



BUSHFIRE CONSTRAINTS ASSESSMENT

FOR THE PROPOSED

REZONING OF LOT 24 in DP 714096

WARRAH ROAD,

BANGALEE

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Assessment Number	Document	Preparation Date	Issue Date	Directors Approval
B132086 - 2	Final	12.11.2013	16.06.2014	<i>G.L.Swain</i>

EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has prepared a Bushfire Constraints Assessment Report for the proposed rezoning of the land within Lot 24 in DP 714096 Warrah Road, Bangalee.

The vegetation within the development site and on the adjoining land is recorded on the Shoalhaven Bushfire Prone Land Map as constituting Category 1 Bushfire Prone Vegetation.

Therefore, pursuant to Ministerial Direction No. 4.4 – ‘*Planning for Bushfire Protection*’ [under Section 117 of the *Environmental Planning & Assessment Act – 1979*], Shoalhaven Council is required, prior to the preparation of a planning proposal that effects, or is in proximity to land mapped as bushfire prone land, to consult with the NSW Rural Fire Service [amongst other things], under Section 56 of that Act and take into account any comments so made.

This Bushfire Constraints Assessment undertakes an assessment of the bushfire protection measures required to address the bushfire risk to the proposed residential precinct, consistent with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

The characteristics of the site, as discussed in this report, together with the fire protection measures recommended, provide that the rezoning and subsequent subdivision of the land for residential development is suitable in terms of its intended land use.



Graham Swain
Managing Director
Australian Bushfire Protection Planners Pty Limited.

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SECTION 1

INTRODUCTION

1.1 Statutory Requirements.

This assessment has been prepared having regard to the following legislative and planning requirements:

1.1.1 Legislation.

(a) *Environmental Planning and Assessment Act (EPA Act)*

Planning and development within NSW is regulated by the *Environmental Planning & Assessment Act, 1997* (EPA Act).

In relation to the rezoning of land for the construction of residential buildings and the protection against the impacts of bushfires, Ministerial Direction No. 4.4 – *Planning for Bushfire Protection* issued 1st July 2009 [under Section 117(2) of the *Environmental Planning & Assessment Act – 1979*] applies to all Councils that are required to prepare a bushfire prone land map under Section 146 of the *Environmental Planning & Assessment Act*.

Pursuant to Ministerial Direction No. 4.4 – Planning for Bushfire Protection, the relevant planning authority must consult with the Commissioner of the NSW Rural Fire Service following receipt of a gateway determination under Section 56 of the Act, and prior to undertaking community consultation in satisfaction of Section 57 of the Act, and take into account any comments so made:

A planning proposal must:

- Have regard to Planning for Bushfire Protection 2006;
- Introduce controls that avoid placing inappropriate developments in hazardous areas, and;
- Ensure that bushfire hazard reduction is not prohibited within the APZ.

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

(a) Provide an Asset Protection Zone [APZ] incorporating at a minimum:

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

- An Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road.
- (b) For infill development [that is development within an already subdivided area], where an appropriate APZ cannot be achieved, provide for an appropriate performance standard in consultation with the NSW Rural Fire Service. If the provisions of the draft LEP permit Special Fire Protection Purposes [as defined under Section 100B of the *Rural Fires Act 1997*], the APZ provisions shall be complied with;
- (c) Contain provisions for two-way access roads which link to perimeter roads and/or to fire trail networks;
- (d) Contain provisions for adequate water supply for fire fighting purposes;
- (e) Minimise the perimeter of the area of land interfacing the hazard which may be developed;
- (f) Introduce controls on the placement of combustible materials in the Inner Protection Area, and;

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

1.1.2 Planning Policies.

Planning for Bushfire Protection – 2006. (NSW Rural Fire Service)

