

Bushfire Risk Assessment

53 Dukes Lane, Strathfieldsaye



November 2024

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1. INTRODUCTION

Practical Ecology has been commissioned by Emu Creek Holdings Pty Ltd. to assess the bushfire risk to their proposed subdivision at 53 Dukes Lane, Strathfieldsaye. The owners are proposing to subdivide the property into 30 residential lots with an internal road. While the site is not covered by the *Clause 44.05 Bushfire Management Overlay* (BMO), the requirements of the BMO are being applied in response to *Clause 13.02-1S Bushfire Planning* as this application is for a subdivision,

Under Clause 13.02-1S, bushfire risk must be considered as a part of the planning application for the following developments within these areas:

- Subdivisions of more than 10 lots.
- Accommodation.
- Child care centre.
- Education centre.
- Emergency services facility.
- Hospital.
- Indoor recreation facility.
- Major sports and recreation facility.
- Place of assembly.
- Any application for development that will result in people congregating in large numbers.

The application will therefore be assessed by this report which will consider the requirements of the BMO as recommendations and as a benchmark of bushfire safety to address the requirements of Clause 13.02 - 1S.

1.1 Subject site

Map 1 provides an overview of the site.

The site contains a dwelling and associated infrastructure. The remainder of the site is composed of managed pasture, a dam and patches of native vegetation. The site is approximately 2.55 ha in size and is zoned General Residential Zone (GRZ). It is subject to the following overlays:

- Development Plan Overlay – Schedule 26 (DPO26)
- Environmental Significance Overlay – Schedule 1 (ESO1)
- Land Subject to Inundation Overlay – Schedule 1 (LSIO1)

1.2 Application requirements

Clause 44.06 details the application requirements to address the BMO:

Unless a schedule to *Clause 44.06 – Bushfire Management Overlay* specifies a different requirement, an application under the BMO must be accompanied by:

- A **bushfire hazard site assessment** including a plan that describes the bushfire hazard within 150 metres of the proposed development. The description of the hazard must be prepared in accordance with Sections 2.2.3 to 2.2.5 of *AS3959–2018 Construction of buildings in bushfire prone areas* (Standards Australia) (AS3959–2018) excluding paragraph (a) of section 2.2.3.2. Photographs or other techniques may be used to assist in describing the bushfire hazard.
- A **bushfire hazard landscape assessment** including a plan that describes the bushfire hazard of the general locality more than 150 metres from the site. Photographs or other techniques may be used to assist in describing the bushfire hazard. This requirement does not apply to a dwelling that includes all of the approved measures specified in Clause 53.02–3.
- A **bushfire management statement** describing how the proposed development responds to the requirements in this clause and Clause 44.06. If the application proposes an alternative measure, the bushfire management statement must explain how the alternative measure meets the relevant objective.

If in the opinion of the responsible authority any part of these requirements is not relevant to the assessment of an application, the responsible authority may waive, vary or reduce the requirement.

Clause 53.02 details the objectives, approved measures, alternative measures and decision guidelines to be met under the BMO and is divided into three sections (Clause 53.02–3, 4 and 5). Clause 53.02–3 applies to an application to construct a single dwelling or construct or carry out works associated with a single dwelling if all of the following requirements are met:

- The land is zoned Neighbourhood Residential Zone, General Residential Zone, Residential Growth Zone, Urban Growth Zone, Low Density Residential Zone, Township Zone or Rural Living Zone.
- There is only one dwelling on the lot.
- The application meets all of the approved measures contained in Clause 53.02–3.

Clause 53.02–4 applies to all other applications and Clause 53.02–5 contains the tables with site specific requirements (to be determined through site assessment and evaluation of Clause 53.02–3 or 4).

Relevance to proposal

As stated previously, the requirements of the BMO stipulated above do not apply to this stage of the development but bushfire risk must be assessed at the planning level under Clause 13.02–1S as this application is for a development greater than 10 lots within a Bushfire Prone Area.

The bushfire risk for this area will therefore be assessed using the requirements above from the BMO as a benchmark for bushfire safety, and recommendations will be made as a result. A Bushfire Management Plan is therefore not required for this assessment.

1.3 Executive summary

A summary of the Approved and Alternative Measures of Clause 53.02, those which apply to the site and those which are met by this proposal is presented in Table 1.

The proposed site is located at 53 Dukes Lane, Strathfieldsaye and is approximately 2.55ha. The site is located on the outskirts of the Strathfieldsaye township within the General Residential Zone (GRZ) on flat topography. The majority of the site is considered of Low Threat with a small patch of Modified vegetation present within the eastern portion of the site.

Woodland vegetation as per AS3959-2018 is present within the Strathfieldsaye Streamside Reserve to the west of the site. Grassland type vegetation is present between the site and this reserve and also to the north of the site in the form of grazed pasture. The remaining land consists of both residential development and land within the construction stage of residential development and is therefore considered of Low Threat.

Beyond the assessment area, Strathfieldsaye extends directly south-west of the site and consists of dense residential and urban development, with further development planned going into the future. Directly to the north and north-west, there is low-density residential development interspaced with dense vegetation. Development is underway to the east of the site although this land then transitions to farmland beyond Somerset Park Road. The land to the south contains fragmented patches of vegetation interspaced with farmland.

The landowners are proposing to subdivide the property into thirty lots with a proposed internal road providing access onto Dukes Lane to the east and into the existing/future residential developments to the north and south. A perimeter road and managed reserve are also proposed on the western edge of the site adjacent to the creekline. The Approved and Alternative Measures that are being applied here as recommendations for bushfire safety to address the requirements of Clause 13.02-1S. As long as these are addressed, the only strict requirement is that each lot must prove it can attain BAL-12.5 as per AS3959-2018. A BAL assessment has also been included to prove this and provide for the building permit.

Approved Measure 5.2 includes the incorporation of Approved Measure 2.1 and 2.2. Approved Measure 2.1 is met through the surrounding landscape being of low risk due to its proximity to Strathfieldsaye and minimal vegetation present. The only credible threat is from a fire run from the north-west although this would likely be contained prior to impact on the site. Approved Measure 2.2 is met through the development being provided with an internal road network that will provide access and egress for emergency service vehicles via Dukes Lane and Strathfieldsaye Road. The development has already included a setback from the Woodland vegetation within Emu creek via the proposed road, this will ensure all of the lots have the capacity to position building envelopes in accordance to the BAL-12.5 standard.

Defendable space as per Approved Measure 5.2 is met through the lots having the capacity to meet the defendable space requirements of BAL-12.5. Approved Measure 4.1 is met through the recommendation of a 5,000L static water supply for each lot (recommended but not required), which do not require CFA access or fittings. All lots have access less than 30m and therefore there are no design or construction requirements.

Approved Measure 5.3 is met through Dukes Lane providing access along the eastern boundary and a proposed perimeter road to the west of the lots. No perimeter road is provided along the northern or southern boundary however the existing development to the south contains adjoining roads that provide access onto Strathfieldsaye Road. It is assumed that the proposed development to the north will contain adjoining roads which will allow for access to the north. Approved Measure 5.4 is met through the assurance that any works within the prescribed defendable space must adhere to the associated standards.

Table 1. Summary of Approved/Alternative Measures to Clause 53.02

Approved/Alternative Measure	Relevant to proposal?	Met by proposal?	Further comments
AM 1.1	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A	Requirements of Clause 52.03-4 to be met
AM 1.2	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AM 1.3	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AM 2.1	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Applied under AM 5.2
AM 2.2	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Applied under AM 5.2
AM 2.3	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A	Not required for a subdivision application
AM 3.1	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AM 3.2	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AltM 3.3	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AltM 3.4	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AltM 3.5	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AltM 3.6	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
AM 4.1	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Applied under AM 5.2
AM 4.2	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A	AM 4.1 applies
AM 5.1	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A	AM 5.2 applies
AM 5.2	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
AM 5.3	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Not considered necessary as the site is not within the BMO and the requirement is partially met through the presence of existing roads and an adjacent paddock which can provide vehicles access.
AM 5.4	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
AltM 5.5	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A	Not required

2. BUSHFIRE HAZARD SITE ASSESSMENT

The bushfire hazard site assessment documents the bushfire hazard on and near the site. Map 1 provides an overview of the subject site, including the land within 150 metres of site.

2.1 Site shape, dimensions and size

The shape of the site is:	Irregular
The dimensions of the site are:	Approximately 334 m x 80 m
The site has a total area of:	Approximately 2.55 ha

2.2 Planning controls

The zoning of the site is:	General Residential Zone (GRZ)
The planning scheme overlays that apply to the site are:	<ul style="list-style-type: none"> • Development Plan Overlay – Schedule 26 (DPO26) • Environmental Significance Overlay – Schedule 1 (ESO1) • Land Subject to Inundation Overlay – Schedule 1 (LSIO1)

2.3 Existing use and development on the site

The current use of the site	Residential
The buildings or works located on the site are:	Dwelling, shed, water tanks, perimeter fencing and a dam

2.4 Existing access and utilities

Roads and access	A short dirt road provides access onto Dukes Lane to the east of the site
Power	The site will be connected to mains power
Water	The site will be connected to mains water
Nearest fire hydrant	Adjacent to 22 Dukes Lane

2.5 Vegetation and topography

Refer to Map 2 and Table 2 for the results of the vegetation and slope assessment as per Australian Standards 3959–2018: Construction of Buildings in Bushfire Prone Areas (AS3959–2018) (Standards Australia 2018)

Woodland vegetation as per AS3959–2018 is present within the Strathfieldsaye Streamside Reserve to the west of the site. Grassland vegetation in the form of grazed pasture is present to the north of the site within the neighbouring lots and also between the site and Emu creek to the west. A patch of Modified vegetation is also present within the eastern portion of the site. The remaining land within the assessment area is considered of Low Threat and composed of residential development and land within the construction stage of residential development.

