Bushfire Threat Assessment

Huntlee New Town – Stage 1 75W Modification 8

Prepared for

Huntlee Pty Ltd

Final / April 2017

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EXECUTIVE SUMMARY

MJD Environmental has been engaged by Huntlee Pty Ltd, to prepare a BTA to accompany 75W Modification 8 to Stage 1 of Major Project (MP10_0137) for the Huntlee New Town Residential development, North Rothbury, NSW.

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Planning for Bush Fire Protection (PBP), 2006 that has been released and adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2007* & the *Rural Fires Amendment Regulation 2007*.

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 2006.

This assessment has been made based on the bushfire hazards in and around the site at the time of inspection and production (April 2017).

The assessment found that vegetation types consistent with forest, woodland, grassland with scattered trees and riparian based on the criteria set out within in PBP (2006) occurred within 140m of the site. Slopes under the hazards identified varied from upslope/ cross slope to 0-5^{o} Downslope.

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2006) and AS3959-2009.

- An APZ of 25m is required from the forest hazard to the north, north east and south-east.
- An APZ of 20m is required from the forest hazard along a portion of the eastern site boundary and the southern boundary.
- An APZ of 15m is required from the woodland hazard situated within Lot 34 DP 755211 to the west.
- An APZ of 10m is required from grassland with scattered trees to the south-east, south-west and west from Lot 34 DP 755211.
- An APZ of 10m is required from retained riparian vegetation associated with existing creek lines traversing the site.
- The development of sub-stages will occur in a staged fashion. A temporary APZ of 100m or to the Huntlee boundary is required between active or completed development stages and future development areas.
- Future dwellings within the site should have due regard to the specific considerations given in the BCA, which makes specific reference to the Australian Standard (AS3959 – 2009) construction of buildings in bushfire prone areas as outlined in Chapter 3, Section 3.2 of this report.
- Access is to comply with PBP (2006) as summarised and assessed in Chapter 3, Section 3.3 of this report.
- Services are to be provided and connected to the site in accordance with PBP (2006) as summarised and assessed in Chapter 3, Section 3.4 of this report.
- Any proposed development are to be linked to the existing mains pressure water supply and that suitable hydrants be clearly marked and provided for the purposes of bushfire protection. Fire hydrant spacing, sizing and pressure should comply with AS2419.1, 2005.
- 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.

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GLOSSARY OF TERMS AND ABBREVIATIONS

Term/ Abbreviation	Meaning
APZ	Asset Protection Zone
AS2419 -2005	Australian Standard – Fire Hydrant Installations
AS3959-2009	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
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 Threat Assessment
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
ha	hectare
IPA	Inner Protection Area
LGA	Local Government Area
OPA	Outer Protection Area
OEH	NSW Office of Environment and Heritage
PBP or PBP (2006)	Planning for Bushfire Protection 2006
RF Act	Rural Fires Act 1997
RF Regulation	Rural Fires Regulation
RFS	NSW Rural Fire Service
TSC Act	NSW Threatened Species Conservation Act 1995

1 Introduction

MJD Environmental has been engaged by Huntlee Pty Ltd, to prepare a Bushfire Threat Assessment (BTA) to accompany 75W Modification 8 to Stage 1 of Major Project (MP10_0137) for the Huntlee New Town Residential development, North Rothbury, hereafter referred to as the 'site' (**Figure 1**).

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Planning for Bush Fire Protection (PBP), 2006 that has been released and adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2007* & the *Rural Fires Amendment Regulation 2007*.

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This assessment has been made based on the bushfire hazards in and around the site at the time of inspection and production (April 2017).

1.1 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).

1.2 Aims & Objectives

This assessment has been undertaken in accordance with clause 44 of the RF Regulation 2008. This BTA also addresses the six key BPM in a development assessment context being:

1) The provision of clear separation of buildings and bush fire hazards, in the form of fuel-reduced Asset Protection Zone (APZ) (and their components being Inner Protection Areas (IPAs) and Outer Protection Areas (OPAs);
2) Construction standards and design;
3) Appropriate access standards for residents, fire-fighters, emergency workers and those involved in evacuation;
4) Adequate water supply and pressure;
5) Emergency management arrangements for fire protection and / or evacuation; and
6) Suitable landscaping, to limit fire spreading to a building.

The proposal type does not strictly trigger the criteria outlined with PBP (2006) for residential and/or Special Fire Protection Purposes (SFPP), nevertheless the six key BPM are important in the development context and as such this report adheres to the PBP (2006) assessment requirements.

1.3 Site Particulars

Locality	Huntlee New Town, North Rothbury
LGA	Cessnock City Council
Area	122.2ha (approx.)
Zoning	The land is currently zoned R1 General Residential and R2 Low Density Residential under the SEPP (Major Development) 2005 and (NSW Planning & Environment 2017)
Boundaries	The site is bound to the north-east, east and south predominantly by unmanaged vegetated lands with some pockets of managed rural and farming land. The north-west and western boundaries generally represent development areas associated with Huntlee and the existing north Rothbury residential area. A large privately owned holding (Lot 34 DP 755211) is situated within the Huntlee New Town on the site's mid-western boundary.
Current Land Use	The land forms part of the Huntlee New Town and is currently vacant with limited active landuse other than the surrounding development activities.
Topography	The site topography is characterised by two creek lines that run nominally in a south to north direction. Slopes across the site fall gently toward each creek line from a ridge running north/ south through the site's centre.
Climate / Fire History	The site lies within a geographical area with a Fire Danger Index (FDI) rating of 100. Extreme bushfire weather is therefore associated with long periods of drought, high temperatures, low humidity and gusty often north-westerly winds. The site is classified by Cessnock City Council LGA as Vegetation Category 1, Vegetation and Vegetation Buffer (100m) from Category 1 vegetation on the Bushfire Prone Land Map (CCC 2015). Refer to **Figure 2**.
Environment & Cultural Significance	All environmental and cultural heritage matters have been assessed and resolved as part of the Major Project Approval.

