

**SUPPLIMENTARY  
BUSHFIRE HAZARD  
ASSESSMENT  
REPORT**

**RESIDENTIAL SUBDIVISION**

**LOT 542 DP 113791,  
LOT 156 DP 753202 &  
LOT 53 DP 836998  
THE BUCKETTS WAY,  
TINONEE**

**CLIENT:**

**RTS SUPER PTY LTD**

**JULY 2020**

*This report has been prepared by David Pensini - Building Certification and Environmental Services with all reasonable skill, care and diligence for RTS Super Pty Ltd.*

*The information contained in this report has been gathered from discussions with representatives of RTS Super Pty Ltd, a review of the plans provided by or on behalf of RTS Super Pty Ltd and experience.*

*No inspection or assessment has been undertaken on other aspects of the proposed development outside the scope of this report.*

*This report does not imply, nor should it be implied, that the proposed development will comply fully with relevant legislation.*

*The report shall not be construed as relieving any other party of their responsibilities or obligations.*

*David Pensini - Building Certification and Environmental Services disclaims any responsibility RTS Super Pty Ltd and others in respect of any matters outside the scope of this report.*

*The report is confidential, and the writer accepts no responsibility of whatsoever nature, to third parties who use this report, or part thereof is made known. Any such party relies on this report at their own risk.*



*For and on behalf of David Pensini - Building Certification and Environmental Services.*

*Prepared by: David Pensini*

*Signed:*



*Dated: 5<sup>th</sup> July 2020*

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## 1.0 INTRODUCTION

The subject site is known as Lot 542 DP 113791, Lot 156 DP 753202 and Lot 53 DP 836998, The Bucketts Way, Tinonee, which is situated within the Midcoast Council Local Government area.

It is noted that in April 2009 development approval was issued by the NSW Department of Planning for the residential subdivision of the subject site. The approved subdivision plan provided for one hundred and thirty-three (133) residential lots including the construction of roads, infrastructure and the provision of public foreshore access with the development proposed over a number of stages.

It is now proposed to seek development consent for the modification of the layout of the residential subdivision of the subject site with the revised layout providing for one hundred and twenty five (125) residential lots together with two (2) residual lots which will form part of open space areas within the proposed development. The proposed modified layout provides for construction of the residential lots together with the construction of roads and associated infrastructure over three (3) stages.

The report is based on a site assessment carried out on 7<sup>th</sup> January 2020.

This report is to demonstrate that the bushfire risk is manageable for the proposed revised layout of the subject residential subdivision and to determine the bushfire protection management measures which would be applicable to the subject site and the proposed residential lots.

**The development is an integrated development and has a requirement for a Bush Fire Safety Authority under Section 100B of the *Rural Fires Act 1997*.**

### NOTE

The report has been prepared with all reasonable skill, care and diligence.

The information contained in this report has been gathered from field survey, experience and has been completed in consideration of the following legislation.

1. Rural Fires Act 1997
2. Environmental Planning and Assessment Act 1979
3. National Construction Code 2019.
4. Council Local Environment Plans and Development Control Plans where applicable.
5. NSW Rural Fire Services, Planning for Bushfire Protection, 2019.
6. AS 3959-2018 Construction of Buildings in Bushfire Prone Areas.

The report recognizes the fact that no property and lives can be guaranteed to survive a bushfire attack. The report examines ways the risk of bushfire attack can be reduced where the site falls within the scope of the legislation.

The report is confidential, and the writer accepts no responsibility of whatsoever nature, to third parties who use this report or part thereof is made known. Any such party relies on this report at their own risk.

This report has been based upon the vegetation characteristics observed at the time of site inspection. No responsibility is taken where the vegetation characteristics of the subject site or surrounding areas is changed or modified beyond that which is presented within this report.

### 1.1 Objectives

The objectives of this report are to:

- Ensure that the proposed changes to the layout of the approved residential subdivision of the land has measures sufficient to minimize the impact of bushfires; and
- Reduce the risk to property and the community from bushfire.

## 1.2 Legislative Framework

On 1<sup>st</sup> August 2002, the Environmental Planning and Assessment Act 1979 and the Rural Fires Act 1997 were both amended to enhance bush fire protection through the development assessment process.

In broad terms, the planning considerations provide two main steps. These involve:

### (a) Strategic Planning through;

- the mapping of bush fire prone;
- determining suitable bush fire requirements during the preparation of a Local Environmental Plan and/or Development Control Plan; and
- the identification of the extent to which land is bushfire prone.

### (b) Development assessment through;

- obtaining a bush fire safety authority for residential or rural-residential subdivision and special fire protection purpose developments in bushfire prone areas from the Rural Fire Service (RFS);
- seeking advice from the RFS in relation to infill and other developments in bushfire prone areas that cannot comply with the requirements of NSW Rural Fire Service, **Planning for Bushfire Protection**, 2019; and
- the application of additional requirements of the National Construction Code (NCC) in relation to construction standards for Class 1, 2, 3, 4 and some Class 9 buildings in bushfire prone areas.

It is noted that this report focuses upon the strategic planning processes associated with the proposed residential subdivision of the subject site.

### 1.2.1 Planning for Bushfire Protection Guideline 2019

It is noted that NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019 provides the current bushfire threat management standards which are applicable in NSW.

NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019 provides the development standards for designing and building on BFPL in New South Wales (NSW) as follows;

- strategic land use planning to ensure that new development is not exposed to high bush fire risk;
- specific provisions for creating new residential and rural residential subdivision allotments;
- specific provisions for special fire protection purpose (SFPP) development taking account of occupant vulnerability;
- bush fire protection measures (BPMs) for new buildings;
- guidance in upgrading and maintaining existing development.

The general principles underlying NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019 are that:

- BPMs are required to reduce the impact of a bush fire;
- protection measures are governed by the degree of threat posed to a development and the vulnerability of occupants;
- reducing the interface of a development to the hazard reduces the bush fire risk to the development;
- good practice in planning, building and management reduces the risk to developments and their occupants and increases their resilience.

#### (i) Objectives for Residential Subdivision Developments

The specific objectives for residential subdivision developments as provided for by NSW Rural Fire Service, **Planning for Bushfire Protection**, 2019 are to;

- *minimise perimeters of the subdivision exposed to the bush fire hazard (hourglass shapes, which maximise perimeters and create bottlenecks should be avoided);*
- *minimise vegetated corridors that permit the passage of bush fire towards buildings;*
- *provide for the siting of future dwellings away from ridge-tops and steep slopes, within saddles and narrow ridge crests;*
- *ensure that separation distances (APZs) between a bush fire hazard and future dwellings enable a radiant heat level not to exceed 29kW/m<sup>2</sup>;*
- *ensure the ongoing maintenance of APZs;*
- *provide adequate access from all properties to the wider road network for residents and emergency services;*
- *provide access to hazard vegetation to facilitate bush fire mitigation works and property protection; and*
- *ensure the provision of an adequate supply of water and other services to facilitate effective firefighting.*

It is noted that the proposed revised layout of the residential subdivision is considered to be consistent with the above objectives together with the relevant acceptable solutions/standards which are applicable to the now proposed residential subdivision of the subject site.

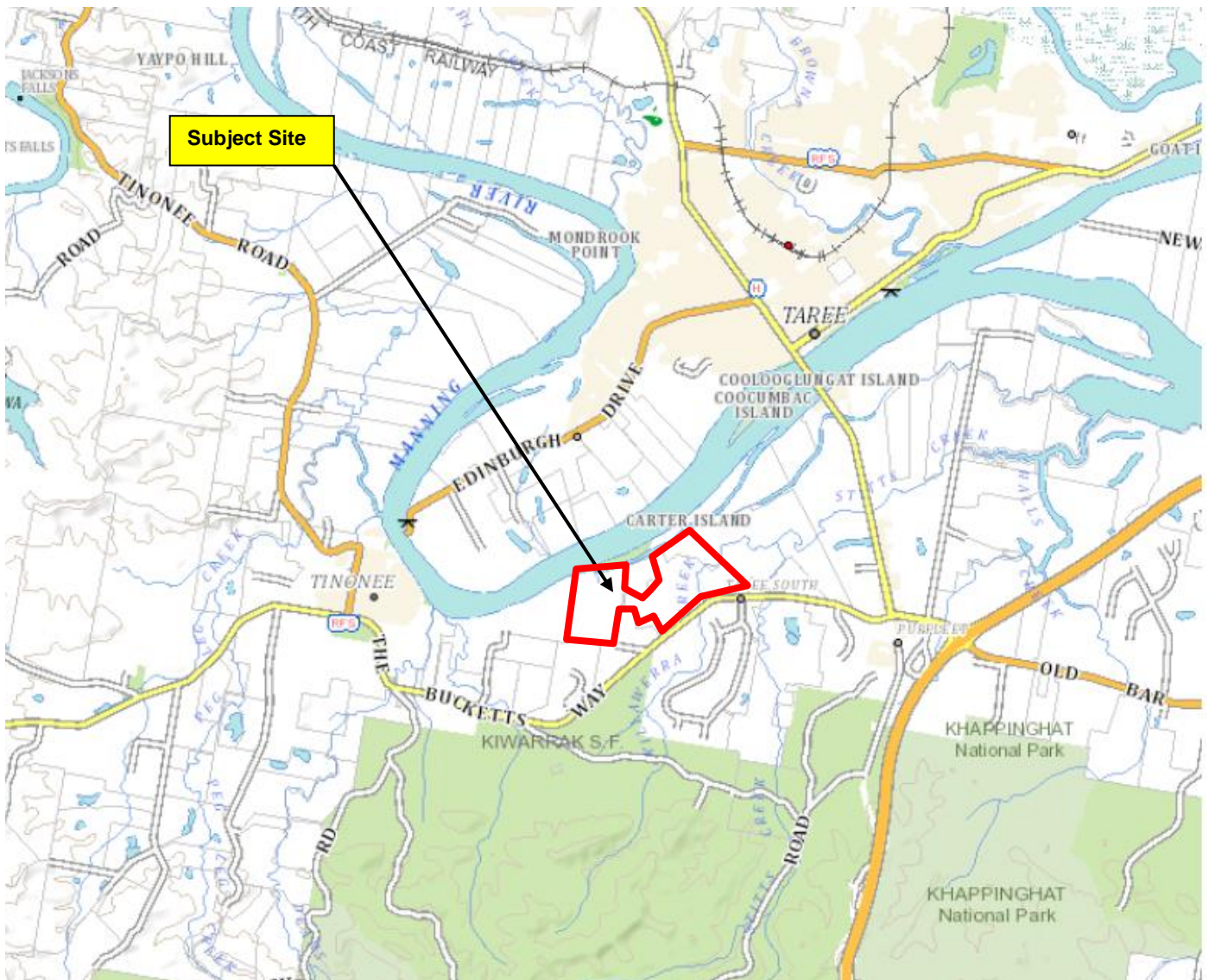
This report therefore examines the relevant provisions of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019 to determine the bushfire protection measures required to be implemented in conjunction with the revised layout of the already approved residential subdivision of the subject site.

