman	Final Report
2	12/04/2023	Ian Tyerman		Updated Report
3	07/03/2024	Ian Tyerman	Stuart McMonnies	DRAFT Report – Council RFI
4	08/07/2024	Ian Tyerman		2 nd DRAFT Report – Council RFI
5	16/07/2024	Ian Tyerman		3 rd DRAFT Report – Council RFI
6	23/07/2024	Ian Tyerman		4 th DRAFT Report – Council RFI
7	25/07/2024	Stuart McMonnies		Final Release

List of Abbreviations:

APZ	Asset Protection Zone
AS3959	Australian Standard 3959 – 2018 as amended
BAL	Bushfire Attack Level
BFSA	Bush Fire Safety Authority
BPMs	Bushfire Protection Measures
BPLM	Bushfire Prone Land Map
Council	Maitland City Council
DA	Development Application
EP&A Act	<i>Environmental Planning and Assessment Act - 1979</i>
ESD	Ecologically Sustainable Development
FRNSW	Fire and Rescue NSW
IPA	Inner Protection Area
LURA	Lochinvar Urban Release Area
NCC	National Construction Code
NP	National Park
NSP	Neighbourhood Safer Place
OPA	Outer Protection Area
PBP	<i>Planning for Bush Fire Protection – 2019</i>
ROW	Right of Way
RF Act	<i>Rural Fires Act - 1997</i>
RFS	NSW Rural Fire Service
SEPP	State Environmental Planning Policy
SFPP	Special Fire Protection Purpose
SWS	Static Water Supply

1.0 Introduction

The development proposal relates to the subdivision of 25, 39 & 55 Wyndella Road and 2 Cantwell Road, Lochinvar.

Building Code and Bushfire Hazard Solutions P/L prepared the Bushfire Assessment Report (ref 230176, dated 12th April 2023) which formed part of the original submission package for Development Application No. DA/2023/415.

The NSW Rural Fire Service has issued General Terms of Approval, under Division 4.8 of the *Environmental Planning and Assessment Act 1979*, and a Bush Fire Safety Authority, under section 100B of the *Rural Fires Act 1997* for this application (RFS ref DA20230613002541-Original-1), subject to ten (10) conditions of consent.

In response to contentions raised by Council the proposed subdivision design has been modified to reduce the environmental impact, including a reduction in the number of proposed residential allotments from two hundred and sixty-two (262) to two hundred and fifty-eight (258).

The other changes are as follows:

- Widening of perimeter roads MC02, MC05, western portion of MC01 & portions of MC04 by 2.5m to permit parking on the lot side maintaining 8m clear carriageway.
- Widening of Wyndella Road to 10.95m wide to satisfy perimeter road requirements.
- Removal of lots having direct access to Wyndella Road therefore creating redesign of the lot layout across the site. This redesign aimed to limit the number of cul-de-sac's.
- Major re-design on the southern portion of site to avoid the creek crossing by re-aligning the creek. And relocation of Park 1.

Consequently, we seek updated General Terms of Approval, under Division 4.8 of the *Environmental Planning and Assessment Act 1979*, and a Bush Fire Safety Authority, under section 100B of the *Rural Fires Act 1997* from the NSW Rural Fire Service.

For the benefit of the NSW RFS the following conditions of consent are relevant to the modified subdivision design:

1. *At the issue of a subdivision certificate and in perpetuity, the entire site within each proposed stage release, except for the riparian corridor, but including the drainage corridor to the west of Lots 1009 and 1010, all planned Asset Protection Zones, and the acoustic buffer zone adjacent to the New England Highway, (as shown in 'Indicative Bushfire Asset Protection Zone APZ - overlay site', on P34 of Bush Fire Assessment Report prepared by Building Code & Bushfire Hazard Solutions Pty Limited, dated 12/04/2023, Ref: 230176) must be managed as an inner protection area in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019.*

When establishing and maintaining an 'inner protection area', the following requirements apply:

- *tree canopy cover should be less than 15% at maturity,*
- *trees at maturity should not touch or overhang the building,*
- *lower limbs should be removed up to a height of 2m above the ground,*
- *preference should be given to smooth-barked and evergreen trees,*

- large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings,
 - shrubs should not be located under trees,
 - shrubs should not form more than 10% ground cover,
 - clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation,
 - grass should be kept mown (as a guide, grass should be kept to no more than 100mm in height), and
 - leaves and vegetation debris should be removed.
2. At the issue of a subdivision certificate, temporary internal APZs of 50 metres wide, must be provided over the land around each subdivision stage (as shown in Figure 05 of the Bush Fire Assessment Report prepared by Building Code & Bushfire Hazard Solutions Pty Limited, dated 12/04/2023, Ref: 230176) must be maintained in accordance with an Asset Protection Zone (Inner Protection Area) as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of Planning for Bush Fire Protection 2019 to ensure no hazard regenerates before the subsequent stages are developed. The temporary internal APZs may be removed upon development of the adjoining lots.
 3. At the issue of subdivision certificate, a restriction to the land use pursuant to section 88B of the 'Conveyancing Act 1919' must be placed on proposed Lots 205, 206, 101 & 1010 for the provision of a 12 metre wide Asset Protection Zone (APZ) as depicted on the plans titled 'Proposed Master Plan Detail Sheet 5 of 5 prepared by ADW Johnson, (drawing reference 240332-MP-005 [N] dated 13 April 2023), which prohibits the construction of buildings, other than class 10b structures, within the defined APZ.
 4. The restoration and revegetation of the entire Riparian Corridor on proposed Lots 1012 and 1013, and drainage basin on proposed Lot 439, must not exceed the fuel load of 8.2 to 15.1 t/ha for Forested Wetland in accordance with Appendix Table A1.12.8 of Planning for Bushfire Protection 2019 as per the recommendation of the Bushfire Assessment Report prepared by Building Code & Bushfire Hazard Solutions (ref: 230176, dated 12 April 2023).

Access – Public Roads

Note: The parking restrictions shall not apply to the sections of road that are not located on 'bushfire prone' land (i.e. greater than 50m from a Grassland hazard and 100m of a bushfire hazard as per Figure 05 and attachment 01 page 32 of this report, on non-perimeter roads).

8. The proposed secondary access for emergency agencies within Lot 1011 must be provided in conjunction with Stage 2 in support of the Asset Protection Zone on Lots 205 and 206 under Figure 08 of the bush fire report (prepared by Bush Fire Assessment Report prepared by Building Code & Bushfire Hazard Solutions Pty Limited, dated 12/04/2023, Ref: 230176).

The subject site comprises of eight existing allotments that are legally identified as Lot 2-6 and 9 DP 747391 and Lot 12-13 DP 1219648. The land is zoned R1: General Residential and is located within Maitland City Council's local government area. The site is identified as being located within the 'Lochinvar Urban Release Area'.

The amended development proposal seeks to subdivide eight existing allotments into two hundred and fifty-eight (258) residential lots, two parks, a Riparian Corridor and associated infrastructure.

The overall site will be developed over fourteen (14) stages.

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. Maitland City Council's Bushfire Prone Land Map identifies the subject property as containing Category 3 Vegetation and the Vegetation Buffer, therefore the subject site is considered 'bushfire prone'.

The development is captured under section 100B of the *Rural Fires Act* 1997 and must obtain an updated Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service.

