

**BUSHFIRE PROTECTION ASSESSMENT
FOR THE PROPOSED STAGE 10 SUBDIVISION
OF
LOT 10 in DP 270583 MINMI ROAD,
FLETCHER**



ABPP

Australian Bushfire
Protection Planners Pty Ltd
ABN 48 935534 462

Bushfire Mitigation Consultants

AUSTRALIAN BUSHFIRE PROTECTION PLANNERS PTY LTD
32 Old Dog Trap Road, Somersby NSW 2250
Tel. 612 43622112 / 612 43621184 Mob. 0427 622204
Email. abpp@bigpond.net.au

**BUSHFIRE PROTECTION
ASSESSMENT**

FOR THE

PROPOSED STAGE TEN SUBDIVISION

OF

LOT 10 in DP 270583

MINMI ROAD,

FLETCHER

Report Number	Document	Preparation Date	Issue Date	Directors Approval
B183153 - 2	Final	28.03.2018	06.04.2018	<i>G.L.Swain</i>

EXECUTIVE SUMMARY

Australian Bushfire Protection Planners Pty Limited has been commissioned by *ADW Johnson* to undertake the bushfire consultancy for the proposed Community Title subdivision of the land within Lot 10 in DP 270583 Minmi Road, Fletcher.

The proposed Stage 10 subdivision of the land creates one hundred and twelve [112] residential lots and five [5] residual lots. Residual Lots 113 & 114 will accommodate future medium density residential development; Residual Lots 115 & 116 contain managed Parkland [Open Space] and the fifth residual lot forms the managed gully lines within the remainder of the Stage 10 precinct.

The development site is located to the north of Minmi Road and is accessed via a new round-about on Minmi Road, a road connection to Brookfield Avenue [within Stage 8] and a connection across the north-eastern boundary into the adjoining Sanctuary Estate.

The Stage 10 precinct forms the final stage of the Outlook Estate which was approved by the Minister of Planning under Part 3A of the *Environmental Planning & Assessment Act*. Condition A3.6 of the Consent requires that a Bushfire Management Plan [BMP] be prepared for each stage.

An application has been lodged with the Department of Planning & Environment for modification to the Stage 10 layout, resulting in referral to the NSW Rural Fire Service. The response from the Rural Fire Service recommends that a bushfire assessment report be prepared which identifies the extent to which the proposed modified development conforms with or deviates from the relevant provision of *Planning for Bushfire Protection 2006* and any such report shall demonstrate how the proposal complies with the asset protection zone requirements of Appendix 2 of *Planning for Bushfire Protection 2006*, including future vegetation retained and revegetated within the site and clearly detail any proposed managed areas within future reserves.

The development site is recorded on the Newcastle Bushfire Prone Land Map as containing Category 1 Bushfire Prone Vegetation, therefore the proposed subdivision of the land is deemed to be Integrated Development as defined by Section 4.46 of the *Environmental Planning & Assessment Act 1979*.

Section 100B of the *Rural Fires Act 1997* applies to Integrated Development and the development is required to comply with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006* – or provide justification for any deviation from these requirements.

This report examines the development proposal against the matters raised by the NSW Rural Fire Service and concludes that the modified layout retains the original management practices of the vegetation in the gullies sufficient to mitigate the bushfire risk to the future dwellings/occupants and to satisfy the objectives of *Planning for Bushfire Protection 2006*.



A handwritten signature in black ink, reading 'Graham Swain', is positioned above the printed name.

Graham Swain
Managing Director,
Australian Bushfire Protection Planners Pty Limited

TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
TABLE OF CONTENTS	5
SECTION 1	6
INTRODUCTION	6
1.1 Aim of this Assessment.	6
1.2 Documentation reviewed in this Assessment.	6
1.4 Development Proposal.	6
SECTION 2	9
DESCRIPTION OF DEVELOPMENT SITE	9
2.1 Location & Description.	9
2.2 Adjoining Land Use.	10
2.3 Topography.	10
2.4 Vegetation.	12
2.4.1 Predominant Bushfire Prone Vegetation within 140 metres of the proposed residential lots.	12
2.5 Significant Environmental Features within the Development Site.	12
2.6 Known Threatened Species, Population or Ecological Community within the Development Site.	14
2.7 Details and location of Aboriginal Relics or Aboriginal Place.	14
SECTION 3	15
PRECINCT LEVEL ASSESSMENT	15
SECTION 4	16
BUSH FIRE PROTECTION ASSESSMENT	16
4.1 Introduction.	16
4.2 Determination of Asset Protection Zones.	16
4.3 Assessment of Bushfire Attack (Construction Standards).	19
4.4 Water Supplies for Firefighting Operations.	20
4.5 Access for Fire Fighting Operations.	20
4.5.1 <i>Public Roads:</i>	20
4.5.2 <i>Emergency Response Access / Egress.</i>	20
4.6 Adequacy of Bushfire Maintenance Plans and Fire Emergency Procedures.	21
4.7 Emergency Management for Fire Protection / Evacuation.	21
4.9 Adequacy of Sprinkler Systems & other Fire Protection Measures.	21
SECTION 5	22
RECOMMENDATIONS	22
SECTION 6	24
CONCLUSION.	24
REFERENCES:	26

SECTION 1

INTRODUCTION

1.1 Aim of this Assessment.

The aim of this report is to prepare a Bushfire Protection Assessment which examines the matters raised by the NSW Rural Fire Service in correspondence dated 6th February 2018.

1.2 Documentation reviewed in this Assessment.

The following documents were reviewed in the preparation of this report:

- Correspondence from the NSW Rural Fire Service – 6.2.2018;
- Bushfire Protection Assessment Report for the Residential Rezoning of Lot 11 in DP 1044935 & Lot 2 in DP 534168, No. 290 & 302 Minmi Road Fletcher prepared by ABPP dated 6.3.2006;
- Modified Subdivision Plans for Stage 10 prepared by ADW Johnson
- Aerial Photograph of the development site and adjoining land;
- *Planning for Bushfire Protection 2006* prepared by the NSW Rural Fire Service;
- Australian Standard AS3959 – 2009 - “*Construction of Buildings in Bushfire Prone Areas*”;
- *Rural Fires Act 1997*;
- *Rural Fires Regulation 2013*;
- The Newcastle Council Bushfire Prone Land Map.