### 1.3 Location

The subject site comprises three (3) separate allotments of land which are known as Lot 542 DP 113791, Lot 156 DP 753202 and Lot 53 DP 836998, The Bucketts Way, Tinonee, refer to **Appendix 1**.

The subject site is situated within the Midcoast Local Government Area approximately 1.7km to the southwest of the township of Taree and approximately 1,5km to the east of the village of Tinonee, refer to **Figure 1** below;

**Figure 1 - Site Location**

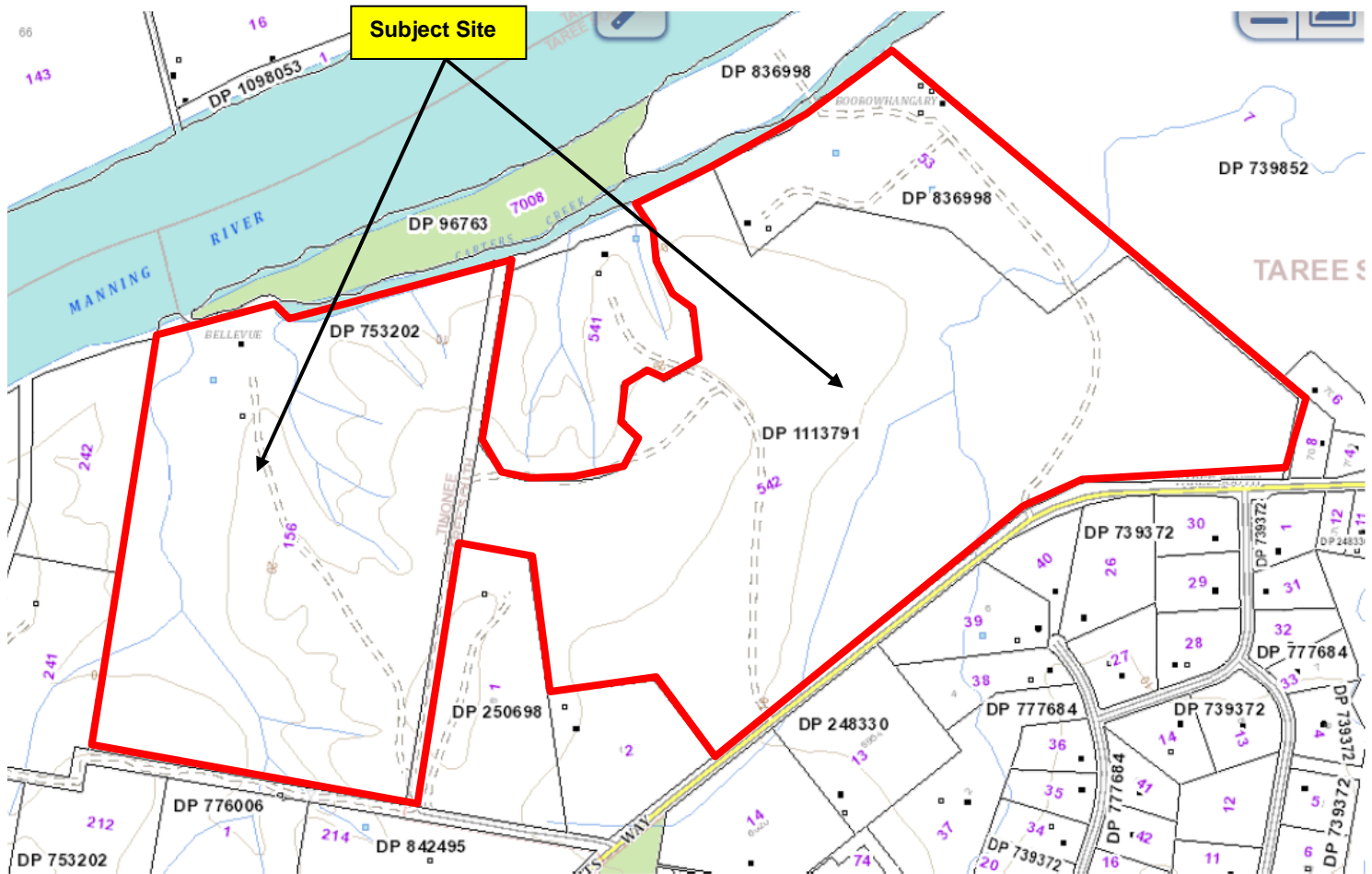


The subject site is irregular in shape with the total size of the subject site being some 63 hectares.

It is noted that the size and configuration of the subject site provides for the southern and southeastern boundaries of the subject site to have direct frontage to The Bucketts Way with developed rural residential lots extending to the south of The Bucketts Way. The northern boundary of the subject site follows the meander of Carters Creek with the far northwestern portion of the subject site fronting onto the Manning River. Rural land adjoins to the east, southwest and west of the subject site, refer to **Figure 2**.



**Figure 2 – Subject Site**



As can be seen in **Figure 2** above, access to the subject site is currently available by either The Bucketts Way and Urray Road, each of which adjoins portion of the southern boundary of the subject site.

The subject site is set in a predominately rural landscape with the character and amenity of the area being dominated by large rural allotments of land with rural residential lots to the south/southeast and a school campus, (Adventist School), present in portion of the southwestern aspect of the subject site. The presence of rural residential lots to the south and southeast of the subject site, together with the Adventist School campus and the Kiwarrak State Forest to the southwest are variations in land use in the immediate locality.

The closest Fire Service is located approximately 1.5km to the west of the subject site, (Tinonee RFS Brigade), with the closest Fire Control Center being at Taree itself.

#### 1.4 Site History and Features

Land uses within the locality, (including the subject site), have historically been dominated by rural activities with the rural occupation and use of the subject site supported by three (3) separate residential dwellings and supporting infrastructure, each of which are located adjacent to the northern boundary of the subject site. Separate internal gravel access roads provide access to the existing dwellings and to other areas of the subject site.



**Residential dwelling – far north-eastern portion of the subject site**



**Residential dwelling – northern central portion of the subject site**



Residential dwelling – far north-western portion of the subject site

The Manning River is the major hydraulic feature in the area and adjoins the subject site along the far western portion of the northern boundary of the subject site. It is also noted that the meander of Carters Creek is also present along the remaining length of the northern boundary of the subject site (albeit some areas of the subject site extend onto the northern banks of the creek). The presence of a number of intermittently following creeks drain the northern and western portions of the subject site discharging to the Manning River and Carters Creek. The southeastern portion of the subject site drains to Killawerra Creek which runs through the subject site generally from south to the northeast exiting the subject site roughly in the midpoint of the eastern boundary of the subject site.

The topography of the area, in particular the subject site, is influenced by a small west to east ridgeline/hill formation the crest of which is present in the central portion of the subject site with the presence of a number of northerly flowing intermittently flowing creeks/drainage depressions emanating from the ridgeline providing for undulating land particularly in the northern portion of the subject site. Accordingly slope conditions in the northern portion of the subject site comprise of gentle to moderate south to north downslopes towards the Manning River and Carters Creek with short steep easterly and westerly slope conditions present adjacent to the beds of the various intermittently flowing creeks/drainage depressions present on the subject site. Slope conditions in the southern and eastern portions of the subject site comprise gentler slope conditions with slope orientation reflecting the presence of the southern and eastern side slopes of the ridgeline/hill feature. Slope conditions in the eastern portion of the subject site become gentler reflecting flatter topographical conditions in this portion of the subject site and on adjoining and adjacent land to the east.

Slope conditions on adjoining land to the south are dominated by gentle north to south slope conditions whilst to the west of the subject site slope conditions transition to westerly moderate to steep upslopes. Short but steep slopes define the transition from the subject site to the flood plain of the Manning River/Carters Creek along the far northern portion of the subject site.

Grasslands with scattered and small clusters of trees dominate the vegetation characteristics in the eastern portion of the subject site with similar conditions present in the northwestern portion of the subject site. Areas of Dry Sclerophyll Forest are present in the southwestern and central portions of the subject site with mechanical modification of the floristic characteristics of the forest vegetation present in the central southern portion of the subject

