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# Strategic Bushfire Study

## Barkers Lodge Road Oakdale Planning Proposal

Prepared for
Colliers International Engineering and Design NSW

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

**Version 1.4**

**20 February 2025**

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| **Project Name:** | Barkers Lodge Road Oakdale Planning Proposal |
| **Client Details:** | Morehuman Oakdale Pty Ltd ATF MH Property No. 3<br>C/O Colliers International Engineering and Design NSW<br>Suite 4, Level 8, 14 Martin Place<br>Sydney NSW 2000 |
| **Project site** | 1838 Barkers Lodge Road Oakdale Lot 6/-/DP734561<br>1475 Burragorang Road Oakdale Lot 1/-/DP734561<br>1455 Burragorang Road Oakdale Lot 2/-/DP734561 |

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| Version | Primary Author(s) | Description | Date Completed |
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| 1.4 | Lew Short | Final | 20 February 2025 |


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## Disclaimer

# Contents

## 1. Glossary

This section defines those core terms and concepts which are adopted throughout the body of this report.

| Term | Definition |
|---|---|
| Asset Protection Zone (APZ) | A fuel-reduced area surrounding a built asset or structure which provides a buffer zone between a bushfire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The size of the required APZ varies with slope, vegetation and FFDI. |
| Bushfire | A general term used to describe fire in vegetation, includes grass fire. |
| Bushfire attack mechanisms | The various ways in which a bushfire can impact upon people and property and cause loss or damage. These mechanisms include flame contact, radiant heat exposure, ember attack, fire wind and smoke. |
| Bushfire Attack Level (BAL) | A means of measuring the severity of a building's potential exposure to ember attack, radiant heat, and direct flame contact. The BAL is used as the basis for establishing the requirements for construction to improve protection of building elements and to articulate bushfire risk. |
| Bushfire Design Requirements | A separate design document to assist the master planning with requirements and specifications to provide compliance with PBP 2019. |
| Bushfire prone land (BPL) | An area of land that can support a bushfire or is likely to be subject to bushfire attack, as designated on a bushfire prone land map. |
| Bushfire Hazard | Any vegetation that has the potential to threaten lives, property, or the environment. |

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| Strategic Bushfire Study (SBS) | Provides the opportunity to assess whether proposed new development is appropriate in the bushfire hazard context. |
| Bushfire Threat | Potential bushfire exposure of an asset due to the proximity and type of a hazard and the slope on which the hazard is situated. |
| Hazard | A hazard is any source of potential harm or a situation with a potential to cause loss. A hazard is therefore the source of risk. |
| Likelihood | The chance of an event occurring. Likelihood may be represented as a statistical probability (such as an annual exceedance probability), or whether this is not possible, it can be represented qualitatively using measures such as 'likely', 'possible' and 'rare'. |
| Managed land | Land that has vegetation removed or maintained to a level that limits the spread and impact of bushfire. This may include developed land (residential, commercial, or industrial), roads, golf course fairways, playgrounds, sports fields, vineyards, orchards, cultivated ornamental gardens and commercial nurseries. Most common will be gardens and lawns within curtilage of buildings. These areas are managed to meet the requirements of an APZ. |
| Mitigation | The lessening or minimizing of the adverse impacts of a bushfire event. The adverse impacts of bushfire cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures include engineering techniques, retrofitting and hazard-resistant construction as well as on ground works to manage fuel and separate assets from bushland. |
| Planning for Bushfire Protection 2019 (PBP) | NSW Rural Fire Service publication effective from 1 March 2020 which is applicable to all new development on bushfire prone land in NSW. |

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| Resilience | The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management. UNDRR 2017 |
| Risk | The degree of risk presented by that interaction will depend on the likelihood and consequence of the bushfire occurring. Risk may be defined as the chance of something happening, in a specified period of time that will have an impact on objectives. It is measured in terms of consequences and likelihood. |
| Risk assessment | A systematic process of evaluating the potential risks that may be involved in a projected activity or undertaking, having regard to factors of likelihood, consequence, vulnerability, and tolerability. |
| Risk-based land use planning | The strategic consideration of natural hazard risk and mitigation in informing strategic land use planning activities. |

## 2. Overview

Blackash has been engaged by MoreHuman Oakdale Pty Ltd ATF MH Property No. 3 through Colliers International Engineering and Design NSW to undertake a Strategic Bushfire Study (SBS) to support the Planning Proposal (PP) at 1838 Barkers Lodge Road Oakdale Lot 6/-/DP734561; 1475 Burragorang Road Oakdale Lot 1/-/DP734561 and 1455 Burragorang Road Oakdale Lot 2/-/DP734561 (the site) which is shown in Figure 1. The proposed site plan is shown in Figure 2.

The intended outcome of the Planning Proposal is to amend the applicable local planning controls to accommodate up to 208 new residential dwellings with a variety of scale and character reflective of the dominant dwelling type in the Oakdale locality, as well as Community Open Space and a Conservation Area. An indicative draft Master Plan has been developed by Colliers Engineering and Design Pty Ltd that is reflective of the site's opportunities and constraints in the areas of biodiversity, bushfire management, and stormwater management.

The subject land is approximately 22.77 hectares in size, of which:

- 15.97 hectares is proposed to be zoned R2 (Low Density Residential), with this area generally inclusive of Asset Protection Zones (APZ)
- 3.91 hectares of intact native vegetation is proposed to be zoned C2 (Environmental Conservation)
- 2.82 hectares of remnant native vegetation and regrowth is proposed to be zoned C3 (Environmental Management). This area would be subject to a 25 % reduction in the existing canopy cover (equating to 0.71 ha of canopy loss), with the 'thinned' native vegetation acting as APZ while also providing wildlife habitat and natural amenity.

The land proposed to be zoned C2 and C3 is to be managed and protected in perpetuity as 'community land' under a Vegetation Management Plan (as prepared by Restore Environmental Consultants 2024) under a section 88B instrument registered on a proposed Community Title Scheme subdivision.

The site is on designated Bushfire Prone Land and a Strategic Bushfire Study (SBS) is required. The Planning Proposal has been designed to meet the bushfire requirements within the *Environmental Planning and Assessment Act, 1979* (EPA Act), specifically Direction under section 9.1 of the Act, and Direction 4.3 *Planning for Bush Fire Protection* which applies to Planning Proposals that affect, or are in close proximity to, land mapped as BPL. This report demonstrates compliance with the NSW Rural Fire Service (RFS) document *Planning for Bushfire Protection 2019* (PBP).

The Western City District Plan is the applicable District Plan for the site under the Greater Sydney Region Plan—A Metropolis of Three Cities. It contains 20 planning priorities to guide future development. The Planning Proposal is consistent with the Planning Priorities and is within the Planning Report.

The PP has been prepared by Lew Short who is a BPAD Level 3 Certified Practitioner (BPAD 16373). Lew Shorts credentials are at Attachment 2. Lew Short completed the site inspections on 12 December 2023.

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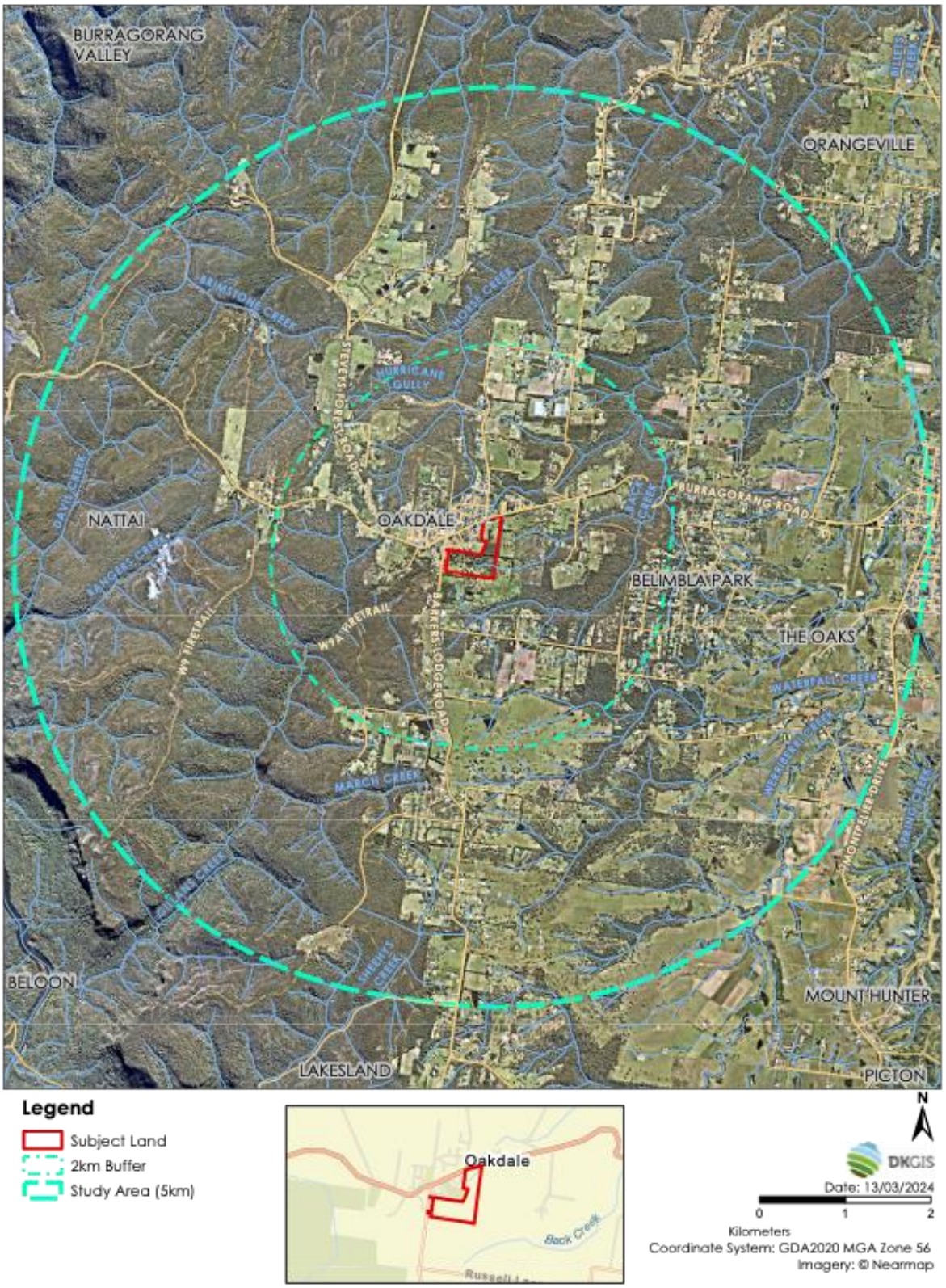


**Figure 1 Site Location**


**Figure 2 Site Plan**

## 3. Project Description

The Master Plan (figure 2) is in keeping with the site constraints, linkages with the expansion of the Oakdale township and the NSW Government position of providing more housing for the growing population. The NSW Government is boosting housing supply by fast-tracking new home assessments, investing in infrastructure and creating a housing supply pipeline.

Colliers Engineering and Design Pty Ltd, on behalf of MoreHuman, proposes to undertake a Planning Proposal to amend the applicable local planning controls across 1838 Barkers Lodge Road, 1455 and 1475 Burragorang Road, Oakdale, NSW (Lot 6, Lot 2, and Lot 1 DP 734561, respectively) (Figure 1). The objective of the Planning Proposal is to create a residential community embodying strong conservation principles to support the enhancement of the unique environmental characteristics of the site.

The intended outcome of the Planning Proposal is to amend the applicable local planning controls to accommodate up to 208 new residential dwellings with a variety of scale and character reflective of the dominant dwelling type in the Oakdale locality, as well as Community Open Space and a Conservation Area.

An indicative draft Master Plan has been developed by Colliers Engineering and Design Pty Ltd that is reflective of the site's opportunities and constraints in the areas of biodiversity, bushfire management, and stormwater management.

Associated works within the development site shall encompass the removal of trees and vegetation clearing, civil works, and landscaping. Additional activities to be included within the development site include 3.91 hectares of intact native vegetation zoned C2 (Environmental Conservation), and 2.82 hectares of 'thinned' native vegetation zoned C3 (Environmental Management) 'Community Open Space', to be managed with a reduction of 25% of the existing canopy and protected in perpetuity under a Vegetation Management Plan (Restore 2024).

## 4. Approach to the Bushfire Strategic Study

The Planning Proposal and design of the site meets the deemed to satisfy requirements of PBP. No alternative solutions or performance-based assessment are required for any part of this proposal.

The strategic planning process provides the opportunity to determine if the site complies with the legislative requirements pertaining to safety and potential risk to life and the capability of the site to comply with various bushfire objectives. This report uses a conservative approach that demonstrates the proposal can meet the legislative and planning requirements. The fundamental issue being tested in this PP application, is the determination of the suitability of the site for rezoning, considering bushfire safety and for the ability of future development to comply with PBP.

Pending rezoning approval, detailed information building on this PP will be provided in subsequent development applications. This PP provides opportunity for the plan-making authority and referral agencies to flag areas of concern and to determine the suitability of the proposal for rezoning.

In a bushfire context, strategic land use planning must ensure that future land uses are in appropriate locations to minimise the risk to life and property from bushfire attack. The broad principles which apply to the analysis, and which are demonstrated in this report are[1]:

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

This report will demonstrate that the Planning Proposal affords utilisation of the site for the proposed residential development and is able to meet the Ministerial Direction and PBP.

To assist with appreciation of the reporting and mapping, maps depicting the **Study Area** provide broad landscape scale context with 2km and 5km buffer zones. The **Subject Site** is the area within or

[1] Planning for Bushfire Protection 2019 p. 34

close to the subject site and shows detail of key mapping considerations at the local level. The two approaches to the mapping offer crucial visual aids for understanding the spatial context and relationships within the study. These maps provide valuable insights into the geographic extent of the study area and its surroundings, as well as the proximity of features or points of interest to the subject site.

**Study Area Map with 2km and 5km Buffer:**

This map displays the designated Study Area outlined with a clear boundary. A 2km buffer zone surrounding the Study Area is depicted, marked by a concentric boundary extending outward from the edges of the Study Area. The 5km buffer extends further beyond the Study Area, providing a broader context of the geographic landscape and potential impacts or influences on the subject site. These maps help identify features or areas within a wider radius that may have relevance to the study objectives or outcomes.

**Subject Site Map:**

This map focuses specifically on the subject site or area of interest within the Study Area. The subject site is highlighted with a distinct marker or boundary, making it easily identifiable on the map. Surrounding land uses, infrastructure, natural features, or other relevant characteristics may be depicted to provide context for the subject site's location and surroundings. This map aids in understanding the spatial relationship of the subject site to its immediate environment within the Study Area.

Each map is accompanied by a legend that explains the symbols, colors, and boundaries used, ensuring clarity and comprehension for readers. Additionally, labels, annotations, or captions may be included to provide additional context or highlight specific features of interest on the maps. These maps collectively contribute to the comprehensive analysis and presentation of spatial information relevant to the study or research being conducted.

## 5. Strategic Planning for Bushfires

Land use planning is widely recognised as an important measure for limiting future vulnerabilities and losses in areas of new development and a critical element for building disaster resilient communities.

The physical design and layout of communities and settlements are central to the many functions that sustain the social, economic and environmental support systems for the community. Land use planning provides the opportunity to manage new growth and residual risk resulting from new development by complying with legislation and standards, limiting or modifying the location of new development and influencing its layout. This can limit both the impacts of new development on natural systems, ecosystem services and hazards and the flow on impacts on the existing community, as well as limiting the impacts that natural hazards can have on new development and its users.

The strategic planning system is particularly important in contributing to the creation of resilient, safe and sustainable communities that are in keeping with the policy and intent of government.

Comprehensive consideration of bushfires and risks in the NSW planning system needs sound understanding of the landscape context and risks, as well as clarity on risk management principles and on the approach to strategic planning and development controls that will adequately mitigate identified risks. Where there are competing policy objectives, such as biodiversity conservation and fuel reduction, an agreed methodology or guidance is critical. As such, planning decisions must be based on the best available evidence and rigorous merits-based assessment to ensure that new development - people, homes and businesses are not exposed to unacceptable risk from bushfire. The framework provided within PBP provides the minimum requirements for new development within bushfire prone areas.

The importance of sound land use planning has been recognised in most significant bushfire inquiries, including Natural Disasters in Australia which noted that land use planning that considers natural hazard risks is the single most important mitigation measure in preventing future disaster losses in areas of new development, and that planning, and development controls must be effective, to ensure that inappropriate developments do not occur[2]. The application of legislation, policy, and guidelines provides one of the most effective means of bushfire planning to ensure future developments are

[2] Ellis, S et al (2004) National Inquiry on Bushfire Mitigation and Management (p.92)

resilient and capable of protecting life. The benchmark for Planning Proposals is the Ministerial Direction and detail within PBP.

This report focuses on disaster resilience which means planners, hazard leaders, emergency managers and other built environment professionals can contribute to:

- understanding and anticipating bushfire risks before they happen and developing more resilient land use and built form tailored to address bushfire risks.
- minimising the increase in risks to people and disruptions to social and economic functions when a disaster strikes by ensuring compliance with state requirements for new development in Bushfire Prone Areas.

This report uses the balanced approach provided within NSW for new development in Bushfire Prone Areas (BPA) that recognises the need to protect human life and provide safe operating environments for fire and emergency services, while having due regard to the environmental impacts, development potential of land and the need to cater for growing populations.

## 6. Legislative Framework

The landuse planning framework as it relates to landuse planning and bushfire in NSW is embedded in the *Environmental Planning and Assessment Act, 1979* (EPA Act), the *Rural Fires Act 1997* (RF Act), *Rural Fires Regulation* 2013 (RFR) which is articulated through PBP.

The site is on designated Bushfire Prone Land (Figure 3). Bushfire prone land maps provide a trigger for the development assessment provisions and consideration of sites that are bushfire prone. Bushfire prone land (BFPL) is land that has been identified by council, which can support a bushfire or is subject to bushfire attack. Bushfire prone land maps are prepared by local council and certified by the Commissioner of the RFS.

