BUSH FIRE ASSESSMENT REPORT

PLANNING PROPOSAL

Lot 3 DP 1118635

41 King Street, Tarago

Rezoning of land for future Residential Subdivision

Prepared for Group One Pty Ltd

29.1.23

First Issue

ember
bushfire consulting

EXECUTIVE SUMMARY

EMBER Bushfire Consulting has been engaged by Group One Pty Ltd (GroupOne) on behalf of Terry Geoghegan & Susan Buckley to prepare a Bushfire Strategic Study (BFSS) in support of a planning proposal to rezone land at 41 King Street, Tarago NSW.

The land associated with the rezoning is located on bushfire-prone land, as designated by the Goulburn Mulwaree Council (GMC) and NSW RFS.

This assessment requires the application of Section 9.1 (2) of the Environmental Planning and Assessment Act 1979 (EP&A Act). Under Direction 4.4 of the EP&A Act, *Planning for Bush Fire Protection 2019* (PBP 2019) applies to planning proposals on designated Bush Fire Prone Land (BFPL) and is, therefore, the key reference document for this assessment.

The planning proposal seeks rezoning land from RU2 (Rural Landscape) to RU5 (Village) at Lot 3 DP1118635, 41 King Street, Tarago. If successful, the proposal will significantly expand the residential area to the west of the existing residential development to facilitate a mix of 2000m^2 to 5000m^2 lots, including on-site water storage and effluent management, on-site retention pond and open space lot. In anticipation, three (3) concept subdivision plan options have been proposed, with the Concept Layout and Master Plan at the centre of this bushfire assessment (Figure 3).

The report establishes the bushfire threat to the Study Area. It examines a range of principles for the proposal to be regarded as suitable for development and that any future development can satisfy the broad aims and objectives of PBP 2019.

The Strategic Planning Principles include:

- ensuring land is suitable for development in the context of bushfire risk;
- ensuring new development on BFPL will comply with PBP;
- minimising reliance on performance-based solutions;
- providing adequate infrastructure associated with emergency evacuation and firefighting operations, and
- facilitating appropriate ongoing land management practices.

The recommendations contained in this report are designed to inform the planning proposal stage only, not for DA purposes.

The rezoning of the land located within the Study Area is seen as being consistent with the principles of Strategic Planning under PBP 2019.

As a result of the dominant grassland setting with areas of woodland and forest vegetation nearby on predominantly flat to slightly undulating topography, the surrounding environment poses a relatively low to moderate bushfire threat to the Study area. This threat, however, can be moderated even further with the adoption of the standard suite of

protection measures offered by PBP 2019, with which the proposed development can essentially comply.

The Asset Protection Zones and setback dimensions that will be proposed, in conjunction with the perimeter road, will ensure the proposed lots are provided adequate separation from areas of hazardous vegetation and are not exposed to excessive radiant heat levels.

Access to the Study Area and future concept subdivision will be well provided with access points to Goulburn Street (Public through road) from King Street and Coven Street and will essentially comply with the acceptable solutions set out in PBP 2019.

Specific Firefighting water supplies are recommended to meet the specific requirements of PBP 2019.

Based on the bushfire assessment and the recommendations in this BFSS, the planning proposal is deemed capable of meeting the underlying principles of strategic planning and should be supported.

CERTIFICATION STATEMENT

Document Title:	Bushfire Assessment Report Planning Proposal, Tarago
EMBER Reference:	Tarago JD2.53.24
Lot & DP Number	Lot 3 DP 1118635
Street Address	41 King Street, Tarago
Local Government Area	Goulburn Mulwaree Council
Description of the development	Planning proposal
Type of assessment under Planning for Bushfire Protection (2019)	Section 4 – Bush Fire Strategic Study
Is referral of the proposal to the NSW RFS required?	Yes – Direction 4.4 of the EP&A Act (1979)
Has a pre-DA lodgment or bushfire design brief been provided to the NSW RFS?	No
Highest radiant heat flux determined for indicative development.	<29kW/m^2
Highest level of construction applicable:	Bushfire Attack Level (BAL) -29
Accreditation Scheme / Level of accreditation	Bushfire Planning and Design (BPAD) Accreditation Scheme administered by the Fire Protection Association Australia (FPAA)
Prepared by:	Peter Hague (EMBER Bushfire Consulting)
Verified by:	Jeff Dau – BPAD 33128 - Level 3

The author (Jeffrey Dau) hereby certifies that:

- A thorough, in-person survey of the study area by Peter Hague from EMBER Bushfire Consulting was carried out on 1 November 2023;
- A subsequent bushfire threat assessment was undertaken of the site and the proposal per the relevant sections of the NSW Rural Fire Service (NSW RFS) document Planning for Bushfire Protection 2019 (PBP 2019);
- A detailed bush fire assessment report is attached per the submission requirements of Section 4 of PBP 2019, together with recommendations needed for future development to satisfy the specifications and requirements of PBP 2019;
- I am a person recognised by NSW RFS as a qualified consultant in bush fire risk assessment and
- Subject to the recommendations contained in this report, the proposed development conforms to the relevant specifications and requirements of PBP 2019.

Furthermore, I am aware that this report will be submitted to support a development application for this site and will be relied upon by the Council to ensure that the bushfire risk management aspects of the proposal have been addressed per PBP.

29/1/2024

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

Document Control

Information	Detail
Document Title:	Bushfire Assessment Report Planning Proposal, Tarago
EMBER Reference:	Tarago JD2.53.24
Other Reference:	Place Logic - Concept Layout & Master Plan
Version:	1.0
Version Control:	1.0 – First Issue – 29.1.24
Status:	Issued

Key details of development

Information	Detail
Zoning of subject land	RU2 – Rural Landscape
Zoning of adjoining lands	RU2 – Rural Landscape RU5 – Village
Lot size	~10 Ha
Staging issues	Nil
Development classification	Planning Proposal
Type of assessment	Bush Fire Strategic Study (BFSS)
Fire weather area	Southern Ranges
Fire Danger Index	100
Predominant vegetation	Grassland, Grassy Woodlands and Dry Sclerophyll Forest Vegetation
Slope	Ranging from upslope to 10° downslope
Environmental constraints	Typical Biodiversity Offset Scheme (BOS)
Cultural constraints	Nil known
Method of meeting performance requirements	Using acceptable solutions and performance-based designs.

How to read this document

Section 1 – Introduction and overview of the subject site and proposed development.

Section 2 – Identification of key factors contributing to bushfire threat, including planning considerations and assessment of overall risk.

Section 3 – Discussion of strategic bushfire considerations.

Section 4 – Assessment of the recommended and required bushfire protection measures necessary for life safety and compliance purposes.

Section 5 – Summary of recommendations.

Section 6 – Conclusion

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1 INTRODUCTION AND OVERVIEW

1.1 BACKGROUND

EMBER Bushfire Consulting has been engaged by Group One Pty Ltd (GroupOne) on behalf of Terry Geoghegan & Susan Buckley to prepare a Bushfire Strategic Study (BFSS) in support of a planning proposal to rezone land for future subdivision at Lot 3 DP 1118635 – 41 King Street, Tarago NSW.

The planning proposal is located on land designated bushfire-prone by the Council and the NSW Rural Fire Service (NSW RFS) and, as a result, requires the application of Section 9.1(2) of the Environmental Planning and Assessment Act (1979) (EP&A Act). Under Direction 4.4 of the EP&A Act, Planning for Bush Fire Protection applies to planning proposals on designated Bush Fire Prone Land (BFPL).

Under Direction 4.4, planning proposals should adhere to the following objectives:

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

The principles for assessment of the planning proposal are provided in Section 4, Strategic Planning, Planning for Bush Fire Protection (2019) (PBP 2019) and is, therefore, the key reference for this report.

The broad principles of Section 4 are to:

- ensure land is suitable for development in the context of bushfire risk;
- ensure new development on BFPL will comply with PBP;
- minimise reliance on performance-based solutions;
- provide adequate infrastructure associated with emergency evacuation and firefighting operations, and
- facilitate appropriate ongoing land management practices.

Accordingly, this BFSS addresses the issues identified in Table 4.2.1 Bush Fire Strategic Study of PBP 2019.

Should the planning proposal be successful, future land development will be required to satisfy the aims and objectives of PBP 2019, therefore, this is also addressed in this report.

This assessment has been prepared through a desktop study of the study area and an in-person area survey completed on 1.11.23 by Peter Hague from EMBER Bushfire Consulting and peer-reviewed by Level 3 Accredited Bushfire Practitioner Jeff Dau.

1.2 AIM AND OBJECTIVES

The aim of this report is to:

- Evaluate the potential bushfire threat to the Study Area.
- Assess the capacity of the proposed concept subdivision development to adequately support the subdivision of land and the erection of dwellings while providing:
    - the minimum bushfire protection necessary to offer life safety to the occupants;
    - improve property protection and facilitate fire service intervention during a bushfire event, and
    - due regard to development potential, site characteristics and protection of the environment.
- Provide initial principles for how any future subdivision and development of land may satisfy the relevant performance criteria for rural residential subdivisions provided in Section 5 of PBP 2019.

1.3 LIMITATIONS AND DISCLAIMER

This report is primarily concerned with assessing the proposal's capacity to withstand the impacts of a bushfire, including ember attack, radiant heat exposure and flame contact.

Where necessary, protection measures will be recommended to provide protection to the occupants, firefighters, and the structures themselves.

It should be kept in mind that the measures recommended cannot guarantee the proposed development will survive a bushfire event on every occasion. This is primarily due to the dependence on ongoing vegetation management, the unpredictable behaviour of fire, and extreme weather conditions.

EMBER Bushfire Consulting has prepared this report with all reasonable diligence. The information in this report has been gathered from field investigations of the site, plans provided by Place Logic Pty Ltd and discussions with GroupOne, representatives of the property owners.