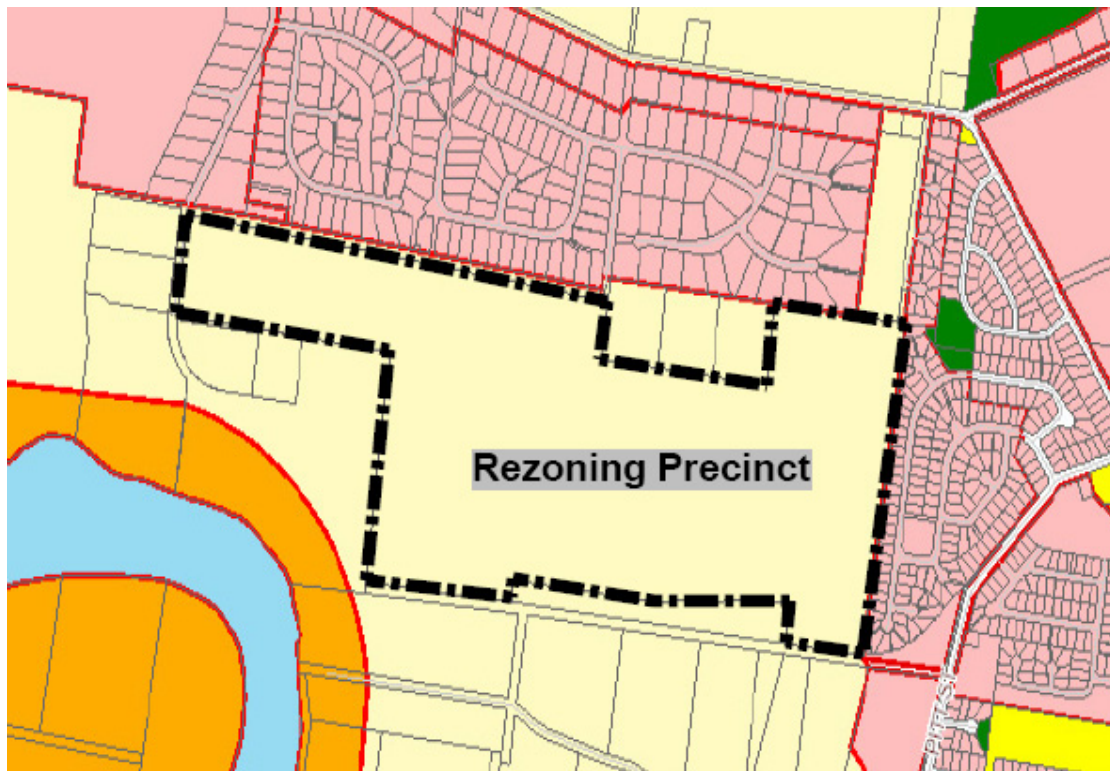
This document provides guidance on the planning and development control processes in relation to bushfire protection measures for rural residential, residential subdivision, Special Fire Protection and Industrial/Commercial Developments in bushfire prone areas. The Commissioner may determine, under Section 100B of the *Rural Fires Act*, additional measures that are considered necessary to protect the development against the impact of bushfire.

1.2 Development Proposal.

This Bushfire Constraints Assessment has been prepared for the proposed rezoning of the land within Lot 24 in DP 714096, Warrah Road Bangalee.

The planning proposal seeks to rezone the land to permit future residential subdivision.

Figure 1 – Existing Zoning Plan.



The subdivision proposal retains unmanaged vegetation within the riparian corridors to the watercourses which flow across the site whilst the land within the eastern portion of the site contains a cleared and managed easement for power lines plus land which has been identified for a future road corridor. This corridor will retain, until the road is constructed, a pocket of unmanaged forest vegetation.

Figure 2 – Indicative Residential Subdivision layout.

