

APPENDIX G

Orchard Hills North: Supporting Technical Documents

G9 Bushfire Constraints Report

BUSHFIRE CONSTRAINTS REPORT

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1.0 EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned by Legacy Property to undertake a study to determine the potential bushfire constraints to future development within the Rezoning Area which comprises 151.92 hectares of RU4 zoned land bounded by Caddens Road to the north, Kingswood Road to the west, the M4 Motorway to the south and existing residential and environmental living lots to the east.

The Rezoning Area is substantially cleared land with undulating topography that is a feature of the area. Two existing creeks – Werrington Creek and Claremont Creek traverse parts of the Rezoning Area. Only two lots within the Rezoning Area are still used for any form of agricultural production, with the vast majority of lots used as rural-residential lifestyle properties.

This report has examined the proposed rezoning and identified that the rehabilitation of the vegetation within the riparian corridor to Werrington Creek and Claremont Creek will introduce the need to provide Asset Protection Zones to this vegetation. Additionally, the vegetation in the M4 Motorway to the south of the Rezoning Area presents a bushfire hazard to the southern edge of the Rezoning Area.

This report provides recommendations on the provision of setbacks to the bushfire hazard areas and access and water supplies for fire-fighting operations.

2.0 INTRODUCTION – ORCHARD HILLS NORTH

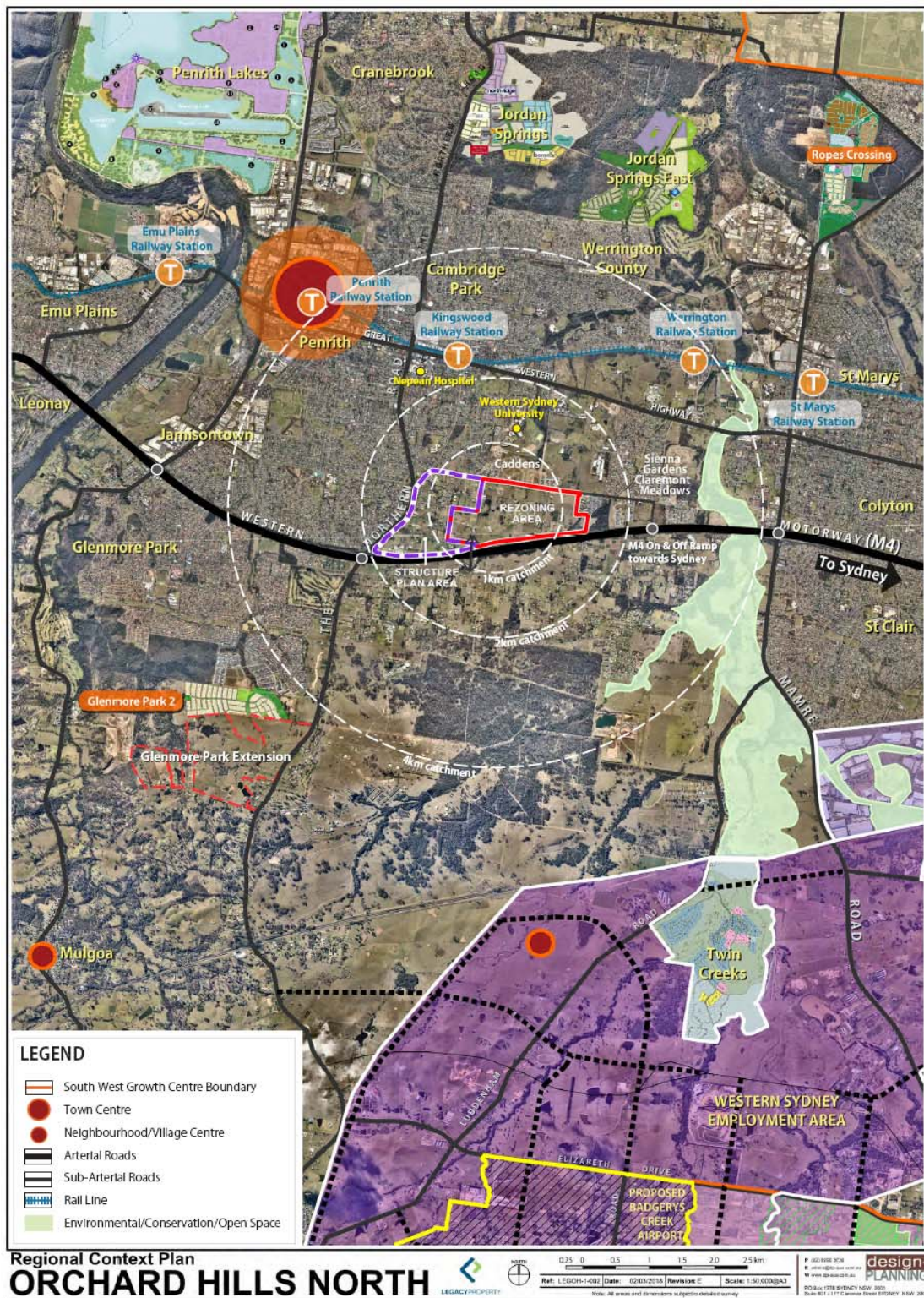
Legacy Property is proposing to rezone a Rezoning Area in Orchard Hills North, located within the Penrith Local Government Area (LGA).

The proposed rezoning area is approximately 151.92 hectares (ha) with frontages to Caddens Road to the north, Kingswood Road to the west, the Western Motorway to the south and Claremont Meadows residential lots to the east.

