

Bushfire Hazard Assessment

Proposed subdivision
Inyadda Drive, Manyana NSW 2539

Prepared for

Heir Asquith Pty Ltd c/- Egis Consulting

29 September 2023

Version V2.1

Project Name:	Proposed subdivision Inyadda Drive, Manyana NSW – J2628		
Prepared by:	David Lemcke & Lew Short		
Client Details:	Heir Asquith Pty. Ltd. C/O Mr Peter Lee Planning Leader, Egis Consulting Level 2, 2 Burbank Place, Norwest NSW 2153		
Project Address	Lot 2 DP 1161638 Inyadda Drive, Manyana NSW 22539		
Project Number	J2628		
Name	Position	Contact No	Email
David Lemcke	Senior Planner & Bushfire Specialist	0439 220 464	david.lemcke@blackash.com.au
Version	Primary Author(s)	Description	Date Completed
2.1	David Lemcke Lew Short	Draft Final for client post S.34	29 September 2023



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



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1. Introduction

Egis Consulting have commissioned Blackash Bushfire Consulting (Blackash) to prepare a Bushfire Assessment Report for a residential subdivision at Inyadda Drive, Manyana (the site), which is legally known as Lot 106 DP755923, Lot 2 DP1161638 and Lot 2 DP1121854 (Figure 1) and this includes provision of an easement for an Asset Protection Zone (APZ) on the adjoining Lot 1 DP1161638. The site is 76.7 hectares in size and is designated Bushfire Prone Land vegetated with a mixture of Forest and Tall Heath vegetation. The site is located on the eastern side of Inyadda Drive, which is the only public road to Manyana. The site adjoins the northern edge of the existing Manyana urban development area. Manyana is a small beachside village with a population of approximately 550.

The site is bordered to the north by undeveloped private land; to the east by a paper road with a fire trail and powerline easement, and then a beach reserve owned by NSW Crown Land; to the west by Inyadda Drive and then undeveloped private land; and to the south by the northern edge of the Manyana township, specifically residential development fronting Curvers Drive. There are watercourses draining from the west to the east through the site. Stormwater management basins and riparian corridors have been allowed for in the proposed design. The site is within the Shoalhaven City Council local government area.

This report has been amended following a Land & Environment Court hearing into the development application in March 2023, and incorporates plan amendments and new information gained through this process and discussions with Shoalhaven City Council.

This assessment has been prepared by David Lemcke (Senior Planner & Bushfire Specialist) & Lew Short, Principal Blackash Bushfire Consulting (FPAA BPAD-A Certified Practitioner No. BPD-PA-16373) who is recognised by the NSW Rural Fire Service (RFS) as qualified in bushfire risk assessment and has been accredited by the Fire Protection Association of Australia as a Level 3 BPAD qualified consultant.

2. Proposed Development

Egis Consulting is preparing a proposed Community Title subdivision for Heir Asquith consisting of 65 development lots, a local park and a large residual lot incorporating the sensitive environmental areas. The proposed development lots range from 2000-2840m² (Figure 2). The site is zoned predominantly R5 Large Lot Residential, with areas of R1 General Residential, C3 Environmental Management and RE1 Public Recreation (see Figure 3). The site is currently undeveloped and appears to have been used for rural purposes in the past.

The Development Application seeks consent for a 67-lot residential subdivision including the following:

- Lot 1 – 57.53ha Community title lot for biodiversity protection purposes;
- Lots 2-66 – Torrens title residential lots ranging in size from 2000m² to 2840m²;
- Lot 67 – Proposed public reserve for a local park (2088m²) containing grave site to be dedicated to Council;
- Lot 68 – Proposed RE1 Open Space Lot (3054m²) to be acquired by Council;
- Creation of a timber pedestrian accessway over Lot 1;
- Creation of a 6m wide fire trail including a beach access trail;
- Creation of a 6m wide drainage easement;
- Construction of an 8m wide pavement for emergency purposes with restricted access;
- Road Construction and dedication including intersection treatments to existing public roads;
- Indicative Building Envelope Plans;
- Asset Protection Zones and tree removal within the development footprint;
- Protection of Hollow-bearing trees within proposed lots;
- Bulk earthworks to facilitate building platforms and retaining walls around perimeter road;
- Stormwater and Water Quality works including swales in the road reserve;
- Street tree planting; and
- Proposed sewer servicing scheme including pump out system.