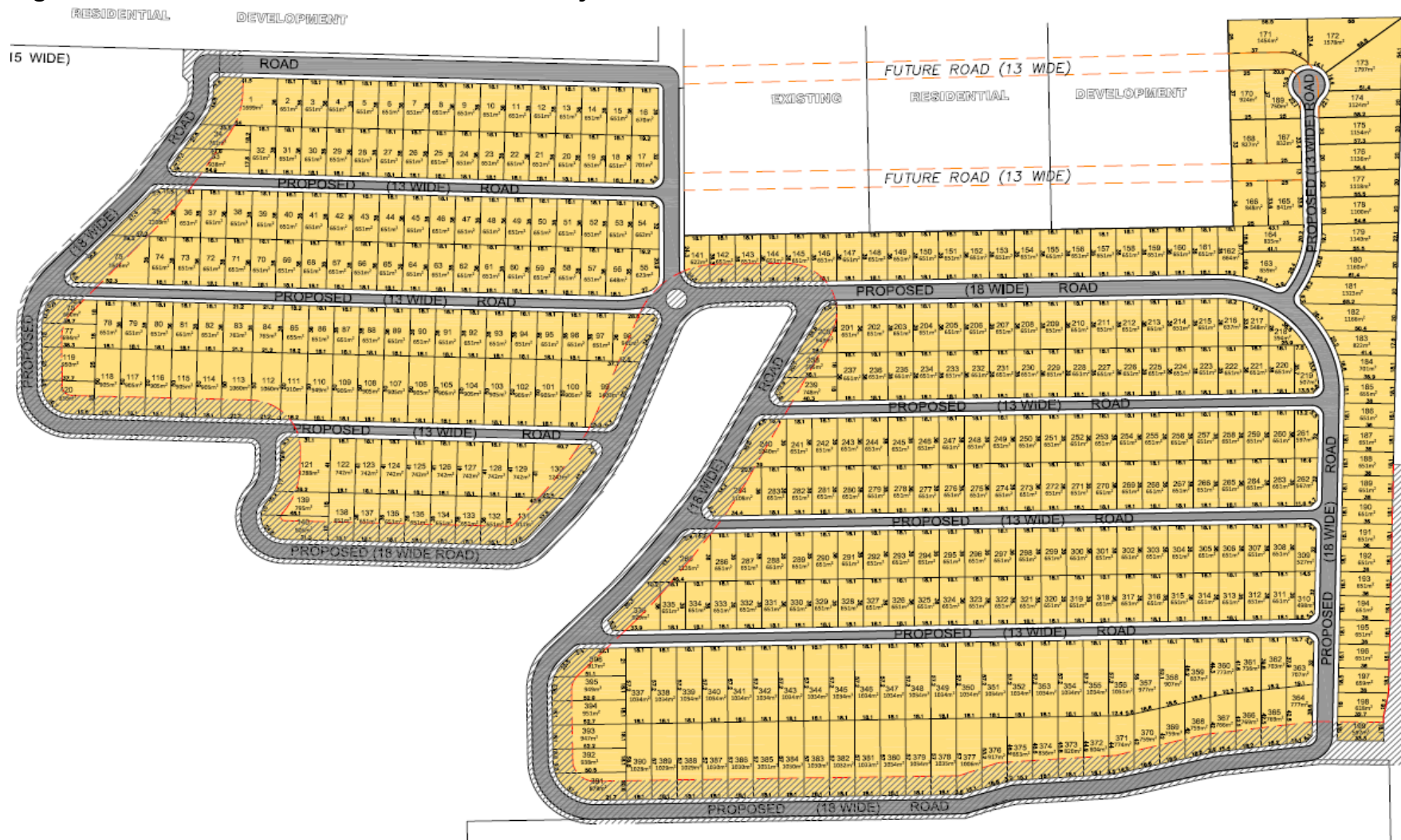
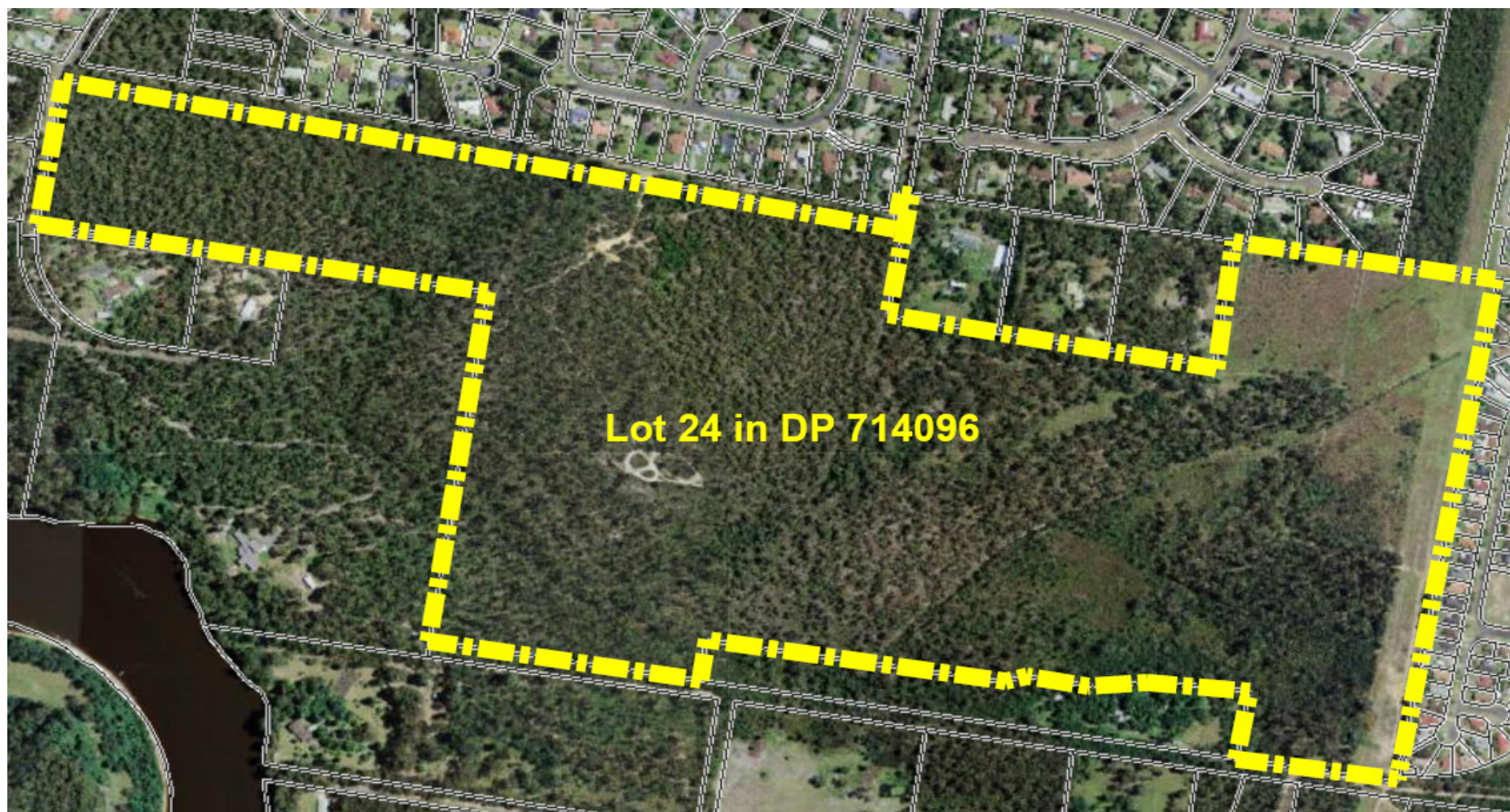


Figure 3 – Aerial Photograph of Rezoning Precinct.