Table 2. Bushfire hazard site assessment

Direction relative to site	North & West	West	North, East & South	East
Vegetation type	Grassland	Woodland	Low Threat	Modified vegetation
Effective slope (up/down)	Level	Level	Level	Level
Effective slope (degrees)	0–2°	0–2°	0–2°	0–2°

2.5.1 Woodland

Woodland vegetation as per AS3959–2018 also consists of a canopy layer of between 10–30m tall (can be less than 10m) with foliage cover of between 10–30%. Elevated fuel layers are often also present but at significantly lower density than observed in Forest vegetation. The key difference between Forest and Woodland vegetation is Forest support fires in the canopy.

This requires a dense canopy layer and elevated fuel layer so vegetation can be considered Woodland if the canopy density is greater than 30% but there is very little to no elevated fuels. Woodland type vegetation is present to the west of the site within the Strathfieldsaye Streamside Reserve following Emu creek. This vegetation continues further north–east and to the west of the site (see Figure 1 and Figure 2)

2.5.2 Grassland

Grassland vegetation as per AS3959–2018 is dominated by grass and herb species and can contain canopy and elevated fuel layers of varying heights as long as the foliage cover is less than 10%. Grassland vegetation in the form of grazed pasture is present to the north of the site within the neighbouring lot (see Figure 3). Grassland type vegetation is also present to the west in the area between the site boundary and the Woodland vegetation within Emu creek.

2.5.3 Low Threat and Modified Vegetation

Low Threat vegetation as per AS3959–2018 consists of vegetation managed to minimal fuel conditions including maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and wind breaks. Areas considered of Low Threat make up the majority of the assessment area and are composed of both residential development alongside areas that are within the construction stage of residential development (see Figure 4 and Figure 5).

The management observed in some areas can also be considered insufficient to consider the vegetation Low Threat but enough to rule out other classified vegetation. Clause 53.02 considers this vegetation Modified as it:

- has been modified, altered or is managed due to urban development or gardening,
- has different fuel loads from those assumed in the standard,
- has limited or no understorey vegetation, or
- is not low–threat or low–risk vegetation as defined in the standard

Modified vegetation is present within the eastern corner of the site (see Figure 6). Due to the proposed development the vegetation within this area will be removed for the provision of residential lots.

2.6 Photographs of the site and assessment area



Figure 1. Looking north into the Woodland vegetation within Emu creek



Figure 2. Looking north into the Woodland vegetation within Emu creek



Figure 3. Looking North into the Grassland vegetation within the adjacent lot



Figure 4. Looking east into the newly built residential area



Figure 5. Looking east into the construction area



Figure 6. Looking north into the Modified vegetation onsite

3. BUSHFIRE HAZARD LANDSCAPE ASSESSMENT

The bushfire hazard landscape assessment provides information on the bushfire hazard more than 150 m away. This information is presented in Map 3 and Map 4 and discussed further below.

3.1 Adjacent land

See Map 3 and Figure 7 for an overview of the adjacent landscape.

The centre of Strathfieldsaye is to the south-west of the site while the adjacent landscape to the north-west is low density residential. Farmland is located to the east and south. Further from the site, there are large areas of bushland to the north and west. Emu Creek runs east to south-west to the north of the site and has vegetation along both banks (this creek is also covered by the Environmental Significance Overlay (ESO)).

The site, along with the majority of the zoning to the west and south within Strathfieldsaye is General Residential Zone (GRZ), while to the east is Rural Living Zone (RLZ). The landscape north of Strathfieldsaye is Rural Conservation Zone (RCZ). The Bushfire Management Overlay (BMO) covers the majority of the landscape to the north; extending from reserves and national parks further north, and also covers a large area in the south-east of Strathfieldsaye.

The layout of the surrounding area, and the zoning/overlays present, indicate that the bushfire risk will be reduced in future. Despite the number of adjacent properties currently containing farmland, the GRZ present indicates that they will be developed into residential estates in the future, similar to that proposed for the site, and those observed to the south. The ESO around Emu Creek indicates that this vegetation will be retained in perpetuity but is only considered a minor hazard.

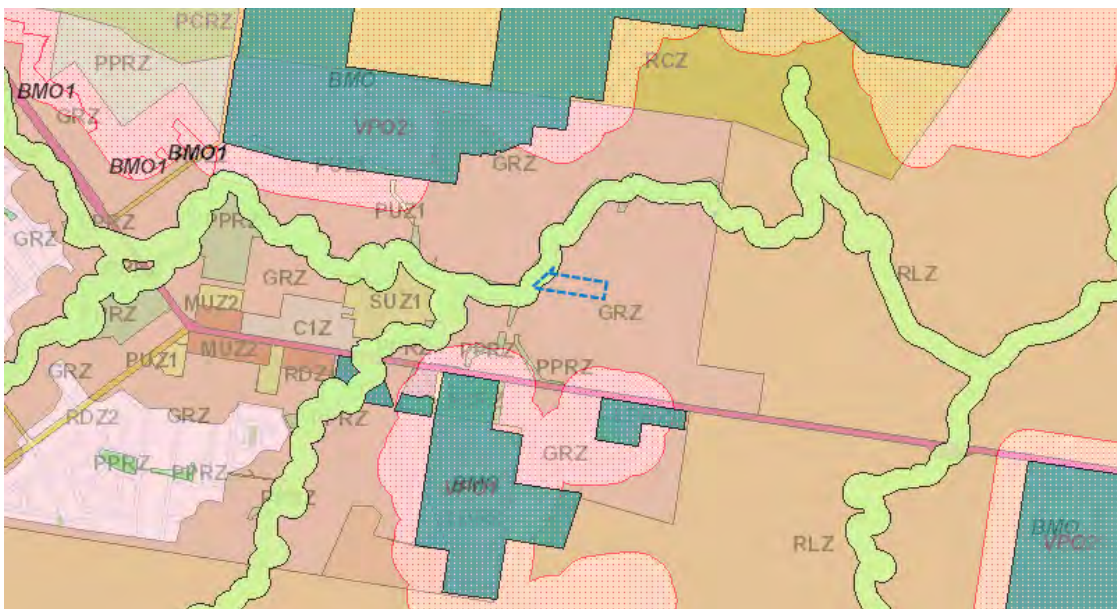


Figure 7. Surrounding land zoning

3.2 Landscape

See Map 4 and Figure 8 for an overview of the wider landscape.

Strathfieldsaye extends directly south-west of the site and consists of dense residential and urban development, with further development planned going into the future. Directly to the north and north-west, there is low-density residential development interspaced with dense vegetation. Development is underway to the east of the site although this land then transitions to farmland beyond Somerset Park Road. The land to the south contains fragmented patches of vegetation interspaced with farmland.

Further from the site, there is a band of expansive vegetation stretching from Mount Sugarloaf Nature Conservation Reserve approximately 10km north-east of the site. This continues to State Forest approximately 5km north of the site, and to Greater Bendigo National Park approximately 5km to the west and south-west.

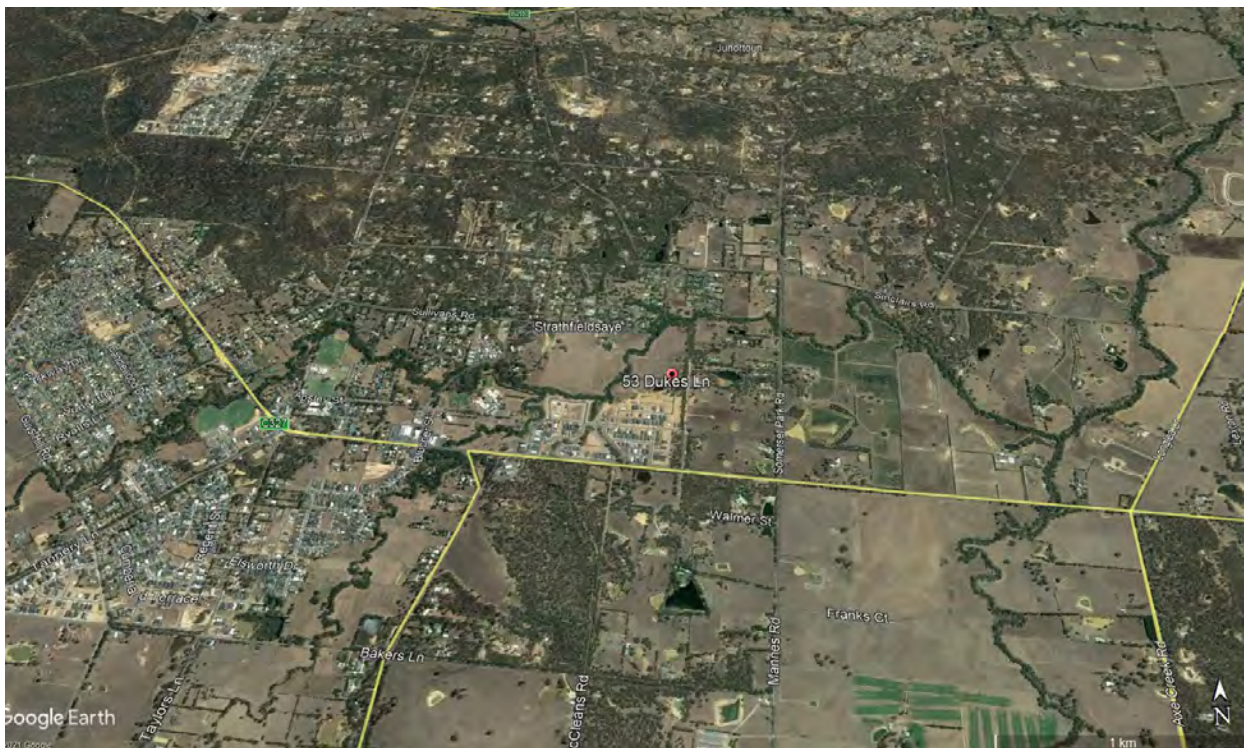


Figure 8. Landscape surrounding 53 Dukes Lane

3.3 Bushfire history

Strathfieldsaye has not been burnt in bushfires according to recent records but the Greater Bendigo National Park experienced bushfires in 1961. Numerous prescribed burns have been undertaken within the National Park to the west and south-west of the site between 2004–2021.

