



Bushfire Attack Level (BAL) Assessment

**Bushland Road Riverbend
146SL11068**

July 2019



**Bushfire Assessments
Property Vegetation Assessments
Site Planning for Bushfire
Property Management for Bushfire
Bushfire Management Plans**

Introduction

This report has been prepared to determine the Bushfire Attack Level (BAL), in accordance with Australian Standard AS 3959-2018, for 146SL11068, Bushland Road Riverbend.

The aim of this report is to assist the building certifier through the Building Application process by clearly demonstrating how the BAL has been calculated. The client will have a clear understanding of the construction requirements associated with AS 3959-2018 and recommendations on how to achieve a reduced BAL for the site if necessary.

Please note, due to copyright laws Lacuna Resolve is unable to reproduce sections of Australian Standard AS 3959-2009. This report is not intended to be included as part of a development application but is specifically for the proposed works.

Site Location and Description

Location and Legal Description

The site is located at Bushland Road Riverbend and is described as 146SL11068 within Logan City and is currently zoned Priority Development Area (Figure 1).



Figure 1

The *State Planning Policy bushfire hazard* mapping shows 146SL11068 is located in an area of potential bushfire impact (Figure 2).

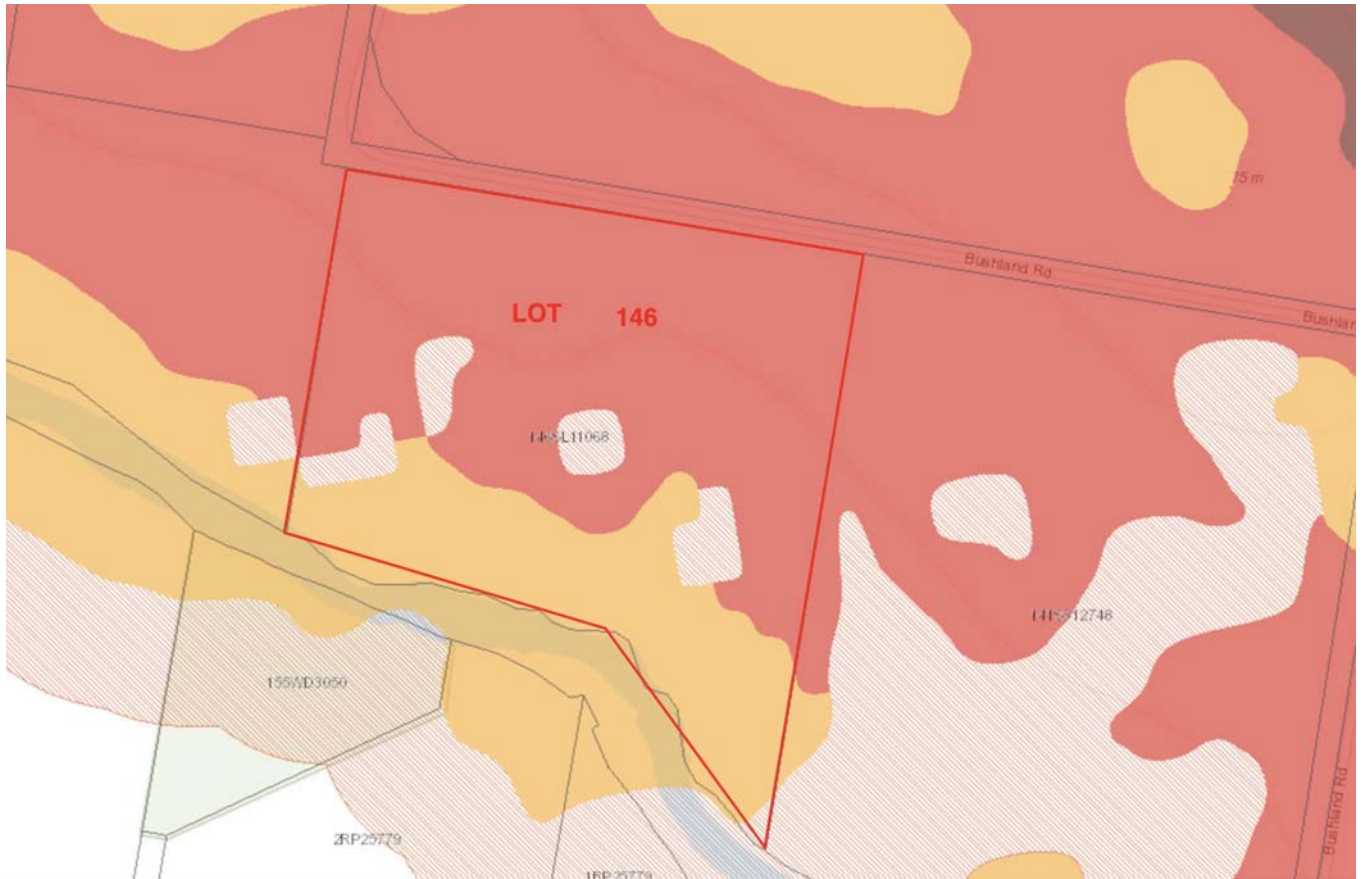


Figure 2

Site Description

146SL11068 has an area of 165 920 square metres and is aligned north - south with a southerly aspect. 146SL11068 is zoned Priority Development Area and is located Riverbend (Figure 3).