1.3 Documentation reviewed in this assessment.

- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service/Planning N.S.W;
- Australian Standard AS3959 - 2009 *Construction of Buildings in Bushfire Prone Areas*;
- *Rural Fires Regulation 2008*;
- Shoalhaven Council Bushfire Prone Land Map;
- Proposed Subdivision Plan prepared by K.F. Williams & Associates Pty Ltd – Project No. KF111376 – Drawing Numbers LOT1, LOT2 & LOT3;

1.4 Site Inspection.

Graham Swain of Australian Bushfire Protection Planners Pty Limited inspected the site on 22nd October 2013 to assess the topography, slopes and vegetation classification within and adjoining the development property.

Adjoining properties were also inspected to determine the surrounding land use / land management.

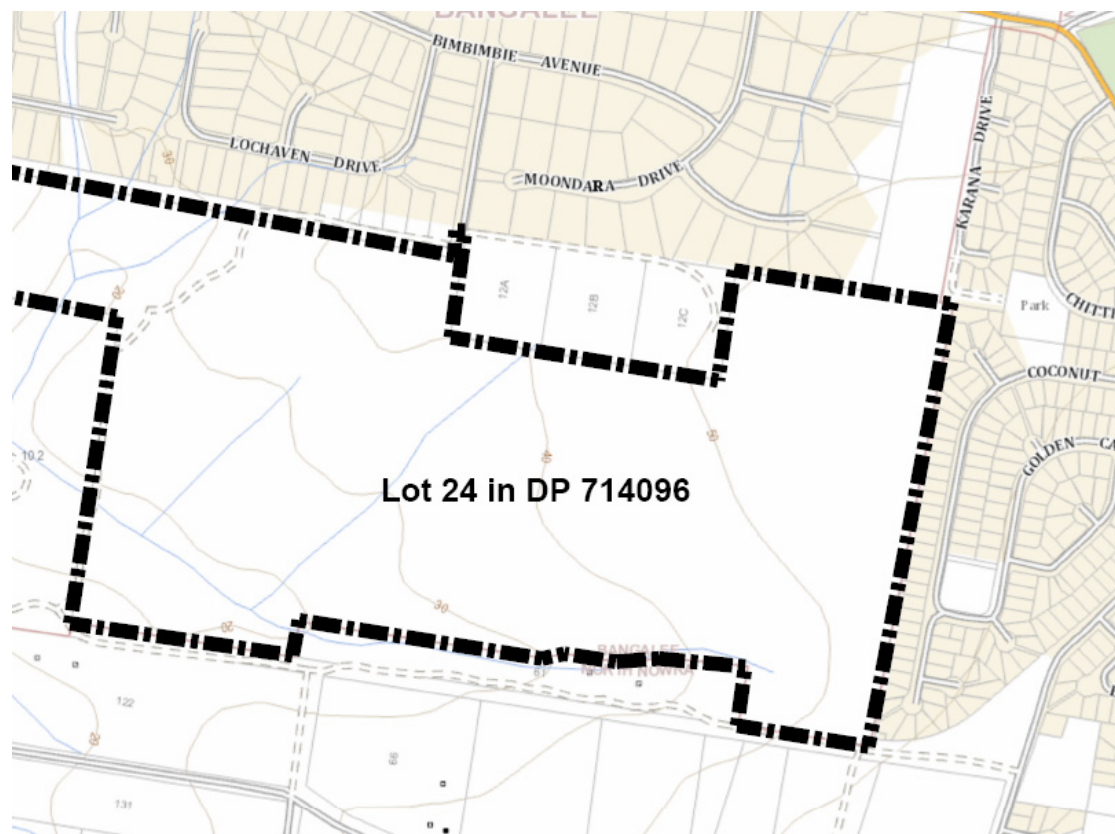
SECTION 2

DESCRIPTION OF THE LAND WITHIN & ADJOINING THE REZONING PRECINCT

2.1 Location.

The rezoning precinct consists of the land within Lot 24 in DP 714096, Warrah Road, Bangalee.

Figure 4 – Location of the rezoning precinct.



2.2 Existing Land Use.

The rezoning precinct contains vacant land.

2.3 Landuse adjoining the proposed residential zone.

The land to the north contains existing rural residential/residential development. The land to the east of the rezoning precinct contains residential development having access to Coconut Drive.

The land to the south and west of the rezoning precinct contains rural residential development which contains managed, partially managed and unmanaged vegetation – refer to Figure 3 – Aerial Photograph of Rezoning Precinct.