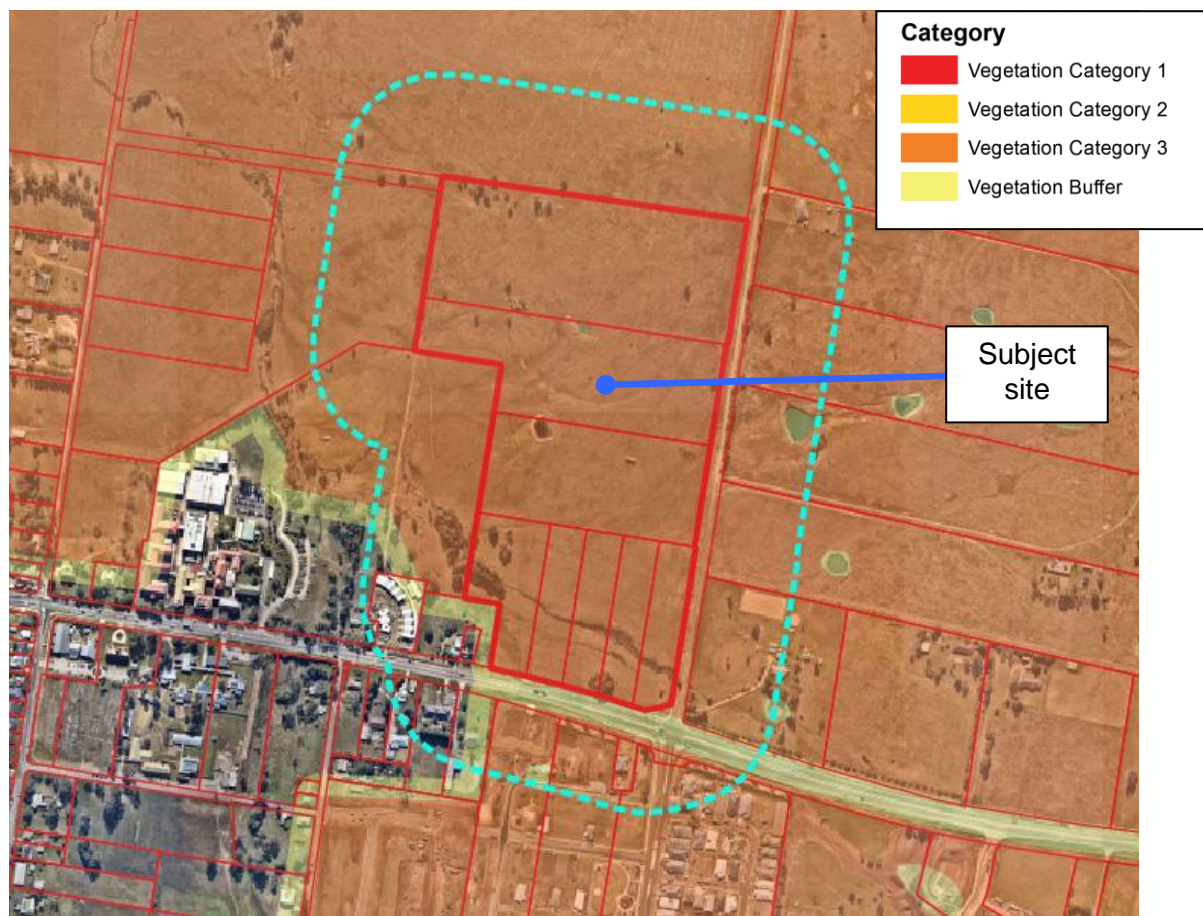


Figure 01: Extract from Maitland City Council's Bushfire Prone Land Map

2.0 Legislative Requirements

The site is subject to the following legislative provisions as it relates to bushfire planning and protection:

- *Environmental Planning & Assessment Act 1979*
- *Rural Fires Act 1997*
- *Rural Fires Regulation 2022*
- *Planning for Bush Fire Protection*

2.1 *Rural Fires Act 1997*

The subdivision of bushfire prone land which can be lawfully used for residential purposes is captured by section 100b of the *Rural Fires Act 1997*.

The development must obtain a Bush Fire Safety Authority from the Commissioner of the NSW Rural Fire Service (RFS).

2.2 *Environmental Planning & Assessment Act 1979*

Section 10.3 requires councils, where a Bush Fire Risk Management Plan applies, to record a bush fire prone land map after consulting with the Commissioner of the NSW Rural Fire Service (NSW RFS). The Commissioner will designate lands to be bush fire prone within an area and, when satisfied that the lands have been recorded on a map, certify the map as the Bush Fire Prone Land map.

As the proposal is subject to s.100B of the *Rural Fires Act 1997*, it is integrated development in accordance with s.4.46. This means that the proposed development requires authorization in respect of bush fire safety because of the subdivision of the land that is proposed to be lawfully used for residential purposes.

2.3 *Rural Fires Regulation 2022*

Section 45 sets out the relevant matters that must be considered when assessing a bushfire safety authority and includes an assessment of the proposal against Planning for Bush Fire Protection.

2.4 *Planning for Bush Fire Protection*

As the subject site is identified as being bushfire prone and the proposed development involves a residential subdivision the proposal is subject to the application of the relevant specifications and requirements of Planning for Bush Fire Protection.

The proposal is required to demonstrate that it achieves compliance with the following elements of PBP:

- Chapter 1 - Aim and Objectives
- Chapter 5 – Residential and Rural Residential Subdivisions

3.0 Purpose of Report

The purpose of this Bushfire Assessment Report is to provide the Rural Fire Service and Council with an independent bushfire assessment together with appropriate recommendations for both new building construction and bushfire mitigation measures considered necessary having regard to construction within a designated 'bushfire prone' area.

The recommendations contained within this report may assist in forming the basis of any specific construction conditions and/or bushfire mitigation measures that Council and/or the NSW Rural Fire Service may elect to place within any consent conditions issued for the subject Development Application.

4.0 Scope of this Report

The scope of this report is limited to providing a bushfire assessment and recommendations for the subject property. 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 property.

5.0 Compliance Tables & Notes

The following table sets out the projects compliance with *Planning for Bush Fire Protection – 2019* for the overall site.

	Northwest	North	East	Northeast	South	West
Vegetation Structure	Grassland	Grassland	Grassland	Grassland	Derived Woodland	Grassland
Slope	0 - 5 degrees down	0 degrees and up	0 degrees and up	0 - 5 degrees down	0 - 5 degrees down	0 - 5 degrees down
Required Asset Protection Zone	12 metres	10 metres	10 metres	12 metres	16 metres	12 metres
Proposed Asset Protection Zone	>12 metres	>15 metres	20 metres	20 metres	>16 metres	>15 metres
Bushfire Attack Level	BAL 29	BAL 19	BAL 19	BAL 19	BAL 29	BAL 29

Compliance Summary of Bushfire Protection Measures			
Bushfire Protection Measure (s5 PBP)	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.03
Building Construction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.03
Access	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8.03
Services	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.03

Asset Protection Zones

The available Asset Protection Zones (APZs) achieve and in most instances exceed the minimum requirements under table A1.12.2 PBP for the future building envelopes within the proposed residential allotments.

The available APZs are located within the subject site and include proposed roads and existing public roads.

With respect to temporary APZs, recommendations regarding ongoing management of the land within the overall site and within 50 metres of the proposed Stages will be included herein to ensure no hazard regenerates before the subsequent stages are developed.

Construction Level

No new dwellings are proposed as part of this DA. Those new allotments that are mapped as Bushfire Prone Land following this subdivision may require further assessment under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* or s4.14 of the *Environmental Planning and Assessment Act 1997* at the time of any future application for the construction of any new dwellings on these newly created allotments.