1.4 Description of Proposal

The proposed 75W Modification to the Stage 1 Project Approval are summarised as follows:

- a revised staging plan for the Stage 1 Project Approval Site;
- a revised residential subdivision layout for sub-stages 6-13;
- a revised street layout within sub-stages 6-13, including a revised road hierarchy;
- the relocation of the proposed school in what was formerly sub-stage 6; and
- the reconfiguration of open space.

It is emphasised that there will be no change to the boundary of the Stage 1 Project Approval Site, discussed previously in **Section 1.1**.

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

Figure 1 Site Location

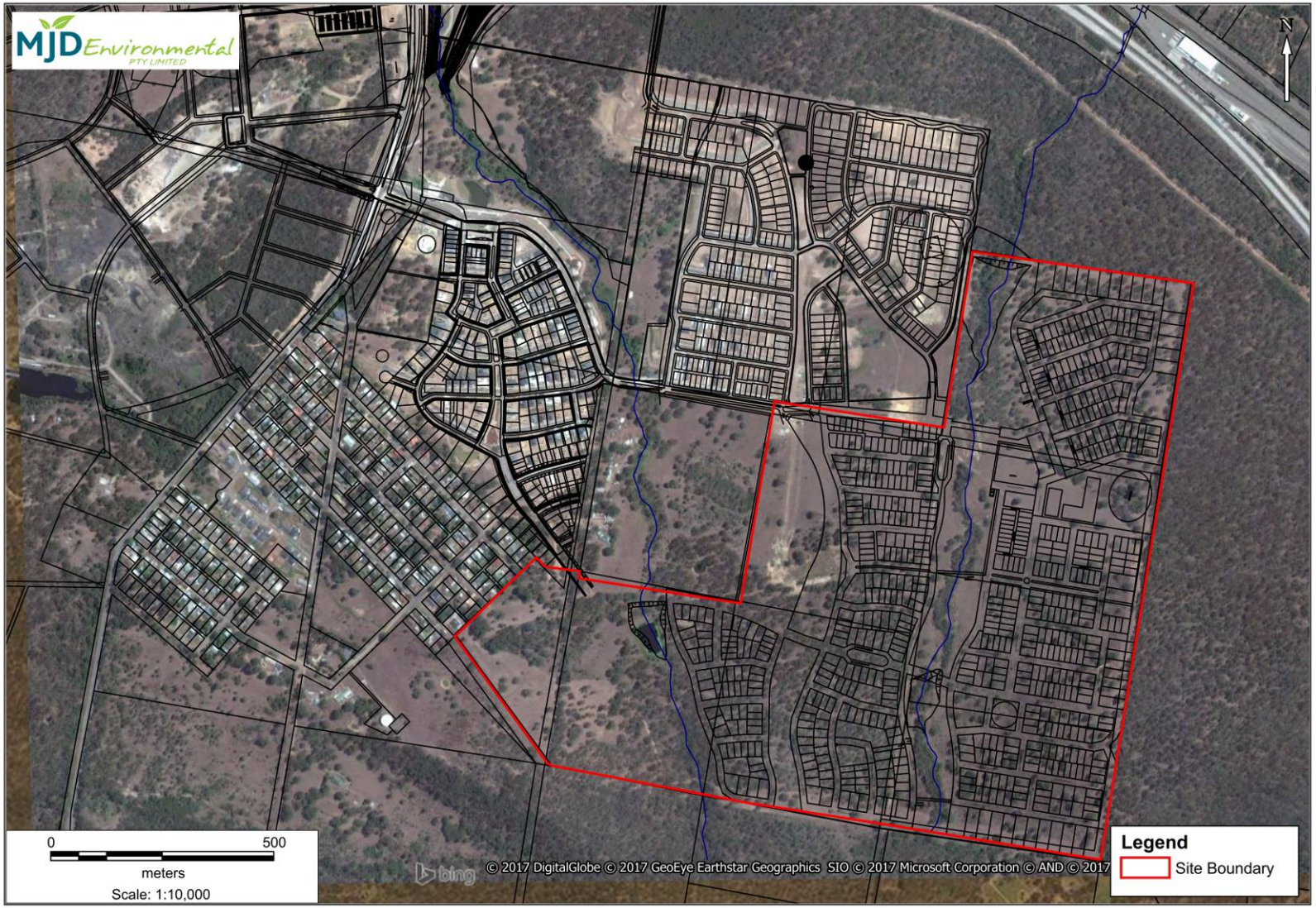

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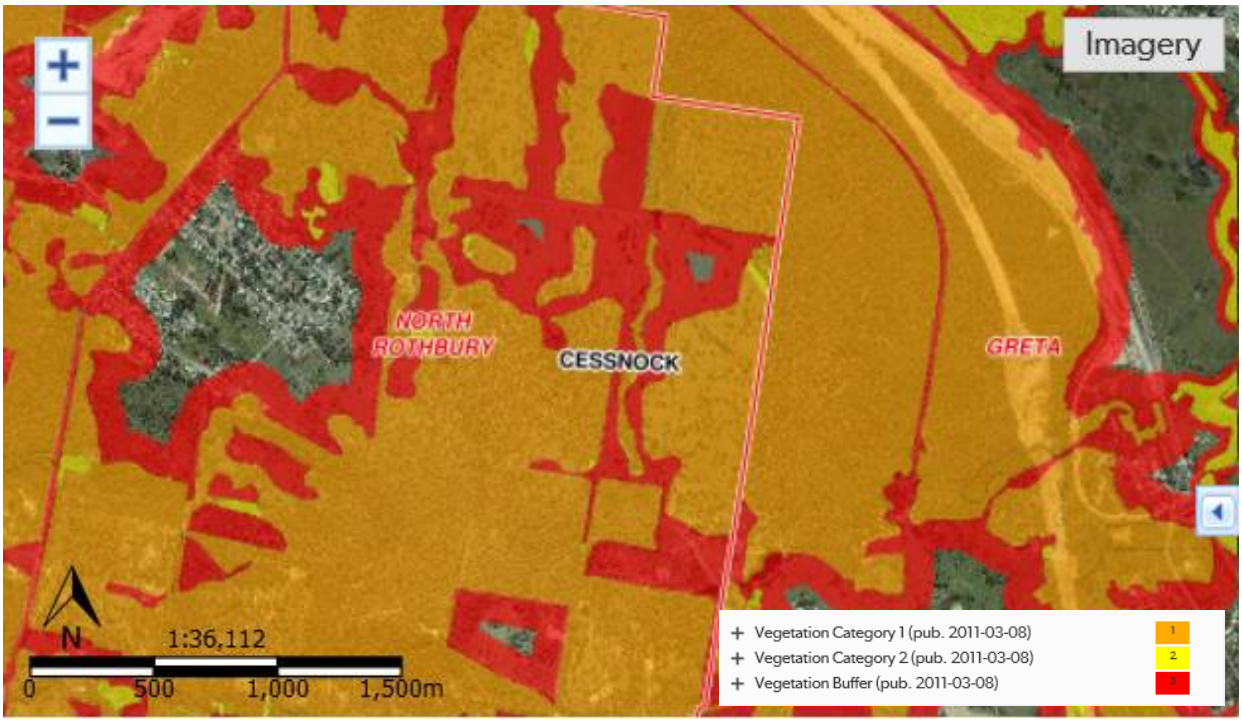
Figure 2 Bushfire Prone Land Map



(Source: NSW Planning & Environment, 2017)

2 Bushfire Hazard Analysis

2.1 Vegetation Assessment

Methodology

The vegetation in and around the site, to a distance of 140m, has been assessed in accordance with PBP 2006. This assessment has been made via a combination:

- aerial photo interpretation;
- reference to regional community vegetation mapping; and
- on site vegetation classification.

These vegetation communities have been classified for bushfire purposes into structure and formation using the system adopted by Keith (2004) and using Table A2.1 of PBP (2006) with due regard to Addendum Appendix 3 (PBP 2006).

