

Lot 2 Clarkes Lane, Wangaratta

Bushfire Planning Report

Prepared for Bislake Pty Ltd

February 2024
Report No. 21293.02 (1.6)



**Nature
Advisory**

(Formerly Brett Lane & Associates Pty Ltd)

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1. Executive summary

Bislake Pty Ltd engaged Nature Advisory Pty Ltd to prepare a Bushfire Planning Report for a proposed subdivision of an approximately 24.6-hectare parcel of land at Lot 2 Clarkes Lane, Wangaratta, currently zoned Low Density Residential Zone – Schedule 1 in the Wangaratta Planning Scheme. The site is entirely located within a designated Bushfire Prone Area (BPA) and *is not* subject to a Bushfire Management Overlay (BMO).

This report responds to the requirements of Clause 13.02 *Bushfire* in the State Planning Policy Framework for land in a BPA.

The bushfire hazard assessment contains two components, listed below:

- A bushfire hazard site assessment that describes bushfire hazards within 150 m of the proposed subdivision in accordance with standard fire authority requirements contained elsewhere in state-wide planning provisions. The description of the hazards has been prepared in accordance with the Australian Standards, AS 3959:2018 - *Construction of buildings in bushfire prone areas*; and
- A bushfire hazard landscape assessment, including a plan that describes the bushfire hazards in the general locality more than 150 m from the site.

Under the Schedule to Clause 13, the responsible authority must do the following when assessing a planning permit application for any subdivision of more than 10 lots on land covered by BPA mapping:

- Consider the risk of bushfire to people, property and community infrastructure;
- Require the implementation of appropriate bushfire protection measures to address the identified bushfire risk; and
- Ensure new development can implement bushfire protection measures without unacceptable biodiversity impacts.

In particular, Cl. 13.02 requires that settlement planning (i.e. rezoning) restricts new residential settlements to areas that can accommodate a maximum BAL-12.5.

This report outlines bushfire protection measures to address these core considerations of Clause 13.02 for new lots created by the proposed subdivision and addresses requirements relating to the following:

- Subdivision layout and design;
- Defendable space and construction; and
- Water supply and access.

During the site assessment, classified vegetation in the form of Grassland was recorded to the south and east of the study area, a patch of Woodland was recorded immediately to the north of the study area in Targoora Park, and riparian Forest vegetation borders the study area to the west. Slope was measured for these areas of classified vegetation.

The site is situated in broader landscape Type One as defined in the relevant technical guidance (DELWP 2017) and an assessment of landscape hazards identified that the study area was outside the bushfire landscape identified in the Hume Regional Bushfire Planning Assessment (DPCP 2012). The proposed subdivision layout is shown in Appendix 1 (M6801Overall Layout _V16r).

Based on the classified vegetation recorded in the study area and provided defendable space requirements set out in this report can be implemented, dwellings on new lots created by the proposed subdivision would be required to be constructed to BAL-12.5.

Vegetation management is required to provide the required defensible space in some cases.

This report was prepared by a team from Nature Advisory comprising Eamon O'Meara (Ecologist), Emma Wagner (GIS Analyst), Chris Dunk (Senior Ecologist & Project Manager), Chris Armstrong (Senior Ecologist & Project Manager) and Kate Callister (Ecologist & Project Manager).

2. Sources of information and policy context

2.1. Existing information

The reports, planning scheme and development plans relating to the study area listed below were reviewed.

- Planning Maps Online (DELWP 2022a)
- Planning Schemes Online (DELWP 2022b)
- *Regional Bushfire Planning Assessment – Hume Region* (DPCD 2012)
- *Requirements for water supplies and access for subdivisions in residential 1 and 2, and township zones* (CFA 2006a)
- *Preferred requirements for water supplies and access for subdivisions in rural zones* (CFA 2006b)

2.2. Definitions

2.2.1. Site and study area

The term 'site' is used herein to refer to the land proposed for subdivision. The term 'study area' refers to the area up to a distance of 150 m from the site (Figure 1).

2.3. Classified vegetation

For the purposes of bushfire hazard assessment, areas of vegetation considered to pose a bushfire threat are classified according to the vegetation classes defined in Table 2.3 of AS 3959:2018. Under Section 2.2.3 of AS 3959:2018, vegetation is classified into the following classes:

- Forest
- Woodland
- Shrubland
- Scrub
- Mallee/Mulga
- Rainforest
- Grassland

AS 3959:2018 also describes situations where vegetation is classified as 'low threat'.

2.4. Field methodology

The field assessment was conducted on 13th January 2022. During this assessment, the site was inspected on foot and the surrounding study area observed from the site and surrounding roads.

Classified vegetation identified within the study area was mapped through a combination of aerial photograph interpretation and ground-truthing using ArcGIS Collector.

2.5. Precautionary approach

Wherever appropriate, a precautionary approach has been adopted in the discussion of implications. That is, where insufficient evidence is available relating to the predicted behaviour of fire in a wildfire event, the assumption is made that the most severe fire behaviour could take place and that unmanaged immature vegetation could reach mature heights. The implications under legislation and policy are considered accordingly.

3. Bushfire hazard assessments

3.1. Bushfire hazard site assessment

3.1.1. Site description

The site consists of approximately 24.6 hectares of private land located at Lot 2 Clarkes Lane, Wangaratta, 3 km south of the Wangaratta CBD (Figure 1). The site is adjoined by Cathedral College in the north east and Targoona Park to the north west. To the west of the site there is riparian forest along One Mile Creek with farming and rural residential properties to the south. The site is currently a rural property, consisting of grassland and grazing paddocks. It is approximately 990 m long from east to west and 430 m from north to south at the widest section in the west of the site.