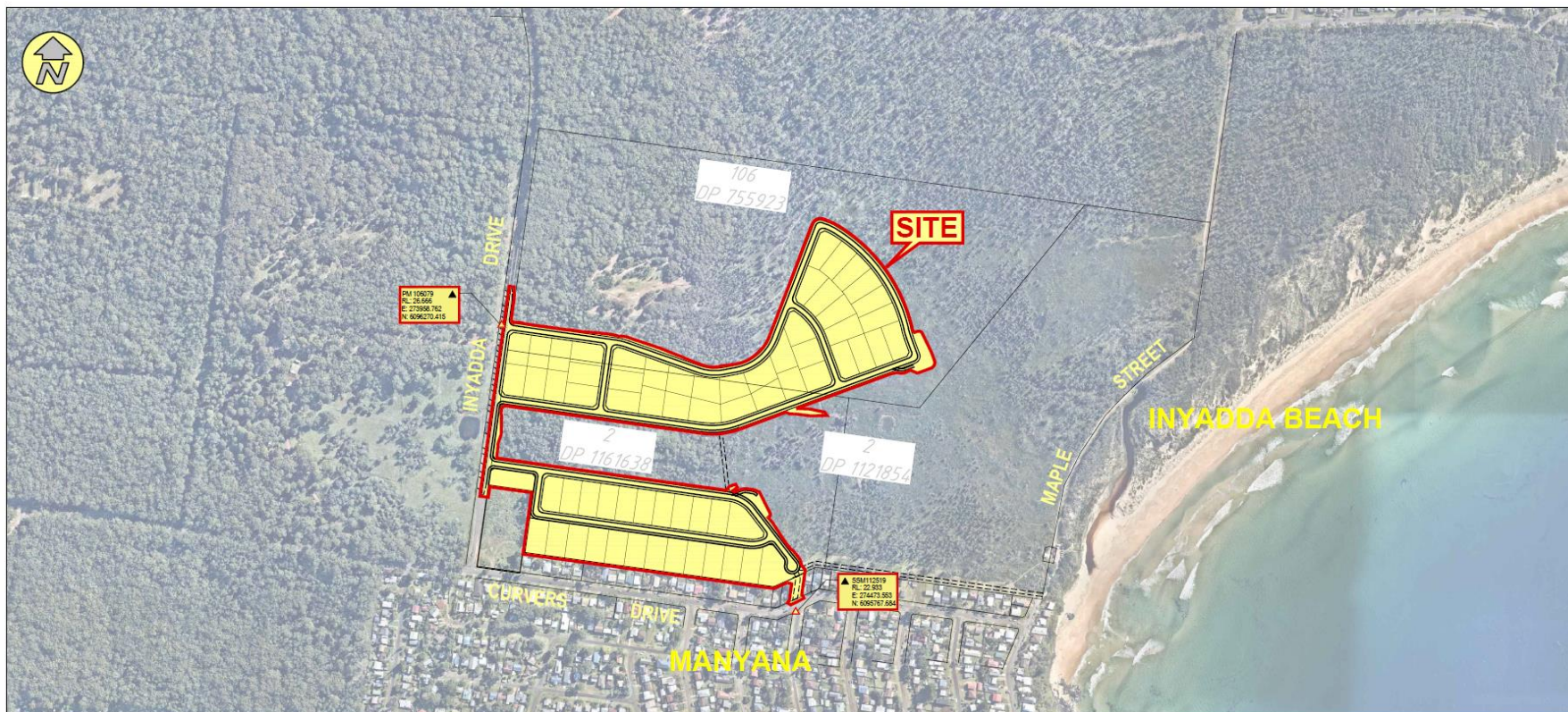
3. Legislative Framework

Development on land that is identified as being bushfire prone must comply with the NSW RFS document *Planning for Bushfire Protection 2019* (PBP) under s.4.46 of the *Environmental Planning and Assessment Act, 1997* (EPA Act). ^[SEP]

A residential subdivision development is categorised as Integrated Development, under s.4.46 of the EPA Act. Integrated development requires development consent from Council and General Terms of Approval from the NSW RFS. Any development applications for such a purpose must obtain a Bush Fire Safety Authority (BFSA) from the Commissioner of the NSW RFS in accordance with Section 100B of the RF Act.

A BFSA authorises development to the extent that it complies with PBP including standards regarding setbacks, provision of water supply and other measures in combination considered by the Commissioner necessary to protect persons, property or the environment from danger that may arise from a bushfire.

As a new residential subdivision, the application needs to be able to justify that the proposal can achieve a worst-case Bushfire Attack Level (BAL) of a maximum of BAL-29. This can be achieved and is demonstrated in this report.



LOCALITY PLAN
N.T.S.