2.4 Topography.

Appendix 2 of *Planning for Bushfire Protection 2006* states that slopes should be assessed, over a distance of at least 100m from an asset and that the gradient of the land should be determined which will most significantly influence the fire behaviour to the site.

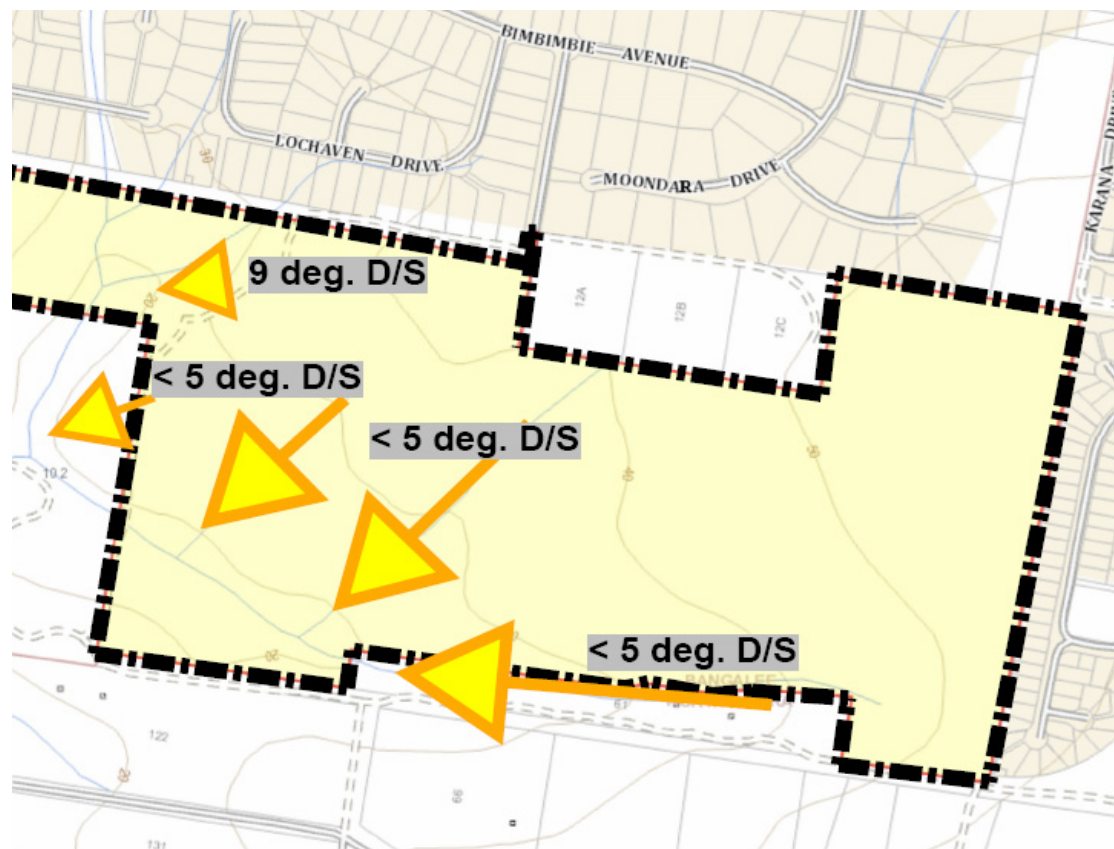
The topography of the land within the rezoning precinct is characteristic of the undulating hilly landform extending to the north from the Shoalhaven River.

The proposed residential precinct contains two watercourses which flow to the southwest, connecting to a third watercourse which flows to the west along the southern boundary of the rezoning precinct. The gradient within these watercourses is less than 5 degrees downslope with a similar side slope.

A fourth watercourse bounds the north-western corner of the residential precinct. The side slope to the watercourse is nine [9] degrees downslope to the northwest of the residential precinct.

Except for the 9 degree downslope to the northwest, the effective slope to the remainder of the south-western edge of the residential precinct is < 5 degrees downslope and < than 5 degrees upslope to the eastern edge – Refer to Figure 6.

Figure 6 – Topographic Map.



2.5 Vegetation.

Appendix A2.3 of *Planning for Bushfire Protection 2006* provides a methodology for determining the predominant bushfire prone vegetation for at least 140 metres in all directions from the future development on the site. Vegetation is classified using Table A2.1 of *Planning for Bushfire Protection 2006*, which classifies vegetation types into the following groups:

- (a) *Forests [wet & dry sclerophyll forests];*
- (b) *Woodlands;*
- (c) *Plantations – being pine plantations not native plantations;*
- (d) *Forested Wetlands;*
- (e) *Tall Heaths;*
- (f) *Freshwater Heaths;*
- (g) *Short Heaths;*
- (h) *Alpine Complex;*
- (i) *Semi – arid Woodlands;*
- (j) *Arid Woodlands; and*
- (k) *Rainforests.*

2.5.1 Vegetation within the proposed residential precinct.

The proposed residential precinct contains remnant Dry Sclerophyll Low Open Forest which has a managed understorey.