Table 1 - Stakeholders

Stakeholder	Role	Contact	Detail
Terry Geoghegan & Susan Buckley	Property Owners	Not Given	Not Given
GroupOne	Project Managers	Yaaman Majeed	02 6241 1955
Place Logic Pty Ltd	Planners	Not Given	02 6210 1086
Goulburn Mulwaree Council	Consent Authority	Not Given	02 4823 4444
NSW Rural Fire Service	Referral Authority	Not Given	02 4475 1300

1.4 STUDY AREA LOCATION

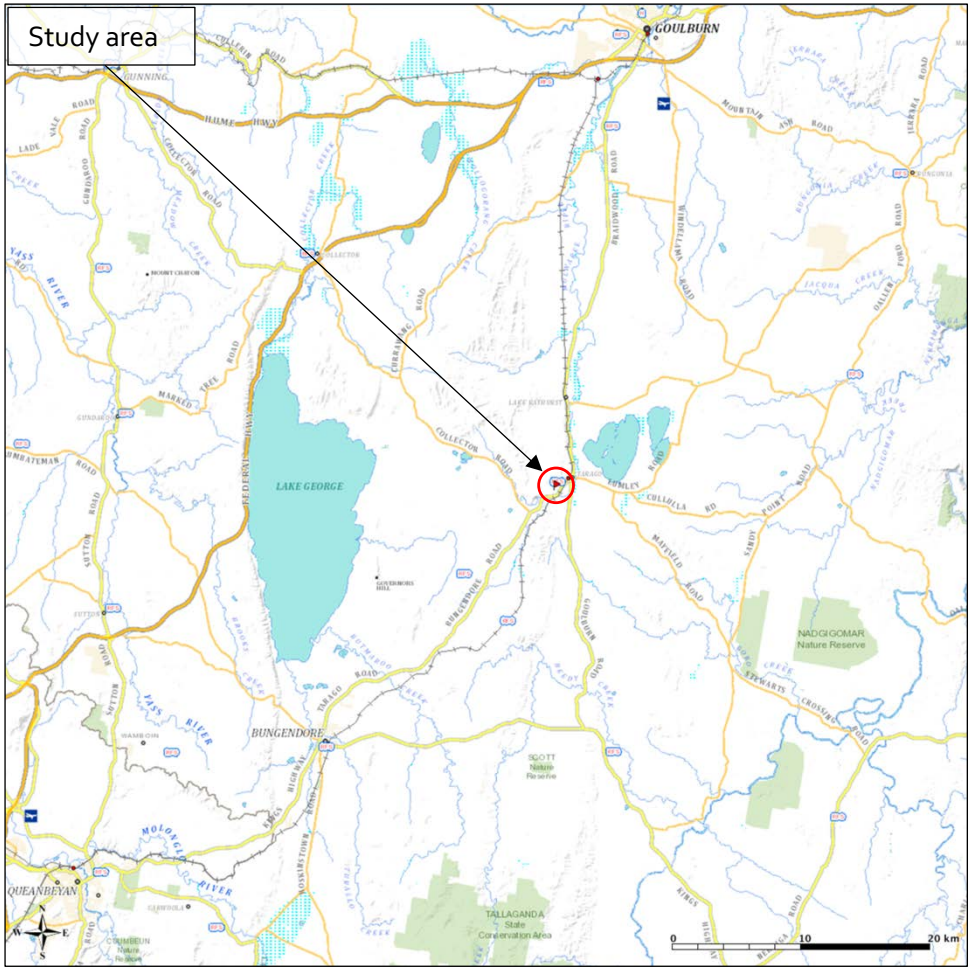


Figure 1 – Regional context of the study area (FPAA FireMaps, 2023)

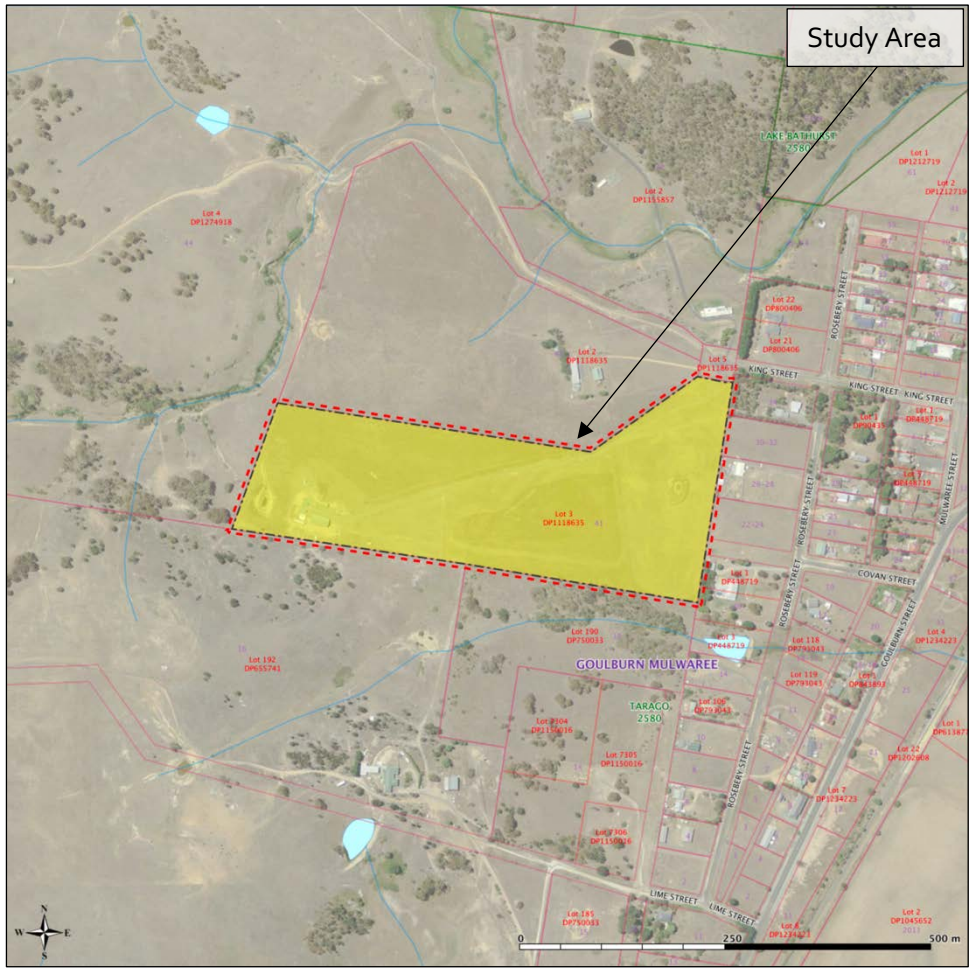


Figure 2 – Local context of the study area (FPAA FireMaps, 2023)

1.5 STUDY AREA DESCRIPTION

Location:

The Study Area is in the rural locality of Tarago, in the Southern Tablelands Region of New South Wales. It lies approximately 1.5 km southwest of the centre of Tarago, 27 km northeast of Bungendore and 36 km south of the regional city of Goulburn (Figures 1 & 2).

Administration:

The ~10 Ha rural lot falls under the Goulburn Mulwaree Council (GMC) administration.

Land use:

Land use in the area is dominated by livestock grazing, primary production, and other small-scale agricultural enterprises, as well as numerous sizeable rural lifestyle properties surrounding the local community and small town of Tarago.

Accordingly, the Study Area is zoned RU2 – Rural Landscape, as are surrounding neighbouring lots to the north, south and west. (Figure 6)

Land directly to the east adjacent to the study area is zoned RU5 – Village and accommodates established residential properties and several commercial businesses.

Topography:

The Study Area and surrounding topography are considered open and slightly undulating, with the study area sloping gently in an easterly direction in the order of 0° – 4° downslope towards natural watercourses and a dam within the property. The dam continues flowing onto neighbouring properties containing ephemeral drainage lines as tributaries of the Mulwaree River that flows to the far east and south of the study area (Figure 9).

Land to the northwest corner of the study area slopes in that direction in the order of 0° – 10° downslope towards a natural watercourse on the adjacent property that continues flowing into Mulwaree River.

The topography on the neighbouring lots to the north, south and west of the Study Area continues to be gently undulating, presenting similar features and terrain, whilst land to the east becomes relatively flat as it progresses through established residential properties and approaches large areas of farmland and Mulwaree River east of the Study Area.

With the near-flat topography, the study area was previously used for grazing livestock.

Vegetation:

The Study Area presents predominantly as open cleared land (grassland) typically associated with open grazing country but contains several scattered remnant trees of various species to the southwest corner of the Study Area surrounding the existing residence and sheds.

The southern boundary is bound by areas of Southern Tableland Grassy Box Woodland (PCT ID: 3376) to the south and areas of Palerang Hills peppermint Dry Shrub Forest (PCT ID: 3744) to the west in proximity to the existing residence and sheds. This woody vegetation is interspersed with scattered areas of open grassland. These woodland and forest vegetation areas are connected to further sections of woody vegetation to the south and west of the Study Area (Figure 7).

Vegetation formations have been cross-checked against the newly available NSW State Vegetation Type Map (Figure 7) and are discussed further in Section 2.

Access:

The study area has direct access to King Street to the northeastern corner of the property, with a second access point to/from Coven Street proposed as part of the Concept Subdivision Layout and Master Plan.

King Street is a ~6 m wide sealed public no-through road ~430 m long that intersects with Goulburn Street when heading east, exiting the study area. Coven Street (once completed) will be a ~6 m wide sealed public no-through road that is ~270 m long and intersects with Goulburn Street when heading east, exiting the study area. Both streets also provide access for local traffic to/from nearby residences and other roads.

Goulburn Street is a sealed public through road ~8 m wide under the management of the Goulburn Mulwaree Council. It provides access to Tarago when heading northeast, exiting King Street and Coven Street, and continues onto Bungendore Road, Tarago Road, and the town of Bungendore when heading southwest.

The Concept Subdivision Layout and Master Plan has been designed with two (2) points of access/egress to/from the public road network, King Street to the northeast and Coven Street to the east. King Street and Coven Street will connect with an internal complying loop road that traverses through the subdivision, providing a perimeter road to the north, south and east within the proposed subdivision.

1.6 THE PLANNING PROPOSAL

The planning proposal seeks the rezoning of land from RU2 (Rural Landscape) to RU5 (Village) at Lot 3 DP1118635 - 41 King Street, Tarago, in preparation for a future residential subdivision. The property has a total area of ~10 Ha.

In anticipation of a successful planning proposal, a Concept Subdivision Layout and Master Plan has been developed (Figure 3) and is the basis for the compliance assessment to determine the suitability of the planning proposal.

The Concept Subdivision Layout and Master Plan is likely to facilitate the following infrastructure:

- Approximately 28 residential lots ranging from 2000 m^2 to 5000 $m^{2,}$ including on-site water and effluent management.
- On-site retention pond / open space lot.
- Intersection and road upgrades as required with proposed access via King Street and Coven Street.
- Internal public sealed road network and
- Bushfire-sensitive landscape plantings as designed to soften and break up expansive views of infrastructure.

The subdivision of land (if successful) will lead to a moderate increase in the current population and traffic flow to/from the subdivision.

The construction phase and commencement timing are unknown and depend on further detailed design and the appropriate assessment processes.

The planning and design of this subdivision embraces all the acceptable solutions contained within Section 5 Residential Subdivisions PBP2019.