The site is currently zoned Low Density Residential – Schedule 1 (LDRZ1) in the Wangaratta Planning Scheme and is situated in the non-Alpine parts of Victoria that have a Fire Danger Index (FDI) of 100.

Photographs of the site and study area are provided in Appendix 2.

3.1.2. Classified vegetation, slopes and BAL assessment

During the field assessment, two classified vegetation classes were identified as per the classification methods in the Australian Standard AS 3959:2018. Classified vegetation is represented in Figure 1 and comprised:

- Grassland – present in the study area to the north-west, west, south-east and south-west, as well as throughout the site.
- Woodland – a 6.7 hectare area to the north of the western half of the site.
- Forest – open riparian forest bordering the western boundary of the property from north to south.

Slopes underlying classified vegetation and defendable space distances required from any new dwelling facing the hazard are set out in a BAL assessment provided in Table 1, based on the maximum construction rating of BAL-12.5 for new settlements.

Table 1: BAL assessment

	N		E		S		W	
Effective slope	Upslope							
	Upslope/0°	✓	Upslope/0°		Upslope/0°	✓	Upslope/0°	
Slope under the classified vegetation	Downslope							
	>0° to 5°		>0 to 5°	✓	>0 to 5°		>0 to 5°	✓
	>5° to 10°		>5° to 10°		>5° to 10°		>5° to 10°	
	>10° to 15°		>10° to 15°		>10° to 15°		>10° to 15°	
	>15° to 20°		>15° to 20°		>15° to 20°		>15° to 20°	
Vegetation class	Woodland		Grassland		Grassland		Forest	
Bal Assessment Method	Method 1		Method 1		Method 1		Method 1	Method 2
BAL-12.5 defendable space (m)	33		22		19		57	40

3.2. Bushfire hazard landscape assessment

3.2.1. Hazards in the landscape

The study area lies within a broader Landscape Type One as defined in the relevant technical guidance (DELWP 2017) and surrounding landscape features include:

- Grassland and rural residential properties to the south, east and north-east of the site;
- Cathedral College Wangaratta to the north east;
- Residential development to the north, west and north-west;
- Targoora Park and Wenhams Lane Reserve woodland to the north;
- One Mile Creek and associated riparian forest to the west; and
- King River and floodplains to the east.

The study area has not been identified within the Regional Bushfire Planning Assessment (DPCD 2012).

The township of Glenrowan, approximately 8 km south-west of the study area, contains lots that are close to the bushfire hazard and urban/bushfire hazard interface (DPCD 2012).

According to *NatureKit* (DELWP 2022c) the closest bushfire to the study area since 1970 was from 1989 in the Warby -Ovens National Park, 8 km to the west of site. Planned burns were undertaken at Wangaratta Common in 2008, 2010, 2011, 2013, 2014, 2017 and 2018. Council also reports a fire in Wenhams Lane Reserve within the last decade. Refer to Figure 2 for a map presenting the landscape assessment.

3.2.2. Likely bushfire scenarios

In Victoria, dominant weather conditions are winds from the north-west or south-west, although wind may travel in all directions.

The study area is bordered by Grassland to the east and south, Forest to the west, with a patch of Woodland to the north that could pose a fire risk. Grassfires burn faster, tend to be less intense and produce fewer embers than bushfires but can generate severe radiant heat (CFA 2019). Grass maintained at or below 10 cm in height can reduce fire risk (CFA 2019). Furthermore, grassland that is managed in a minimal fuel condition is regarded as low threat vegetation for the purposes of Section 2.2.3.2 of AS 3959:2018.

The primary threat to the development is an isolated 6.5-hectare area of vegetation (Wenhams Lane Reserve) to the north. This reserve is surrounded by residential development and parklands, as well as the subject site. This vegetation is classified as woodland. If a fire were to start within this reserve, it would not be able to build up sufficient momentum to burn at an intensity that is reflective of a typical woodland fire before interacting with the subject site. Therefore, the potential exposure to radiant heat for those lots adjacent to the threat is likely less than what is assumed under AS3959.

Given its highly urbanised locality, the fuel loads are likely to be regularly managed by Council during the declared fire danger period. If a fire were to start within this reserve, CFA would likely place a high priority on controlling it, given its proximity to existing residential development.

If council were accommodating, there is potential to manage the interface between the reserve and the proposal to a low-threat state. Current management of the reserve interface may increase the separation distance between the woodland and the proposed lots enabling lots to be constructed to BAL-12.5. This area of management would have to be approximately 10 to 20m wide to accommodate the current development layout.

Table 6 of C 53.02 outlines the following requirements for the vegetation to be managed for defensible space (excluding requirements that apply within 10m of a building):

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres.
- The canopy of trees must be separated by at least 5 metres.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

Unless specified in a schedule or otherwise agreed in writing to the satisfaction of the relevant fire authority.

3.2.3. Egress to built-up areas

Once developed, the proposed subdivision will represent a significant built-up area within which future residents could retreat to areas of lower bushfire risk in the event of an extreme bushfire.

The proposed subdivision will also provide vehicular egress to Clarkes Lane to the south, a single-carriageway sealed road. This roadway could provide the following egress route from the site in the event of extreme bushfire behaviour to nearby built-up areas (Figure 2):

- Wangaratta – 3 kilometres to the north via Laceby-Targoora Rd and Wangaratta-Whitfield Road east or Greta Road to the west.