The site is identified as 'bushfire prone land' as mapped by Council for the purposes of Section 10.3 of the EPA Act and the legislative requirements for development on bushfire prone lands are applicable.

Figure 3 shows that the site has Category 1 and Category 3 Bush Fire Prone Vegetation and the associated buffer covering the site. This does not preclude development; it merely starts the process to consider bushfire in the design of any new development.

## 7. Ministerial Direction 4.3 Planning for Bushfire Protection

NSW Ministerial Direction 4.3, titled "Planning for Bushfire Protection," outlines guidelines and requirements for managing bushfire risk in land use planning and development in New South Wales, Australia. It aims to ensure that development decisions consider and mitigate potential bushfire hazards effectively. The direction includes provisions for assessing bushfire risk, establishing appropriate buffer zones around designated bushfire-prone areas, and implementing measures to enhance community safety and resilience against bushfires. The directive emphasizes collaboration between relevant authorities, landowners, and developers to prioritize bushfire protection in urban and rural planning processes. The Ministerial Direction is:

The EPA Act sets out the laws under which planning in NSW takes place. The main parts of the EPA Act that relate to development assessment and approval are Part 3 (Planning Instruments) and Part 4 (Development Assessment).

EPA Act Section 9.1 provides for the Planning Minister to direct councils to apply certain standards (detailed in the Direction) when preparing Planning Proposals for consideration. These Directions cover a range of practice areas and carry legislative weight.

Planning Direction 4.3 *Planning for Bush Fire Protection* (Appendix 3) states that:

> *This direction applies to all local government areas when a relevant planning authority prepares a planning proposal that will affect, or is in proximity to, land mapped as bushfire prone land.*

Importantly, a Planning Proposal must:

*(a) have regard to Planning for Bush Fire Protection 2019*

*(b) introduce controls that avoid placing inappropriate developments in hazardous areas, and*

*(c) ensure that* bushfire hazard reduction is not prohibited within the APZ.

The SBS must be considered by the Gateway authority (when triggered), before any Planning Proposal to amend an LEP can be submitted to the Department of Planning and Environment (DPE). The SBS may be considered by DPE as part of the Gateway Determination. This determines whether the Planning Proposal should proceed further, or not, towards becoming an Environmental Planning Instrument (EPI).

EPIs are statutory plans made under Part 3 of the EP&A Act that guide development and land use. These plans include State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs). LEPs zone land and provide controls for a suitable range of permissible uses to be considered in more detail at the development assessment stage.

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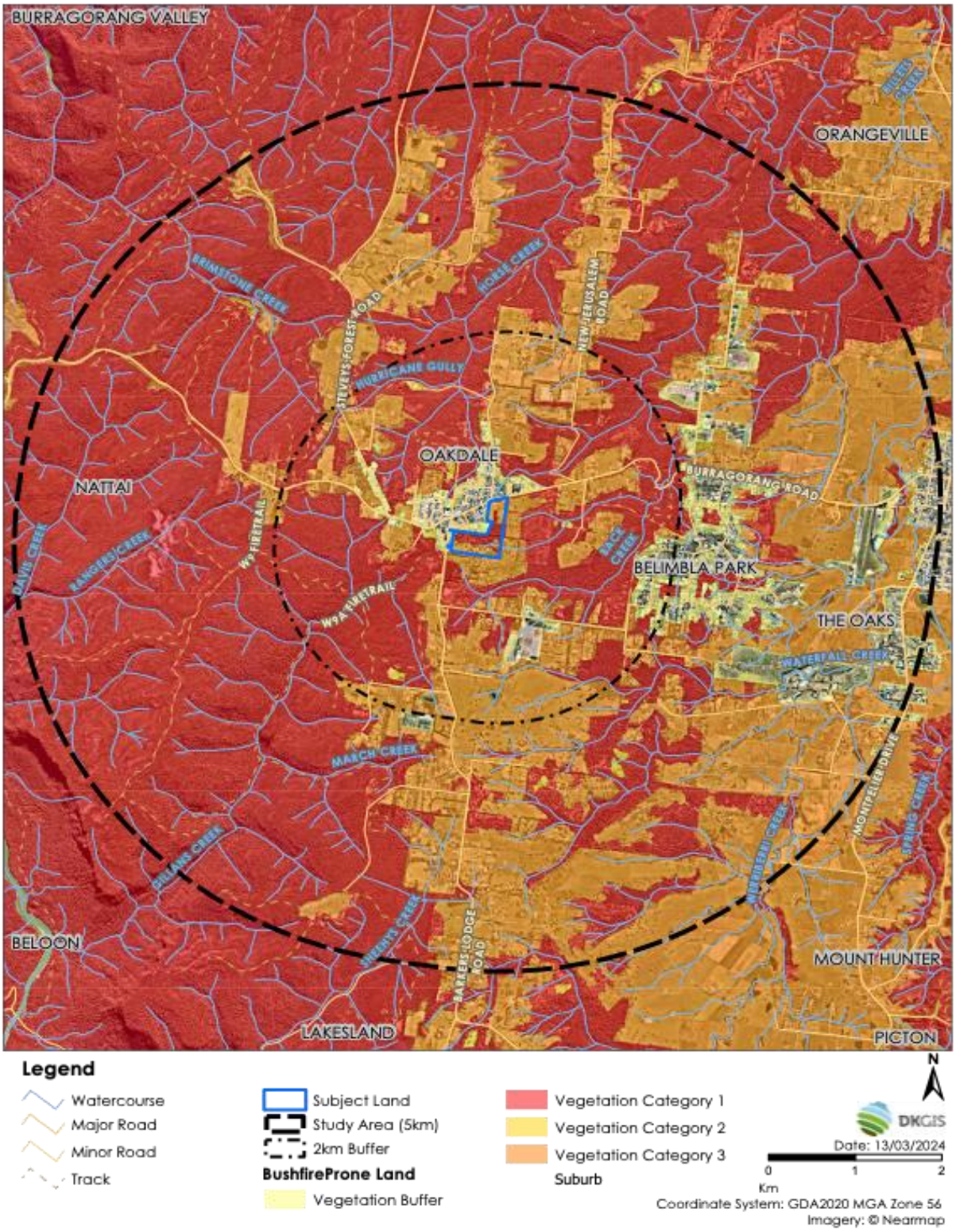



**Figure 3 Bushfire Prone Land Study Area**

## 8. Development Assessment

Bushfire Prone Land (BPL) is designated in accordance with s.10.3 of the EP&A Act. BPL is land which can support a bushfire or is subject to bushfire attack, that has been identified and mapped by the local council and certified by the Commissioner of the RFS.

Integrated development, under Division 4.8 of the EP&A Act, is development requiring consent and one or more additional approvals. Section 4.46 of the EP&A Act requires a Bushfire Safety Authority (BSA) from the RFS under Section 100B of the RF Act for residential and rural residential subdivision, or development of land for a Special Fire Protection Purpose (SFPP) on BPL. The PP meets the acceptable solutions within PBP and the subsequent development applications will provide detail on specific subdivision requirements. Future applications will address the extent to which the development complies with PBP.

A BFSA authorises development to the extent that it complies with PBP including requirements for Asset Protection Zones (APZ), construction standards, landscaping, provision of water supply & utilities, access, and emergency management arrangements in combination considered by the Commissioner necessary to protect persons, property or the environment from danger that may arise from a bushfire.

On designated Bushfire Prone Land, new residential or rural residential subdivision development needs to justify that the Planning Proposal results in development that can meet the requirements of PBP on a risk-based approach.

Future building work on BPL must comply with the requirements of the *National Construction Code* (NCC). Under the Deemed to Satisfy provisions of the NCC, building work on BPL must comply with Australian Standard 3959-2018 *Construction of buildings in bushfire-prone areas* (*AS 3959*) or the National Association of Steel Framed Housing (2014) *Steel Framed Construction in Bushfire Areas* (NASH Standard).

## General Obligations

All owners and land managers (both public and private) have a duty to prevent the occurrence and spread of bushfires on or from their land. This duty is legislated under Section 63 of the *RFA*.

Local risk mitigation is coordinated through Bushfire Risk Management Plans (BRMP). These guide programs to implement specific treatments. Treatments may include such things as hazard reduction

burning, establishing and maintaining APZ, grazing, preparing pre-incident plans, establishing and maintaining fire trails and community engagement. These may be applied to public and private landowners and as notified steps carry the legislative weight of Section 63.

## 9. Planning for Bush Fire Protection 2019

The specific objective of this SBS is to assess the proposed development with the strategic assessment considerations in Chapter 4 of PBP. PBP provides the required considerations in addressing Ministerial Direction 4.3.

The PP outcome aligns with the strategic objective to deliver affordable housing supply, while demonstrating compliance with Ministerial Direction 4.3 and the requirements of PBP whilst also balancing other requirements such as access, amenity, ecology, and the like.

The SBS provides the opportunity to assess whether new development is appropriate in the bushfire hazard context at a strategic or landscape scale. It also provides the ability to assess the strategic implications of future development for bushfire mitigation and management. The SBS must first demonstrate the proposal complies with the overall Aim and Objectives of the document.

All new development on bushfire prone land must comply with PBP.

The **aim** of PBP (p. 10) is:

- *to provide for the protection of human life and minimise impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment*.

The **objectives** (PBP p. 10) are to:

- *Afford buildings and their occupants protection from exposure to a bushfire*
- *Provide for a defendable space to be located around buildings*
- *Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings*
- *Ensure that appropriate operational access and egress for emergency service personnel and occupants is available*
- *Provide for ongoing management and maintenance of Bushfire Protection Measures; and*
- *Ensure that utility services are adequate to meet the* needs of firefighters

Chapter 4 of PBP articulates the regulatory framework for Planning Proposals in NSW, along with a series of assessment considerations that are required before a determination can be made regarding a Planning Proposal.

PBP Section 4.2 (in part, p. 34):

> *A Strategic Bush Fire Study must include, as a minimum, the components in Table 4.2.1.*
>
> *Once these strategic issues have been addressed, an assessment of whether the proposal can comply with this document should be carried out. If the strategic issues cannot be resolved, then the proposal cannot comply with PBP and will not be supported by the NSW RFS.*

Strategic planning will need to take account of the next level of detail required at Development Application (DA), but without needing to provide complete final project plans, or full assessments for each lot or development proposed. This is designed to provide flexibility for later project stages while progressing the rezoning to permit the new uses.

## 10. Strategic Planning Compliance

PBP requires that Planning Proposals in bushfire prone areas require the preparation of a SBS. For strategic level assessment, this requirement relies on the application demonstrating it is possible to provide complying asset protection zones (APZ) for the proposed development, and that roads and services (water, electricity and gas) will meet PBP.

The SBS is a strategic level assessment, requiring a balance between providing sufficient information to determine the suitability of the site, without overly burdening proponents with detail to be managed / finalised at subsequent DA stage. PBP (p. 19) notes that:

> *The most important objective for strategic planning is to identify whether new development is appropriate subject to the identified bushfire risk on a landscape scale. An assessment of proposed land uses and potential for development to impact on existing infrastructure is also a key element of the strategic planning process in bushfire prone areas. Land use planning policies can be introduced to limit the number of people exposed to unacceptable risk.*
>
> *Once development has been assessed as being appropriate in its bush fire prone context, it will need to be capable of complying with PBP. The ability of proposed land uses and associated*

*future developments to comply with PBP will be assessed at the strategic planning stage. The expectation will be that the development will be able to comply with PBP at the DA stage.*

The design team has considered and responded to the bushfire requirements within PBP. In a bushfire context, the design team has provided a PP that ensures future development is in appropriate locations to minimise the risk to life and property from bushfire attack. Future development will be able to comply with PBP at the DA stage.

The design team has incorporated the broad principles PBP (p. 34) for strategic planning into the Planning Proposal which apply to the risk assessment of an area which includes:

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

PBP also outlines exclusion of inappropriate development in bushfire prone areas which includes:

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

PBP requires that the SBS must include, as a minimum, the components identified in Table 4.2.1 of PBP – Bushfire Strategic Study (p.35) as shown in Figure 4.

| ISSUE | DETAIL | ASSESSMENT CONSIDERATIONS |
|---|---|---|
| **Bush fire landscape assessment** | A bush fire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape. | › The bush fire hazard in the surrounding area, including:<br>  › Vegetation<br>  › Topography<br>  › Weather<br>› The potential fire behaviour that might be generated based on the above;<br>› Any history of bush fire in the area;<br>› Potential fire runs into the site and the intensity of such fire runs; and<br>› The difficulty in accessing and suppressing a fire, the continuity of bush fire hazards or the fragmentation of landscape fuels and the complexity of the associated terrain. |
| **Land use assessment** | The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses. | › The risk profile of different areas of the development layout based on the above landscape study;<br>› The proposed land use zones and permitted uses;<br>› The most appropriate siting of different land uses based on risk profiles within the site (i.e. not locating development on ridge tops, SFPP development to be located in lower risk areas of the site); and<br>› The impact of the siting of these uses on APZ provision. |
| **Access and egress** | A study of the existing and proposed road networks both within and external to the masterplan area or site layout. | › The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile;<br>› The location of key access routes and direction of travel; and<br>› The potential for development to be isolated in the event of a bush fire. |
| **Emergency services** | An assessment of the future impact of new development on emergency services. | › Consideration of the increase in demand for emergency services responding to a bush fire emergency including the need for new stations/ brigades; and<br>› Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency. |
| **Infrastructure** | An assessment of the issues associated with infrastructure and utilities. | › The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows, and spacing of hydrants; and<br>› Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc. |
| **Adjoining land** | The impact of new development on adjoining landowners and their ability to undertake bush fire management. | › Consideration of the implications of a change in land use on adjoining land including increased pressure on BPMs through the implementation of Bush Fire Management Plans. |

**Figure 4: Requirements of a Bush Fire Strategic Study (PBP p. 35)**

## 11. Landscape Assessment – Scale Context

The bushfire landscape assessment considers the likelihood of a bushfire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape. This is reflected in the various Study Area maps with the 2km and 5km buffers. The broader landscape and the potential size or scale of a bushfire has been a key design response by the project team throughout the preparation of the Planning Proposal. One of the key balancing approaches has been site utilisation, sensible layout, biodiversity and ecology requirements and bushfire requirements.

The likelihood of a bushfire, its severity and intensity, and the potential impact on life and property varies depending on where a site is located in the landscape. Two types of considerations are relevant in terms of assessing the bushfire hazard including:

- landscape scale hazard – where large expanses of vegetation over tens to hundreds of hectares are located in immediate proximity to, and may traverse, urban periphery suburbs/townships
- localised hazard – which is most commonly presented by fragmented areas of vegetation larger than 1 hectare in size

These two types of hazard present different types of fire behaviour, fire intensity and potential rate of spread characteristics. The site is subject to a range of environmental and historical influences features which provide the current urban form of the area, including bushfire, vegetation corridors, existing land uses, drainage and ecology/biodiversity values.

This site is affected by Category 1 and 2 BFPL (Figure 3). Landscape scale and local fires are possible within the areas surrounding the site. Both scenarios are possible under strong winds and elevated fire danger. The bushfire protection measures have been designed in combination for the site and the acceptable solutions have been used to meet PBP. Separation from unmanaged bushland areas meets the APZ requirements for SFPP development, providing passive protection to both buildings and people within the site.

By situating the new development to the south and southeast of Oakdale, it can act as a buffer zone between the existing town and potential bushfire-prone areas beyond. This strategic placement helps to create a barrier that can slow down or redirect the spread of bushfires, reducing the immediate threat to the town. The planned development will incorporate green spaces, parks, and asset protection zones that act as firebreaks within the layout, providing additional buffer zones that can help to mitigate the spread of bushfires. These areas can serve as natural barriers, reducing the intensity of fires and providing safe zones for residents and firefighters during emergencies.

## 12. Assessment against adopted Bush Fire Risk Management Plan

The Wollondilly/ Wingecarribee Bush Fire Management Committee (BFMC) is made up of local representatives of emergency services, land managers and the Council. They are appointed to the BFMC as they are considered the most expert bushfire management practitioners in their agencies in their respective local areas (note some individuals may be members of more than one BFMC. Their role is to combine both expert knowledge of bushfire and emergency management, and local knowledge to develop plans and priorities for bushfire risk management actions for their respective local areas.

The BFMC is responsible for producing *Wollondilly/ Wingecarribee Bush Fire Risk Management Plan 2017 (Risk Plan)*. The Bush Fire Risk Management Plan (BRMP) is legislatively required under the *Rural Fires Act 1997* (RFA) and is a strategic document that identifies community assets at risk, rates the relative risks and set out a five-year program of coordinated multi-agency treatments to reduce the risk of bush fire to the assets. Treatments may include such things as mechanical hazard reduction (e.g., slashing, mowing), hazard reduction burning, grazing, community education and fire trail maintenance. The BRMP uses a state-wide methodology to risk assess all assets across the state consistently.

## 13. The Wollondilly/ Wingecarribee Bush Fire Risk Management Plan Assessment

The BFMC area includes and includes the Local Government Areas of Wollondilly & Wingecarribee Shires.

