



Bushfire Threat Assessment

Huntlee New Town - Stage 1 Modification (MOD 14)
(1441 Wine Country Drive, North Rothbury)

Prepared for
Huntlee Pty Ltd

Final / July 2020

0416 208 684

matt.doherty@mjdenvironmental.com.au

PO Box 360 Waratah NSW 2298

MJDenvironmental.com.au



DOCUMENT STATUS

| Project Particulars | | | |
|---------------------|--|-------------|-------------------------|
| Project Name | Bushfire Threat Assessment: Huntlee New Town – Stage 1 75W Modification 14 | | |
| Job Number | 16015 | | |
| Client | Huntlee Pty Ltd | | |
| Status | Final | | |
| Version | Date | Prepared by | Details |
| V1 | 29-06-2020 | SF/MD | Draft for client review |
| V2 | 9-7-2020 | MD | Final for submission |
| | | | |

Approval for use:

Matt Doherty - Director

9 July 2020

This report has been prepared in accordance with clause 44 of the Rural Fires Regulation 2013 (RF Regulation) and satisfies the application requirements for a bush fire safety authority under Section 100B of the Rural Fires Act 1997 (RF Act).

Disclaimer

This document may only be used for the intended purpose for which it was commissioned by the client in accordance with the contract between MJD Environmental and client. This report has been prepared in response to an agreed scope and based on available data including that supplied by the client. It has been assumed that all supplied information is both accurate and current. This report, results and outcome are accurate at date of production and subject to change over time along with the legislative and policy framework under which it was prepared.

MJD Environmental Pty Limited will not be liable or responsible whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Unauthorised use of this report in any form whatsoever is prohibited.

EXECUTIVE SUMMARY

MJD Environmental has been engaged by Huntlee Pty Ltd, to prepare a BTA to accompany Modification (MOD 14) to Stage 1 of Major Project (MP10_0137) for the Huntlee New Town Residential development, North Rothbury, NSW. This assessment specifically covers residential substage 5 (large Lots) situated in the south-west of the Stage 1 approval.

The assessment has considered the bushfire hazard and associated potential threats relevant to the proposal, and outlined the mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP).

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adheres to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the site at the time of report production.

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2019).

Northern Assessment Area

- The following APZ will be required, additionally each future residential lot is to be managed as an IPA in perpetuity:

Northern Assessment Area

- 24m from the Forest hazard occurring on flat land to the north;
- 29m from the Forest hazard occurring on 0-5° Downslope land to the north-west;
- 29m from the Forest hazard occurring on 0-5° Downslope land to the west;
- 14m from the Rainforest hazard occurring on 0-5° Downslope land to the south;
- 24m from the Forest hazard occurring on flat land to the east; and
- 10m from the Grassland hazard occurring on flat land to the east.

Southern Assessment Area

- 14m from the Rainforest hazard occurring on 0-5° Downslope land to the north;
 - 29m from the Forest hazard occurring on 0-5° Downslope land to the west;
 - 10m from the Grassland hazard occurring on flat land to the south-west;
 - 12m from the Grassland hazard occurring on 0-5° Downslope land to the south;
 - 29m from the Forest hazard occurring on 0-5° Downslope land to the south-east;
 - 24m from the Forest hazard occurring on flat land to the east; and
 - 10m from the Grassland hazard occurring on flat land to the east.
- All lands within the development area including Open space outside the nominated riparian corridors will be managed as an APZ.
 - Where staging occurs in the subdivision construction, a temporary APZ of 100m or to the final boundary (whichever being the greater) will be established between active or completed development stages and future development areas.
 - Assessment has demonstrated that future dwellings within the proposed subdivision arrangement, can be established with a BAL exposure of no greater than BAL-29.

- Access is to comply with PBP (2019) as summarised and assessed in Chapter 3, Section 3.2 of this report.
- Services are to be provided and connected to the site in accordance with PBP (2019) as summarised and assessed in Chapter 3, Section 3.3 of this report.
- Careful consideration of future site landscaping and ongoing fuel management must occur to minimise the potential impact of bushfire on the site.

Finally, the implementation of the measures and recommendations forwarded within this report would contribute to the amelioration of the potential impact of any bushfire upon the development site, but they do not and cannot guarantee that the area will not be affected by bushfire at some time.

CONTENTS

| | | |
|-------|--|----|
| 1 | Introduction | 1 |
| 1.1 | Description of Proposal | 1 |
| 1.2 | Site Context | 1 |
| 1.3 | Background..... | 3 |
| 1.4 | Aims & Objectives | 4 |
| 2 | Bushfire Hazard Analysis | 5 |
| 2.1 | Vegetation Assessment..... | 5 |
| 2.2 | Slope Assessment..... | 7 |
| 3 | Bushfire Protection Measures | 8 |
| 3.1 | Asset Protection Zone | 8 |
| 3.1.1 | Determining APZs..... | 8 |
| 3.1.2 | Determining BAL..... | 11 |
| 3.2 | Access | 14 |
| 3.3 | Services – Water, Electricity, Gas | 16 |
| 3.4 | Landscaping & Fuel Management..... | 17 |
| 3.5 | Emergency Management | 18 |
| 4 | Conclusion & Recommendations | 19 |
| 5 | Bibliography..... | 21 |

LIST OF FIGURES

| | | |
|----------|---|----|
| Figure 1 | Huntlee Regional Context | 2 |
| Figure 2 | Stage 1 Project Application areas | 2 |
| Figure 3 | Bushfire Prone Land Map | 4 |
| Figure 4 | Vegetation Classification | 6 |
| Figure 5 | Required APZ (PBP 2019) | 10 |
| Figure 6 | Required BAL (PBP 2019) | 13 |

LIST OF TABLES

| | |
|--|----|
| Table 1 Vegetation Classification..... | 5 |
| Table 2 Slope Class | 7 |
| Table 3 Required APZ (PBP 2019)..... | 9 |
| Table 4 Required BAL (PBP 2019)..... | 11 |
| Table 5 Acceptable solutions for services (PBP 2019)..... | 16 |

APPENDICES

| | |
|-----------------------------------|-----|
| Appendix A Plan of Proposal | A-1 |
|-----------------------------------|-----|

GLOSSARY OF TERMS AND ABBREVIATIONS

| Term/ Abbreviation | Meaning |
|--------------------|--|
| APZ | Asset Protection Zone |
| AS2419-2005 | Australian Standard – Fire Hydrant Installations |
| AS3959-2018 | Australian Standard – Construction of Buildings in Bush Fire Prone Areas |
| BAR | Bushfire Assessment Report |
| BCA | Building Code of Australia |
| BC Act | Biodiversity Conservation Act 2016 |
| BMP | Bush Fire Management Plan |
| BPA | Bush Fire Prone Area (Also Bushfire Prone Land) |
| BPL | Bush Fire Prone Land |
| BPLM | Bush Fire Prone Land Map |
| BPM | Bush Fire Protection Measures |
| BTA | Bushfire Assessment Report |
| DoE | Commonwealth Department of the Environment |
| DPI Water | NSW Department of Primary Industries – Water |
| EPA Act | NSW Environmental Planning and Assessment Act 1979 |
| EPBC Act | Commonwealth Environment Protection and Biodiversity Conservation Act 1999 |
| FDI | Fire Danger Index |
| FMP | Fuel Management Plan |
| FRL | Fire Resistance Level |
| ha | hectare |
| IPA | Inner Protection Area |
| LGA | Local Government Area |
| LLS Act | Local Land Services Act 2013 |
| OPA | Outer Protection Area |
| OEH | NSW Office of Environment and Heritage |
| PBP or PBP (2019) | Planning for Bushfire Protection 2019 |
| RF Act | Rural Fires Act 1997 |
| RF Regulation | Rural Fires Regulation |
| RFS | NSW Rural Fire Service |
| TSC Act | NSW Threatened Species Conservation Act 1995 (as repealed) |

1 Introduction

MJD Environmental has been engaged by Huntlee Pty Ltd, to prepare a Bushfire Threat Assessment (BTA) to accompany Modification (MOD 14) to Stage 1 of Major Project (MP10_0137) for the Huntlee New Town Residential development, North Rothbury (**Figure 1**).