Orchard Hills North, is well located being north of the Western Sydney Motorway, in close proximity to the University of Western Sydney (to the north), Nepean Hospital (to the north) and to the Penrith City Centre. South of the Motorway the land is currently mostly Orchard Hills rural lands, Defence Lands and to the south west is Glenmore Park. Further south, will be the Badgerys Creek Airport.

Refer to Figure 1 – Regional Context Plan on Page 5.

Figure 1 – Regional Context



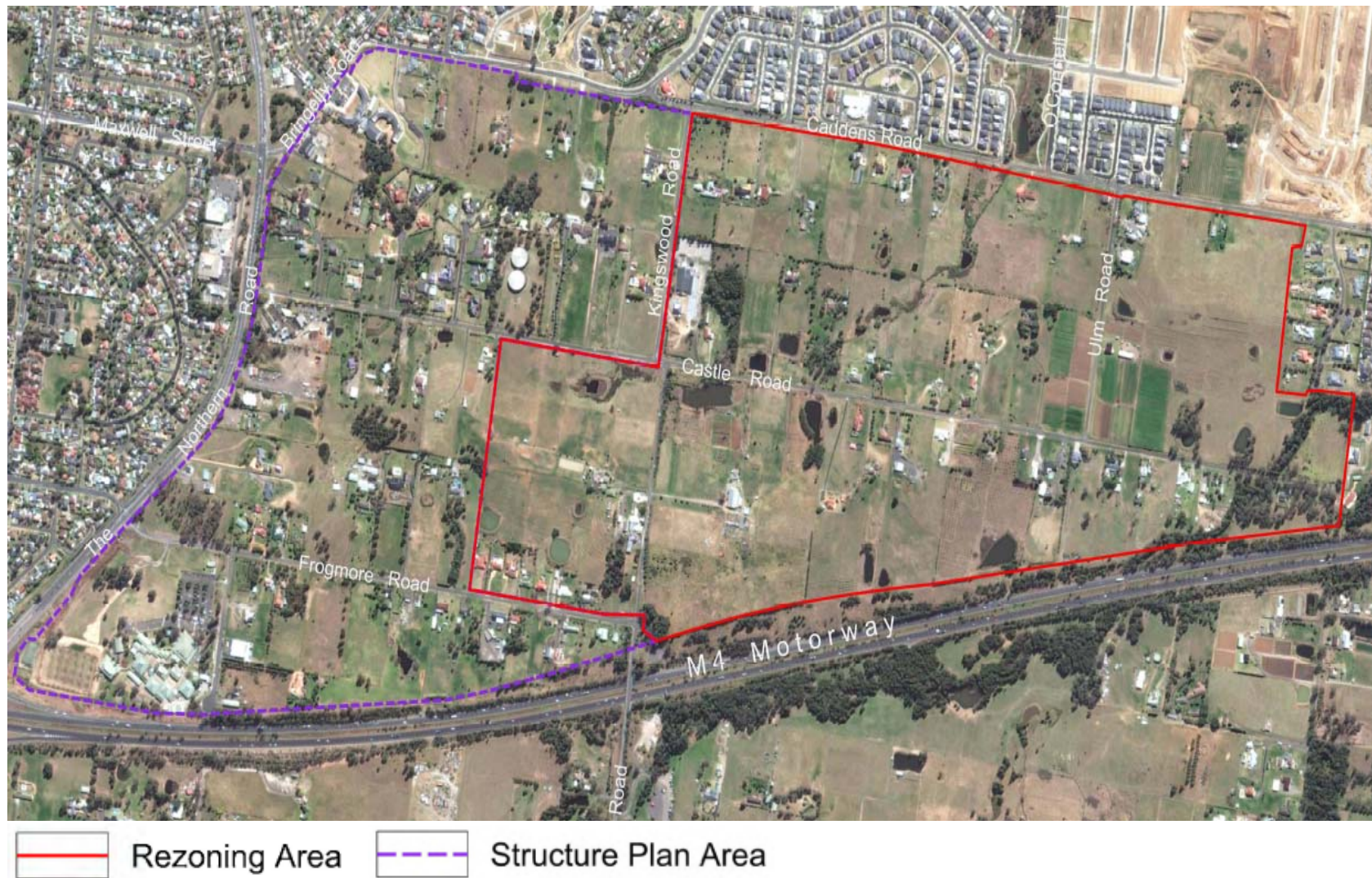
Source: Design & Planning

The Rezoning Area comprises 54 existing lots (including the school and uniting church) within the proposed rezoning area, located at the following addresses:

- Nos. 80-154 Caddens Road, Orchard Hills;
- Nos. 26-48 Kingswood Road, Orchard Hills;
- Nos. 117-149 Castle Road, Orchard Hills;
- Nos. 53-105 Castle Road, Orchard Hills;
- Nos. 182-226 Caddens Road, Orchard Hills;
- Nos. 2-164 Castle Road, Orchard Hills;
- Nos. 1-5 Castle Road, Claremont Meadows;
- Nos. 7 Castle Road, Claremont Meadows; and
- Nos. 5, 9, 13, 19, 23, 29, 33 and 35 Frogmore Road, Orchard Hills.

The proposed Rezoning Area is identified in Figure 2 on Page 7.

Figure 2 – Proposed Rezoning Area.



The existing fragmented ownership of the Rezoning Area has historically been a barrier to coordinated planning or development of the area; however Legacy Property has now secured agreements covering the majority of the rezoning area.

Legacy Property nominated the Orchard Hills North Rezoning Area under Penrith City Council's Accelerated Housing Delivery Program (AHDP) in October 2017. In November 2017 the Rezoning Area was endorsed by Penrith City Council as a short-term rezoning opportunity to provide for housing delivery over the next 3-5 years.

