

Bushfire Attack Level Assessment Report

Prepared by a BPAD
Accredited Practitioner



Fire Protection Association Australia Life Property Environment



AS 3959 BAL Assessment Report

This report has been prepared by an Accredited BPAD Practitioner using the Simplified Procedure (Method 1) as detailed in Section 2 of AS 3959 – 2018 (Incorporating Amendment Nos 1, 2 and 3). FPA Australia makes no warranties as to the accuracy of the information provided in the report. All enquiries related to the information and conclusions presented in this report must be made to the BPAD Accredited Practitioner.

Property Details and Description of Works

| | | | | |
|---|--|----------------------|---------------------------------------|-------------------------|
| Address Details | Street No 50 | Lot No 418 | Street Name Alexandria View | |
| | Suburb Mindarie | | State WA | Postcode 6030 |
| Local government area | City of Wanneroo | | | |
| Main BCA class of the building | Class 2 | Building Use | Apartments | |
| Description of the building or works | Proposed Multiple Dwelling Development | | | |

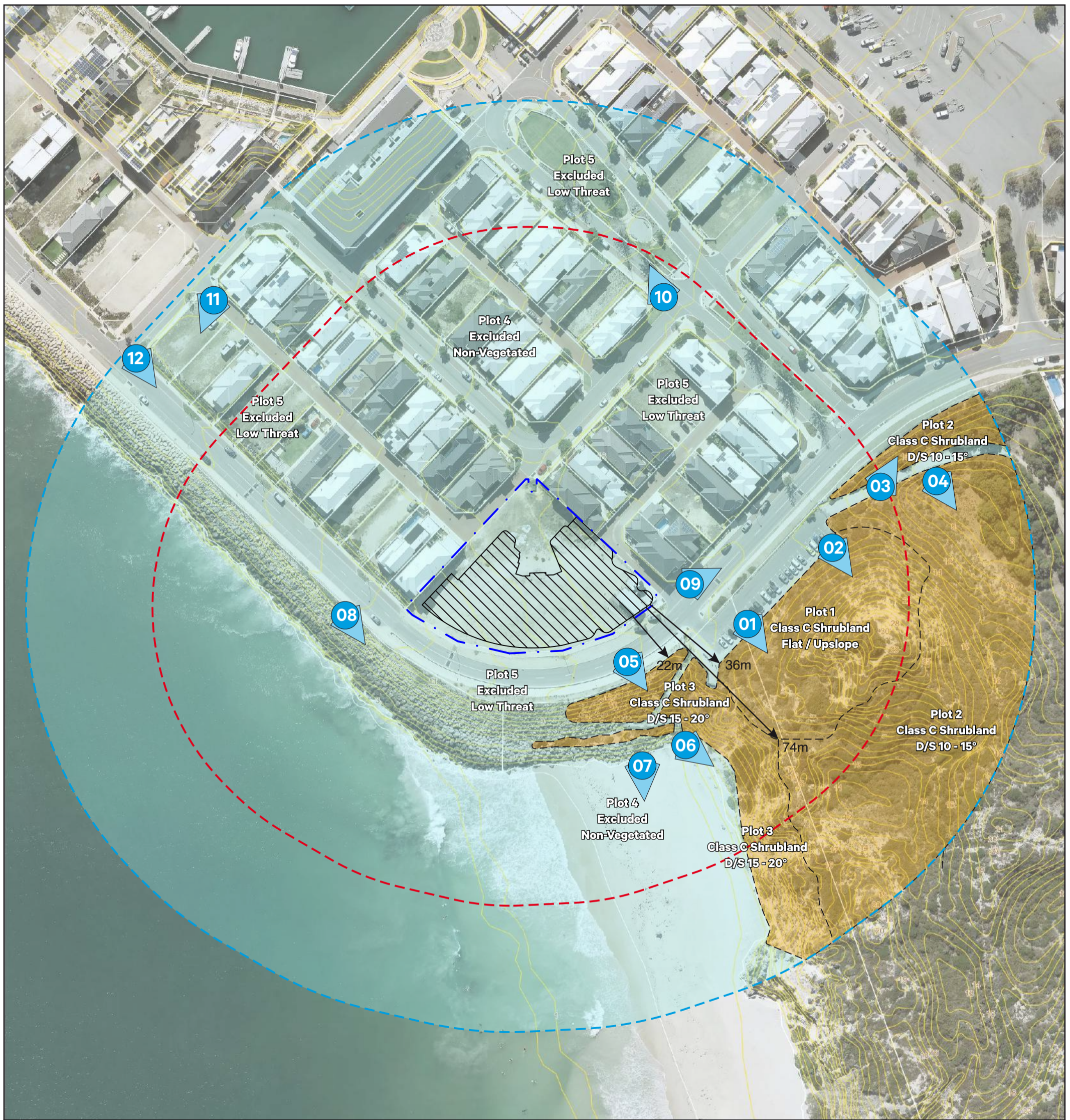
Report Details

| | | | |
|--------------------------------------|------------------------------|---|--------------------------------------|
| Report / Job Number 21-578 | Report Version 1.0 | Assessment Date 27 October 2021 | Report Date 11 August 2022 |
|--------------------------------------|------------------------------|---|--------------------------------------|

BPAD Accredited Practitioner Details

| | |
|--|--|
| Name Dylan Wray – Level 2 |  <p>I hereby declare that I am a BPAD accredited bushfire practitioner. Accreditation No. BPAD 44656 Signature Dylan Wray Date 11 August 2022</p> <p>Authorised Practitioner Stamp</p> |
| Company Details element Level 18, 191 St Georges Terrace Perth WA 6000 (08) 9289 8300 element. | |

Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of issue of the report. If this report was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated report issued.



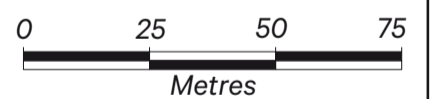
Legend

- Subject Site
- Building Footprint
- Assessment Area (100m)