1.3 Development Proposal.

Development Consent is being sought from the Department Planning Environment for modification to the Stage 10 subdivision layout, Outlook Estate, Lot 10 in DP 270583 Minmi Road, Fletcher.

The modified Stage 10 subdivision of the land creates one hundred and twelve [112] residential lots and five [5] residual lots. Residual Lots 113 & 114 will accommodate future medium density residential development; Residual Lots 115 & 116 contain managed Parkland [Open Space] and the fifth residual lot forms the managed gully lines within the remainder of the Stage 10 precinct.

Figure 1 on Page 7 provides a copy of the bushfire protection measures provided in the Bushfire Protection Assessment report submitted as part of the rezoning proposal and Figure 2 on Page 8 provides a copy of the modified Stage 10 subdivision layout.



Figure 1 – Plan of Bushfire Protection Measures submitted as part of the rezoning proposal of Lot 11 in DP 1044935 & Lot 2 in DP 534168, No. 290 & 302 Minmi Road Fletcher prepared by ABPP dated 6.3.2006.

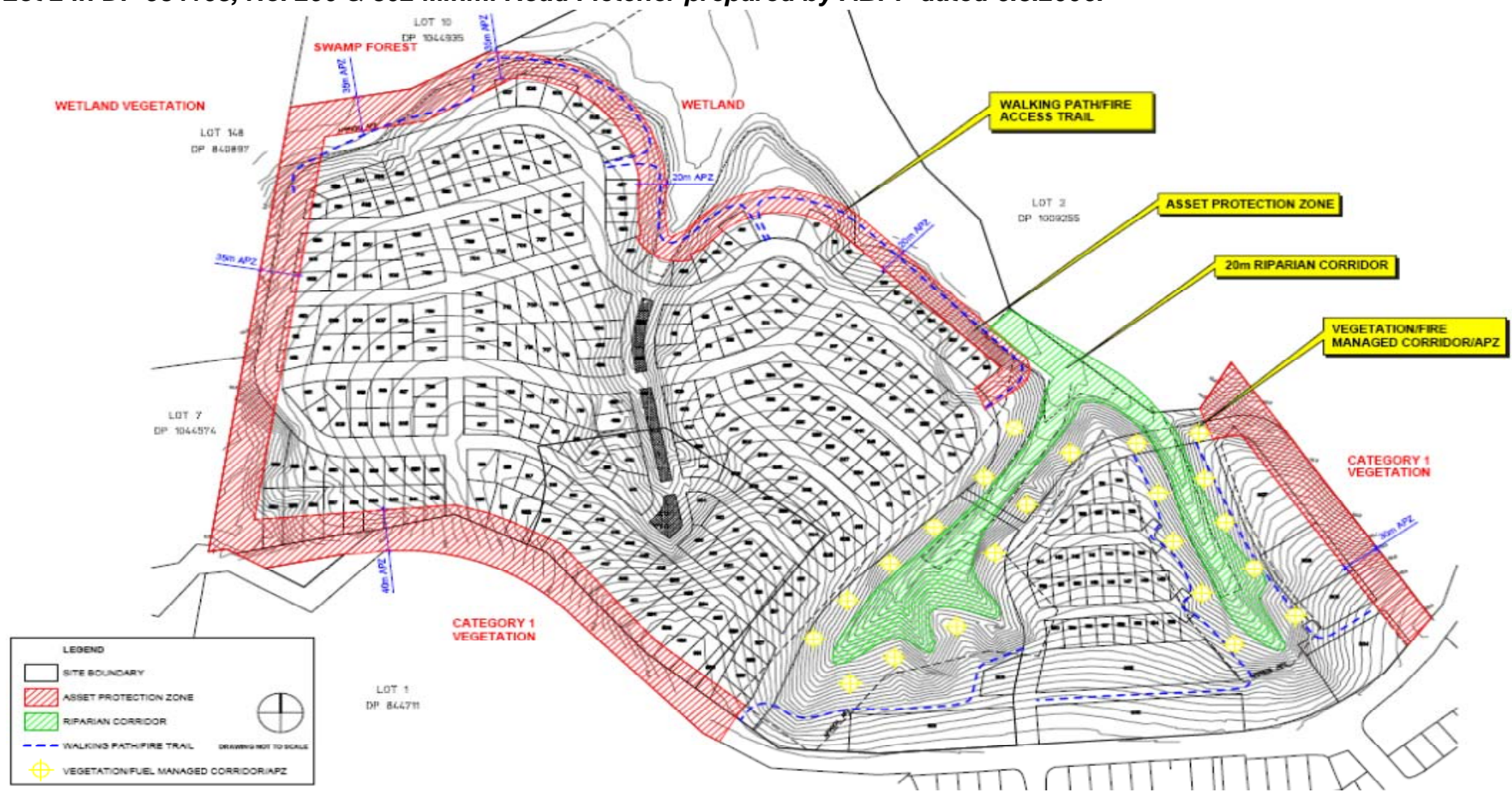


Figure 2 – Stage 10 Modified Subdivision Layout.



SECTION 2

DESCRIPTION OF DEVELOPMENT SITE

2.1 Location & Description.

The development site consists of Lot 10 in DP 270583, Minmi Road, Fletcher.

The site forms an irregular shaped parcel of vacant land located to the north of Minmi Road, between the completed stages of the Outlook Estate, to the west and the Sanctuary Estate, to the east.

Figure 3 – Location of the Stage 10 Precinct.