1.7 STUDY AREA AND CONCEPT SUBDIVISION LAYOUT

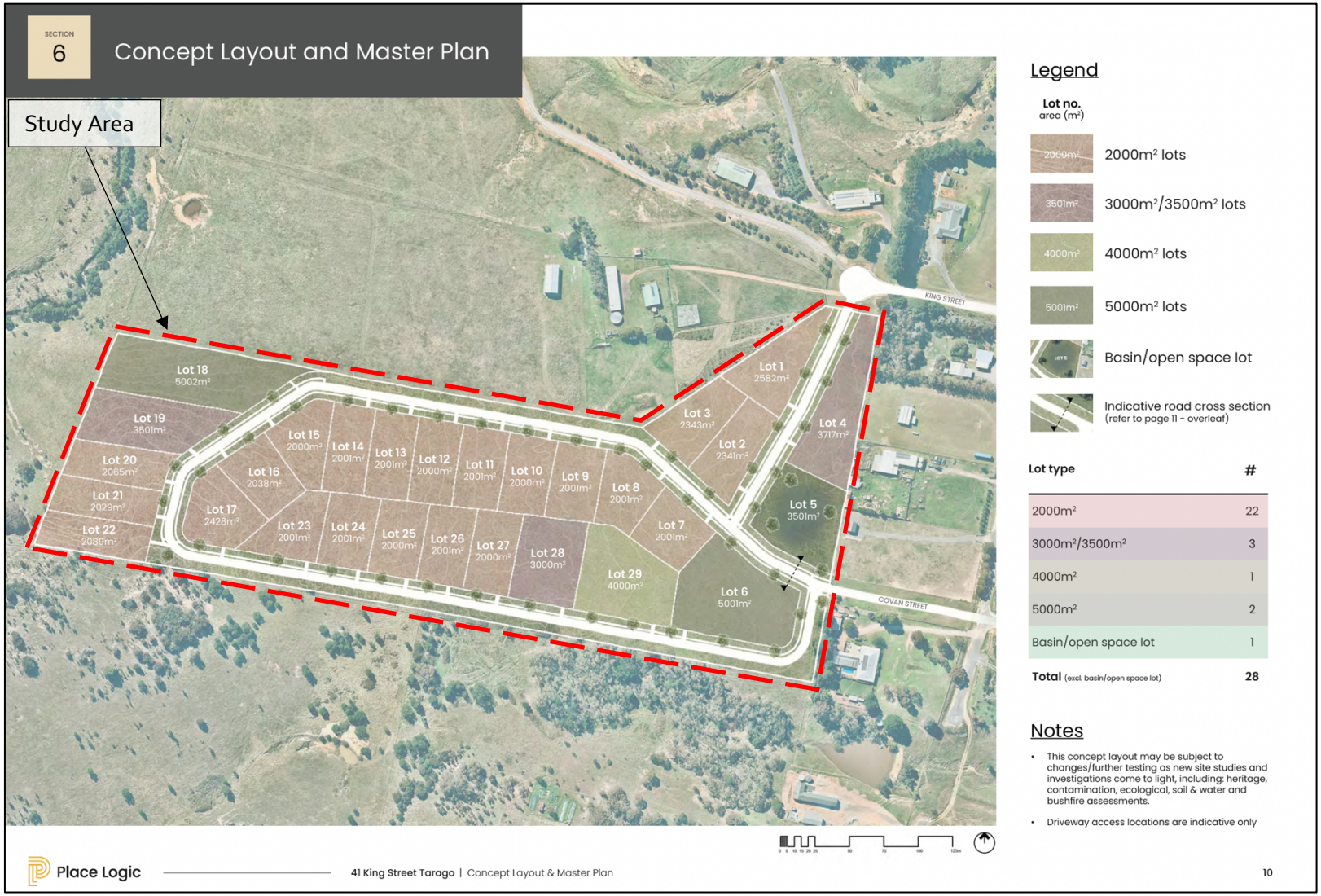


Figure 3 –Proposed concept subdivision layout and Master Plan for 41 King Street, Tarago (Place Logic, 2023)

2 BUSHFIRE THREAT ASSESSMENT

2.1 METHODOLOGY

The methodology adopted by this report is as follows:

Table 2 - Report Methodology

Method	Task	Considerations
Desktop analysis	Review available mapping resources, policy documents & development plans	Online Maps Development Control Plans Local Environmental Plan
Site inspection	Evaluate the context of the site, determine bushfire threat, options for asset protection zones, access roads and infrastructure.	Ground truth online mapping data, validate vegetation class, obtain site measurements, assess existing structures and infrastructure.
Assessment of proposal against the requirements of the SEARs, Scoping document and PBP 2019.	Assess the development proposal against the objectives of PBP 2019.	Does the proposal comply with the performance criteria provided under PBP 2019?
Report	Preparation and publication of bushfire assessment report	Assess bushfire threat and detail the required and recommended protection measures expected of the proposal.

2.2 DESIGN FIRE ATTRIBUTES

The following environmental factors are adopted across the site to determine the potential bushfire threat posed to the subject site.

Table 3 - Design fire attributes

Factor	Value
Fire Weather Area	Southern Ranges
FDI	100
Predominant Vegetation Classification	Grassland, Grassy Woodlands and Dry Sclerophyll Forests
Slope	Ranging from upslope to 10° downslope

Note: A detailed bushfire hazard analysis is detailed below.

- *Vegetation formations within 140 m of the Study Area are classified in accordance with Plant Community Type (PCT) mapping (Figure 7).*
- *Slopes out to 100 m from planned APZs and/or lot boundaries have been assessed in accordance with A1.4 & A1.5 of PBP 2019.*
- *The site's fire danger index has been determined per the NSW Rural Fire Service.*

2.3 BUSHFIRE PRONE LAND MAPPING

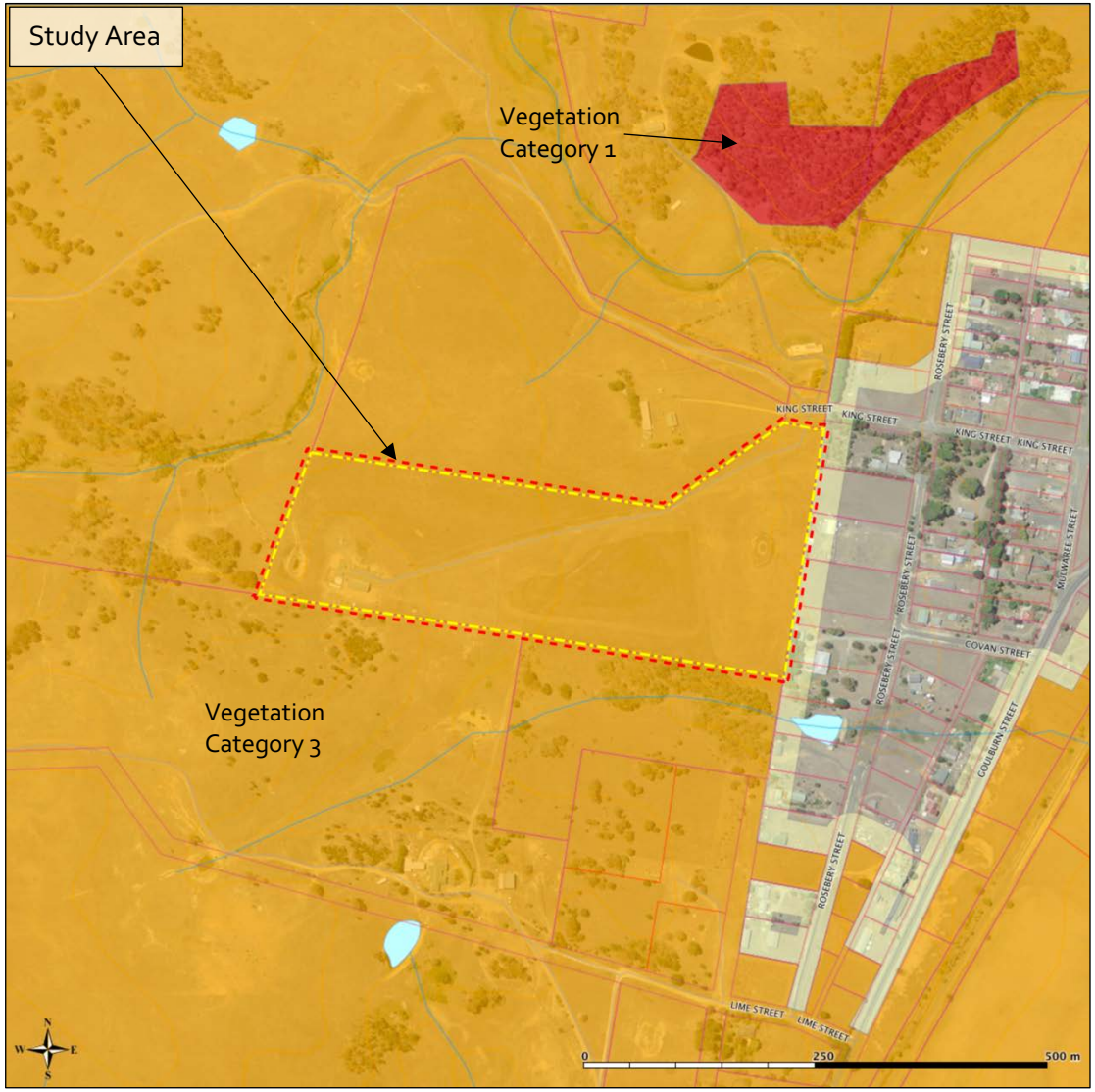


Figure 4 – Study Area bushfire prone land map. (FPAA FireMaps, 2023)

Bushfire prone land mapping relative to the study area (Figure 4) showing the Study Area and adjacent land containing areas of Category 3 Vegetation identified as bush fire prone land by Council and NSW RFS.

During the site survey conducted on the 1 November 2023, these vegetation categories were verified, and the bushfire prone land map found to be an accurate representation of the identified hazard.

Areas of Category 1 vegetation varying in size are present to the north, south and west of the Study Area.

Hazard classification key:

2.4 STUDY AREA FIRE HISTORY

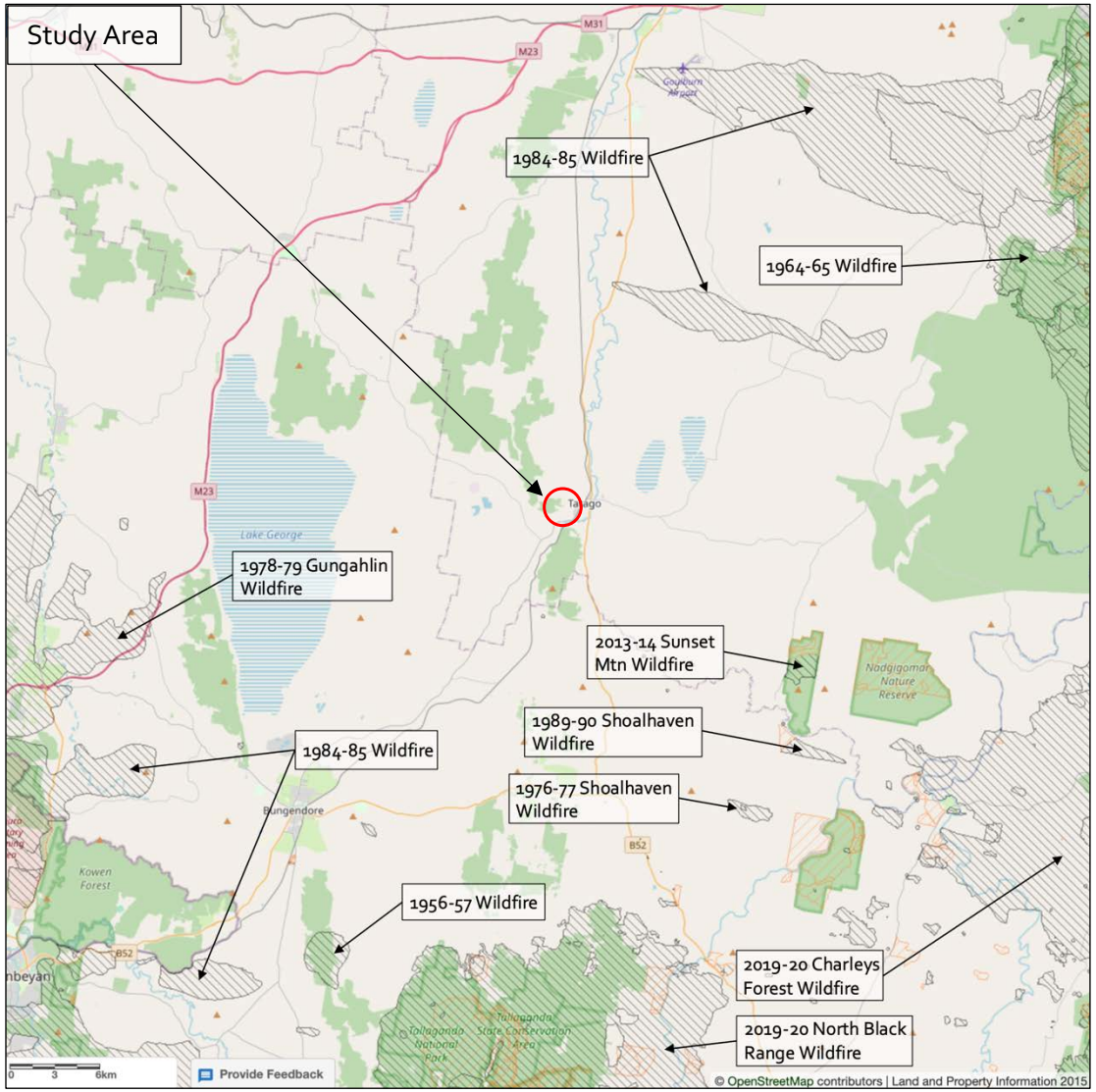


Figure 5 – Map showing fire history surrounding Tarago and approx. extent of the Wildfires. (SEED, 2023)