❖ **Structure Plan and Rezoning Area**

The Planning Proposal (PP) for Orchard Hills North aims to rezone the 151.92ha Rezoning Area from agricultural land to mixed land uses, forming around 1,729 residential lots, a Neighbourhood Centre and numerous areas of green space.

Discussions with the Department of Planning and Environment (DP&E) and Council have highlighted the need to consider the logical extension of the rezoning area west (namely the Structure Plan area) to The Northern Road, to ensure that future land uses and connections for the entire Orchard Hills North precinct are planned in a holistic manner.

In order to ensure that the future development is fully integrated, a high level Structure Plan has been prepared for the entire precinct, covering an area of approximately 268.06ha. The Structure Plan considers how the rezoning area (151.92ha) integrates with the balance of the precinct (116.14 ha) and identifies potential future land uses as well as key road connections. It is expected that the Structure Plan will provide a framework for the future rezoning of the remaining area, either through a Council Local Environmental Plan (LEP) amendment or a developer/owner led Planning Proposal.

Council has endorsed proceeding with the rezoning area at present to meet the objectives of its Accelerated Housing Delivery Program. A significant factor in this approach is that Legacy Property has secured agreements covering a majority of the rezoning area and is therefore in a position to progress with the planning proposal and provide greater certainty for coordinated future development. Council is also proposing to undertake a strategic corridor study for The Northern Road and any proposal to rezone that land may pre-empt the outcome of this study.

As a result, the same level of technical investigations undertaken for the rezoning area have not yet been undertaken for the wider Structure Plan area.

The balance of the Structure Plan area has been considered as part of investigations for this planning proposal, however not at a detailed level to support rezoning.

❖ **Background**

The cultural landscape of the Orchard Hills North Rezoning Area has developed as a rural landscape over the past 100 years with constantly evolving pastoral practices and declining Cumberland Plain Woodland. Within the last 50 years Orchard Hills North has typically been associated with orchard food production, grazing farming practices with some specialisation in agricultural farming and rural residential communities.

Although genuine food production practices have steadily declined over recent years, and only two lots within the Rezoning Area are currently used for any form of agricultural production, the Rezoning Area remains zoned as RU4 Primary Production Small lots.

Today, the majority of the Rezoning Area is utilised for residential purposes and has been substantially cleared.

❖ **Our Vision**

Orchard Hills North will be a residential community set amongst rolling hills in the rich natural landscape of Western Sydney, offering panoramic views to the Blue Mountains and surrounding areas. The development will incorporate a diverse mix of housing types across 1,729 residential lots, focused around a new Neighbourhood Centre that forms the focal point of the future community and offers a high level of convenience for residents.

The overarching vision of Orchard Hills North is to support a safe and connected community. This will be achieved through the provision of a wide variety of green spaces and links, connecting each of the future neighbourhood precincts with one another as well as the wider regional community, thereby placing a focus on active transport such as walking and cycling.

❖ **Design Principles**

A Rezoning Area analysis, supported by extensive technical studies, has informed the following design principles for the Structure Plan and rezoning area:

- Retain key creek lines and capitalise on the opportunity to create a central green link;
- Retain existing significant vegetation as natural bushland;
- Manage and retain views into and out of the Rezoning Area;
- Provide opportunities for a diverse mix of housing types, with medium density housing located around the Neighbourhood Centre and major open space;
- Create a new Neighbourhood Centre combined with a relocated primary school to establish a community focal point;
- Respect heritage buildings and the character of the area;
- Integrate with the community to the north, west and east;
- Link O'Connell Lane, Caddens Road, Frogmore Road and The Northern Road into a meaningful urban road network;
- Improve water quality and water flow;
- Utilise landscaping and topography on the southern boundary to manage noise;
- Promote pedestrian and cycle linkages;
- Generate employment opportunities along the Northern Road.

❖ **Master Plan and Rezoning description**

It is proposed to rezone the Rezoning Area from RU4 Primary Production Small Lots, under Penrith Local Environmental Plan (PLEP) 2010, to part R1 General Residential, B2 Local Centre, RE1 Public Recreation, E2 Environmental conservation and E3 Environmental Management in the south eastern corner of the Rezoning Area, as well as provide for appropriate controls relating to minimum lot size, height, heritage items, and visual landscape.

The rezoning of Orchard Hills North will provide approximately 1,729 residential lots. It is expected that the Rezoning Area will ultimately provide a broad mix of housing types ranging from larger environmental living lots (2,000m²) to traditional detached residential lots (primarily 300-600m²) and smaller compact and attached housing lots (220m²).

The proposed Neighbourhood Centre will provide around 6,000-8,000m² of retail space supported by cycle and pedestrian links with approximately 15.77ha of open space, bushland and riparian corridors.

A new/relocated primary school is proposed adjacent to the Neighbourhood Centre, supported by open space to facilitate share usage. The location of parks and open space areas have been carefully selected to enhance the existing value of the natural landscape, such as hill tops and creek lines, and to retain the significant bushland areas, in order to provide the highest level of amenity for future residents.

The Rezoning Area is physically and strategically suited for urban development, noting that:

- ❖ It is a discrete area formed by the boundary of an existing urban area and major road infrastructure;
- ❖ It adjoins an existing residential subdivision, and in close proximity to the hospital, Western Sydney University and the Penrith CBD;
- ❖ There are limited environmental or physical constraints that would prevent redevelopment;
- ❖ It is outside the Western Sydney Priority Growth Area and is therefore better placed to be rezoned through a developer led PP;
- ❖ Upgrades are currently being undertaken to the Northern Road, which the Orchard Hills Rezoning Area is located east thereof, and gains access thereto. Thus, the rezoning of the land will support the Government's cost of infrastructure and will result better utilisation of the land.
- ❖ It is able to capitalise on the availability of new and existing infrastructure, such as the recently completed Werrington Arterial Road and new M4 on and off-ramps, the signalisation of the Frogmore Road/Northern Road intersection as part of The Northern Road upgrade, and four train stations within 4.5km of the Rezoning Area (Penrith, Kingswood, Werrington, St Marys).