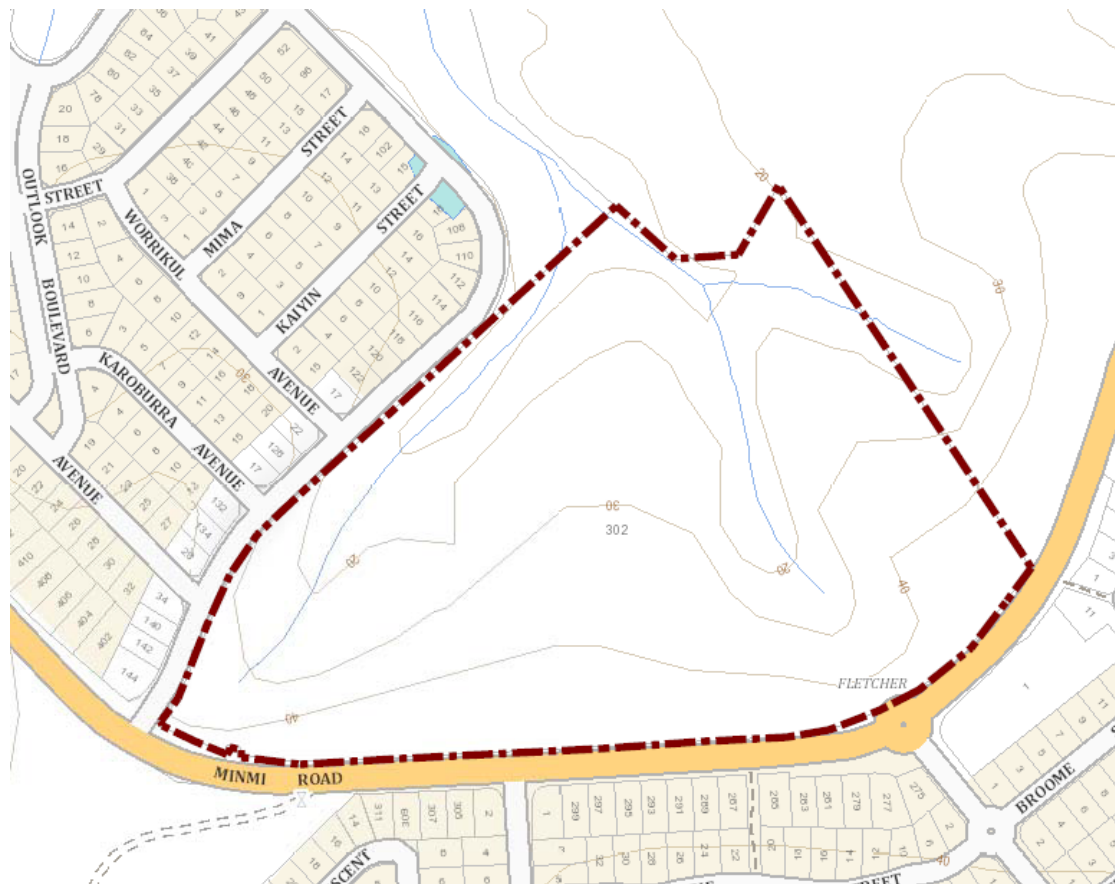


Figure 4 – Aerial Photograph showing location of Stage 10 Precinct.



2.2 Adjoining Land Use.

Existing residential development adjoins the North-western and southern aspects of the Stage 10 precinct. The land to the southwest of the western corner of the Stage 10 precinct is vacant whilst to the northeast the adjoining land within the Sanctuary Estate is being developed, leaving a narrow corridor of vacant bushland along the northeastern boundary to the Stage 10 precinct.

[Refer to Figure 4 – Aerial Photographs above].

2.3 Topography.

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

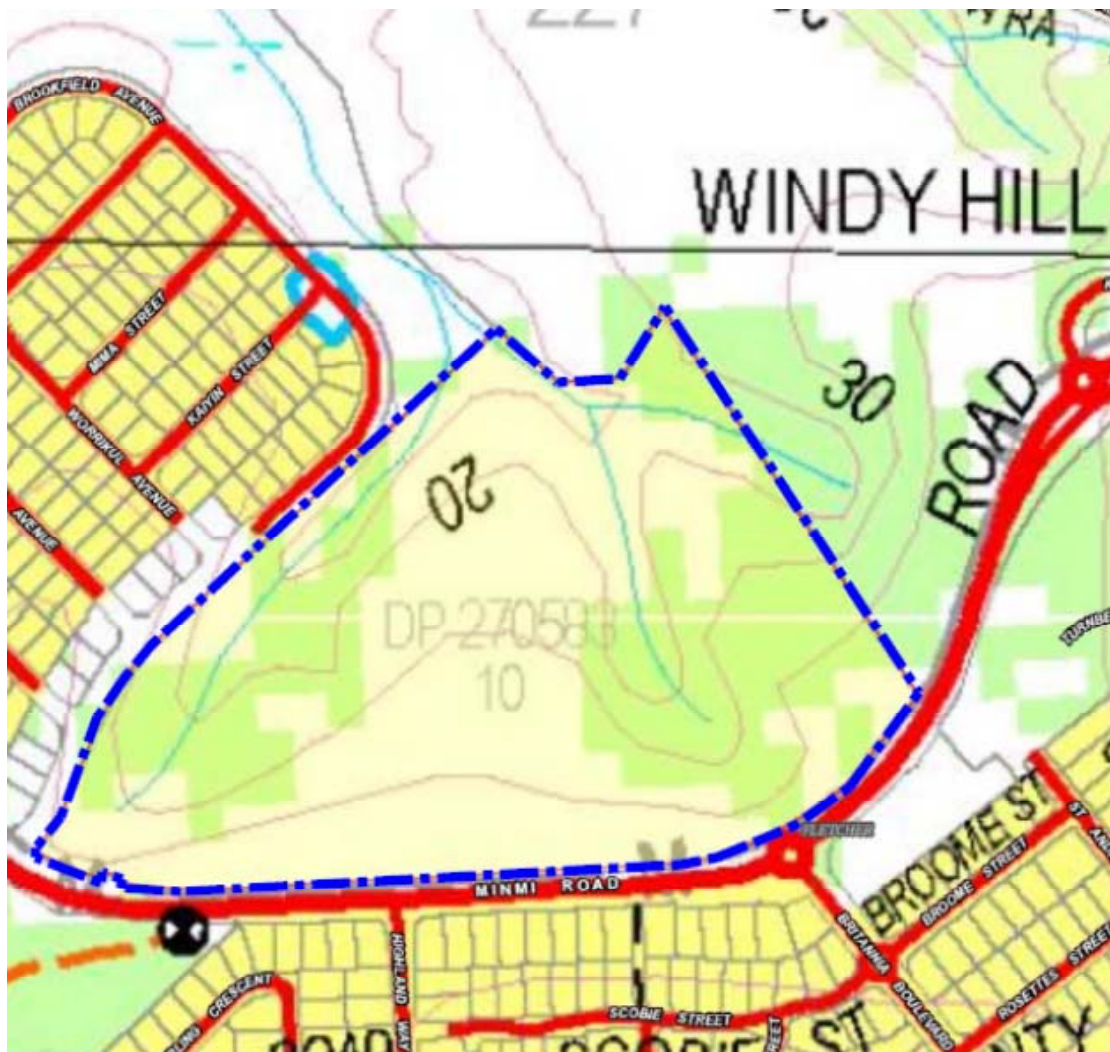
The Stage 10 precinct contains two ridgelines, separated by three gullies, one extending to the northeast from Minmi Road and the other two extending to the north from Minmi Road.