2.5.2 Vegetation on the land adjoining the proposed residential precinct.

The rural residential and residential development to the north of the proposed residential precinct contains managed landscaped gardens.

The future road corridor located within the eastern portion of Lot 24 in DP 714096, to the east of the proposed residential precinct, contains an area of unmanaged Dry Sclerophyll Low Open Forest and managed grassland within the power line easement and grazing paddock.

The vegetation within the riparian corridors to the creek lines within Lot 24 in DP 714096 consists of unmanaged Dry Sclerophyll Low Open Forest. Similar vegetation occupies the land to the south of Lot 24 in DP 714096, with small areas of managed land displaying grassland vegetation.

The property to the west of the residential precinct [Lot 11 in DP 804611] contains unmanaged Dry Sclerophyll Low Open Forest.

2.6 Site Photographs



Photograph No. 1 – View showing the vegetation within the residential precinct.



Photograph No. 2 – View showing vegetation within unmanaged portion of the rezoning precinct.

SECTION 3

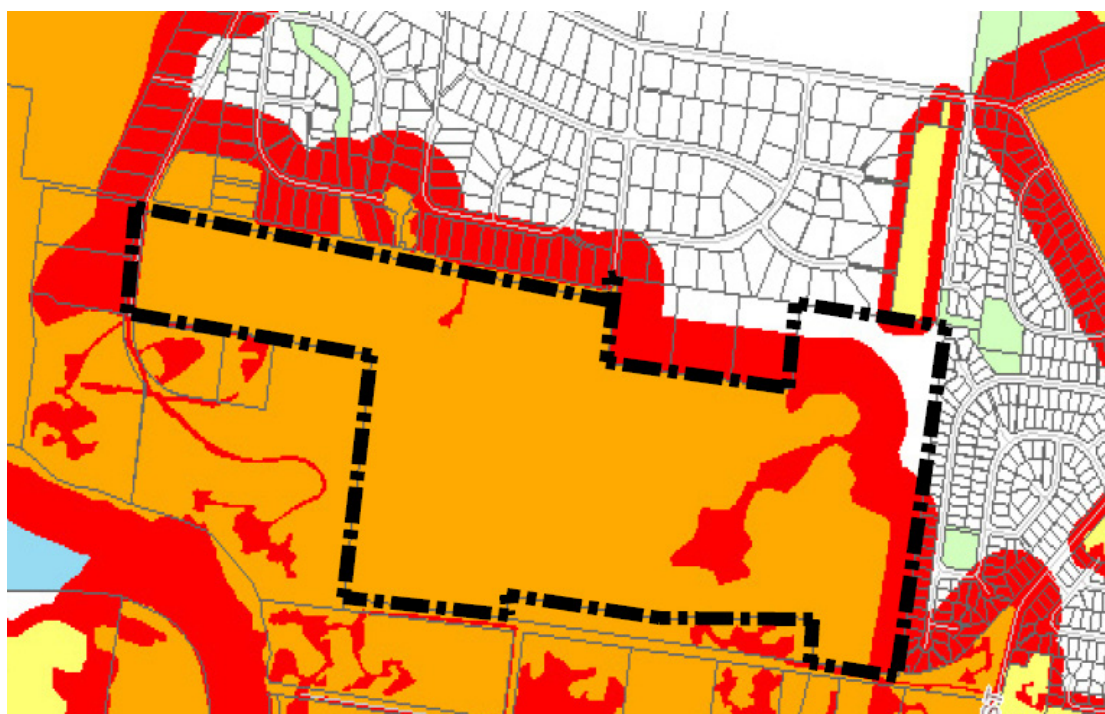
BUSHFIRE PRONE LAND MAP

The Shoalhaven Council has prepared a Bushfire Prone Land Map pursuant to the requirements of Section 146 of the *Environmental Planning & Assessment Act 1979*. Figure 7 below provides an extract of the Certified Bushfire Prone Land Map for the rezoning precinct and shows that the majority of the vegetation within Lot 24 in DP 714096 consists of Category 1 [Forest] vegetation.

The site inspection and aerial photographs provided in this report confirm that the Bushfire Prone Land Map accurately recorded the vegetation deemed-to-be bushfire prone.

The proposed development will remove the understorey vegetation within the future residential subdivision precinct and therefore modify the extent of the bushfire prone vegetation within the rezoning precinct. However, the vegetation within the riparian corridors to the watercourses and on the adjoining land is Category 1 Bushfire Prone Vegetation. This report therefore examines the Asset Protection Zone requirements to the forest vegetation retained within the riparian corridor within the rezoning precinct and on the land to the east and of the residential precinct.

Figure 7 – Extract from the Shoalhaven Council Bushfire Prone Land Map.



Legend: Orange – Category 1 Bushfire Prone Vegetation; Red – Buffer Zone.