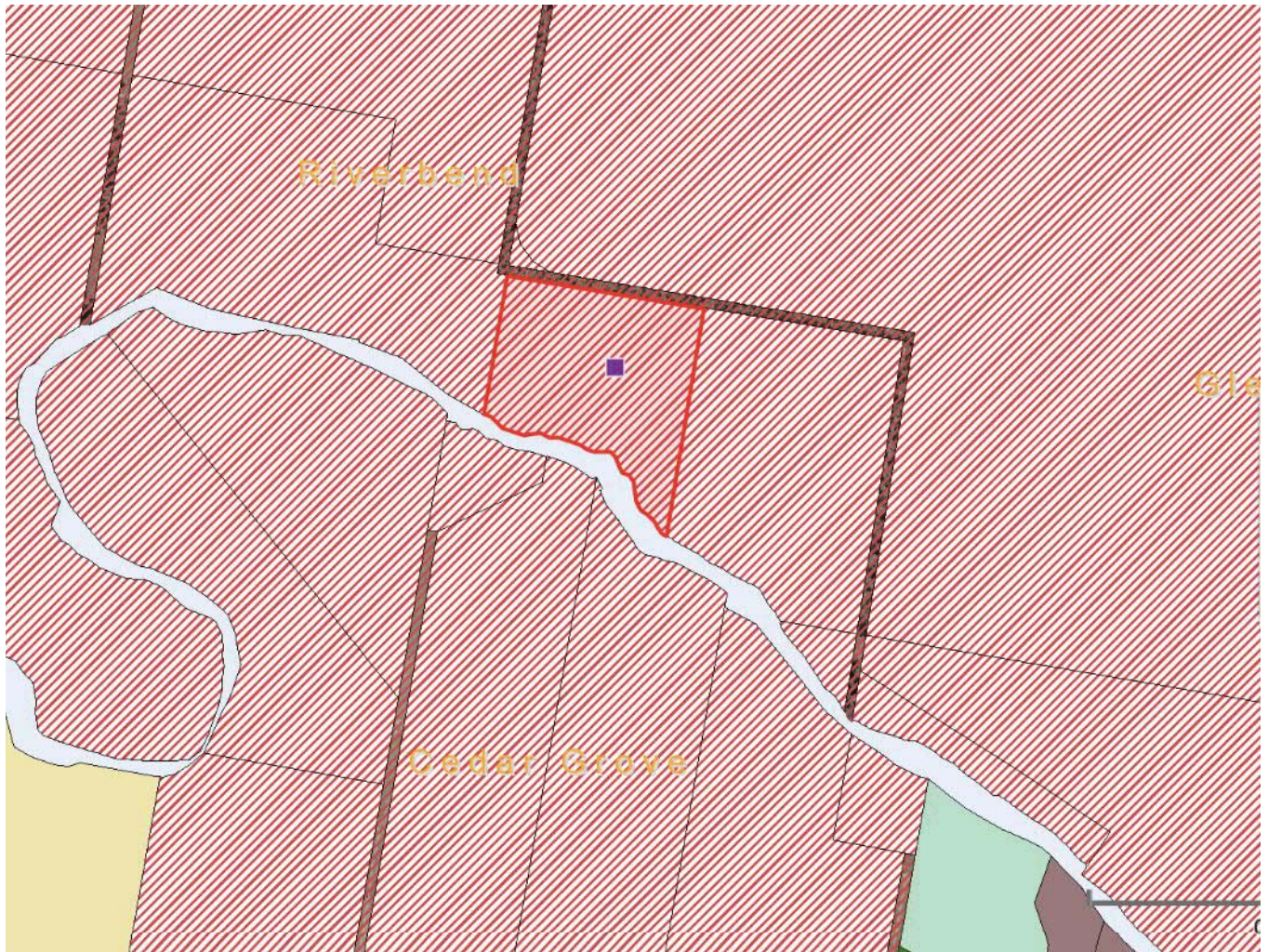


Figure 3

The *Public Safety Business Agency (PSBA) State-wide Bushfire Hazard (Bushfire Prone Area)* mapping identifies the original vegetation on and about this site as Regional Ecosystem (RE) 12.9 - 10.2 *Corymbia citriodora* subsp. *variegata* ± *Eucalyptus crebra* open forest on sedimentary rocks - Vegetation Hazard Class (VHC) 10.2. The original vegetation on and about 146SL11068 has been disturbed and modified by past management (Photo 1).