The southern portion of the northeast gully line is wide and undulating with slopes of >10 degrees; this gully line extends from Minmi Road in the south through to the Hexham Swamp on the northern boundary of Stage 10.

The two narrow gully lines running north from Minmi Road, and one forming the eastern boundary of the property, fall to the north/northwest with slopes of > 10 degrees in the high (southern) portion. Side slopes into the gully lines range from <10 degrees in the southern portion to > 15 degrees within the north-eastern/northern portion of the gullies.

The land to the north of the ridgelines and gully lines is level, forming part of the Hexham Wetland – refer to Figure 5 – Topographic Map.

Figure No. 5 – Topographic Map



2.4 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.*

2.4.1 Predominant Bushfire Prone Vegetation within 140 metres of the proposed residential lots.

The predominant bushfire prone vegetation within 140 metres of the proposed residential lots within the Stage 10 precinct consists of a narrow band of remnant Dry Sclerophyll Low Open Forest on the land between Stage 10 and the new residential development in the Sanctuary Estate – to the northeast and the unmanaged vegetation on the land to the south of Minmi Road, southwest of the western corner of the Stage 10 precinct.

The two internal gully lines contain a narrow corridor of unmanaged vegetation consistent with that of Coastal Foothills Spotted Gum - Ironbark Forest within the Core Riparian Zone to the creek lines and managed vegetation between this vegetation and the residential development precinct – refer to Figure 6 - Vegetation Management Plan prepared by Terras Landscape Architects on Page 13.

2.5 Significant Environmental Features within the Development Site.

The land within the development site does not contain significant environmental features such as SEPP 14 Wetland; SEPP 44 Koala Habitat; SEPP 26 Littoral Rainforests; land slip areas; National Parks Estate or areas of geological interest. The site contains two riparian corridors.



Figure 6 – Copy of the Vegetation Management Plan prepared by Terras Landscape Architects.



2.6 Known Threatened Species, Population or Ecological Community within the Development Site.

The Stage 10 development precinct does not contain any known threatened species, population or ecological community.

2.7 Details and location of Aboriginal Relics or Aboriginal Place.

No Aboriginal relics or Aboriginal places are known to be located within the Stage 10 precinct.