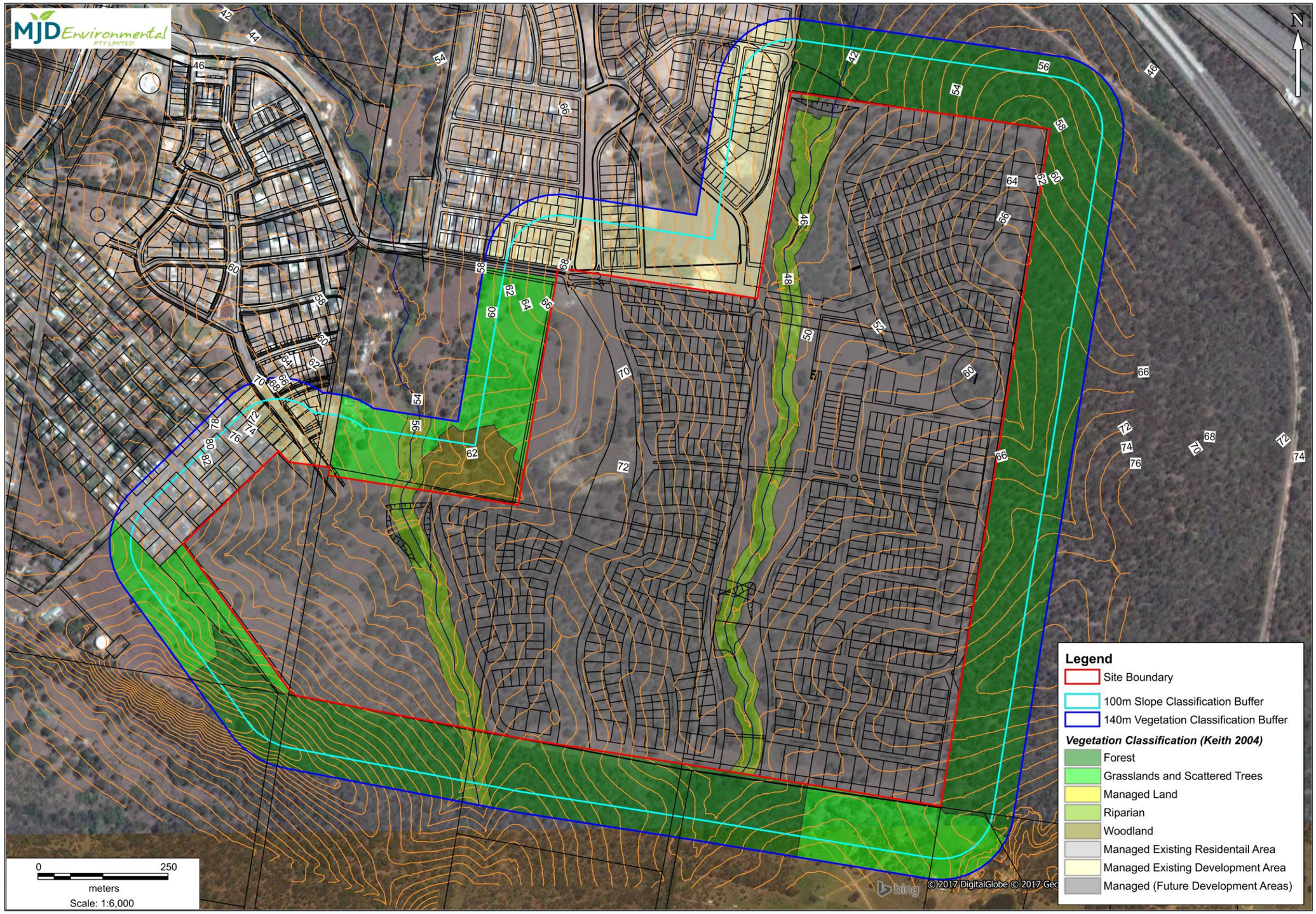
Vegetation Classification

Vegetation classification has been presented in **Table 1** below and **Figure 3**.

Table 1 Vegetation Classification

Direction	Description	Vegetation Classification
North (east)	Vegetation covering lands not owned or controlled by Huntlee.	Forest
North (west)	Cleared areas currently under construction for the Huntlee New Town subdivision	No Hazard
East	Vegetation covering lands not owned or controlled by Huntlee.	Forest
South (east)	Pasture and farmland areas with scattered trees, farm dam and tracks, rural buildings and Hunter Hideaway Cottages (eco tourism)	Grassland with scattered trees
South (mid)	Vegetation covering lands not owned or controlled by Huntlee.	Forest
South (west)	Pasture and farmland areas with scattered trees, farm dam and tracks. Existing North Rothbury residential area.	Grassland with scattered trees No Hazard
West (south)	Existing North Rothbury residential area	No Hazard
West (mid)	Privately owned holding (Lot 34 DP 755211) surrounded by the Huntlee New Town. Site comprised by pasture with scattered trees, farm dam, tracks, rural buildings and creek line. Area of pasture and with scattered tree density increases in south-east.	Grassland with scattered trees; Woodland (south-east)
West (north)	Cleared areas currently under construction for the Huntlee New Town subdivision	No Hazard
Creek line 1 (west)	Riparian vegetation to be retained as part of subdivision	Riparian
Creek line 2 (east)	Riparian vegetation to be retained as part of subdivision	Riparian

Figure 3 Vegetation Classification



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2.2 Slope Assessment