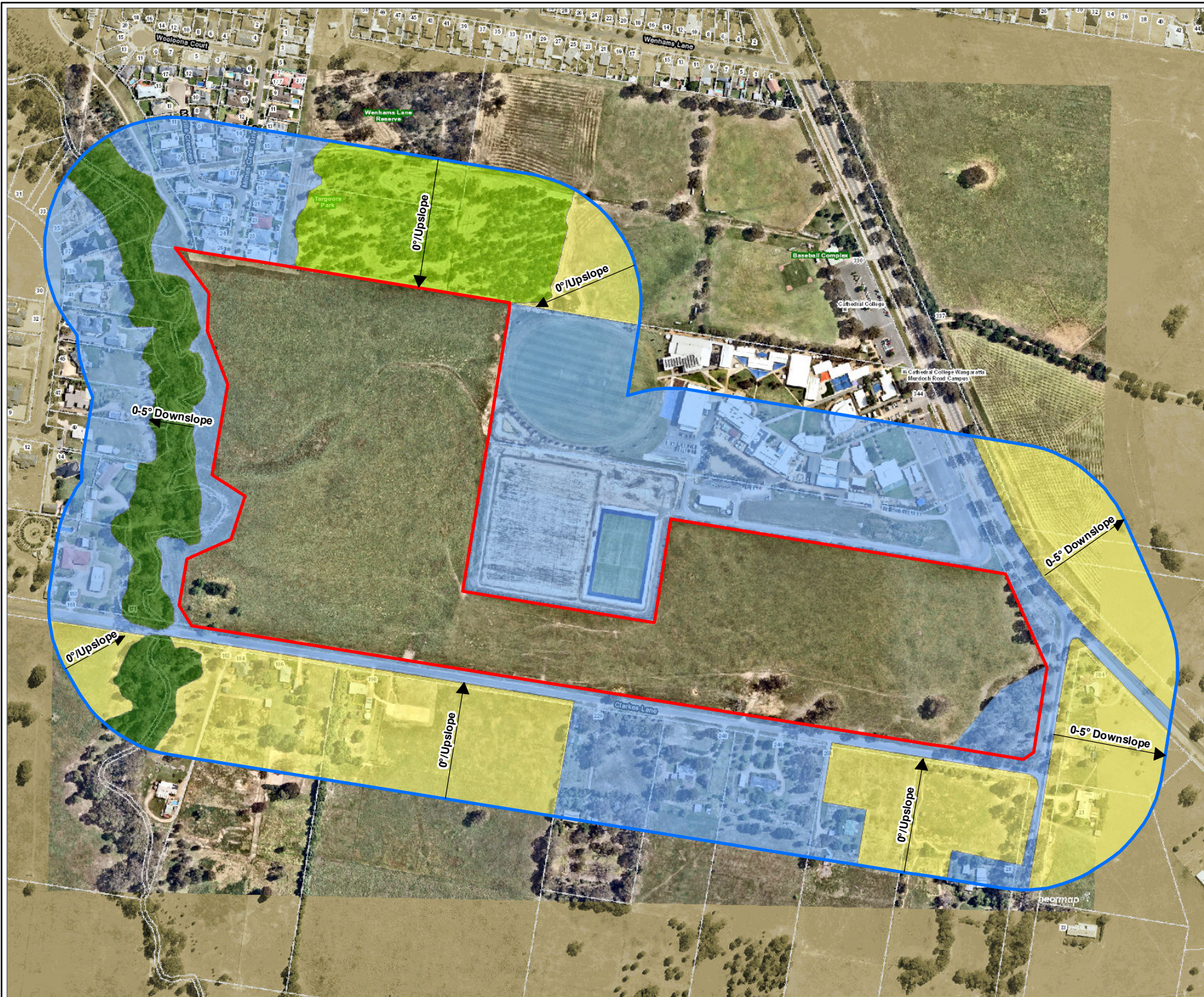
Each of these egress routes would involve travelling on roads that traverse rural grassland and town settlements. Additionally, Wangaratta-Whitfield Road leads to the Hume Freeway approximately 0.9 kilometres south, providing further egress options.

Figure 1: Bushfire hazard site assessment

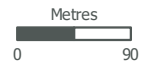
Project: Lot 2 Clarkes Lane, Wangaratta
Client: Robert Luxmoore Pty Ltd
Date: 31/01/2022

Legend

- ▭ Site
- ▭ Assessment area
- Slopes
- Classified vegetation**
- ▭ Forest
- ▭ Woodland
- ▭ Grassland
- ▭ Low Threat



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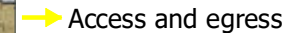



