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Bushfire Attack Level Assessment

95 Idonia Street, Bridgeman Downs

Prepared for Fairland Group Pty Ltd

Prepared by:

Green Tape Solutions

M: 0423 081 428
E: kelly.matthews@greentapesolutions.com.au
W: www.greentapesolutions.com.au

Client Manager: Kelly Matthews
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Document Records - Quality

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1. Introduction

1.1 Purpose

This Bushfire Attack Level (BAL) assessment has been prepared for Fairland Group Pty Ltd for a site located at 95 Idonia Street, Bridgeman Downs (Lot 12 on RP93688), hereafter referred as the 'site'.

The site has an approved development for a reconfiguration of lot (1 into 18 residential lots), new road and drainage reserve (Brisbane City Council reference A004423948). The residential lots range in size from 400 m^2 to 890 m^2 and are intended to accommodate detached dwellings. Operational works on site have commenced, with site vegetation outside of the identified Environmental Protection Zones (EPZs) having already been cleared under the approved Vegetation Management Plan (BCC ref. A005001543).

The purpose of this report is to inform the design and certification process for dwellings on each of the allotments.

1.2 Site Description

The site is zoned as Emerging Community under the Brisbane City Plan 2014 and is bounded by Endell Street to the north, Idonia Street to the east, and low-density residential development to the south and west. Land to the north (north of 48 Endell Street) has been recently developed. Low-density residential development is also on the eastern side of Idonia Street. Cabbage Tree Creek is located approximately 200 metres to the east of the site.

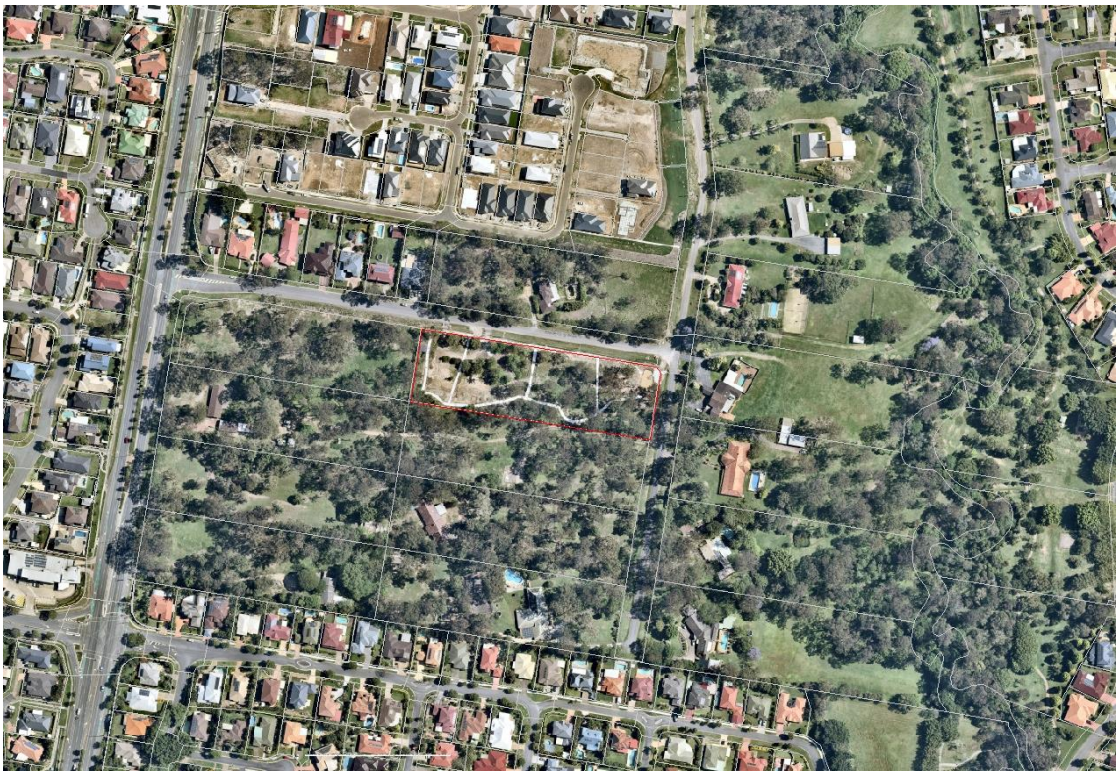

Figure 1: Site Location (Source: ArcGIS Basemaps).

2. Bushfire Regulatory Framework

Given that bushfire hazard can cause harm to people and social wellbeing, damage to property and impacts to the economy and environment, the management of bushfire hazard in Queensland is considered to be an integral component of land use planning and development decisions.

There are three regulatory mechanisms/instruments that regulate development to avoid and mitigate potential impacts associated with bushfire hazard:

- *State Planning Policy (SPP)* – July 2017 (DILGP, 2017);
- Council Planning Scheme; and
- *AS 3959-2009 – Construction of Buildings in Bushfire-prone Areas* (Australia, 2009).