Stage 1 of the planning approval (MP10_0137) for Huntlee was granted by the Planning and Assessment Commission (PAC) on 24 April 2013. The approval for Stage 1 of the development comprises residential subdivision of 1,473 lots, 14 superlots, a primary school allotment and the creation of drainage and open space reserves, site preparation works and internal and external road works.

This assessment specifically covers residential substage 5 (large Lots) situated in the south-west of the Stage 1 approval, hereafter referred to as the 'site'.

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to the proposal, and to outline the minimum mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP), as adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2020*.

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adheres to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the site at the time of report production.

1.1 Description of Proposal

The proposed modification (MOD 14) to the Stage 1 Project Approval development consent seeks to make changes to the lot layout of Residential Substage 5 (Large Lots), which results in an overall reduction of 10 residential allotments within the overall Huntlee precinct, as a result of ongoing design and product refinements. As a result, the overall lot numbers have been updated to reflect these changes. This lot layout amendment also changes road alignments and lot boundaries within the Large Lot stage.

It should be noted that there is no change to the Stage 1 Project Approval Site boundary as part of this modification.

Refer to **Appendix A** for a plan of the proposal.

1.2 Site Context

Huntlee, in its regional context is shown in **Figure 1** below and is located to the South of the town of Branxton in the Hunter Valley of NSW. The Huntlee site straddles Wine Country Drive, which links Cessnock with the New England Highway and Hunter Expressway. Within the overall Huntlee site, the proposed urban area is bounded to the north and east by the Main North Railway and Hunter Expressway corridor, to the south by the village of North Rothbury and to the west by the Black Creek and floodplain. Other adjoining uses include vineyards, rural residential development and general agriculture.

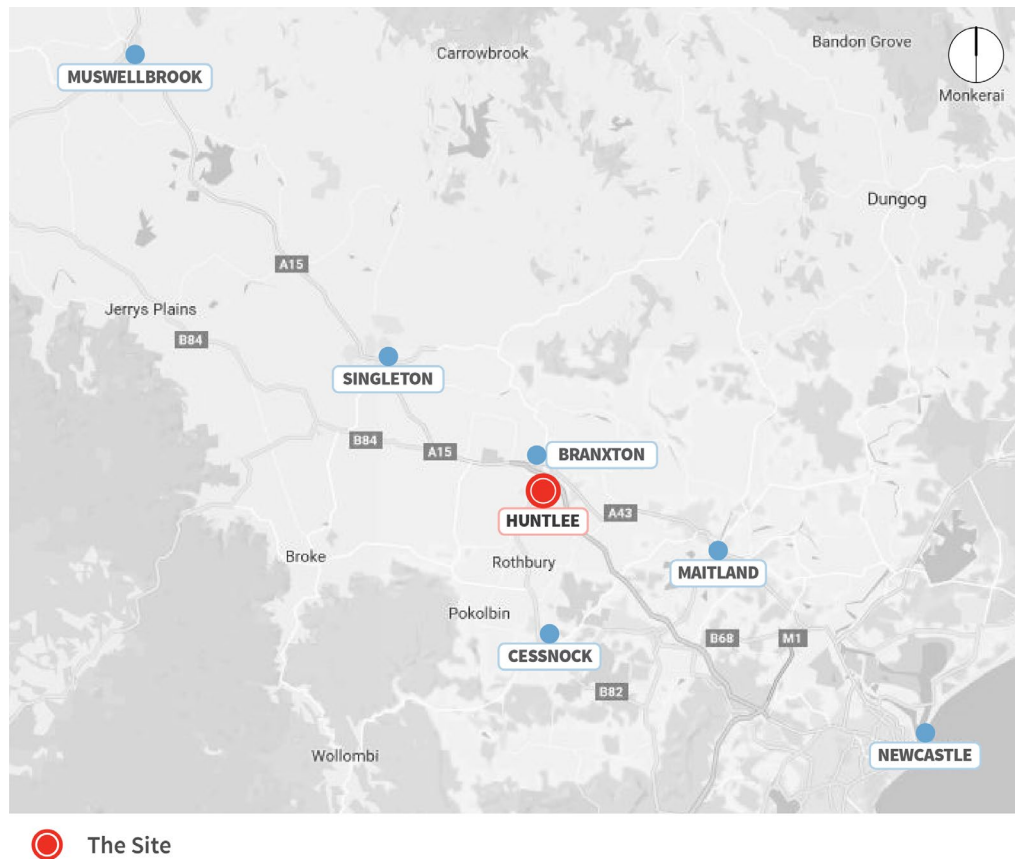


Figure 1 Huntlee Regional Context

The stage 1 site relates to the first residential Village located to the east and north of the existing village of North Rothbury and includes the first 50.5 ha of the Town Centre area and the Wine Country Drive large lot residential area (120 lots). The Stage 1 area in the context of the overall Huntlee development framework is shown in **Figure 2** below.

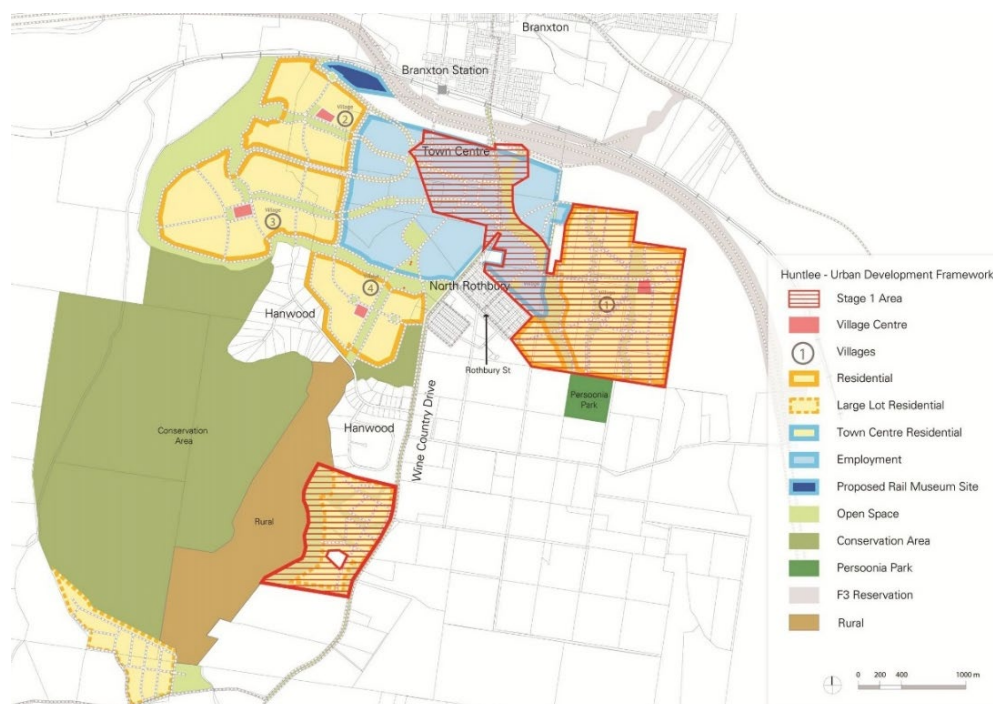


Figure 2 Stage 1 Project Application areas

1.3 Background

The Huntlee New Town development was Gazetted as a State Significant Site (SSS) with an amendment to Schedule 3 of State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) on 31 December 2010.