3.4 Bushfire scenarios

During bushfire season, bushfires are propelled by powerful north–westerly winds before a south–westerly change occurs. This south–westerly change brings cooler, humid winds from the Southern Ocean which can reduce bushfire intensity or result in less intense bushfires approaching from the south–west. Under severe conditions, the south–westerly change can reignite the terrain behind an existing front which results in a much more intense bushfire approaching from the south–west.

Prevailing conditions favour a bushfire approaching from the north–west. The landscape directly to the north is predominately farmland, and although the site is separated from the north–western forested landscape by low–density housing, there is still a risk of fire directly threatening the site due to the amount of vegetation present.

A bushfire approaching from the south–west (either directly or as part of a turned front) is less likely due to the cooler south–westerly winds propelling them. While there is a large patch of forest to the south–west, it is separated from the site by the present residential development, and is therefore only likely to affect the site via embers.

It can therefore be concluded that a bushfire from the north–west poses the greatest threat to the site via ember attack and potential direct flame contact. A bushfire approaching from the south–west would be buffered by the present residential development and road network and is therefore not considered a threat to the proposed development.

3.5 Shelter and refuge options

Considering the risk of a bushfire approaching from the north–west; evacuation is recommended during a bushfire emergency. Strathfieldsaye Primary School playing fields are the closest Neighbourhood Safer Place and these are the recommended refuge during a bushfire emergency. They can be reached by proceeding south and turning right onto Strathfieldsaye Rd, and turning right onto Uxbridge St before reaching the school (approximately 2.5km, 5–10 minutes travel by car). The CFA should be consulted prior to any evacuation attempt and a personal bushfire plan for each dwelling is highly recommended.

3.6 Landscape typology

Planning Practice Note 65 provides a typology of bushfire landscapes (see Table 3).

Despite the potential threat of a bushfire approaching from the north-west and the potential for multiple scenarios; this can be considered a Type 2 Landscape due to a bushfire from the north-west being the only one which poses a credible threat. In addition, the sites proximity to Strathfieldsaye guarantees readily available access to a place which provides bushfire shelter.

Table 3. Landscape typology as presented in Planning Practice Note 65 (DTPLI 2014)

Type 1	Type 2	Type 3	Type 4
<ul style="list-style-type: none"> - There is little vegetation beyond 150 metres of the site (except grasslands and low-threat vegetation). - Extreme bushfire behaviour is not possible. - The type and extent of vegetation is unlikely to result in neighbourhood scale destruction of property. - Immediate access is available to a place that provides shelter from bushfire. 	<ul style="list-style-type: none"> - The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. - Bushfire can only approach from one aspect and the site is located in a suburban, township or urban area managed in a minimum fuel condition. - Access is readily available to a place that provides shelter from bushfire. This will often be the surrounding developed area. 	<ul style="list-style-type: none"> - The type and extent of vegetation located more than 150 metres from the site may result in neighbourhood-scale destruction as it interacts with the bushfire hazard on and close to a site. - Bushfire can approach from more than one aspect. - The site is located in an area that is not managed in a minimum fuel condition. - Access to an appropriate place that provides shelter from bushfire is not certain. 	<ul style="list-style-type: none"> - The broader landscape presents an extreme risk. - Evacuation options are limited or not available.

4. BUSHFIRE RISK ASSESSMENT

This report will address the proposed subdivision and will include a full response to Clause 44.06 and Clause 53.02 as a benchmark of bushfire safety as this area of the site is outside of the BMO but within a Bushfire Prone Area and must therefore be assessed at the planning level as per the requirements of Clause 13.02. This section describes how the proposed development responds to the requirements in Clause 53.02–4 and Clause 44.06.

4.1 Definition of objectives and measures

To fulfil the purpose, and allow application of Clause 53.02 of the Planning Scheme, objectives, measures to address the objectives, and decision guidelines are detailed within the Clause. These are defined below:

- **Objectives.** An objective describes the outcome that must be achieved in a completed development.
- **Approved measures (AM).** An approved measure meets the objective.
- **Alternate measures (AltM).** An alternative measure may be considered where the responsible authority is satisfied that the objective can be met. The responsible authority may consider other unspecified alternative measures.
- **Decision guidelines.** The decision guidelines set out the matters that the responsible authority must consider before deciding on an application, including whether any proposed alternative measure is appropriate.

A schedule to Clause 44.06 may specify substitute approved measures, additional alternative measures and additional or substitute decision guidelines.

A substitute approved measure specified in a schedule to Clause 44.06 substitutes the applicable approved measure contained in this clause.

4.2 Development proposal

As stated previously; the owners are proposing to subdivide the properties into thirty lots with a proposed internal road accessing Dukes Lane to the east and a proposed Road to the west adjacent to the creek line along with a managed creekline reserve.

Refer to Appendix 3 for the proposed development plans.

4.3 Relevant Objectives and Approved Measures

Clause 53.02–4.4 provides the objectives and approved measures for Subdivisions. They are detailed in the table below.

Table 4. Approved measures to meet Clause 53.02–4.4 subdivision objectives

Clause 53.02–4.4 Subdivision objectives		
To provide lots that are capable of being developed in accordance with the objectives of Clause 53.02. To specify at the subdivision stage bushfire protection measures to develop a lot with a single dwelling on land zoned for residential or rural residential purposes.		
Measure	Requirement	Applicable
AM5.1	An application to subdivide land, other than where AM 5.2 applies, demonstrates that each proposed lot is capable of meeting: <ul style="list-style-type: none"> The defensible space in accordance with Table 2 Columns A, B or C and Table 6 Clause 53.02–5. The approved measures in Clause 53.02–4.1 and Clause 53.02–4.3. 	No – 5.2 applies
AM5.2	An application to subdivide land zoned for residential or rural residential purposes must be accompanied by a plan that shows: <ul style="list-style-type: none"> Each lot satisfies the approved measure in AM 2.1. A building envelope for a single dwelling on each lot that complies with AM 2.2 and provides defensible space in accordance with: <ul style="list-style-type: none"> Columns A or B of Table 2 to Clause 53.02–3 for a subdivision that creates 10 or more lots; or Columns A, B or C of Table 2 to Clause 53.02–3 for a subdivision that creates less than 10 lots. <p>The bushfire attack level that corresponds to the defensible space provided in accordance with Table 2 to Clause 53.02–3 must be noted on the building envelope</p> <ul style="list-style-type: none"> Defensible space wholly contained within the boundaries of the proposed subdivision. Defensible Space may be shared between lots within the subdivision. Defensible space for a lot may utilize communal areas, such as roads, where that land can meet the requirements for defensible space. Vegetation management requirements in accordance with Table 6 to implement and maintain the defensible space required under this approved measure. Water supply and access that complies with AM 4.1 	Yes – requires consideration
AM 5.3	An application to subdivide land to create 10 or more lots provides a perimeter road adjoining the hazardous vegetation to support firefighting.	Yes – requires consideration
AM 5.4	A subdivision manages the bushfire risk to future development from existing or proposed landscaping, public open space and communal areas.	Yes – requires consideration

AM 5.2 includes the application of AM 2.1 and 2.1. These are presented in Table 5 below.

Table 5. Clause 53.02–4.1 Landscape siting and design objectives and approved measures

Clause 53.02–4.1 Landscape siting and design objectives	
Development is appropriate having regard to the nature of the bushfire risk arising from the surrounding landscape.	
Development is sited to minimise the risk from bushfire.	
Development is sited to provide safe access for vehicles, including emergency vehicles.	
Building design minimises vulnerability to bushfire attack.	
Measure	Requirement
AM2.1	The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.
AM2.2	A building is sited to ensure the site best achieves the following: <ul style="list-style-type: none"> • The maximum separation distance between the building and the bushfire hazard. • The building is in close proximity to a public road. • Access can be provided to the building for emergency service vehicles.

4.4 Landscape risk objectives

Clause 53.02–4.4 Subdivision objectives
To provide lots that are capable of being developed in accordance with the objectives of Clause 53.02.
To specify at the subdivision stage bushfire protection measures to develop a lot with a single dwelling on land zoned for residential or rural residential purposes.
AM 5.2
An application to subdivide land zoned for residential or rural residential purposes must be accompanied by a plan that shows: <ul style="list-style-type: none"> • Each lot satisfies the approved measure in AM 2.1. • A building envelope for a single dwelling on each lot that complies with AM 2.2 and provides defensible space in accordance with: <ul style="list-style-type: none"> – Columns A or B of Table 2 to Clause 53.02–5 for a subdivision that creates 10 or more lots; or – Columns A, B or C of Table 2 to Clause 53.02–5 for a subdivision that creates less than 10 lots. The bushfire attack level that corresponds to the defensible space provided in accordance with Table 2 to Clause 53.02–5 must be noted on the building envelope • Defensible space wholly contained within the boundaries of the proposed subdivision. • Defensible Space may be shared between lots within the subdivision. Defensible space for a lot may utilize communal areas, such as roads, where that land can meet the requirements for defensible space. • Vegetation management requirements in accordance with Table 6 to implement and maintain the defensible space required under this approved measure. • Water supply and access that complies with AM 4.1

AM 2.1

The bushfire risk to the development from the landscape beyond the site can be mitigated to an acceptable level.