6.0 Aerial view of the subject site

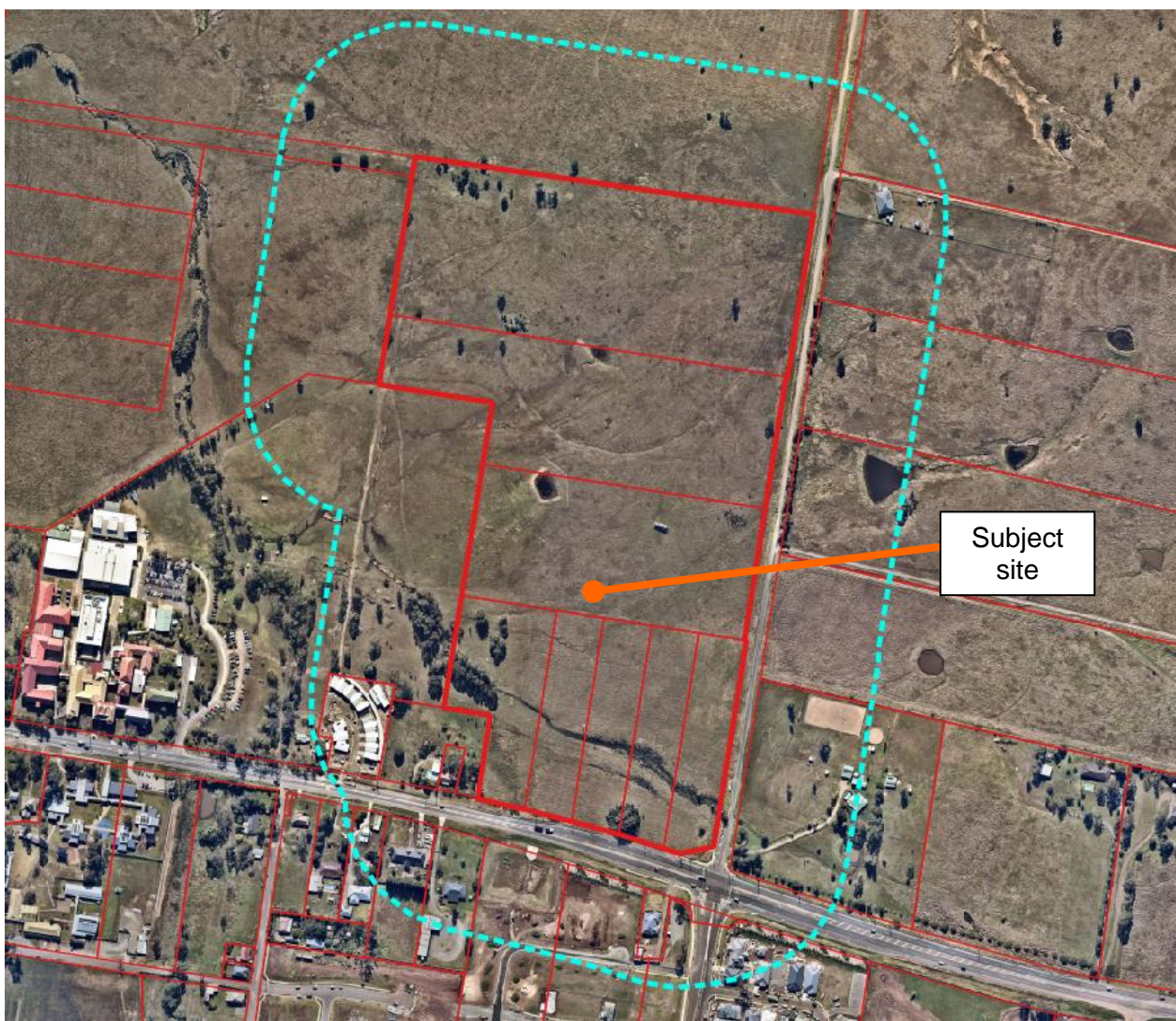


Figure 02: Aerial view of the subject area C/- Nearmap – June 2022
(140m assessment area blue line)

7.0 Site Assessment

A representative of Building Code & Bushfire Hazard Solutions completed a site inspection of the subject site and surrounding area on 24 August 2022.

In addition, the following external data sources have been relied upon for the site assessment:

- Aerial imagery of the subject area (NSW Spatial Services & Nearmap).
- 1 metre contour mapping of the subject area (Elevation and Depth Foundation Spatial Data – Geoscience Australia)
- NSW Planning Portal Spatial Viewer
- Vegetation mapping (NSW Vegetation)
- NSW Bush Fire Prone Land (NSW Rural Fire Service)

7.01 Location

The subject site comprises of eight existing allotments that are legally identified as Lot 2-6 and 9 DP 747391 and Lot 12-13 DP 1219648. The land is zoned R1: General Residential and is located within Maitland City Council's local government area.

The site is identified as being located within the '*Lochinvar Urban Release Area*'.

The subject site has street frontage to New England Highway to the south, Wyndella Road to the east and abuts neighbouring private allotments to the north and west.