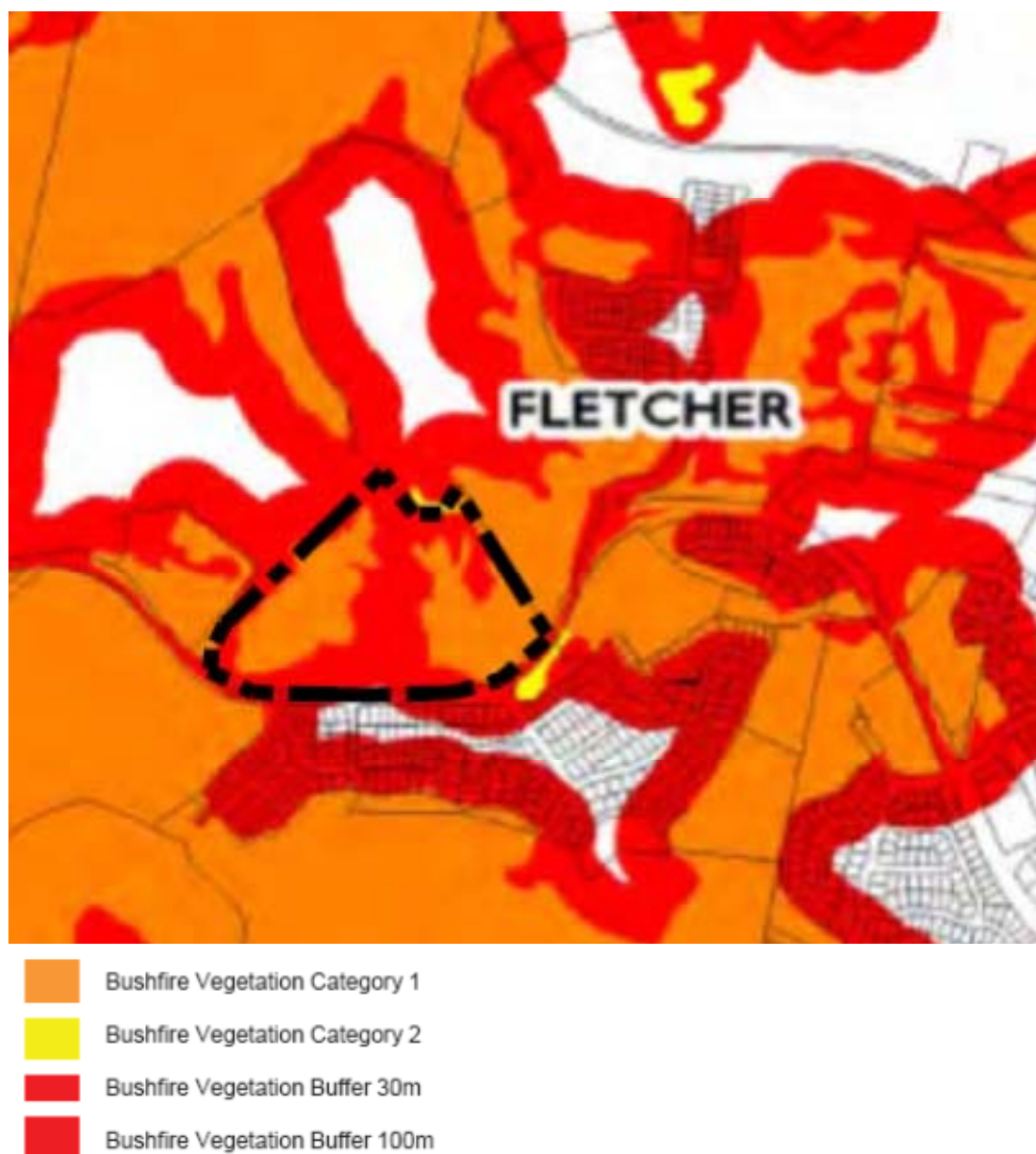
SECTION 3

PRECINCT LEVEL ASSESSMENT

The Newcastle Bushfire Prone Land Map records that the development site contains Category 1 Bushfire Prone Vegetation.

Figure 6 below is an extract from the Newcastle Bushfire Prone Land Map showing the Category 1 Bushfire Prone Vegetation and Buffer Zone.

Figure 6 – Extract of the Newcastle Bushfire Prone Land Map.



SECTION 4

BUSH FIRE PROTECTION ASSESSMENT

4.1 Introduction.

Section 44 of the *Rural Fires Regulation 2013* requires that an application for a *Bushfire Safety Authority* must include a bushfire assessment for the proposed development (including the methodology used in the assessment) that addresses the extent to which the development provides:

- *asset protection zones;*
- *the siting and adequacy of water supplies for firefighting operations;*
- *capacity of public roads to handle increased volumes of traffic during a bushfire emergency;*
- *whether or not public roads link with the fire trail network and have two way access;*
- *the adequacy of access and egress for the purposes of emergency response;*
- *the adequacy of bushfire maintenance plans and fire emergency procedures and;*
- *the construction standards to be used for building elements.*

4.2 Determination of Asset Protection Zones.

The rezoning application included a Master Plan for the subdivision of the land, including the proposed Asset Protection Zones to the vegetation in Hexham Swamp and the vegetation retained in the riparian corridors within the Stage 10 precinct. These measures are shown in Figure 1 on Page 7.

Figure 7 on Page 17 replicates this plan and shows the bushfire protection measures proposed within the Stage 10 precinct – including the management of the vegetation between the Core Riparian Zone and the residential development precinct. The fuel managed zones will be maintained by the Community Association, in accordance with the Vegetation Management Plan prepared by Terras Landscape Architects.

The modified layout also provides for the management of the perimeter road corridor and the building setback as an Inner Protection Area – refer to Figure 8 on Page 18 which provides details on the fuel managed area and Asset Protection Zones.

Figure 7 – Extract from the Bushfire Protection Measures Plan – Rezoning Application Master Plan.