While the bushfire prone land mapping clearly identifies that any development on the Study Area will require a bush fire assessment and compliance with PBP 2019, fire history provides a clear picture of the true vulnerability of the site.

Figure 5 shows the fire history and extent of bushfires impacting the area surrounding the subject site. The last major bushfires to impact the area were the Charleys Forest wildfire southeast of Tarago and the North Black Range wildfire to the south in 2019-20 which burnt significant areas of the Budawang National Park, Tallaganda National Park and the Tallaganda State Conservation Area all ~30 km southeast and south of Tarago. The Study Area was not impacted by these fires.

Although surrounded predominantly by grassland, the greatest threat from bushfire comes from the heavily vegetated neighbouring properties ~1 km west and northwest of the Study Area and the heavily timbered hills ~1.5 km south of Tarago.

2.5 STUDY AREA ZONING

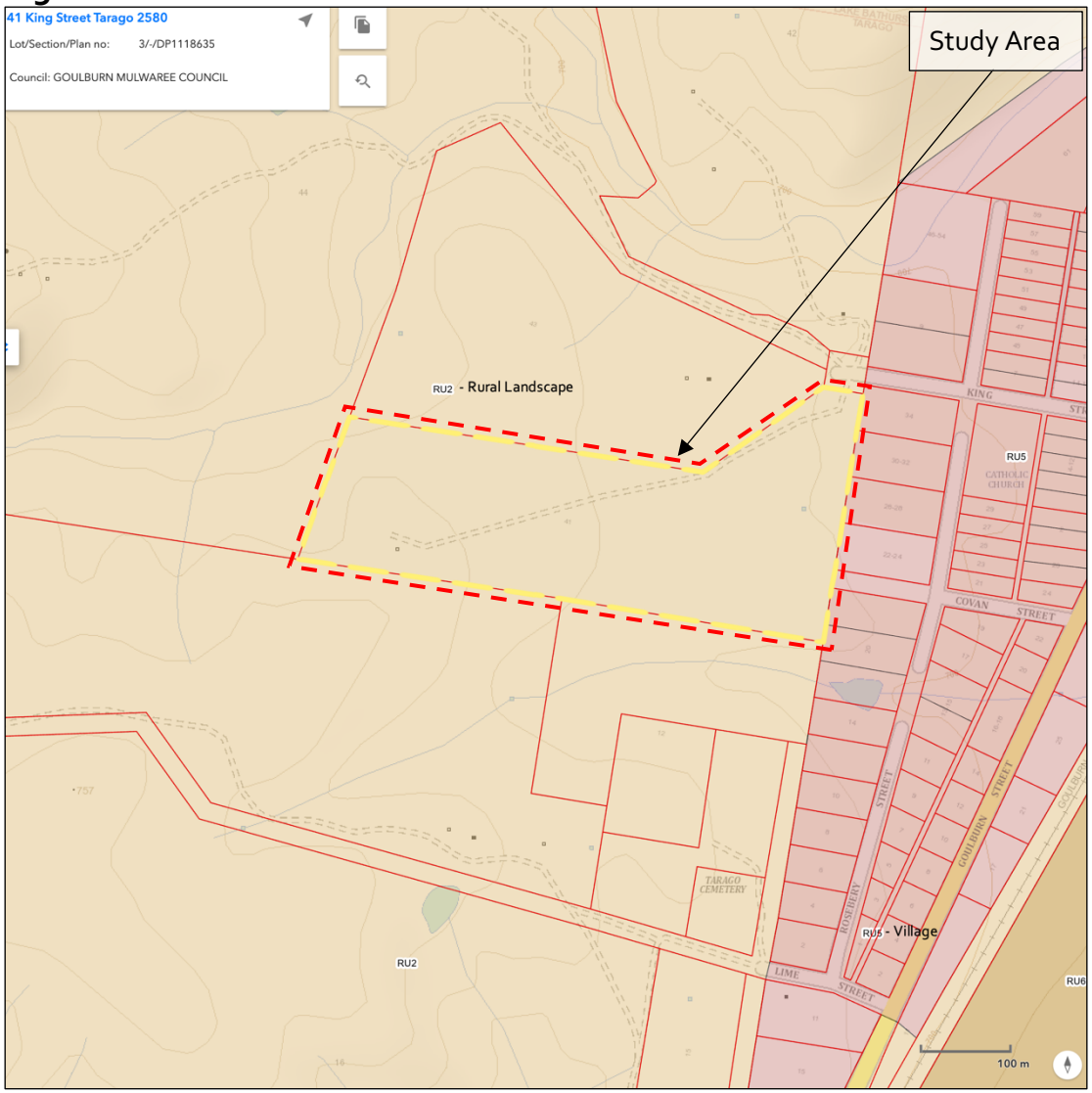


Figure 6 – Showing zoning of the study area and adjoining lots. (NSW Planning Portal, 2023)

Subject site zoning as defined by (NSW Government, 2023) NSW Planning Portal – ePlanning Spatial Viewer.

An assessment of land use zoning aids in the evaluation of broadscale landscape practices and the ability to manage vegetation within and surrounding the subject site.

The land zoning map indicates that land to the north, south and west of the Study Area is zoned RU2 – Rural Landscape.

The adjacent lots to the east of the Study Area are zoned as RU5 – Village.

RU2 zoning is for rural land used for commercial primary production that is compatible with ecological or scenic landscape qualities that have been conserved often due to topography.

RU5 zoning is typically for small rural villages where a mix of residential, retail, business, industrial and other compatible land uses may be provided to service the local rural community.

2.6 STUDY AREA VEGETATION FORMATIONS

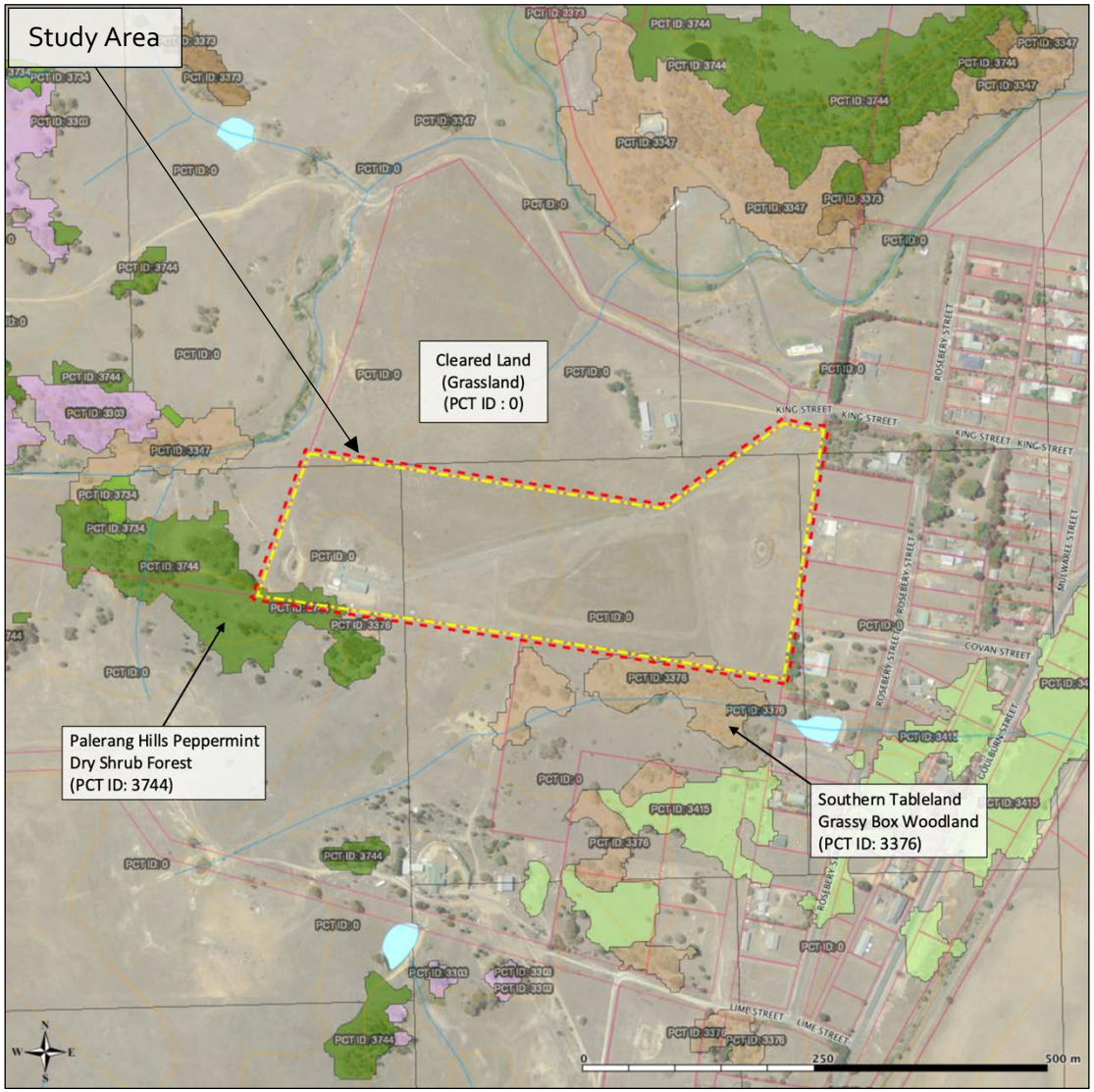


Figure 7 – Vegetation formations adopted for this assessment of the concept subdivision. (SEED, 2023)

Study Area vegetation formations (Figure 7) as defined by SEED (NSW Government, 2023) NSW State Vegetation Type Map.