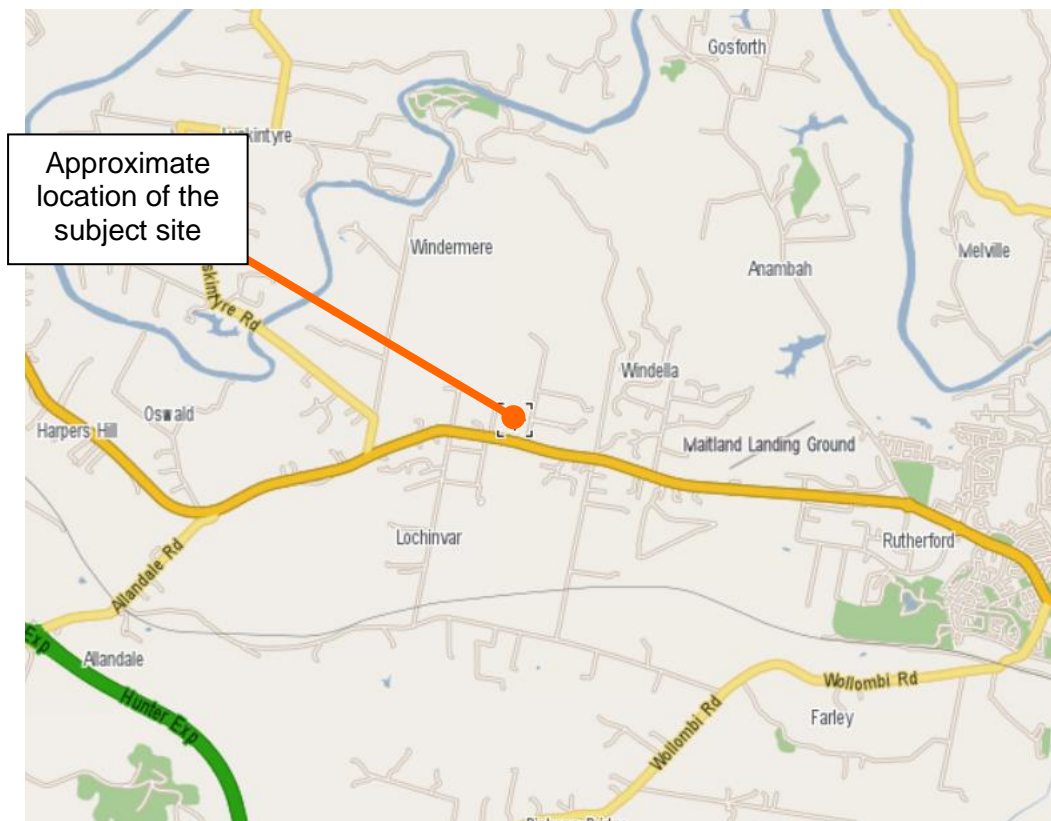


Figure 04: Extract from street-directory.com.au

LOCHINVAR AREA PLAN

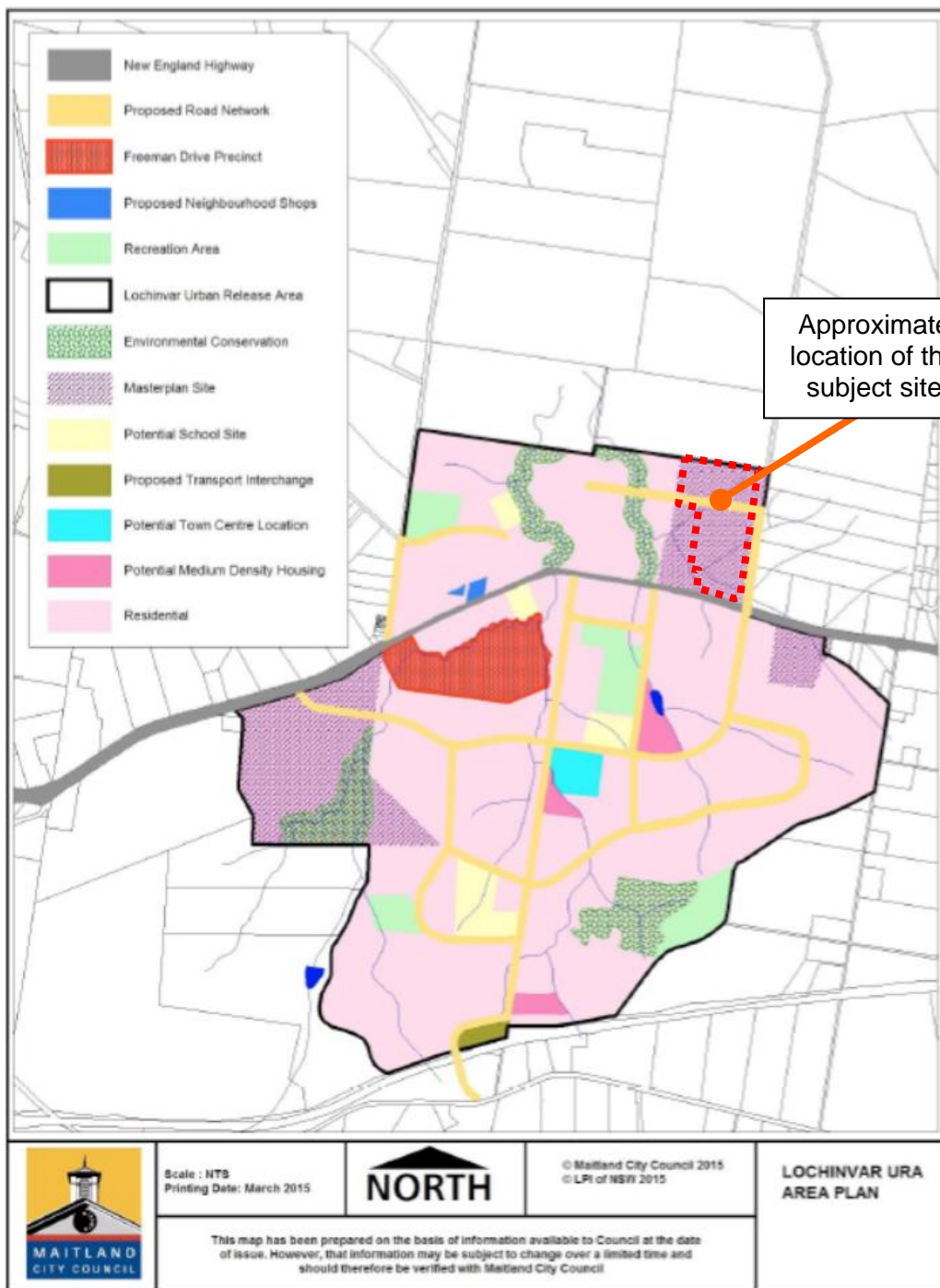


Figure 55: Lochinvar URA Area Plan

Figure 05: Extract from Maitland DCP – Lochinvar Area Plan

7.02 Vegetation

In accordance with Appendix 1 'Site Assessment Methodology' of PBP we have undertaken an assessment of all vegetation formations within 140 metres of the development for each aspect as per Keith (2004).

As part of this bushfire assessment process consideration has been given to all existing vegetation within neighbouring allotments, as well as any vegetated areas within the site upon completion of the proposed development.

In this regard the vegetation identified as posing a potential hazard is located within neighbouring properties to the north, east, south and west and within the subject property to the south.

The vegetation to the north, east and west of the site has been the subject of historic grazing, although there appeared to be minimal stock present during our inspection. As a conservative assessment for the purpose of assessment under 'Planning for Bush Fire Protection', the vegetation posing a hazard to the north, east and west has been determined to be Grassland.

Existing dwellings (House paddocks) and horse paddocks are located to the southeast and southwest of the site, these dwellings and horse paddocks are currently managed and are considered not to pose a fire threat in accordance with sA1.10 Low Threat Vegetation – Exclusions of PBP.

Within the site itself is a small unnamed watercourse which bisects the southern portion of the property. This watercourse will be re-aligned and revegetated as part of this proposal.

The revegetation of the riparian corridor will be guided by the 'Biodiversity Management Plan' (BMP) prepared by Anderson Environment & Planning (AEP) Dated: July 2024, which forms part of the development application documentation (refer to Figure 06). The width of this riparian area is variable (generally <40m), and is bound to the north by Road MC04, a managed park and a detention basin. It will be revegetated to reflect a 'derived woodland of PCT 3433', managed to woodland fuel loadings (20.2t/ha).

For the purposes of this assessment, the vegetation posing a hazard to the south has been determined to be a Woodland, in accordance with the recommendations of Section 4.4 of the BMP, which states:

5.4 Management Zone 4 : PCT 3433 Reconstruction – Riparian

MZ4 (approx. 0.45ha) is from the edge of the floodplain to the landscaped road batters and parkland area. This zone will be planted to reflect a derived woodland of PCT 3433. This will ensure the Safer by Design Guidelines are met with more pocket plantings to ensure clear sightlines and no spaces where antisocial behaviour can occur.

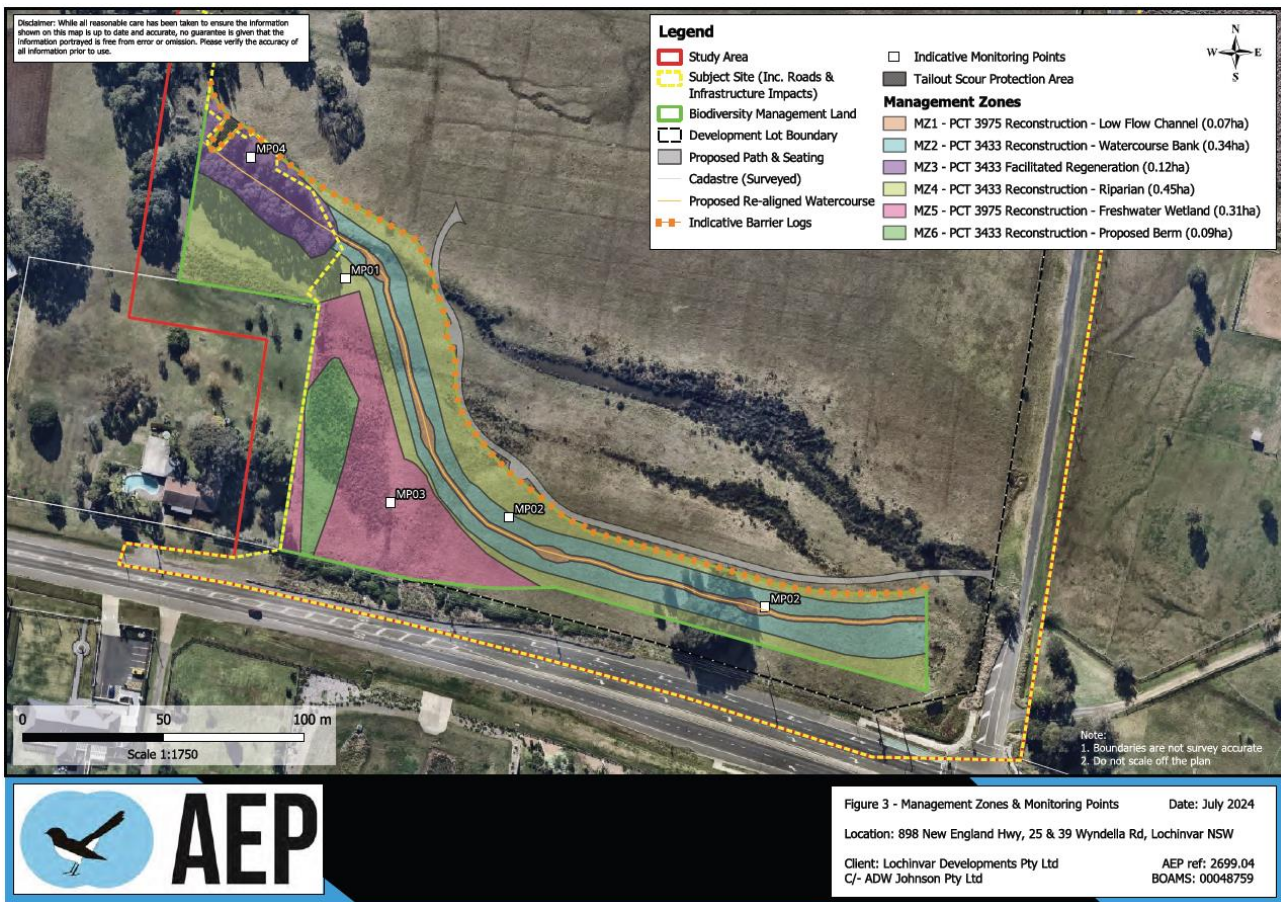


Figure 06: Extract from the BMP prepared by AEP – Management Zones

Two detention basins are proposed within the site. As described above, a detention basin will be located towards the south of the site directly adjacent to the riparian corridor (known as Basin 01), and a second temporary basin will be located on Lot 805 in the mid-western portion of the site (known as Basin 02). Both basins are shown on Figure 3.