The key parameters of the overall Huntlee SSS development framework are:

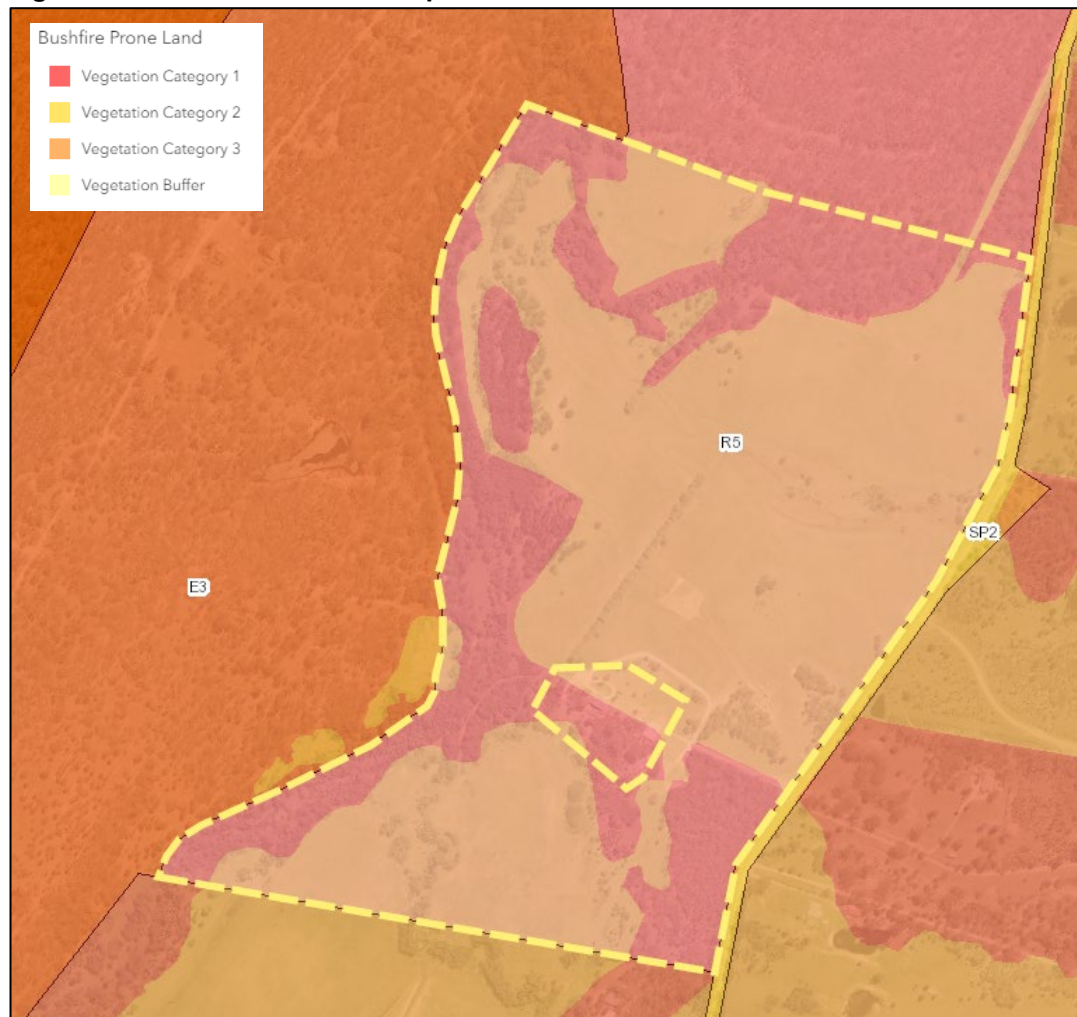
- Up to 5600 dwellings in residential zones of varying sizes covering up to 612 hectares;
- Employment lands totalling up to 200 hectares, including a mixed use town centre with up to 1,700 residential dwellings;
- Large lot residential development covering up to 93 hectares to achieve 200 lots;
- The provision of associated infrastructure including upgrades to roads, sewerage and water infrastructure and the dedication of land for education, health services, community facilities and utilities;
- Dedication of 780 hectares of conservation land within Huntlee;
- Dedication of Persoonia Park (17 hectares); and
- Dedication of up to 4988 hectares of conservation land elsewhere within the Lower Hunter Region.

The SEPP amendment established land use zoning and development controls for Huntlee and required the preparation of a Development Control Plan (DCP) to further articulate design, landscape and infrastructure principles and controls. The Development Control Plan will communicate the planning, design and environmental objectives and controls against which the consent authority will assess applications for future development stages for Huntlee.

A Part 3A Project Application Environmental Assessment Report for Stage 1 of the Huntlee New Town development was approved by the NSW Planning Assessment Commission on 24th April 2013 (MP10_0137). The site is situated within the approved Stage 1 Town Centre area of the Huntlee New Town development.

The Stage 1 Project Application was informed by bushfire threat assessment prepared by HDB (January 2011).

The site lies within a geographical area with a Fire Danger Index (FDI) rating of 100. The site is classified as containing Vegetation Category 1 and Vegetation Category 3 bushfire vegetation on the Bushfire Prone Land Map (DPE 2020). Refer to **Figure 3** below.

Figure 3 Bushfire Prone Land Map

(Source: NSW Planning & Environment, 2020)

1.4 Aims & Objectives

This BAR addresses the aims and objectives of PBP 2019, being:

- Afford occupants and their occupants protection from exposure to a bushfire;
- Provide for a defendable space to be located around buildings;
- Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings;
- Ensure that appropriate operational access and egress for emergency service personnel and occupants is available;
- Provide for ongoing management and maintenance of bushfire protection measures; and
- Ensure that utility services are adequate to meet the needs of firefighters.

2 Bushfire Hazard Analysis

2.1 Vegetation Assessment

Methodology

The vegetation in and around the Site, to a distance of 140m from the site boundary has been assessed in accordance with PBP 2019. This assessment has been made via a combination of:

- aerial photo interpretation;
- on-site vegetation classification; and
- reference to regional community vegetation mapping (including Greater Hunter and Keith 2004).

These vegetation communities have been classified for bushfire purposes into structure and formation using the system adopted by Keith (2004) and using Figure A1.2 of PBP (2019) with due regard to Appendix 1 of PBP (2019).

Vegetation Classification

Vegetation classification has been presented in **Table 1** below and **Figure 3**. For the purposes of assessing vegetation and slope (along with subsequent APZ/ BAL assessment) the development has been split into 2 areas as follows:

- Northern Assessment Area – Area north of the watercourse running east west through the site.
- Southern Assessment Area – Area south of the watercourse running east west through the site.