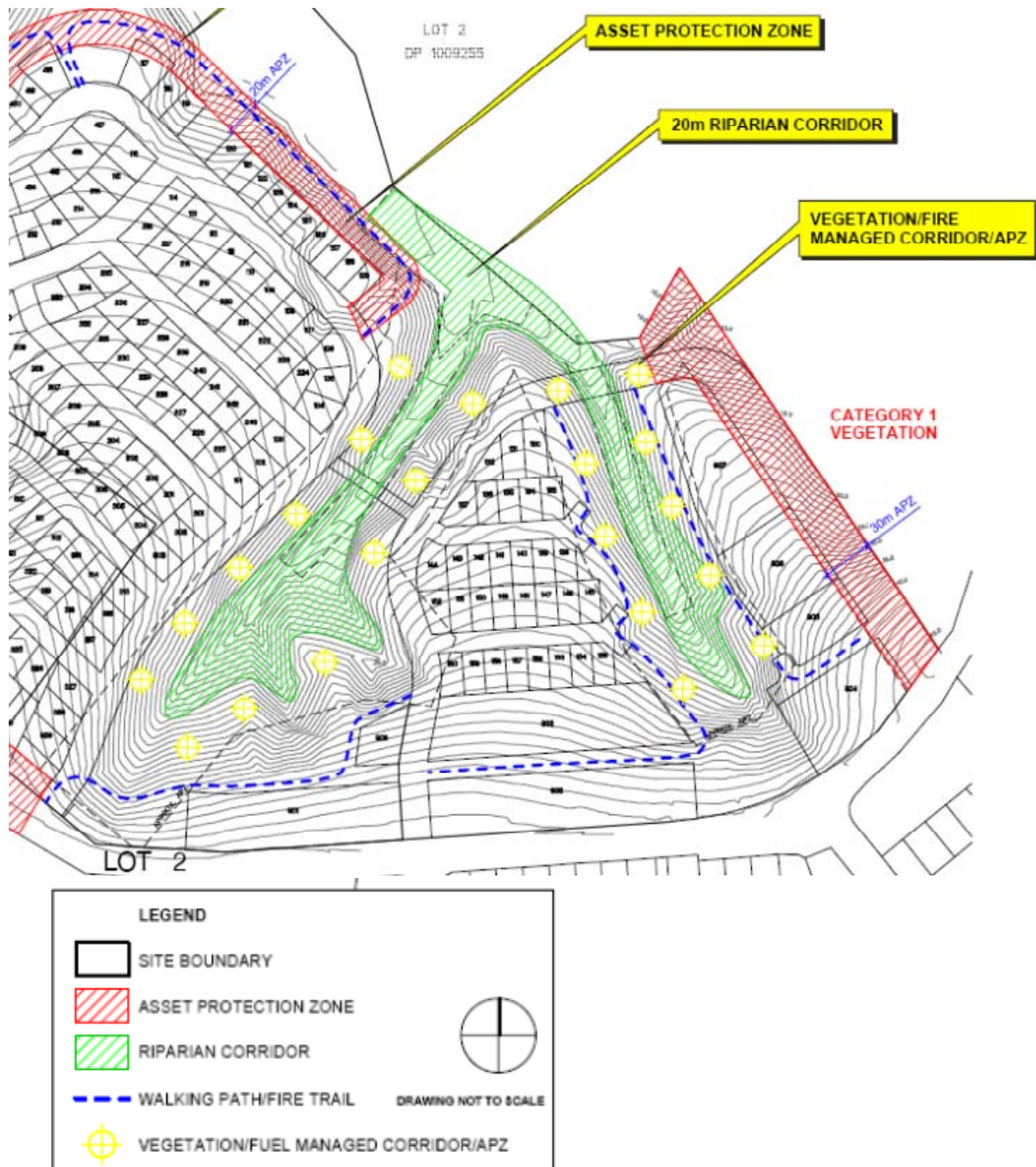
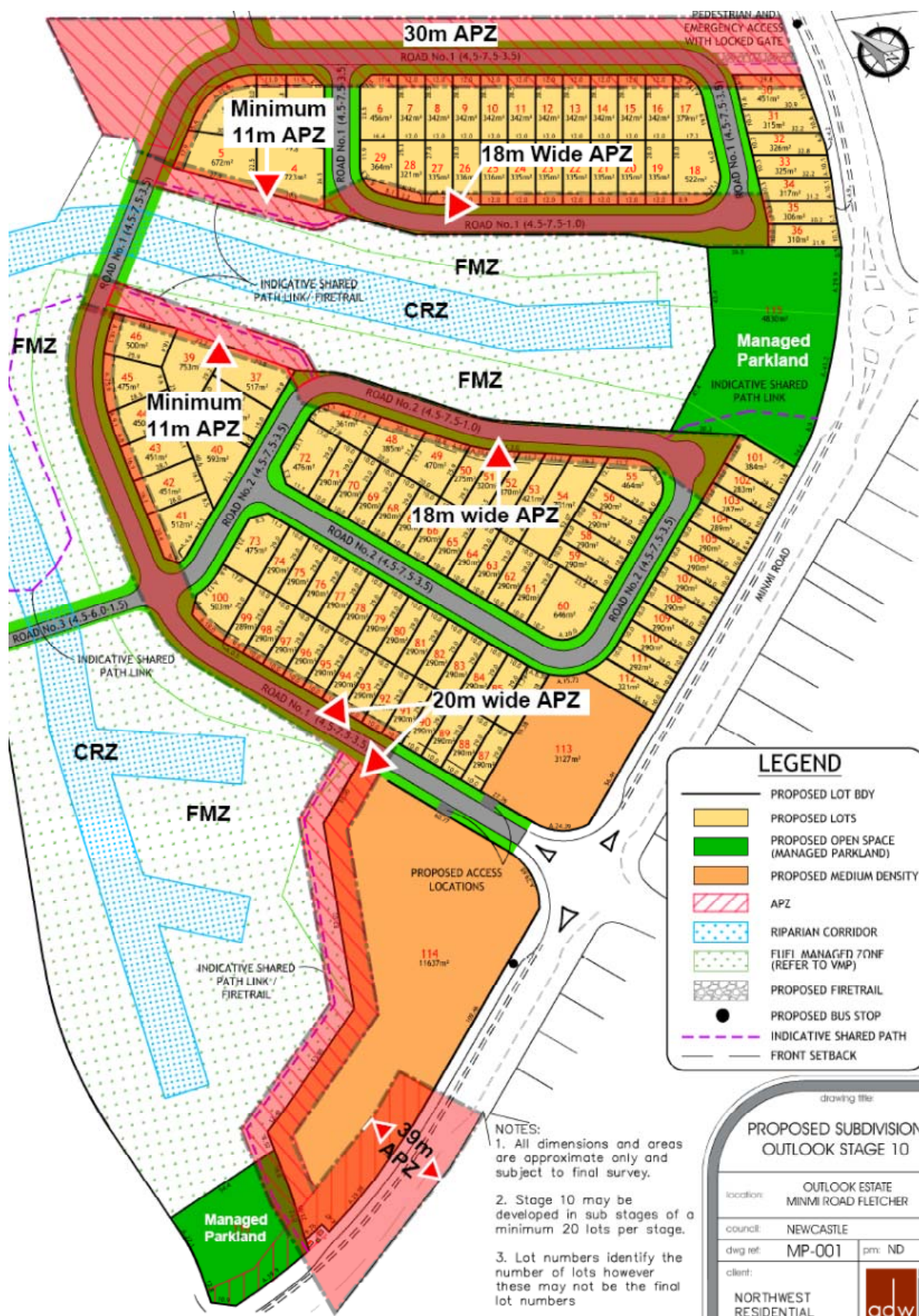


Figure 8 – Modified Subdivision Plan showing extent of Fuel Managed Areas and Asset Protection Zones.