In terms of determining a vegetation classification for the purposes of this assessment, it is noted that the batters surrounding the basins can be mown, as confirmed by the Stormwater Management Plan (**SWMP**) (ADW Johnson, June 2024) prepared to inform the development application (refer to Table 25). In addition, detention basins by their very nature are vegetated with reeds with minimal planting resulting in a 'Freshwater Wetland' vegetation structure.

In this regard, it is appropriate to assess Basin 01 as a 'Freshwater Wetland'.

The bushfire threat from (temporary) Basin 02, on the other hand, is considered to be low on the basis that:

- Basin 2 will have a relatively small vegetated area of approximately 46m²;
- The application of a full hazard classification from Basin 2 is considered to be excessive in regard to the size of the basin and the basin being temporary in nature until such time as the neighbouring allotments are developed in line with the LURA;
- The provisions of 'A1.10 Low threat vegetation – exclusions' of PBP apply, whereby 'single areas of vegetation less than 1 hectare in area and greater than 100 metres separation from other areas of Category 1 or 2 vegetation' are considered low threat vegetation. It is noted that the vegetation identified on the Bushfire Prone Land Map (BFPLM) is Category 3 Vegetation, and this is consistent with site observations.

Noting the above, Basin 02 is considered low-threat vegetation for the purposes of this assessment.

Noting the development will be constructed over stages, recommendations regarding ongoing management of the land within the overall site and within 50 metres of the proposed Stages (Temporary APZs) will be included herein to ensure no hazard regenerates before the subsequent stages are developed.



Photograph 01: View of the vegetation to the south along the creek



Photograph 02: View southwest of the vegetation within the neighbouring allotment to the west.



Photograph 03: View northwest of the vegetation within the neighbouring allotments to the northwest



Photograph 04: View northeast of the vegetation within the neighbouring allotment to the northeast



Photograph 05: View southeast of the vegetation within the neighbouring allotment to the east

7.03 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 onsite using an inclinometer and verified from topographic mapping to be:

- 0 - 5 degrees down slope within the hazard to the south, southwest and west
- 0 degrees and up slope within the hazard to the north and east

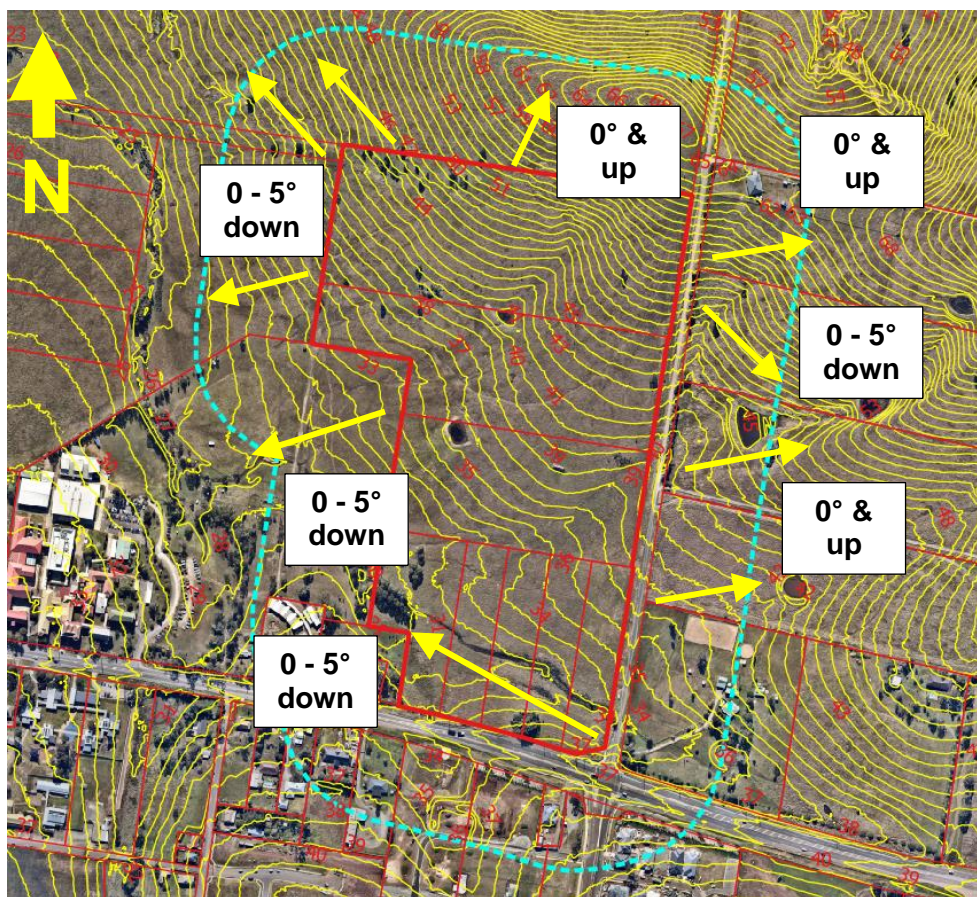


Figure 07: Extract from ELVIS – Geoscience Australia (1m contours)
Subject site (Thick red outline) & 140m assessment area (Blue line)

7.04 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 Maitland City Council in this instance.

In accordance with the NSW Rural Fire Service publication 'NSW Local Government Areas FDI' (2017) Maitland City Council forms part of the Greater Hunter Region Fire Weather District and attracts an FFDI of 100. As Grassland hazards are identified in this assessment a Grassland Fire Danger Index of 130 has been used in accordance with Table 5.1.4a of PBP.

8.0 Bushfire Protection Measures

8.01 Planning for Bush Fire Protection - 2019

Planning for Bush Fire Protection – 2019 (PBP) is applicable to development located on land determined as being 'bushfire prone' in accordance with the local Bushfire Prone Land Map.

Bushfire prone land are defined as those areas;

- *containing or within 100m of Category 1 Vegetation; or*
- *containing or within 30m of Category 2 or 3 Vegetation.*

Maitland City Council's Bushfire Prone Land Map identifies the subject property as containing Category 3 Vegetation and the Vegetation Buffer therefore PBP must apply in this instance.

The application of Planning for Bush Fire Protection requires satisfactory demonstration of the aim and objectives and the following bushfire protection measures (BPMs):

- Asset Protection Zones
- Building construction, siting & design
- Access arrangements
- Water supply & utilities
- Landscaping

The development proposal relates to the subdivision of eight existing allotments. The subdivision is captured under section 100B of the *Rural Fires Act 1997*.

8.02 Specific Objectives

The following table lists the specific objectives for residential and rural residential subdivisions with a dwelling entitlement in accordance with section 5.2 of PBP and our comments of the proposal compliance or otherwise.

Specific Objective	Comment
<i>minimise perimeters of the subdivision exposed to the bush fire hazard (hourglass shapes, which maximise perimeters and create bottlenecks should be avoided);</i>	The subdivision design is in consistent with the current zoning and nomination within the LURA. The re-alignment of the Riparian Corridor allows for perimeter roads around the proposed allotments. The proposed subdivision design does not expose the allotments to an increased bushfire hazard and does not result in an hourglass shape.
<i>minimise vegetated corridors that permit the passage of bush fire towards buildings;</i>	The vegetation corridor (Riparian) within the southern portion of the site will be realigned to provide a 22 metre - <50 metre width minimising the potential fire runs. The subdivision design provides perimeter access to all identified hazards.