The site is considered to be within a Type 2 Landscape as per Planning Practice Note 65. The primary reason for this is that the site is directly adjacent to Strathfieldsaye and the landscape to the north-west is predominantly farmland and low-density residential housing. While it is possible for a fire to approach from the north-west, it will most likely be contained and pose minimal risk by the time it reaches the development.

A fire from the south-west poses a lower risk to the site, as the present residential development within this aspect would act as a buffer from a fire front and therefore ember attack poses the only credible threat. Additionally, moving into the future, much of the surrounding landscape will be developed into high-density housing, which will further mitigate the risk of a fire directly impacting the site. The bushfire risk within the landscape to the north-west is somewhat high but this site is separated from such a threat enough to consider a lower landscape type and therefore be compliant with AM 2.1.

4.5 Subdivision design

Clause 53.02-4.4 Subdivision objectives

To provide lots that are capable of being developed in accordance with the objectives of Clause 53.02.

To specify at the subdivision stage bushfire protection measures to develop a lot with a single dwelling on land zoned for residential or rural residential purposes.

AM 5.2

An application to subdivide land zoned for residential or rural residential purposes must be accompanied by a plan that shows:

- Each lot satisfies the approved measure in AM 2.1.
- **A building envelope for a single dwelling on each lot that complies with AM 2.2** and provides defensible space in accordance with:
 - Columns A or B of Table 2 to Clause 53.02-5 for a subdivision that creates 10 or more lots; or
 - Columns A, B or C of Table 2 to Clause 53.02-5 for a subdivision that creates less than 10 lots.

The bushfire attack level that corresponds to the defensible space provided in accordance with Table 2 to Clause 53.02-5 must be noted on the building envelope

- Defensible space wholly contained within the boundaries of the proposed subdivision.
 - Defensible Space may be shared between lots within the subdivision. Defensible space for a lot may utilize communal areas, such as roads, where that land can meet the requirements for defensible space.
 - Vegetation management requirements in accordance with Table 6 to implement and maintain the defensible space required under this approved measure.
 - Water supply and access that complies with AM 4.1
-

AM 2.2

A building is sited to ensure the site best achieves the following:

- The maximum separation distance between the building and the bushfire hazard.
- The building is in close proximity to a public road.
- Access can be provided to the building for emergency service vehicles

This development is being provided with an internal road network which will provide direct egress for residents and emergency services onto Dukes Lane to the east which connects to Strathfieldsaye Road to the south. The proposed internal road which will run along the western side of the subdivision will also connect south to Strathfieldsaye Road via adjacent residential estates currently being developed. The proposed lots cover the majority of the site, which is flanked by road reserve and/or farmland in the process of being developed into residential areas to the north and south.

The vegetation surrounding Emu Creek is protected and has been considered as a hazard as part of this assessment as it will be retained. The development has already included a setback from this vegetation which includes the proposed road.

AM 5.3

An application to subdivide land to create 10 or more lots provides a perimeter road adjoining the hazardous vegetation to support firefighting.

This measure has been met by the current design with Dukes Lane along the eastern boundary and a proposed road providing perimeter access adjacent to the protected vegetation within Emu creek to the west of the site. No perimeter road is provided along the northern or southern boundary but the proposed roads of a subdivision within the adjacent property to the north connect to these roads. It can be assumed the proposed road to the west of the site will continue further south adjoining the development currently underway, allowing this proposal to meet this requirement.

4.6 Defendable space and construction

Clause 53.02–4.4 Subdivision objectives

To provide lots that are capable of being developed in accordance with the objectives of Clause 53.02.

To specify at the subdivision stage bushfire protection measures to develop a lot with a single dwelling on land zoned for residential or rural residential purposes.

AM 5.2

An application to subdivide land zoned for residential or rural residential purposes must be accompanied by a plan that shows:

- Each lot satisfies the approved measure in AM 2.1.
- A building envelope for a single dwelling on each lot that complies with AM 2.2 **and provides defendable space in accordance with:**
 - **Columns A or B of Table 2 to Clause 53.02–5 for a subdivision that creates 10 or more lots; or**
 - Columns A, B or C of Table 2 to Clause 53.02–5 for a subdivision that creates less than 10 lots.

AM 5.2

The bushfire attack level that corresponds to the defensible space provided in accordance with Table 2 to Clause 53.02–5 must be noted on the building envelope

- Defensible space wholly contained within the boundaries of the proposed subdivision.
- Defensible Space may be shared between lots within the subdivision. Defensible space for a lot may utilize communal areas, such as roads, where that land can meet the requirements for defensible space.
- Vegetation management requirements in accordance with Table 6 to implement and maintain the defensible space required under this approved measure.
- Water supply and access that complies with AM 4.1

4.6.1 BAL Assessment

Document date & version	14/09/2021 – Version 1.0
Assessor	Daniel Casullo
Assessors Contact	Email: danielc@practicalecology.com.au Phone: (03) 9484 1555

Site Details

Municipality	Greater Bendigo
Address	53 Dukes Lane, Strathfieldsaye
Applicant/Owner	Emu Creek Holdings Pty Ltd
Zoning	General Residential Zone (GRZ)
Overlays	<ul style="list-style-type: none"> • Development Plan Overlay – Schedule 26 (DPO26) • Environmental Significance Overlay – Schedule 1 (ESO1) • Land Subject to Inundation Overlay – Schedule 1 (LSIO1)
Bushfire Prone Area	Yes
Description of building work	Residential subdivision

AS3959–2018 Method 1

An overview of the setbacks required from classified vegetation is presented on Map 5.

While there are classified vegetation patches within the site and surrounding it within the assessment area, the majority of these patches can be considered exempt due to proposed or current works occurring within adjacent areas. These areas are presented on Map 5 and detailed below:

- The Grassland vegetation within the property to the north of the site is being approved for residential subdivisions similar to those proposed within this site and will subsequently be cleared and managed as Low Threat vegetation.
- The Grassland vegetation to the west of the site will be managed within a reserve as part of the proposed development plan.
- The Modified vegetation within the eastern corner of the site will be cleared as part of the proposed development plan.

Based on this and the vegetation still present, setbacks required from this remaining classified vegetation are summarised below

Patch placement	West	North, East & South
Fire Danger Index	100	100
Vegetation type	Woodland	Low Threat
Effective slope (up/down)	Level	Level
Effective slope (degrees)	0-2°	0-2°
Defendable space required for BAL-12.5 (m)	33	N/A
Defendable space required for BAL-19 (m)	24	N/A
Defendable space required for BAL-29 (m)	16	N/A

Prescribed BAL rating for each lot

Under Clause 13.02-1S Bushfire Planning, lots within new residential subdivisions need to prove that BAL-12.5 can be attained for each approved lot (see Figure 9 below for a summary of the BAL ratings). This is achieved within this site through the design of the. The reserve located between Emu Creek and the proposed lots will need to be managed as Low Threat to allow for this.

This applies to areas that are currently maintained as pasture and will form part of the Emu Creek frontage that will have the proposed internal road running adjacent to it, on the west side of the development. Further detail is provided below.

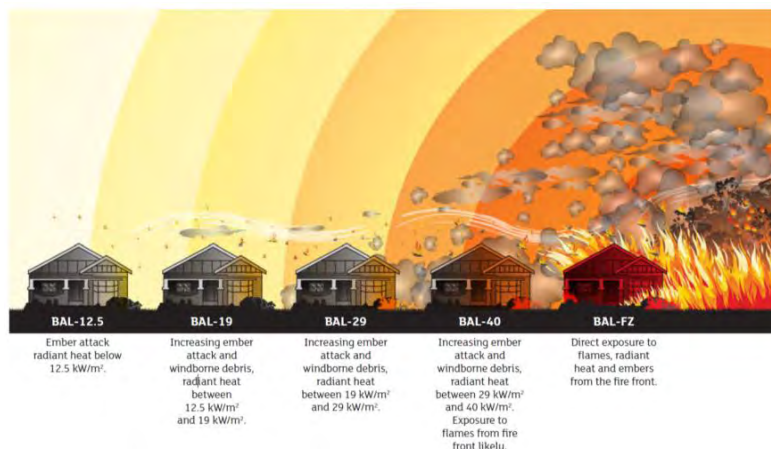


Figure 9. BAL levels (CFA 2012)

Prescribed BAL rating for each lot

Lot	BAL	Setback from boundary required	Shielding provision (section 3.5 to AS3959–2018)
3003	BAL-12.5	Not required	N/A
3004	BAL-12.5	Not required	N/A
3005	BAL-12.5	Not required	N/A
3006	BAL-12.5	Not required	N/A
3007	BAL-12.5	Not required	N/A
3008	BAL-12.5	Not required	N/A
3009	BAL-12.5	Not required	N/A
3010	BAL-12.5	Not required	N/A
3011	BAL-12.5	Not required	N/A
3012	BAL-12.5	Not required	N/A
3013	BAL-12.5	Not required	N/A
3014	BAL-12.5	Not required	N/A
3015	BAL-12.5	Not required	N/A
3016	BAL-12.5	Not required	N/A
3017	BAL-12.5	Not required	N/A
3018	BAL-12.5	Not required	N/A
3101	BAL-12.5	Not required	N/A
3102	BAL-12.5	Not required	N/A
3103	BAL-12.5	Not required	N/A
3104	BAL-12.5	Not required	N/A
3105	BAL-12.5	Not required	N/A
3106	BAL-12.5	Not required	N/A
3107	BAL-12.5	Not required	N/A
3108	BAL-12.5	Not required	N/A
3109	BAL-12.5	Not required	N/A
3110	BAL-12.5	Not required	N/A
3111	BAL-12.5	Not required	N/A
3112	BAL-12.5	Not required	N/A
3113	BAL-12.5	Not required	N/A
3114	BAL-12.5	Not required	N/A

4.6.2 Defendable Space and management standards

Table 6 to Clause 53.02–5 requires that defendable space is provided and is managed in accordance with the following requirements:

- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.
- Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 5 metres.
- There must be a clearance of at least 2 metres between the lowest tree branches and ground level.