Table 1 Vegetation Classification

| Direction | Description | Vegetation Classification |
|---------------------------------|---|----------------------------------|
| Northern Assessment Area | | |
| North | ▪ Vegetation covering lands not owned or controlled by Huntlee. | Forest |
| North-West | ▪ Vegetation covering lands not owned or controlled by Huntlee. | Forest |
| West | ▪ Floodplain | Forest |
| South | ▪ Riparian corridor ▪ Managed landscape | Low Hazard Vegetation Rainforest |
| East | ▪ Vegetation covering lands not owned or controlled by Huntlee. ▪ Wine Country Drive separates hazard vegetation from Site | Forest & Grassland |
| Southern Assessment Area | | |
| North | ▪ Riparian corridor ▪ Managed landscape | Low Hazard Vegetation Rainforest |
| West | ▪ Floodplain | Forest |
| South-West | ▪ Floodplain | Grassland |
| South | ▪ Vegetation covering lands not owned or controlled by Huntlee | Grassland |
| South-East | ▪ Vegetation covering lands not owned or controlled by Huntlee. ▪ Rural landholdings | Forest |
| East | ▪ Vegetation covering lands not owned or controlled by Huntlee. ▪ Rural landholdings | Forest & Grassland |

2.2 Slope Assessment

Methodology

In accordance with PBP (2019), an assessment of the slope throughout the site (where a hazard is present) and for a distance of 100m in the hazard direction. Both the average slope and maximum slopes were considered to determine the level of gradient which will most significantly influence fire behaviour on the site. The slope transect was categorised within the slope classification under PBP Appendix A1.4.

Slope assessment was assisted by:

- Aerial photo coupled with contour overlays; and
- Preparation of elevation model based on LiDAR.

Effective Slope

The slope class under the bushfire hazards identified in **Section 2.1** is presented in **Table 2** below and **Figure 4**.

Table 2 Slope Class

| Direction | Vegetation Classification | Slope Class |
|--------------------------|---------------------------|------------------|
| Northern Assessment Area | | |
| North | Forest | Upslope and Flat |
| North-West | Forest | 0-5° Downslope |
| West | Forest | 0-5° Downslope |
| South | Rainforest | 0-5° Downslope |
| East | Forest | Upslope and Flat |
| | Grassland | Upslope and Flat |
| Southern Assessment Area | | |
| North | Rainforest | 0-5° Downslope |
| West | Forest | 0-5° Downslope |
| South -West | Grassland | Upslope and Flat |
| South | Grassland | 0-5° Downslope |
| South-East | Forest | 0-5° Downslope |
| East | Forest | Upslope and Flat |
| | Grassland | Upslope and Flat |

3 Bushfire Protection Measures

PBP sets out a suite of BPMs and criteria that require consideration and assessment for applicable proposals on bushfire prone land in order to provide an adequate level of protection to new developments.

The measures required to be assessed are listed below and discussed throughout this chapter:

- Asset Protection Zones (APZ)
- Bushfire Attack Levels (BAL) set out in PBP 2019
- Access
- Services – Water supply, Gas and Electricity
- Landscaping and Fuel Management
- Emergency Management

3.1 Asset Protection Zone

An APZ is a buffer zone between the hazard and buildings that is progressively managed to minimise bushfire hazard (fuel loads and reduce potential radiant heat levels, flame, ember and smoke attack) PBP (2019), in order to mitigate risk to life and asset. Where a forest or woodland vegetation classification has been determined, an APZ can consist of two areas being:

- 1) Inner Protection Area (IPA) – The IPA extends from the edge of the development/ buildings to the OPA. The IPA aims to provide defensible space and reduce potential for direct or spontaneous ignition by providing a heavily reduced or fuel free zone.
- 2) Outer Protection Area (OPA) – The OPA is located adjacent to the hazard. Within the OPA any trees and shrubs should be maintained in a manner such that the vegetation is not continuous in order to reduce flame length and fire intensity. A properly managed OPA can aid in ember attack by filtering embers and slowing the fires rate of spread.

An APZ can include the following:

- lawns;
- discontinuous gardens;
- swimming pools;
- driveways;
- detached garages;
- open space / parkland;
- car parking; and
- cycleways and formed walkways.

3.1.1 Determining APZs

The site lies within the Cessnock City Council LGA and therefore is assessed under an FDI (Fire Danger Index) rating of 100. Table 5.3a and Table A1.12.2 within PBP (2019) specify the acceptable solution setbacks based on the bushfire hazard analysis presented in Chapter 2. Notably, as the proposal is for residential buildings, performance criteria for APZs is satisfied if radiant heat levels of 29kW/m² or less are experienced at the building or in this case suitable area exists to establish a dwelling at BAL-29 or lower exposure. Refer to **Table 3** below and **Figure 5** for the required APZ.

Table 3 Required APZ (PBP 2019)

| Direction | Vegetation Classification | Slope Class | APZ (PBP 2006) | Notes |
|--------------------------|---------------------------|------------------|----------------|--|
| Northern Assessment Area | | | | |
| North | Forest | Upslope and Flat | 24m | |
| North-West | Forest | 0-5° Downslope | 29m | |
| West | Forest | 0-5° Downslope | 29m | |
| South | Rainforest | 0-5° Downslope | 14m | |
| East | Forest | Upslope and Flat | 24m | APZ separation provided by Wine Country Drive as defensible space. |
| | Grassland | Upslope and Flat | 10m | |
| Southern Assessment Area | | | | |
| North | Rainforest | 0-5° Downslope | 14m | |
| West | Forest | 0-5° Downslope | 29m | |
| South-West | Grassland | Upslope and Flat | 10m | |
| South | Grassland | 0-5° Downslope | 12m | |
| South-East | Forest | 0-5° Downslope | 29m | |
| East | Forest | Upslope and Flat | 24m | APZ separation provided by Wine Country Drive as defensible space. |
| | Grassland | Upslope and Flat | 10m | |

Where staging occurs in the subdivision construction, a temporary APZ of 100m or to the final boundary (whichever being the greater) will be established between active or completed development stages and future development areas.



HUNTLEE NEW TOWN - STAGE 1 MODIFICATION (MOD 14)
FIGURE 5: REQUIRED ASSET PROTECTION ZONE (PBP 2019)

Legend

- Proposed Lots

— Proposed Building Envelope

— Proposed Basin

Watercourse (Northrop)

Required Asset Protection Zone
- Site

Study Area

Slope Classification Buffer (100m)

Vegetation Classification Buffer (140m)

Cadastral Boundaries
- Vegetation (Keith 2004)**

Forest

Grassland (Managed)

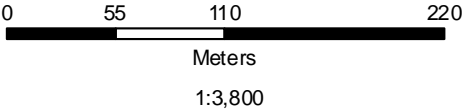
Grassland (Unmanaged)

Rainforest

Inner Protection Area

Power Easement

Waterbody



Aerial: NearMap (2020) | Data: MJD Environmental, ADW Johnson, Northrop, Spatial Services (2020) | Datum/Projection: GDA 1994 MGA Zone 56 | Date: 7/07/2020 | Version 1 | GIS\16015 - Huntlee, Braxton\5. GIS | This plan should not be relied upon for critical design dimensions.