LGA SHOALHAVEN CITY COUNCIL

CLIENT:
HEIR ASQUITH

LOT 1 D.P.1161638
LOT 2 D.P.1121854
LOT 106 D.P.755923



Figure 1: Site Location

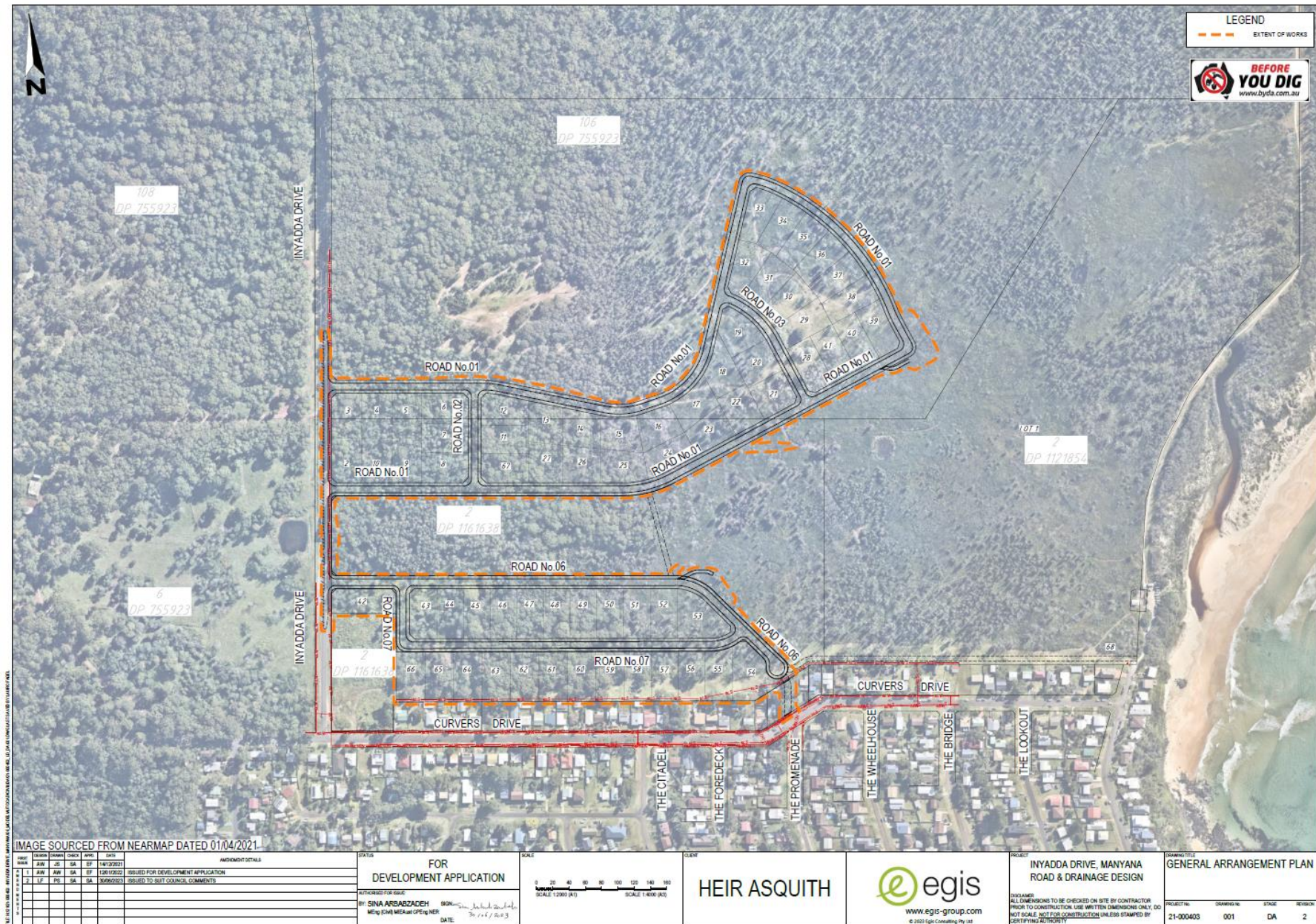


Figure 2: Proposed Development

4. Bushfire Threat Assessment

4.1. Methodology

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 subdivision, APZ requirements are based on keeping radiant heat levels at new buildings below 29kW/m².

The following assessment is prepared in accordance with Section 100B of the RF Act, Clause 44 of the RF Reg and PBP. This assessment is based on the following resources:

- Planning for Bush Fire Protection (NSW RFS, 2019);
- Shoalhaven City Council Bushfire Prone Land Map;
- Aerial mapping; and
- Detailed GIS analysis.

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

4.2. Bushfire Prone Land Mapping

The site is identified as 'bush fire prone land' (see Figure 4) for the purposes of Section 10.3 of the EPA Act and the legislative requirements for building on bush fire prone lands are applicable.

Bushfire prone land maps provide a trigger for the development assessment provisions and consideration of sites that are bushfire prone. Bushfire prone land (BPL) 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 NSW RFS.

The site and adjoining areas are mapped as BPL, being a mixture of Category 1 Forest Vegetation, and Category 1 Tall Heath Vegetation, and Vegetation Buffer.