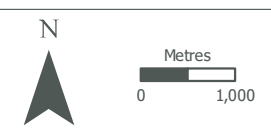
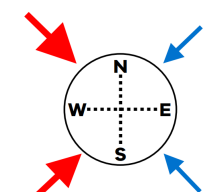
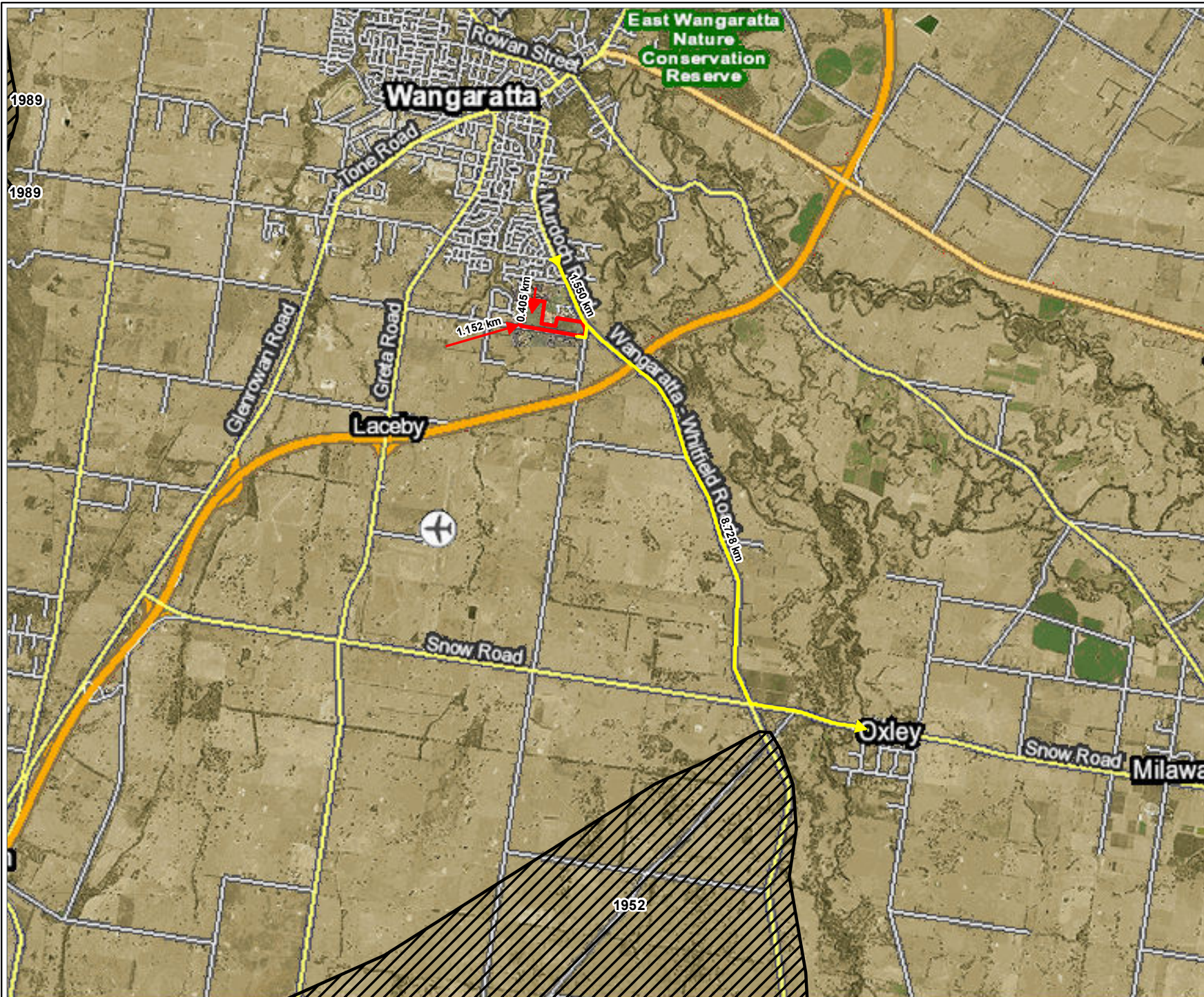
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Figure 2: Bushfire hazard landscape assessment

Project: Lot 2 Clarkes Lane, Wangaratta
Client: Robert Luxmoore Pty Ltd
Date: 1/02/2022

Legend

-  Site
-  Fire history
-  Access and egress
- Potential fire run**
- 



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4. Settlement planning

Bushfire Planning Cl.13.02 must be applied to all planning and decision making under the Planning and Environment Act 1987 relating to land that is within a designated bushfire prone area. Measures for settlement planning under the schedule aim to strengthen the resilience of settlements and communities and prioritise protection of human life.

Table 2. Bushfire Planning Clause 13.02 Settlement planning

Settlement planning objectives	Response
Directing population growth and development to low risk locations, being those locations assessed as having a radiant heat flux of less than 12.5 kilowatts/square metre under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).	The proposed development is within a low-risk location to the south of Wangaratta, on the periphery of the existing township. All proposed lots to the south and east of the site exceed the defendable space requirements to achieve a radiant heat flux of less than 12.5 kw/m ² . Lots on the northern and western boundaries of the settlement are assessed as having a radiant heat flux of less than 12.5 kw/m ² with the provision of appropriate defendable space which incorporates perimeter roads.
Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.	Given the proposal is immediately adjacent to the township of Wangaratta, egress to areas of BAL-LOW are readily accessible, and described under section 3.2.3 of the report.
Ensuring the bushfire risk to existing and future residents, property and community infrastructure will not increase as a result of future land use and development.	The proposed development will reduce the level of bushfire risk to the existing township as it will eliminate the existing grassland threat within the property. This grassland threat is currently continuous with the woodland hazard of Wenhams Lane Reserve which poses a threat to the existing community if a fire were to run into the reserve. See report Section 4. Therefore, the proposed development will provide additional bushfire resilience to the township of Wangaratta.
Achieving no net increase in risk to existing and future residents, property and community infrastructure, through the implementation of bushfire protection measures and where possible reducing bushfire risk overall.	See comment above. In addition to this, all proposed lots can meet the separation distances relevant to the designated construction standards set out in the report. This ensures that all dwellings are adequately protected as per AS3959. See report section 4.
Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce at a landscape, settlement, local, neighbourhood and site scale, including the potential for neighbourhood-scale destruction.	See report section 3.2 Bushfire hazard landscape assessment.
Not approving any strategic planning document, local planning policy, or planning scheme amendment that will result in the introduction or	Upon completion the proposed development will not result in any area that has more than a BAL-12.5 rating under AS 3959, with most of the settlement

Settlement planning objectives	Response
intensification of development in an area that has, or will on completion have, more than a BAL-12.5 rating under AS 3959-2009 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009).	being an area of BAL-Low As seen in Figure 3 all properties within the subdivision will be protected by sufficient defendable space to allow construction to BAL 12.5.
Assessing alternative low risk locations for settlement growth on a regional, municipal, settlement, local and neighbourhood basis.	The proposed location of the settlement is on the southern edge of the existing township of Wangaratta. This is considered an appropriate low risk location for growth, due to the predominant low threat conditions in the landscape and existing proximity to infrastructure and services for bushfire protection. Alternative areas further from the township have the potential to be exposed to greater threats and from multiple directions as illustrated in figure 3 of the report. The settlement can be adequately protected from threats in the landscape, as per AS3959.