AS 3959-2009 - Construction of Buildings in Bushfire-Prone Areas (Standards Australia, 2009) specifies the requirements for the construction of buildings in bushfire-prone areas in order to improve their resistance to bushfire attack. AS 3959-2009 applies to those areas where a regulated map identifies an area as a bushfire prone area (or similar), requiring calculation of the Bushfire Attack Level (BAL) in accordance with a methodology outlined in the standard.

AS 3959-2009 thus prescribes the particular construction details for buildings depending on the calculated BAL. The detailed requirements relating to construction methods and materials are typically dealt with as part of building design and enabled via private certification in accordance with the Building Code of Australia.

The following section of the report provides an overview of the methodology used to assess the bushfire attack level.

3. Bushfire Attack Level Assessment

To assess the bushfire risk for the site, the following tasks were undertaken:

- Assessment of regional ecosystem (RE) vegetation mapping;
- Review of the development layout;
- Interpretation of aerial photography and satellite imagery for the site;
- An on-ground inspection of the site and surrounding area in order to:
    - Verify the occurrence, character and extent of vegetation currently existing within a 100 m radius of the site;
    - Determine the status of the understorey, fuel loads, landscape slope, and aspect;
    - Assess adjacent bushland, existing fire breaks / trails and access roads.
- Identify potential risks and hazards associated with bushfire. This includes the assessment of the bushfire risk and an assessment of Bushfire Attack Level (BAL) individual lots within the development. The BAL assessment specifies the requirements for the construction of future buildings under AS 3959-2009.

The BAL is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per meter squared (kW/m^2). The BAL is calculated in accordance with either Method 1 or Method 2 outlined in AS 3959-2009. Method 1 is generally used in all circumstances except where the effective slope beneath classified vegetation is more than 20º downslope. To determine the BAL for the site using Method 1, the following steps are undertaken:

- Step 1: Determination of the relevant Fire Danger Index (FDI);
- Step 2: Assessment and classification of vegetation communities within and surrounding the development;
- Step 3: Assessment of effective and site slope;
- Step 4: Assessment of distance to the vegetation; and
- Step 5: Determination of Bushfire Attack Level (BAL).

3.1 Step 1 – Determination of the relevant Fire Danger Index (FDI)

In accordance with datasets published by the relevant fire jurisdiction (Queensland Fire and Emergency Services) through Redi-portal, the relevant Fire Danger Index (FDI) value for Queensland is 56.

3.2 Step 2 - Assessment of the Vegetation communities

The different types of vegetation communities determine the rate at which dry fuel accumulates. Some vegetation communities protect fuel from drying out in all but extreme bushfire seasons and can then be susceptible to very destructive bushfires. Alternatively, vegetation communities may expose fuels to drying and therefore be frequently available for burning. Frequent bushfires

can result in the development of bushfire-tolerant grassy woodlands or grasslands and these present less destructive bushfire behaviour.

A site assessment was undertaken on 17th January 2019 to inspect and classify vegetation surrounding the site. This assessment determined that vegetation to the immediate south and west of the site on Lots 11RP93688 (107 Idonia Street), 6RP93687 (357 Beckett Road) and 5SP227448 (365 Beckett Road) consists of Eucalypt open woodland which has been significantly modified through the removal of all understorey strata. Tree height in this community ranges from 18 to 26 metres, with an estimated canopy foliage cover of 10 – 20%. Canopy species within this patch of vegetation consist of broad-leaved paperbark (*Melaleuca quinquenervia*), Queensland blue gum (*Eucalyptus tereticornis*), grey ironbark (*E. siderophloia*), pink bloodwood (*Corymbia intermedia*). The ground layer appears to be regularly maintained in a low hazard state (< 100 mm height) through mowing or slashing (**Plates 1 – 2**).

Vegetation to the east of the site on Lots 19RP93688 – 22RP93688 (88 to 112 Idonia Street) consists of landscape vegetation with an overstorey of mature native canopy trees, predominantly Queensland blue gum (*E. tereticornis*) (**Plate 3**).

Vegetation to the north of the site within the western portion of Lot 13 RP93688 consists of a small patch of Eucalypt open forest with a predominantly unmanaged understorey (**Plate 4**). The eastern portion of this lot supports unmanaged grassland (**Plate 5**).

The location, extent and type of each vegetation community within 100 metres of the site is provided in **Figure 2**.

On the basis of exclusions for low threat vegetation outlined in Section 2.2.3.2 of AS3959-2009, all of the vegetation within 100 m of the site is excluded from classification. In accordance with Note 2 of Table 2.3, Eucalypt open woodland to the immediate south and west of the site has been rated by its understorey, which in this case is managed grassland that is maintained in minimal fuel condition. Where vegetation is assessed as low threat, the bushfire attack level is classified as BAL-LOW and no further assessment is required. **Table 1** provides a summary of the classification of this vegetation.