Unless specified in a schedule or otherwise agreed in writing to the satisfaction of the relevant fire authority.

4.6.3 Landscaping

AM 5.4

A subdivision manages the bushfire risk to future development from existing or proposed landscaping, public open space and communal areas

The proposed internal roads will be managed by the City of Greater Bendigo as a public road reserve. The land identified as defendable space will have to adhere to the associated standards. This will ensure that any proposed works within the area will have to be managed in accordance to these standards. This proposal can therefore be considered compliant with AM 5.4.

4.7 Water supply and access

Clause 53.02–4.4 Subdivision objectives

To provide lots that are capable of being developed in accordance with the objectives of Clause 53.02.

To specify at the subdivision stage bushfire protection measures to develop a lot with a single dwelling on land zoned for residential or rural residential purposes.

Measure	Requirement
---------	-------------

AM5.2	An application to subdivide land zoned for residential or rural residential purposes must be accompanied by a plan that shows:
--------------	--

- Each lot satisfies the approved measure in **AM 2.1**.
- A building envelope for a single dwelling on each lot that complies with **AM 2.2** and provides defensible space in accordance with:
 - Columns A or B of Table 2 to Clause 53.02–5 for a subdivision that creates 10 or more lots; or
 - Columns A, B or C of Table 2 to Clause 53.02–5 for a subdivision that creates less than 10 lots.

The bushfire attack level that corresponds to the defensible space provided in accordance with Table 2 to Clause 53.02–5 must be noted on the building envelope

- Defensible space wholly contained within the boundaries of the proposed subdivision.
- Defensible Space may be shared between lots within the subdivision. Defensible space for a lot may utilize communal areas, such as roads, where that land can meet the requirements for defensible space.
- Vegetation management requirements in accordance with Table 6 to implement and maintain the defensible space required under this approved measure.
- **Water supply and access that complies with AM 4.1**

AM 4.1

A building used for a dwelling (including an extension or alteration to a dwelling), a dependant person's unit, industry, office or retail premises is **recommended (though not required)** to be provided with:

- A static water supply for fire fighting and property protection purposes specified in Table 4 to Clause 53.02–5.
- Vehicle access that is designed and constructed as specified in Table 5 to Clause 53.02–5.

The water supply may be in the same tank as other water supplies provided that a separate outlet is reserved for firefighting water supplies.

Additional information regarding water supply and access can be found in Appendix 1.

4.7.1 Water supply

The water requirements as per Table 4 to Clause 53.02–5 based on the size of the lots and the availability of fire hydrants are listed in Table 6 below.

Table 6. Minimum static water supply requirements for buildings in BMO (Clause 53.02–5, table 4)

Minimum static water supply for office, retail, dwellings and dependent person's units			
Lot sizes (m ²)	Not available	Effective capacity (L)	Fire authority fittings and access required
Less than 500	N/A	2,500	No
500–1,000	Yes	5,000	No
500–1,000	No	10,000	Yes
1,001 and above	N/A	10,000	Yes

Note 1: A hydrant is available if it is located within 120 meters of the rear of the building

Note 2: Fittings must be in accordance with the published requirements of the relevant fire authority

Under Clause 53.02; a 5,000L static water supply would normally be required for all the lots. As this site is not within the BMO however, whether or not these measures are implemented will be left to the future landowners.

If chosen to be installed, these tanks must meet the following requirements:

- be stored in an above ground water tank constructed of concrete or metal.
- all fixed above-ground water pipes and fittings required for firefighting purposes must be made of corrosive resistant metal
- Include a separate outlet for occupant use.

A 5,000L static water supply for the lots will therefore be *recommended* (not required), which do not require CFA access or fittings.

4.7.2 Access

The access requirements as per Table 5 to Clause 53.02–5 are listed in Table 7 below.

Considering the layout of the proposed subdivision, an access way of less than 30m can be guaranteed and no additional access measures are required.

Table 7. Access requirements for buildings in BMO (Clause 53.02–5, table 5)

Applies		
<input checked="" type="checkbox"/>	Length of access is less than 30 metres	There are no design and construction requirements if fire authority access to the water supply is not required under AM4.1.
<input type="checkbox"/>	Length of access is less than 30 metres	Where fire authority access to the water supply is required under AM4.1 fire authority vehicles should be able to get within 4 metres of the water supply outlet.

Applies		
<input type="checkbox"/>	Length of access is greater than 30 metres	<p>The following design and construction requirements apply:</p> <ul style="list-style-type: none"> • All-weather construction. • A load limit of at least 15 tonnes. • Provide a minimum trafficable width of 3.5 metres. • Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically. • Curves must have a minimum inner radius of 10 metres. • The average grade must be no more than 1 in 7 (14.4%) (8.1°) with a maximum grade of no more than 1 in 5 (20%) (11.3°) for no more than 50 metres. • Dips must have no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.
<input type="checkbox"/>	Length of access is greater than 100 metres	<p>A turning area for fire fighting vehicles must be provided close to the building by one of the following:</p> <ul style="list-style-type: none"> • A turning circle with a minimum radius of eight metres. • A driveway encircling the dwelling. • The provision of other vehicle turning heads – such as a T or Y head – which meet the specification of Austroad Design for an 8.8 metre Service Vehicle.
<input type="checkbox"/>	Length of access is greater than 200 metres	<p>Passing bays must be provided at least every 200 metres.</p> <ul style="list-style-type: none"> • Passing bays must be a minimum of 20 metres long with a minimum trafficable width of six metres.

4.8 Ongoing management and community awareness

Clause 44.06–3 of the BMO, includes the requirement that a permit for subdivision that creates a lot for a single dwelling on land zoned for residential or rural residential purposes must include a s173 agreement. This must detail the required bushfire protection measures to be ongoing and exempts the need for future assessment to undertake works, such as construct a dwelling, consistent with the specified measures. Additional supporting documentation should be provided to new residents to ensure that they understand the bushfire risk at the site and their obligations to manage it, including prescriptions and advice regarding the Landscape Design Guidelines.

Residents need to also be aware that the measures in this Bushfire Management Statement cannot guarantee safety during an extreme fire event; buildings are only designed to withstand fire up to a Fire Danger Index (FDI) of 100 (i.e. not designed for Code Red Fire Danger), and even below this threshold building survival cannot be guaranteed. Residents need to develop a Personal Bushfire Plan to clearly understand and plan for how they are going to act in response to a potential and actual fire event. Residents should refer to CFA's Fire Ready Kit (CFA 2011) to plan for such events.

5. REFERENCES

CFA (2011) *Prepare. Act. Survive. Fire Ready Kit*. Country Fire Authority, Burwood East, Victoria.

CFA (2012) *Planning for Bushfire Victoria – Guidelines for Meeting Victoria's Bushfire Planning Requirements*. Country Fire Authority.

CFA (2014a) *Water Supply Requirements (Bushfire Management Overlay)*. Country Fire Authority, Victoria.

CFA (2014b) *Access Requirements (Bushfire Management Overlay)*. Country Fire Authority, Victoria.

DTPLI (2014) *Practice Note 65: Preparing and Assessing a Planning Application under the Bushfire Provisions in Planning Schemes, July 2014*. Department of Transport, Planning and Local Infrastructure, Government of Victoria, Melbourne.

Standards Australia (2018) *Australian Standard 3959–2018 Construction of buildings in bushfire-prone areas (incorporating Amendment No. 1)*. SAI Global, Sydney.

Appendix 1. Water supply and access guidance

Water supply guidance

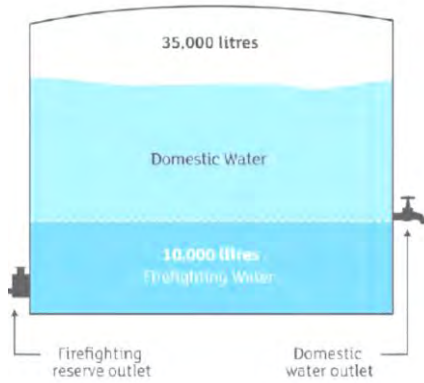


Figure 10. Firefighting water and domestic water can be in shared tank (DTPLI 2014)

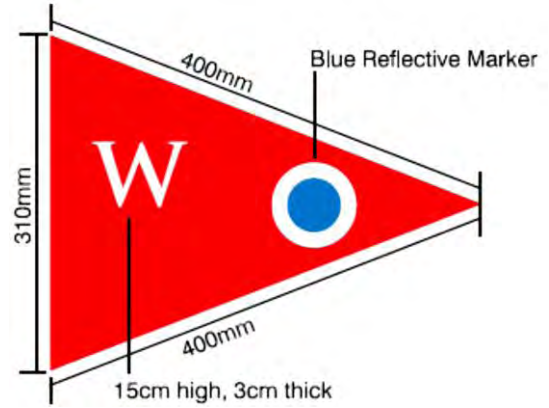


Figure 11. Water supply identification (CFA 2014a)