The BFRMP (p.8-9) provides the following relevant information for context:

***Climate and bush fire season***

*The typical climate in the Wollondilly/ Wingecarribee BFMC area is variable due to topographical and altitudinal differences. The low altitudinal areas north of the highlands experience a warm temperate climate with peak rainfall in the summer and autumn months. The bush fire season in this area is generally from August to December but can extend to March depending on the onset of summer rainfall. South of the highlands is considerably higher in altitude and experience a relatively cool temperate climate with predominantly summer rainfall and the bush fire season generally runs from October to March.*

*Prevailing weather conditions associated with the bush fire season in the Wollondilly/ Wingecarribee BFMC area usually coincide with strong southwest to northwest winds and influenced by drought and rainfall conditions. There are also frequently dry lightning storms occurring during the bush fire season.*

***Population and demographic information***

*There are eighteen (18) villages and four (4) large towns that form part of an extensive urban interface with considerable bushland. This is compounded by a major state highway and the Sydney to Melbourne rail line traversing parallel to adjacent bushland interface.*

*Tourism has a major effect on the local economy*

*Close proximity to major urban centres of south west Sydney and the Illawarra exposes the area to many land owners commuting in and out of the highlands. A significant number of land owners also do not reside within the boundaries of the BFMC area.*

***History of bushfire frequency and ignition cause***

*The Wollondilly/ Wingecarribee BFMC area has on average 400 bush and grass fires per year, of which a number can be considered to be major fires.*

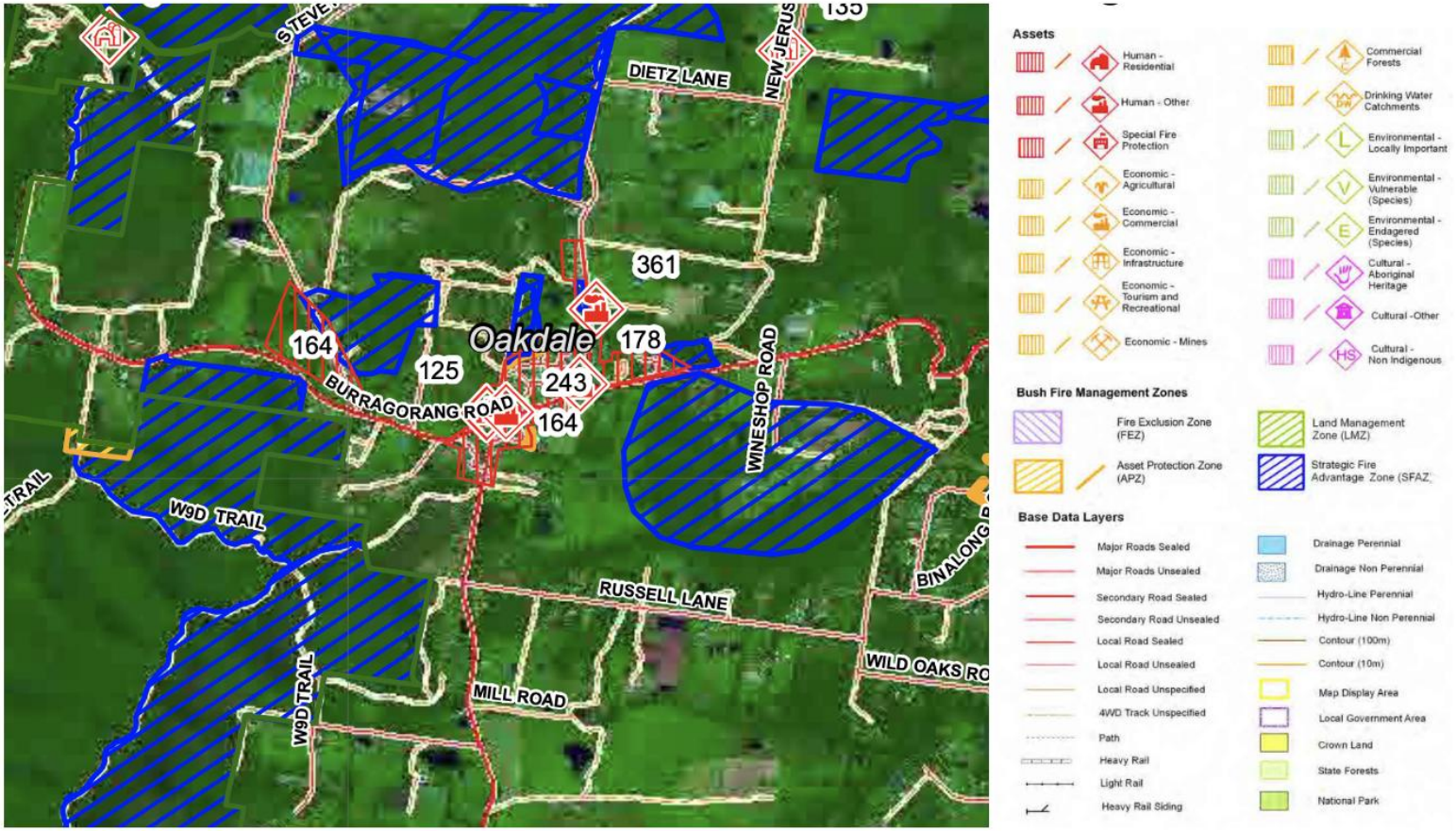
*A number of major fires have started in the inhabited areas of the BFMC and travelled in an easterly direction impacting on catchments. Most other major fires have ignited in the west associated with storms and have coincided with extensive dry periods coupled with hot westerly winds.*

*The main sources of ignition in the Wollondilly/ Wingecarribee BFMC area are:*

- *Lightning strikes associated with typical summer storm weather patterns*
- *Arson including dumping of vehicles in bushland*
- *Pile burns escaping private residents properties*

**BFRMP references to the Planning Proposal site**

The Planning Proposal site and the local area are identified within the Oakdale Township with a bushfire risk of "high" with asset ID No. 164 (see Figure 6). Oakdale township has a designated Neighbourhood Safer Place (NSP) at the Oakdale shops with a bushfire risk of "high" with asset ID No. 243 (see Figure 6).




Assets

| Map Ref | Asset name | Asset type | Subtype | Risk level | Priority | Treatment |
|---|---|---|---|---|---|---|
| 164 | Oakdale Village | Human | Residential | High | 3A | T5;21;246 |
| 243 | NSP - Oakdale Shops | Human | Other | High | 3A | T275 |

**Figure 5: BRMP Risk Profile (source: *Wollondilly/ Wingecarribee Bush Fire Risk Management Plan p. 82)***

## 14. Landscape Scale Assessment Tool (LSAT)

The *Victorian Planning Permit Applications Bushfire Management Overlay – Landscape Scale Threat Assessment* has been used as the framework to assess the broader landscape scale potential of bushfire affecting the site. This document is the only Australian contemporary Landscape Scale methodology with legislative weight. Blackash has expanded and modified the criteria to emphasise the priority of life safety, and the criticality of bushfire Emergency Management and Evacuation Planning as part of the risk assessment process.

The Blackash Landscape Scale Assessment Tool (LSAT) combines quantitative and qualitative techniques which are scaffolded by the *Landscape Scale Threat Assessment* and associated documentation. The approach is shown in Table 1 and uses elements of the Bayesian decision making model and Expert Judgment techniques backed by data. Bayesian decision making has been used where there is both objective and subjective data to analyse, and decisions need to be made on the probability of successful outcomes where there are high levels of uncertainty. Expert Judgement has been used in the assessment and determination of the landscape scale risk.

Blackash Expert Judgement is applied consistent with the criteria used in the *National Construction Code* (NCC)[3] Assessment Methods and NSW Land & Environment Court practice that calls up *Schedule 7 – Expert Witness Code of Conduct* in the *Uniform Civil Procedure Rules 2005*.[4]

The LSAT provides information on the bushfire hazard more than 150 metres away from the site at a landscape scale. The broader landscape and the potential size or scale of a bushfire has been an important design response in the development of the PP. The likelihood of a bushfire, its severity and intensity, and the potential impact on life and property varies depending on where a site is in the broader landscape. Landscape scale fires will place greater pressure on emergency response capability and will have a wider impact on roads and the length of time roads cannot be safely used. This will affect the likelihood of successful evacuations taking place across larger areas and may affect the ability of firefighting resources to be deployed. Multiple factors have been considered for the landscape scale assessment. Key considerations in our assessment have included:

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3 https://www.abcb.gov.au/sites/default/files/resources/2021/UTNCC_Using_assessment_methods%20%281%29.pdf

4 https://legislation.nsw.gov.au/view/html/inforce/current/sl-2005-0418#sch.7

- extent and continuity of vegetation
- topography
- prevailing winds
- the potential fire run and area that is likely to be impacted by the fire
- the impact on evacuation routes to safer places considering road networks, distances, and landscape factors
- the location and exposure of the development to bushfire
- the ability to seek bushfire shelter on site or at alternative locations
- the extent of neighbourhood-scale damage the bushfire may produce.

PBP refers to the Greater Sydney Fire Weather District, and the appropriate maximum Forest Fire Danger Index (FFDI) to be applied in the LGA is FFDI 100.

Landscape scale fires are those that can span many kilometres or tens of kilometres, and that burn for days or weeks at a time. Typically, these fires can be many thousands of hectares in size with fire fronts many kilometres in length. On the east coast of Australia this scale of fire is only possible where there are very large areas of forested vegetation, typically National Parks and State Forests that also adjoin substantial areas of private bushland.

The Burragorang State Conservation Area (Figure 6) is to the west of Oakdale township and includes catchment areas for 80 per cent of Sydney's water supply. The Burragorang State Conservation Area is to the east of Blue Mountains National Park (Figure 6). Both these areas and National Park and are native bushland. There is significant potential for large landscape scale fires to develop within the Burragorang State Conservation Area and or the Blue Mountains National Park.

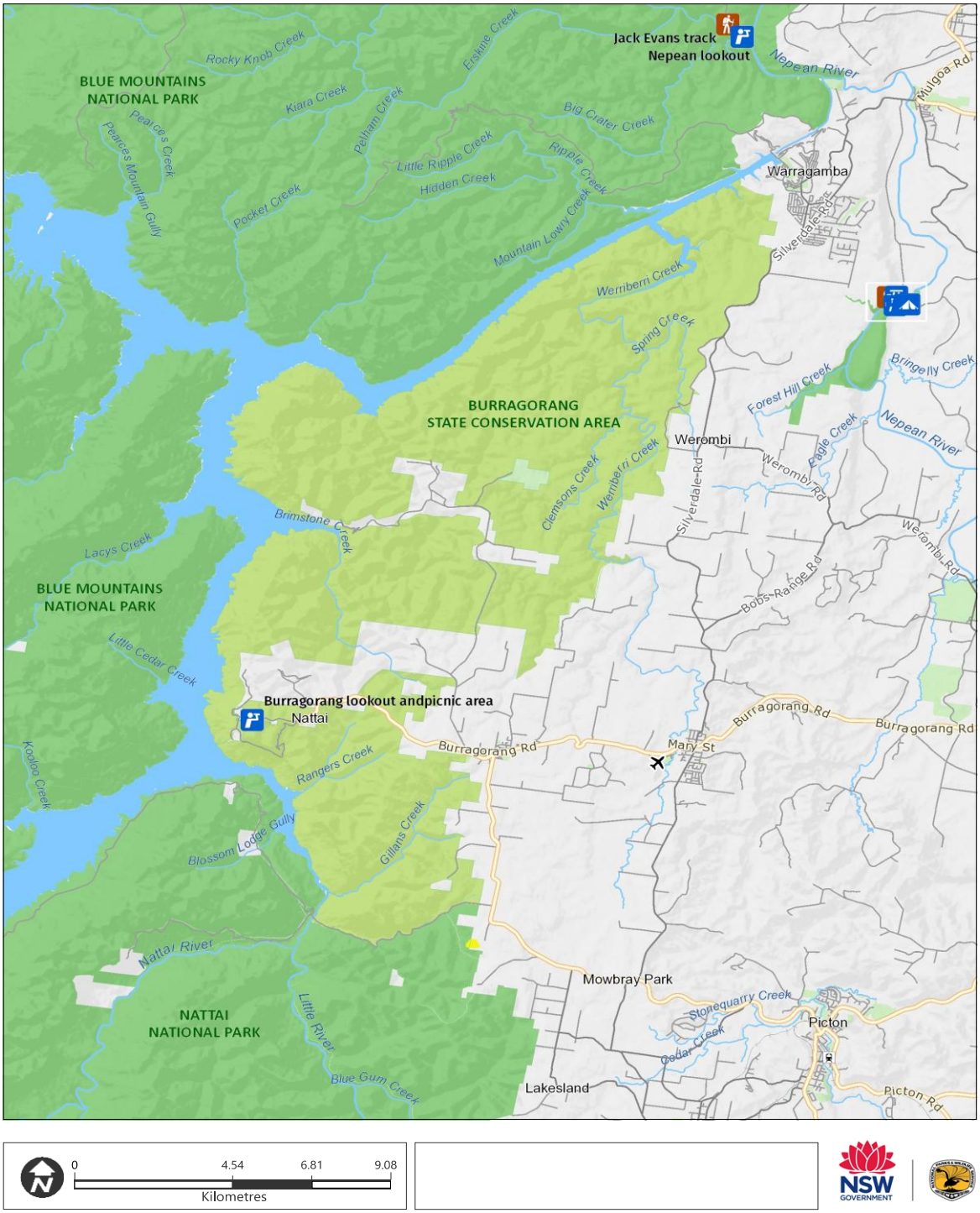


**Figure 6 Burragorang State Conservation Area** (source: https://www.nationalparks.nsw.gov.au/-/media/npws/maps/pdfs/parks/burragorang-state-conservation-area/burragorang-state-conservation-area-map.pdf)

The PP site is within a landscape setting that has a long history of vegetation modification for agriculture and urban development outside of the National Park areas. Remnant areas of vegetation are retained within valley complexes to the north, east and south of the site. The proposed development is able to comply with the access and APZ requirements within PBP. As such, the bushfire risk is reduced to designated tolerable levels in accordance with PBP and RFS requirements.

The local scale bushfire threat at the site are limited. However, the local scale fires may still be significant and can cause local damage, as wherever vegetation is retained there will always be some residual risk to manage, however they will not result in widespread property destruction. Local scale fires in such a managed landscape also tend to be noticed quickly by the public and called in to emergency services soon after ignition.

Due to the application of PBP requirements throughout the development process there will be good access for firefighting at the interface, suitable construction standards keeping radiant heat levels at buildings below 29kW/m$^2$, suitable firefighting water supplies, and management of open space areas for the site. These will be detailed in the subsequent Bushfire Hazard Assessment with the DA.

**Overall Landscape Scale Assessment**

The LSAT is heavily weighted to life safety and places significant emphasis on the ability for the future community to be able to shelter in place or evacuate safely, whilst emergency services can access the site at the same time. The safest methods of protection are not to be in a bushfire hazard area during a day of bad fire risk; have a clear evacuation to an urban area more than 100m from hazard vegetation; and to have a shelter in place strategy in a well prepared property with the dwelling built to contemporary standards. A combination of these methods is likely to maximise life safety whilst still allowing for normal life to continue during the bushfire season.

The site has good access to existing arterial roads with Barkers Lodge Road heading south to Picton and Burragorang Rd to the east toward The Oaks and Camden South. From The Oaks, alternative access is available to the north along Silverdale Rd or to the south on Montpelier Dr. All roads are well integrated into the local road network. Limited catchment of people are to the west of Oakdale, which would not increase pressure on the existing road network.

However, the existing traffic network is likely to be impacted by traffic during days where bushfires are occurring in the local area, The primary method of life safety on the site is likely to involve a shelter in place strategy for smaller fires or evacuation from the site if directed by emergency services.

While there are remnant areas of vegetation within the valley complexes surrounding the site, these will not be able to develop or maintain landscape scale fires, as opposed to local scale bushfire threat. Once developed, the development will have been assessed against PBP and have a suitable

combination of Bushfire Protection Measures (BPM) including significant water supplies, access, and landscaping for the types of uses proposed.

When the individual factors are scored, after consideration of the landscape context, the site design complying with PBP, and the large urban area, the overall Landscape Scale Threat for the site is assessed as **High Risk**. The summary and weighted scores are presented in Table 1 below.

However, development will be subject to bushfire assessment and specific building standards as required by PBP and AS 3959:2018 (or contemporary documents as time passes) and will therefore offer suitable shelter from bushfire for individual buildings ultimately approved within the PP site up to and including Catastrophic Bushfire Danger Ratings. This shelter in place approach, combined with quick and intuitive self-evacuation away from bushland to within the site and suitable buildings will provide options for immediate life safety for occupants and will reduce the need or desire for evacuations from the site.