3.1.2 Determining BAL

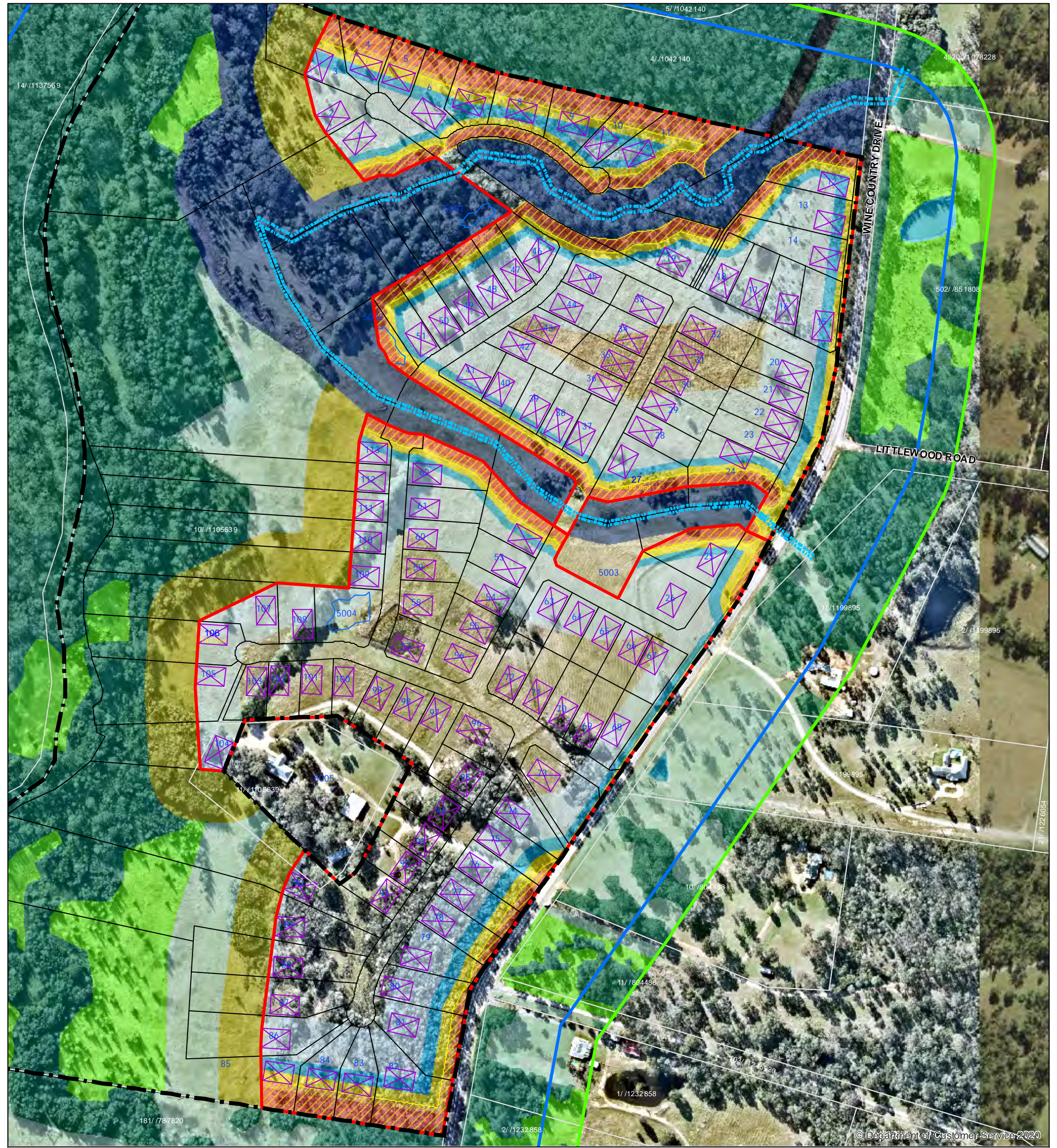
By considering the bushfire hazard analysis outcomes presented in Chapter 2, Table A1.12.5 of Appendix 1 of PBP (2019) was applied to the vegetation classification and slope analysis to calculate the required BAL based on separation from the hazard for the site. Refer to **Table 4** and **Figure 6**.

Refer to **Table 4** below and **Figure 7** for the required BAL.

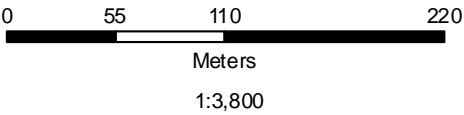
Table 4 Required BAL (PBP 2019)

| Direction | Vegetation Classification | Slope Class | APZ (PBP 2019) | Separation Distance | BAL |
|--------------------------|---------------------------|------------------|----------------|---|--|
| Northern Assessment Area | | | | | |
| North | Forest | Upslope and Flat | 24m | <18m 18-<24m 24-<33m 33-<45m 45-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| North-West | Forest | 0-5° Downslope | 29m | <22m 22-<29m 29-<40m 40-<54m 54-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| West | Forest | 0-5° Downslope | 29m | <22m 22-<29m 29-<40m 40-<54m 54-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| South | Rainforest | 0-5° Downslope | 14m | <11m 11-<14m 14-<21m 21-<29m 29-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| East | Forest | Upslope and Flat | 24m | <18m 18-<24m 24-<33m 33-<45m 45-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| | Grassland | Upslope and Flat | 10m | <8m 8-<10m 10-<15m 15-<22m 22-<50m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| Southern Assessment Area | | | | | |
| North | Rainforest | 0-5° Downslope | 14m | <11m 11-<14m 14-<21m 21-<29m 29-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| West | Forest | 0-5° Downslope | 29m | <22m 22-<29m 29-<40m 40-<54m 54-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |

| Direction | Vegetation Classification | Slope Class | APZ (PBP 2019) | Separation Distance | BAL |
|------------|---------------------------|------------------|----------------|---|--|
| South-West | Grassland | Upslope and Flat | 10m | <8m 8-<10m 10-<15m 15-<22m 22-<50m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| South | Grassland | 0-5° Downslope | 12m | <9 9-<12m 12-<17m 17-<25m 25-<50m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| South-East | Forest | 0-5° Downslope | 29m | <22m 22-<29m 29-<40m 40-<54m 54-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| East | Forest | Upslope and Flat | 24m | <18m 18-<24m 24-<33m 33-<45m 45-<100m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |
| | Grassland | Upslope and Flat | 10m | <8m 8-<10m 10-<15m 15-<22m 22-<50m | BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 |



HUNTLEE NEW TOWN - STAGE 1 MODIFICATION (MOD 14)
FIGURE 6: REQUIRED BUSHFIRE ATTACK LEVELS (PBP 2019)



Legend

- Proposed Lots
- Proposed Building Envelope
- Proposed Basin
- Watercourse (Northrop)
- Site
- Study Area
- Slope Classification Buffer (100m)
- Vegetation Classification Buffer (140m)
- Cadastral Boundaries

- Vegetation (Keith 2004)**
- Forest
 - Grassland (Managed)
 - Grassland (Unmanaged)
 - Rainforest
 - Inner Protection Area
 - Power Easement
 - Waterbody

- Required Bushfire Attack Levels**
- PBP 2019**
- BAL-FZ
 - BAL-40
 - BAL-29
 - BAL-19
 - BAL-12.5



Aerial: NearMap (2020) | Data: MJD Environmental, ADW Johnson, Northrop, Spatial Services (2020) | Datum/Projection: GDA 1994 MGA Zone 56 | Date: 7/07/2020 | Version 1 | GIS/16015 - Huntlee, Braxton/5. GIS | This plan should not be relied upon for critical design dimensions.

3.2 Access

In the event of a serious bushfire threat to the proposed development, it will be essential to ensure that adequate ingress/ egress and the provision of defendable space are afforded in the subdivision design. All access within the subdivision is generally consistent with the Huntlee Concept Approval where the site will construct a public road network that will ultimately connect to Wine Country Drive. The proposed circulation ensures that egress is away from the bushfire hazard.

The following summarises the requirements of Table 5.3b, and Appendix 3 of PBP (2019).