The indicative Master Plan for the Rezoning Area is identified in Figure 3 on Page 12.

Figure 3 – Indicative Master Plan for Orchard Hills North



There are five existing 'small lot' properties on Castle Road, ranging from approximately 4,000m² – 6,000m². Legacy has not sought to incorporate these properties into the rezoning proposal.



3.0 REZONING AREA INSPECTION.

An inspection of the Rezoning Area was undertaken by Graham Swain, Managing Director, *Australian Bushfire Protection Planners Pty Limited* on the 30th November 2017.

4.0 DESCRIPTION OF THE REZONING AREA.

The Rezoning Area occupies approximately 151.92 hectares of RU4 zoned land between the M4 Motorway to the south, Caddens Road to the north, Kingswood Road to the west and existing residential and environmental living development to the east.

The Rezoning Area predominantly contains rural-residential lifestyle properties with two land parcels containing agricultural production. The Rezoning Area is substantially cleared with undulating topography which rises from the south-eastern corner to the ridgeline on Caddens Road.

The undulating landform is punctuated by two existing creeks – Werrington Creek which flows to the north across the central portion of the Rezoning Area and Claremont Creek, located in the south-eastern corner of the Rezoning Area.

Werrington Creek has been identified as a Second Order Stream and Claremont Creek a Fourth Order Stream, under the Strahler System.

Figure 4 – Topographic Map showing the contours and watercourses within the Rezoning Area is provided on Page 15.

Figure 5 – Riparian Mapping is provided on Page 16.

The vegetation within Rezoning Area has been assessed by Cumberland Ecology with the predominant vegetation consisting of exotic Dominated Grassland.

The assessment also confirmed that River-Flat Eucalypt Forest occupies the riparian corridor to Claremont Creek and the upper section of Werrington Creek with isolated pockets adjoining existing dams.

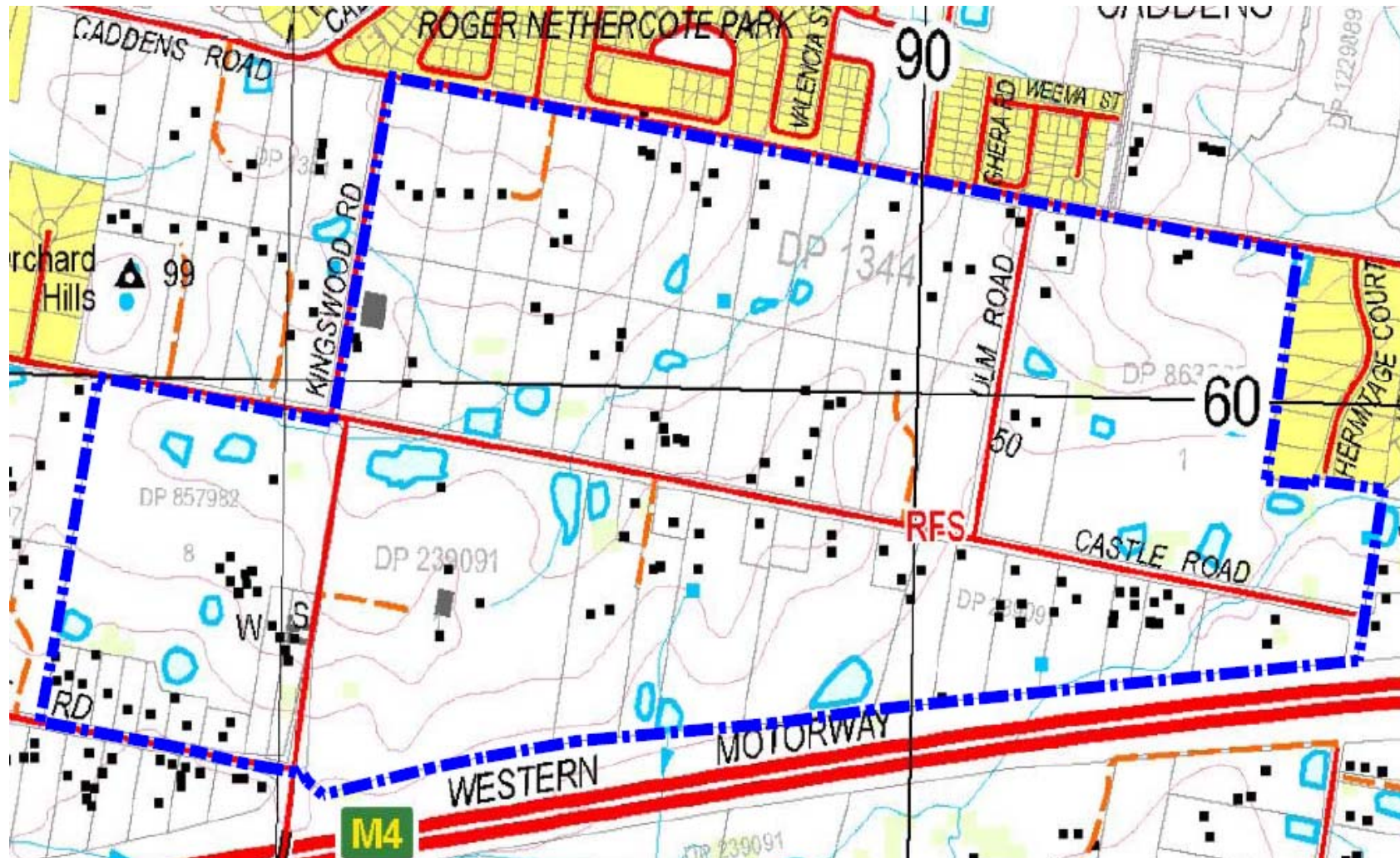
Small pockets of Cumberland Plain Woodland are located in the eastern portion of the Rezoning Area.