- Assessment Buffer (150m)
- Vegetation Extents

- Contours (1m)
- Photo Point

AS 3959 Classifications

- Class C Shrubland
- Excluded - Clause 2.2.3.2 (e) & (f)



Scale 1:1500 @ A3
GDA 1994 MGA Zone 50



Staff: DW Date: 11/08/2022 File: 21-578

Bushfire Attack Level (BAL) Assessment

Proposed Multiple Dwelling Development

Lot 418 (No. 50) Alexandria View, Mindarie WA 6030

Assessment Date: 27 October 2021



Accreditation Details: BPAD 44656 (Level 2)

element.

The drawing does not constitute an invitation, agreement or contract (or any part thereof) of any kind whatsoever. All parties associated with the proposed property development disclaim all responsibility for any errors or omissions. The right is reserved to change the plan at any time. Liability is expressly disclaimed by Element Advisory WA Pty Ltd for any loss or damage which may be sustained by any person acting on any visual impression gained from this drawing. © element

Vegetation Classification

All vegetation within 150m of the proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2018. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

| | | |
|---|----------------|--|
| Photo ID: 1 | Plot: 1 |  <p>WGS84 31°41.663'S, 115°42.176'E ±5m</p> <p>15-19 Alexandria View, Mindarie WA 6030, AU © 27-Oct-21 14:43:57</p> |
| Vegetation Classification or Exclusion Clause | | |
| Class C Shrubland - Low shrubland C-12 | | |
| Description / Justification for Classification | | |
| <p>Bush Forever Site 322 consisting of low shrubs less than 2m in height with an average foliage cover greater than 30%.</p> <p>This area of vegetation has an upward slope away from the site.</p> | | |
| Photo ID: 2 | Plot: 1 |  <p>WGS84 31°41.639'S, 115°42.217'E ±5m</p> <p>2 Glensanda Way, Mindarie WA 6030, AU © 27-Oct-21 14:45:10</p> |
| Vegetation Classification or Exclusion Clause | | |
| Class C Shrubland - Low shrubland C-12 | | |
| Description / Justification for Classification | | |
| <p>Bush Forever Site 322 consisting of low shrubs less than 2m in height with an average foliage cover greater than 30%.</p> <p>This area of vegetation has an upward slope away from the site.</p> | | |