Methodology

In accordance with PBP (2006), an assessment of the slope throughout the site (where a hazard is to remain) and for a distance of 100m around the site 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.

Slope assessment was assisted by:

- Aerial photo coupled with contour overlays as a 2m contour data set and Lidar.

Effective Slope

The slope class under the bushfire hazards identified in **Section 2.1** is presented in **Table 2** below and **Figure 3** and **Appendix 2**.

Table 2 Slope Class

Direction	Vegetation Classification	Slope Class
North (east)	Forest	0-5° Downslope
East (north)	Forest	0-5° Downslope
East (mid)	Forest	Upslope/ Cross slope
East (south)	Forest	0-5° Downslope
South (east)	Grassland with scattered trees	0-5° Downslope in the far east Upslope
South (mid)	Forest	Upslope/ Cross slope
South (west)	Grassland with scattered trees	Upslope
West (mid)	Grassland with scattered trees	0-5° Downslope
	Woodland	0-5° Downslope
Creek line 1 (west)	Riparian	0-5° Downslope
Creek line 2 (east)	Riparian	0-5° Downslope

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)
- Construction Standards and Design – Bushfire Attack Levels (BAL) set out in AS3959-2009
- Access
- Services – Water supply, Gas and Electricity
- Landscaping and Fuel Management
- Emergency Management

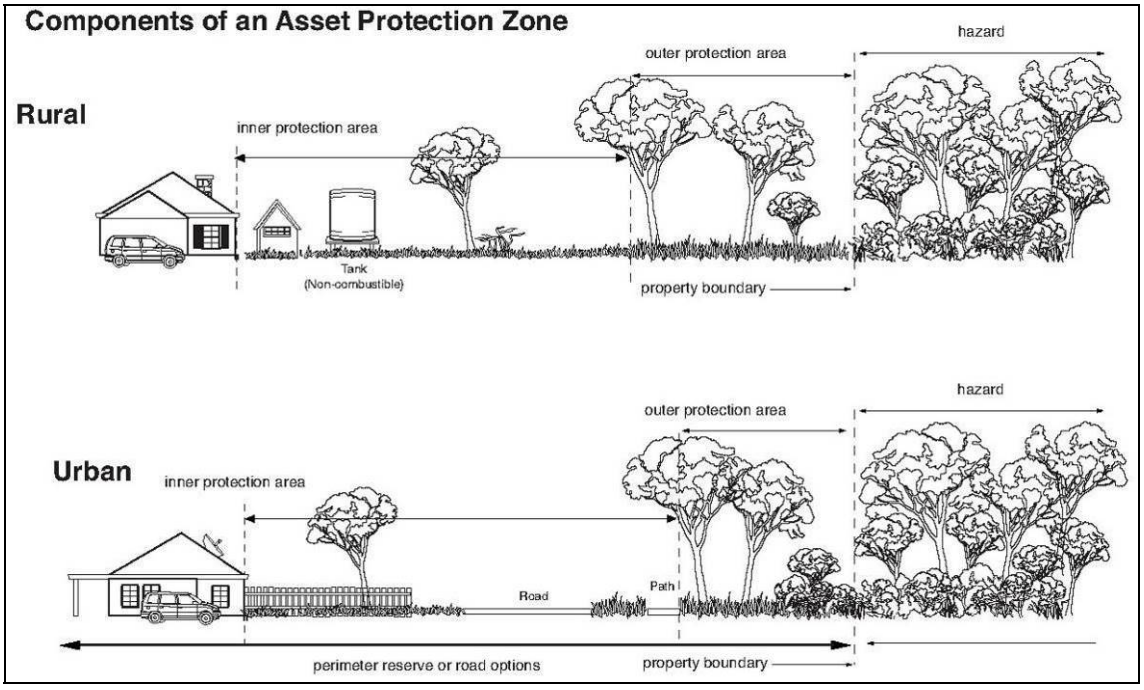
3.1 Asset Protection Zone

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 (2006), 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 defendable space and reduce potential for direct or spontaneous ignition by maintain 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.