Specific Objective	Comment
<i>provide for the siting of future dwellings away from ridge-tops and steep slopes, within saddles and narrow ridge crests;</i>	The proposed residential allotments and any future dwelling envelopes are not located on a ridge-top.
<i>ensure that APZs between a bush fire hazard and future dwellings are effectively designed to address the relevant bush fire attack mechanisms;</i>	<p>The minimum required Asset Protection Zones (APZs) were determined from Table A1.12.2 of PBP.</p> <p>All allotments achieve the minimum required APZs with the majority of the proposed allotments found to provide a building envelope which exceed the minimum required APZs.</p>
<i>ensure the ongoing maintenance of APZs;</i>	<p>The Asset Protection Zones will be within the subject property and include existing and proposed public roads.</p> <p>It is expected that the property management within the proposed allotments will be enforced by way of a condition of consent, similar to recommendation 1 of this report, as part of this development process.</p> <p>This will ensure ongoing management of the APZs within the site.</p>
<i>provide adequate access from all properties to the wider road network for residents and emergency services;</i>	<p>The existing road network provides adequate access and evacuation for occupants and emergency services.</p> <p>The existing road network provides occupants egress away from the bushfire / grassfire hazard. The Staging plan allows for secondary access / egress at each stage of the development from Wyndella Road.</p>
<i>provide access to hazard vegetation to facilitate bush fire mitigation works and fire suppression;</i>	Attending fire services will have comprehensive access to the identified hazards via existing and the new road network for hazard reduction and / or fire suppression activities.
<i>ensure the provision of an adequate supply of water and other services to facilitate effective firefighting.</i>	Hydrants will be installed in accordance with AS2419.1 as part of this proposal. The proposed allotments will be within 90 metres of an existing hydrant and therefore the proposed water supply is adequate in consideration of section 5.3.3 of PBP.

8.03 Bushfire Protection Measures

Section 5.3 'Bush fire protection measures' of PBP outlines the specific Bushfire Protection Measures (BPMs) applicable to residential and rural residential subdivisions, including APZs, Access and Services.

The following section addresses each BPM and the proposals compliance or otherwise.

Asset Protection Zones & Landscaping

An Asset Protection Zone (APZ) is an area between the development (in this instance building envelopes) and the identified bushfire hazards. It is also an area where the fuels are maintained to a minimum to prevent the spread of fire between a hazard and an asset.

The width of the APZs are determined by the vegetation structure of the identified hazard, Fire Danger Index, effective slope and the type of development (residential development or Special Fire Protection Purpose).

APZs for new residential subdivisions are determined from Table A1.12.2 of PBP or bushfire design modelling achieving a radiant heat impact of no more than 29kW/m² at the closest point of the indicative building envelope.

In this instance the minimum required APZs were determined from Table A1.12.2 of PBP and are shown in the compliance table in section 5 and Figure 03 of this report.

The proposed allotments can provide building envelopes with Asset Protection Zones achieving or exceeding the minimum requirements under PBP.

The available APZs consist of the land within the subject site (including proposed roads) and existing managed grounds within neighbouring allotments.

Temporary APZs will be provided over the land within future stages to alleviate unnecessary construction provisions on future dwellings. Recommendations regarding ongoing management of the land outside that shown within Figure 05 (Attachment 01) and within 50 metres of each proposed stage release (Attachment 02) will be included herein to ensure no hazard regenerates before the subsequent stages are developed.

The temporary APZs within the future stages will be formalised by way of a positive covenant under section 88b of the *Conveyancing Act* 1919 with the temporary APZs being dissolved upon the completion of each additional stage where the temporary APZs become redundant.

The residual land is and will continue to be under the control of Lochinvar Developments Pty Ltd and with the resources available to this company it is considered that a development consent condition would be an ample mechanism to ensure the ongoing management of the temporary APZs until such time that the land is developed.

It is also noted that Basin 2 will have a vegetated area of approximately 46m². In applying a holistic approach, the actual bushfire threat from this basin is considered to be low.

The application of a full hazard classification of Basin 2 is considered to be excessive in regard to the size of the basin and the basin being temporary in nature until such time as the neighbouring allotments are developed in line with the LURA. Considering this, the required 50 metre setback from the adjacent grassland is considered to be acceptable.

Basin 2 has been assessed as not considered a hazard under the requirements of 'A1.10 Low threat vegetation – exclusions' of PBP being:

Single areas of vegetation less than 1 hectare in area and greater than 100 metres separation from other areas of Category 1 or 2 vegetation.

It is noted that the vegetation identified in the Bush Fire Prone Land Map (BFPLM) is Category 3 Vegetation. This is consistent with site observations.

The Asset Protection Zones will be maintained in accordance with an Inner Protection Area as detailed in the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of *Planning for Bush Fire Protection 2019*.

Access

The subject property will be accessed from Wyndella Road to the east and all proposed allotments will have access to the proposed road networks.

The development proposal will provide three (3) connection points to Wyndella Road at its conclusion.

Attending fire services have comprehensive access to the identified bushfire hazards via the proposed perimeter road for hazard reduction and / or fire suppression activities.

Persons seeking to egress any future dwellings will be able to do so via existing and proposed road infrastructure.

The proposed perimeter roads will comply with the Perimeter Road requirements detailed in section 5.3.2 of PBP and will provide a minimum 8 metre wide carriageway, consistent with the Acceptable Solutions for Perimeter Roads as detailed in Table 5.3b of PBP. It is noted that these roads are widened to 10.5m to ensure parking is provided on one side and outside of the 8m wide carriageway, as required by Council.

Proposed MC03, being the main collector road, has been designed to provide a minimum 8 metre carriageway, consistent with the Acceptable Solutions for Perimeter Roads as detailed in Table 5.3b of PBP.

The turning head for proposed Road MC16 seeks to satisfy Table 5.3b of PBP by way of the Performance Criteria, being:

Firefighting vehicles are provide with safe, all-weather access to structures

Rather than providing a 12 metre outer turning radius turning circle outlined in the Acceptable Solution swept path modelling (Figure 08) has been undertaken to demonstrate that an 8.8 metre long service vehicle can perform a turn in a single motion on the proposed reduced turning head in line with Council's design guidelines.

The modelled vehicle length is larger than that of a Category 1 RFS appliance, being 7.8m. This modelling demonstrates adequate turning provisions for a Category 1 appliance and is in accordance with Council requirements.