5. Bushfire management measures

This section identifies the extent to which the proposed subdivision implements appropriate bushfire protection measures, including those related to:

- Subdivision layout and design;
- Defendable space and construction; and
- Water supply and access.

5.1. Subdivision layout and design

The following considerations and bushfire protection measures address subdivision layout and design for the proposed subdivision:

- Once developed, no bushfire hazards will remain within the subdivision area. All lots within the BPA are considered sufficiently separated from bushfire hazards that will remain beyond the site if defendable space requirements as outlined above are met.
- The proposed subdivision provides perimeter roads facing bushfire to support fire-fighting; and
- Roadside and open space landscaping will address the CFA publication *Landscaping for Bushfire* (cfa.vic.gov.au) and will be undertaken to the satisfaction of Council and the CFA.

5.2. Buildings and defendable space

The defendable space distances for bushfire hazards identified in this Bushfire Planning Report to achieve a BAL-12.5 construction rating calculated using Method 1 are:

- Grassland on a flat/upslope aspect (south of the site): 19 metres;
- Woodland on a flat/upslope aspect (north of the site): 33 metres;
- Grassland 0–5° downslope (east of the site): 22 metres; and
- Forest 0–5° downslope (west of the site): Method 1, 57 metres. Method 2, 40m.

For the narrow corridor of Forest along One Mile Creek to the west of the site, Method 2 was used to calculate defendable space requirements due to the low fuel hazard. This vegetation is not anticipated to represent the same level of threat as typical forest due to the relatively open canopy, low shrub cover and narrow footprint.

Classified vegetation fuel analysis

The fuel load for vegetation along One Mile Creek was assessed using the overall fuel hazard assessment guide (Hines *et al.* 2010) to provide a more accurate assessment of likely fuel loads and effective slope under the hazard. This guide was developed in part to provide a measurable objective and trigger for fuel management in fire management plans.

1. Bark fine fuel – hazard rating is High. Many trees are smooth barked while others have low quantities of fibrous bark at the base. Indicative fuel load 2 t/ha.
2. Elevated fine fuel – fuel hazard rating is Low. Less than 20% plant cover and easy to walk in any direction without needing to choose a path between shrubs. Indicative fuel load 1-2 t/ha.

3. Near-surface fine fuel – fuel hazard rating is Extreme. Following rainfall, in the absence of slashing grasses may cover greater 60% and at times greater than 50% of grasses could be dead. Indicative fuel load 8 t/ha.

4. Surface fine fuel – litter depth was not measured in the field as outlined, and so a conservative measure of High to Very High was used. Indicative fuel load 14 t/ha.

Together, these measures give a High Overall Fuel Hazard Rating, and a conservative total of 26 t/ha.

These fuel loads were used, along with an estimated effective maximum slope of 5 degrees under the classified vegetation and between the site and classified vegetation to calculate the defensible space requirement for a BAL-12.5 construction. Defensible space using this method was 40 metres.

These bushfire protection measures are shown in Figure 3. This demonstrates that the building envelope for lots in proximity to the Forest and Woodland hazards is restricted. Therefore vegetation management is required to achieve a BAL-12.5 rating.

5.3. Water supply and access

The following measures respond to the water supply and access bushfire protection objectives for the proposed subdivision:

- A reticulated water supply and hydrants will be provided throughout the subdivision for fire-fighting as described in Appendix 4; and
- Vehicle access will be designed and constructed to enhance safety in the event of a bushfire as described in Appendix 5.