**Table 1 Blackash Landscape Scale Assessment Tool**

| Parameter | Low Landscape Scale Threat | | Moderate Landscape Scale Threat | | High Landscape Scale Threat | | Extreme Landscape Scale Threat | |
|---|---|---|---|---|---|---|---|---|
| Landscape Vegetation Threat | There is little vegetation beyond 150 metres of the site (except grasslands and low-threat vegetation) and will not result in neighbourhood scale destruction of property. | ☐ | The type and extent of vegetation beyond 150m from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. | ☑ | The type and extent of vegetation beyond 150m is likely to result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. | ☐ | The type and extent of vegetation beyond 150m will result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. | ☐ |
| Vegetation Location | Bushfire can only approach from one aspect and the vegetation is surrounded by a suburban, township or urban area managed in a minimum fuel condition. | ☐ | Bushfire can only approach from one aspect and the site is within a suburban, township or urban area managed in a minimum fuel condition. | ☐ | Bushfire can approach from more than one aspect and site is on the interface with a developed area managed in a minimum fuel condition. | ☐ | Bushfire can approach from more than one aspect and fires have hours or days to grow and develop before impacting and/or site is surrounded by unmanaged vegetation. | ☑ |
| Bushfire Behaviour | Extreme bushfire behaviour at the site is not possible given the broader landscape. | | Extreme bushfire behaviour at the site is unlikely in this broader landscape. | ☐ | Extreme bushfire behaviour at the site is likely due to the broader landscape. | ☑ | Extreme bushfire behaviour is very likely due to the broader landscape. | ☐ |
| Separation | Hazard separation between extreme bushfire hazard and buildings of greater than 100m. | ☐ | Hazard separation between extreme bushfire hazard and buildings of 50-100m. | ☑ | Hazard separation between extreme bushfire hazard and buildings of 20-50m. | ☐ | Hazard separation between extreme bushfire hazard and buildings of <20m. | ☐ |
| Shelter | Immediate access is available to a place that provides shelter from bushfire. | ☐ | Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area. | ☑ | Access to an appropriate place that provides shelter from bushfire is not certain. | ☐ | Access to an appropriate place that provides shelter from bushfire is not possible unless there is a public bushfire refuge or private shelter. | ☐ |
| Vegetation Corridors | Vegetation corridors within the site do not enable fire to enter and move through the site by a continuous fire path from the primary fire source feature. | ☐ | Vegetation corridors within the site are unlikely to enable fire to enter and move through the site by a continuous fire path from the primary fire source feature. | ☑ | Vegetation corridors within the site may enable fire to enter and move through the site by a continuous fire path from the primary fire source feature. | ☐ | Vegetation corridors provide for passage of fire to enter and move through the site. | ☐ |
| Evacuation | Good, multiple route evacuation is possible and connects with the public road network. | ☐ | Evacuation to alternate location that provides life safety refuge is <200m. | ☐ | Evacuation to alternate location that provides life safety refuge is 200m – 10km. | ☑ | Evacuation to alternate location that provides life safety refuge is >10km. | ☐ |
| Isolation | Seamless integration with existing settlement – no effect on evacuation. | ☐ | Short bushland pinch points that may restrict access temporarily or carry fire across roads. Unlikely impact on evacuation. | ☐ | Pinch points that are likely to restrict access along evacuation routes for short periods (15-30 minutes) and carry fire across roads. | ☑ | Large areas of bushland or multiple pinch points along evacuation routes that could block evacuation routes for extended time. | ☐ |
| Access | Site is within urban area. public road network with multiple access / egress routes. | ☐ | Access to public road network with multiple access / egress routes. | ☐ | More than one access / egress routes. | ☑ | Only one access / egress route. | ☐ |
| TOTAL | | 0 | | 4 | | 4 | | 1 |
| | Overall Threat Rating: | | HIGH Landscape Scale Threat | | | | | |

**Conclusion regarding compliance with PBP 4.1 Strategic Principles:**

Consideration of the strategic bushfire context including an assessment of the local landscape characteristics and likely bushfire behaviour demonstrates the site is suitable for development in accordance with PBP.

Consideration of the location of the site in the wider landscape and the possibility of the site being impacted by Landscape Scale bushfire threat and Local bushfire threat.

As a new development, the ultimate residential component can be conditioned to meet the PBP and presents a low risk of high consequence bushfire impacting the site. Every future building provides for radiant heat levels no greater than 29 kW/m$^2$ within an APZ that can be established and reasonably maintained within the site or which is managed land in accordance with PBP.

This Planning Proposal demonstrates it is consistent with Section 2.3 Strategic Planning (p. 19):

> *Strategic bush fire planning and studies are needed to avoid high risk areas, ensure that zoning is appropriate to allow for adequate emergency access, egress, and water supplies, and to ensure that future compliance with this document is achievable.*

The Planning Proposal is next assessed against the Aim and Objectives of PBP and will address in detail below the requirements of Chapter 4 – Strategic Planning and will consider relevant sections within Chapters 5-8 of PBP.

The following sections address the requirements of Chapter 4 Strategic Planning Table 4.2.1 of PBP (p. 35) as shown in Figure 4.

## 15. Bushfire Hazard Assessment

PBP provides a methodology to determine the bushfire threat and commensurate size of any Asset Protection Zone (APZ) that may be required to offset possible bushfire attack. These elements include the potential hazardous landscape that may affect the site and the effective slope within that hazardous vegetation. For new residential development, APZ requirements are based on providing practical building envelopes on lots that keep radiant heat levels at future buildings below 29kW/m$^2$ for residential development.

The following assessment is prepared in accordance with Section 100B of the RFA, Section 44 of the *Rural Fires Regulation 2013* (RFR) and PBP. This assessment is based on the following resources:

- Planning for Bush Fire Protection (RFS, 2019);
- The Council Bush Fire Prone Land Maps;
- Aerial mapping;
- Detailed GIS and site analysis, and
- Site inspection.

The methodology used in this assessment is in accordance with PBP (p.80) and is outlined in the following sections.

## 16. Fire Danger Weather District

PBP requires a credible worst case bushfire weather scenario at a 1:50 year bushfire weather event. PBP refers to Greater Sydney Fire Weather District, and the appropriate maximum Forest Fire Danger Index (FFDI) to be applied is FFDI 100.

## 17. Vegetation Assessment

Vegetation is the fundamental physical component of determining the bushfire behaviour. Vegetation, in broad terms provides the available fuel to be consumed by a bushfire. Fuel load and arrangement represents a considerable component in dictating to a large degree the behaviour of fire in terms of intensity, rate of spread and flame height, and typically relates to dead plant material less than 6mm thick, and live plant material thinner than 3mm.

Vegetation type, density and arrangement can further influence fire behaviour and intensity. Vertical and horizontal continuity is also a significant element. Thus, vegetation forms a key consideration within this report.

The vegetation assessment has been completed in accordance with PBP. The predominant Vegetation is classified by structure or formation using the system adopted by David Keith (2004) and by the general description using PBP.

Vegetation types give rise to radiant heat and fire behaviour characteristics. The predominant vegetation has been determined for the site over a distance of at least 140 metres in all directions from the proposed site boundary or key assets on the development site. Where a mix of vegetation types exist, the type providing the greater hazard is said to predominate.

The Study Area vegetation formation in the broader area is shown in Figure is shown in Figure 7. The vegetation Class and overall fuel load is shown in Figure 8.

For assessment purposes, the predominant vegetation affecting the Subject Site is grassland and forest (Figure 9). The ecology vegetation assessment is at Figure 10 and is in keeping with the site vegetation assessment (Figure 9) as shown in Table 2.

The site developed areas and APZs will be managed so that the tree canopy has a coverage of <15% (as required within PBP). This has been identified and relied upon in the BDAR and Vegetation Management Plan. More detail will be provided in subsequent development applications.

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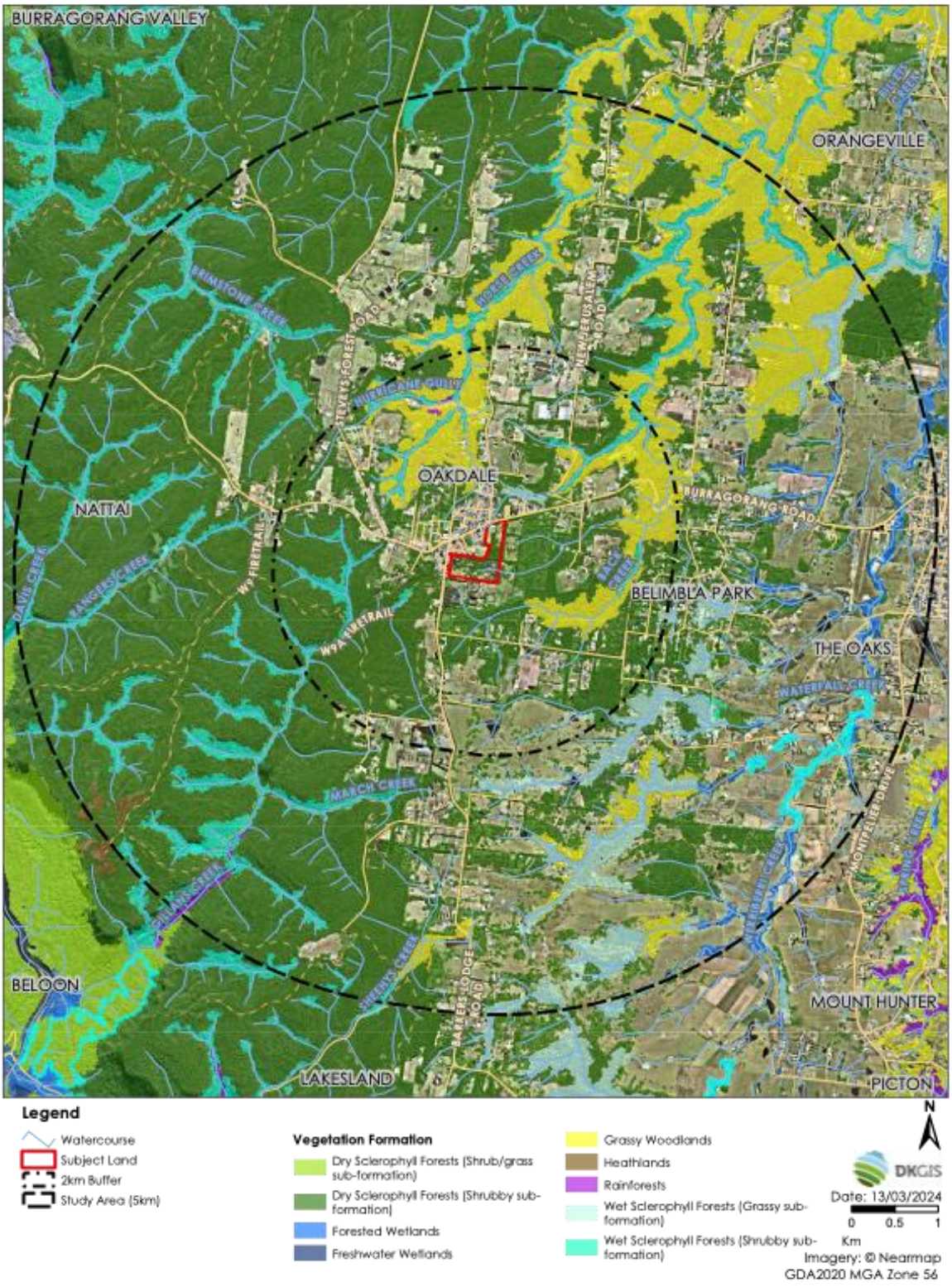


**Figure 7 Study Area Vegetation Formation**

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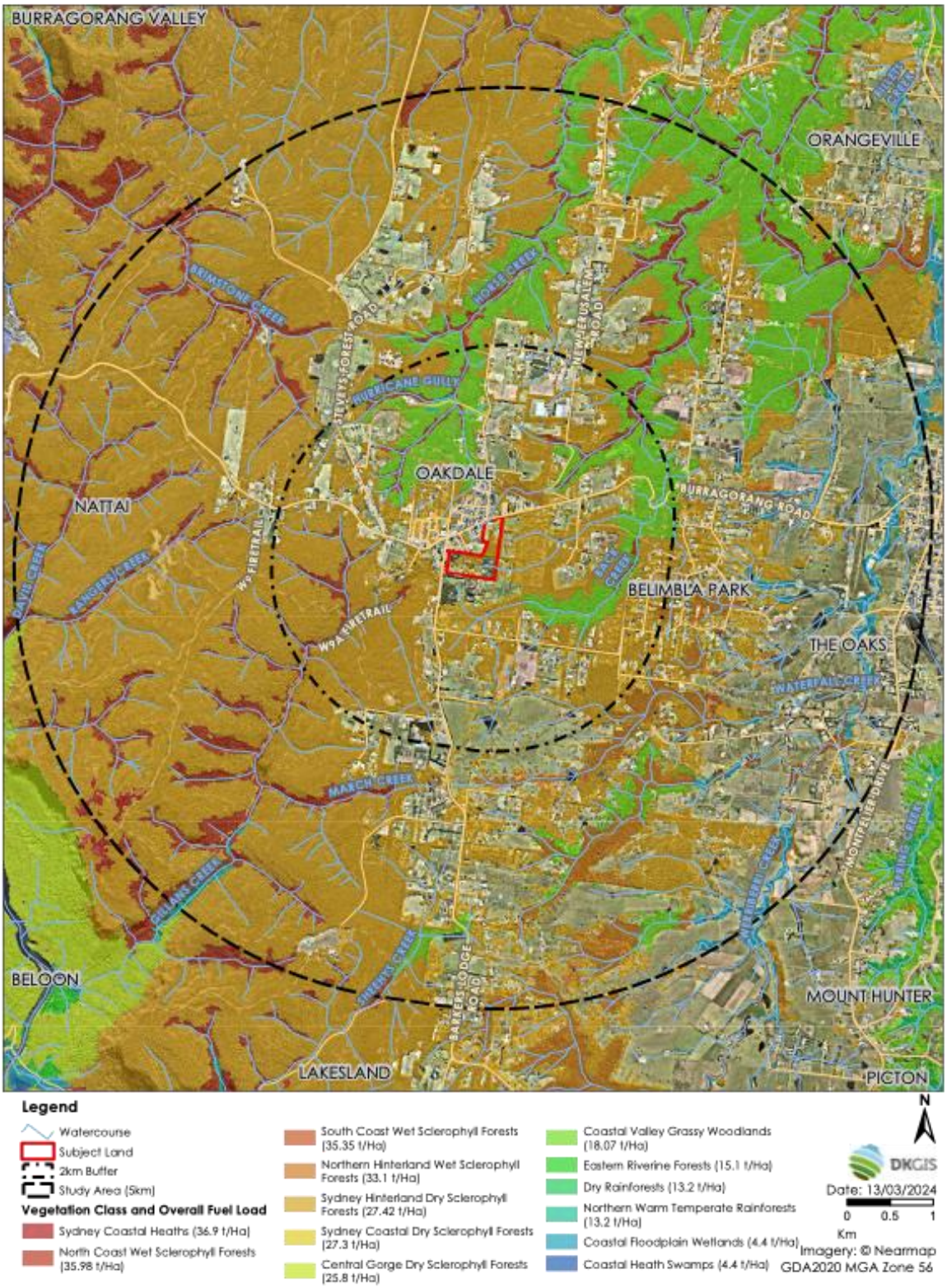