Vegetation mapping indicates that the study area is dominantly influenced by the following vegetation formations –

- Grassland (Cleared land) (low level threat)
- Grassy Woodlands (moderate level threat)
- Dry Sclerophyll Forests (high level threat)

Sizable areas of Grassy Woodland (southeast) and Dry Sclerophyll Forest (southwest) are present along the southern boundary of the Study Area on the neighbouring properties.

Examples of the existing vegetation formations present within and surrounding the study area are provided below in Photos 1 to 24 and aerial images A1 – A4.

2.7 BIODIVERSITY VALUES MAP

Figure 7 – Vegetation formations adopted for this assessment of the concept subdivision. (SEED, 2023)

The Biodiversity Values Map identifies land with high biodiversity value that is particularly sensitive to impacts from development and clearing.

The map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Biodiversity Offset Scheme applies to a clearing or development proposal.

The map is prepared by the Department of Planning and Environment under Part 7 of the Biodiversity Conservation Act 2016 (BC Act).

The proposed development site does not contain areas identified with high biodiversity value and therefore the clearing or management of land for the purposes of APZs or property access may be achievable.

Note, this is for indicative purposes and not intended to be a replacement for a comprehensive ecological assessment.

2.8 STUDY AREA PHOTO POINTS

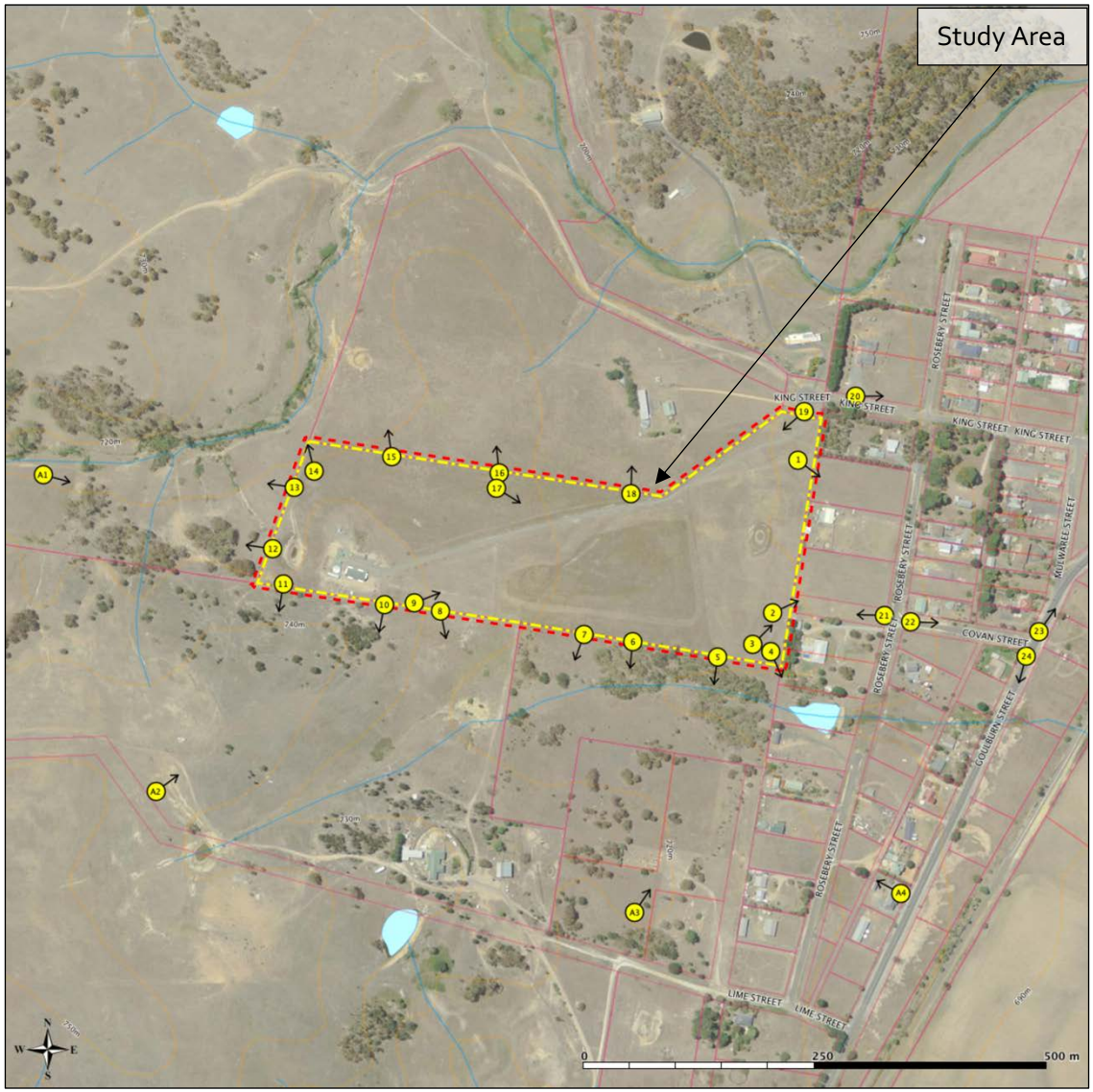


Figure 8 – Photo point locations. (FPA FireMaps, 2023)

2.9 PHOTOGRAPHIC OVERVIEW OF SITE VEGETATION

Photo Point 1. Showing hazard vegetation within the Study Area and established residential properties (managed land) adjacent to the eastern boundary. (Hague, 2023)

Photo point 3. Showing hazard vegetation within the Study Area and indicative location for access to/from Coven Street at the eastern boundary. (Hague, 2023)

Photo point 2. Showing hazard vegetation within the Study Area and established residential properties (managed land) adjacent to the eastern boundary. (Hague, 2023)

Photo point 4. Showing hazard vegetation within the Study Area and within established residential properties (managed land) to the southeast. (Hague, 2023)

PHOTOGRAPHIC OVERVIEW OF SITE VEGETATION

Photo Point 5. Showing hazard vegetation on the adjacent property south of the Study Area. (Hague, 2023)

Photo Point 7. Showing hazard vegetation on the adjacent property south of the Study Area. (Hague, 2023)

Photo point 6. Showing hazard vegetation on the adjacent property south of the Study Area. (Hague, 2023)

Photo point 8. Showing hazard vegetation on the adjacent property south of the Study Area. (Hague, 2023)

PHOTOGRAPHIC OVERVIEW OF SITE VEGETATION

Photo Point 9. Showing hazard vegetation within the Study Area. (Hague, 2023)

Photo Point 11. Showing hazard vegetation on the adjacent property south of the Study Area. (Hague, 2023)

Photo point 10. Showing hazard vegetation on the adjacent property south of the Study Area. (Hague, 2023)

Photo point 12. Showing hazard vegetation on the adjacent property west of the Study Area. (Hague, 2023)

PHOTOGRAPHIC OVERVIEW OF SITE VEGETATION

Photo Point 13. Showing hazard vegetation on the adjacent property west of the Study Area. (Hague, 2023)

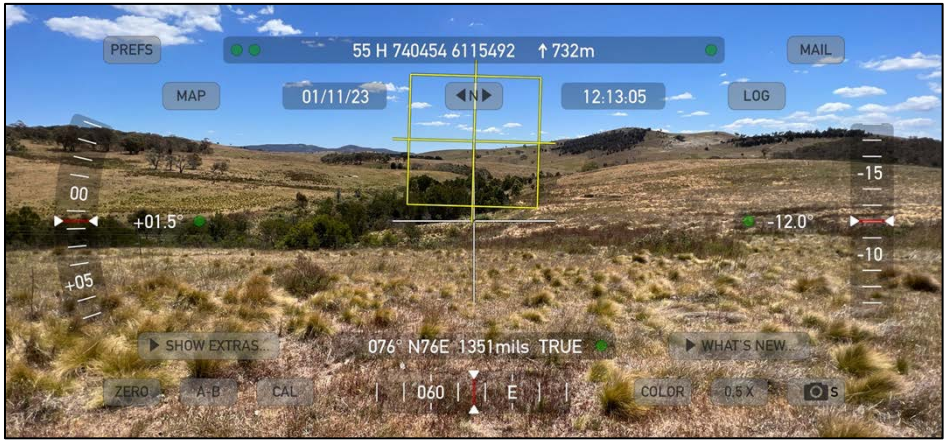


Photo point 14. Showing hazard vegetation on the adjacent property northwest of the Study Area. (Hague, 2023)

Photo Point 15. Showing hazard vegetation on the adjacent property north of the Study Area. (Hague, 2023)

Photo point 16. Showing hazard vegetation on the adjacent property north of the Study Area. (Hague, 2023)

PHOTOGRAPHIC OVERVIEW OF SITE VEGETATION

Photo Point 17. Showing hazard vegetation within the Study Area. (Hague, 2023)

Photo Point 19. Showing the general condition of the existing property access road to/from King Street at the northeast corner of the Study Area. (Hague, 2023)

Photo point 18. Showing hazard vegetation and established residential property (background) north of the Study Area. (Hague, 2023)

Photo point 20. Showing the general condition of King Street heading east towards Goulburn Street (public through road) when exiting the Study Area. (Hague, 2023)

PHOTOGRAPHIC OVERVIEW OF SITE VEGETATION

Photo Point 21. Showing the general direction of Coven Street (when completed) heading west towards the Study Area from Goulburn Street (public through road). (Hague, 2023)

Photo Point 23. Showing the general condition of Goulburn Street (public through road) heading northeast towards Tarago when exiting Coven Street. (Hague, 2023)

Photo point 22. Showing the general condition of Coven Street heading east towards Goulburn Street when exiting the Study Area. (Hague, 2023)

Photo point 24. Showing the general condition of Goulburn Street (public through road) heading southwest towards Bungendore when exiting Coven Street. (Hague, 2023)

2.10 AERIAL OVERVIEW OF THE STUDY AREA

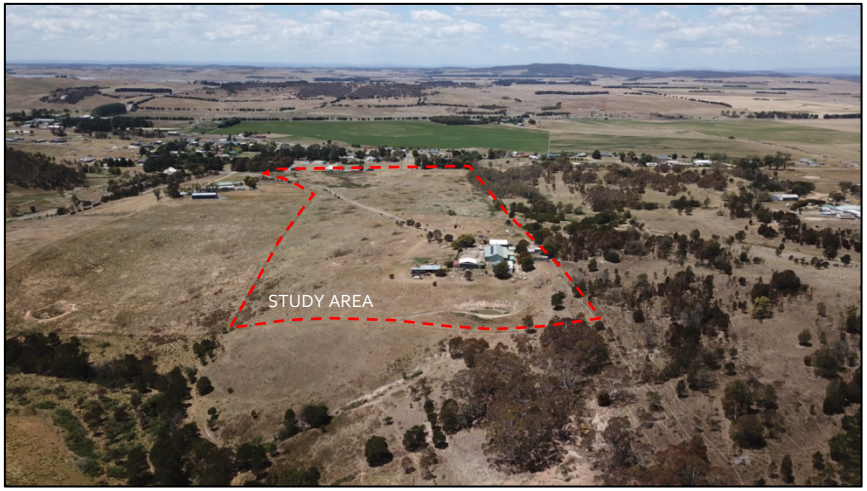


Photo Point A1. Looking east at the Study Area showing adjacent properties and the extent of surrounding hazard vegetation. (Hague, 2023)