Photo 1

Vegetation

An onsite inspection was conducted at 146SL11068, Bushland Road Riverbend on July 16, 2019. The inspection was to observe, assess and record the relevant information to determine the Bushfire Attack Level (BAL) in accordance with the requirements of the Australian Standard for the Construction of Buildings in Bushfire Prone Areas (AS 3959-2018).

The vegetation on 146SL11068 and surrounding properties consists predominantly of remnant and non - remnant vegetation with discrete cleared and areas of disturbance .

Classified Vegetation

The *Australian Standard: Construction of Buildings in Bushfire Prone Areas (AS 3959–2018)* requires that any classified vegetation within 100 metres of the proposed works must be assessed.

The Queensland Government - Public Safety Business Agency (PSBA) *State-Wide Bushfire Hazard (Bushfire Prone Area)* mapping identifies 10.1 Spotted gum dominated open forests (Photo 2).





Photo 2

The removal of the native vegetation from 146SL11068, Bushland Road Riverbend, the fragmentation of the wider landscape by public and private infrastructure and the reduction in ground fuels has reduced the immediate bushfire threat to people and property but not removed the hazard in the wider landscape. There is no evidence of recent fire activity however the combination of landform and the proximity and extent of retained and included 10.1 Spotted gum dominated open forests supports the bushfire hazard mapping.

Assessable vegetation is measured as a horizontal distance from the proposed works and is not restricted to the Lot on which the works will be carried out. Where the assessable vegetation is on adjoining lands the distance is measured to the nearest classified vegetation. The distance to the classified vegetation located within Lot 146 to the north of the proposed building site has been measured at 40 metres Nikon Pro Range Finder and Inclinator(Figure 4).