Refer to **Figure 4** that shows the components of an APZ presented in PBP (2006).

Figure 4 Components of an APZ (PBP 2006)



An APZ can include the following:

- Lawns;
- discontinuous gardens;
- swimming pools;
- driveways;
- detached garages;
- open space / parkland;
- car parking;
- swales; and
- cycleway and formed walkways.

3.1.1 Determining APZs

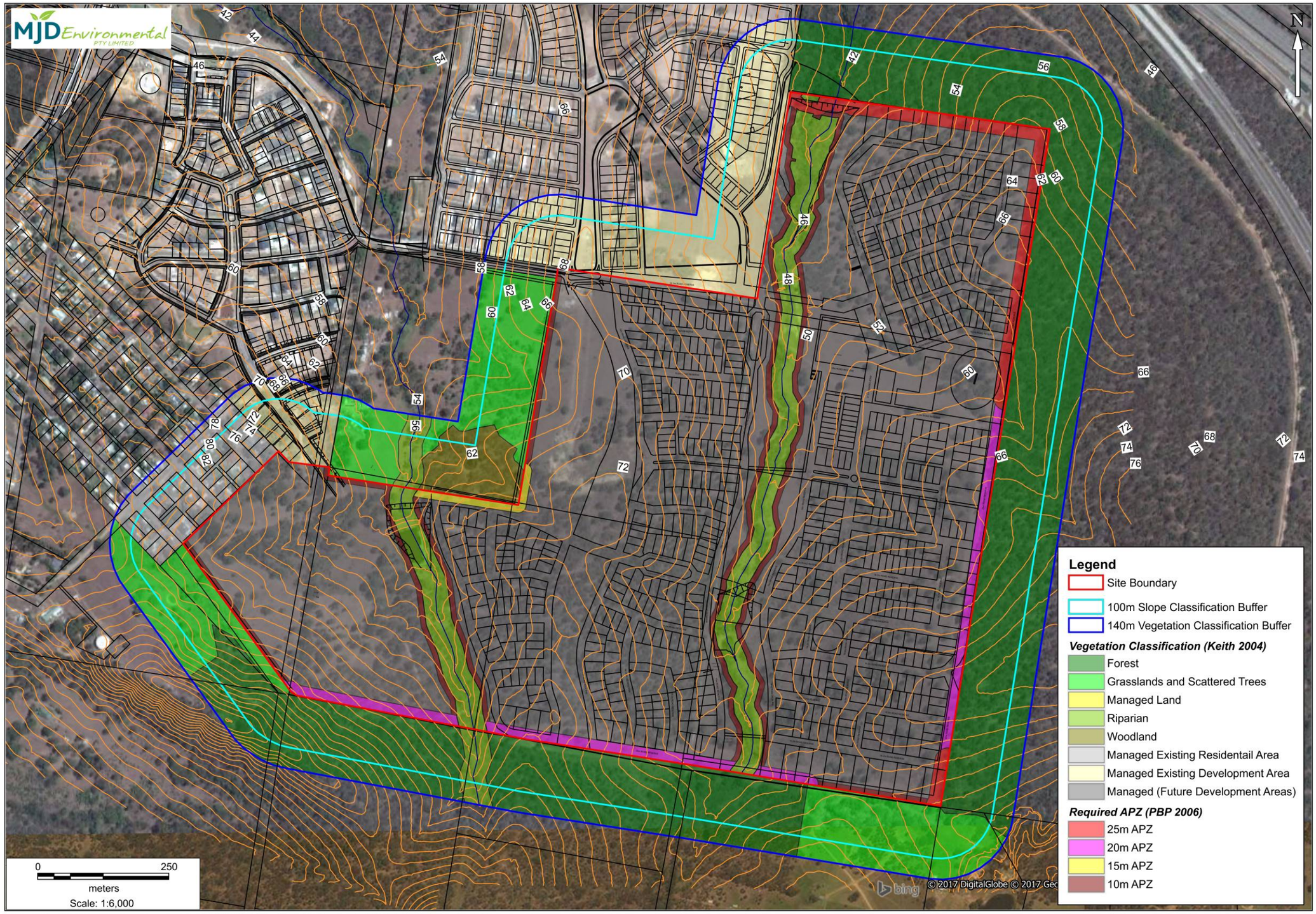
The subject site lies within the Cessnock City Council LGA and therefore is assessed under an FDI (Fire Danger Index) rating of 100. By applying Table A2.4 within PBP (2006), the deemed to satisfy setbacks have been calculated based on the bushfire hazard analysis presented in Chapter 2. Refer to **Table 3** below and **Figure 5** for the required APZs.