**Figure 8 Study Area Vegetation Class and Overall Fuel Load**

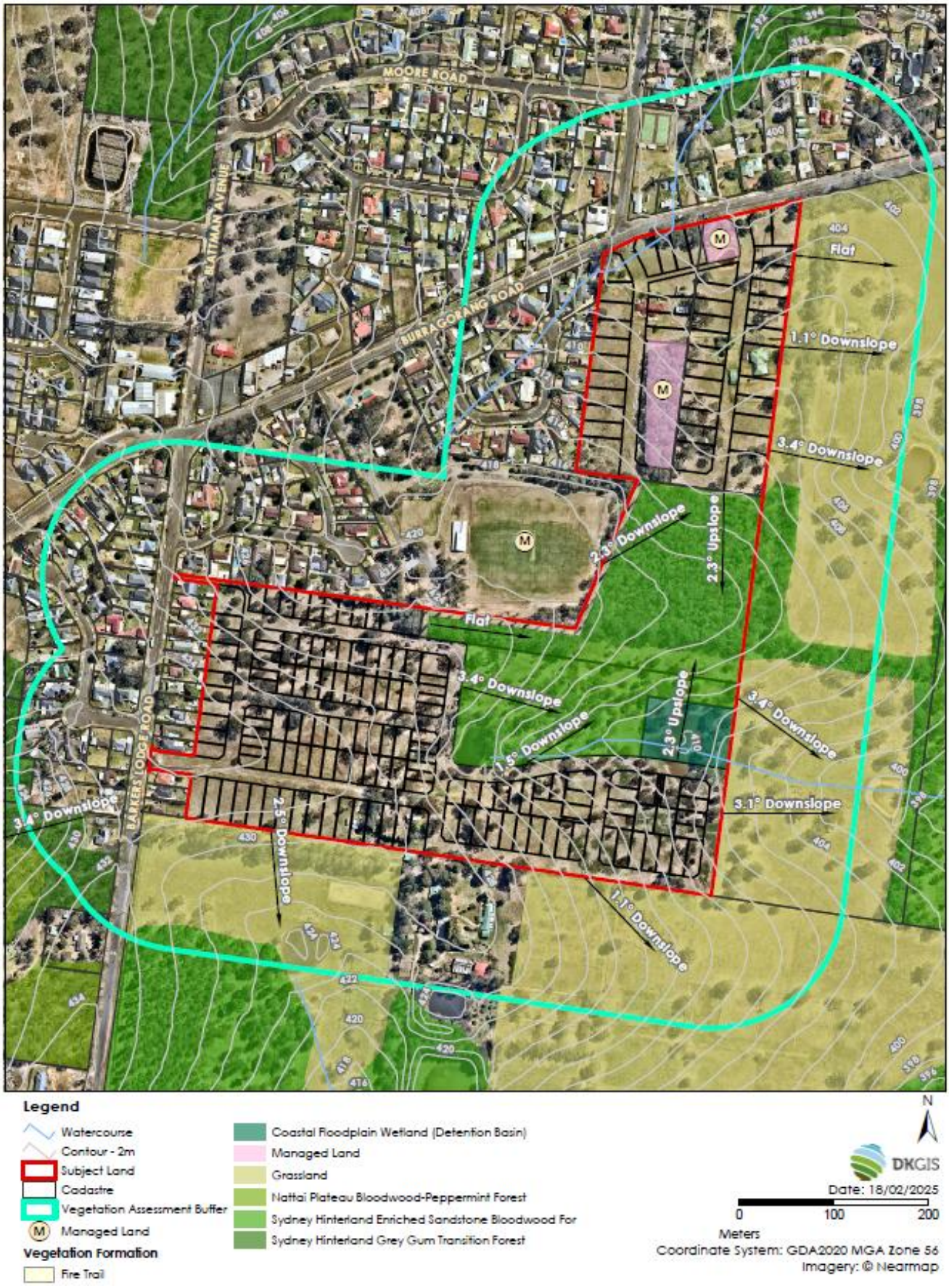


**Figure 9 Site Vegetation and Slope Assessment**

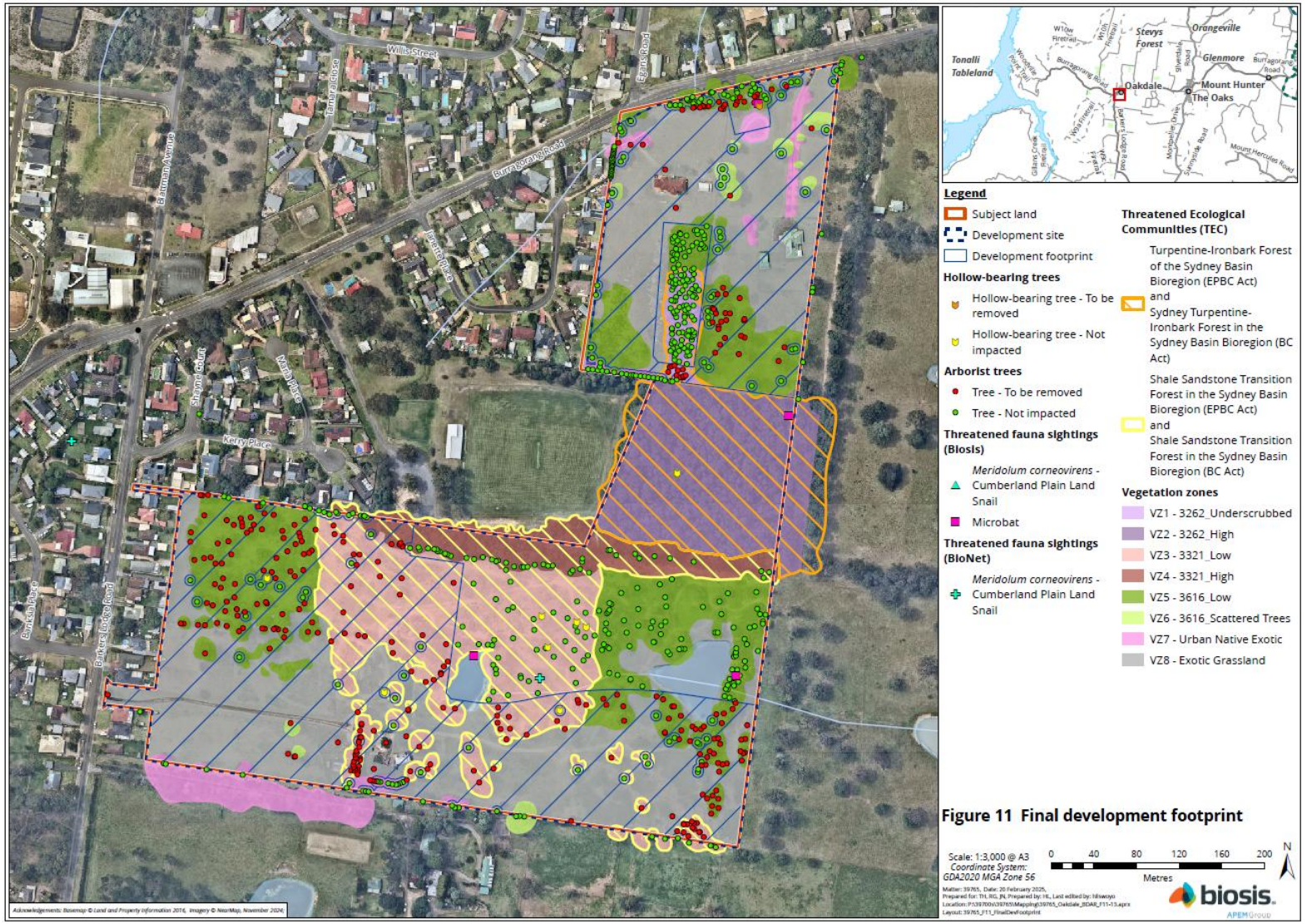


**Figure 10 Ecology Assessment of Vegetation (source Biosis)**

Vegetation Management is proposed to be undertaken in accordance with the Concept Zoning for the site (Figure 11).

Figure 11 shows:

- Environmental conservation C2 lands are proposed in the retained vegetation between the northern and southern precincts. This will be retained as forest vegetation with management of noxious weeds.
- Environmental management C3 zones are within the northern and southern precincts. These areas will be managed to Inner Protection Area Standards
- Residential zoning R2 will be managed as inner protection areas within the retained lots that are affected by Bushfire Attack Levels (to be determined with subsequent DAs).

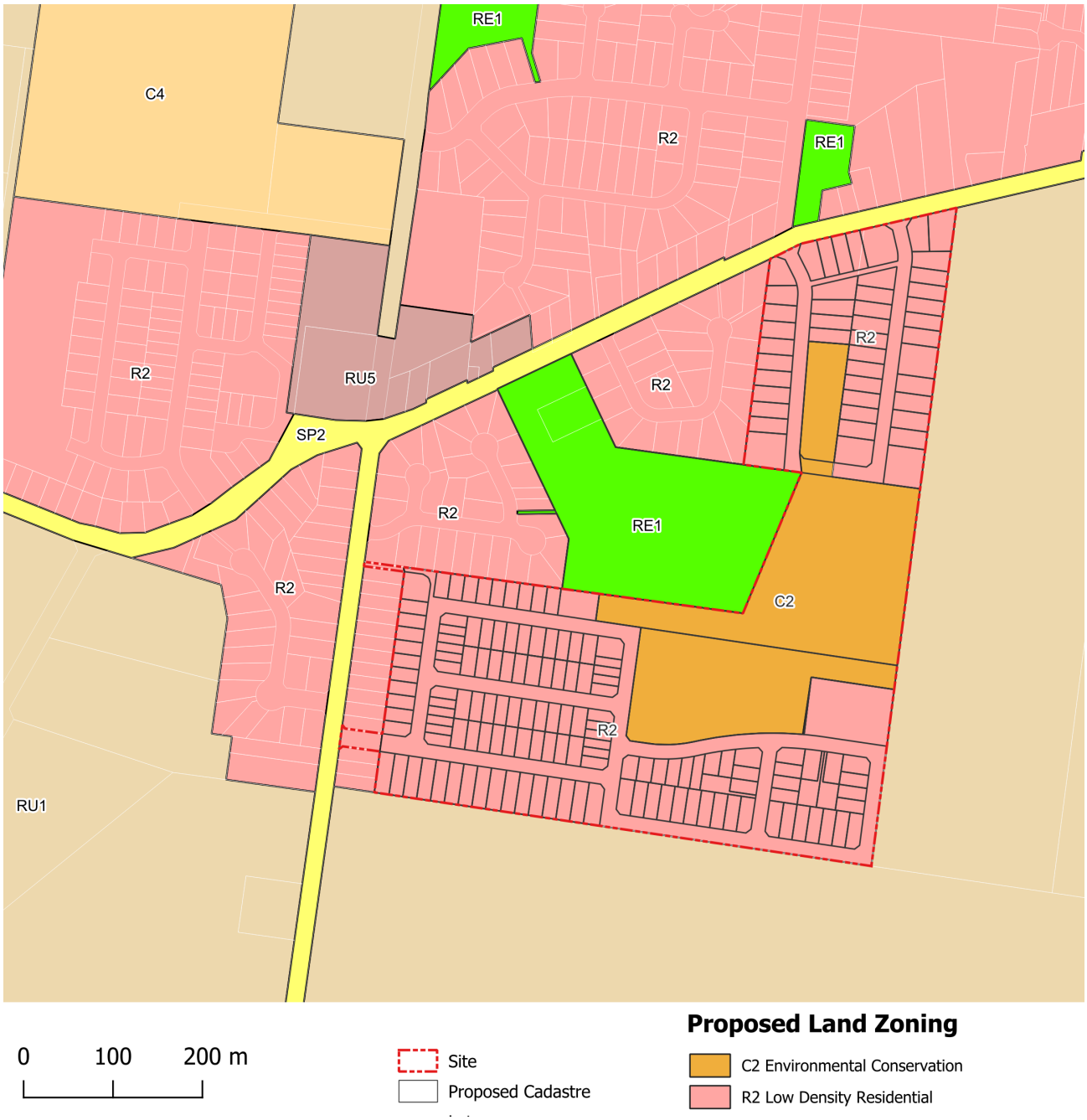


**Figure 11 Concept Plan Zoning**

## 18. Slopes Influencing Bushfire Behavior

PBP requires assessment of slope. The slope of the land under the classified vegetation has a direct influence on the rate of fire spread, the intensity of the fire and the ultimate level of radiant heat flux. The effective slope is the slope of the ground under the hazard (vegetation). In identifying the effective slope, it may be found that there are a variety of slopes covering different distances within the vegetation. The effective slope is considered to be the slope under the vegetation which will most significantly influence the bushfire behaviour for each transect. This is usually the steepest slope.

The broader slopes affecting the Subject Site are shown in Figure 9 and Table 2. The Subject Site slopes are at Figure 13.

**Table 2 Vegetation & Slope Assessment**

| **Precinct** | **Aspect** | **Vegetation** | **Slope** |
|---|---|---|---|
| **Northern Precinct** | North | NA managed residential properties | |
| | East | Grassland within a managed farm | Flat<br>1.1° downslope<br>3.4° downslope |
| | South | Forest | 2.3° upslope |
| | West | NA managed residential properties | |
| **Southern Precinct** | North | Forest | 1.1° downslope<br>1.5° downslope |
| | East | Managed lands<br>Grassland | 4.8° downslope<br>3.1° downslope |

| | | | |
|---|---|---|---|
| | South | Grassland | 1.1° downslope<br><br>2.5° downslope |
| | West | NA managed residential properties | |

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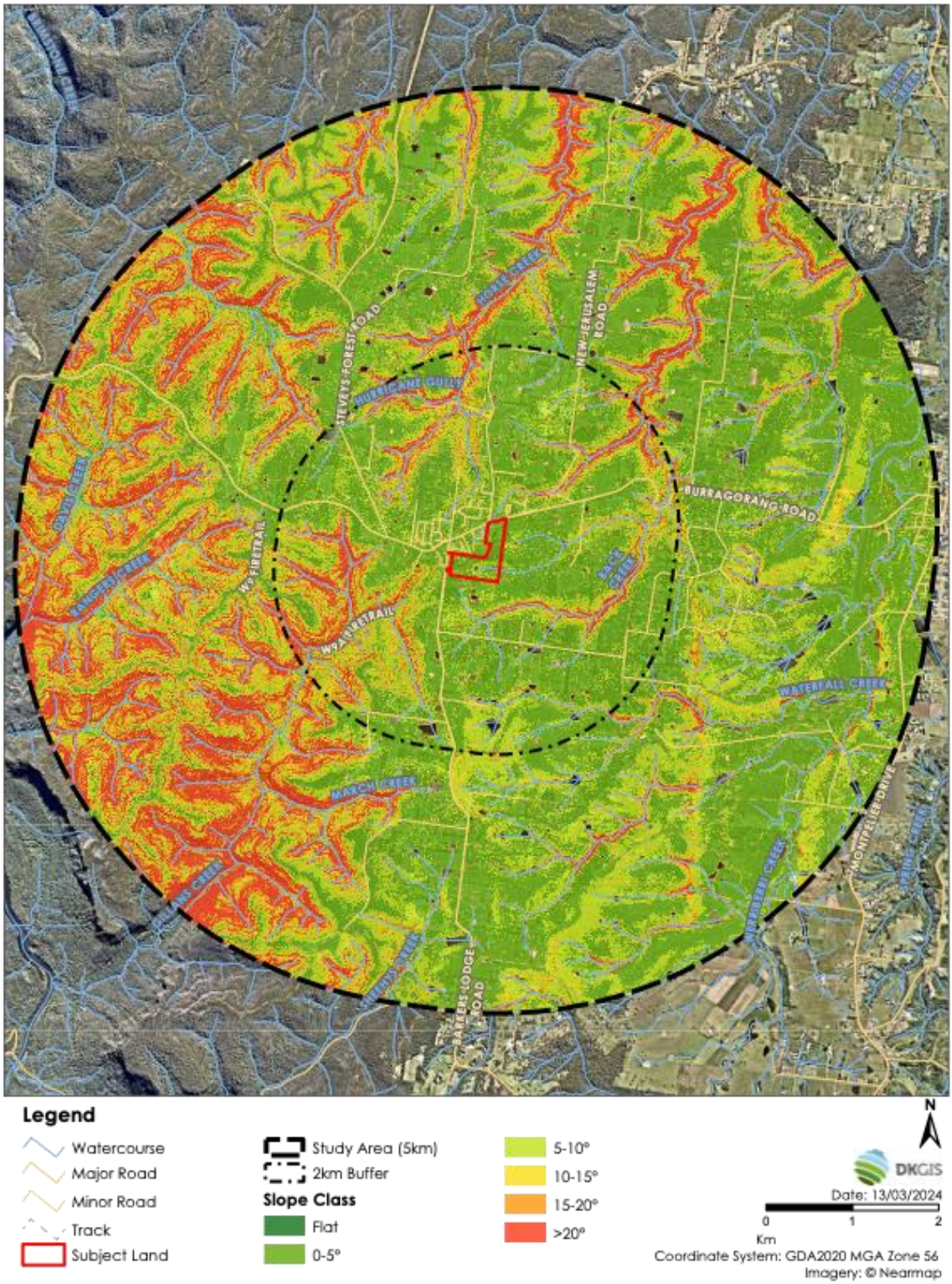


**Figure 12 Slopes**

## 19. The potential fire behaviour that might be generated based on vegetation and slope

The maximum potential fire behaviour is limited by the location, topography and vegetation surrounding the PP site. The evidence supports the view that the potential of the most severe fire weather is from the west to northwest of the site. Although, fires could impact the site under easterly, southerly or north easterly winds.

It is unlikely that a fully developed crowning fire could impact the site. PBP is predicated on a fully developed crowning fire burning under an Forest Fire Danger Index (FFDI) of 100 or at the start of Catastrophic Bushfire Danger Rating conditions. The design fire within PBP is a probable worst case fire and the separation distances and bushfire protection measures within PBP are developed in anticipation of a 1:50 year fire or up to Catastrophic fire conditions.

The standard APZ output Table A1.12.2 (PBP p. 91) uses the most conservative interpretation of vegetation fuel loads and broad slope classes to provide a standard set of APZ distance solutions to achieve radiant heat levels of 29kW. Detailed discussion on APZs is covered in Section 23.

## 20. Any history of bushfire in the area

State-based data provides for the fire history for the Study Area (Figure 13). The Oakdale area has a history of large fires coming out of the Blue Mountains.

Bushfires can occur at any time of the year. The Australasian Fire and Emergency Services Council (AFAC) Bushfires and Community Safety Position Paper (p. 3) outlines nationally agreed positions for the fire services which states that:

> *Bushfire loss can be reduced or avoided in some cases but cannot be entirely prevented. A balance needs to be struck between measures taken to reduce or avoid harm and loss due to bushfire, and the protection of other values.*

The position paper (p. 3) recognises that

> *Bushfire is a normal part of Australia's natural environment, particularly in eucalypt forests and grasslands. However, the frequency and intensity of bushfires varies throughout the landscape and the seasons. Bushfires are a common occurrence during the drier periods of the year in most places.*

And that

> *Bushfires of low or moderate intensity often pose little threat to life, property and community assets, but the potential for changes in wind direction can be a significant hazard. However, bushfires that burn in heavy fuels, steep terrain or on hot, dry and windy days often spread rapidly, crown in forests, produce powerful convection columns and create extensive spot fires ahead of the fire front, often making their control impossible until weather conditions moderate.*
>
> *As the Fire Danger Rating reaches 'Extreme', bushfires are often described as 'firestorms' and become impossible to control. When the Fire Danger Rating approaches 'Catastrophic', the risk of serious injury or death to people in the path of a bushfire increases significantly, and many properties and other community infrastructure can become difficult or impossible to defend.*

The NSW planning framework accepts this fundamental premise and PBP is based on credible worst-case fires (1:50 year event) affecting the new development based on a Fire Danger Rating of Catastrophic. The response to potential fires affecting the site are determined by the Bushfire Protection Measures contained within PBP. PBP does not seek to stop fires, rather, it recognises the fundamental risk of bushfire affecting new development and puts in place minimum requirements to provide a tolerable approach to risk management. The approach within PBP does not consider fire history and assumes a credible worst case fire weather event and maximum vegetation regardless of management intervention. As such, the provision of meeting the acceptable and performance-based criteria within PBP reflects a tolerable level of risk by the State.