4.3 Assessment of Bushfire Attack (Construction Standards).

The 2010 amendment of Appendix 3 of *Planning for Bushfire Protection 2006* provides the following procedure for determining bushfire attack on a building within a designated bushfire prone area:

- (a) Determine vegetation formation types and sub-formations around the building as follows;
 - (i) Identify all vegetation types within 140 metres of the site using Keith [2004];
 - (ii) Classify the vegetation formations as set out in Tables A2.1 in Appendix 2; and
 - (iii) Convert Keith to Specht classifications using Table A3.5 of Appendix 3 [2010].
- (b) Determine the separation distance between each vegetation formation and the structure;
- (c) Determine the effective slope of the ground for each vegetation group;
- (d) Determine the relevant Fire Danger Index [FDI] for the Council area from Table A2.3 in Appendix 2;
- (e) Match the relevant FDI, appropriate vegetation, distance and effective slope to determine the bushfire attack levels using the relevant tables of A.S.3959 – 2009 as indicated below:
 - (i) FDI 100 – Table A2.4.2;
 - (ii) FDI 80 – Table A2.4.3; and
 - (iii) FDI 50 – Table A2.4.4.

There are four levels of bushfire construction with deemed-to-satisfy arrangements accepted by the NSW Rural Fire Service. These are BAL 12.5; BAL 19; BAL 29 and BAL 40 as defined by A.S 3959 – 2009.

Where more than one facade is exposed to a hazard, then the highest construction is required to that facade with the other facades being constructed to a level lower than the highest determined level of construction.

The width of Asset Protection Zone, including the Fuel Management Zone, reduces the extent of the unmanaged vegetation to just within the Core Riparian Zones in the 'floor' of the gullies. These corridors have a width of less than 50 and are therefore classified as containing low hazard 'rainforest' vegetation. The minimum separation distance between the future residential buildings and the vegetation in the CRZ is 11 metres, extending up to 20 metres.

This results in a reduction of the radiant heat exposure on the buildings. However it is recommended that the future buildings shall be constructed to comply with Section 3 and Section 7 [BAL29] of A.S. 3959 – 2009 – *Construction of Buildings in Bushfire Prone Areas* and Addendum Appendix 3 of *Planning for Bushfire Protection 2006*.

The hazard to the south of the western corner of the Stage 10 precinct consists of Dry Sclerophyll Low Open Forest on land which falls gently to the west. The effective slope to the southwest is upslope increasing to 6 degrees downslope to the southwest.

The separation width [APZ] is 39 metres, including the width of Minmi Road, achieving a Bushfire Attack Level of 29kW/m^2 – therefore satisfying the NSW Rural Fire Services requirement that the maximum construction standard, to buildings located adjacent to bushfire prone vegetation, is BAL 29.

The minimum construction standard to all dwellings located within 100 metres of the bushfire hazard shall be BAL 12.5.

4.4 Water Supplies for Firefighting Operations.

An existing water supply main, with hydrants, is located within the road verge to Minmi Road.

This supply will be extended into the proposed subdivision with hydrants installed to satisfy A.S. 2419.1 – 2005.

Blue hydrant markers shall be installed on the roadway, opposite the hydrant locations.

4.5 Access for Fire Fighting Operations.

4.5.1 Public Roads:

The subdivision of the land will create an internal road network that extends from Minmi Road which is a public road maintained by the Newcastle Council. This road satisfies the 'Public Road' standards as defined by Section 4.1.3(1) of *Planning for Bushfire Protection 2006*.

4.5.2 Emergency Response Access / Egress.

Direct emergency response and fire-fighting access to the future dwellings is available from the proposed internal loop road network which provides an 8.00 metre wide perimeter road [including 0.5m wide trafficable width behind the kerb] to the bushfire hazard interface of the subdivision and 7.5 metre wide internal roads.

4.6 Adequacy of Bushfire Maintenance Plans and Fire Emergency Procedures.

A fire emergency procedures plan is not required however it is recommended that in order to address the provisions of Section 63 of the *Rural Fires Act 1997*, a Bushfire Management Plan be prepared for the stage, in accordance with the original Development Consent requirements.

4.7 Emergency Management for Fire Protection / Evacuation.

Evacuation of the occupants of the dwellings in the subdivision, due to bushfire risk, will not be required as there is minimal risk of an extreme fire event impacting the estate.

4.9 Adequacy of Sprinkler Systems & other Fire Protection Measures.

There are no sprinkler systems required or recommended.

SECTION 5

RECOMMENDATIONS

Recommendation 1

Asset Protection Zones:

The minimum width of Asset Protection Zone to proposed Lots 4, 5, 37, 39 & 46 shall be 11 metres - as shown on Figure 8 [Page 18].

The minimum width of Asset Protection Zone to proposed Lots 18 – 29 and proposed Lots 47 - 55 shall be 18 metres - as shown on Figure 8 [Page 18].

The minimum width of Asset Protection Zone to proposed Lots 41 – 46, proposed Lots 87 – 100 and proposed Lot 114 shall be 20 metres - as shown on Figure 8 [Page 18].

The minimum width of Asset Protection Zone to proposed Lots 1 – 3; 6 – 17 and proposed Lot 30 shall be 30 metres - as shown on Figure 8 [Page 18].

Recommendation 2

Management of landscaped gardens – Asset Protection Zones:

Management of the future landscaped gardens on the proposed lots created in the subdivision shall comply with the recommendations of Appendix A5.4 & Appendix A5.5 of *Planning for Bushfire Protection 2006* and the Rural Fire Service “Standards for Asset Protection Zones”.

Recommendation 3

Management of the Open Spaces:

The proposed Open Spaces [Lots 115 & 116] shall be maintained as Parkland with mown grasses and scattered shade trees [Outer Protection Area standard].

Recommendation 4

Management of the Residual Land:

The residual land within the gully lines shall be managed in accordance with the Vegetation Management plan prepared by Terras Landscape Architects.

The Fuel Managed Zone [FMZ] shall be maintained by the Community Association to achieve the standard of an Outer Protection Area [OPA].