The Second [45m wide] and Fourth Order [85m wide] streams will be rehabilitated with River-Flat Eucalypt Forest with the same vegetation occupying the eastern area of the buffer zone to the M4 Motorway whilst the western area currently contains an Open Grassy Woodland.

A non-combustible sound attenuation barrier is likely to be erected on the southern boundary of the Rezoning Area, therefore minimising the impact from fires which may occur in the M4 Motorway corridor.

Refer to Figure 6 – Vegetation Communities on Page 17.

Figure 4 – Topographic Map showing the contours and watercourses.



Source – Six Maps

Figure 5 – Riparian Mapping

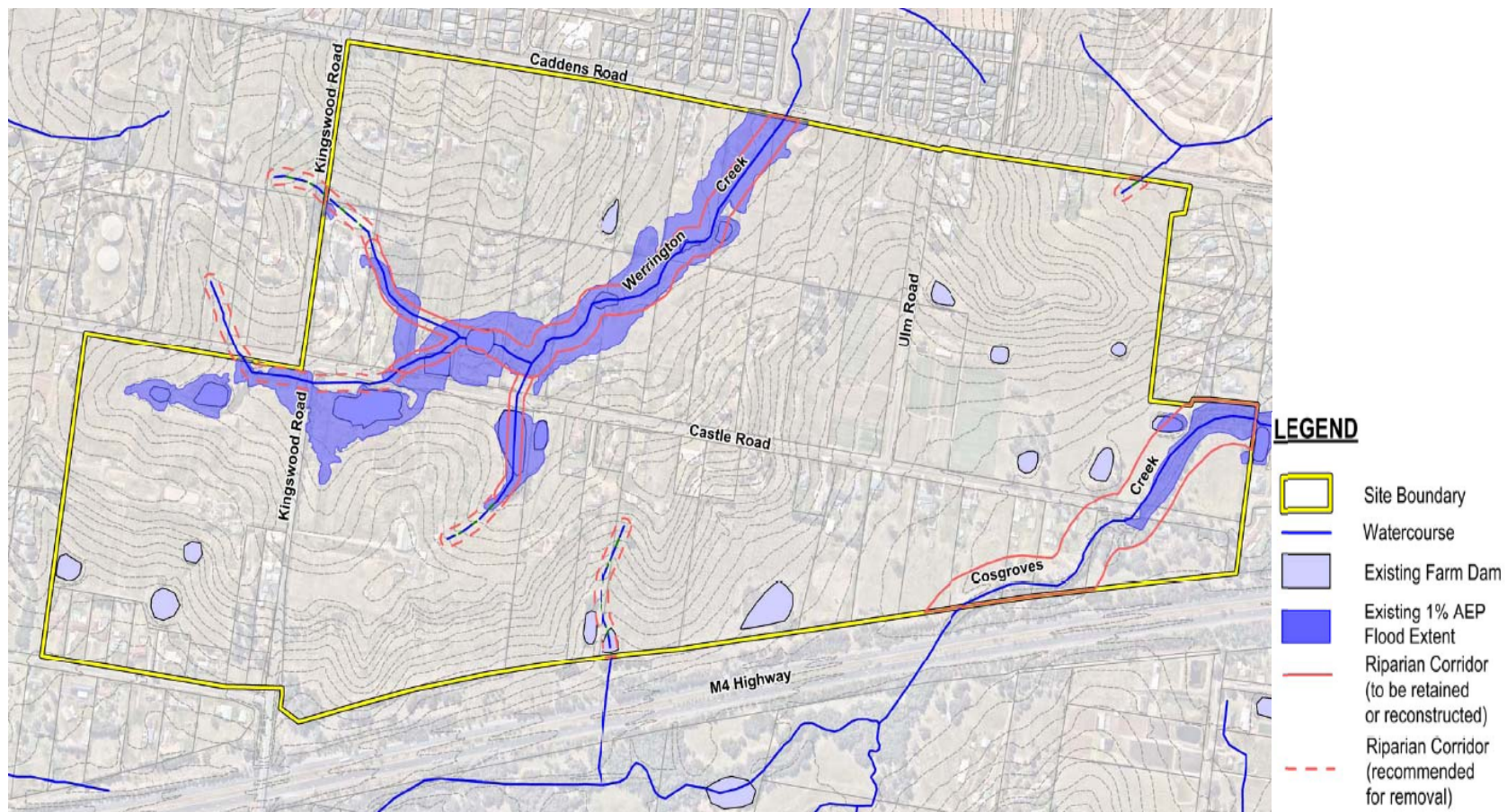











Figure 6 – Plan of Vegetation Communities within the Rezoning Area.