| | | |
|--|----------------|--|
| Photo ID: 3 | Plot: 2 | |
| Vegetation Classification or Exclusion Clause | | |
| Class C Shrubland - Low shrubland C-12 | | |
| Description / Justification for Classification | | |
| Bush Forever Site 322 consisting of low shrubs less than 2m in height with an average foliage cover greater than 30%. This area of vegetation has a downward slope of 14.8° away from the site. | | |
| Photo ID: 4 | Plot: 2 | |
| Vegetation Classification or Exclusion Clause | | |
| Class C Shrubland - Low shrubland C-12 | | |
| Description / Justification for Classification | | |
| Bush Forever Site 322 consisting of low shrubs less than 2m in height with an average foliage cover greater than 30%. This area of vegetation has a downward slope of 14.8° away from the site. | | |
| Photo ID: 5 | Plot: 3 | |
| Vegetation Classification or Exclusion Clause | | |
| Class C Shrubland - Low shrubland C-12 | | |
| Description / Justification for Classification | | |
| Bush Forever Site 322 consisting of low shrubs less than 2m in height with an average foliage cover greater than 30%. This area of vegetation has a downward slope of 19.5° towards the coast. | | |

| | | |
|---|----------------|---|
| Photo ID: 6 | Plot: 3 | |
| Vegetation Classification or Exclusion Clause | | <small>21 Alexandria View, Mindarie WA 6030, AU · © 27-Oct-21 14:42:17</small> |
| Class C Shrubland - Low shrubland C-12 | | |
| Description / Justification for Classification | | |
| Bush Forever Site 322 consisting of low shrubs less than 2m in height with an average foliage cover greater than 30%. This area of vegetation has a downward slope of 19.5° towards the coast. | | |
| Photo ID: 7 | Plot: 4 | |
| Vegetation Classification or Exclusion Clause | | <small>21 Alexandria View, Mindarie WA 6030, AU · © 27-Oct-21 14:42:23</small> |
| Excludable - 2.2.3.2(e) Non Vegetated Areas | | |
| Description / Justification for Classification | | |
| Non-vegetated areas consisting of roads, buildings, rock walls, beaches and the ocean. | | |
| Photo ID: 8 | Plot: 4 | |
| Vegetation Classification or Exclusion Clause | | <small>23-35 Alexandria View, Mindarie WA 6030, AU · © 27-Oct-21 14:52:10</small> |
| Excludable - 2.2.3.2(e) Non Vegetated Areas | | |
| Description / Justification for Classification | | |
| Non-vegetated areas consisting of roads, buildings, rock walls, beaches and the ocean. | | |

| | | |
|--|----------------|---|
| Photo ID: 9 | Plot: 5 |  <p>WGS84 ±5m 31°41.662'S, 115°42.171'E</p> <p>15-19 Alexandria View, Mindarie WA 6030, AU © 27-Oct-21 14:46:49</p> |
| Vegetation Classification or Exclusion Clause | | |
| Excludable - 2.2.3.2(f) Low Threat Vegetation | | |
| Description / Justification for Classification | | |
| Areas of low threat vegetation consisting of maintained verges, public parks, lawns and gardens on private properties. | | |
| Photo ID: 10 | Plot: 5 |  <p>WGS84 ±5m 31°41.609'S, 115°42.158'E</p> <p>Salford Promenade, Mindarie WA 6030, AU © 27-Oct-21 14:48:09</p> |
| Vegetation Classification or Exclusion Clause | | |
| Excludable - 2.2.3.2(f) Low Threat Vegetation | | |
| Description / Justification for Classification | | |
| Areas of low threat vegetation consisting of maintained verges, public parks, lawns and gardens on private properties. | | |
| Photo ID: 11 | Plot: 5 |  <p>WGS84 ±4m 31°41.607'S, 115°42.045'E</p> <p>Medway Lane, Mindarie WA 6030, AU © 27-Oct-21 14:50:56</p> |
| Vegetation Classification or Exclusion Clause | | |
| Excludable - 2.2.3.2(f) Low Threat Vegetation | | |
| Description / Justification for Classification | | |
| Vacant sites managed in a low threat condition. | | |

| | | | | |
|--|----|--------------|---|--|
| Photo ID: | 12 | Plot: | 5 | |
| Vegetation Classification or Exclusion Clause | | | | |
| Excludable - 2.2.3.2(f) Low Threat Vegetation | | | | |
| Description / Justification for Classification | | | | |
| Areas of low threat vegetation consisting of maintained verges, public parks, lawns and gardens on private properties. | | | | |