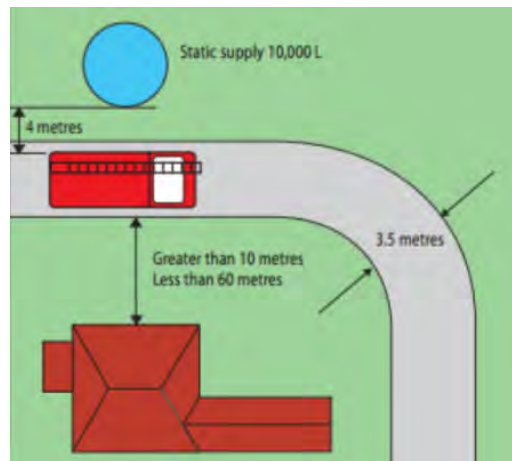


Figure 12. Water supply location (CFA 2014a)

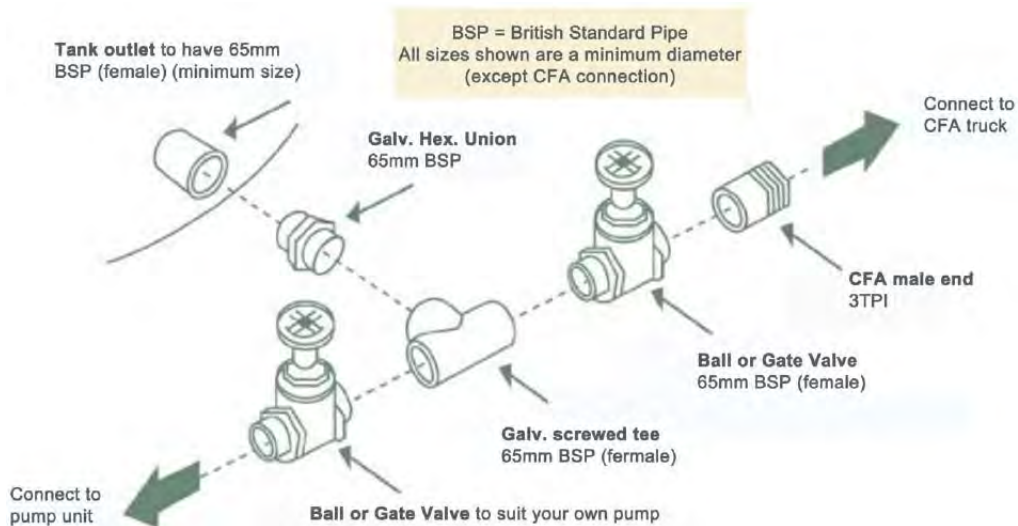
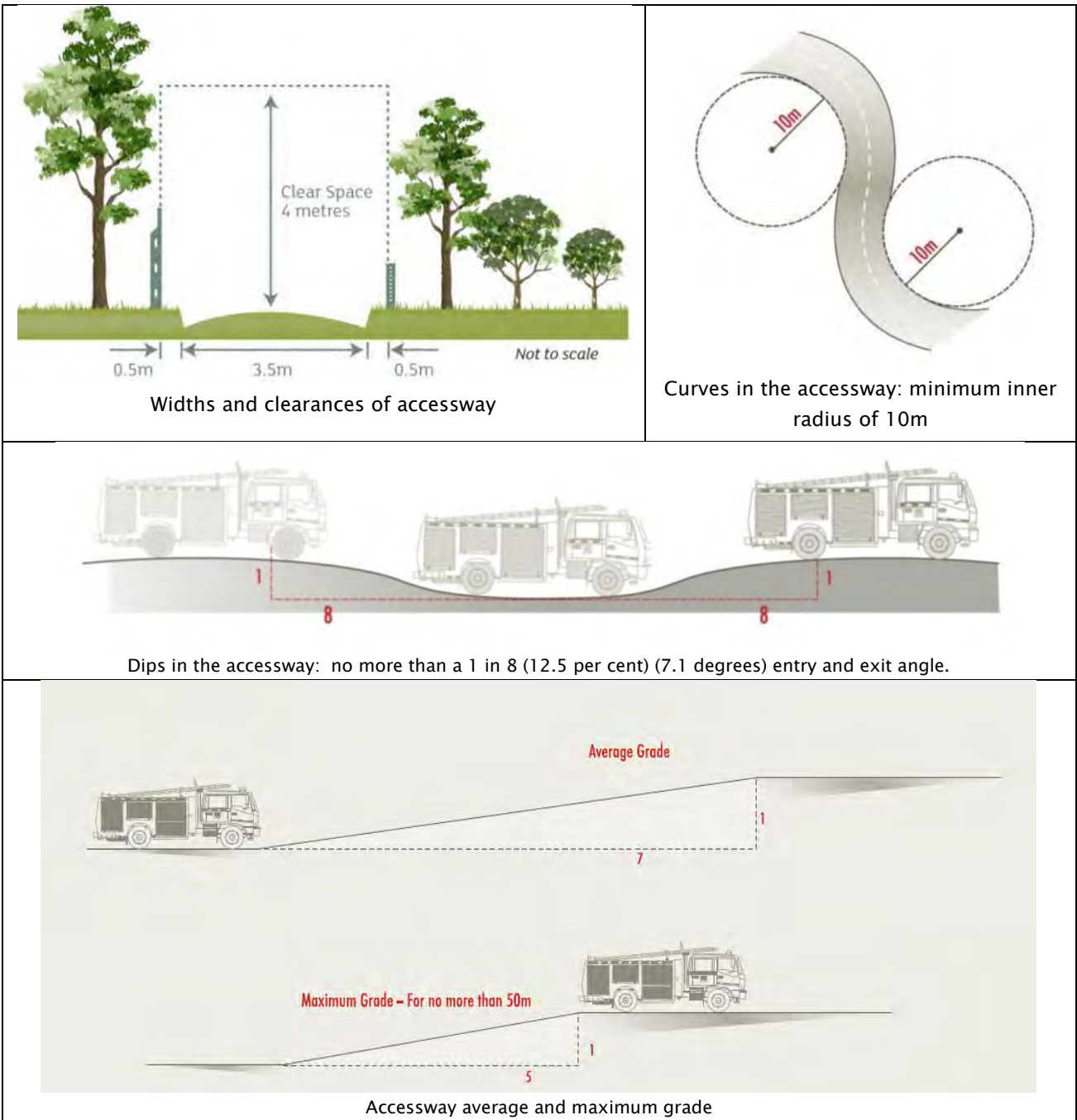


Figure 13. Requirements for water supply outlet, pipe work and valves (CFA 2014a)

Access guidance



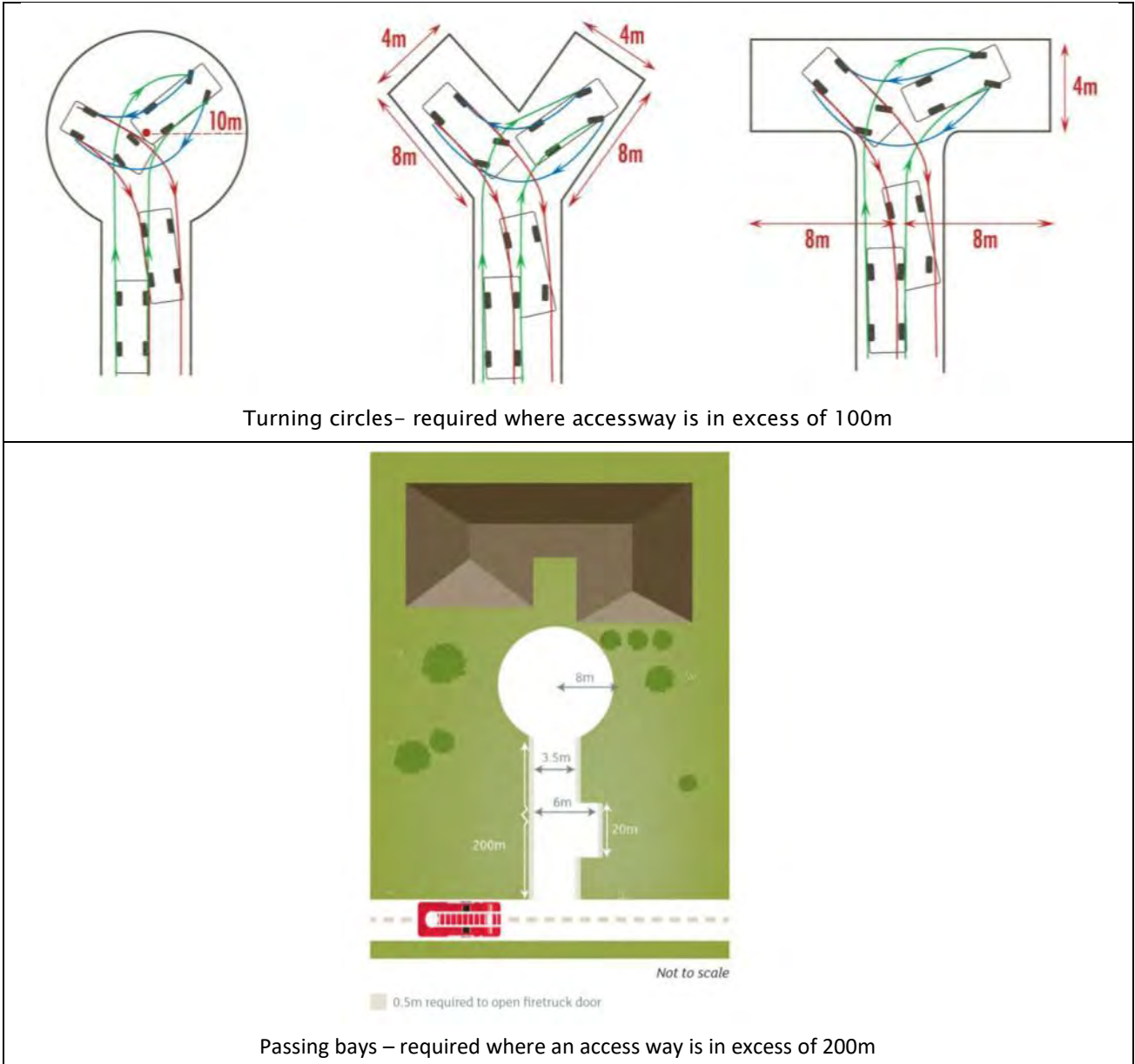


Figure 14. Access guidance (CFA 2014b)