SECTION 4

BUSHFIRE CONSTRAINTS ASSESSMENT

4.1 Introduction.

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

- (a) Provide an Asset Protection Zone [APZ] incorporating at a minimum:
 - An Inner Protection Area bounded by a perimeter road or reserve which circumscribes the hazard side of the land intended for development and has a building line consistent with the incorporation of an APZ, within the property, and
 - An Outer Protection Area managed for hazard reduction and located on the bushland side of the perimeter road.
- (b) For infill development [that is development within an already subdivided area], where an appropriate APZ cannot be achieved, provide for an appropriate performance standard in consultation with the NSW Rural Fire Service. If the provisions of the draft LEP permit Special Fire Protection Purposes [as defined under Section 100B of the *Rural Fires Act 199*], the APZ provisions shall be complied with;
- (c) Contain provisions for two-way access roads which link to perimeter roads and/or to fire trail networks;
- (d) Contain provisions for adequate water supply for fire fighting purposes;
- (e) Minimise the perimeter of the area of land interfacing the hazard which may be developed; and
- (f) Introduce controls on the placement of combustible materials in the Inner Protection Area.

These requirements are examined in the following sections of this report.

4.2 Asset Protection Zones.

Appendix 2 of *Planning for Bushfire Protection 2006* provides the following procedure for determining setback distances (Asset Protection Zones) for residential and rural residential development which is deemed to be bushfire prone:

- (a) *Determine vegetation formations as follows:*
 - Identify all vegetation in all directions from the site for a distance of 140 metres;
 - Consult Table A2.1 to determine the predominant vegetation type; and
 - Select the predominant vegetation formation as described in Table A2.1.
- (b) *Determine the effective slope of the land under the predominant vegetation Class.*
- (c) *Determine the appropriate fire [weather] area in Table A2.2.*
- (d) *Consult Table A2.4 and determine the appropriate setback [Asset Protection Zone] for the assessed land use, vegetation formation and slope range.*

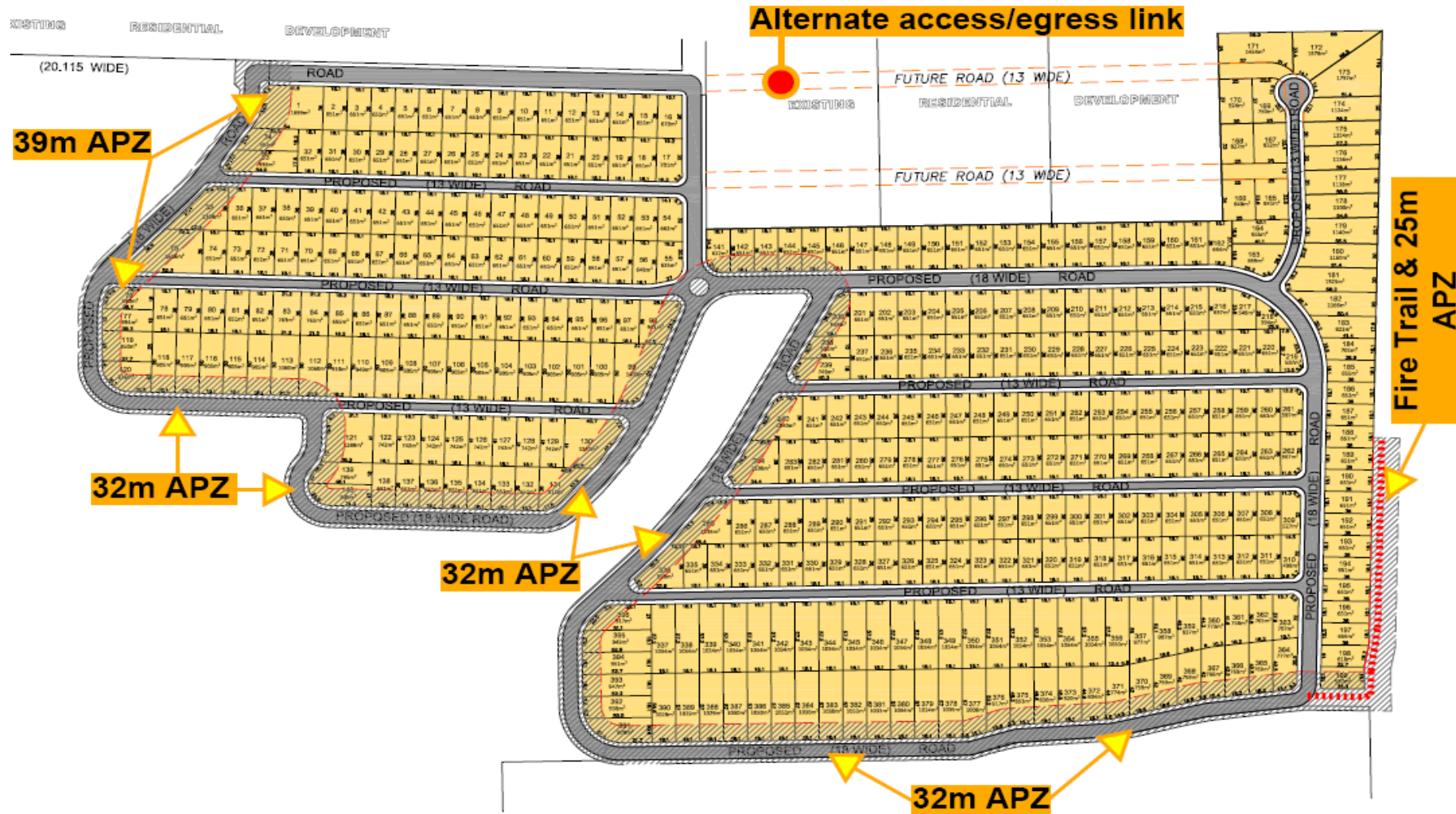
The Shoalhaven Bushfire Prone Land Map identifies that the rezoning precinct contains Category 1 Bushfire Prone Vegetation with similar vegetation on the rural residential land to the west, south and partially to the east of the proposed residential subdivision precinct.