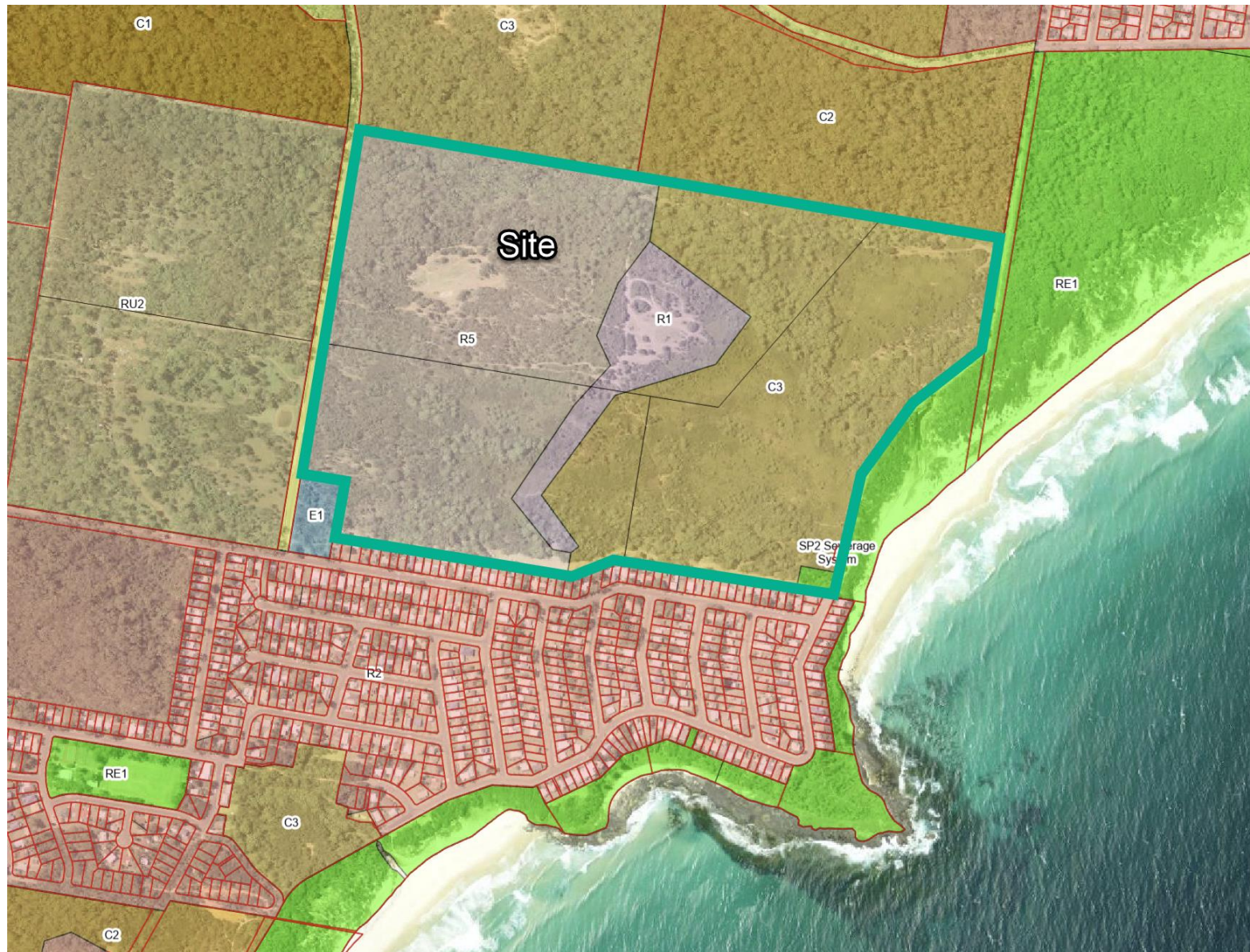


Figure 3: Site and current zoning

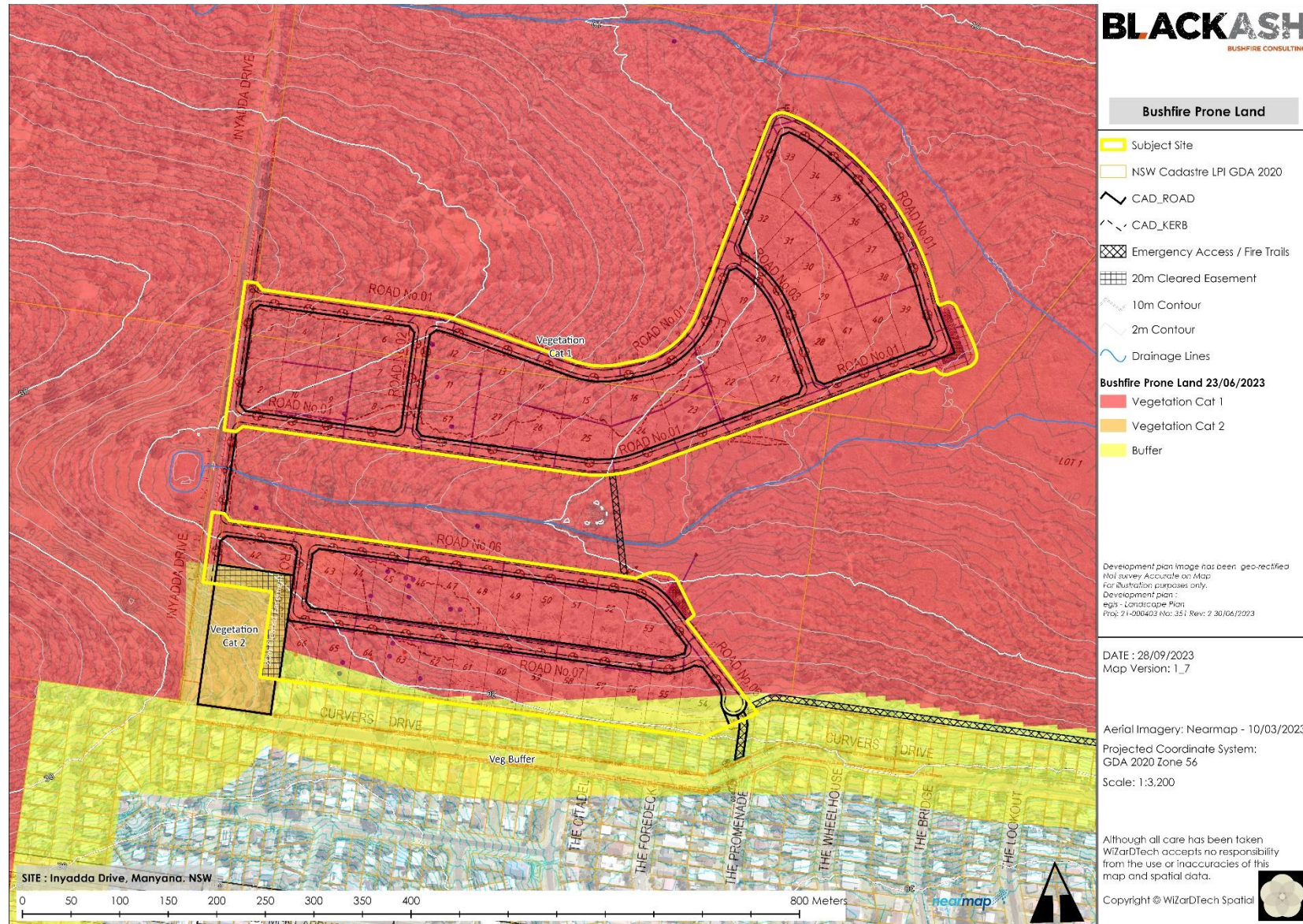


Figure 4: Bushfire Prone Land Map

4.3. Fire Danger District

The Shoalhaven City Council is within the Illawarra / Shoalhaven Fire Weather District and has a Forest Fire Danger Index (FFDI) set at 100 by PBP.

4.4. Vegetation Assessment

The RF Regulation requires a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in PBP.

Predominant Vegetation is classified by structure or formation using the system adopted by Keith (2004) and by the general description using PBP and is shown in Figure 5.

The site and adjoining areas are mapped as BPL, classified as Category 1 Vegetation, being a mixture of Forest and Tall Heath. Whilst there are small areas currently showing little or no vegetation, for the purpose of development assessment the RF Act requires consideration that the vegetation is capable of regenerating over time consistent with the surrounding vegetation.

There is a significant riparian area separating the northern and southern development areas and this is being managed as Forest for its entirety. There are only managed lands to the south of the development area.

4.5. Slopes Influencing Bushfire Behavior

The RF Reg requires an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property or from the proposed development footprint).

The effective slope (see Figure 5) influencing fire behaviour approaching the sites has been assessed in accordance with the methodology specified within PBP. The effective slope is the slope of the ground under the hazard (vegetation). It is not the slope between the vegetation and the building (slope located between the asset and vegetation is the site slope).

The site slopes up to the north and west at between 1.4 – 4.2 degrees, with downslopes of 1.1 – 2.7 degrees to the east.