Appendix 2. Maps

Map 1. Subject Site

53 Dukes Lane, Strathfieldsaye



Legend

- Subject Site
- Parcels
- Contours (10m)
- Natural watercourse

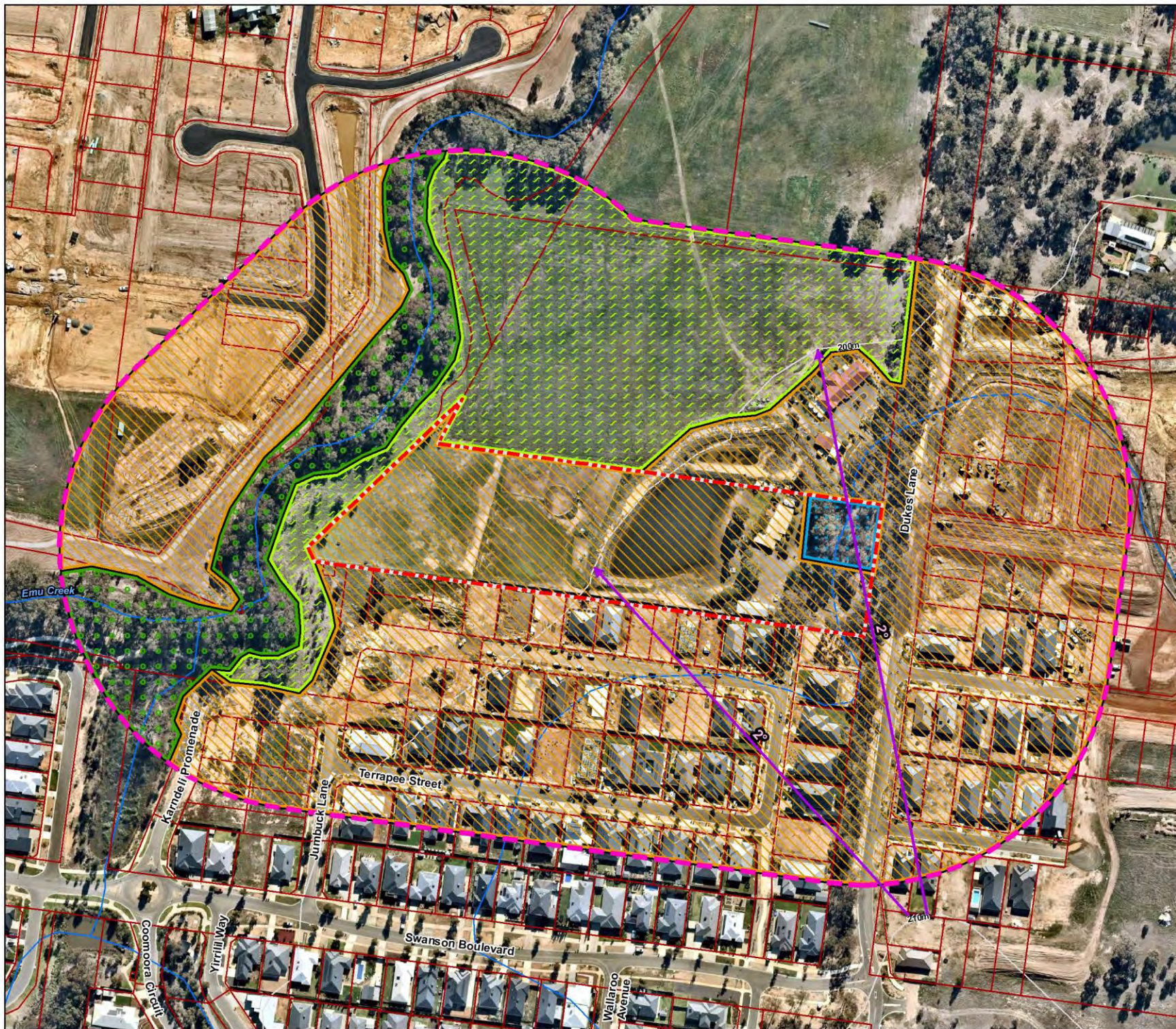
Details
Date: 26/08/2021
Version: 1
Aerial photography from Nearmap (May 2021).
Base map data Copyright © The State of Victoria.

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Map 2. Bushfire Hazard Site Assessment
53 Dukes Lane, Strathfieldsaye



Legend

- Subject Site
- Assessment Area (150m)
- Parcels
- Contours (10m)
- Natural watercourse
- Calculated Slope from Contours

Classified vegetation

- Woodland
- Grassland
- Low threat
- Modified vegetation

Details

Date: 29/09/2021
Version: 1
Aerial photography from Nearmap (May 2021).
Base map data Copyright © The State of Victoria.

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0 50 100 m

Scale 1:2,200 (Page size A3)

Disclaimer

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



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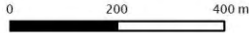
Map 3. Local Context
53 Dukes Lane, Strathfieldsaye



Legend

-  Subject Site
-  Parcels
-  Contours (10m)
-  Constructed watercourse
-  Natural watercourse

Details
Date: 14/09/2021
Version: 1
Aerial photography from Esri World Imagery.
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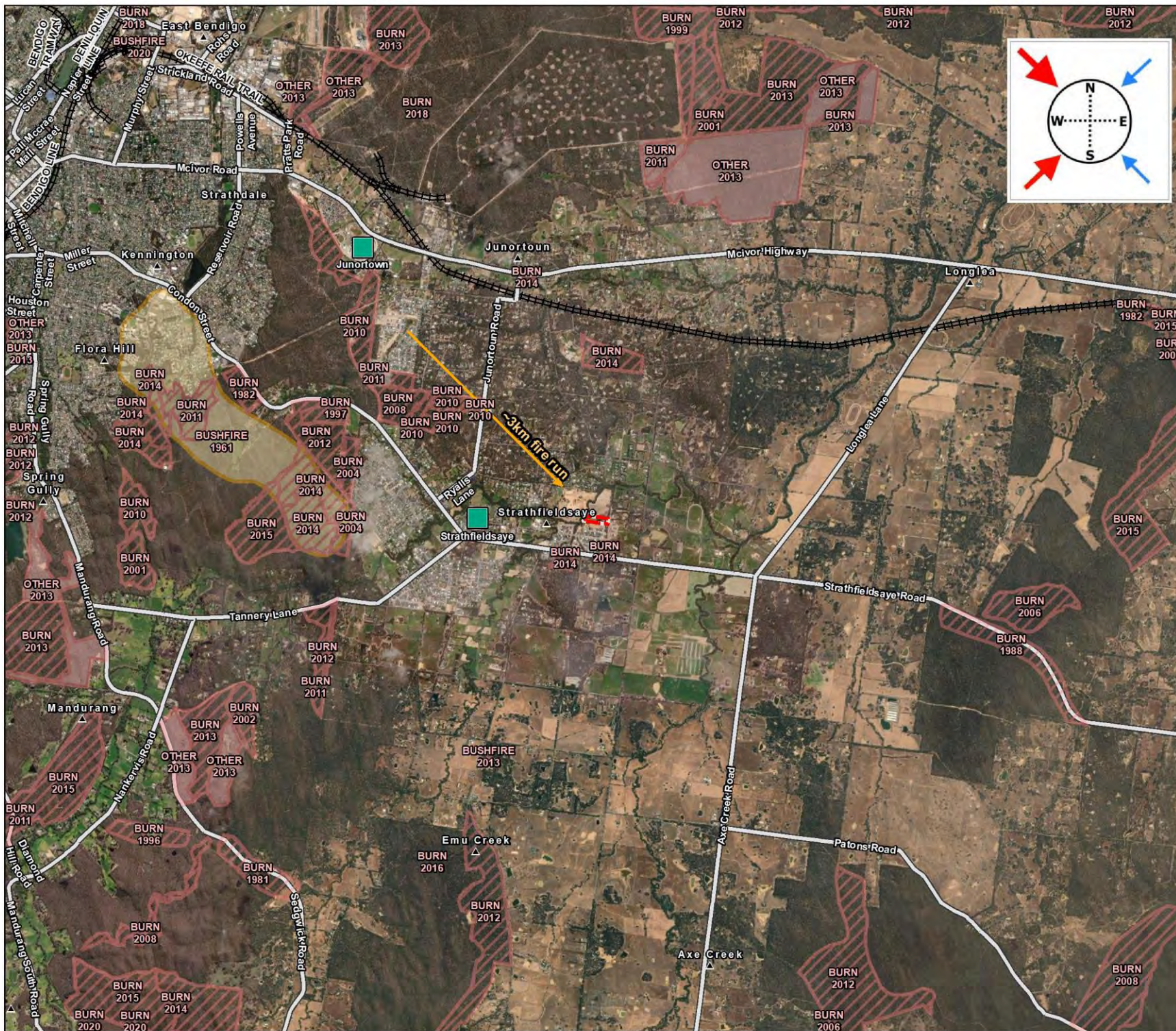
 
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Map 4. Bushfire Hazard Landscape Assessment
53 Dukes Lane, Strathfieldsaye