General Requirements

Firefighting vehicles are provided with safe, all-weather access to structures:

- property access roads are two-wheel drive, all-weather roads;
- perimeter roads are provided for residential subdivisions of three or more allotments;
- subdivisions of three or more allotments have more than one access in and out of the development;
- traffic management devices are constructed to not prohibit access by emergency services vehicles;
- 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;
- all roads are through roads;
- dead end roads are not recommended, but if unavoidable, 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;
- where kerb and guttering is provided on perimeter roads, roll top kerbing should be used to the hazard side of the road;
- where access/egress can only be achieved through forest, woodland and heath vegetation, secondary access shall be provided to an alternate point on the existing public road system; and
- one way only public access roads are no less than 3.5 metres wide and have designated parking bays with hydrants located outside of these areas to ensure accessibility to reticulated water for fire suppression.

The capacity of access roads is adequate for firefighting vehicles:

- 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.

There is appropriate access to water supply:

- hydrants are located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression;
- hydrants are provided in accordance with the relevant clauses of AS 2419.1:2005; and
- there is suitable access for a Category 1 fire appliances to within 4m of the static water supply where no reticulated supply is available.

Property Access

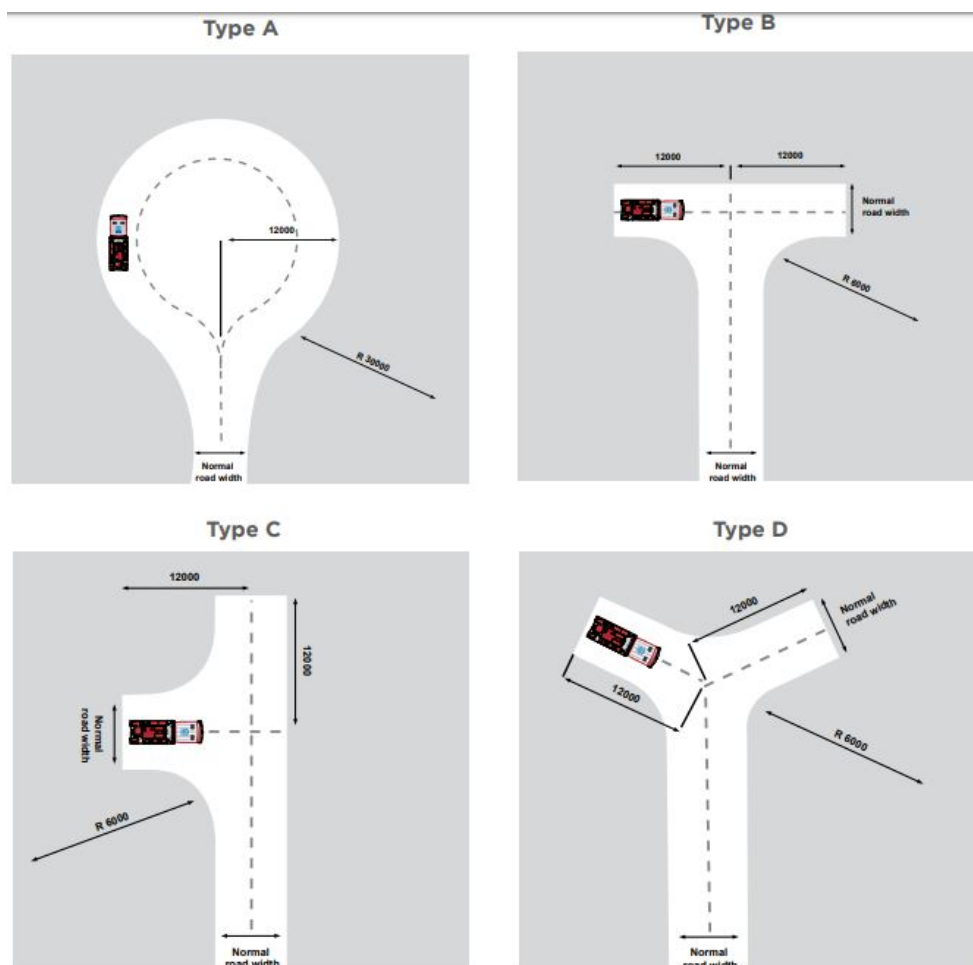
Firefighting vehicles can access the dwelling and exit the property safely:

- There are no specific access requirements in an urban area where an unobstructed path (no greater than 70m) is provided 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.

In circumstances where this cannot occur, the following requirements apply:

- minimum 4m carriageway width;
- 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;
- a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;
- provide a suitable turning area in accordance with Appendix 3;

| Curve radius (inside edge in metres) | Swept path (metres width) |
|---|------------------------------|
| < 40 | 4.0 |
| 40 - 69 | 3.0 |
| 70 - 100 | 2.7 |
| > 100 | 2.5 |



- curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;
- the minimum distance between inner and outer curves is 6m;
- the crossfall is not more than 10 degrees;
- maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads; and
- a development comprising more than three dwellings has access by dedication of a road and not by right of way.

Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, 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 in addition to the above.

The above road specifications are the acceptable solutions as detailed within PBP (2019). Deviations from the above acceptable solutions for access may be considered (depending on the situation) through a performance-based assessment.

Refer to **Appendix A** for Site Plan showing access.

3.3 Services – Water, Electricity, Gas

The site is to be developed in accordance with the PBP (2019) acceptable solutions for services listed in **Table 5**.

The proposal is able to satisfy these requirements given:

- Reticulated water supply is available and shall be extended and augmented within the site.
- The site will be connected to power from the existing service available within Wine Country Drive. This shall be extended and augmented within the site.
- Any future gas connection will be non-reticulated (bottled) and shall be installed in accordance with the provisions of PBP (2019).

Table 5 Acceptable solutions for services (PBP 2019)

| Performance Criteria | Acceptable Solutions |
|---|--|
| The intent may be achieved where: | |
| Reticulated water supplies <ul style="list-style-type: none"> ▪ water supplies are easily accessible, reliable and located at regular intervals. ▪ flows and pressure are appropriate ▪ the integrity of the water supply is maintained <p>If reticulated water supplies are considered inadequate or shall not be connected as part of the proposal, the PBP (2019) performance criteria for 'non-reticulated' water supply shall apply as detailed below.</p> | <ul style="list-style-type: none"> ▪ reticulated water is to be provided to the development, where available ▪ a static water supply is to be provided where no reticulated water is available ▪ reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads ▪ fire hydrant spacing, sizing and pressures comply with AS 2419.1 – 2005. ▪ hydrants are not located within any road carriageway ▪ all above ground water and gas service pipes external to the building are metal, including and up to any taps |
| Non-reticulated water supply areas <p>for rural-residential and rural developments (or settlements) in bush fire prone areas, a water supply reserve dedicated to firefighting purposes is provided and maintained. The supply of water can be an amalgam of minimum quantities for each lot in the subdivision (community titled subdivisions), or held individually on each lot.</p> | <ul style="list-style-type: none"> ▪ the minimum dedicated water supply required for firefighting purposes for each occupied building excluding drenching systems, is provided in accordance with Table 5.3d (refer to insert on left) ▪ there is suitable access for a Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available ▪ static water supply is not required to be solely dedicated for firefighting purposes and can include water holding structures such as tanks, pools, and dams ▪ static water supply must be accessible, reliable, adequate, and available for the life time of the development |