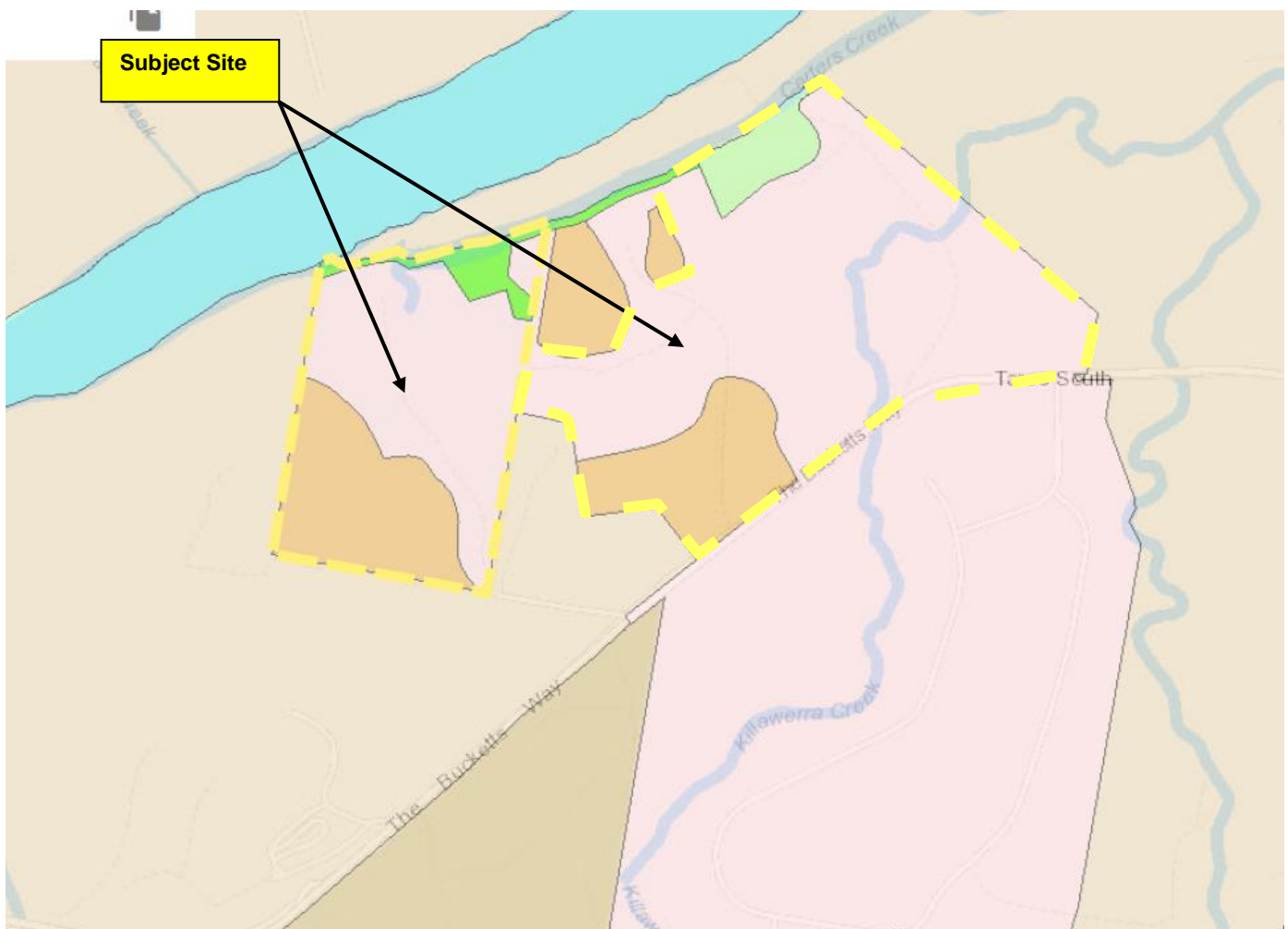


site. Narrow areas of riparian vegetation have been retained adjacent to the interface with the Manning River and Carters Creek with some remnants of riparian vegetation retained adjacent to other drainage features on the subject site.

Grasslands with scattered and small clusters of trees predominated on adjoining and adjacent land to the east and northwest whilst remnant areas of riparian vegetation are present to the north of the subject site. Managed grasslands with landscaping are present on the developed rural residential lots to the southeast of the subject site although narrow remnants of Forest vegetation have been retained within The Bucketts Way road reserve. Dry Sclerophyll Forest dominate the vegetation on adjoining and adjacent land to the south and southwest although some clearing has occurred around the active use areas of adjoining and adjacent lots.

Most of the subject site is zoned Large Lot Residential (R5) in accordance with Greater Taree Local Environmental Plan, 2010. It is however noted that land with an Environmental Conservation (E2) land use zoning is present in the southwestern, southern central and northern central areas of the subject site. Additionally, land with a Public Recreation (RE1) is present in the northwestern portion of the subject site and immediately adjacent to most of the northern boundary of the subject site. A small area of Private Recreation (RE2) zoned land is present in the northeastern portion of the subject site. Rurally zoned land (RU1) is present to the north, east, west and southwest of the subject site whilst land with a Large Lot Residential (R5) zoning is present to the southeast of the subject site, refer to **Figure 3** below;

**Figure 3 - Land Uses in Area**



The environmental and heritage features of the subject site are summarized as follows;

**Table 1 – Environmental and Heritage Features**

ENVIRONMENTAL/HERITAGE FEATURE	COMMENT
Riparian corridors	<p>There are riparian corridors along the northern boundary of the subject site and on adjoining land to the north.</p> <p>Some remnant areas of vegetation have also been retained adjacent to some of the intermittently flowing creeks/drainage depressions which are present on the subject site.</p>
SEPP (Coastal Management) 2018	The subject site is identified as being subject to the SEPP as the subject site is mapped as being within the Coastal Use and Environment Areas of the SEPP.
SEPP (Koala Habitat Protection) 2019	The subject development is not subject to the application of the SEPP based on its already modified nature in the area of the proposed residential lots and having regard to the existing approval for the residential subdivision of the subject site.
Areas of geological interest	<p>The subject site is not located on land of specific geological interest.</p> <p>Land use history is such that land contamination issues are not considered to be relevant.</p> <p>It is noted that the northern half of the subject site is shown to contain potential acid sulphate soils however given the nature of the proposed development and the elevation of the land which is proposed to be developed issues associated with acid sulphate soil management can be addressed.</p>
Environmental protection zones	Most of the subject site is zoned Large Lot Residential (R5). The subject site is burdened by several areas which are zoned for Environmental Conservation (E2), refer to <b>Figure 3</b> above.
Land slip	The subject site does not involve areas which contain steep slopes and accordingly land slip considerations are not relevant to the development of the subject site.
Flood prone land	The subject site is not identified as flood prone land.
National Park Estate or other Reserves	The subject site does not form part of the National Park Estate or other Reserves.
Threatened species, populations, endangered ecological communities, and critical habitat	<p>Threatened species, populations, endangered ecological communities, and critical habitat are unlikely to be present due to the existing level of site disturbance which has occurred to date.</p> <p>Ecological issues are not considered to be an issue for the subject site and its residential development on the basis of based on its already modified nature in the area of the proposed residential lots and having regard to the existing approval for the residential</p>

	subdivision of the subject site.  The assessment of ecological issues and impacts is however outside the scope of this report.
Aboriginal Heritage	Items of aboriginal heritage are unlikely to be present on the subject site due to the existing level of site disturbance which has occurred to date and having regard to the existing approval for the residential subdivision of the subject site.

Major Project No. 05\_0038 was approved by the Department of Planning on 5 April 2009. The approval was for a one hundred and thirty three (133) lot residential subdivision of Lots 53 and 54 DP 836998 and Lot 156 DP 753202, The Bucketts Way, Tinonee which at the time included the land which now comprises the subject site. The approval included the construction of roads, infrastructure and the provision of public foreshore access and was to be carried out in a number of stages, refer to **Appendix 2**.

At the time of inspection it was noted that the subject site and adjoining and adjacent land to the southwest and west had been the subject of recent bushfire activity with the fire scenario involving fire moving from the south towards the north.

### 1.5 Development Proposal

It is now proposed to seek development consent for modifications to the layout of the approved residential subdivision of the subject site.

The proposed subdivision layout now contemplates one hundred and twenty-five (125) residential lots together with two (2) residual lots which will form part of open space areas within the proposed development. The proposed modified layout also provides for the construction of roads and associated infrastructure over three (3) stages. All residential lots will be Torrens Title, refer to **Appendix 3**.

The proposed subdivision provides for lot sizes ranging between 2480m<sup>2</sup> and 17.9 hectares.

As can be seen in **Appendix 3**, the proposed residential subdivision provides for all lots to have frontage to new public road infrastructure which will be constructed to service the proposed subdivision.

Access to the proposed subdivision continues to be via two (2) main north to south connecting public roads which will connect the proposed lots with The Bucketts Way and Urray Road each of which adjoin portions of the southern boundary of the subject site. In this regard, Stages 1 and 3 of the proposed development will be accessed via The Bucketts Way whilst Stage 2 of the subdivision will be accessed by Urray Road.

It is noted that the proposed development concept also provides for the construction of an emergency alternative access road which connects Stages 1 and 3 of the proposed development which are located in the eastern and central areas of the subject site with Stage 2 of the proposed development which occupies the western portion of the subject site. This approach provides for alternative access and egress to and from the proposed development with access to and from the proposed lots during and emergency via The Bucketts Way and Urray Road.

All services and utilities which are necessary to support the residential occupation and use of the proposed residential lots will be provided in conjunction with the proposed development.

It is also noted that the proposed development includes a number of areas which will not be developed for residential occupation and use with these areas to form part of public open space areas which have been integrated into the proposed subdivision. These open space

areas correspond with those areas of the subject site which are zoned for environmental conservation and public recreation purposes.

## 2. BUSHFIRE HAZARD ASSESSMENT

### 2.1 Assessment Methodology

Several factors need to be considered in determining the bushfire hazard for the subject site. These factors are slope, vegetation type, and distance from hazard, access/egress and fire weather. Each of these factors has been reviewed in determining the bushfire protection measures which are applicable to the subject site and proposed development.

An assessment of the slopes and vegetation structures on and surrounding the subject site was carried out by David Pensini – Building Certification and Environmental Services on 7<sup>th</sup> January 2020.

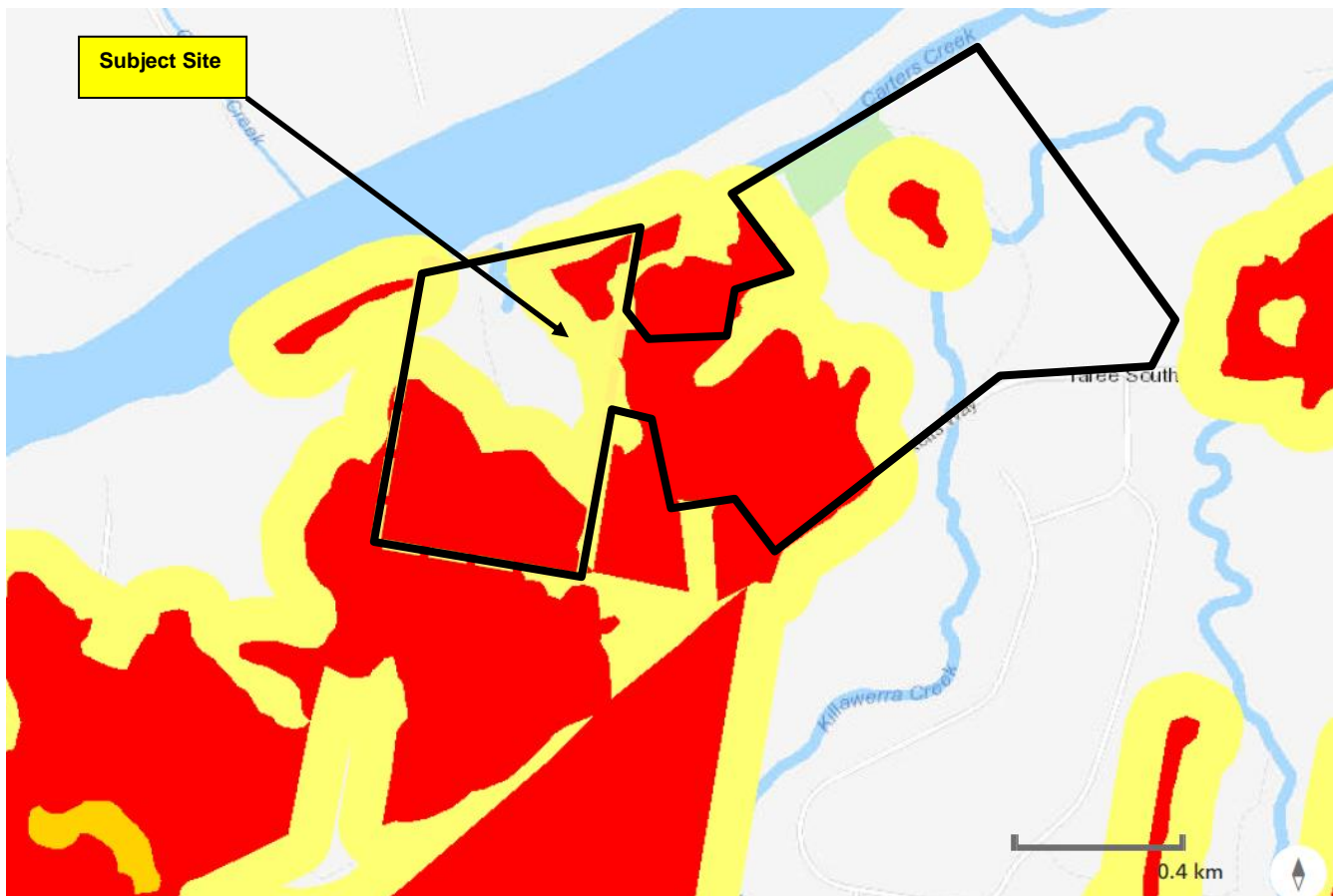
The assessment of slope and vegetation being carried out in accordance with Appendix 1 of NSW Rural Fire Service, **Planning for Bushfire Protection**, 2019.