Photo Point A3. Looking north at eastern section of the Study Area showing internal & surrounding hazard vegetation and adjacent residential properties. (Hague, 2023)

Photo point A2. Looking northeast at the Study Area showing adjacent properties and the extent of surrounding hazard vegetation. (Hague, 2023)

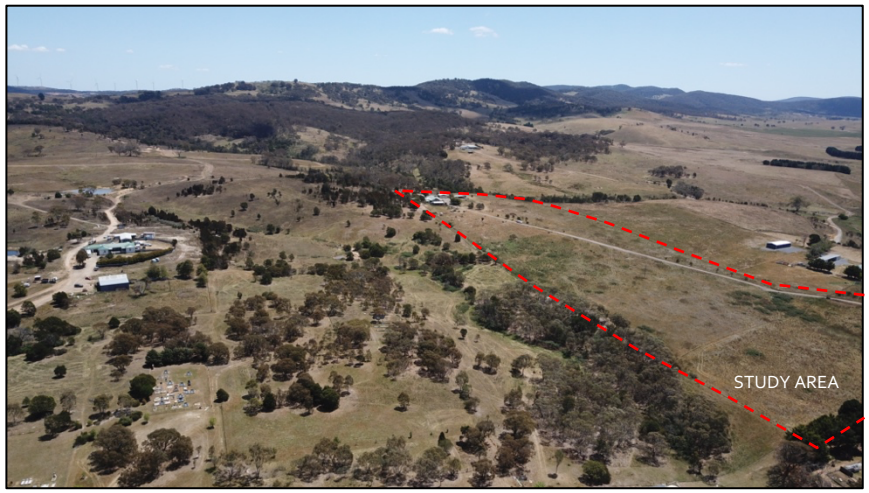
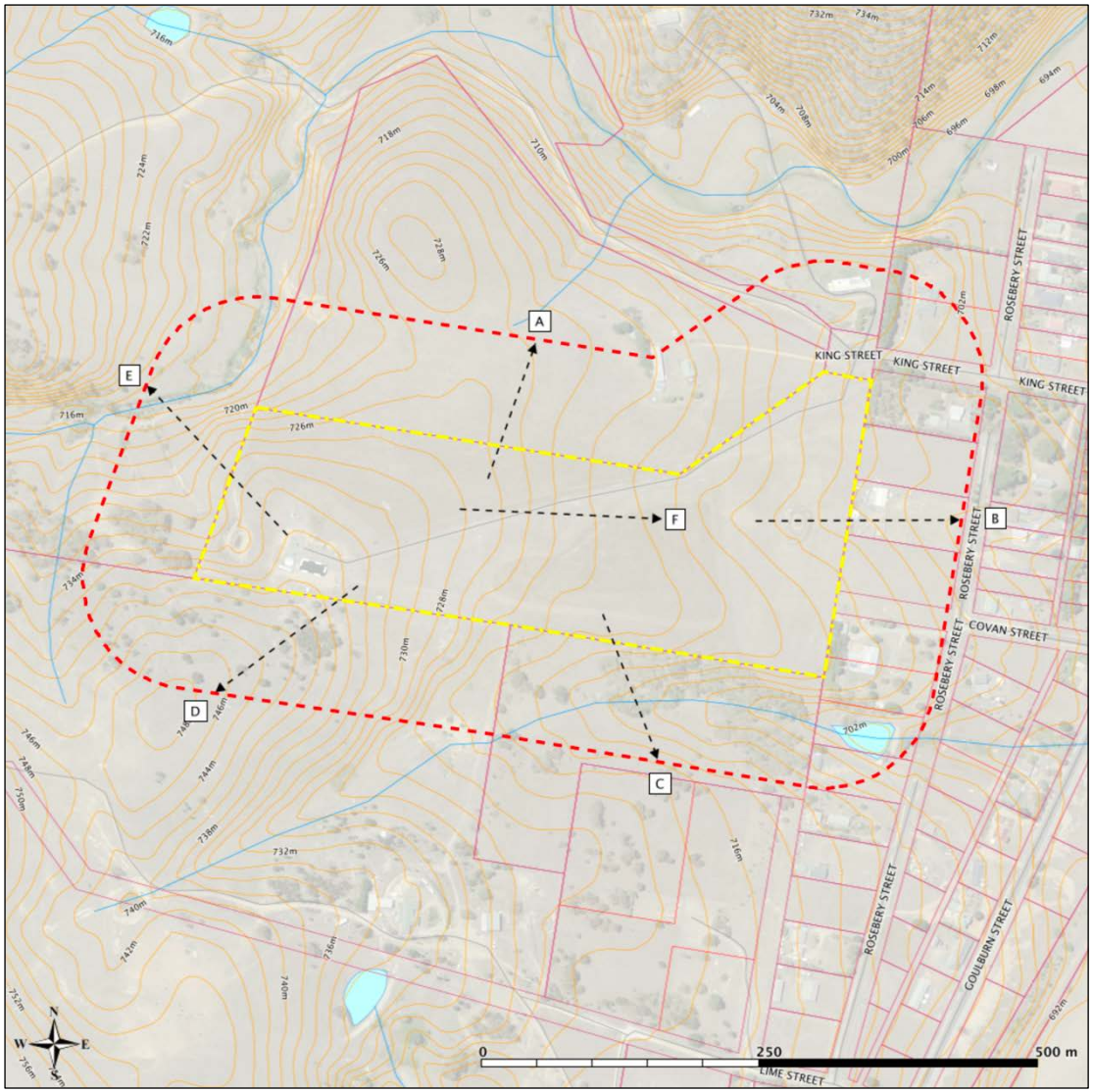


Photo point A4. Looking northwest at the Study Area showing adjacent properties and the extent of surrounding hazard vegetation. (Hague, 2023)

2.11 SLOPE ASSESSMENT



TRANSECT | DIRECTION | SLOPE READING

(A) | North | Avg. 1.1° Downslope

(B) | East | Avg. 2.9° Downslope

(C) | Southeast | Avg. 2.1° Downslope

(D) | Southwest | Avg. 4.4° Upslope

(E) | Northwest | Avg. 8.3° Downslope

(F) | Southwest (Internal) | Avg. 3.6° Downslope

Figure 9 – Broadscale slope assessment of Study Area. (FPA, FireMaps, 2023)

2.12 BAL Analysis

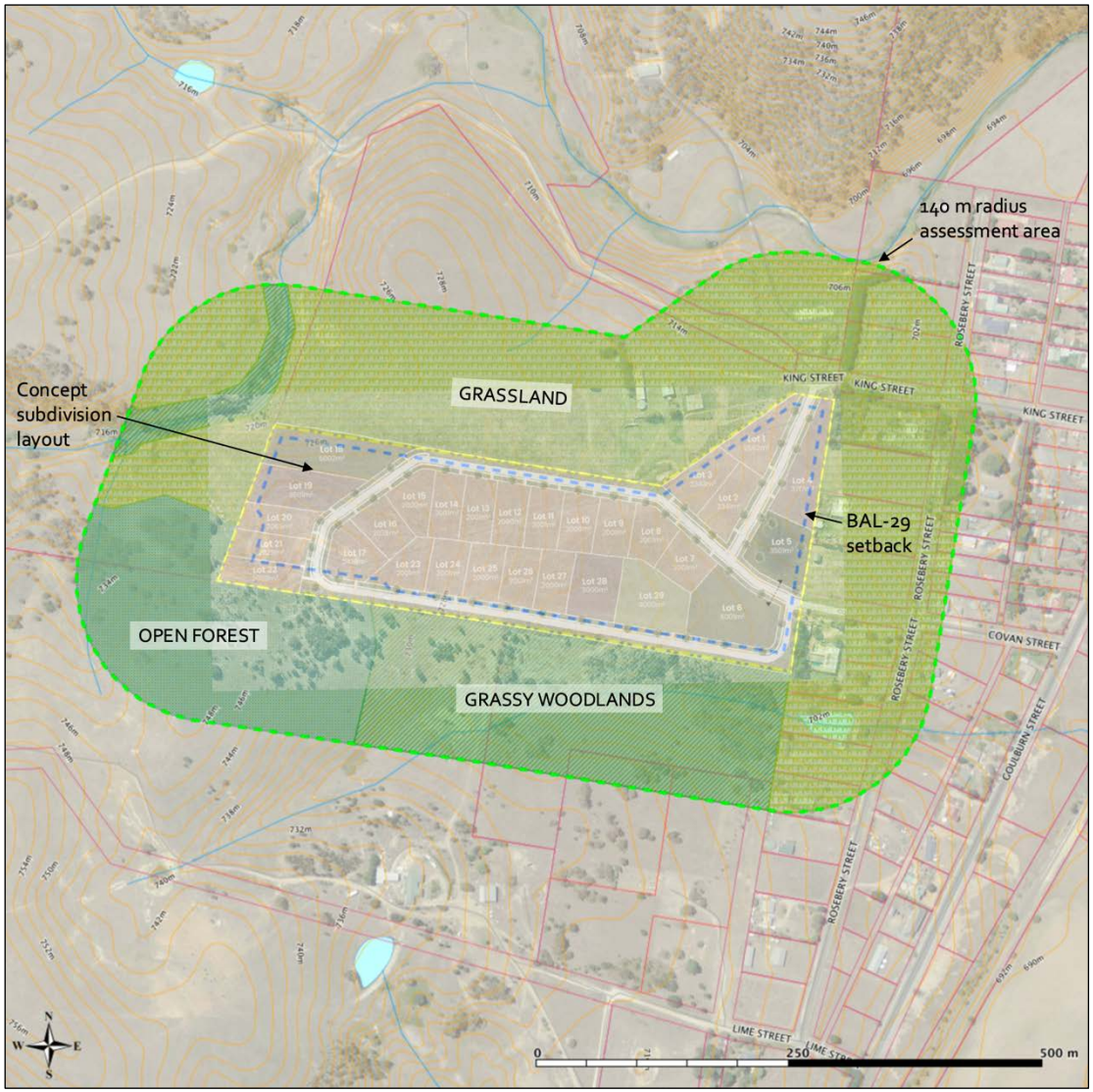


Figure 10 – BAL analysis showing indicative BAL 29 setback line confirming the concept subdivision can broadly comply with A1.12.2 PBP 2019. (FPA FireMaps, 2023)

The BAL rating for the development proposal is to be reassessed during the DA preparation taking into consideration any further residential development of land surrounding the Study Area.

2.13 EMERGENCY SERVICES

The Study Area is adequately serviced by NSW Rural Fire Service and Fire & Rescue NSW.

The Tarago Rural Fire Brigade of the NSW Rural Fire Service is the closest (~650 m) and most likely brigade to attend in the first instance.

Tarago Rural Fire Brigade is resourced with the following:

- 1 x Category 1 tanker (To be confirmed)

Neighbouring NSW Rural Fire Service Brigades include:

Bungendore NSW RFS Brigade (28 King St) (31 km / 25 min from the study area)

- 2 x Category 1 tankers
- 1 x Category 7 tanker
- 1 x General purpose vehicle (7-person capacity)

Boro/Mount Fairy NSW RFS Brigade (419 Mount Fairy Rd) (19 km / 16 min from the study area)

Windellama Rural Fire Brigade (3762 Oallen Ford Rd) (33 km / 27 min from the study area)

Mulloon NSW RFS Brigade (Kings Highway, Manar) (~26 km / 21 min from the study area)

Fire & Rescue NSW Stations within 1 hour's travel time from the Study Area include Goulburn Fire Station, Queanbeyan Fire Station and Braidwood Fire Station.