| Performance Criteria | | Acceptable Solutions |
|--|--------------------|---|
| Development Type | Water Requirements | <ul style="list-style-type: none"> the provision of appropriate connections as detailed above for reticulated water supplies must be considered if a static water supply is to be suitable a 'SWS' (Static Water Supply) sign in a visible location should be installed |
| Residential lots (<1000m ²) | 5,000L/lot | |
| Rural-residential lots (1000-10,000m ²) | 10,000L/lot | |
| Large rural/lifestyle lots (>10,000m ²) | 20,000L/lot | |
| Multi-dwelling housing (including dual occupancies) | 5,000L/dwelling | |
| Electricity Services <ul style="list-style-type: none"> location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings | | <ul style="list-style-type: none"> where practicable, electrical transmission lines are underground. where overhead electrical transmission lines are proposed: <ul style="list-style-type: none"> lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and no part of a tree is closer to a power line than the distance set out in accordance with the specifications in <i>ISSC3 Guideline for Managing Vegetation Near Power Lines</i>. |
| Gas services <ul style="list-style-type: none"> location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings | | <ul style="list-style-type: none"> reticulated or bottled gas is installed and maintained in accordance with AS/NZ 1596:2014 – <i>The storage and handling of LP Gas</i>, and the requirements of relevant authorities. Metal piping is to be used. all fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side of the installation. Above-ground gas service pipes are metal, including and up to any outlets. Connections to and from gas cylinders are metal. polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used. |

3.4 Landscaping & Fuel Management

All future landscaping on the site should be designed and managed to minimise impact of bushfire based on the principles set out in PBP (2019) being:

- Prevent flame contact / direct ignition on the dwelling;
- Provide a defendable space for property protection;
- Reduce fire spread;
- Deflect and filter embers;
- Provide shelter from radiant heat; and
- Reduce wind speed.

In this manner, consideration should be given to species selection, planting location, flammability and size at maturity to ensure discontinuous canopy/ structure both vertically and horizontally to ensure the above principles are met.

Ongoing fuel management across the site including existing managed areas and temporary APZs will be undertaken by Huntlee as part of the maintenance regime, and should give due consideration to Appendix 4 Asset Protection Zone Requirements of PBP (2019) which provides guidance on maintenance activities to assist in achieving the landscape principles.

3.5 Emergency Management

Any fire within the site would be attended in the first instance by the Cessnock branch of the NSW Fire Brigade and/or the Rothbury and North Rothbury Rural Fire Brigade.

To assist emergency response from the NSW RFS and/or NSW Fire and Rescue, site access is to comply with the provisions set out in PBP (2019) and all tanks including connection points be readily accessible and clearly marked. If pumps are to be made available, they must be regularly maintained and in good working order.

4 Conclusion & Recommendations

MJD Environmental has been engaged by Huntlee Pty Ltd, to prepare a BTA to accompany Modification (MOD 14) to Stage 1 of Major Project (MP10_0137) for the Huntlee New Town Residential development, North Rothbury, NSW. This assessment specifically covers residential substage 5 (large Lots) situated in the south-west of the Stage 1 approval.

The assessment has considered the bushfire hazard and associated potential threats relevant to the proposal, and outlined the mitigative measures which would be required in accordance with *Planning for Bush Fire Protection 2019* (PBP).

In order to determine whether the proposed development is bushfire-prone, and if so, which setbacks and other relevant Bush Fire Protection Measures (BPM) will be appropriate, this assessment adheres to the methodology and procedures outlined in PBP (2019) via assessment of acceptable solutions as outlined in Chapter 5 of PBP (2019).

This assessment has been made based on the bushfire hazards in and around the site at the time of report production.

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2019).

Northern Assessment Area

- The following APZ will be required, additionally each future residential lot is to be managed as an IPA in perpetuity:

Northern Assessment Area

- 24m from the Forest hazard occurring on flat land to the north;
- 29m from the Forest hazard occurring on 0-5° Downslope land to the north-west;
- 29m from the Forest hazard occurring on 0-5° Downslope land to the west;
- 14m from the Rainforest hazard occurring on 0-5° Downslope land to the south;
- 24m from the Forest hazard occurring on flat land to the east; and
- 10m from the Grassland hazard occurring on flat land to the east.

Southern Assessment Area

- 14m from the Rainforest hazard occurring on 0-5° Downslope land to the north;
 - 29m from the Forest hazard occurring on 0-5° Downslope land to the west;
 - 10m from the Grassland hazard occurring on flat land to the south-west;
 - 12m from the Grassland hazard occurring on 0-5° Downslope land to the south;
 - 29m from the Forest hazard occurring on 0-5° Downslope land to the south-east;
 - 24m from the Forest hazard occurring on flat land to the east; and
 - 10m from the Grassland hazard occurring on flat land to the east.
- All lands within the development area including Open space outside the nominated riparian corridors will be managed as an APZ.
 - Where staging occurs in the subdivision construction, a temporary APZ of 100m or to the final boundary (whichever being the greater) will be established between active or completed development stages and future development areas.
 - Assessment has demonstrated that future dwellings within the proposed subdivision arrangement, can be established with a BAL exposure of no greater than BAL-29.

- Access is to comply with PBP (2019) as summarised and assessed in Chapter 3, Section 3.2 of this report.
- Services are to be provided and connected to the site in accordance with PBP (2019) as summarised and assessed in Chapter 3, Section 3.3 of this report.
- Careful consideration of future site landscaping and ongoing fuel management must occur to minimise the potential impact of bushfire on the site.

Finally, the implementation of the measures and recommendations forwarded within this report would contribute to the amelioration of the potential impact of any bushfire upon the development site, but they do not and cannot guarantee that the area will not be affected by bushfire at some time.

5 Bibliography

Department of Bush Fire Services (undated). *Bush Fire Readiness Checklist*.

Keith D. (2004). *Ocean Shore to Desert Dunes*. Department of Environmental and Conservation. Sydney

HDB (January 2011) *Bushfire Threat Assessment for Stage 1 – Huntlee*. Prepared for LWP Pty Ltd.

NSW Planning & Environment (2020). *ePlanning Spatial Viewer*. Accessed from:

<https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address>

NSW Rural Fire Service (1997). *Bush Fire Protection for New and Existing Rural Properties*.

September 1997, NSW Government.

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

NSW Rural Fire Service (2005). *Standards for Asset Protection Zones*. NSW Rural Fire Service.