Table 3 Required APZ (PBP 2006)

Direction	Vegetation Classification	Slope Class	APZ
North (east)	Forest	0-5° Downslope	25m
East (north)	Forest	0-5° Downslope	25m
East (mid)	Forest	Upslope/ Cross slope	20m
East (south)	Forest	0-5° Downslope	25m
South (east)	Grassland with scattered trees	0-5° Downslope in the far east	10m
		Upslope	10m
South (mid)	Forest	Upslope/ Cross slope	20m
South (west)	Grassland with scattered trees	Upslope	10m
West (mid)	Grassland with scattered trees	0-5° Downslope	10m
	Woodland	0-5° Downslope	15m
Creek line 1 (west)	Riparian	0-5° Downslope	10m
Creek line 2 (east)	Riparian	0-5° Downslope	10m

The development of sub-stages will occur in a staged fashion. As such a temporary APZ of 100m or to the Huntlee boundary is required between active or completed development stages and future development areas.

Figure 5 Required APZ (PBP 2006)



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3.2 Construction Standards & Design

Construction of Buildings in Bushfire Prone Areas is encompassed by AS3959-2009. This Australian Standard specifies construction requirements to improve a buildings ability to withstand attack from bushfire and afford protection to occupants and the building during a bush fire situation. By considering the bushfire hazard analysis outcomes presented in Chapter 2, this standard provides scalable construction specifications (Bushfire Attack Levels – BAL) relative to the building separation from a proximate hazard.

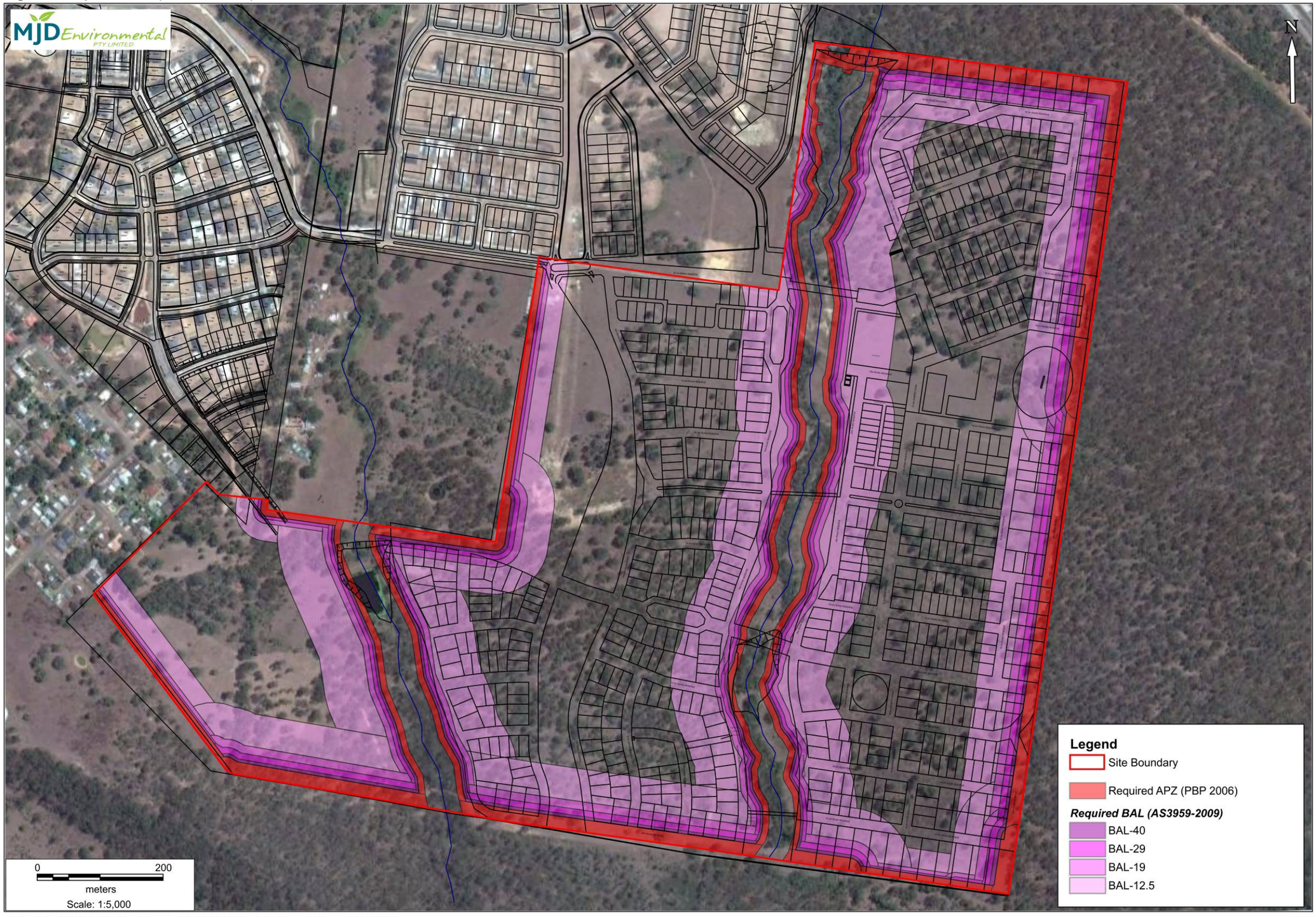
Addendum Appendix 3 of PBP (2006) was applied to the vegetation classification presented Chapter 2 to determine the AUSLIG (1990) vegetation equivalent. This coupled with the slope analysis was applied to Table 2.4.2 of AS3959-2009 to calculate the required Bushfire Attack Level (BAL) for the site. Refer to **Table 4** below and **Figure 6** for the required BAL.