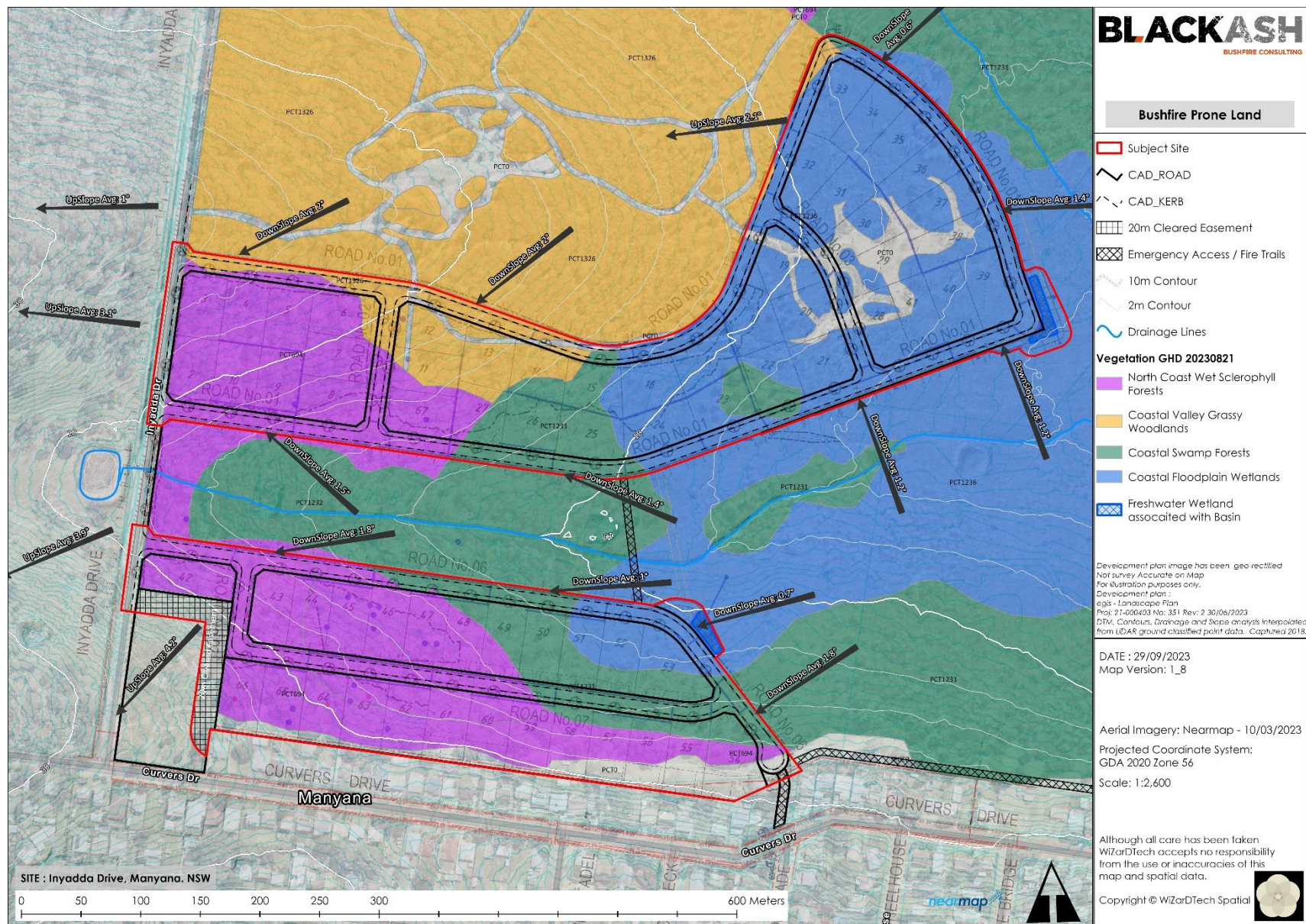


Figure 5: Vegetation and slope map

4.6.Asset Protection Zones

For proposed new residential subdivision, 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/m² as the maximum exposure on all sides of the building.

Tables 1 & 2 summarise the APZ, and Figure 6 depicts the minimum APZ for the proposed development.

A conservative approach has been taken with respect to vegetation mapped as Heath within the central riparian zone and wider APZ have been used to provide a consistent approach meeting the standard for Forest along that interface. The proposal is for Community Title subdivision and the APZ and fire trail will be managed under a Bushfire Management Plan that will form part of the Community Association documentation, and works will be maintained by a single entity.

The proposal includes the construction maintenance of a Category 1 standard Fire Trail within an overall 12 metre wide APZ extending from opposite Lot 89 to the Crown Reserve at Manyana Beach. Combined with the southern part of the development, this will significantly improve bushfire protection to approximately 55 existing lots that would otherwise have no permanent bushfire protection in place across this 900 metre long interface. This will improve firefighter safety and effectiveness during bushfire incidents and will facilitate Hazard Reduction burning into the future.

Table 1: APZ assessment – northern lots

Direction	Slope	Vegetation	Minimum Required APZ	APZ provided
North	0-5° Upslope	Forest	24 metres	24 metres
East	0-5° Downslope	Forest Tall Heath	24 metres 18 metres	24 metres 18 metres
South	0-5° Downslope	Forest Tall Heath	24 metres 18 metres	24 metres 18 metres
West	0-5° Upslope	Forest	24 metres	24 metres

Table 2: APZ assessment - southern lots

Direction	Slope	Vegetation	Minimum Required APZ	APZ provided
North	0-5° Upslope	Forest	24 metres	24 metres
East	0-5° Downslope	Forest Tall Heath	29 metres 18 metres	29metres 18 metres
South	0-5° Downslope	Managed land	N/A	N/A
West	0-5° Upslope	Managed land	N/A	N/A

All proposed lots have practical building envelopes to meet BAL-29 standards from the time of subdivision approval, with APZ encroachment into individual lots limited to the front setback area.

The inclusion of a 24m wide APZ on the adjacent Lot 1 DP1161638 has been negotiated with the owner, and a letter of support stating that a suitable easement will be created is submitted as part of the development application.

The proposed subdivision can be conditioned with suitable 88B covenants on the relevant lots, with Shoalhaven Council the relevant authority to modify or remove the covenants.

5.1. Bushfire Attack Levels

The Bushfire Attack Levels (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 (FDI, 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, which is 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* (AS 3959-2018).

The BAL ratings are used as the basis for establishing the requirements for construction to improve protection of a (proposed) building from potential bushfire attack and are shown in Figure 7 to demonstrate that every Lot is capable of providing a practical building envelope meeting the BAL-29 standard. The specific BAL requirements will be determined at the Development Application stage for each dwelling.

All lots can achieve a practical building envelope of BAL-29 or less.