It is noted that previous development approvals involving the subject site were subject to compliance with the relevant provisions of NSW Rural Fire Service, **Planning for Bushfire Protection**, 2001. In this regard the proposed modification of the layout of the already approved subdivision allows an opportunity to ensure that the proposed development complies with the most recent bushfire threat management strategies which are relevant to residential subdivision developments in NSW.

### 2.2 Hazard Risk Identification

Bushfire Prone Land Risk Mapping provides that Category 1 vegetation is located over the southwestern and central areas of the subject site and on adjoining and adjacent land to the northwest, southwest and west; refer to **Figure 4** below;

**Figure 4 - Bushfire Prone Land Mapping**



It is however noted that the mapping as presented above does not recognize the presence of grasslands which are present within the subject site and on adjoining and adjacent land to the northwest, southeast and east of the subject site. Grasslands are now an identified as having bushfire threat management relevance to residential development.

### **2.3 Slope**

Slope is a major factor to consider when assessing the bushfire risk for the approved lots which are the subject of this report.

The slopes affecting the proposed development were measured using a Suunto PM-5/360 PC Clinometer.

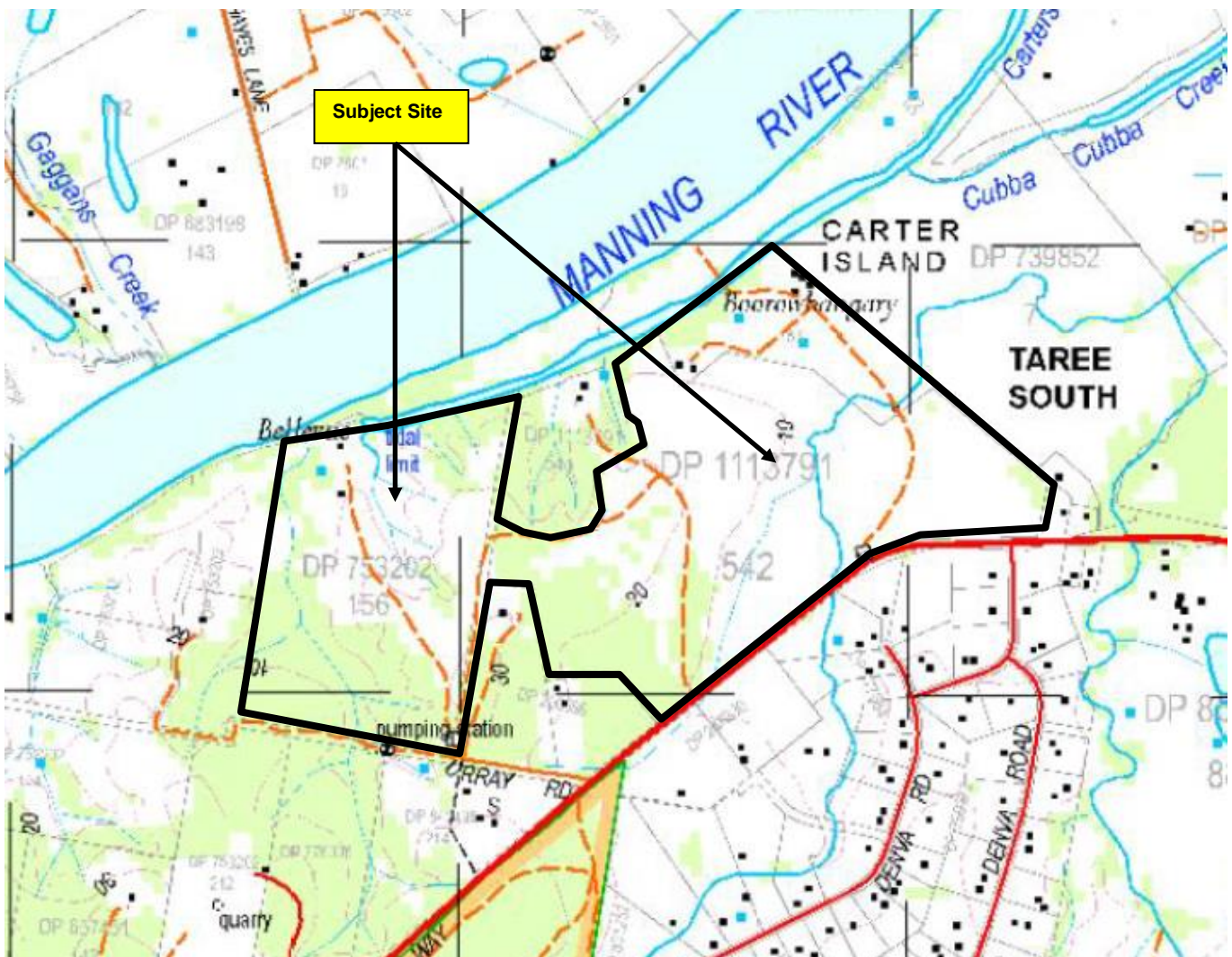
The topography of the area, in particular the subject site, is influenced by a small west to east ridgeline/hill formation the crest of which is present in the central portion of the subject site with the presence of a number of northerly flowing intermittently flowing creeks/drainage depressions emanating from the ridgeline providing for undulating land particularly in the northern portion of the subject site. Accordingly slope conditions in the northern portion of the subject site comprise of gentle to moderate south to north downslopes towards the Manning River and Carters Creek with short steep easterly and westerly slope conditions present adjacent to the beds of the various intermittently flowing creeks/drainage depressions present on the subject site. Slope conditions in the southern and eastern portions of the subject site comprise gentler slope conditions with slope orientation reflecting the presence of the southern and eastern side slopes of the ridgeline/hill feature. Slope conditions in the eastern portion of the subject site become gentler reflecting flatter topographical conditions in this portion of the subject site and on adjoining and adjacent land to the east.



Slope conditions on adjoining land to the south are dominated by gentle north to south slope conditions whilst to the west of the subject site slope conditions transition to westerly moderate to steep upslopes. Short but steep slopes define the transition from the subject site to the flood plain of the Manning River/Carters Creek along the far northern portion of the subject site.

The topographic features of the subject site and adjoining and adjacent land can be seen in **Figure 5** below;

**Figure 5 – Topographic Features of Locality**



The following table indicates the slopes which have been adopted for the purposes of this bushfire hazard assessment. Given the size of the subject site and the topography of the subject site and adjoining and adjacent land slope conditions are variable. In this regard the following worst-case slope conditions were considered to be relevant to the proposed development.

**Table 2 – Hazard Vegetation Slopes**

HAZARD	SLOPE RANGE	UPSLOPE/DOWNSLOPE
<b>Within Subject Site</b>		
Northern	10° - 11°	Downslope
Northeastern	2° - 3°	Downslope
Northwestern	11° - 12°	Downslope
Southern Central	5° - 10°	Downslope
Eastern	1° - 2°	Downslope
Eastern Central	0°	Flat/Upslope
Southwestern	10° - 15°	Downslope
<b>Adjoining and Adjacent Land</b>		
Northern Central	10° - 15°	Downslope
Southeastern	0° - 1°	Downslope
Southern central	>5°	Downslope
East	1° - 2°	Downslope
West	10° - 11°	Downslope

**Notes:**

\* *In accordance with NSW Rural Fire Services, Planning for Bushfire Protection, 2019 all upslope vegetation is considered to be 0°.*

All the above slopes were considered when assessing the required Asset Protection Zones and Bushfire Attack Levels for the proposed residential lots.

## 2.4 Vegetation Assessment

The vegetation on and surrounding the subject site was assessed over a distance of 140m from the subject development.

The vegetation formations were classified using the system adopted as per Keith (2004) and in accordance with Appendix 1 of NSW Rural Fire Service, **Planning for Bushfire Protection**, 2019.

The following information is provided in relation to the floristic characteristics of the subject site and adjoining and adjacent land. In adopting a conservative approach to bushfire hazard assessment worst case vegetation characteristics have been identified.

The following vegetation characteristics were identified as being relevant to the bushfire hazard assessment.

### 2.4.1 Vegetation on Subject Site

For the purposes of this assessment report it has been assumed that there will be no areas of bushfire hazard vegetation retained within the proposed individual residential lots.

Narrow areas of riparian vegetation have been retained adjacent to the interface with The Manning River and Carters Creek with some remnants of riparian vegetation retained adjacent to other drainage features on the subject site.



**Riparian  
vegetation  
retained adjacent  
to Carters Creek**

Some small remnant areas of vegetation have been retained on the subject site with these areas of vegetation generally isolated from other areas of hazard vegetation.



**Small remnant  
area of  
vegetation in the  
north-eastern  
aspect of the  
subject site**

Grasslands with scattered and small clusters of trees dominate the vegetation characteristics in the eastern portion of the subject site with similar conditions present in the northwestern portion of the subject site.