3 STRATEGIC BUSHFIRE CONSIDERATIONS

3.1 BUSH FIRE LANDSCAPE ASSESSMENT

Vegetation –

The Study Area does not support many vegetation community types, as shown on the NSW State Vegetation Type Map (Figure 7). This vegetation type map also provides good context to the distribution and extent of vegetation formations across the Study Area.

It is further evident from the site photos and aerial images (photos 1 to 24 & A1 to A4) that the study area is dominated by cleared land (grassland) due to past livestock grazing use, with several scattered remnant trees of various species surrounding the existing residence and sheds to the southwest corner of the Study Area.

Given the neighbouring properties adjoining the Study Area to the east are sizeable residential village lots. Despite the majority being developed with established residences and well-maintained grounds, a conservative approach has been taken for hazard analysis due to lot size and vegetation.

The adjoining large Rural Landscape properties to the north, south and west of the Study Area are influenced by a mix of vegetation types, including a large area of cleared land (grassland) to the north with similar features and terrain to the Study Area and sizable areas of Grassy Woodland and Dry Sclerophyll Forest vegetation formations interspersed with areas of grassland found abutting the southern and western boundaries of the Study Area. Beyond the large grassland areas north of the Study Area are further sizable areas of woody vegetation predominantly upslope.

The vegetation to the south and west poses the greatest threat in a bushfire event due to the undulating terrain, fuel loads and proximity to the Study Area.

Grassland (including grassland with scattered paddock trees) is viewed as a relatively low threat, as is remnant vegetation (<1 Ha), which shares the same APZ setback dimensions and building construction standard values as rainforest.

Vegetation classifications of Grasslands to the north and east and Grassy Woodlands and Dry Sclerophyll Forests to the south and west have been adopted for this assessment.

While acknowledging the potential of these fuel types to carry fire, given their small area and proximity to the Study Area, they are regarded as a low to moderate threat. The proposed subdivision is suitably located away from vast areas of high-threat vegetation found further to the west and north of the Study Area.

Topography –

The topography within the Study Area is predominantly flat with a gentle easterly slope across the subject lot in the order of 0° – 4° downslope towards natural watercourses and a dam within the property.

Land to the western end of the Study Area generally slopes to the northwest corner in the order of 0° – 10° downslope at its steepest point towards a natural watercourse and creek on the adjacent property that continues flowing through several properties before flowing into Mulwaree River.

The topography on the adjoining lots to the north, south and west of the Study Area continues to be gently undulating, presenting similar features and terrain, whilst land to the east becomes relatively flat as it progresses through established residential properties and approaches large areas of farmland and Mulwaree River east of Goulburn Street and the Study Area.

With the near-flat topography, the study area had previously been appropriately used for livestock grazing.

With an understanding that steeper slopes increase fire threat potential, the near flat topography of the study area provides a low-threat environment for the proposed future concept residential subdivision development and an excellent opportunity to design the subdivision layout and provide a range of Bushfire Protection Measures (BPMs) that will satisfy the acceptable solutions of PBP 2019.

Weather -

For planning and assessment purposes, the Study Area attracts a Fire Danger Index (FDI) of 100 (Southern Ranges) as assigned to the Goulburn Mulwaree Fire Weather District by NSW RFS.

With that established, however, as was seen during the Black Summer Fires in 2019-20, any area can experience elevated fire conditions in any given Summer, and these conditions are not unusual in assessing fire potential over the normal.

Fire History -

The study area demonstrates no history of direct fire impacts. However, given the surrounding vegetation and past fire activity near the site, it is not immune to the possibility of a bushfire attack.

While land use, population and the landscape have changed since the time of the last fires in the proximity of the site (1984-85 Wildfire and 2013-14 Sunset Mountain Wildfire), the site is still considered vulnerable, including from a fire event originating from the more densely vegetated hills and undeveloped areas to the far south of the Study Area between the Goulburn Bombala Railway Line and Braidwood Road and west of the site towards Collector Road.

Given the density and minimal landscape and vegetation management practices on the lots to the south and west of the study area, the threat of fire from this direction will be persistent for the life of the development.

In the proper context and environment, however, PBP 2019 provides the necessary protection measures to mitigate bushfire risk and support development in bushfire-prone environments.

3.2 LAND USE ASSESSMENT

Land use in the area is dominated by livestock grazing, primary production, and other small-scale agricultural enterprises, as well as numerous sizeable rural lifestyle properties surrounding the local community and small town of Tarago.

Accordingly, the Study Area is zoned RU2 – Rural Landscape, as are surrounding neighbouring lots to the north, south and west. (Figure 6)

Land directly to the east adjacent to the study area is zoned RU5 – Village and accommodates established residential properties and several commercial businesses.

A change in zoning from RU2 (Rural Landscape) to RU5 (Village), if the concept subdivision is successful, will increase the local population and traffic within the area and see the upgrading of existing infrastructure. The concept subdivision will also further reduce the amount of unmanaged vegetation on the western perimeter of Tarago, reducing fuel hazards.

3.3 ACCESS AND EGRESS

As noted in Section 1.5, access to the Study Area and current Concept Subdivision Layout and Master Plan is well provided with direct and close access from two (2) locations along Goulburn Street (Public through road network). One is via King Street and the other via Coven Street, creating a part perimeter loop road that traverses through the concept subdivision and, at a minimum, will comply with the acceptable solutions for access in PBP 2019 while enabling through-road access for the subdivision.

Both King Street and Coven Street (when completed) are ~6 m wide sealed public no-through roads with a maximum length of ~430 m (King St) that provide access to the Study Area and concept subdivision to/from Goulburn Street.

Goulburn Street is a sealed public through road ~8 m wide under the management of the Goulburn Mulwaree Council. It provides access to the town of Tarago when heading northeast, exiting King Street and Coven Street and continues onto Bungendore Road, Tarago Road and the town of Bungendore when heading southwest.

3.4 EMERGENCY SERVICES

As identified, the greatest source of bushfire risk is external to the study area and is likely to remain in perpetuity regardless of further future residential development in the area, with the most significant threat coming from the more densely vegetated areas to the far south of the Study Area between the Goulburn Bombala Railway Line and Braidwood Road and west of the site towards Collector Road.

That being the case, the concept subdivision would be well serviced by the local NSW RFS Brigades at Tarago, Bungendore, Boro/Mt Fairy, Windellama and Mulloon, amongst other resources, including Fire & Rescue NSW at Goulburn, Queanbeyan and Braidwood.

The proposed subdivision would significantly increase the number of residential structures in the area, invariably increasing demand for structural firefighting capabilities in the event of a fire. It would be assumed that this future demand will result in an increase in local firefighting resources and the upgrading of existing facilities.

3.5 INFRASTRUCTURE

Water Supplies -

A reticulated mains water supply will not service the proposed subdivision. A static water supply per the requirements of Table 5.3d of PBP 2019 is to be provided.

Recommendations:

Water Supplies - Water supplies are to be provided in accordance with the specifications set out in Table 7.4a of PBP 2019.

Other Infrastructure -

- **Electricity Services** – Electricity power supply throughout the proposed subdivision will be via a new underground electricity service from the main electricity network or a stand-alone off-grid photovoltaic electricity power supply and will be provided in accordance with the specifications set out in Table 7.4a of PBP 2019.
- **Gas Services** – If provided, it is envisaged that gas supplies to any future residence will be bottled gas supplies. Therefore, supplies and fittings must comply with the specifications set out in Table 7.4a of PBP 2019.

3.6 ADJOINING LAND

The Study Area is in the rural locality of Tarago, in the Southern Tablelands Region of New South Wales, approximately 1.5 km southwest of the town centre, 27 km northeast of Bungendore and 36 km south of the regional city of Goulburn. The Study Area is located on the western extremity of Tarago's existing residential properties.

Land to the north, south and west of the study area is zoned RU2 – Rural Landscape. It is predominantly large grassland areas to the north with sizable areas of Southern Tableland Grassy Box Woodland to the south and areas of Palerang Hills peppermint Dry Shrub Forest to the west in proximity to the existing residence and sheds, both interspersed with scattered grassland areas.

These woodland and forest vegetation areas are connected to further sections of dense woody vegetation west of the Study Area. These properties have established residences and farm sheds and are mainly used for primary production purposes, including livestock grazing and some cropping with gently undulating topography.

Land to the east of the Study Area is zoned RU5 – Village, with the majority of the lots being developed and comprising established and well-maintained residences and infrastructure.

3.7 STRATEGIC BUSHFIRE CONSIDERATIONS CONCLUDING STATEMENT.

The Study Area is:

- Designated Bushfire Prone.
- Grassland fuels currently dominate it, with several scattered remnant trees of various species surrounding the existing residence and sheds.
- Is considered a low to moderate threat environment.
- Has no recent history of direct bushfire threat and impact.
- Has open and predominantly flat terrain.
- Has access to roads that comply with PBP 2019 and
- Is near existing infrastructure and amenities.

In general terms, the proposed rezoning of the study area from RU2 - Rural Landscape to RU5 - Village and subsequent subdivision is supported as consistent with the principles of Strategic Planning under PBP 2019.

The proposed rezoning and Concept Subdivision Layout and Master Plan will essentially comply with the broad aims and objectives of PBP 2019, and there is an excellent opportunity to provide a range of bushfire protection improvements that address the bushfire threat and the compliance requirements of PBP 2019.

Access arrangements for the proposed subdivision will broadly comply with the requirements of PBP 2019.

The predominant vegetation types influencing the study area are grassland, grassy woodlands and dry sclerophyll forests. While these represent an elevated threat, given the large APZs possible, this threat level can be largely moderated.

Although the Study Area demonstrates no recent history of direct fire impacts, it is not immune to the possibility of bushfire attack in the future

given the surrounding vegetation, the past fire activity in proximity of the site and the increasing impacts of climate change.

In the event of a bushfire, the proposed subdivision is well positioned, with emergency services nearby.

4 BUSHFIRE PROTECTION AND PREVENTION MEASURES

With the successful rezoning of the Study Area, and although only at the concept subdivision design stage, it is possible to anticipate what Bushfire Protection and Prevention Measures (BPMs) would be required for the residential subdivision to satisfy the broad aims and objectives of PBP 2019 as well as specific considerations detailed in Chapter 5 – Residential and Rural Residential Subdivisions.

The intent of these BPMs is to provide for the protection of human life, including the safety of firefighters and occupants, assist in building survival during a bush fire, minimising the impacts on structures while having due regard to development potential, site characteristics and protection of the environment.

Bush fire protection measures generally serve a dual purpose by protecting the site from external fire threats but also containing fire within the site should it occur, stopping it from escaping onto adjoining lands. Where specific prevention measures are required, these will be detailed separately.

The concept subdivision in its current form appears to be capable of satisfying the performance criteria for residential subdivisions and, therefore, the broad aims and objectives of PBP 2019.