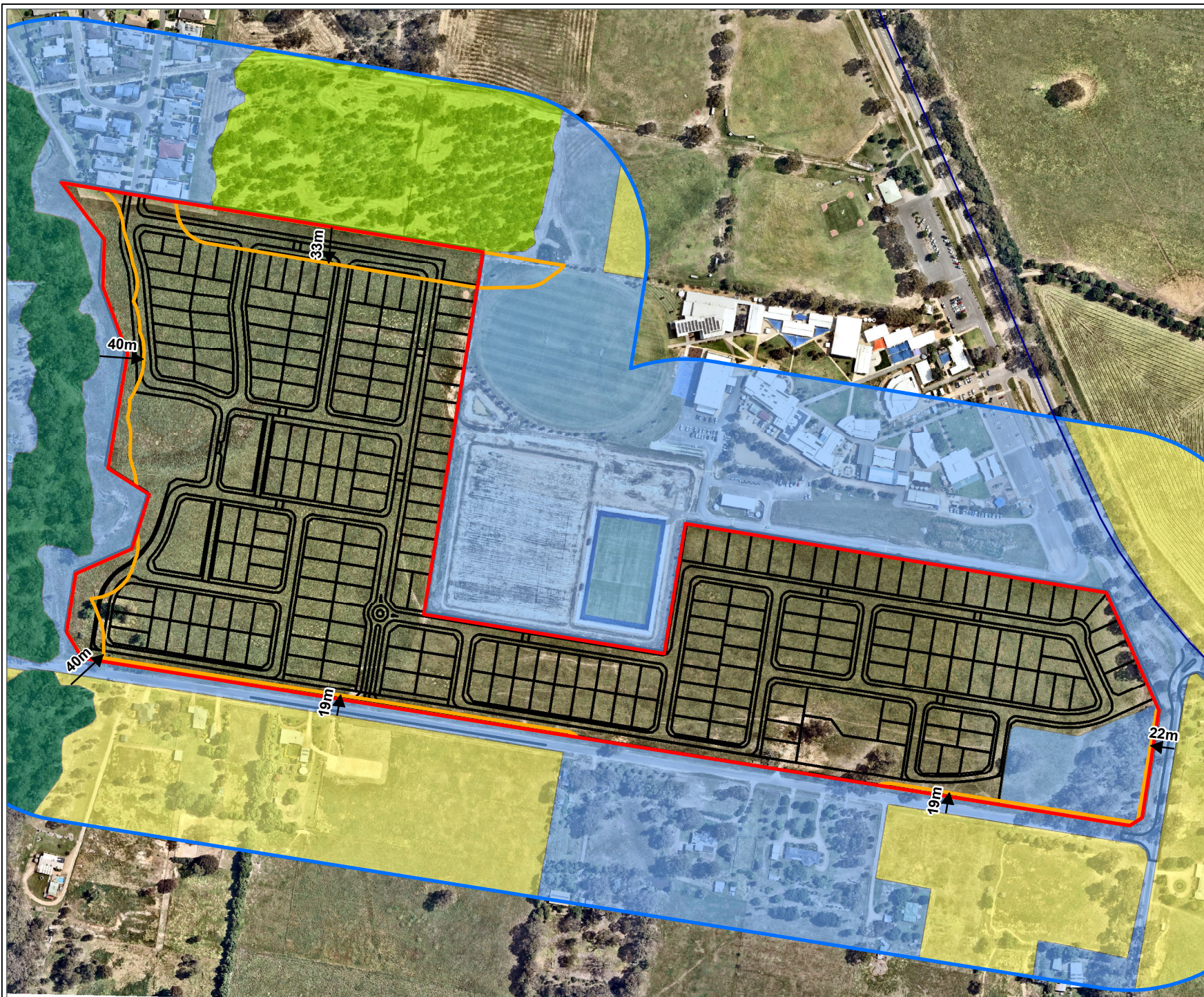
5.4. Development staging

As the development is being constructed in stages, any existing bushfire hazards within the property (i.e., grassland) retained during the construction process must be considered. Interim bushfire protection measures are required to mitigate threats to workers and early residents. Therefore, undeveloped areas in the property adjacent to stages under construction will need to be managed to minimum fuel condition. Depending on the stage, this will mean regular slashing to create and maintain a conservative defensible space of 22m from the stage boundary. In addition, roads that are not complete must include provision of a turning point appropriate for emergency vehicles.

Figure 3: Defendable space

Project: Lot 2 Clarkes Lane,
Wangaratta
Client: Robert Luxmoore Pty Ltd
Date: 21/12/2023

- ▭ Site
 - ▭ Assessment area
 - ▭ Defendable space - BAL 12.5
- Classified vegetation**
- ▭ Forest
 - ▭ Woodland
 - ▭ Grassland
 - ▭ Low Threat



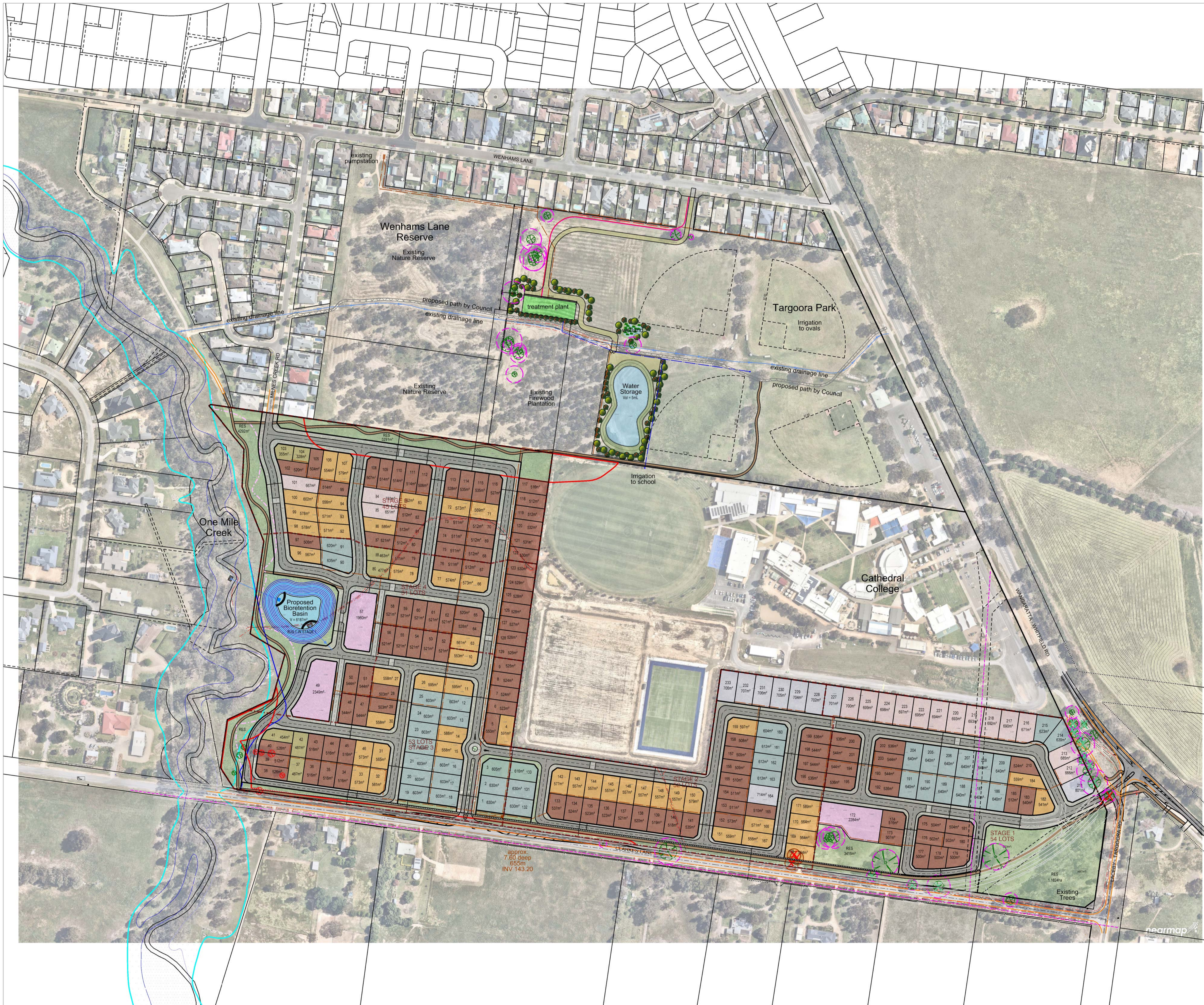
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6. References