**Grasses over the south-eastern portion of the subject site**



**Grasses with scattered and clusters of trees over the eastern central area of the subject site**



**Grasses over the central area of the subject site**



**Grasses over the north-western portion of the subject site**

Areas of Dry Sclerophyll Forest are present in the southwestern and southern central portions of the subject site with the mechanical modification of the floristic characteristics of the forest vegetation present in the southern central portion of the subject site.





**Modified forest vegetation in southern central portion of the**



**Forest vegetation adjacent to grassland areas in central area of the subject site**

The development concept for the proposed residential subdivision also provides for an open space area to be integrated into the southeastern portion of the proposed subdivision layout. In this regard due to the presence of the proposed residential lots, the vegetation within the proposed open space area will be limited in connectivity with other areas of hazard vegetation to the west with the open space area terminating adjacent to the eastern boundary of the subject site. Whilst no floristic information is available for the open space area in terms of future bushfire hazard, in adopting a conservative approach to bushfire hazard assessment a Rainforest specification has been adopted for this area of vegetation. This classification reflects the potential similarities of the size of this area of vegetation with remnant or riparian areas of vegetation and reflects the isolated nature of the open space area from other areas

of hazard vegetation. The creation and management of the open space area is to be implemented and enforced through a Vegetation Management Plan (VMP) which will specify the requirements for the creation and on-going management of this area in terms of ensuring that fuel loads are consistent with that expected for a Rainforest Specification.

#### **2.4.2 Vegetation on Adjoining and Adjacent Land**

Adjoining and adjacent land to the east and northwest consists of grasslands with scattered and clusters of trees whilst remnant areas of riparian vegetation are present to the north of the subject site.



Grasses over  
adjoining land to  
the east

It is however noted that on adjoining land to the central northern aspect of the subject site are areas of Dry Sclerophyll Forest which has been retained on an allotment of land which does not form part of the subject site.





**Forest vegetation retained on allotment of land to the north of the subject site**

Managed grasslands with landscaping are present on the developed rural residential lots to the southeast of the subject site although narrow remnants of Forest vegetation have been retained within The Bucketts Way road reserve. Dry Sclerophyll Forest dominate the vegetation on adjoining and adjacent land to the south and southwest although some clearing has occurred around the active use areas of adjoining and adjacent lots.



**Managed vegetation within adjacent rural residential lots to the southeast**





Remnant forest  
vegetation within  
The Bucketts  
way road reserve

The following table indicates the various vegetation structures within and adjoining the subject site which are of relevance to this bushfire hazard assessment.

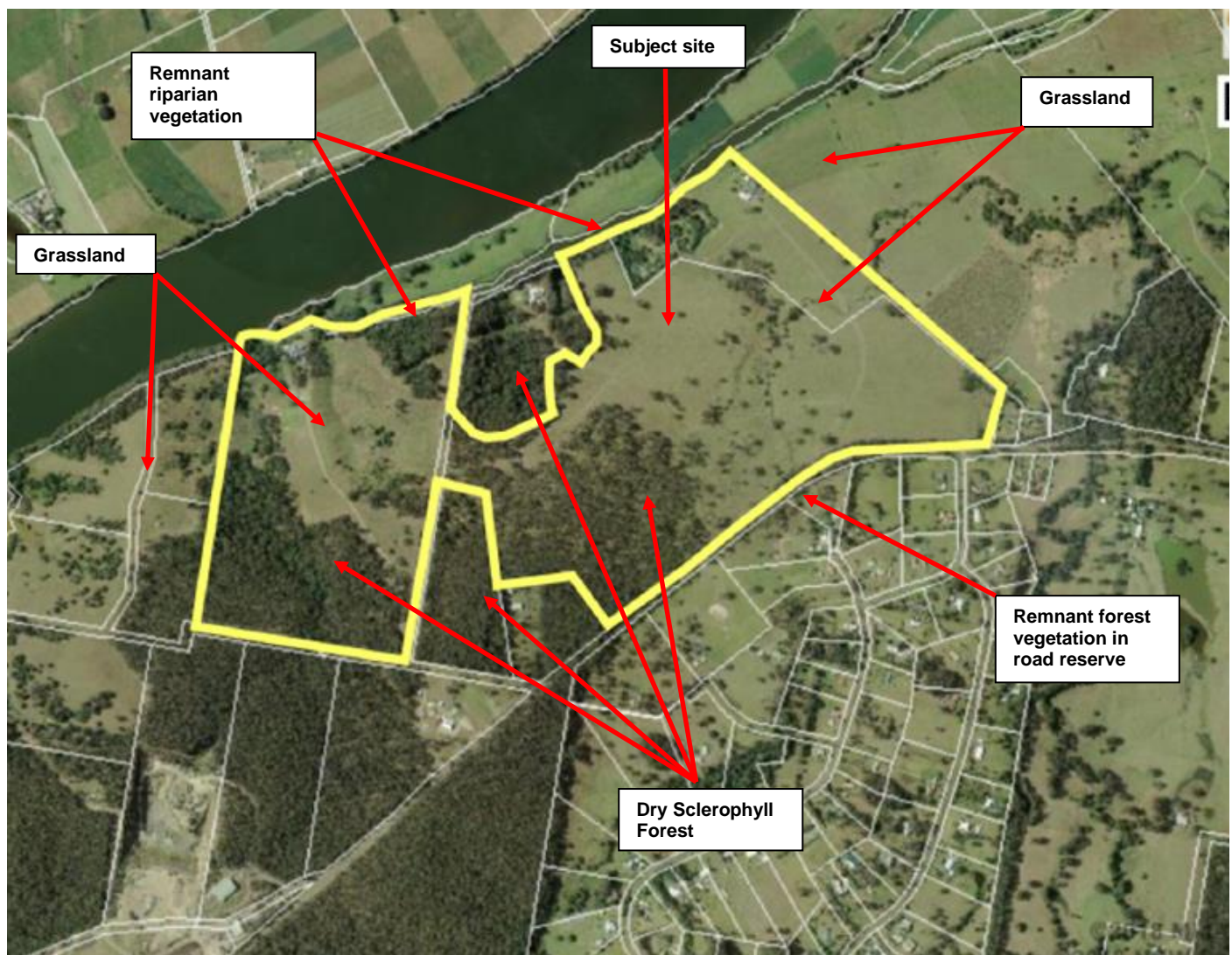
**Table 3 – Summary of Vegetation Characteristics**

ASPECT	VEGETATION DESCRIPTION	VEGETATION CLASSIFICATION APPENDIX 1 of P&PB 2019 – (Keith, 2004)
<b>Within Subject Site</b>		
Northern	Riparian vegetation adjacent to the banks of Carters Creek	Similar in specification to Rainforest
Northeastern	Small remnant of vegetation within subject site adjacent to existing dwelling	Similar in specification to Rainforest
Northwestern	Riparian vegetation adjacent to the banks of Carters Creek/The Manning River	Similar in specification to Rainforest
Southern Central	Dry Sclerophyll Forest within subject site	Dry Sclerophyll Forest
Eastern	Small isolated area of vegetation to be retained within public reserve/open space within proposed subdivision	Similar in specification to Rainforest
Southwestern	Dry Sclerophyll Forest within subject site	Dry Sclerophyll Forest
Western Central	Dry Sclerophyll Forest within subject site	Dry Sclerophyll Forest
<b>Adjoining and Adjacent Land</b>		
Northern Central	Dry Sclerophyll Forest on adjoining land to the north of the subject site	Dry Sclerophyll Forest

Southeastern	Narrow band of highly disturbed Dry Sclerophyll Forest retained within The Bucketts Way road reserve	Similar in specification to Rainforest
Southern Central	Dry Sclerophyll Forest on adjoining land to the south of the subject site	Dry Sclerophyll Forest
East	Grassland on adjoining land to the east	Grassland
West	Narrow band of remnant forest vegetation retained adjacent to intermittently flowing creek	Similar in specification to Rainforest

An indication of the relationship of the vegetation of bushfire significance to the subject site, (and proposed development), is presented in **Figure 6** below.

**Figure 6 - Vegetation Relationships to Subject Site**



## 2.5 Fire Danger Index

The fire weather for the subject site is assumed on the worst-case scenario.

In accordance with NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019, NSW Rural Fire Service, **NSW Local Government Areas FDI**, May 2017 and Table 2.1 of AS 3959



- 2018, the fire weather for the site is based upon the 1:50 year fire weather scenario and has a Fire Danger Index (FDI) of 80.

### 3.0 BUSHFIRE THREAT REDUCTION MEASURES

#### 3.1 NSW Rural Fire Services, *Planning for Bushfire Protection*, 2019

The following bushfire issues and constraints have been identified through considering the requirements of NSW Rural Fire Service, *Planning for Bushfire Protection*, 2019 in relation to the proposed development.

In order to reduce the bushfire threat, it is suggested the following measures be included in any strategy developed for the proposed residential subdivision.

It is noted that previous development approvals involving the subject site were subject to compliance with the relevant provisions of NSW Rural Fire Service, *Planning for Bushfire Protection*, 2001. In this regard the proposed modification of the layout of the already approved subdivision allows an opportunity to ensure that the proposed development complies with the most recent bushfire threat management strategies which are relevant to residential subdivision developments in NSW.

##### 3.1.1 Asset Protection Zones



The objectives of an Asset Protection zone (APZ) is to protect human life, property and highly valued public assets and values.

The APZ is an area surrounding a development, managed to reduce the bushfire hazard to an acceptable level. The APZ should incorporate an Outer Protection Area (OPA) and an Inner Protection Area (IPA).

The APZ provides for; minimal separation for safe firefighting, reduced radiant heat, reduced influence of convection driven winds, reduced ember viability and dispersal of smoke. The APZ consists of an Inner Protection Area (IPA) and Outer Protection Area (OPA). The IPA is an area closest to the buildings that incorporates defendable space and is used for managing heat intensities at the building surface. The OPA is positioned adjacent to the hazard and the purpose of the OPA is to reduce the potential length of flame by slowing the rate of spread, filtering embers and suppressing the crown fire.

The following table indicates the minimum required APZ's between the various identified bushfire hazards and a future dwelling positioned on each of the proposed residential lots in order to achieve compliance with the radiant heat performance criteria of 29 kW/m<sup>2</sup> as assessed in accordance with Appendix 1 of NSW Rural Fire Service, *Planning for Bushfire Protection*, 2019.