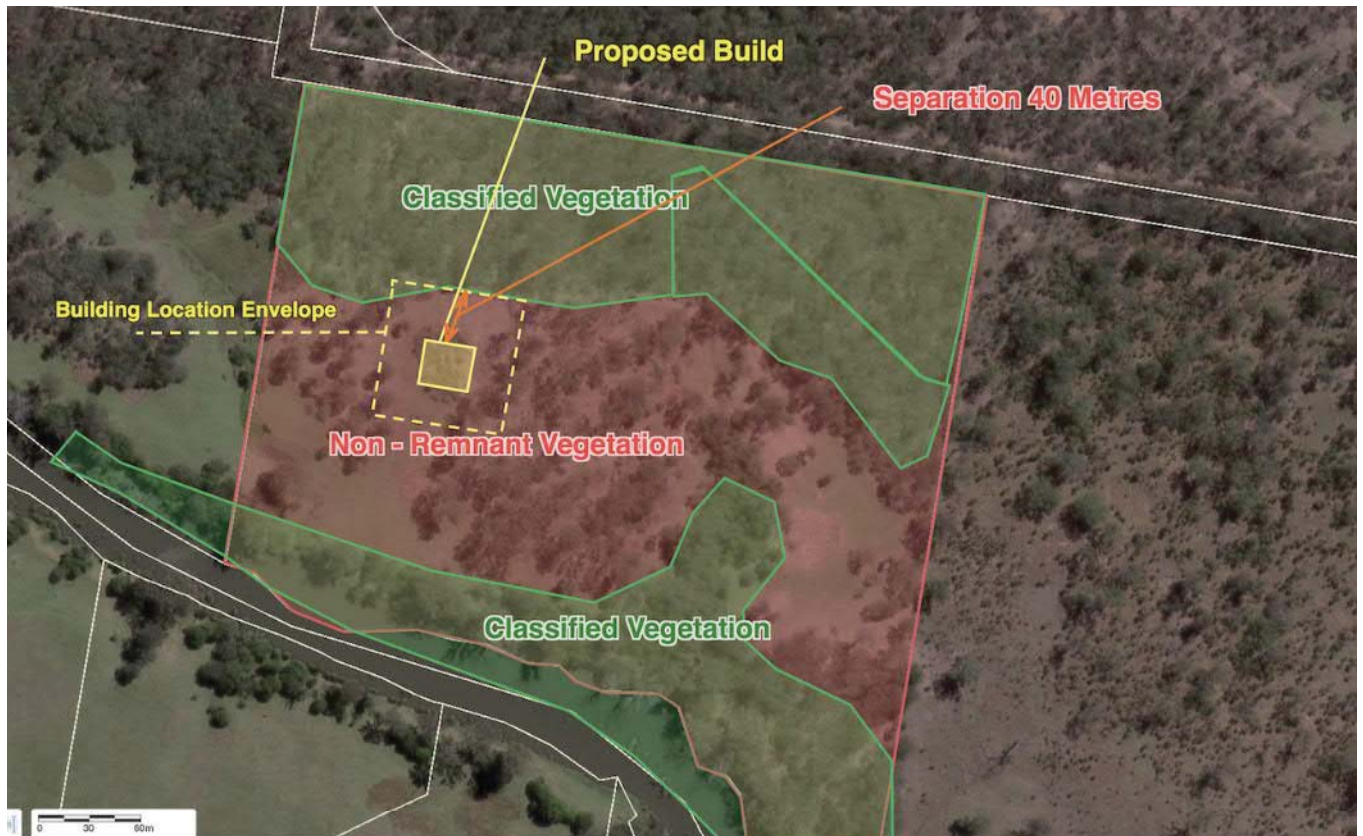


Figure 4 (Indicative Only)

The vegetation is classified as upslope with an average slope of 2 degrees. The available fuel load within this vegetation 18 Tonnes/Ha has been derived from Queensland Government – Public Safety Business Agency (PSBA) State-wide Bushfire Hazard (Bushfire Prone Area) mapping.

Potential Bushfire Attack Level (BAL)

The Australian Standard, Construction of Buildings in Bushfire Prone Areas (AS 3959-2018) provides a suitable methodology for identifying assessable vegetation and determining the requirements for the construction of buildings in order to improve their resistance to bushfire attack from burning embers, radiant heat, flame contact and a combination of the three attack forms.

Method for Determination of BAL

The BAL was determined in accordance with Appendix B of AS 3959-2018, *Detailed Method for Determining the Bushfire Attack Level (BAL) – Method 2 (Normative)*.

Step 1: Determine the relevant FDI.

Step 2: Determine the vegetation classification, fuel loads.

Step 3: Determine the effective slope in degrees under the classified vegetation.

Step 4: Determine the slope in degrees of the land between the site and the classified vegetation.

Step 5: Determine the distance of the site from classified vegetation.

Step 6: Calculations.

Determination of BAL

Step 1. Relevant Fire Danger Index

Table 2.1 of AS 3959-2009 identifies the FDI for the entire State of Queensland as 50.

Step 2. Vegetation Classification - Fuel Loads

The vegetation type was classified as 10.1 Spotted gum dominated open forests.

Available fuel weights were derived from *PSBA State – Wide Bushfire Hazard (Bushfire Prone Area) Mapping*. Fuel weight was determined as: 18 Tonnes/Ha tonne/hectare.

Fuel weights were determined as:

- 14 tonne/hectare surface fuels
- 3 tonne/hectare near surface fuels
- 1.0 tonne/hectare elevated fuels
- 0 tonne/hectare bark fuels
- Total fuel weight = *18 Tonnes/Ha tonne/hectare.*

Step 3. Determine the effective slope in degrees under the classified vegetation

The classified vegetation is upslope at 2 degrees, calculated using a Nikon Forestry Pro Range Finder and Inclinator.

Step 4. Determine the slope in degrees of the land between the site and the classified vegetation

The slope between the site and the classified vegetation is with an average slope of <2 degrees.

Step 5. Determine the distance of the site from classified vegetation

Distance is calculated from the closest edge of the classified vegetation. Classified vegetation under AS 3959-2009 does not include low threat vegetation. The distance to the classified vegetation was calculated using a Nikon Forestry Pro Range Finder and Inclinator at 40 metres.

Step 6. Calculations

Effective slope (°) - 2

Site slope (°) - <2

Vegetation classification — 10.1 Spotted gum dominated open forests

Fire Danger Index (FDI) – 50

Surface fuel load (t/ha) – 14

Overall fuel load (t/ha) – *18 Tonnes/Ha*

Heat of combustion (kJ/kg) – 18 600

Flame temperature (K) – 1 090

Outcomes

Intensity (kW/m²) – 8 967

Radiant heat flux (kW/m²) – 5.53

Bushfire Attack Level (BAL) - 12.5

Conclusion and Recommendations

Bushfire Attack Level (BAL) - 12.5

The assessment of the potential Bushfire Attack Level (BAL) for 146SL11068, Bushland Road Riverbend has been determined as BAL **12.5** as per *AS 3959- 2018 Appendix B: Method for Determining The Bushfire Attack Level (BAL) – Method 2 (Normative)*.

According to Table 3.1 of AS 3959-2009 it is predicted that the proposed building in the context of the existing environment would be subject to Ember attack. Therefore the proposed building must meet the requirements of Section 3 and section 5, clauses 5.2 to 5.8 of AS 3959-2018.

It should be noted that the measures contained in AS 3959–2018 cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions.

Bernard Trembath, GC App Mgmt, FRAFAQ

Director, Specialist Bushfire Consultant



P: 0488 014 727

E: bernard@qldbushfireplanning.com.au

www.brisbanebushfireplanning.com.au