- Country Fire Authority 2006a, Requirements for water supplies and access for subdivisions in residential 1 and 2 and township zones, Country Fire Authority, Burwood East, Victoria.
- Country Fire Authority 2006b, Preferred requirements for water supplies and access for subdivisions in rural zones, Country Fire Authority, Burwood East, Victoria.
- Country Fire Authority 2019, Grassfires - Rural, Country Fire Authority, viewed 14 January 2022, <<https://www.cfa.vic.gov.au/plan-prepare/grassfires-rural>>.
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- DELWP 2022c, *NatureKit*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, viewed 13th Feb 2022, <https://www.environment.vic.gov.au/biodiversity/naturekit>.
- DPCD 2012, Regional Bushfire Planning Assessment – Hume Region, (then) Department of Planning and Community Development, Melbourne, Victoria.
- Hines, F, Tolhurst, K G, Wilson A G & McCarthy, G J. 2010 Overall fuel hazard assessment guide 4th edition. Fire and adaptive management, report no. 82
- Standards Australia 2018, AS 3959:2018 Australian Standard – Construction of buildings in bushfire-prone areas, Standards Australia Limited, Sydney.

Appendix 1: Plan of Subdivision

OVERALL CONCEPT DEVELOPMENT PLAN



Legend

- Residential lots (7)**
Typically 300 - 499m² small residential lots
- Residential lots (112)**
Typically 500 - 549m² small residential lots
- Residential lots (48)**
550 - 599m² standard residential lots
- Residential lots (38)**
600 - 649m² large residential lots (some with potential for further subdivision)
- Residential lots (16)**
650 - 700m² large residential lots (some with potential for further subdivision)
- Residential lots (9)**
> 700m² large residential lots (some with potential for further subdivision)
- Medium density housing lots (3)**
> 700m² large residential lots (some with potential for further subdivision)
- Unencumbered Open Space**
POS = 2.47 ha (10%) (excludes flood encumbered land)
ROAD ACQUISITION = 0.462 ha (1.88%)
Total = 24.58 ha
30m setback
1% AEP FLOOD LEVEL
BAL12.5 SETBACK
LSIO

Indigenous trees
 Indigenous trees to be retained but considered lost
 Indigenous trees to be removed
 Dead tree to be removed
 Non Indigenous trees to be removed
 Tree Protection Zone Indigenous Trees (TPZ)
 Proposed location of storm water detention and WSUD treatment basin landscaped to form a feature of the site
 Encumbered Total = 0.44 ha
 Total Site Area = 24.58ha
 Total yield 233 lots (ave 586m²)

Note: All dimensions and areas shown on this plan are subject to Council approval and survey

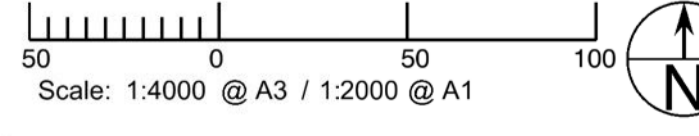
DATE	DESCRIPTION / VERSION	REVISION STATUS
24-08-23	For Planning	15
05-06-23	For Planning	14
26-05-23	For Planning	13
23-05-23	For Planning	12
19-09-22	For Planning	11
09-09-22	For Planning	10
29-7-22	For Planning	9
26-5-22	For Planning	8
04-5-22	For Planning	7
13-4-22	For Planning	6
7-4-22	For Comment	5
4-4-22	For Comment	4
17-2-22	For Comment	3
15-2-22	For Approval	2
28-1-22	For Approval	1

NORTH EAST SURVEY DESIGN

ABN 83 127 459 367
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 mat@nesd.com.au
 www.nesd.com.au

For: **BISLAKE PTY LTD**
 At: **CLARKES LANE WANGARATTA**
CONCEPT DEVELOPMENT PLAN

Project No: **M6801** Version: **15**
 Drawn by: **MS** Checked/Signed By: **MB**



Status: **FOR COMMENT**

Print Date: \$DATES
 Drawing Name: \$MODELS
 File Name: \$FILES

Appendix 2: Photographs of site and study area



Photo 1: Grassland to the south of the proposed subdivision.



Photo 2: Fence line to the north of the proposed subdivision showing woodland habitat to the north.



Photo 3: Boundary to the west of the proposed subdivision, showing riparian forest to the west.