**Table 4 - Asset Protection Zone Requirements (PfBP 2019)**

DIRECTION OF HAZARD	VEGETATION TYPE	SLOPE	IPA	OPA	TOTAL REQUIRED APZ	MINIMUM APZ ACHIEVABLE (to dwellings within Lots)	COMPLIANCE (with Minimum APZ Requirements)
<b>Within Subject Site</b>							
Northern	Similar in specification to Rainforest	10° - 11° Down slope	20m	-	20m	Minimum 20m	
Northeastern	Similar in specification to Rainforest	2° - 3° Down slope	12m	-	12m	Minimum 12m	

Northwestern	Similar in specification to Rainforest	11° - 12° Down slope	20m	-	20m	Minimum 20m	✓
Southern Central	Dry Sclerophyll Forest	5° - 10° Down slope	16m	15m	31m	Minimum 39m	✓
Eastern	Similar in specification to Rainforest	1° - 2° Down slope	12m	-	12m	Minimum 12m	✓
Southwestern	Dry Sclerophyll Forest	0° Flat/ Upslope	10m	10m	20m	Minimum 20m	✓
Western Central	Dry Sclerophyll Forest	10° - 15° Down slope	24m	15m	39m	Minimum 39m	✓
<b>Adjoining and Adjacent Land</b>							
Northern Central	Dry Sclerophyll Forest	10° - 15° Down Slope	24m	15m	39m	Minimum 39m	✓
Southeastern	Similar in specification to Rainforest	0° - 1° Down slope	12m	-	12m	Minimum 12m	✓
Southern Central	Dry Sclerophyll Forest	>5° Down slope	15m	10m	25m	Minimum 25m	✓
East	Grassland	1° - 2° Down slope	11m	-	11m	Minimum 11m	✓
West	Similar in specification to Rainforest	10° - 11° Down slope	20m	-	20m	Minimum 20m	✓





Having regard to the above, it is possible to locate future residential dwellings on proposed lots and comply with the relevant APZ performance requirements of NSW Rural Fire Service, **Planning for Bushfire Protection**, 2019 albeit that the final design and spatial relationships of future residential buildings will need to be confirmed.

Compliance with the minimum APZ requirements as provided for in **Table 4** above for the proposed lots is shown in **Appendix 4**. In this regard **Appendix 4** demonstrates that the minimum required APZ's can be provided for each of the proposed lots leaving sufficient area on each of the proposed residential lots for the construction of future dwellings. It is further noted that APZ's greater than the minimums provided for in **Table 4** above maybe available for future residential dwellings depending upon lot specific siting and design.

As can be seen in **Appendix 4**, the provision of APZ's to the proposed residential lots relies on the provision of the minimum required APZ's within the boundaries of each of the proposed lots or via the utilization of adjoining areas of land using easements. In this regard APZ's which encompass adjoining allotments are to be the subject of 'restrictions as to user' pursuant to Section 88B of the Conveyancing Act, 1919 which requires the establishment and ongoing maintenance of the APZ's in perpetuity on adjoining land to the proposed residential lots.

The APZ performance criteria and acceptable solution provisions which would apply to any future residential dwellings on the proposed residential lots are detailed in the following table:

**Table 5 – Residential Subdivision Development APZ Performance Requirements 2019**

<b>Intent of measures: to provide sufficient space and maintain reduced fuel loads to ensure radiant heat levels at the buildings does not exceed 29kW/m<sup>2</sup>.</b>		
<b>Performance Criteria</b>	<b>Acceptable Solutions</b>	<b>Compliance Comment</b>
<b>The intent may be achieved where:</b>		
<ul style="list-style-type: none"> <li>potential building footprints will not be exposed to radiant heat levels exceeding 29 kW/m<sup>2</sup> on each proposed lot</li> </ul>	<ul style="list-style-type: none"> <li>APZs are provided in accordance with Tables A1.12.2 and A1.12.4 based on the FDI</li> </ul>	 To be complied with in relation to the design of future development.
<ul style="list-style-type: none"> <li>APZs are managed and maintained to prevent the spread of a fire towards the building.</li> </ul>	<ul style="list-style-type: none"> <li>APZs are managed in accordance with the requirements of 'Appendix 4</li> </ul>	 To be complied with in relation to the design of future development
<ul style="list-style-type: none"> <li>the APZ is provided in perpetuity</li> </ul>	<ul style="list-style-type: none"> <li>the APZ is wholly within the boundaries of the development site.</li> </ul>	 To be complied with in relation to the design of future development  All APZ's can be provided in accordance with PfBP Guideline requirements
<ul style="list-style-type: none"> <li>APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is minimised</li> </ul>	<ul style="list-style-type: none"> <li>APZ's is located on lands with a slope less than 18 degrees.</li> </ul>	 To be complied with in relation to the design of future development  All APZ's can be provided on lands with a slope less than 18 degrees.

Having regard to the above it will be necessary to ensure that the future design of any residential dwellings located on each of the proposed residential lots provides for compliance with the minimum APZ requirements specified in **Table 4** above.

In this regard a minimum 39m wide APZ is to be extended along the eastern boundary of proposed Lot 916 in order to provide for the proposed development to meet compliance with the minimum requirements for APZ's as provided for in **Table 4** of this report.

**Notwithstanding the above, based upon the size and shape of the proposed residential lots it is considered that the intent of the requirement for the provision of Asset Protection Zones as required by NSW Rural Fire Services, *Planning for Bushfire Protection*, 2019 can be satisfied for the future development of the proposed lots albeit that the location, nature and form of construction of future residential development must reflect the performance objectives of NSW Rural Fire Services, *Planning for Bushfire Protection*, 2019.**

### **3.1.2 Defendable Space/Asset Protection Zone Management**

Areas identified as forming part of the minimum APZ requirements for any future residential subdivision developments must be managed so as to comply with the standards which are applicable to Asset Protection Zones as follows;

**(i) Inner Protection Area (IPA)**

*An IPA should provide a tree canopy cover of less than 15% and should be located greater than 2 metres from any part of the roofline of a building.*

*Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10m from an exposed window or door.*

*Trees should have lower limbs removed up to a height of 2 metres above the ground*

**(ii) Outer Protection Area (OPA)**

*An OPA should provide a tree canopy cover of less than 30% and should have the understorey managed (mowed) to treat all shrubs and grasses on an annual basis in advance of the fire season (usually September).*

In this regard it will be necessary to provide and maintain for the life of any future residential development on each of the proposed residential lots the minimum Asset Protection Zones as provided for by **Table 4** and **Appendix 4** of this report.

**3.1.3 Operational Access and Egress**

Access to the subject residential subdivision is to be in accordance with the already approved access and egress strategy for the approved residential subdivision. In this regard access to the proposed changed subdivision layout will continue to be via new public road infrastructure which will connect with The Bucketts Way and Urray Road which are existing two way all weather public roads which serve as connecting and property access roads within the locality.

Access to the proposed subdivision will continue to be via two (2) main north to south connecting public roads which will connect the proposed lots with The Bucketts Way and Urray Road each of which adjoin portions of the southern boundary of the subject site. In this regards Stages 1 and 3 of the proposed development will be accessed via The Bucketts Way whilst Stage 2 will be of the subdivision will be accessed by Urray Road.

All new public roads within the approved subdivision will be two-way, bitumen sealed and will be constructed to normal residential street standards.

It is noted that the proposed development concept also provides for the construction of an emergency alternative access road which connects Stages 1 and 3 which are located in the eastern and central areas of the subject site with Stage 2 which occupies the western portion of the subject site. This approach provides for alternative access and egress to and from the proposed development with access to and from the proposed lots during an emergency available via both The Bucketts Way and Urray Road.

It is noted that whilst the design of the of the proposed subdivision does provide for some of the public road infrastructure to function as 'loop roads' a number of the roads in the eastern portion of the proposed subdivision have a cul de sac arrangement which does not provide for a 'through road' configuration. Whilst the majority of the cul de sac roads are short in length some roads are more than 200m in length. This arrangement is however considered to be acceptable on the basis of;

- The consistence of the proposed subdivision layout with the already approved subdivision layout.
- The availability of an alternative emergency access road which provides for multiple travel options within and to and from the subdivision.
- The reduced bushfire risk associated with the hazard vegetation in the eastern aspect of the subject site. In this regard only small remnant areas of unmanaged vegetation will be present within the subdivision footprint and on adjoining and adjacent land to

the southeast whilst to the east of the subject site are grasslands, (which are not mapped as being hazard vegetation).


- The internalization of public road infrastructure. It is noted that the design of the proposed subdivision is such that those cul de sac roads with a length greater than 200m are separated from areas of hazard vegetation by managed vegetation within proposed residential lots with substantial separation of road infrastructure from hazard vegetation. This approach provides for the maintenance of tenable conditions in the context of the continued utilization of the road infrastructure during an emergency event.
- The proposed modification of the layout of the already approved subdivision allows an opportunity to ensure that the proposed development complies with the most recent bushfire threat management strategies which are relevant to residential subdivision developments in NSW





Existing public road infrastructure adjoining to the south-eastern portion of the subject site – 'The Bucketts Way'

It will be necessary to construct all new public roads within the proposed subdivision development so as to comply with Section 5.3.2 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019. The relevant public road provisions which are applicable to the future residential subdivision development of the subject site are summarized as follows;



**Table 6 - Public Road Requirements (PfBP 2019)**

Performance Criteria	Acceptable Solutions	Compliance Comment
<b>The intent may be achieved where:</b>		
<b>(i) General Requirements</b>		
<ul style="list-style-type: none"> <li>• firefighting vehicles are provided with safe, all-weather access to structures and hazard vegetation</li> </ul>	<ul style="list-style-type: none"> <li>• property access roads are two-wheel drive, all-weather roads; and</li> <li>• perimeter roads are provided for residential subdivisions of three or</li> </ul>	 Future design of road infrastructure to comply




	<ul style="list-style-type: none"> <li>more allotments; and</li> <li>subdivisions of three or more allotments have more than one access in and out of the development; and</li> <li>traffic management devices are constructed to not prohibit access by emergency services vehicles; and</li> <li>maximum grades for sealed roads do not exceed 15 degrees and an average grade of not more than 10 degrees or other gradient specified by road design standards, whichever is the lesser gradient; and</li> <li>all roads are through roads. Dead end roads are not recommended, but if unavoidable, dead ends are not more than 200 metres in length, incorporate a minimum 12 metres outer radius turning circle, and are clearly sign posted as a dead end; and</li> <li>where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road; and</li> <li>where access/egress can only be achieved through forest, woodland or heath vegetation, secondary access shall be provided to an alternate point on the existing public road system.</li> </ul>	
<ul style="list-style-type: none"> <li>the capacity of access roads is adequate for firefighting vehicles</li> </ul>	<ul style="list-style-type: none"> <li>the capacity of perimeter and non-perimeter road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges/causeways are to clearly indicate load rating.</li> </ul>	 Future design of road infrastructure to comply
<ul style="list-style-type: none"> <li>there is appropriate access to water supply</li> </ul>	<ul style="list-style-type: none"> <li>hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;</li> <li>hydrants are provided in accordance with AS 2419.1:2005;</li> <li>there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.</li> </ul>	 Future design of road infrastructure to comply