Legend

	Subject Site		River-Flat Eucalypt Forest		Exotic Vegetation
	Study Area		Dam Vegetation		Urban Native/Exotic
Vegetarian Community					
	Cumberland Plain Woodland		Exotic Dominated Grassland		Cleared (roads, dams, dwellings)

Source – Cumberland Ecology

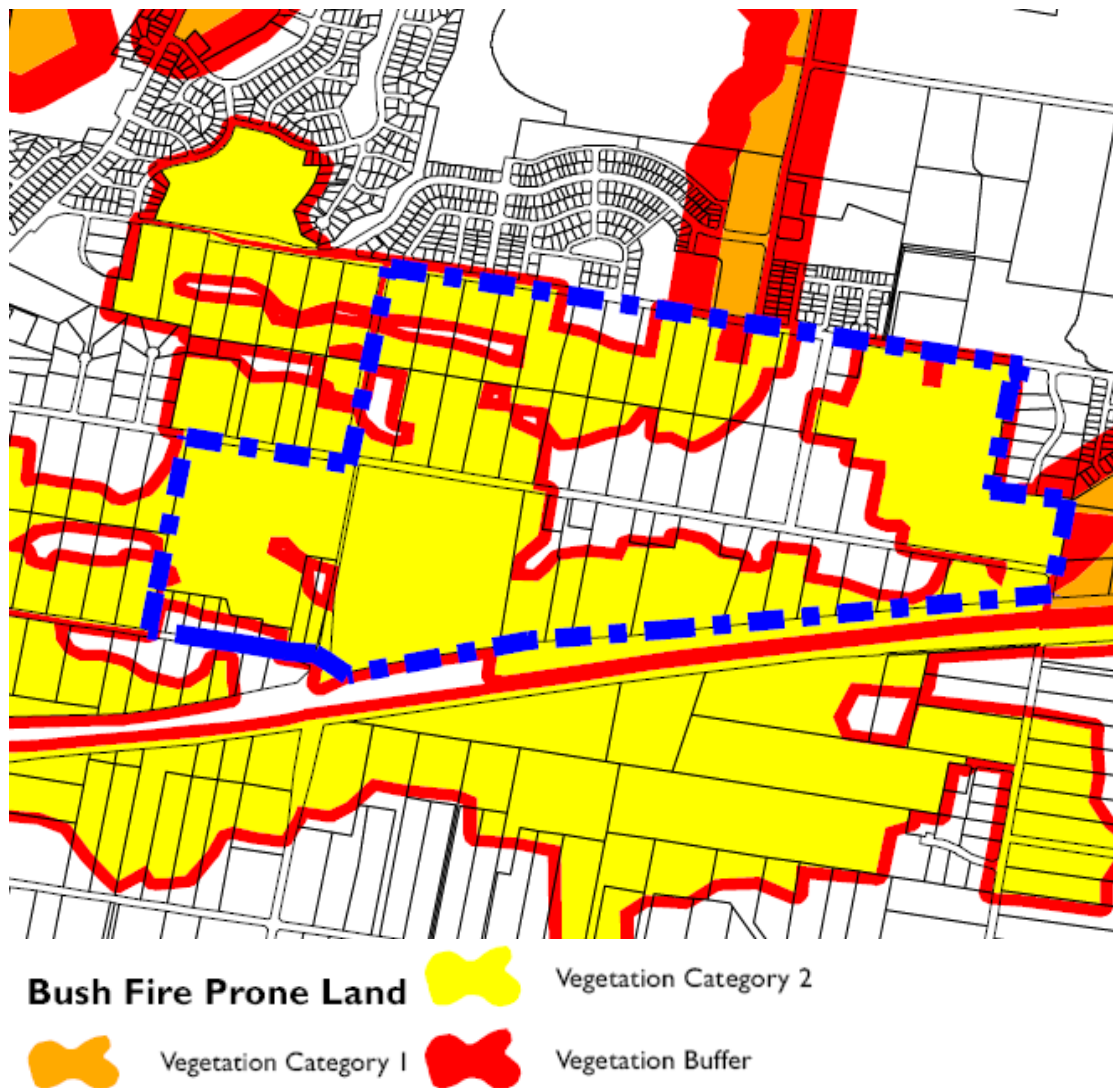
5.0 BUSHFIRE PRONE LAND MAP.

The Penrith Bushfire Prone Land Map records the vegetation on the Rezoning Area as Category 2 Bushfire Prone Vegetation with Category 1 Bushfire Prone Vegetation occupying the land to the east of the Rezoning Area.

Refer to Figure 7 – Extract from the Penrith Bushfire Prone Land Map below.

The Rezoning Area inspection confirmed the extent of the bushfire prone vegetation on the adjoining land. However, the vegetation within the Rezoning Area is generally managed grassland and therefore not deemed to be bushfire prone.

Figure 7 – Extract from the Penrith Bushfire Prone Land Map



The Rezoning Area contains Claremont and Werrington Creeks, shown on the Topographic Map as a blue line and is therefore deemed to be 'designated streams' under the Water Management Act 2000.

This report assumes, for the purpose of determining the required Asset Protection Zones to future residential development within the Rezoning Area, that these streams will be rehabilitated with River-Flat Forest vegetation. The report also assumes that the M4 Motorway corridor to the south will not be managed.

6.0 LEGISLATION.

The Rezoning Area is recorded on the Penrith Bushfire Prone Land Map as containing Category 2 Bushfire Prone Vegetation and the buffer zone to the Category 1 Bushfire Prone Vegetation on the land to the east of the Rezoning Area – refer to Figure 6.

This affection triggers the requirements of the following Legislation:

1. Section 4.14 [Development on Bushfire Prone Land] and Section 4.46 [Integrated Development] of the *Environmental Planning & Assessment Act 1979*;
2. Section 100B of the *NSW Rural Fires Act 1997*.

Section 4.14 of the *Environmental Planning & Assessment Act 1979* applies to all development located on designated bushfire prone vegetation, except for the subdivision of the land for residential and rural residential development or the construction of a 'special fire protection purpose development' on the Rezoning Area.