Appendix 3: Vegetation management requirements

Unless otherwise agreed in writing by the relevant fire authority, the defendable space management requirements below must be implemented.

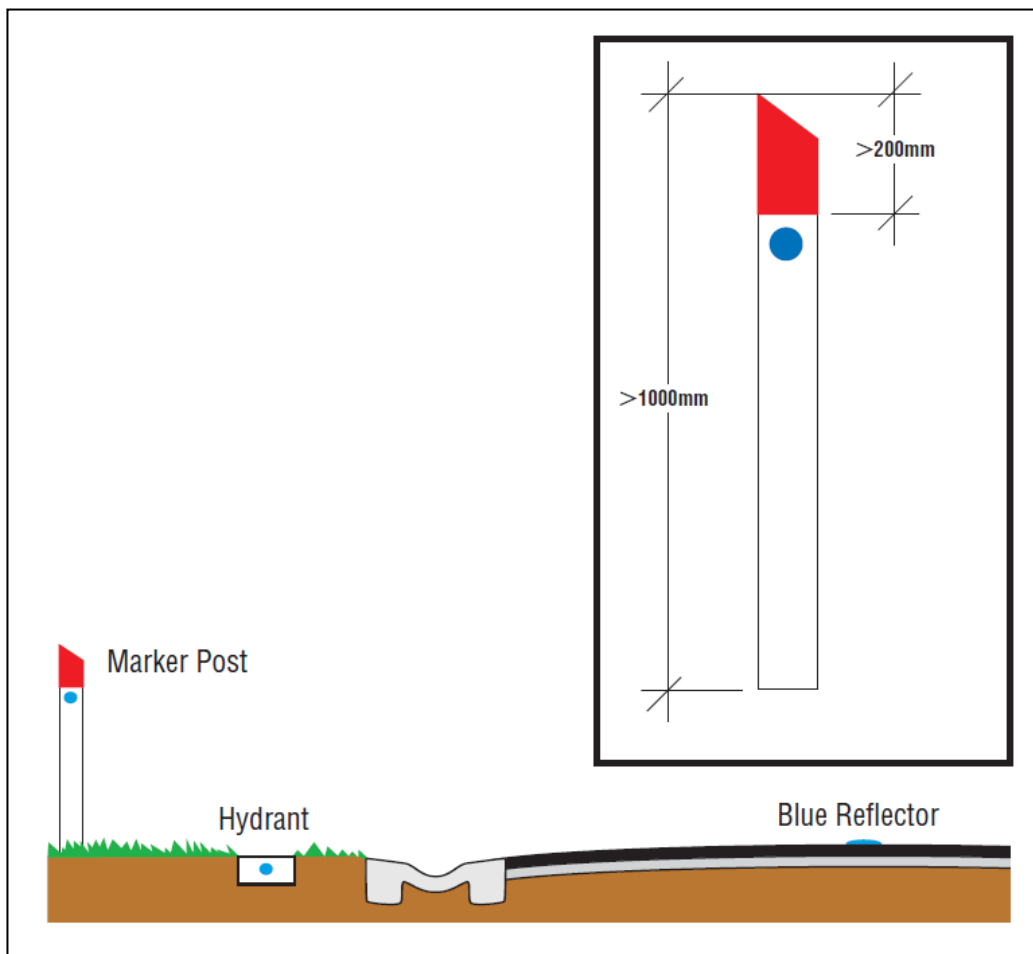
- Grass must be cropped short and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 m of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants taller than 10 cm must not be placed within 3 m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 square m in area and must be separated by at least 5 m.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5 m.
- There must be a clearance of at least 2 m between the lowest tree branches and ground level.

Appendix 4: Fire Authority water supply requirements

Reticulated water supply

Where a reticulated water supply is being installed, operable hydrants must be provided in accordance with the requirements of the relevant fire authority, including those outlined below – adopted from CFA (2006a; 2006b).

- The maximum distance between a hydrant and the rear of the building envelope must be 120 m and hydrants must be no more than 200 m apart.
- Hydrant placement must comply with AS2419-2005.
- Installation depths must comply with the Water Supply Code of Australia (WSA 03-2011).
- To ensure operation of the standpipe, fire plugs must be installed between 100 and 200 mm from the top cover plate to the top of the lugs.
- To ensure that firefighters can rapidly locate water supplies in emergency situations, hydrants must be identified as specified in *Identification of Street Hydrants for Fire-fighting Purposes* (see below) available under publications on the CFA’s website (cfa.vic.gov.au).



Identification of street hydrants for fire-fighting purposes

Static water supply

In rural subdivisions where reticulated water is not available, a 10,000-litre static water supply must be provided.

Unless otherwise agreed in writing by the relevant fire authority, the water supply must be provided in accordance with the requirements of the relevant fire authority, including those outlined below – adopted from CFA (2006a; 2006b):

- Be stored in an aboveground water tank constructed of concrete or metal.
- Have all fixed aboveground water pipes and fittings required for firefighting purposes made of corrosion-resistant metal.
- Include a separate outlet for occupant use.
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.
- Be located within 60 m of the outer edge of the approved building and must provide an appropriate outlet no less than 10 m from the building.
- The outlet/s of the water tank must be within 4 m of the accessway and unobstructed.
- Incorporate a separate ball or gate valve [British Standard Pipe (BSP) 65 mm] and coupling (64 mm CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 mm (excluding the CFA coupling).

Appendix 5: Vehicle access design and construction

The proponent will provide safe access and egress arrangements that meet the requirements of the relevant fire authority, including those outlined below – adopted from CFA (2006a; 2006b):

- All-weather construction.
- A load limit of at least 15 tonnes.
- Curves must have a minimum inner radius of 10 m.
- The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 m.

Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.