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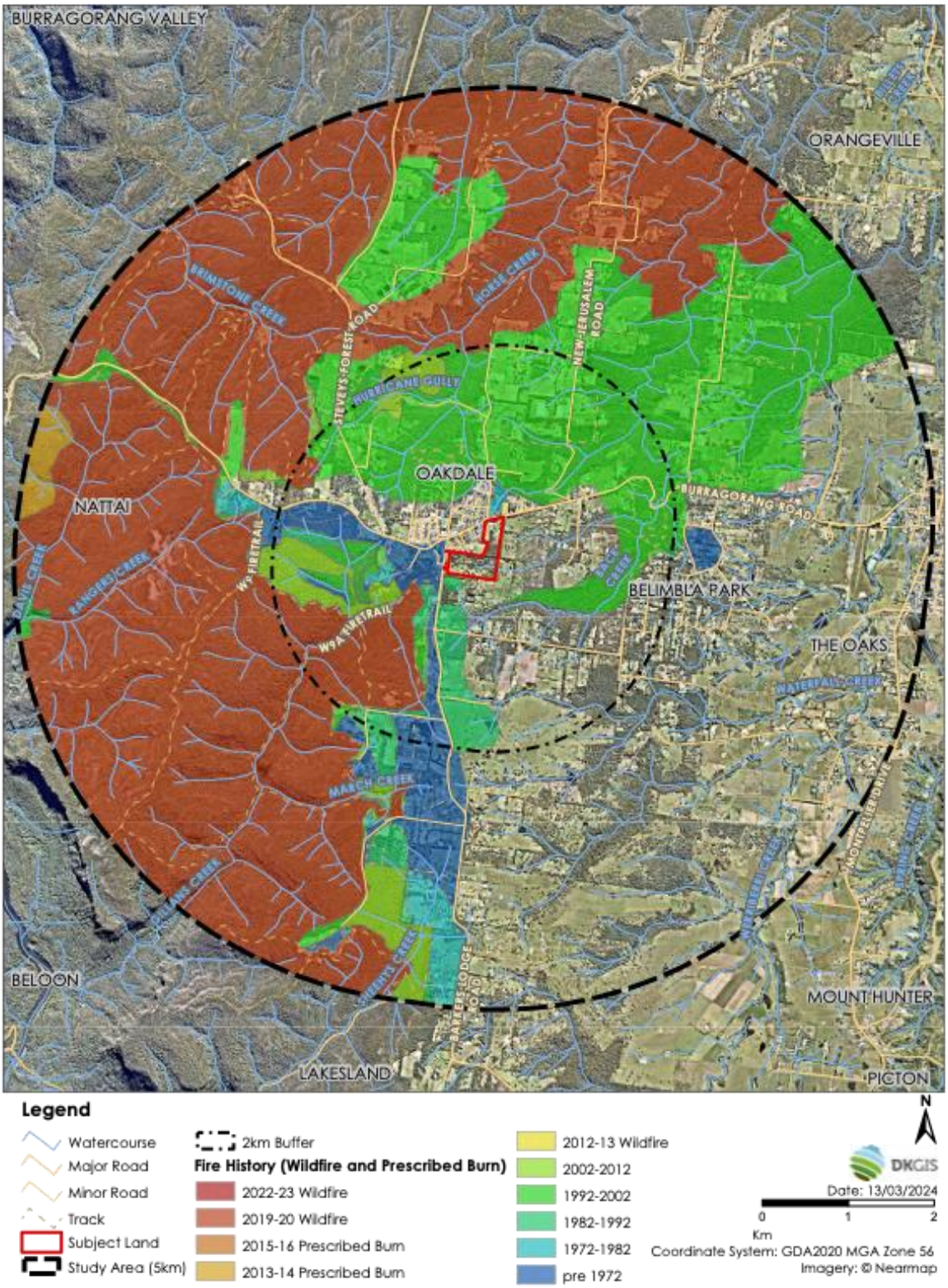


**Figure 13 Study Area Wildfire History**

## 21. Potential fire runs into the site and the intensity of such fire runs

Potential fire runs impacting the site are shown in Figure 14. A number of potential fire runs can run into or into the vicinity of the site. The potential fire intensity within these fire runs depends on the prevailing weather conditions. Fires driven by north westerly, westerly or southerly winds are likely to be fully developed fires burning at maximum intensity through the vegetation types (see Figure 9).

For the purposes of PBP, the worst case design fire has been adopted (FFDI 100) for this assessment which provides acceptable risk up to Catastrophic Fire Danger Ratings.

The most likely scenario is a large fire burning into Oakdale from the west. The Oakdale township provides buffers to the proposed development.

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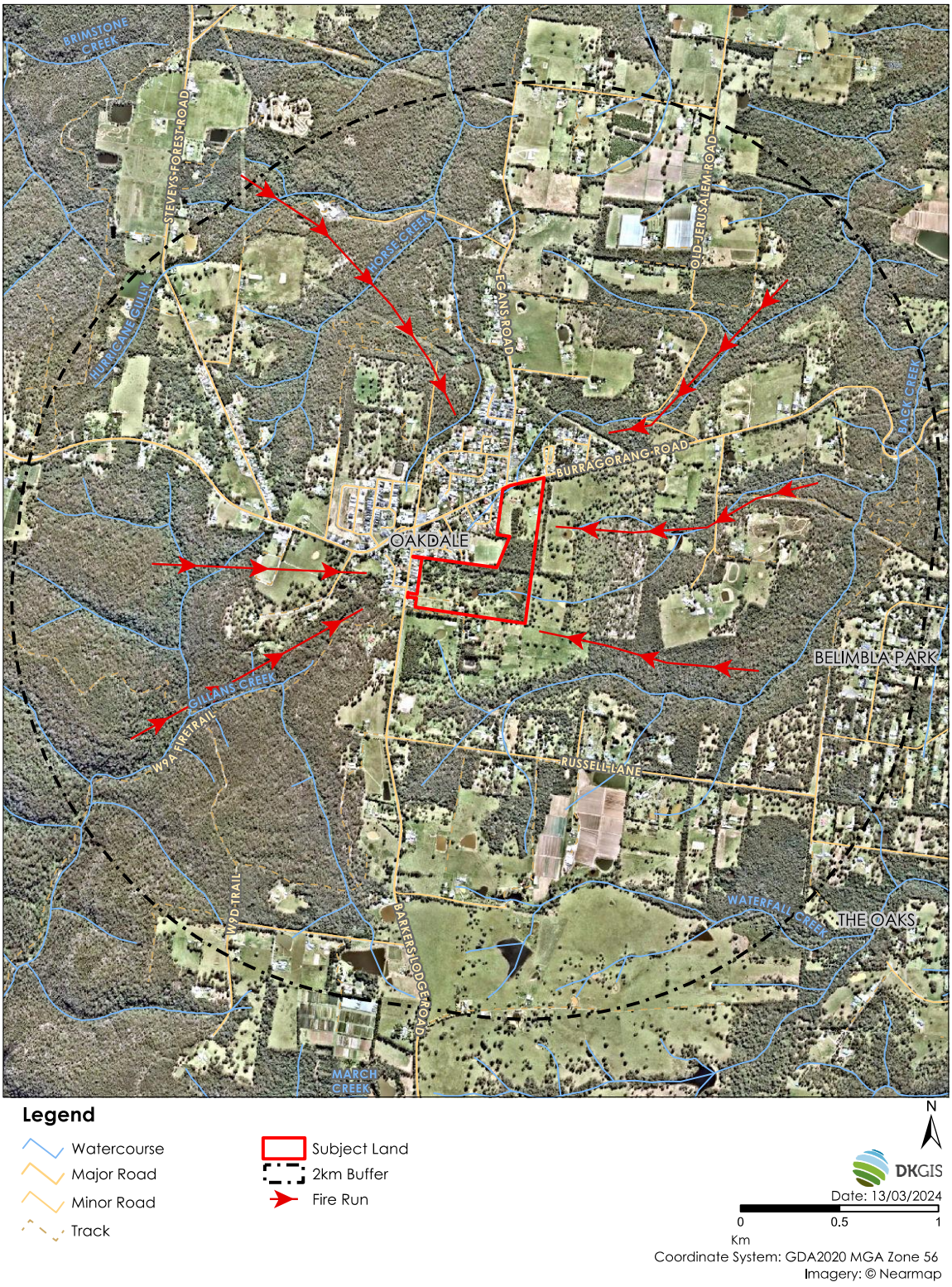


**Figure 14 Potential Fire Runs**

## 22. The difficulty in accessing and suppressing a fire, the continuity of bushfire hazards or the fragmentation of landscape fuels and the complexity of associated terrain

The landscape within close proximity to the site is fragmented with patches of remnant vegetation within a modified landscapes. Access within the site is available to Medium Rigid (MR) fire appliance and internal access is provided in accordance with PBP.

Access for firefighting purposes is provided external and internal to the site.

Major access for emergency services is provided (see Figure 17) on:

- Burragorang Road providing east6 west access
- Egans Road to the north of Oakdale
- Barkers Lodge Road to the south

Also see Section 28.

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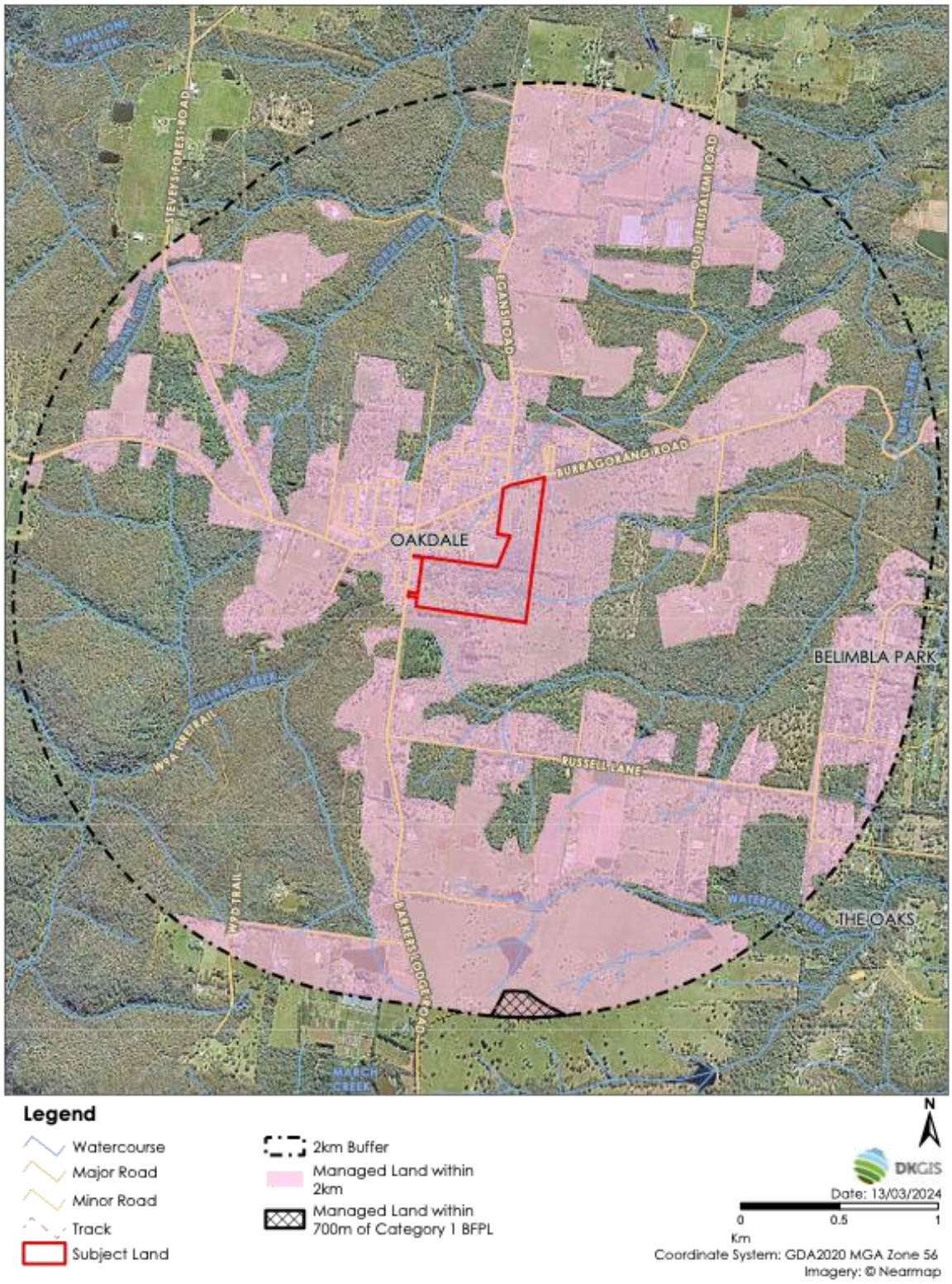


**Figure 15 Managed Lands**

## 23. The risk profile of different areas of the development layout

The risk profile of the development is within tolerable limits as defined within PBP. The PBP provides a concept which utilises the existing road network and perimeter roads to the north and west of the site. The APZs meet the PBP requirements and construction can be completed in accordance with the *Australian Standard for Construction of Buildings in Bushfire Prone Areas* (AS3959). Subdivision and construction will be addressed in detail with the subsequent DA. Services are able to comply with PBP. Landscaping for the PP has been developed having regard to the APZ requirements and there are no fire source pathways within retained or planted vegetation within the site.

The combination of suitable access, APZ, onsite water supplies and compliance with contemporary building standards will significantly reduce the need for late-stage evacuations. Appropriately designed lots (in accordance with PBP), and buildings constructed (in accordance with AS3959) and prepared properties will offer people options for sheltering during most bushfires (below Catastrophic FDR), reducing the likelihood of bushfire-related injury and death. The nationally agreed position is that the safest option is to leave a bushfire prone area early on days with a Fire Danger Rating of Extreme or higher.

Land to the east of the northern precinct is an established grazing property which is well maintained at 1435 Burragorang Road Oakdale which is legally known as Lot 3 DP734561. This site has existing access within the site running down the western boundary of the site. This provides perimeter access to the grassland hazard within the site. As such, no perimeter road has been proposed within the northern precinct on the eastern boundary. However, APZs have been provided in accordance with the grassland fuels.

### 23.1. Asset Protection Zones

For proposed new subdivision development, PBP requires that a minimum separation is provided in the form of APZ. The APZ is a fuel-reduced, physical separation between buildings and bushfire hazards. For residential developments, APZ requirements are based on keeping radiant heat levels at buildings below 29kW/m$^2$ as the maximum exposure on all sides of the building (Figure 16).

A conservative approach using acceptable and performance solution APZs has been taken and the site has sufficient room to provide compliant APZ for the entire site shown as Figure 16. In accordance with PBP APZs have been relied upon within the site where they are clearly managed lands (see Figure 11).

PBP (p. 112) defines managed land as

*Land that has vegetation removed or maintained to a level that limits the spread and impact of bush fire. This may include developed land (residential, commercial or industrial), roads, golf course fairways, playgrounds, sports fields, vineyards, orchards, cultivated ornamental gardens and commercial nurseries. Most common will be gardens and lawns within curtilage of buildings. These areas are managed to meet the requirements of an APZ.*

The application is not seeking to extend or burden any adjoining land with any APZ. An APZ can rely on adjoining areas where they are managed and have a high degree of confidence in ongoing management.

An APZ to Inner Protection Area (IPA) standards is proposed within the retained vegetation in the middle of the northern precinct. The management of this vegetation parcel has been accounted for by the ecologist in the BIDAR assessment. This area will be IPA managed land.

The remnant forest vegetation between the northern and southern precincts will be retained as forest vegetation. APZs have been determined within the proposed residential areas consistent with the acceptable solutions of PBP, including provision of perimeter roads.

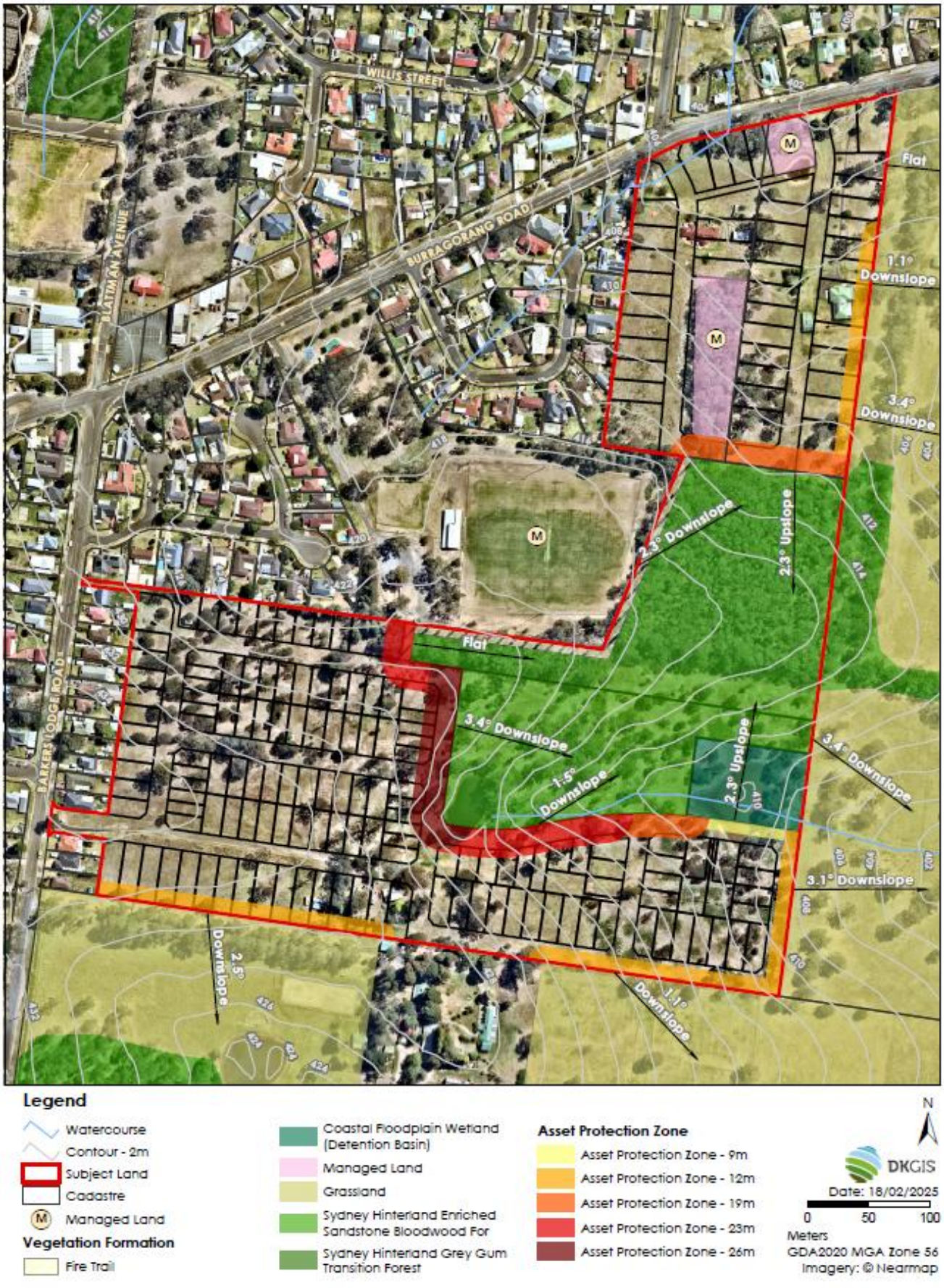


**Figure 16 Asset Protection Zones**

## 24. Bushfire Attack Levels

The Bushfire Attack Level (BAL) is a means of measuring the ability of a building to withstand attack from bushfire. The form of bushfire attack and the severity will vary according to the conditions (FFDI, vegetation, slope and setback) on the site.

The BAL assesses the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per square metre. This forms the basis for establishing the requirements for construction to improve protection of a building from potential attack by a bushfire, as defined in *Australian Standard AS 3959-2018 Construction of buildings in bushfire-prone areas*. The BAL ratings are used as the basis for establishing the requirements for construction for future buildings to improve protection from bushfire attack.