Table 1: Classification of vegetation within 100 m of development site.

Vegetation classification	North			East	South	West
Vegetation type	Grassland – 0.3 ha	Cultivated gardens	Eucalypt open forest – 0.5 ha	Cultivated gardens with native canopy trees	Eucalypt open woodland	Eucalypt open woodland
Vegetation Classification under AS3959-2009	Excluded from classification					
Rationale	Clause 2.2.3.2 (b) - Single area less than 1 ha in area and not within 100 m of other classified vegetation	Clause 2.2.3.2 (f) - Low threat vegetation: cultivated gardens	Clause 2.2.3.2 (b) - Single area less than 1 ha in area and not within 100 m of other classified vegetation	Clause 2.2.3.2 (f) - Low threat vegetation: cultivated gardens	Note 2 of Table 2.3 and Clause 2.2.3.2 (f) – Low threat vegetation	Note 2 of Table 2.3, and Clause 2.2.3.2 (f) – Low threat vegetation
Bushfire Attack Level	BAL-LOW	BAL-LOW	BAL-LOW	BAL-LOW	BAL-LOW	BAL-LOW

Plate 1: View of adjoining vegetation at 107 Idonia St looking west.

Plate 2: View of adjoining vegetation at 365 Beckett Road looking south-west.

Plate 3: View of vegetation to the east of the site facing north overlooking Idonia Street.

Plate 4: Vegetation at 80 Idonia Street looking north-east.

Plate 5: View from southern boundary of the 48 Endell Street looking north-east.

Plate 6: Unmanaged grassland within eastern portion of 48 Endell Street.


FIGURE 2:
Vegetation Types within
100 metres of site boundary
95 Idonia Street, Bridgeman Downs
Vegatation Types
Cultivated gardens with native canopy trees: Cultivated gardens: Low threat vegetation - Clause 2.2.3.2 (f) - AS3959-2009
Cultivated gardens: Low threat vegetation - Clause 2.2.3.2 (f) - AS3959-2009
Eucalypt open forest: Low threat vegetation - Clause 2.2.3.2 (b) - AS3959-2009
Eucalypt open woodland: Low threat vegetation - Table 2.3 Note 2 and Clause 2.2.3.2 (f) - AS3959-2009
Grassland: Low threat vegetation - Clause 2.2.3.2 (b) - AS3959-2009
Site boundary
Contours - 1 m
Contours - 1 m
Notes:
- Base map © Esri and its data suppliers.
- Contours - 1 m - Queensland © State of Queensland (DNRME).
0
45
90
Meters
Scale (A3): 1:2,000
N
Green Tape Solutions
Quality, Integrity, Experience
Document History:
Rev
Reason for Issue
Reviewer
Approver
Date

3.3 Step 3 - Assessment of the Slope

Studies have shown that fires burn more quickly and with greater intensity up slopes, generally doubling every 10 degrees of slope. Also, the steeper the slope the more difficult it is to construct ring roads, firebreaks and provide access for emergency crews. Trees situated downhill from structures will have their crowns close to the structures. This presents bushfire hazards particularly for exposed structures such as timber decks.

The assessment of the effective slope on site revealed that the site slopes gently towards the north-east, with an approximate slope of 3 degrees. Assessment of the effective slope beneath vegetation surrounding the site is not required as this vegetation has been assessed as low threat, with an associated BAL of LOW, as detailed in Section 3.1.

3.4 Step 4 - Assessment of distance to the vegetation

Determination of the distances between the development site and the edge of classified vegetation is not required as surrounding vegetation has been assessed as low threat, with an associated BAL of LOW, as detailed in Section 3.1.

3.5 Step 5 - Determination of Bushfire Attack Level (BAL)

In accordance with Method 1 of AS 3959-2009, the Bushfire Attack Level (BAL) for classified vegetation identified in Step 2 is BAL- LOW (**Table 4**).

Table 2: Bushfire Attack Levels (BAL) using Fire Danger Index (FDI) 56 for Queensland.

BAL	North	South	East	West
	LOW	LOW	LOW	LOW

4. Conclusion

This Bushfire Attack Level (BAL) assessment has been prepared for the site at 95 Idonia Street, Bridgeman Downs. The site is the subject of an approved development for a reconfiguration of lot. The resultant lots are intended to accommodate new detached Class 1a dwellings.

The BAL assessment determined that all vegetation within a 100 metre radius of the site is classified as Low Threat Vegetation in accordance with Section 2.2.3.2 and therefore, exempt from classification under AS 3929-2009. Low threat vegetation is classified as BAL-LOW.

AS3959-2009 does not provide construction requirements for buildings assessed as being BAL-LOW. There is insufficient risk to warrant specific bushfire construction requirements for buildings constructed on this site.

5. References

Standards Australia (2009). *Australian Standard AS3959-2009 Construction of buildings in bushfire-prone areas.* Sydney NSW: Council of Standards Australia.