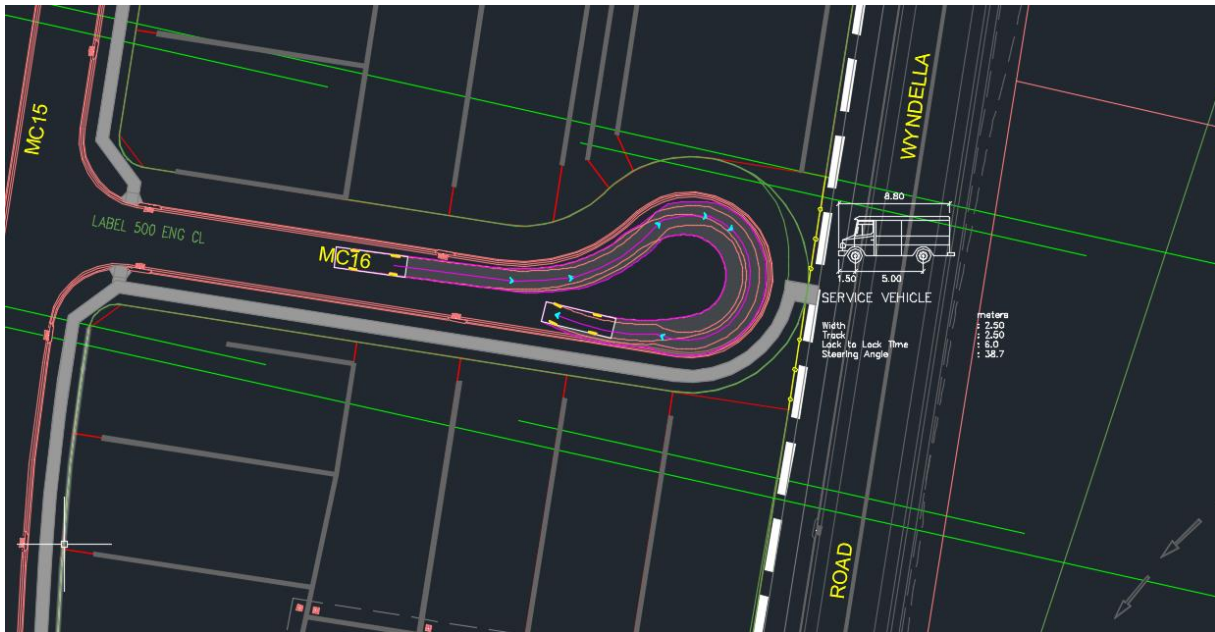


Figure 08: Excerpt showing Swept Path Modelling for an 8.8m long service vehicle

Vehicle Categories 1

(nominal weights & dimensions)



Category 1 (Isuzu or Hino)

Heavy Bush Fire Tanker

Weight: 13,700kg

Length: 7,800mm

Height: 3,100mm + Aerials

Width: 2,400mm

Water Capacity:

Village - 3,500 litres

Grassland - 4,500 litres

Figure 09: RFS Category 1 Vehicle Dimensions

It is noted that a significant portion of the proposed roads will be located >100 metres from any bushfire hazard and >30 metres from any grassland hazard (refer to Figure 10 overleaf) and therefore not on land considered to be on 'bushfire prone' land.

One of the general principles underlying Planning for Bush Fire Protection is that protection measures are governed by the degree of threat posed to a development.

As the proposed road carriageways exceed the minimum requirements for Public Roads as detailed in section 5.3.2 of PBP it is requested that the sections of road which is outside the buffer as shown on Figure 10 be excluded from the parking restrictions described in section 5.3.2 of PBP.

This request, while not being common does present itself on large scale subdivisions, including URAs, and has been approved by the NSW Rural Fire Service in the past. The scale of the proposal in our opinion warrants this request.

In consideration of the risk posed to the subject development the proposed access arrangements in conjunction with that already existing are considered adequate.

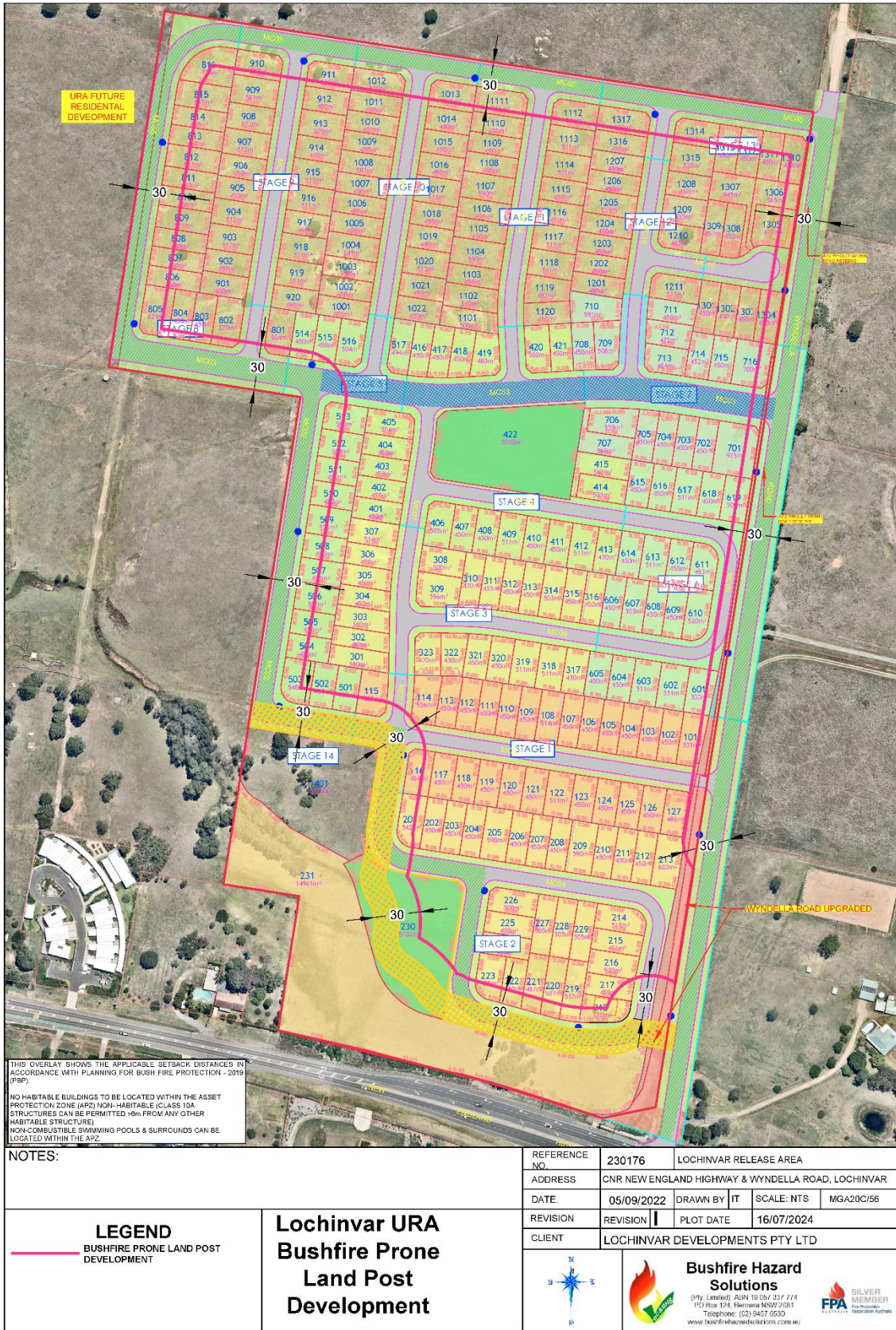


Figure 10: Bush Fire Prone Land Map Post Development

Services – Water, electricity & gas

Hydrants are available throughout existing road network for the replenishment of fire service vehicles and will be extended as part of this application.

The hydrant system will be extended along the new internal roads to service the proposed residential allotments. The sizing, spacing and pressures of this system must comply with AS2419.1-2021.

Recommendations will be included to ensure compliance with the electricity and gas services requirements.

Building Construction

No new dwellings are proposed as part of this application.

Those new allotments that are mapped as Bushfire Prone Land following this subdivision may require further assessment under *State Environmental Planning Policy (Exempt and Complying Development Codes)* 2008 or s4.14 of the *Environmental Planning and Assessment Act* 1997 at the time of any future application for the construction of any new dwellings on these newly created allotments.

8.04 Aim & Objectives of PBP

The following table details the aim and objectives of *Planning for Bush Fire Protection 2019* and the proposal's ability to comply.