Relevant Fire Danger Index

The fire danger index for this site has been determined in accordance with Table 2.1 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

| Fire Danger Index | | | |
|---------------------------------|---------------------------------|--|----------------------------------|
| FDI 40 <input type="checkbox"/> | FDI 50 <input type="checkbox"/> | FDI 80 <input checked="" type="checkbox"/> | FDI 100 <input type="checkbox"/> |
| <i>Table 2.7</i> | <i>Table 2.6</i> | <i>Table 2.5</i> | <i>Table 2.4</i> |

Potential Bushfire Impacts

The potential bushfire impact to the proposed development from each of the identified vegetation plots are identified below.

| Plot | Vegetation Classification | Effective Slope | Separation (m) | BAL |
|------|--------------------------------|-----------------|----------------|------------|
| 1 | Class C Shrubland | Flat / Upslope | 36m | BAL – 12.5 |
| 2 | Class C Shrubland | Downslope 14.8° | 74m | BAL – 12.5 |
| 3 | Class C Shrubland | Downslope 19.5° | 23m | BAL – 29 |
| 4 | Excludable – Clause 2.2.3.2(e) | N/A | N/A | BAL – LOW |
| 5 | Excludable – Clause 2.2.3.2(f) | N/A | N/A | BAL – LOW |

Table 1: BAL Analysis

Determined Bushfire Attack Level (BAL)

The Determined Bushfire Attack Level (highest BAL) for the proposed development has been determined in accordance with Clause 2.2.6 of AS 3959-2018 using the above analysis.

| | |
|---|-----------------|
| Determined Bushfire Attack Level | BAL – 29 |
|---|-----------------|

Appendix 1: Plans and Drawings

Plans and drawings relied on to determine the bushfire attack level

Drawing Description

SK2-03 - Ground Level

| Project Number | Revision | Date of Revision |
|----------------|----------|------------------|
| 2104 | N/A | N/A |



Appendix 2: Bushfire Attack Level (BAL) Assessment Explained

A Bushfire Attack Level (BAL) Assessment is a means of measuring the severity of a buildings potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, and the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.

The methodology used to determine the Bushfire Attack Level and the subsequent building construction standards are sourced from *AS3959-2018 Construction of buildings in bushfire prone areas*. The Bushfire Attack Level is determined through the following steps:

1. Determine the relevant Fire Danger Index (FDI) rating. FDI 80 is assigned within WA;
2. Determine the classified vegetation within 100 metres of the subject building;
3. Determine the separation distance between the building and the classified vegetation source/s;
4. Determine the slope of the land under the classified vegetation; and
5. Determine the BAL from the appropriate table of AS3959-2018.

AS 3959-2018 has six levels of BAL ratings based on the radiant heat flux exposure to buildings as outlined below. AS 3959 details the building construction standards relevant to each BAL; the relevant sections of AS 3959 are provided below.

| Bushfire Attack Level (BAL) | Heat flux exposure thresholds | Description of predicted bushfire attack and levels of exposure | Section of AS3959-2018 |
|-----------------------------|---|---|------------------------|
| BAL-LOW | See clause 2.2.3.2 | There is insufficient risk to warrant specific construction requirements | 4 |
| BAL-12.5 | $\leq 12.5\text{kW/m}^2$ | Ember attack | 3 & 5 |
| BAL-19 | $> 12.5\text{kW/m}^2$ to $\leq 19\text{kW/m}^2$ | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux | 3 & 6 |
| BAL-29 | $> 19\text{kW/m}^2$ to $\leq 29\text{kW/m}^2$ | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux | 3 & 7 |
| BAL-40 | $> 29\text{kW/m}^2$ to $\leq 40\text{kW/m}^2$ | Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with increased likelihood of exposure to flames | 3 & 8 |
| BAL-FZ | $> 40\text{kW/m}^2$ | Direct exposure to flames from fire front in addition to heat flux and ember attack | 3 & 9 |

Appendix 3: Shielding

The proposed development is required to comply with the BAL-29 construction standards of AS3959-2018, in accordance with the National Construction Code.

AS3959-2018 allows a reduction in the construction requirements where an elevation is not exposed to the source of bushfire attack. The elevation that is shielded from the source of bushfire attack can be reduced to the next lower bushfire attack level. The shielding of an elevation shall apply to all the elements of the wall, including openings, but shall not apply to subfloors or roofs.

The construction requirements for the elevations highlighted in orange can be reduced to BAL-19, in accordance with Clause 3.5 of AS3959-2018.