Section 4.46 of the *Environmental Planning & Assessment Act 1979* applies to the subdivision of bushfire prone land for the purposes of residential and rural residential development and the construction of a 'special fire protection purpose development' within designated bushfire prone vegetation and requires the issue of a 'Bushfire Safety Authority' from the Commissioner of the NSW Rural Fire Service, pursuant to Section 100B of the *Rural Fires Act 1997*.

'Special fire protection purpose development' is defined under Section 100B of the *Rural Fires Act 1997* as:

- ❖ Aged Care Facilities;
- ❖ Nursing Homes;
- ❖ Schools;
- ❖ Childcare Centres;
- ❖ Hotel, Motel or other tourist accommodation;
- ❖ Hospital;
- ❖ A building wholly or principally used as a home or other establishment for mentally incapacitated persons;
- ❖ A group home within the meaning of *State Environmental Planning Policy No. 9 – Group Homes*.

Section 4.14 of the *Environmental Planning & Assessment Act 1979* requires that development which occurs on bushfire prone land must comply with the aim and objectives of *Planning for Bushfire Protection 2019* and meet the deemed-to-satisfy performance standards prescribed in the document.

Similarly, the Commissioner of the NSW Rural Fire Service will not issue a *Bushfire Safety Authority* under Section 100B of the *Rural Fires Act 1997* unless residential/rural residential subdivision and construction of a special fire protection purpose development complies with the bushfire protection measures identified within *Planning for Bushfire Protection 2019*. The measures relate to the provision of:

1. Complying Asset Protection Zones – setback from unmanaged bushfire prone vegetation;
2. Complying access for fire-fighting operations;
3. Complying water supplies for fire-fighting operations;
4. Bushfire construction standards to buildings;
5. Landscape management – management of Asset Protection Zones; and
6. Emergency management – evacuation planning/management.

An examination of these bushfire protection measures for the Project Area is provided in Section 7.0 of this report.

7.0 EXAMINATION OF BUSHFIRE PROTECTION MEASURES.

7.1 Asset Protection Zones:

Asset Protection Zones are determined using the methodology provided in *Planning for Bushfire Protection 2019* which includes determination of predominant bushfire prone vegetation within 140 metres of a Rezoning Area and the effective slope [defined as the slope which will create the most significant bushfire behaviour] of the land within 100 metres of the development.

The rehabilitation of the River-flat Forest within the riparian corridors generates the requirement to provide Asset Protection Zones to these corridors.

The riparian corridor to Werrington Creek will be 45 metres wide and therefore presents a low level of bushfire hazard to the future development opposite the riparian corridor. Section A1.11.1 of *Planning for Bushfire Protection 2019* identifies that the rehabilitated River-flat Forest within the riparian corridor is reclassified to low hazard 'rainforest' on land with a gradient 0 – 5 degrees downslope into the creek.

The width of the Asset Protection Zone required by Table A1.12.5 of *Planning for Bushfire Protection 2019* is 14 metres, to achieve BAL 29 construction to the future dwellings.

The riparian corridor to Claremont Creek will be 85 metres. The rehabilitated River-flat Forest in the riparian corridor is classified as forest on land with a gradient 0 – 5 degrees downslope, into the creek.

The width of the Asset Protection Zone required by Table A1.12.1 of *Planning for Bushfire Protection 2019* is 29 metres, to achieve BAL 29 construction to the future dwellings.

The southern boundary of the Rezoning Area adjoins the M4 Motorway which has a vegetated buffer zone varying in width between 40 metres in the eastern portion of the buffer up to 70 – 75 metres in the western portion of the buffer.

The vegetation also varies between forest [under 50 metres wide] in the eastern to currently Open Grassy Woodland in the western portion of the buffer.

The narrow width of forest is reclassified as low hazard 'rainforest' with a recommended 14 metre wide Asset Protection Zone, to achieve BAL 29 construction to the future dwellings.

The Open Grassy Woodland requires a 16 metre wide Asset Protection Zone to achieve BAL 29 construction to the future dwellings.

However, the future erection of a non-combustible sound attenuation barrier along the southern boundary of the Rezoning Area will mitigate the potential bushfire impact during a fire occurrence in the Motorway corridor. The benefit of the sound attenuation barrier will be a reduction in the classification of the vegetation from Grassy Woodland to low hazard rainforest, resulting in a reduction in the width of the Asset Protection Zone to 14 metres. [Noise wall requirements will be subject to assessment post-gateway to inform the DCP controls].

Note 1:

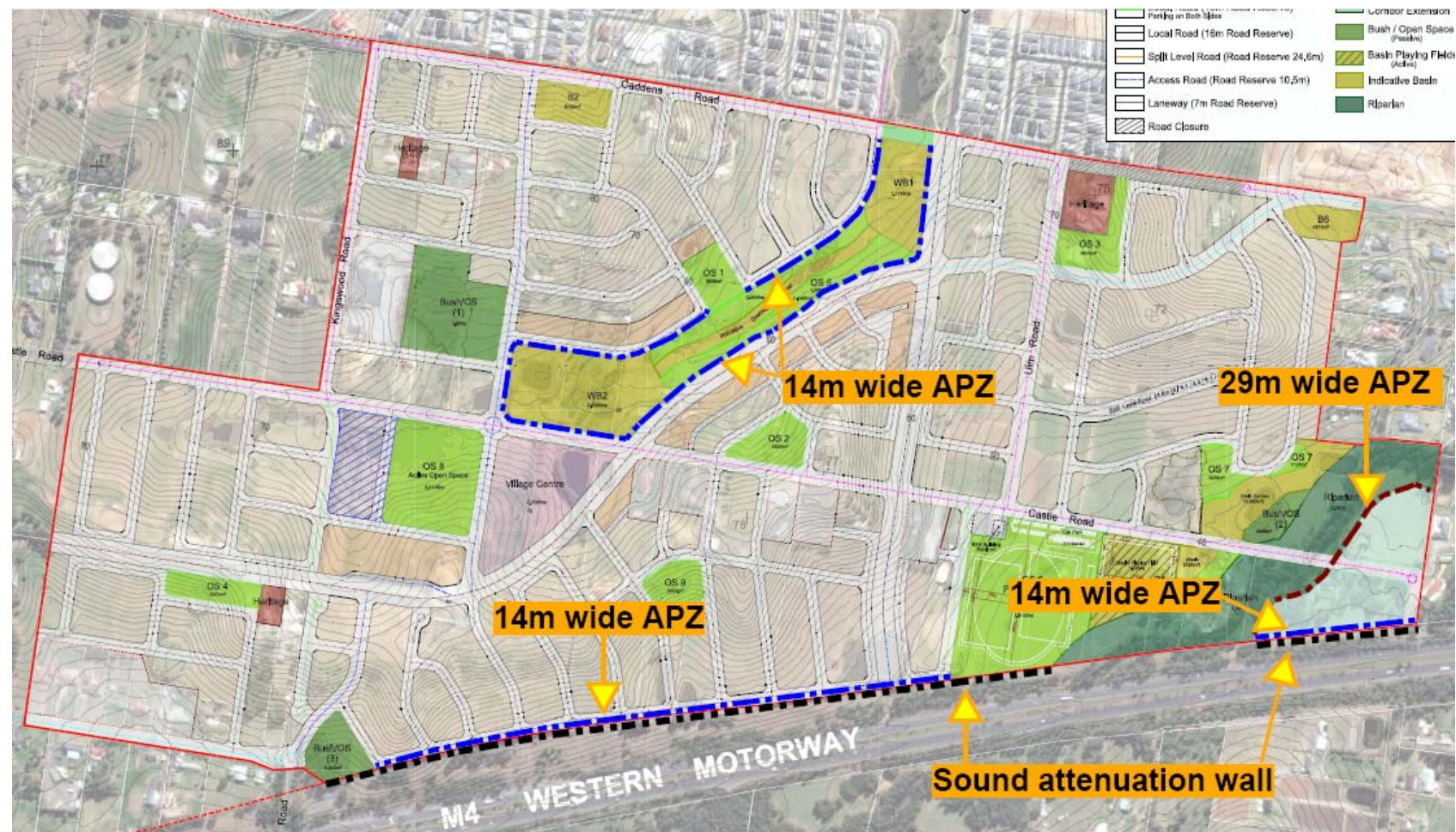
(The 14 metre wide setback is similar to the existing setback provided to the established residential subdivision of the land to the east of the Rezoning Area).

Note 2:

The areas of retained vegetation within the Rezoning Area will be restricted to an area of less than one (1) hectare and therefore not deemed to constitute bushfire prone vegetation pursuant to the NSW Rural Fire Services '*Guideline for Bushfire Prone Land Mapping*'.

Refer to Figure 8 – Plan of Asset Protection Zones on Page 23.

Figure 8 – Plan of Asset Protection Zones.



7.2 Access for fire-fighting operations:

As the Rezoning Area is identified as being bushfire prone the NSW Rural Fire Service will require the following access provisions:

1. Two-way minimum eight [8m] wide - kerb to kerb - perimeter road to the bushfire hazard interface with 'No Parking' to both sides;
2. Minimum 5.5m wide internal roads [kerb to kerb] with 'No Parking' to both sides and parking provided within parking bays and locate services [hydrants] outside parking bays;
3. Minimum width of One-Way streets shall be 3.5 metres, kerb to kerb and 'No Parking' to both sides and parking provided within parking bays and locate services [hydrants] outside parking bays.
4. Maximum length of dead-end roads 200 metres with turning area suitable for a heavy rigid vehicle [24m diameter turning circle for Cul-de-sacs].

Note 3:

The bushfire hazard interface includes all areas of unmanaged vegetation which are deemed to be bushfire prone. This includes the rehabilitated riparian corridors; the buffer zone to the M4 Motorway and the Open Space areas within the estate with an area of more than one [1] hectare and located less than 100 from Category 1 & 2 Bushfire Prone Vegetation.

7.3 Water supply for fire-fighting operations:

A reticulated fire-fighting water supply will be required, in accordance with the performance standards of AS 2419 .1 – 2005.

7.4 Construction Standards for Buildings:

Design and construction of future buildings on the Rezoning Area will be required to address the bushfire construction standards as determined by A.S. 3959 – 2018.

The width of Asset Protection Zones recommended in Section 7.1 allows the future dwellings exposed to the hazard to be constructed to BAL 29 – pursuant to A.S. 3959 – 2018 – *'Construction of Buildings in Bushfire Prone Areas'*.

All buildings located within 100 metres of the bushfire hazard are required to be constructed to a minimum of BAL 12.5 – pursuant to A.S. 3959 – 2018.

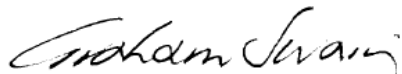
7.5 Landscape Management:

The creation and ongoing management of the Asset Protection Zones to future development within the Rezoning Area which has an interface with a bushfire hazard, either defined by the Bushfire Prone Land Map [or within areas of rehabilitated vegetation], will be required to address the criteria of Appendix 4 of *Planning for Bushfire Protection 2019* and the NSW Rural Fire Service's *Standards for Asset Protection Zones*.

A Positive Covenant will also be required over that portion of the Asset Protection Zone which affects any future private lots to ensure the long term management of the Asset Protection Zones.

Note 5:

A more detailed assessment to determine final widths and locations of the Asset Protection Zone during the detailed subdivision design stage.



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15.12.2021