(ii) Perimeter Roads		
<ul style="list-style-type: none"> <li>access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while residents are evacuating as well as providing a safe operational environment for emergency service personnel during firefighting and emergency management on the interface</li> </ul>	<ul style="list-style-type: none"> <li>perimeter roads are two-way sealed roads; and</li> <li>8m carriageway width kerb to kerb; and parking is provided outside of the carriageway width; and hydrants are located clear of parking areas; and</li> <li>there are through roads, and</li> <li>these are linked to the internal road system at an interval of no greater than 500m; and</li> <li>curves of roads have a minimum inner radius of 6m; and the maximum grade road is 15° and average grade is 10°; and</li> <li>the road crossfall does not exceed 3°; and a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.</li> </ul>	 Future design of road infrastructure to comply
(iii) Non-Perimeter Roads		
<ul style="list-style-type: none"> <li>access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while residents are evacuating</li> </ul>	<ul style="list-style-type: none"> <li>minimum 5.5m width kerb to kerb; and</li> <li>parking is provided outside of the carriageway width; and</li> <li>hydrants are located clear of parking areas; and roads are through roads, and these are linked to the internal road system at an interval of no greater than 500m; and curves of roads have a minimum inner radius of 6m; and</li> <li>the road crossfall does not exceed 3°; and</li> <li>a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches, is provided.</li> </ul>	 Future design of road infrastructure to comply

As mentioned above the proposed subdivision concept provides for the provision of an emergency alternative access road which connects the eastern portion of the subject site, (Stages 1 and 3), with the western portion of the subject site, (Stage 2). In this regard the proposed alternative access road is to be designed and constructed so as to comply with Section 5.3.2 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019. The relevant access road provisions which are applicable to the residential subdivision development of the subject site are summarized as follows;

**Table 7 - Acceptable Solutions (Access/Internal Roads) PfBP 2019**

Performance Criteria	Acceptable Solutions	Compliance Comment
<b>The intent may be achieved where:</b>		
<ul style="list-style-type: none"> <li>• firefighting vehicles can access the dwelling and exit safely</li> </ul>	<p>No specific access requirements apply in a urban area where a 70 metre unobstructed path can be demonstrated between the most distant external part of the proposed dwelling and the nearest part of the public access road (where the road speed limit is not greater than 70kph) that supports the operational use of emergency firefighting vehicles (i.e. a hydrant or water supply).</p> <p>In circumstances where this cannot occur, the following requirements apply:</p> <ul style="list-style-type: none"> <li>• minimum carriageway width of 4m;</li> <li>• in forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20m long by 2m wide, making a minimum trafficable width of 6m at the passing bay; and</li> <li>• a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; and</li> <li>• provide a suitable turning area in accordance with Appendix 3; and</li> <li>• curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress; and</li> <li>• the minimum distance between inner and outer curves is 6m; and</li> <li>• the cross fall is not more than 10°; and</li> <li>• maximum grades for sealed roads do not exceed 15° and not more than 10° for unsealed roads; and a development comprising more than three dwellings has formalised access by dedication of a road and not by right of way.</li> </ul> <p>Note: Some short constrictions in the access may be accepted where they are not less than the minimum (3.5m), extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. the gradients applicable to public roads also apply to community style development property access roads</p>	<p> To be complied with in relation to the design of future development</p>

	in addition to the above.	
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It is however noted that given the unknown timing for the construction of the different stages of the proposed subdivision, it will be necessary to construct the proposed alternative access road as part of Stage 1 of the proposed development with the design and construction of the road providing for connection with Urray Road. It will also be necessary to establish restrictions as to user' pursuant to Section 88B of the Conveyancing Act, 1919 which provides for the use of the alternative access road by the residents of Stage 1 of the proposed subdivision until such times as the public road infrastructure within Stage 2 has been constructed and dedicated for use.

Subject to compliance with the requirements of **Tables 6 and 7** above in relation to the design and construction of new public road and property access infrastructure it is considered that the proposed access and egress arrangements will be acceptable for the proposed modified residential subdivision development given the nature, construction and extent of the existing public road infrastructure which is present in the locality and the future public and private road systems which will be required to be provided to service the proposed residential subdivision development.

### 3.1.4 Services - Water, Gas and Electricity

As set out in Section 5.3.3 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019, developments in bushfire prone areas must maintain a water supply reserve dedicated to firefighting purposes.



Given that the proposed subdivision provides for the creation of residential lots, all proposed lots will have access to the reticulated water supply, the extension of which will be required by Midcoast Council to service the proposed subdivision. It is however noted that in accordance with NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019 the determination of a guaranteed water supply is to be made by the water supply authority where mains water supply is available.

Electricity supply is available in the area and available for connection to the proposed residential lots.

Reticulated gas services are not available to the subject site.

The incorporation into the proposed residential subdivision of the relevant provisions of the following acceptable solutions as provided for by Section 5.3.3 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019 will ensure compliance with the intent for the provision of services to each of the proposed residential lots.

**Table 8 – Service Provision Requirements**

<b>Intent of measures: to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building.</b>		
<b>Performance Criteria</b>	<b>Acceptable Solutions</b>	<b>Compliance Comment</b>
<b>The intent may be achieved where:</b>		
<b>Water Supply</b>		
• a water supply is provided for firefighting purposes	• reticulated water is to be provided to the development, where available. • a static water supply is provided where no reticulated water is available.	 To comply
• water supplies are	• fire hydrant spacing, design and	 To comply

located at regular intervals • the water supply is accessible and reliable for firefighting operations	sizing comply with the Australian Standard AS 2419.1:2005. • hydrants are not located within any road carriageway; reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.	
• flows and pressure are appropriate	• fire hydrant flows and pressures comply with AS 2419.1:2005.	✓ To comply
• the integrity of the water supply is maintained	• all above-ground water service pipes are metal, including and up to any taps.	✓ To comply
<b>Electricity Services</b>  • location of electricity services limits the possibility of ignition of surrounding bush land or the fabric of buildings	• where practicable, electrical transmission lines are underground. • where overhead, electrical transmission lines are proposed as follows: • lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas. • no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.	✓ To comply
<b>Gas services</b>  • location and design of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	• reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used. • all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side. • connections to and from gas cylinders are metal; polymer-sheathed flexible gas supply lines are not used. • above-ground gas service pipes are metal, including and up to any outlets	✓ To comply (where applicable)

The provision of services to support the future residential occupation of each of the proposed residential lots will need to have regard to the specific details of the development of each of the proposed residential lots.

**It is considered that the intent of the requirement for the provision of services as required by NSW Rural Fire Services, *Planning for Bushfire Protection*, 2019 can be satisfied for the proposed residential subdivision.**

### 3.1.5 Landscaping

Landscaping is a major cause of fire spread to dwellings and therefore any future landscaping on the proposed lots and within public open space areas will need careful planning to produce gardens that do not contribute to the spread of a bushfire.

Appendix 4 of NSW Rural Fire Services, *Planning for Bushfire Protection*, 2019, contains standards that are applicable to the provision and maintenance of landscaping.

Any landscaping proposed to be undertaken in conjunction with the proposed subdivision is to comply with the principles contained in Appendix 4 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019.

### 3.2 Construction of Buildings in Bushfire Prone Areas

#### 3.2.1 General

The 'Deemed-to-Satisfy' provisions for construction requirements are detailed in AS 3959-2018 however in NSW the relevant Bushfire Attack Level and construction requirements must be determined in accordance with Appendix 1 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019 (in particular Table A1.12.6), rather than in accordance with Section 2 of AS 3959 - 2018.

However given that the proposed residential subdivision proposal which is the subject of this report does not involve the erection of any buildings, the determination of Bushfire Attack Levels that would be applicable to future buildings on the proposed residential lots is not relevant at this time.

It is however noted that compliance with the minimum Asset Protection Zone requirements for the proposed residential lots, as nominated in **Table 4** and shown in **Appendix 4** of this report, will provide opportunities for future buildings to be constructed upon each of the proposed residential allotments in compliance with the requirements provided for in AS 3959 – 2018, (as modified by NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019).

The information presented in Section 3.1.1 of this report indicates that where the minimum required APZ's are provide in accordance with **Table 4** of this report, future buildings erected within each of the proposed residential lots would be subjected to a worst-case Bushfire Attack Level of BAL 29. This is consistent with the acceptable solution requirements of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019.

In accordance with Table A1.12.6 of Appendix 1 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019, the following Bushfire Attack Levels (BAL's) would be applicable to the development of each of the proposed residential lots.

**Table 9 – Bushfire Attack Levels for Nominated Vegetation Classifications and Slopes**

VEGETATION (AS PER SPECHT)	SLOPE	DISTANCE TO HAZARD VEGETATION	BUSHFIRE ATTACK LEVEL (BAL)
Rainforest Spec.	<5° Downslope	<9	BAL Flame Zone
		9 - <12m	BAL 40
		12m – <17m	BAL 29
		17m - <25m	BAL 19
		25m - <100m	BAL 12.5
		100m +	Low Risk
Rainforest Spec.	10° - 15° Downslope	<14m	BAL Flame Zone
		14m – <20m	BAL 40
		20m - <29m	BAL 29
		29m - <40m	BAL 19
		40m - <100m	BAL 12.5

		100m +	Low Risk
Grassland	<5° Downslope	<8m	BAL Flame Zone
		8m - <11m	BAL 40
		11m – <16m	BAL 29
		16m - <23m	BAL 19
		23m - <50m	BAL 12.5
		50m +	Low Risk
Forest	<5° Downslope	<19m	BAL Flame Zone
		19m - <25m	BAL 40
		25m – <35m	BAL 29
		35m - <47m	BAL 19
		47m - <100m	BAL 12.5
		100m +	Low Risk
Forest	5° - 10° Downslope	<24m	BAL Flame Zone
		24m - <31m	BAL 40
		31m – <43m	BAL 29
		43m - <57m	BAL 19
		57m - <100m	BAL 12.5
		100m +	Low Risk
Forest	10° - 15° Downslope	<30m	BAL Flame Zone
		30m - <39m	BAL 40
		39m – <52m	BAL 29
		52m - <68m	BAL 19
		68m - <100m	BAL 12.5
		100m +	Low Risk

## 4.0 REQUIREMENTS

The following requirements are provided in response to the proposed residential subdivision of land known as Lot 542 DP 113791, Lot 156 DP 753202 and Lot 53 DP 836998, The Bucketts Way, Tinonee as provided in **Appendix 3** of this report;