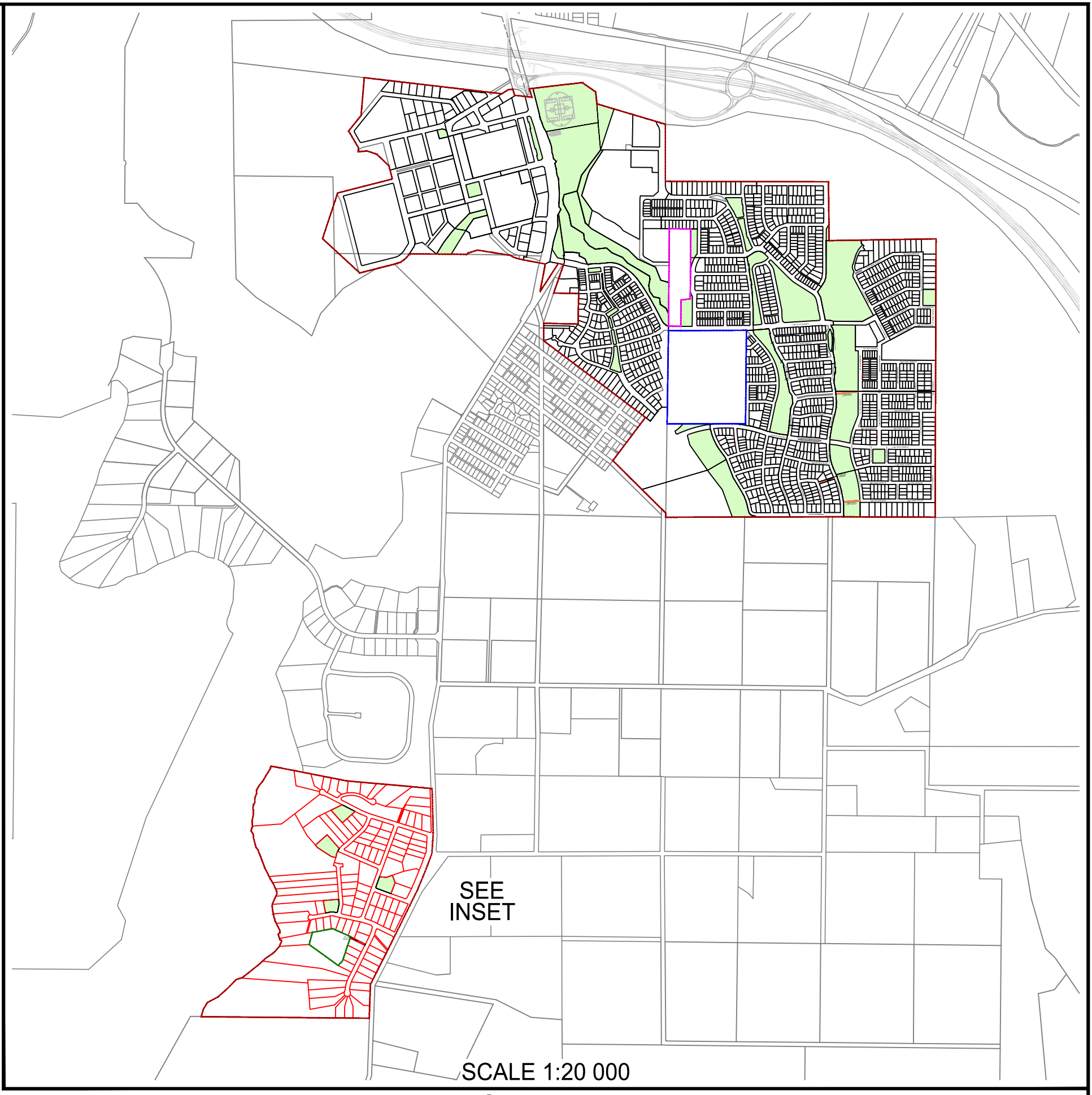
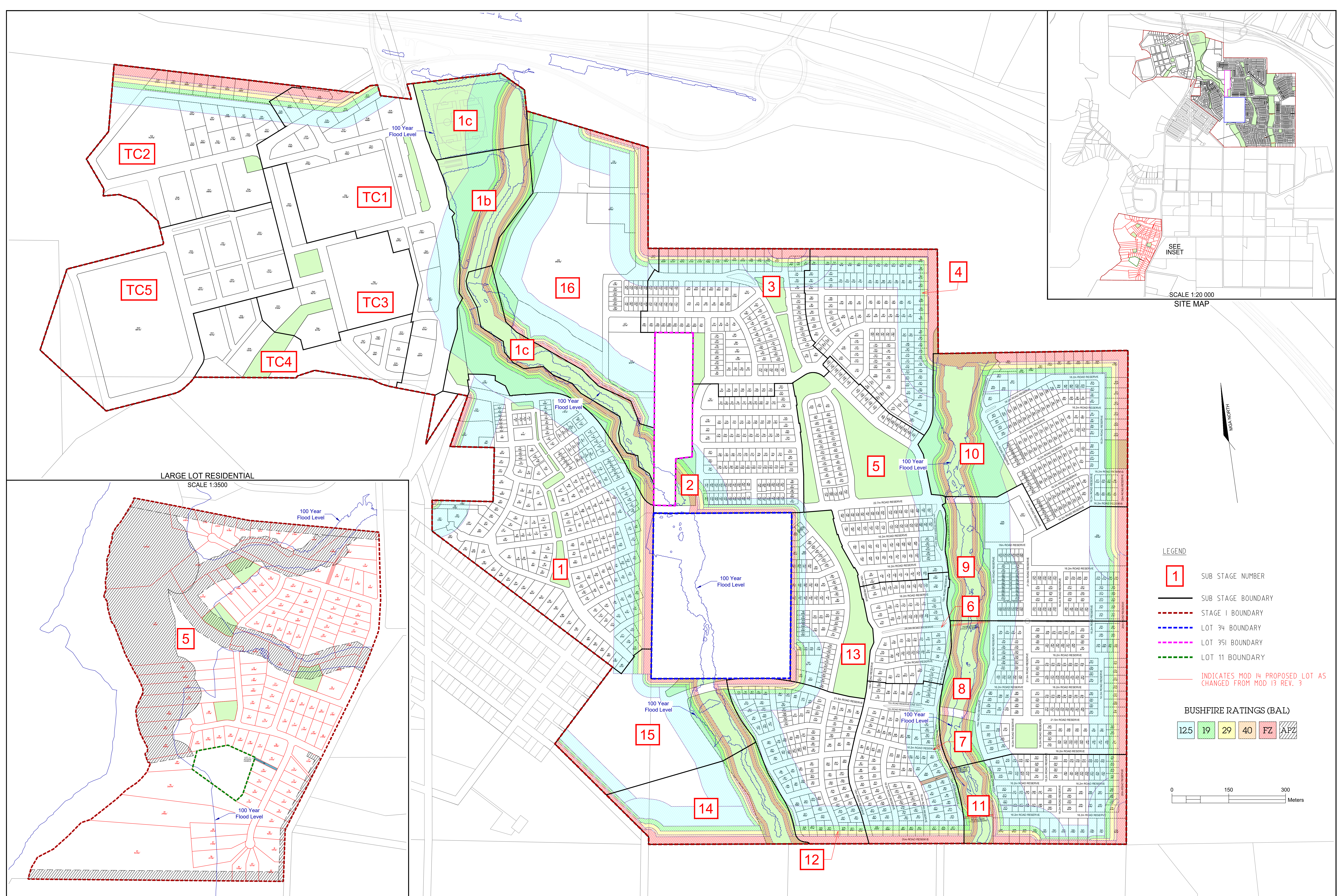
NSW Rural Fire Service (2002). *Circular 16/2002: Amendments to the Rural Fires Act 1997 – hazard reduction and planning requirements*.

Ramsay, GC and Dawkins, D (1993). *Building in Bushfire-prone Areas – Information and Advice*. CSIRO and Standards Australia.

Rural Fires and Environmental Assessment Legislation Amendment Act 2002.

Standards Australia (2009). *AS 3959 – 2009: Construction of Buildings in Bushfire-prone Areas*.

Appendix A Plan of Proposal



LARGE LOT RESIDENTIAL
SCALE 1:3500

- LEGEND
- 1 SUB STAGE NUMBER
 - SUB STAGE BOUNDARY
 - STAGE 1 BOUNDARY
 - LOT 34 BOUNDARY
 - LOT 351 BOUNDARY
 - LOT 11 BOUNDARY
 - INDICATES MOD 14 PROPOSED LOT AS CHANGED FROM MOD 13 REV. 3

BUSHFIRE RATINGS (BAL)