Table 4 Required BAL (AS3959-2009)

Direction	Vegetation Classification	Slope Class	APZ	Separation Distance	BAL	Notes
North (east)	Forest	0-5° Downslope	25m	<24m 24-<32m 32-<43m 43-<57m 57-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
East (north)	Forest	0-5° Downslope	25m	<24m 24-<32m 32-<43m 43-<57m 57-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
East (mid)	Forest	Upslope/ Cross slope	20m	<19m 19-<25m 25-<35m 35-<48m 48-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
East (south)	Forest	0-5° Downslope	25m	<24m 24-<32m 32-<43m 43-<57m 57-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
South (east)	Grassland with scattered trees	0-5° Downslope in the far east	10m	<7m 7-<10m 10-<15m 15-<22m 22-<50m <50m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
		Upslope	10m	<6m 6-<9m 9-<13m 13-<19m 19-<50m <50m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	

Direction	Vegetation Classification	Slope Class	APZ	Separation Distance	BAL	Notes
South (mid)	Forest	Upslope/ Cross slope	20m	<19m 19-<25m 25-<35m 35-<48m 48-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
South (west)	Grassland with scattered trees	Upslope	10m	<6m 6-<9m 9-<13m 13-<19m 19-<50m <50m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
West (mid)	Grassland with scattered trees	0-5° Downslope	10m	<7m 7-<10m 10-<15m 15-<22m 22-<50m <50m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
	Woodland	0-5° Downslope	15m	<15m 15-<21m 21-<29m 29-<41m 41-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
Creek line 1 (west)	Riparian	0-5° Downslope	10m	<10m 10-<14m 14-<20m 20-<29m 29-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	
Creek line 2 (east)	Riparian	0-5° Downslope	10m	<10m 10-<14m 14-<20m 20-<29m 29-<100m >100m	BAL-FZ BAL-40 BAL-29 BAL-19 BAL-12.5 BAL-Low	

Figure 6 Required BAL (AS 3959-2009)



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3.3 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 New Town Stage 1 Concept Approval where the site will have multiple ingress and egress routes that will ultimately connect to Wine Country Drive to the west.

The following summarises the requirements of PBP (2006).

PBP (RFS, 2006) recommends a perimeter road be designed for any future residential development. A perimeter road forms part of the APZ and will provide a separation between the building and the boundary of the bush fire hazard.

Any **perimeter road** should be fully sealed and have a minimum road reserve width of 8m minimum kerb to kerb with the following design specifications:

- roads should be two wheel drive, all weather roads;
- roads should be two-way; i.e. at least two traffic lane widths with shoulders on each side, allowing traffic to pass in opposite directions;
- roads should be through roads where possible, any dead end roads should not be more than 200m in length with a 12m radius turning circle and clearly sign posted as such;
- the capacity of road surfaces and bridges should be sufficient to carry fully loaded fire fighting vehicles (approximately 28 tonnes or 8 tonnes per axle); and
- roads should be clearly sign posted and buildings clearly numbered.

According to PBP (2006), the design specifications for **internal public road** require that roads:

- be two-wheel drive all weather roads;
- non perimeter roads comply with Road widths for Category 1 Tanker (Table 4.1 PBP 2006);

Curve radius (inside edge) (metres)	Swept Path (metres width)	Single lane (metres width)	Two way (metres width)
<40	3.5	4.5	8.0
40-69	3.0	3.9	7.5
70-100	2.7	3.6	6.9
>100	2.5	3.5	6.5

- the perimeter road is linked to the internal road system at an interval of no greater than 500m in urban areas;
- not be hindered by an overuse of traffic calming devices such as speed humps and chicanes;
- public roads do not have a cross fall not exceeding 3 degrees;
- all roads are through roads, but if unavoidable then dead ends should be not more than 200m in length, incorporate a minimum 12m turning circle and should be clearly sign posted as dead ends;
- curves of roads (other than perimeter roads) are a minimum inner radius of 6 metres and minimal in number, to allow for rapid access and egress;
- the minimum distance between inner and outer curves is 6m;
- maximum grade for sealed roads does not exceed 15^{o} and an average grade of not more than 10^{o} of other gradient specified by road design standards, whichever is the lesser gradient;
- there is a minimum vertical clearance to a height of 4m above the road at all times;

- the capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (approximately 15 tonnes for areas with reticulated water, 28 tonnes. Bridges clearly indicate load rating;
- public roads between 6.5m and 8m wide are no parking on one side with the services (hydrants) located on the side to ensure accessibility to reticulated water for suppression;
- one way public access roads are no less than 3.5m wide and provide parking within parking bays and locate services outside of the parking bays to ensure accessibility to reticulated water for fire suppression;
- parking bays are a minimum of 2.6m wide from kerb edge to road pavement. No services or hydrants are located within the parking bays; and
- public roads directly interfacing the bush fire hazard vegetation should provide roll top kerbing to the hazard side of the road.

According to PBP (2006), the design specifications for **property access roads** require that:

- at least one alternative property access is provided for individual dwellings (or group of dwellings) that are located more than 200m from a public through road;
- a minimum carriageway width of four metres for rural-residential areas, rural landholdings or urban area with a distance greater than 70 metres from the nearest hydrant point to the most external part of the proposed building;

  Note: No specific access requirements apply in a urban area where a 70m unobstructed path can be demonstrated between the most distant 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 fighting vehicles (i.e. a hydrant or water supply).
- a minimum vertical clearance of four metres to any overhanging obstructions, including tree branches;
- on forest, woodland and heath situations, rural property access roads have passing bays every 200m that are 20 metres long by two metres wide;
- internal roads for rural properties have a loop road around any dwelling or incorporate a turning circle with a minimum 12 metre outer radius;
- curves have a minimum inner radius of six metres and are minimal in number to allow for rapid access and egress;
- the cross fall is not more than 10^{o};
- maximum grades for sealed roads do not exceed 15^{o} and not more than 10^{o} for unsealed roads; and
- access to a development comprising more than three dwellings have formalised access by dedication of a road and not by right of way.