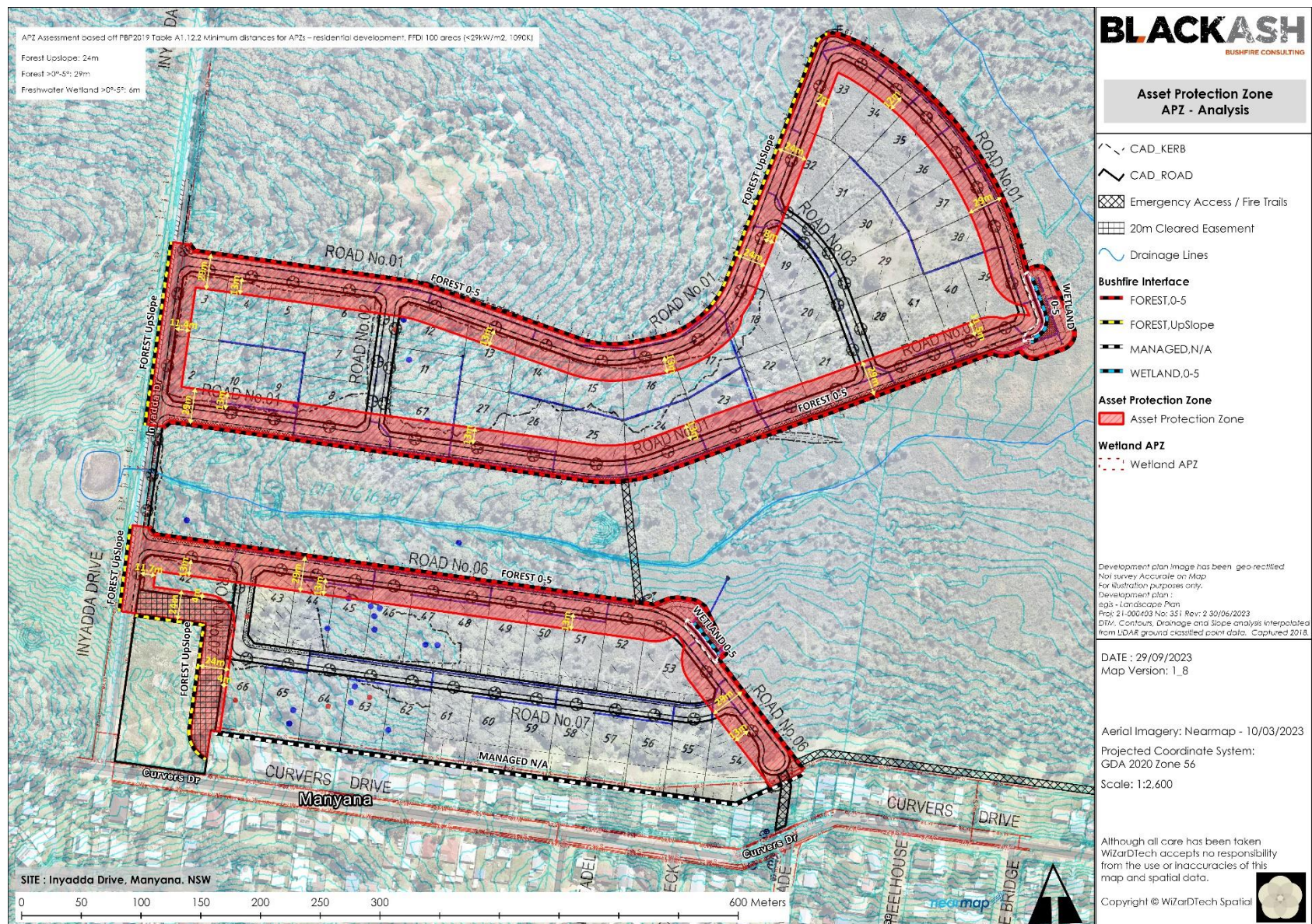


Figure 6: Asset Protection Zones map

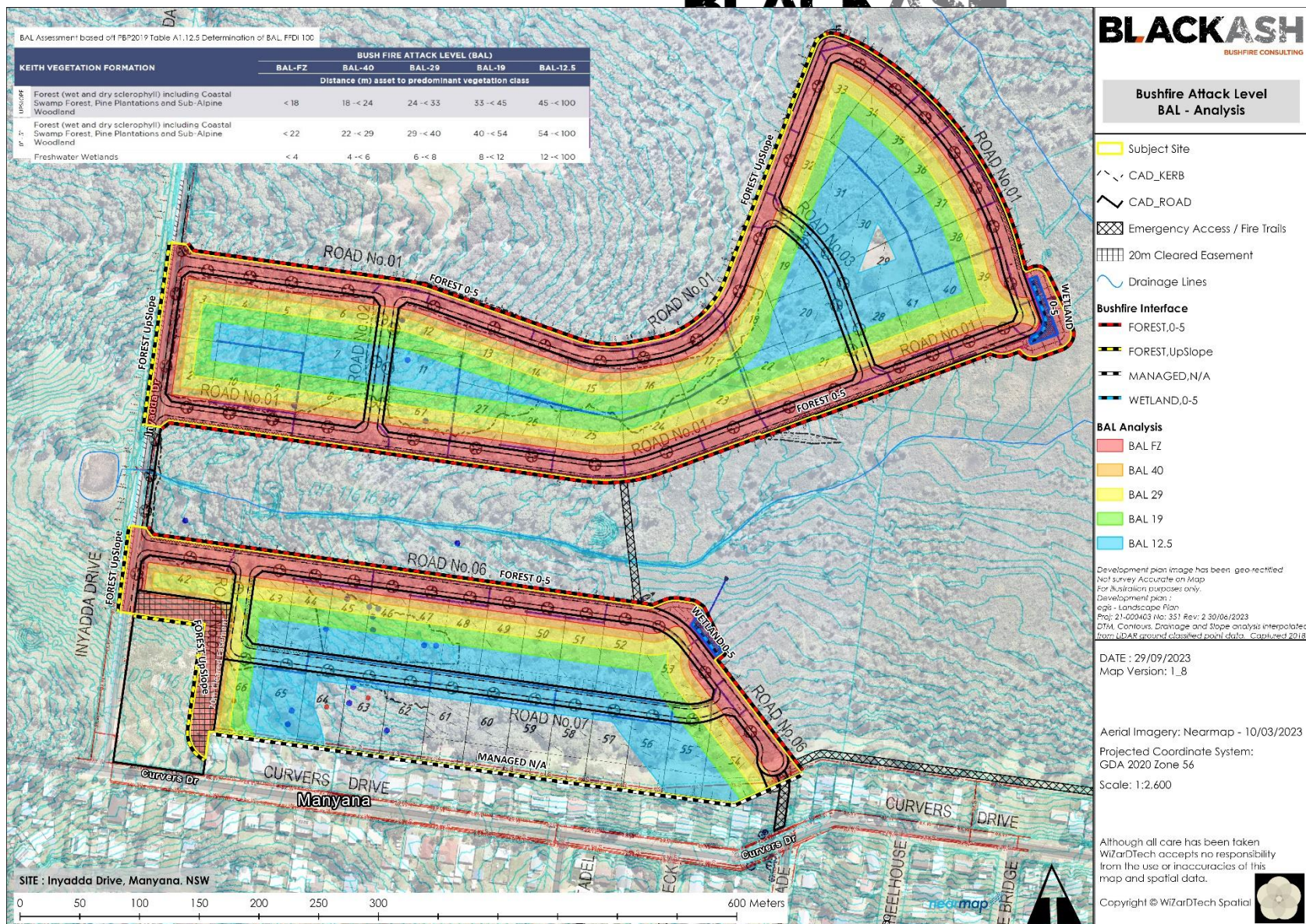


Figure 7: Bushfire Attack Level map

5.2. Water Supplies

The Site will be adequately serviced by the existing reticulated water supply, with hydrants located at regular intervals to comply with AS2419 and PBP. All future dwellings will be connected to the reticulated town's water main for domestic needs.

This complies with PBP.

5.3. Gas and electrical supplies

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.

5.4. Access

The proposed road layout is generally in accordance with the requirements of Shoalhaven Council for area planning and provides interconnected streets that will provide safe access to previous and future stages within the overall development area.

The northern part of the development has the required perimeter road (16m wide) and two separate connection points with Inyadda Drive and the wider public road network. In addition there is a pedestrian boardwalk across the riparian corridor providing an additional access/egress route to the south, connecting with the internal road, and then Curvers Drive and the urban area of Manyana.

The southern part of the development has the required perimeter road and connection to both Inyadda Drive and Curvers Drive. In addition, as discussed above in 4.6, the development includes a Category 1 Tanker standard fire trail from the access handle to Curvers Drive east to the Crown Reserve at the beach. This is not required but will provide additional protection for 25 houses, facilitate HR burning and improve safety for, and effectiveness of, firefighters during a bushfire.

The proposed internal roads comply with Section 5.3.2 of PBP and access will therefore comply with the requirements of PBP.

6. Recommendations

The following recommendations have been made within this report to ensure the proposed development is compliant with Section 100B of the *Rural Fires Act 1997* and *Planning for Bush Fire Protection 2019*:

Recommendation 1: Access roads within the proposed development must comply with section 5.3.2 of PBP.

Recommendation 2: Water, electricity and gas supplies through the proposed development must comply with section 5.3.3 of PBP.

Recommendation 3: Asset Protection Zones (APZ) are to be established in accordance with Tables 1 & 2, and Figure 6. At the issue of a subdivision certificate, suitably worded instrument(s) created pursuant to section 88B of the Conveyancing Act 1919 must be placed on the proposed lots that require the provision of the APZ identified in Figure 6. The name of the authority empowered to release, vary or modify the instrument shall be Shoalhaven Council.