The BAL ratings across the site will be determined in subsequent development applications and are not a requirement of a PP.

## 25. The proposed land use zones and permitted uses

The planning proposal responds to the site and considers bushfire constraints in relation to the proposed likely uses (Figure 11) for permanent conservation land and residential development. This complies with PBP.

## 26. The most appropriate siting of different land uses based on risk profiles within the site

It has been demonstrated that the proposed development is capable of meeting PBP requirements. The most appropriate siting of different land uses based on risk profiles within the site involves considering various factors related to land use planning and bushfire risk management, particularly concerning mitigating the impacts of natural hazards like bushfires. The minimum requirements of PBP are achieved by the PP. This complies with PBP.

## 27. The impact of the siting of these uses on APZ provision.

The planning proposal responds to the site and considers bushfire constraints in relation to the proposed likely uses for permanent conservation land and residential development. This complies with PBP. No APZs will be located within environmental conservation areas or require new or additional off site management. This complies with PBP.

## 28. Access and egress - The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile

The concept proposed does not seek to, nor does it trigger the need for, any alteration to the existing road network and associated intersection treatments in the vicinity of the site. Alternative access is provided for the northern precinct with two points of entry and exit for this part of the PP. The southern precinct provides perimeter roads abutting the forest vegetation to the north of this precinct that ties into multiple roads to the west of the site. A single entry and exit point is provided for the southern precinct to Barkers Lodge Road. This entry and exit point is not adjacent to unmanaged land and has existing residential developments to the north and south, providing buffers for access.

Vehicular access will be provided from existing road frontages along the western boundary of the site, to ensure an unimpeded landscape buffer is provided as much as practicable. Car parking on site will be provided such that there is the provision of at least one (1) covered car park per dwelling and one (1)

Compliance with PBP and NCC standards, will allow for a shelter in place strategy to be the primary method for protection of life safety. Buildings that are more than 100m away from the fire front and able to provide safe refuge for residents during the short-lived bushfire that may impact the site.

This complies with PBP.

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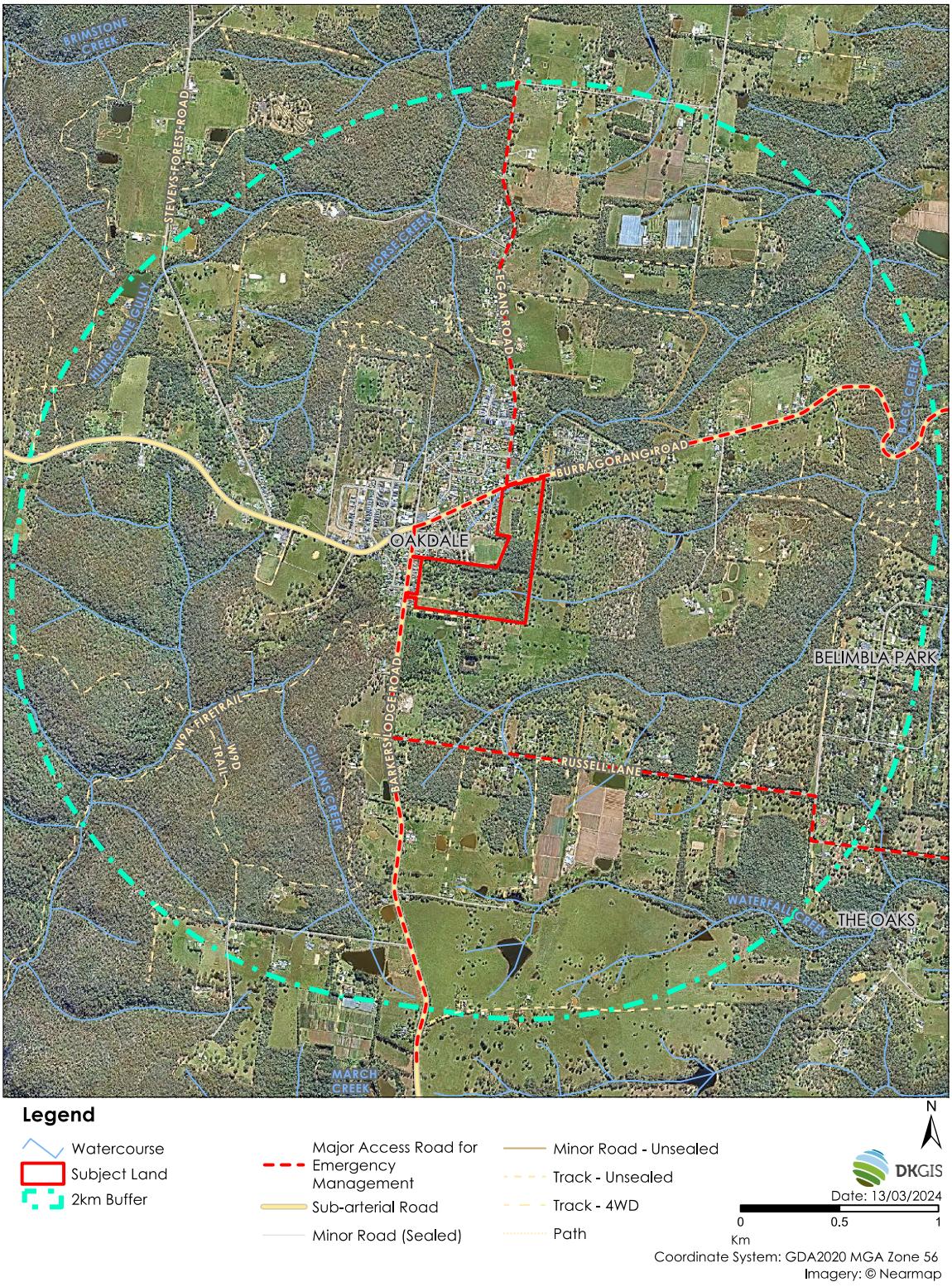


**Figure 17 Access and Egress**

## 29. The location of key access routes and direction of travel

The national position of fire agencies is that *the safest action to protect life is for people to be away from the bushfire or threat of bushfire*[5]. This is underpinned by comprehensive emergency management arrangements and operational fire management systems that focus on the provision of information, advice, and warnings to assist communities to make informed decisions prior to the impact of bushfire and if necessary be out of Bushfire Prone Areas well before the impact of fire.

Within the NSW Bushfire planning system and PBP, there is a hierarchy of controls in place, from planning schemes to design and construction etc, to mitigate bushfire risk to communities. The BPM work in unison to enhance resilience by the provision of minimum standards for new development while reducing the vulnerability of negative impacts on occupants (including fire fighters) of these areas.

The design team recognises that a bushfire can be a difficult situation with smoke obscuring vision, stressed people more likely to make mistakes, and the likely influx of firefighting vehicles adding to traffic loads whilst people leave. As discussed above, due to the short space of time between ignition and impact of any bushfire, the site is able to make available safe refuge areas more than 100m from the interface, a shelter-in-place is the likely primary response for residents.

Given the size of the site and the ability to achieve the required APZ and access requirements, a shelter-in-place approach is likely to be the primary method of responding to local scale fires that start quickly. Key access routes are shown in Figure 17.

There are firefighting resources located within 5km of the site (Figure 18), including Neighbourhood Safer Places and areas of modified and managed land (Figure 15), so it is unlikely that travel routes will be isolated in any but the most extreme circumstances.

This complies with PBP.

[5] Australasian Fire and Emergency Services Authorities Council. (2019) *Bushfires and Community Safety Position* (AFAC Publication No. 2028)

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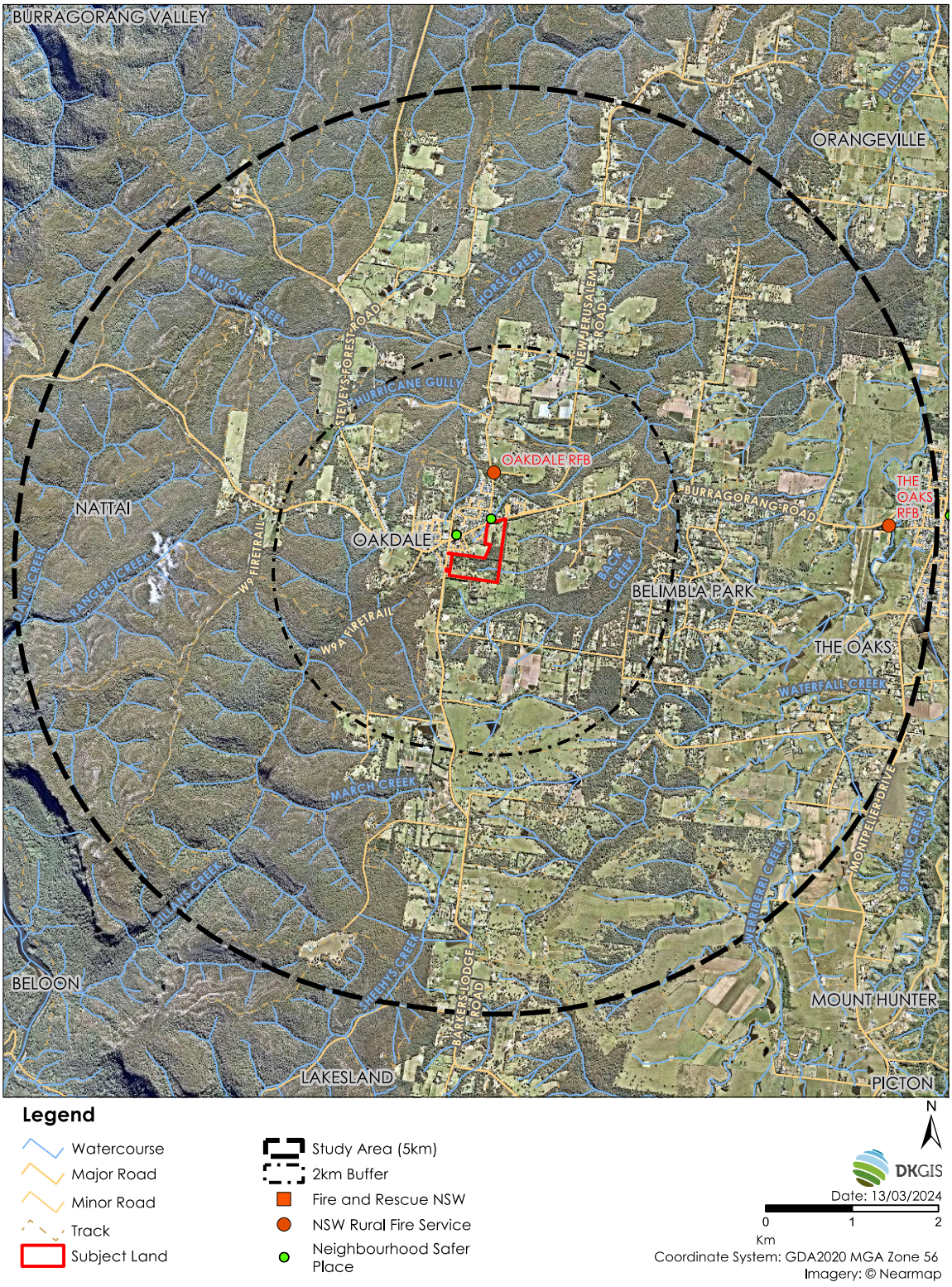


**Figure 18 Fire Fighting Station and Neighbourhood Safer Places**

## 30. The potential for development to be isolated in the event of a bushfire

The site is not isolated development as defined by PBP (p111):

> *Development which is located predominantly in native bushland or is considered to be within a remote area. Access and evacuation may be challenging due to distances that are required to be travelled through bush fire prone areas.*

The development is not in a remote area as discussed above, and the wider area is suitable for development in compliance with PBP.

There are multiple routes for firefighting resources to access the site and all routes are unlikely to be impassable by firefighting vehicles at once except in the most extreme circumstances.

This complies with PBP.

## 31. Emergency services - Consideration of the increase in demand for emergency services responding to a bush fire emergency including the need for new stations/brigades

There are substantial existing firefighting resources including RFS brigades (Figure 18) within close proximity to the PP area. The scale of development on its own will not require additional emergency services.

Modern firefighting arrangements are better coordinated than in previous decades, and have the use of more resources including fire mapping, bulk water tankers, heavy plant (e.g. bulldozers and graders), helicopters and Large Air Tankers (LATS) that are much more readily available, and these enable a major addition to firefighting capabilities, especially on bad fire weather days. Substantial improvements to Operational Readiness systems on bad fire weather days means any fire at the site will have an efficient and effective response.

All these characteristics mean that when such fires are ignited there is a relatively quick and effective response meaning that the fire is unlikely to grow to a significant scale. This is not to say that very difficult fire weather days or resources being used elsewhere don't have an impact, simply that there is a low likelihood of any significant fire impacting the study area, and such local fires are likely to be managed with local resources as part of normal emergency operations. Large landscape fires will develop over days or weeks providing emergency managers with time to determine appropriate combat strategies, including evacuation of residents if required. The PP complies with the requirements of PBP.

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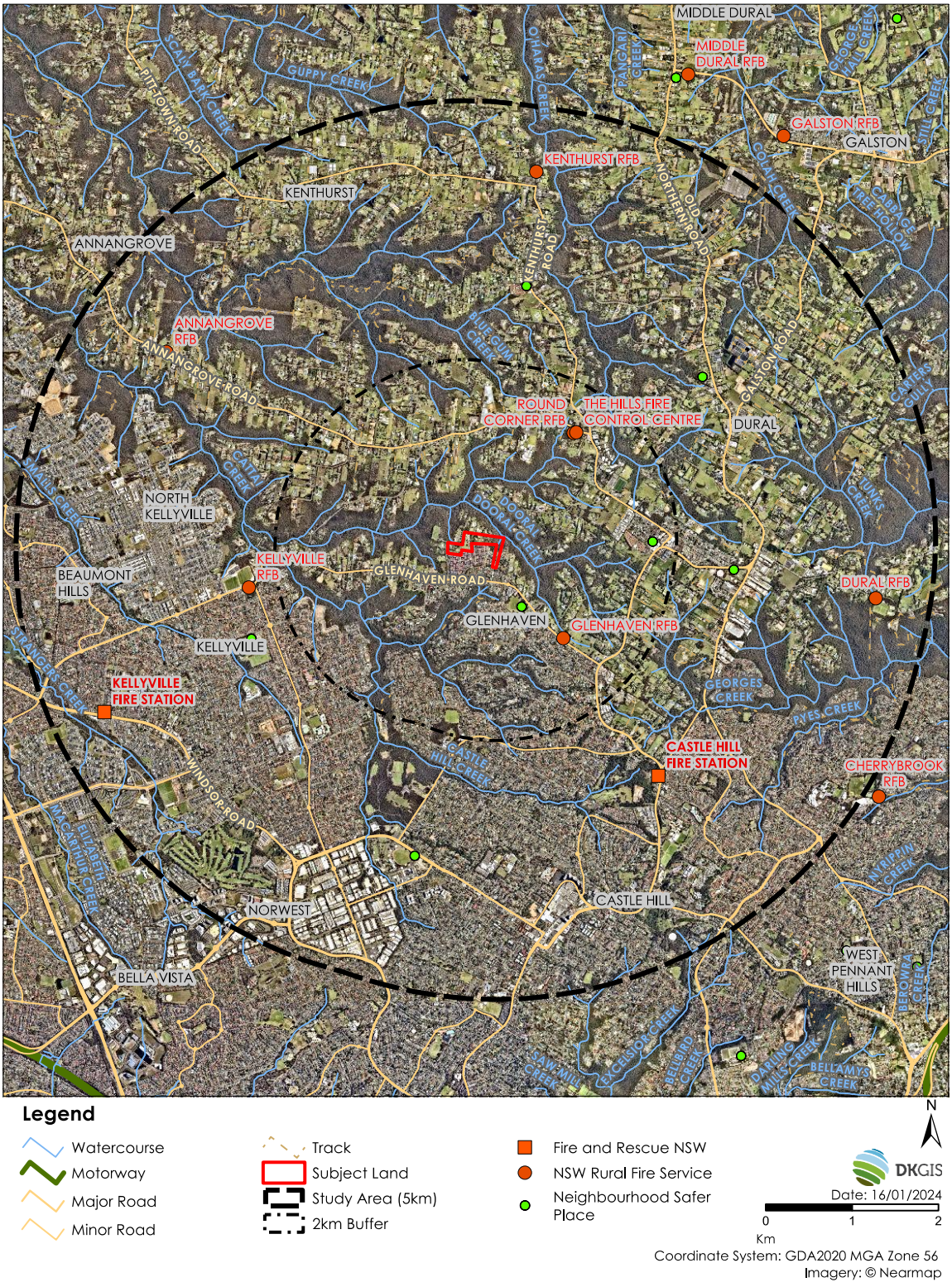


**Figure 19 Fire Stations and Neighbourhood Safer Places**

## 32. Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency

Bushfires have occurred in Australia for thousands of years and will continue to occur. Climate change modelling predicts increasing frequency and severity of fire events correlating with altered rainfall and drought patterns and increasing numbers of severe and intense heat events. As the dryness of more areas increases beyond levels historically considered 'normal', the footprint of areas with a propensity to burn are likely to increase, which increases the importance of new development complying with the minimum bushfire safety standards set out by the NSW Government and RFS in PBP.

Not all bushfires lead to loss of life or assets. Bushfires of low to moderate intensity often pose little threat to life, property and community assets. Fire agencies are very successful at extinguishing low to moderate intensity fires before they lead to injury or death.

The risk is greatest when fire occurs on hot, dry windy days, and where ignition occurs in heavy fuels, and in steep terrain. These conditions present fire that can spread rapidly, crown in forests, produce powerful convection columns and create extensive spot fires ahead of the fire front. This often makes their control impossible until weather conditions moderate. PBP is predicated on a probable worst case fire scenario of FFDI 100. Similarly, the NCC and AS3959/NASH provide deemed to satisfy solutions for fires up to and including FFDI 100. Fires above FFDI 100 are possible in this Fire Weather District and fire services have significant notice periods (at least 4 days) from the Bureau of Metrology (BoM) of these catastrophic conditions.