Except for the 9 degrees downslope adjacent to the north-western corner of the residential precinct, the effective slope of the land within the riparian corridors is < 5 degrees downslope and the effective slope of the land to the east of the residential precinct is < 5 degrees upslope, to the east.

Figure 8 below provides an indicative layout of the recommended Asset Protection Zones to the residential landuse precinct within the rezoning proposal. The widths shown have been derived from A.S. 3959 – 2009 so as to limit the construction levels to the future dwellings to not more than BAL 29, as required by the NSW Rural Fire Service.

The Asset Protection Zones shall be maintained to the standards of an Inner Protection Area [IPA] as defined by *Planning for Bushfire Protection 2006* and the NSW Rural Fire Service's '*Specifications for Asset Protection Zones*'.

Figure 8 – Indicative layout of recommended Asset Protection Zones to the residential landuse precinct within the rezoning proposal.



4.3 Access for Firefighting Operations.

The design and construction of the public roads shall comply with the specifications of Section 4.1.3(1) of *Planning for Bushfire Protection 2006*.

A perimeter road shall be provided to the bushfire hazard interface, except for the eastern aspect of the residential precinct. The minimum pavement width of the perimeter road shall be 8.0 metres. Internal access roads shall be designed to provide a minimum pavement width of 6.5 metres with 'No Parking' on one side with the services [hydrants] located on this side of the road.

A perimeter fire service access shall be provided to the east of the residential precinct. This access shall be designed and constructed to provide a 4.0 metre wide pavement, capable of carrying a fully laden fire appliance [15 tonnes GVM], within a managed corridor of 6.0 metre width x 4.0 metres high.

An alternate road link is proposed from the eastern development precinct via the future road network in the subdivision of Lots 21 – 23 in DP 714096, to the north of the residential precinct – refer to Figure 8 on Page 18.

4.4 Water Supplies for Firefighting Operations.

Street Hydrants shall comply with the specifications of Australian Standard A.S 2419.2 and have a flow rate of 10 litres / second. Hydrant locations shall be delineated by blue markers placed on the hydrant side of the centreline of the road pavement.

4.5 Construction Standards to the future dwellings.

Construction standards shall be applied to the future buildings erected on all lots created in the future subdivision of the residential precinct, in accordance with Australian Standard A.S. 3959 – 2009 – '*Construction of Buildings in Bushfire Prone Areas*'.

This requirement applies to dwellings located within 100 metres of the bushfire hazard interface with the width of the Asset Protection Zones recommended in this report maintaining a maximum radiant heat flux level of 29kW/m² on the exposed elevations of the buildings located adjacent to the hazard.

4.6 Management of Asset Protection Zones.

The management of the Asset Protection Zones shall comply with Appendix 2 and Appendix 5 of *Planning for Bushfire Protection 2006* and the NSW Rural Fire Services '*Standards for Asset Protection Zones*'.

In order to maintain, in perpetuity, the management of the Asset Protection Zones a positive Covenant under Section 88B of the *Conveyancing Act 1919*, shall be created on the titles of the future lots.

4.7 Conclusion.

The rezoning proposal seeks to establish a zoning for the land which permits the subdivision of the land for residential purposes.

This report has examined those measures required to be addressed in the future subdivision of the land to comply with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Those provisions include the establishment of complying perimeter roads/fire tails adjacent to the hazard interface and Asset Protection Zones which have a width which reduces the likely level of radiant heat on the future dwelling to not more than 29kW/m².

REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires Regulation 2008*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2006*;
- *Threatened Species Conservation Act 1995*;
- *Native Vegetation Act*;
- *Bushfire Environmental Assessment Code 2006*;
- Building Code of Australia;
- Australian Standard A.S 3959-2009 “*Construction of Buildings in Bushfire Prone Areas*”;
- *Shoalhaven Bushfire Prone Land Map*.