Recommendation 4: A 24 metre wide Asset Protection Zone is to be established on adjoining Lot 1 DP1161638 as shown on Figure 6. At the issue of a subdivision certificate, a suitably worded instrument shall be created pursuant to section 88B of the Conveyancing Act 1919 to establish the APZ identified in Figure 6. The name of the authority empowered to release, vary or modify the instrument shall be Shoalhaven Council.

Recommendation 5: A Bushfire Management Plan is to be produced as part of the Community Management Statement to ensure the suite of bushfire measures will be managed ongoing. This shall include APZ maintenance, fire trail maintenance, pre-incident planning, and Hazard Reduction burn planning to be consistent with the proposed Biodiversity Stewardship Agreement.

7. Conclusion

This assessment has demonstrated that the proposed development can comply with *Planning for Bush Fire Protection 2019*. All proposed lots are large enough to support the minimum APZ requirements for 29kW/m² and the specific APZ and BAL detail will be determined at the Development Application for each dwelling.

In the authors professional opinion, the bushfire protection measures demonstrated in this report comply with the aim and objectives of *Planning for Bush Fire Protection 2019* and allow for the issue of a Bush Fire Safety Authority under Section 100B of the *Rural Fires Act 1997*.



David Lemcke | Senior Planner & Bushfire Specialist

Blackash Bushfire Consulting

B.A., Grad. Dip. (Urban & Regional Planning), Master of Environmental Planning,
Adv. Dip. Public Safety (Emergency Management), Dip. of Management



Lew Short | Principal

BlackAsh Bushfire Consulting

B.A., Grad. Dip. (Design for Bushfires), Grad. Cert. of Management (Macq), Grad. Cert. (Applied Management)

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Appendix 1 References

Councils of Standards Australia AS3959-2018 – *Australian Standard Construction of buildings in bushfire-prone areas*

Councils of Standards Australia AS2419-2017 – *Fire Hydrant Installations*

Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change

NSW Rural Fire Service (2015) *Guide for Bushfire Prone Land Mapping*

NSW Rural Fire Service (2019). *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Draft for Public Exhibition

NSW Government (1979) *Environmental Planning and Assessment Act 1979*. NSW Government Printer.