A positive covenant, under Section 88B of the Conveyancing Act 1909 shall be established on the title of the residual land for the maintenance of the Fuel Managed Zone.

Recommendation 5***Bushfire Construction Standards to the future dwelling erected on the lots adjacent to the bushfire hazard:***

The future dwellings erected on proposed Lots 1 – 30; Lots 37 & 39; Lots 41 - 55, Lots 87 – 103 and Lot 114 shall be constructed to comply with Section 3 and Section 7 [BAL 29] pursuant to the specifications of A.S. 3959 – 2009 – ‘*Construction of Buildings in Bushfire Prone Areas*’ and Addendum 2010 of Appendix 3 of *Planning for Bushfire Protection 2006*.

The elevations of these buildings which are not exposed to the bushfire hazard shall be constructed to comply with Section 3 and Section 6 [BAL 19] pursuant to the specifications of A.S. 3959 – 2009 – ‘*Construction of Buildings in Bushfire Prone Areas*’ and Addendum 2010 of Appendix 3 of *Planning for Bushfire Protection 2006*.

The minimum construction standard for all dwellings located within 100 metres of the bushfire hazard shall be BAL 12.5.

Recommendation 5***Fire Management Plan:***

A Bushfire Management Plan shall be prepared for the retained vegetation on residual land.

Recommendation 6***Road Design:***

The proposed public road network shall be designed and constructed to comply with Section 4.3(1) – Public Roads of *Planning for Bushfire Protection 2006*.

SECTION 6

CONCLUSION

An application has been lodged with the Department of Planning & Environment for modification to the Stage 10 layout, resulting in referral to the NSW Rural Fire Service. The response from the Rural Fire Service recommends that a bushfire assessment report be prepared which identifies the extent to which the proposed modified development conforms with or deviates from the relevant provision of *Planning for Bushfire Protection 2006* and any such report shall demonstrate how the proposal complies with the asset protection zone requirements of Appendix 2 of *Planning for Bushfire Protection 2006*, including future vegetation retained and revegetated within the site and clearly detail any proposed managed areas within future reserves.

This report has examined the original bushfire assessment report prepared for the rezoning of the land, including the provision of the bushfire protection measures detailed for the future development located adjacent to the gully lines within the Stage 10 precinct and on the adjoining Sanctuary Estate located to the northeast of the Stage 10 Precinct.

This examination has found that the modification to the subdivision layout expands on the protection measures recommended in the rezoning report to the extent that the management of the vegetation beyond the Core Riparian Zone has been retained with the addition of supplementary Asset Protection Zones to the hazard side of the residential development precinct.

The combination of the provision of the fuel managed zone and the Asset Protection Zones mitigates the exposure of the future dwellings to high intensity bushfires and maintains the construction standard of the future dwellings to not greater than BAL 29.

The development proposal and the recommendations contained within this report address the requirements of Section 44 of the *Rural Fires Regulation 2013* as a prerequisite for the issue of a *Bushfire Safety Authority* under Section 100B (4) of the Rural Fires Act.

The following table summarises the extent to which the proposed development conforms with or deviates from the requirements of Section 44 of the *Rural Fires Regulation 2013* and the deemed-to-satisfy specifications of *Planning for Bushfire Protection 2006*.

Table 1. Compliance with the deemed-to-satisfy provisions of *Planning for Bushfire Protection 2006*.

Bushfire Protection Measure	Compliance with deemed-to-satisfy provisions of <i>Planning for Bushfire Protection 2006</i>.
Asset Protection Zone setbacks to the future dwellings	YES – A combination of the provision of a Fuel Managed Zone and supplementary Asset Protection Zone exceeds the minimum width required to satisfy the deemed-to-comply requirements of Table A2.4 of <i>Planning for Bushfire Protection 2006</i>
Siting & adequacy of water supplies for firefighting operations	YES – Reticulated fire-fighting water supply to be installed to comply with AS2419.1 – 2005
Capacity of public roads to handle increased volumes of traffic in the event of a bushfire emergency	YES – Minmi Road is an existing local road which is constructed to provide complying access for emergency service vehicles.
Public roads that link with the fire trail network have two – way access	YES.
Adequacy of emergency response access and egress	YES – Internal road design complies with Public Road standards in accordance with Section 4.1.3(1) of <i>Planning for Bushfire Protection 2006</i> .
Adequacy of bushfire maintenance Plans and fire emergency procedures	Fire emergency procedures plan not required however a Bushfire Management Plan shall be prepared for the vegetation within the Open Space [Managed Parkland] and the residual land.
Building construction standards	Bushfire construction standards to the new dwellings as recommended in this report. Maximum construction standard shall not exceed BAL 29. In addition, all buildings located within 100 metres of a bushfire hazard shall be constructed to comply with BAL 12.5
Adequacy of sprinkler systems and other fire protection measures	Not applicable

The proposed development, as represented by the subdivision layout, complies with the “Deemed-to-Satisfy” specifications set out in Chapter 4 (Performance Based Control) and the aim and objectives of *Planning for Bushfire Protection 2006*.



Managing Director,
Australian Bushfire Protection Planners Pty Limited.

REFERENCES:

- N.S.W Rural Fire Service – *Planning for Bushfire Protection 2006*;
- N.S.W Rural Fire Service – Threatened Species Hazard Reduction List for the Bushfire Environmental Code (2003);
- *Environmental Planning & Assessment Act – 1979*;
- *Rural Fires Act – 1997*;
- *Rural Fires and Environmental Assessment Legislation Amendment Act 2002*;
- *Rural Fires Regulation 2013*;
- NSW Rural Fire Service – *Guideline for Bushfire Prone Land Mapping 2015*;
- *Bushfire Environmental Assessment Code 2006*;
- Building Code of Australia;
- Australian Standard A.S. 3959-2009 “*Construction of Buildings in Bushfire Prone Areas*”;
- *Newcastle Bushfire Prone Land Map*.