However, the national and NSW framework provides a robust policy setting for new development in Bushfire Prone Areas. The AFAC Community Safety Position Paper[6] notes that:

> *Prevention measures are the most cost-effective and efficacious means of reducing bushfire risk to life and property. Land-use planning as a prevention intervention can significantly impact risk, by directing settlement growth and development to areas of lowest bushfire risk and avoiding settlement and development in areas of highest bushfire risk.*

[6] P. 4 Australasian Fire and Emergency Services Authorities Council. (2019) *Bushfires and Community Safety Position* (AFAC Publication No. 2028)

*Planning policy frameworks can strengthen the resilience of settlements and communities and prioritise the protection of human life by putting in place requirements for Planning Proposals and decision making.*

*Land-use planning underpins and sets preconditions for all other emergency management interventions in future developments.*

Firefighting will be facilitated by the PBP compliant APZ, additional water supplies and improved site access. All future development within the site will be built in accordance with PBP, the National Construction Code (NCC) and AS3959/NASH which increase the resilience of buildings to the impacts of bushfires. Onsite water and underground services will further assist firefighting.

The PP will have no negative impact on emergency services to undertake fire suppression and is likely to assist through additional access, water supplies and vegetation fragmentation. The PP will also provide a significant improvement in bushfire safety for the adjoining properties which have been approved and constructed prior to 2002 and the development of any bushfire protection standards consistent with contemporary practice.

## 33. Infrastructure - The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows, and spacing of hydrants

The subsequent development application will detail provisions for services. There is no reason to suggest the reticulated system will not be able to service the proposed development. Should there be any concerns raised over the capability of the reticulated system negotiations for upgrades or alternate solutions should be determined at that stage of the process.

This complies with PBP.

## 34. Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc.

There are no issues identified with high voltage power lines and gas supply mains. Specific details will be managed during subdivision development stage, However, it is expected that all local services will be provided underground. Electricity supply for the new development will comply with PBP. Any gas services are to be installed and maintained in accordance with *Australian Standard AS/NZS 1596 'The storage and handling of LP Gas'* (Standards Australia 2008). This complies with PBP. This complies with PBP.

## 35. Adjoining land - Consideration of the implications of a change in land use on adjoining land including increased pressure on BPMs through the implementation of Bush Fire Management Plans

The future development will have no implications for the management of the retained vegetation or practices on the adjoining land.

All new development within the site will be designed to meet the minimum standards of PBP which achieve an appropriate level of bushfire resilience. The PP does not seek or rely on the provision of off-site APZs or other off-site BPM. The future development will not burden or change the existing obligations or management actions of neighbours.

This complies with PBP.

## 36. Summary

This Section evaluates the Planning Proposal against the bushfire strategic planning requirements of PBP and is shown in Table 2.

**Table 3 Strategic bushfire study - compliance with PBP Table 4.2.1**

| Issue | Detail | Assessment considerations | Evidence | Suitable site |
|---|---|---|---|---|
| **Bush fire landscape assessment** | A bushfire landscape assessment considers the likelihood of a bush fire, its potential severity and intensity and the potential impact on life and property in the context of the broader surrounding landscape. | The bushfire hazard in the surrounding area including:<br>Vegetation<br>Topography<br>Weather | Landscape Scale Assessment Tool, Bush Fire Risk Management Plan review, Asset Protection Zone modelling and consideration of BPMs. | **YES** |
| | | The potential fire behaviour that might be generated based on the above | Fire history map and fire run map completed. Assessment has been completed in accordance with fires up to Catastrophic Fire Danger Rating as required within PBP. | **YES** |
| | | Any history of bush fire in the area. | Significant fire history in the area. The PP can comply with PBP requirements. | **YES** |

| Issue | Detail | Assessment considerations | Evidence | Suitable site |
|---|---|---|---|---|
| | | Potential fire runs into the site and the intensity of such fire runs; and | Fire history map and fire run map completed. Assessment has been completed in accordance with fires up to Catastrophic Fire Danger Rating as required within PBP. | YES |
| | | The difficulty in accessing and suppressing a fire, the continuity of bush fire hazards or the fragmentation of landscape fuels and the complexity of the associated terrain. | No identified difficulties for accessing and suppressing the type of fires that may occur here. Acceptable terrain and consistent vegetation generally, good local road network. | YES |
| Land use assessment | The land use assessment will identify the most appropriate locations within the masterplan area or site layout for the proposed land uses. | The risk profile of different areas of the development layout based on the above landscape study | The risk profile of the site is minimal and the scale of the site provides ample opportunity to provide a suitable suite of BPM. | YES |
| | | The proposed land use zones and permitted uses | The proposed development is a suitable and practical use of the land. | YES |

| Issue | Detail | Assessment considerations | Evidence | Suitable site |
|---|---|---|---|---|
| | | The most appropriate siting of different land uses based on risk profiles within the site (i.e. not locating development on ridge tops, SFPP development to be located in lower risk areas of the site); and the impact of siting on APZ provision. | The risk profile of the site is minimal and the scale of the site provides ample opportunity to provide a suitable suite of BPM. | YES |
| Access and egress | A study of the existing and proposed road networks both within and external to the masterplan area or site layout. | The capacity for the proposed road network to deal with evacuating residents and responding emergency services, based on the existing and proposed community profile; | A shelter in place strategy will be the primary method of managing life safety for the site.<br><br>This will be supported by the layout, parking arrangements and compliance with PBP. | YES |
| | | The location of key access routes and direction of travel; and | The access is protected from bushfire through managed lands and APZ.<br><br>Multiple external access points are provided (three) with internal access through the site. | YES |

| Issue | Detail | Assessment considerations | Evidence | Suitable site |
|---|---|---|---|---|
| | | The potential for development to be isolated in the event of a bush fire. | There is little chance of isolation due to arterial road connection. Short duration road closures may be implemented by emergency services to the east of the site. | YES |
| Emergency services | An assessment of the future impact of new development on emergency services. | Consideration of the increase in demand for emergency services responding to a bush fire emergency including the need for new stations/brigades; and | Not likely that new emergency services generated by this development alone. | YES |
| | | Impact on the ability of emergency services to carry out fire suppression in a bush fire emergency. | Insignificant negative impact. Will have positive impact with more local population, water supplies, and active land management adjacent to existing housing not built to contemporary bushfire standards. | YES |
| Infrastructure | An assessment of the issues associated with infrastructure and utilities. | The ability of the reticulated water system to deal with a major bush fire event in terms of pressures, flows, and spacing of hydrants; and | To be considered at DA stage – water supplies will be conditioned as suitable for uses and locations on site. | YES |

| Issue | Detail | Assessment considerations | Evidence | Suitable site |
|---|---|---|---|---|
| | | Life safety issues associated with fire and proximity to high voltage power lines, natural gas supply lines etc. | No life safety issues identified. | YES |
| Adjoining land | The impact of new development on adjoining landowners and their ability to undertake bush fire management. | Consideration of the implications of a change in land use on adjoining land including increased pressure on BPMs through the implementation of Bush Fire Management Plans. | No negative impact identified, Sydney Water site will not require any change to current management practices..<br><br>Potential positive impact related to additional people, active land management and investment locally. | YES |

## 37. Suitability of the Planning Proposal

This SBS has demonstrated that the Planning Proposal has considered and responded to the requirements of the Ministerial Direction and PBP. In a bushfire context, PBP (p. 34) requires that *strategic planning must ensure that future land uses are in appropriate locations to minimise the risk to life and property from bush fire attack. Services and infrastructure that facilitate effective suppression of bushfires also need to be provided for at the earliest stages of planning*.

The bushfire risk has been considered at the macro-scale, looking at fire runs, slopes, fire behaviour, bushfire attack into the site and it has addressed the access and evacuation requirements of PBP.

This section assesses the broad principles outlined within PBP (p. 34) which are at Table 3 and the consideration of exclusion of development as required within PBP (p. 34) at Table 4.

**Table 4 Strategic Principles**

| Principle within PBP | Comment | Compliance |
|---|---|---|
| Ensuring land is suitable for development in the context of bushfire risk | The Planning Proposal demonstrates compliance with the deemed to satisfy requirements of PBP in all BPM, with detail for some BPM to be provided at development application stage. The bushfire risk has been considered at FFDI 100 as required by PBP and the risk to future occupants and emergency services can be managed by meeting the requirements of PBP. | **Yes** |
| Ensuring new development on BPL will comply with PBP | The Planning Proposal meets all deemed to satisfy requirements of PBP. Future development is able to meet the standard of <29kW/m2 radiant heat at building exposures. Roads and APZs can comply with relevant sections of PBP. | **Yes** |
| Minimising reliance on performance-based solutions | No performance-based solutions have been proposed or used in this assessment. All BPM will be | **Yes** |

| Principle within PBP | Comment | Compliance |
|---|---|---|
| | able to be met using acceptable solutions provisions within PBP. | |
| Providing adequate infrastructure associated with emergency evacuation and firefighting operations | The internal road and fire trail network meets or exceeds the relevant minimum requirements of PBP. The development footprint, APZ and additional water supplies will be of significant benefit to existing adjoining housing not built to bushfire protection standards. All services can be provided in accordance with Table 5.3c of PBP. | **Yes** |
| Facilitating appropriate ongoing land management practices | The future development will not burden or change the existing obligations or management actions of neighbours. | **Yes** |

**Table 5 Exclusion of Development**

| Principle within PBP | Comment | Compliance |
|---|---|---|
| The development area is exposed to a high bush fire risk and should be avoided | The landscape bushfire risk is High (Table 1). However, the site is adequately separated from landscape scale bushfires. The new development can be designed to comply with the minimum requirements of PBP, and the risk has been managed to the appropriate level required by PBP. | **Yes** |
| The development is likely to be difficult to evacuate during a bush fire due to its siting in the landscape, access limitations, fire history and/or size and scale | The planning proposal site is in a relatively low risk area and the scale of development will allow for shelter in place strategy. | **Yes** |

| Principle within PBP | Comment | Compliance |
|---|---|---|
| The development will adversely effect other bush fire protection strategies or place existing development at increased risk | All new development within the site will be designed to meet the minimum standards of PBP which achieve an appropriate level of bushfire resilience. The Planning Proposal does not seek or rely on the provision of off-site APZs or other BPM. The development will not burden or change the existing obligations or management actions of neighbours. The development will provide a positive impact to adjoining neighbours by permanently removing a bushfire hazard and provide ongoing active management. | **Yes** |
| The development is within an area of high bushfire risk where density of existing development may cause evacuation issues for both existing and new occupants | The proposal will allow for PBP compliant APZ on site, a shelter in place strategy can be adopted with modern construction requirements of the National Construction Code. The catchment of people using the road network is limited and it is not expected that the PP will impact the capacity of roads. | **Yes** |
| The development has environmental constraints to the area which cannot be overcome | The environmental constraints have been considered and assessed separately. The Planning Proposal layout reflects the environmental constraints. | **Yes** |

## 38. Conclusion

This Strategic Bushfire Study considers the suitability of the Planning Proposal with respect to bushfire risk within and affecting the site. A conservative position has been taken with regard to the SBS.

The Planning Proposal provides a highly suitable application that can respond to the bushfire risk affecting the site and which will satisfy the Aim, Objectives and requirements within PBP to provide for the protection of life and the minimisation of impact on property while having due regard to the development potential, site characteristics and protection of the environment.

This SBS has provided a conservative assessment of bushfire risk and followed the Aim and Objectives of *PBP*, Section 2.3 Strategic Planning, and specifically addressed the requirements of Chapter 4 – Strategic Planning. In meeting the requirements of PBP, the PP also satisfies the requirements of the *Ministerial Direction 4.3 Planning for Bushfire Protection*. The suitability of the Planning Proposal has considered the broad land scape scale risk and the site-specific requirements of PBP.

The PP can satisfy the detailed criteria to be assessed at the next stage of the process. All future development will be supported by APZ to meet the minimum standard of <29kW/m$^2$ at building exposures and will be further assessed at development application stage. The Planning Proposal meets the requirements of PBP and should be supported with respect to bushfire risk management.

In the authors professional opinion, the Planning Proposal is a suitable use of the land, and the bushfire protection measures demonstrated in this report comply with the Aim and Objectives of Planning for Bush Fire Protection 2019, the Ministerial Direction 4.3 Planning for Bush Fire Protection, and allow for the issue of approval with respect to bushfire matters.

Lew Short | Principal

**Blackash Bushfire Consulting**

B.A., Grad. Dip. (Design for Bushfires); Grad. Cert. of Management (Macq); Grad. Cert. (Applied Management); Fire Protection Association of Australia BPAD Level 3 BPD-PA 16373

## Appendix 1 References


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## Appendix 2 Curriculum Vitae

BLACKASH
BUSHFIRE CONSULTING

# Curriculum Vitae

Lew Short
**Director BlackAsh Bushfire Consulting**
T: 0419 203 853 E: lew.short@blackash.com.au

**Summary**
Lew is an experienced leader in the government and emergency sector. He has an intimate knowledge of the workings of government and how emergency service organisations operate. He is not only a technical expert but a practitioner who has deep industry knowledge.

Lew has extensive experience providing national leadership in building community resilience representing AFAC and the FPAA. Lew's technical expertise is in bushfire consequence management, risk assessment and mitigation, specifically the planning and design of new developments in high bushfire risk areas to comply with legislative and planning requirements.

Lew has worked with some of Australia's leading organisations including NSW Rural Fire Service, Country Fire Authority, Emergency Management Victoria, Lend Lease, Mirvac, Victorian State and Local Governments, Sydney Water Corporation, Great Lakes and Warringah Councils. Lew has completed numerous industrial development assessments and assessments of new development in rural areas NSW.

Lew has a deep operational understanding of how fire works in the Australian landscape. He has multifaceted insight into how governments respond to this threat. Lew provides unique strategies to comply with regulatory requirements and safety outcomes.

Lew established and led the Community Resilience Group for the New South Wales Rural Fire Service (RFS). His areas of responsibility included land use planning, community engagement, education, vulnerable communities, bunkers, Neighbourhood Safer Places, business systems and projects, social media, integrated risk management and environmental management. He was responsible for the establishment, management and leadership of the development assessment function for the RFS at a State level where he was responsible for the assessment of over 80,000 development applications in Bush Fire Prone Areas.

**Areas of Expertise**

- Rezoning and strategic studies
- Industrial development assessment
- Landuse planning & consequence management
- Legal strategy, Land & Environment Court and Expert Witness
- Bushfire planning, design & construction requirements in accordance with National Standards
- Bushfire Prone Mapping, hazard mapping and risk assessments
- Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas
- Bushfire Management Plans
- Alternative & performance based solutions
- Evacuation planning and implementation
- Technical and Strategic advice

**Qualifications / Accreditation**

**BPAD Level 3** Accredited Practitioner
Fire Protection Association of Australia

**Graduate Diploma of Bush Fire Design**
University of Western Sydney, 2006

**Graduate Certificate of Applied Management**
Australian Institute of Police Management, 2005

**Graduate Certificate of Management Macquarie**
Graduate School of Management Macquarie University, 2001

**Bachelor of Arts, Resource and Environmental Management**
Macquarie University, 1994

# Appendix 3 EP&A Act 1979 – Section 9.1 Ministerial Direction

## 4.3 Planning for Bushfire Protection

### Objectives

The objectives of this direction are to:

(a) protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas, and

(b) encourage sound management of bush fire prone areas.

### Application

This direction applies to all local government areas when a relevant planning authority prepares a planning proposal that will affect, or is in proximity to, land mapped as bushfire prone land.

This applies where the relevant planning authority is required to prepare a bush fire prone land map under section 10.3 of the EP&A Act, or, until such a map has been certified by the Commissioner of the NSW Rural Fire Service, a map referred to in Schedule 6 of that Act.

### Direction 4.3

(1) In the preparation of a planning proposal the relevant planning authority must consult with the Commissioner of the NSW Rural Fire Service following receipt of a gateway determination under section 3.34 of the Act, and prior to undertaking community consultation in satisfaction of clause 4, Schedule 1 to the EP&A Act, and take into account any comments so made.

(2) A planning proposal must:

(a) have regard to *Planning for Bushfire Protection 2019*,

(b) introduce controls that avoid placing inappropriate developments in hazardous areas, and

(c) ensure that bushfire hazard reduction is not prohibited within the Asset Protection Zone (APZ).

(3) A planning proposal must, where development is proposed, comply with the following provisions, as appropriate:

(a) provide an Asset Protection Zone (APZ) incorporating at a minimum:

i. an Inner Protection Area bounded by a perimeter road or reserve which circumscribes the hazard side of the land intended for development and has a building line consistent with the incorporation of an APZ, within the property, and

ii. an Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road,

(b) for infill development (that is development within an already subdivided area), where an appropriate APZ cannot be achieved, provide for an appropriate performance standard, in consultation with the NSW Rural Fire Service. If the provisions of the planning proposal permit Special Fire Protection Purposes (as defined under section 100B of the *Rural Fires Act 1997*), the APZ provisions must be complied with,

(c) contain provisions for two-way access roads which links to perimeter roads and/or to fire trail networks,

(d) contain provisions for adequate water supply for firefighting purposes,

(e) minimise the perimeter of the area of land interfacing the hazard which may be developed,

(f) introduce controls on the placement of combustible materials in the Inner Protection Area.

### Consistency

A planning proposal may be inconsistent with the terms of this direction only if the relevant planning authority can satisfy the Planning Secretary (or an officer of the Department nominated by the Secretary) that the council has obtained written advice from the Commissioner of the NSW Rural Fire Service to the effect that, notwithstanding the non- compliance, the NSW Rural Fire Service does not object to the progression of the planning proposal.

**Issued to commence 1 March 2022 (replaces previous Direction 4.4)**