4.1 ASSET PROTECTION ZONES (APZS) & SETBACKS

Discussion - APZs:

APZs and setbacks provide a buffer zone between identified hazards and structures. Setbacks will ensure appropriate separation from hazardous vegetation, while APZs are bands of landscape managed to minimise fuel loads and reduce potential radiant heat levels, flame, localised smoke and ember attack.

APZs are determined by analysing hazards (unmanaged vegetation) and slopes (Figure 9) and cross-referenced with minimum setback dimensions provided for residential subdivisions in Table A1.12.2 PBP 2019.

The dominant current hazard lies to the north, south and west of the concept subdivision layout, with large areas of grassland to the north and sizable areas of woodland and forest to the south and west (the woodland predominantly present along the eastern end of the southern boundary and the forest to the western end and west) of the Study Area, which will remain persistent for the life of the development. Protection measures commensurate to this hazard will be applied.

Where the residential lots abut unmanaged hazard vegetation (Lots 1, 3, 18 – 22), building envelopes for the proposed subdivision will be mandatory and designed to ensure adequate separation for future residences from the hazard vegetation and a defendable space for firefighters to carry out

firefighting operations during a bushfire event. Where there is insufficient space to provide the required APZ and defendable space (Lot 22), a performance-based design will be necessary to address the issue.

The perimeter road provides other lots within the proposed subdivision with an additional separation area from unmanaged hazard vegetation.

The APZ and setback dimensions will ensure that no future dwelling is subject to a radiant heat flux greater than or equal to 29 kW/m^2 and, therefore, comply with the requirements of Table A1.12.2 PBP 2019.

Before future development, the dwellings on all lots identified will require a BAL assessment to determine the construction level.

APZs are to be established and managed in perpetuity and in accordance with the requirements of Asset Protection Zone Standards - Appendix 4 of PBP 2019.

Recommendations:

- The APZ and setback dimensions are to ensure that any potential building footprint is not exposed to a radiant heat flux level greater than or equal to 29 kW/m2 and, therefore, comply with the requirements of Table A1.12.2 PBP 2019.
- APZs are to be established and managed in perpetuity in accordance with the requirements of Asset Protection Zone Standards - Appendix 4 of PBP 2019.
- At the commencement of building works and in perpetuity, all land within the APZ is to be managed as IPA in accordance with the requirements of Asset Protection Zone Standards - Appendix 4 of PBP 2019.
- Future development of the rezoned lots identified as subject to bushfire attack will require a subsequent BAL assessment to determine the construction level in accordance with the relevant sections of Australian Standard AS3959-2018 Amd 2 Construction of buildings in bushfire-prone areas as amended, or NASH Standard (1.7.14 updated) National Standard Steel Framed Construction in Bushfire Areas – 2014 as appropriate.

4.2 LANDSCAPING

Recommendations:

- All landscape within areas identified as APZ within the proposed subdivision will require management in perpetuity as an Inner Protection Area (IPA) in accordance with the requirements of Asset Protection Zone Standards - Appendix 4 of PBP 2019.

- Tree species selection is to be considered in the DA and detailed design stages to reduce the potential fire risk from the plants selected for landscaping within the proposed subdivision.
- All roadside landscaping will require management in perpetuity and in accordance with the requirements of Asset Protection Zone Standards - Appendix 4 of PBP 2019.
- A landscape management regime for landscaping within the proposed subdivision, including within the on-site retention pond / open space lot area, is to be prepared in accordance with the requirements of Asset Protection Zone Standards - Appendix 4 of PBP 2019.

4.3 ACCESS

Discussion – Access:

Future access to the current Concept Subdivision Layout and Master Plan will be via two (2) alternative access/egress points from Goulburn Street (Public through road network), one being via King Street to the northeast of the proposed subdivision and the other via Coven Street (when completed) to the east, creating a part perimeter loop road that traverses through the proposed subdivision.

The proposed subdivision has been designed to include a perimeter road and multiple access/egress points, enabling through-road access for future estate residents.

In its current layout, the concept subdivision generally can satisfy all acceptable access solutions under PBP 2019. Where the acceptable solutions cannot be met, a performance-based design will be proposed to address the issue and compliance with PBP 2019.

Recommendations:

- Property access road to be provided and maintained in accordance with the specifications and requirements set out in Table 5.3b of PBP 2019.
- Where residential lots abut unmanaged hazard vegetation (Lots 1, 3, 18 – 22) and a perimeter road is not available, a performance-based design will be necessary to address the issue.

4.4 SERVICES – WATER, ELECTRICITY AND GAS:

Discussion – Water supplies:

New residences would be required to provide water supplies and electricity services in accordance with the specifications set out in Table 7.4a of PBP 2019.

Recommendations:

Water Supplies - Water supplies are to be provided in accordance with the specifications set out in Table 7.4a of PBP 2019.

Electricity Services – Electricity power supply throughout the proposed subdivision will be either via a new underground electricity service from the main electricity network or a stand-alone off-grid photovoltaic electricity power supply and will be provided in accordance with the specifications set out in Table 7.4a of PBP 2019.

Gas Services – If provided, it is envisaged that gas supplies to any future residence will be bottled gas supplies. Therefore, supplies and fittings must comply with the specifications set out in Table 7.4a of PBP 2019.

5 CONCLUSION

This report documents the findings from a Bush Fire Strategic Study to support a planning proposal to rezone land at 41 King Street, Tarago, that will significantly expand the residential area to the west of the existing urban interface.

The report establishes the bushfire threat to the study area. It examines a range of principles for the concept subdivision proposal to be regarded as suitable for development and that any future development can satisfy the broad aims and objectives of PBP 2019.

The proposed rezoning of the Study area and Concept Subdivision Layout and Master Plan is seen as being consistent with the principles of Strategic Planning under PBP 2019.

As a result of the dominant grassland setting with scattered areas of woodland and forest vegetation (generally upslope) on predominantly flat to slightly undulating topography to the north, south and west of the study area and established residential properties to the east, the surrounding environment poses a relatively low to moderate bushfire threat to the Study area and proposed concept subdivision. This threat can be moderated even further by adopting the standard suite of protection measures offered by PBP 2019, with which the proposed development can essentially comply.

The Concept Subdivision Layout and Master Plan proposal provides adequate space for establishing and maintaining setbacks and APZs.

Access to the study area will be well provided for with multiple access points (King Street to the northeast and Coven Street to the east) to/from Goulburn Street (Public through road), creating a loop road that traverses through the concept subdivision whilst providing a perimeter road within the estate.

Water supplies and other utilities will be capable of satisfying the acceptable solutions detailed in PBP 2019.

Based on the BFSS and the recommendations contained in this report, the proposed concept multi-lot residential subdivision will be capable of:

- ensuring land is suitable for development in the context of bushfire risk;
- ensuring new developments on BFPL will comply with PBP
- minimising reliance on performance-based solutions;
- providing adequate infrastructure associated with emergency evacuation and firefighting operations, and
- facilitating appropriate ongoing land management practices.

Therefore, the proposal is deemed capable of meeting the underlying principles of strategic planning and should be supported.

6 REFERENCE

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ATTACHMENT A – APZS & LANDSCAPING

Inner protection areas (IPAs)

The IPA is the area closest to the asset and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and be a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the dwelling, consisting of a mown lawn and well maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees:

- 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 ground
- canopies should be separated by 2 to 5m
- preference should be given to smooth barked and evergreen trees.

Shrubs:

- create large discontinuities or gaps in the vegetation 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)
- leaves and vegetation debris should be removed.

Outer protection areas (OPAs)

An OPA is located between the IPA and the unmanaged vegetation. Vegetation within the OPA can be managed to a more moderate level. The reduction of fuel in this area substantially decreases the intensity of an approaching fire and restricts the pathways to crown fuels; reducing the level of direct flame, radiant heat and ember attack on the IPA.

Because of the nature of an OPA, they are only applicable in forest vegetation.

In practical terms the OPA is an area where there is maintenance of the understorey and some separation in the canopy.

When establishing and maintaining an OPA the following requirements apply:

Trees:

- tree canopy cover should be less than 30%
- trees should have canopy separation
- canopies should be separated by 2 to 5m

Shrubs:

- shrubs should not form a continuous canopy
- shrubs should form no more than 20% of ground cover

Grass:

- should be kept mown (as a guide grass should be kept to no more than 100mm in height)
- leaf and other debris should be mown, slashed or mulched.

An APZ should be maintained in perpetuity to ensure ongoing protection from the impact of bush fires. Maintenance of the IPA and OPA to the standards given above should be undertaken on an annual basis, in advance of the fire season, as a minimum.

In Australia, bush fires are a natural and essential aspect of the landscape as many plants and animals have adapted to fire as part of their life cycle. However, development adjacent to bush land areas has increased the risk of fire impacting on people and their assets. The impact on property and life can be reduced with responsible preparation and management of bush fire hazards.

In combination with other BPMs, a bush fire hazard can be reduced by implementing simple steps in reducing vegetation levels. This can be done by designing and managing landscaping to implement an APZ around the property.

This Appendix sets the standards which need to be met within an APZ.

A4.1 Asset protection zones

An APZ is a fuel-reduced area surrounding a built asset or structure.

For a complete guide to APZs and landscaping, download the NSW RFS document *Standards for Asset Protection Zones* at: www.rfs.nsw.gov.au/resources/publications.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset
- an area of reduced bush fire fuel that allows suppression of fire
- an area from which backburning or hazard reduction can be conducted,
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

Potential bush fire fuels should be minimised within an APZ. This is so that the vegetation within the planned zone does not provide a path for the transfer of fire to the asset either from the ground level or through the tree canopy.

An APZ, if designed correctly and maintained regularly, will reduce the risk of:

- direct flame contact on the asset
- damage to the built asset from intense radiant heat
- ember attack.

The APZ should be located between an asset and the bush fire hazard.

The methodology for calculating the required APZ distance is contained within Appendix 1. The width of the APZ required will depend upon the development type. APZs for new development are set out within Chapters 5, 6 and 7 of this document.

In forest vegetation, the APZ can be made up of an inner protection area (IPA) and an outer protection area (OPA).

ATTACHMENT B - ACCESS

Table 7.4a *Continued*

PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
The intent may be achieved where:	
ACCESS	
› firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation.	› property access roads are two-wheel drive, all-weather roads.
› the capacity of access roads is adequate for firefighting vehicles.	› the capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.
› there is appropriate access to water supply.	› hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; › There is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.
› firefighting vehicles can access the dwelling and exit the property safely.	› at least one alternative property access road is provided for individual dwellings or groups of dwellings that are located more than 200 metres from a public through road; › There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles. In circumstances where this cannot occur, the following requirements apply: › minimum 4m carriageway width; › in forest, woodland and heath situations, rural property roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m, at the passing bay; › a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; › property access must provide a suitable turning area in accordance with Appendix 3; › curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress; › the minimum distance between inner and outer curves is 6m; › the crossfall is not more than 10 degrees; › maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and › a development comprising more than three dwellings has formalised access by dedication of a road and not by right of way. Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.

A3.3 Vehicle turning head requirements

Dead ends that are longer then 200m must be provided with a turning head area that avoids multipoint turns. "No parking" signs are to be erected within the turning head.

The minimum turning radius shall be in accordance with Table A3.2. Where multipoint turning is proposed the NSW RFS will consider the following options:

Figure A3.3

Multipoint turning options.