Aim / Objective	Comment
<p>The aim of PBP is to provide for the protection of human life and minimise impacts on property from the threat of bush fire, while having due regard to development potential, site characteristics and protection of the environment.</p>	<p>With the inclusion of the recommendations made herein it is of our opinion that the aim of PBP has been satisfied.</p>
<p>(i) afford buildings and their occupants protection from exposure to a bush fire;</p>	<p>The proposed allotments provide building envelopes with Asset Protection Zones achieving or exceeding the minimum requirements under PBP.</p> <p>In conjunction with the application of the corresponding Bushfire Attack Level to the future dwellings, the buildings will afford occupants protection from the exposure to a bushfire.</p>
<p>(ii) provide for a defensible space to be located around buildings;</p>	<p>The proposed subdivision provides building envelopes with Asset Protection Zones achieving or exceeding the minimum requirements under PBP.</p> <p>The APZs include managed land and perimeter roads within the subject site and managed land within neighbouring allotments providing logical firefighting platforms.</p> <p>The proposed APZs provide an ample defensible space around the building envelopes.</p>
<p>(iii) provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;</p>	<p>The proposed allotments provide building envelopes with Asset Protection Zones meeting or exceeding the minimum requirements under PBP.</p> <p>In conjunction with the application of the corresponding Bushfire Attack Level to the future dwellings the buildings will afford occupants protection from the exposure to a bushfire and will prevent the likely spread to buildings.</p>

Objective	Comment
(iv) ensure that appropriate operational access and egress for emergency service personnel and occupants is available;	We are of the opinion that appropriate operational access and egress for emergency service personnel and occupants will be available.
(v) provide for ongoing management and maintenance of bush fire protection measures, (BPMs); and	<p>The APZs will be maintained in accordance with the NSW Rural Fire Service's document 'Standards for Asset Protection Zones' and Appendix 4 of <i>Planning for Bush Fire Protection 2019</i>.</p> <p>Any new landscaping within the APZs is to comply with the provisions of Appendix 4 of PBP.</p>
(vi) ensure that utility services are adequate to meet the needs of firefighters.	The proposed water supply is adequate for attending firefighters.

It is therefore of our opinion that the proposal can satisfactorily comply with the aim and objectives of *Planning for Bush Fire Protection 2019*.

8.05 Submission Detail

Section 45 of the *Rural Fires Regulation 2022* identifies various items which must be addressed and included within an application for a Bush Fire Safety Authority. The following table outlines these items and includes a corresponding response.

Submission Detail	Response
<i>(a) a description (including the address) of the property on which the development the subject of the application is proposed to be carried out,</i>	See section 7.01
<i>(b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in Planning for Bush Fire Protection,</i>	See section 7.02
<i>(c) an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property),</i>	See section 7.03
<i>(d) identification of any significant environmental features on the property,</i>	None known
<i>(e) the details of any threatened species or threatened ecological community under the Biodiversity Conservation Act 2016 that is known to the applicant to exist on the property,</i>	None known
<i>(f) the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property,</i>	None known within site
<i>(g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters—</i>	See section 8.0
<i>(i) the extent to which the development is to provide for setbacks, including asset protection zones,</i>	See section 8.03
<i>(ii) the siting and adequacy of water supplies for fire fighting,</i>	See section 8.03
<i>(iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,</i>	Wyndella Road (Upgraded) and New England Highway (Dual Carriageway) was found to generally have a carriageway generally >8 metres achieving the perimeter road requirements detailed in PBP.
<i>(iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access,</i>	See Figure 07

Submission Detail	Response
<i>(v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response,</i>	See section 8.03
<i>(vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site,</i>	<p>There are currently no bush fire maintenance plans or emergency procedures for the development site.</p> <p>It is encouraged that the future residents complete a Bushfire Survival Plan.</p>
<i>(vii) the construction standards to be used for building elements in the development,</i>	See section 8.03
<i>(viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development,</i>	<p>There is no existing bushfire sprinkler system, nor is one proposed.</p> <p>See section 8.03 for all bushfire protection measures.</p>
<i>(ix) any registered fire trails on the property,</i>	There are no registered fire trails within the subject site.

9.0 Recommendations

It is respectively requested that the NSW Rural Fire Service modify conditions 1, 2, 3, 4, 7 (note) & 8 of the issued General Terms of Approval, under Division 4.8 of the *Environmental Planning and Assessment Act 1979*, and a Bush Fire Safety Authority, under section 100B of the *Rural Fires Act 1997* for this application (RFS ref DA20230613002541-Original-1, dated 30 July 2023) to the following:

1. At the issue of a subdivision certificate and in perpetuity, all residential allotments must be managed as an inner protection area in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019.

When establishing and maintaining an 'inner protection area', the following requirements apply:

- tree canopy cover should be less than 15% at maturity,
 - trees at maturity should not touch or overhang the building,
 - lower limbs should be removed up to a height of 2m above the ground,
 - preference should be given to smooth-barked and evergreen trees,
 - large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings,
 - shrubs should not be located under trees,
 - shrubs should not form more than 10% ground cover,
 - clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation,
 - grass should be kept mown (as a guide, grass should be kept to no more than 100mm in height), and
 - leaves and vegetation debris should be removed.
2. At the issue of a subdivision certificate, temporary APZs shall be provided between each stage of the proposal until such time the adjacent stage is developed. The temporary APZs are to have a minimum depth of 50 metres and are not to encroach within any detention basin or management zones shown in the Draft Biodiversity Management Plan prepared by AEP (ref 2699.04, rev 01, dated July 2024).
 3. Delete – Minimum APZ do not extend into proposed residential allotments
 4. The restoration and revegetation of the entire Riparian Corridor on proposed Lots 230 and 231, must not exceed the fuel load of 10.5 to 20.2 t/ha for Grassy Woodland in accordance with Table A1.12.8 of Planning for Bush Fire Protection 2019.

Access – Public Roads

Note: The parking restrictions shall not apply to the sections of road that are not located on 'bushfire prone' land (i.e. greater than 30m from a Grassland hazard and 100m of a bushfire hazard as per Figure 10 of the Bush Fire Assessment Report prepared by Building Code & Bushfire Hazard Solutions Pty Limited, dated 25/07/2024, Ref: 230176).

8. Delete – No longer relevant to proposal as associated residential allotments have been deleted / relocated.

10.0 Conclusion

The development proposal seeks to create a two hundred and fifty-eight lot subdivision, two parks and associated infrastructure at 25, 39 & 55 Wyndella Road and 2 Cantwell Road, Lochinvar.

The subdivision is captured under section 100B of the *Rural Fires Act 1997*.

In accordance with the submission requirements for a Bush Fire Safety Authority as detailed in section 45 of the *Rural Fires Regulation 2022* an assessment of the extent to which the proposed development conforms with or deviates from *Planning for Bush Fire Protection (PBP)* is required.

In accordance with the bushfire safety measures contained in this report, and consideration of the site-specific bushfire risk assessment it is our opinion that when combined, they will provide a reasonable and satisfactory level of bushfire protection to the subject development.

We are therefore in support of the application.

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

Prepared by
Building Code & Bushfire Hazard Solutions



Ian Tyerman

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Reviewed by
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FPA Australia BPAD Level 3 Accredited Practitioner
BPAD Accreditation No. BPAD9400



11.0 Annexure 01

List of Referenced Documents

ADW Johnson (2024) CONCEPT ENGINEERING PLANS FOR PROPOSED SUBDIVISION; Drawing No. 240332-ESK-023; Revision: C; Dated: 18/07/2024.

Anderson Environment & Planning (2024). Biodiversity Management Plan, dated: July 2024

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

ELVIS -Elevation -Foundation Spatial Data. Elevation.fsdf.org.au. Available at: <http://elevation.fsdf.org.au/>

Environmental Planning and Assessment Act 1979

Landscape Documentation by: Terra Landscape Architects; Dated: 2/2/23

Maitland City Council Development Control Plan Part D – Urban Release Areas. Accessed at: <https://www.maitland.nsw.gov.au/services/planning-development/planning-strategies>

NSW Department of Planning and Environment (2019). *Planning Portal*. Accessed at: <https://www.planningportal.nsw.gov.au/>

NSW Rural Fire Service (2019). *Planning for Bush Fire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*.

Proposed Bushfire Planning – Full Development Plan: ADW Johnson; Drawing No. 240332-ESK-023; Revision: A; Dated: 03/07/2024.

Rural Fires Act 1997

Rural Fires Regulations 2022

Rural Fire Service NSW (2005). *Standards for Asset Protection Zones*

Rural Fire Service NSW (2017). *NSW Local Government Areas FDI*

Standards Australia (2018). *AS3959 Construction of buildings in bushfire-prone areas*.

Standards Australia (2014). *AS/NZS 1596 The storage and handling of LP Gas*

Acknowledgements to:

Geoscience Australia
Nearmap
Street-directory.com.au

Attachments

Attachment 01: N/A