The above road specifications are the acceptable solutions as detailed within PBP (RFS, 2006). Deviations from the above acceptable solutions for access may be considered (depending on the situation) through a performance-based assessment.

The proposed road layout is generally consistent with the requirements of PBP (2006).

Refer to **Appendix A** for Plan of Subdivision showing access and staging.

3.4 Services – Water, Electricity, Gas

The site is to be developed in accordance with the PBP (2006) 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 Huntlee. 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 (2006).

Table 5 Acceptable solutions for services (PBP 2006)

Performance Criteria	Acceptable Solutions
The intent may be achieved where:	
Reticulated water supplies ▪ water supplies are easily accessible and located at regular intervals	▪ 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. Where this cannot be met, the RFS will require a test report of the water pressures anticipated by the relevant water supply authority. In such cases, the location, number and sizing of hydrants shall be determined using fire engineering principles. ▪ 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. ▪ the provisions of parking on public roads are met.
Electricity Services ▪ location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings ▪ regular inspection of lines is undertaken to ensure they are not fouled by branches.	▪ where practicable, electrical transmission lines are underground. ▪ where overhead electrical transmission lines are proposed: o lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and o no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002).
Gas services ▪ location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings	▪ reticulated or bottled gas is installed and maintained in accordance with AS 1596 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. ▪ if gas cylinders need to be kept close to the building, the release valves are directed away from the building and at least 2 metres away from any combustible material, so that they do not act as a catalyst to combustion. Connections to and from gas cylinders are metal. ▪ polymer sheathed flexible gas supply lines to gas meters adjacent to buildings are not used.

3.5 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 (2006) 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 head; 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. The maintenance regime should give due consideration to the RFS Standards for Asset Protection Zones (2005) which provides guidance on maintenance activities to assist in achieving the landscape principles.

3.6 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 (2006) 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 75W Modification 8 to Stage 1 of Major Project (MP10_0137) for the Huntlee New Town Residential development, North Rothbury, NSW.

The assessment aims to consider and assess the bushfire hazard and associated potential threats relevant to such a proposal, and to outline the minimum mitigative measures which would be required in accordance with the provisions of the Planning for Bush Fire Protection (PBP), 2006 that has been released and adopted through the *Environmental Planning & Assessment Amendment* (Planning for Bush Fire Protection) *Regulation 2007* & the *Rural Fires Amendment Regulation 2007*.

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 2006.

This assessment has been made based on the bushfire hazards in and around the site at the time of inspection and production (April 2017).

In summary, the following key recommendations have been generated to enable the proposal to comply with PBP (2006) and AS3959-2009.

- An APZ of 25m is required from the forest hazard to the north, north east and south-east.
- An APZ of 20m is required from the forest hazard along a portion of the eastern site boundary and the southern boundary.
- An APZ of 15m is required from the woodland hazard situated within Lot 34 DP 755211 to the west.
- An APZ of 10m is required from grassland with scattered trees to the south-east, south-west and west from Lot 34 DP 755211.
- An APZ of 10m is required from retained riparian vegetation associated with existing creek lines traversing the site.
- The development of sub-stages will occur in a staged fashion. A temporary APZ of 100m or to the Huntlee boundary is required between active or completed development stages and future development areas.
- Future dwellings within the site should have due regard to the specific considerations given in the BCA, which makes specific reference to the Australian Standard (AS3959 – 2009) construction of buildings in bushfire prone areas as outlined in Chapter 3, Section 3.2 of this report.
- Access is to comply with PBP (2006) as summarised and assessed in Chapter 3, Section 3.3 of this report.
- Services are to be provided and connected to the site in accordance with PBP (2006) as summarised and assessed in Chapter 3, Section 3.4 of this report.
- Any proposed development are to be linked to the existing mains pressure water supply and that suitable hydrants be clearly marked and provided for the purposes of bushfire protection. Fire hydrant spacing, sizing and pressure should comply with AS2419.1, 2005.
- 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

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Appendix A Plan of Proposal

ISSUE	DATE	PURPOSE
(0)	23/11/2016	PRELIMINARY REVIEW BY CLIENT
(1)	24/11/2016	RE-No. & ADD LOTS 886-928, REMOVE LOT No.'s OPEN SPACE, AMEND SUB STAGE BDY
(2)	06/01/2017	AMEND VARIOUS LOTS IN AREAS 11-12, RENUMBER
(3)	12/01/2017	AMEND SUBSTAGE BOUNDARIES 5 -13
(4)	13/01/2017	AMEND SUBSTAGE BOUNDARIES 2-5
(5)	13/01/2017	ADD/AMEND SUBSTAGE BOUNDARIES TC, 1b-1c, 14-15
(6)	16/01/2017	ADD/AMEND SUBSTAGE BOUNDARIES TC, 1b-1c

DRAWING STATUS

PRELIMINARY REVIEW
NOT FOR CONSTRUCTION

THIS IS A COLOUR DRAWING AND SHOULD NOT BE REPRODUCED IN BLACK AND WHITE

CLIENT

Huntlee

LWP bringing communities to life

SCALE	1:3000
SHEET SIZE	A0
DRAWN BY	ADM
CHECKED BY	GJS
DRAWING TITLE	20406-1 TO 3000 (MOD8)
PROJECT	HUNTLEE STAGE 1 - DEVELOPMENT AREA WINE COUNTRY DRIVE, HUNTLEE
CLIENT	HUNTLEE PTY.LTD.

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DALY.SMITH JOB No (Rev): **20406(6)**

SHEET NO: 1 OF 1

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