Legend

- Subject Site
- Major Roads
- Railways
- Potential fire runs
- ▲ Town centre
- Neighbourhood Safer Place

Fire History

Bushfire

- Bushfire Pre 1950
- Bushfire 1950-1979
- Bushfire 1980 onwards

Planned Burn

- Planned Burn Pre 1980
- Planned Burn 1980 onwards

Details

Date: 26/08/2021
Version: 1
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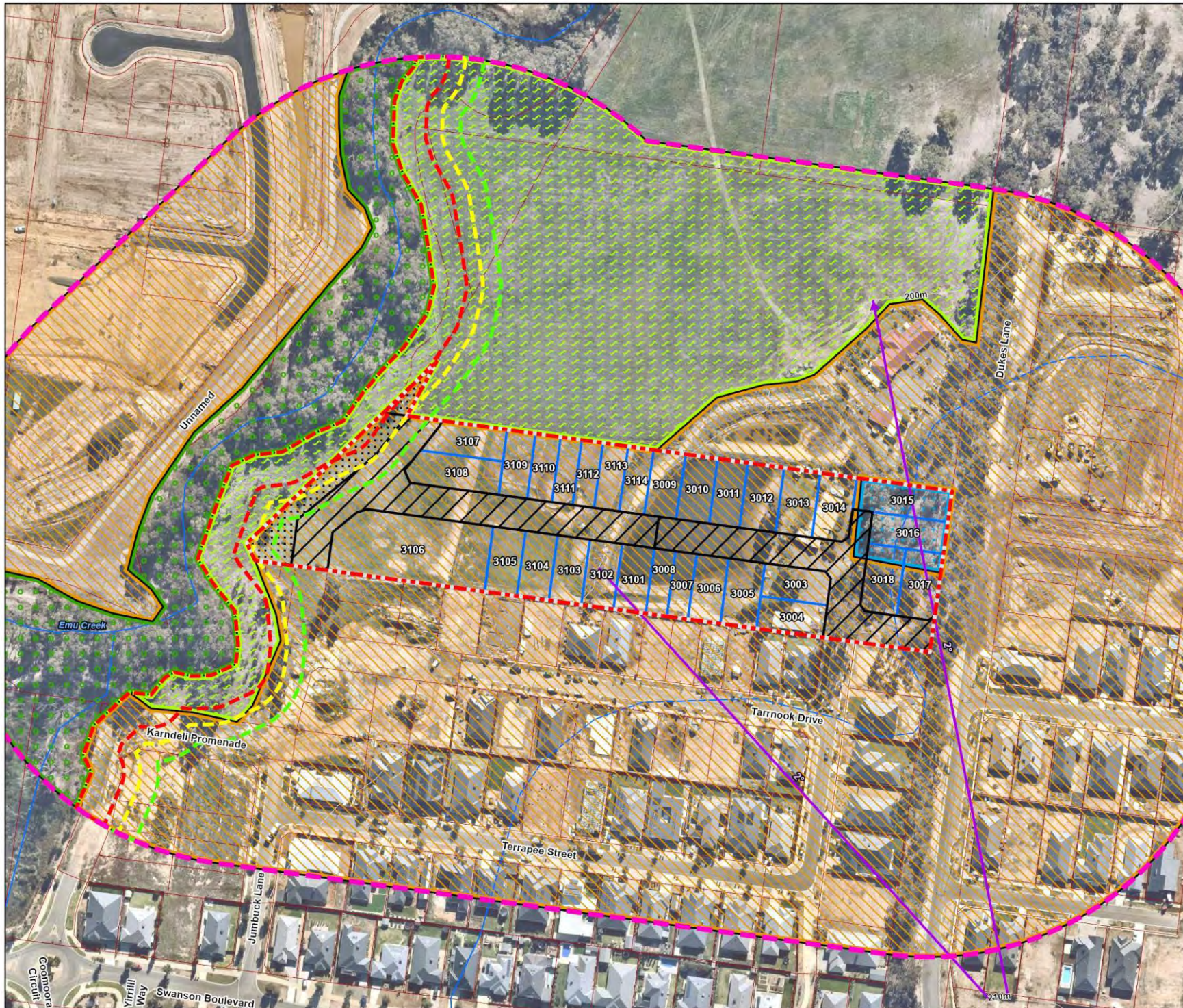
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Map 5. Defendable Space Assessment

53 Dukes Lane, Strathfieldsaye



Legend

- Subject Site
- Assessment Area (150m)
- Parcels
- Contours (10m)
- Natural watercourse
- Slopes calculated from contours

Classified vegetation

- Woodland
- Grassland
- Low threat
- Modified vegetation

Proposed developments

- Residential lot
- Road reserve
- Managed parkland

Defendable space setbacks (Upslope Woodland)

- BAL-12.5 (33m)
- BAL-19 (24m)
- BAL-29 (16m)

Details

Mapping by: Julian Drummond
 Date: 12/11/2024
 Version: 1
 Aerial photography from Nearmap (May 2023).
 Data Source: Base layers courtesy of VicMap,
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Scale: 1:1,800 (Page size A3)

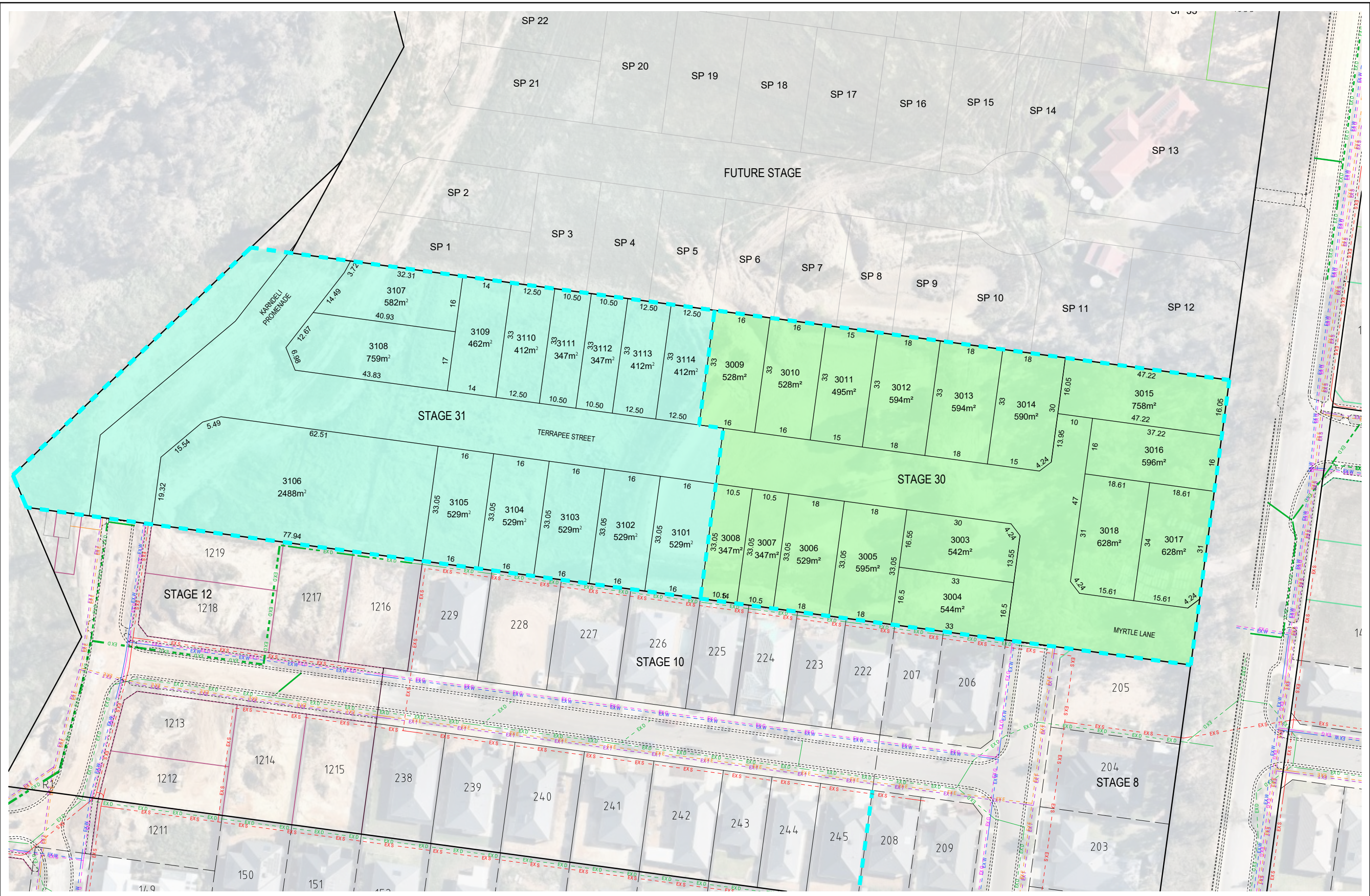
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Appendix 3. Detailed design plans



REV	DES	DWG	CHK	AUTH	DATE
D	AS	11/2024	HB	01/11/24	
C	AS	07/2023	HB	07/09/23	
B	AS	04/2022	SA	04/04/22	
A	AS	20/2022	SA	20/12/22	



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 LOT LAYOUT & STAGING PLAN
 CITY OF GREATER BENDIGO
 EMU CREEK HOLDINGS 2 PTY LTD
 DWG STATUS: **APPROVED**
 PROJECT & DWG No: 13520CP01/01

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 PLOT DATE: 01/11/2024 FILE: C:\12\DATA\TOMKINSON\12050113520\53 DUKES LANE STRATHFIELDSAYE\3089ENG\CAD\OTHER\13520 LOT LAYOUT + STAGING PLAN REV.DWG