- (i) Asset Protection Zones are to be provided in accordance with Section 3.1.1 of this report where future development of each of the proposed residential lots is proposed.
- (ii) Areas of land which are shown in **Appendix 4** of this report to form part of the minimum required APZ's for the proposed residential lots and are located on adjoining land to the proposed residential lots are to be the subject of 'restrictions as to user' pursuant to Section 88B of the Conveyancing Act, 1919 which requires the establishment and ongoing maintenance of the required APZ's on adjoining/adjacent land to the residential lots in perpetuity.
- (iii) A Vegetation Management Plan is to be prepared for the areas of the proposed subdivision nominated as open space/public reserve. The Vegetation Management Plans is to provide for;
  - (a) the ongoing management of any areas which form part of the minimum required APZ's; and
  - (b) the establishment and ongoing management of vegetation within open space/public reserve so as to be consistent with fuel loads which would be expected for Category 2 vegetation.
- (iv) The design and construction of all public roads within the proposed subdivision are to comply with the acceptable solutions provided for in Section 5.3.2 of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019.
- (v) Temporary turning heads are to be provided to the proposed public roads until such times as the development of adjoining stages occurs. The design and construction of the temporary turning heads is to be consistent with the relevant requirements of **Table 6** of this report.
- (vi) The design and construction of the alternative access road linking Stages 1 and 3 with Stage 2 of the proposed subdivision is to comply with the relevant requirements of NSW Rural Fire Services, **Planning for Bushfire Protection**, 2019.
- (vii) The construction of the proposed alternative access road is to form part of Stage 1 of the proposed development with the design and construction of the road providing for connection with Urray Road. A 'restriction as to user' pursuant to Section 88B of the Conveyancing Act, 1919 is to be established over the proposed road which provides for the maintenance and use of the alternative access road by the residents of Stages 1 and 3 of the proposed subdivision until such times as the public road infrastructure within Stage 2 has been constructed and dedicated for use.
- (viii) Water and other services are to be provided to the proposed development in accordance with the requirements detailed in Section 3.1.4 of this report.
- (ix) Adopt Landscaping principals in accordance with Section 3.1.5 of this report.
- (x) The determination of the Bushfire Attack Levels and corresponding construction standards for each of the proposed residential lots should be the subject of an individual bushfire hazard assessment conducted in conjunction with the development of a dwelling on each of the proposed residential lots.

## 5.0 RECOMENDATIONS

In addition to the requirements of this report the following recommendations are made;

- (i) A bushfire survival plan be developed and implemented for each of the lots which form the subject site. In this regard your attention is drawn to the following documents will be useful in the preparation of a bushfire survival plan:
  - \* NSW Rural Fire Service - Bushfire Safety-Prepare, Act and Survive.
  - \* NSW Rural Fire Service - Bushfire Survival Plan Factsheet
  - \* NSW Rural Fire Service - Leaving Early Factsheet
  - \* NSW Rural Fire Service - Bushfire Preparation Factsheet

## 6.0 CONCLUSION

It is considered that the proposed residential subdivision of land known as Lot 542 DP 113791, Lot 156 DP 753202 and Lot 53 DP 836998, The Bucketts Way, Tinonee is at risk of bushfire attack; however, it is in our opinion that with the implementation of the bushfire threat reduction measures and consideration of the recommendations in this report, the bushfire risk is manageable for the proposed residential subdivision.

With the implementation of the recommendations it is considered that it will be possible for the proposed subdivision modifications to meet the applicable acceptable solutions as provided for in NSW Rural Fire Service, **Planning for Bushfire Protection**, 2019 having regard to the proposed subdivision layout and the size of the proposed lots.

This report is however contingent upon the following assumptions and limitations.

### Assumptions

- (i) For a satisfactory level of bushfire safety to be achieved regular inspection and testing of proposed measures, building elements and methods of construction, specifically nominated in this report, is essential and is assumed in the conclusion of this assessment.
- (ii) There are no re-vegetation plans in respect to hazard vegetation and therefore the assumed fuel loading will not alter.
- (iii) It is assumed that the building works will comply with the DTS provisions of the NCC including the relevant requirements of Australian Standard 3959 – 2018.
- (iv) Any dwelling is constructed and maintained in accordance with the risk reduction strategy in this report.
- (v) The vegetation characteristics of the subject site and surrounding land remains unchanged from that observed at the time of inspection.
- (vi) This report is based upon the information contained in the plans submitted for review; refer to **Appendices 3** and **4**. No responsibility is accepted for the accuracy of the information contained in the plans.
- (vii) The proposed subdivision is constructed and maintained in accordance with the relevant regulatory approvals and associated plans and specifications.

### Limitations

- (i) The data, methodologies, calculations, and conclusions documented within this report specifically relate to the building and must not be used for any other purpose.



- (ii) A reassessment will be required to verify consistency with this assessment if there is building alterations and/or additions, change in use, or changes to the risk reduction strategy contained in this report.

## 7.0 REFERENCES

NSW Rural Fire Services, ***Planning for Bushfire Protection***, 2019

AS 3959-2009, ***Construction of Buildings in Bushfire Prone Areas***

AS 3959-2018, ***Construction of Buildings in Bushfire Prone Areas***

Keith David 2004, Ocean ***Shores to Desert Dunes, The Native Vegetation of New South Wales and the ACT***, Department of Environment and Conservation

NSW State Government, ***Rural Fires Act***, 1997

Port Macquarie-Hastings Councils, ***Bushfire Prone Land Mapping***

NSW Rural Fire Service, ***Guideline for Bushfire Prone Land Mapping***, 2002

Australian Building Codes Board, ***National Construction Code***, 2019

NSW Rural Fire Service – ***Guideline for Bushfire Prone Land Mapping 2002***

NSW Rural Fire Service, ***NSW Local Government Areas FDI***, May 2017

## Disclaimer

The findings referred to in this report are those which, in the opinion of the author, are required to meet the requirements of NSW Rural Fire Service, ***Planning for Bushfire Protection***, 2019. It should be noted that the Local Authority having jurisdiction for the area in which the property is located may, within their statutory powers, require different, additional or alternative works/requirements to be carried out other than those referred to in this report.

This report has been prepared partially on information provided by the client. Information provided by the client in respect of details of construction.

The author denies any legal liability for action taken as a consequence of the following:

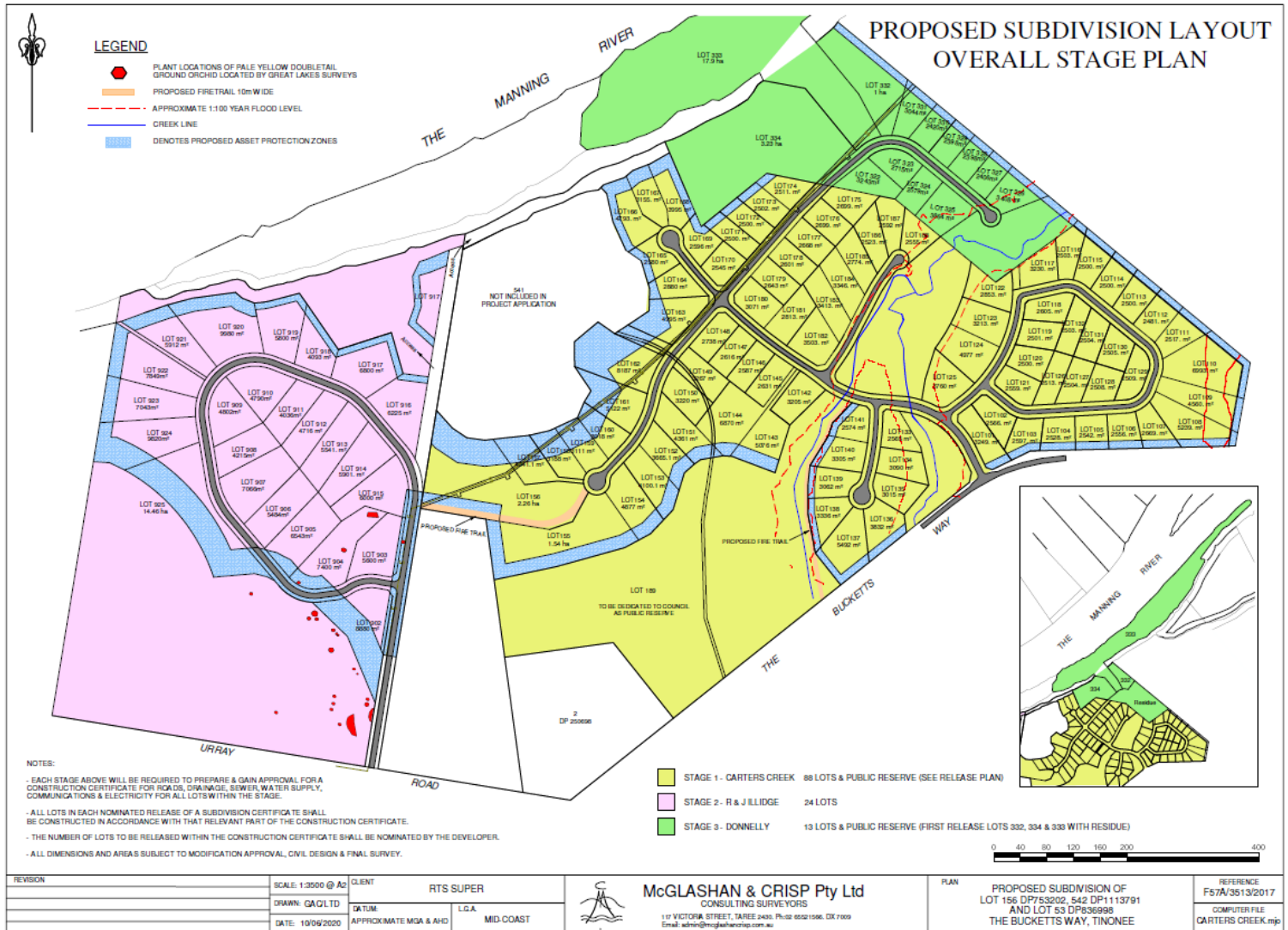
- The Local Authority requiring alternative or additional requirements to those proposed or recommended in this report.
- Incorrect information, or mis-information, provided by the client with regard the proposed development which is in good faith included in the strategies proposed in this report and later found to be false.

[illegible]

[illegible]



## APPENDIX 3 Proposed Subdivision Layout



## APPENDIX 4

### APZ Compliance Concept (Minimum APZ's only)

