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Date: 29 October 2018

Project No: RNO18506.01

Inquiries: Zac Cockerill

AS 3959 Bushfire Attack Level (BAL) Compliance Report Various lots, Stage 4 Cygnia Cove Estate



| Site Details | | | |
|--------------------------------|--|--------|-------------------|
| Address: | 5 residential lots within Stage 4 Cygnia Cove Estate | | |
| Suburb: | Waterford | State: | Western Australia |
| Local Government Area: | City of South Perth | | |
| Description of building works: | Residential development (Class 1a buildings with associated Class 10a buildings) | | |

| Report details | | | |
|--------------------|-----------------------------------|-------------------|------------------------|
| Report/Job number: | RNO18506.01 | Report reference: | RNO18506_01 M001 Rev A |
| Assessment date: | 08/09/2018 | Report date: | 29 October 2018 |
| Endorsement/Review | Zac Cockerill BPAD Level 2: 37803 | | |

Introduction

This Bushfire Attack Level (BAL) compliance report has been prepared for five residential lots within Stage 4 Cygnia Cove Estate, Waterford (hereon referred to as the project area), located in the City of South Perth.

This report provides a post-subdivisional works update of the BAL ratings for individual lots within the project area and has been prepared for the benefit of the developer, future lot purchasers and decision-makers. BAL certificates for each individual lot (contained in Appendix 1) have been prepared based on the final site compliance check and are appended to this report for use at the building permit stage.

The BAL assessment outlined in this report is the most up to date assessment relating to the project area and therefore supersedes any previous Strategen BAL assessments undertaken within the project area.

The approach for preparation of this BAL compliance report is consistent with Section 4.2 and Appendix 3 of *Guidelines for Planning in Bushfire Prone Areas* (the Guidelines).

The BAL compliance assessment has been completed by a Level 2 accredited Bushfire Planning and Design practitioner (Zac Cockerill, BPAD37803) in accordance with Method 1 of AS 3959-2009 *Construction of Buildings in Bushfire-prone Areas* (AS 3959) and results are consistent with on-ground conditions observed at the time of inspection on 8 September 2018.

Should subdivision design or the classified vegetation extent be further modified prior to building construction, then an updated BAL assessment for the affected lots may need to be undertaken to account for these changes.

Site assessment and site plan

The assessment of this site/development was undertaken on 8 September 2018 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2009 (Simplified Procedure [Method 1]).

A site plan and site assessment results are depicted in Figure 1.

Vegetation classification and effective slope

All vegetation within 100 m of the site/development was classified in accordance with Clause 2.2.3.2 of AS 3959-2009 and the *Visual Guide for Bushfire Risk Assessment in Western Australia*. Each distinguishable vegetation class with the potential to determine the Bushfire Attack Level is identified in Table 1 and Figure 1, which relates to intact vegetation retained within the foreshore reserve south of the project area. Effective slope under classified vegetation for each of the vegetated plots is also depicted in Figure 1 and constituted flat land.

Subdivisional works have resulted in the following exclusions within and adjacent to the project area:

- the project area is in a cleared, managed, low fuel state and is excluded from classification under Clauses 2.2.3.2 (e) and (f)
- adjacent land to the west is in a cleared, managed, low fuel state and is excluded from classification under Clauses 2.2.3.2 (e) and (f)
- adjacent development to the north is in a cleared, managed, low fuel state and is excluded from classification under Clauses 2.2.3.2 (e) and (f)
- POS adjacent to Centenary Avenue to the east is in a cleared, managed, low fuel state and is excluded from classification under Clauses 2.2.3.2 (e) and (f).

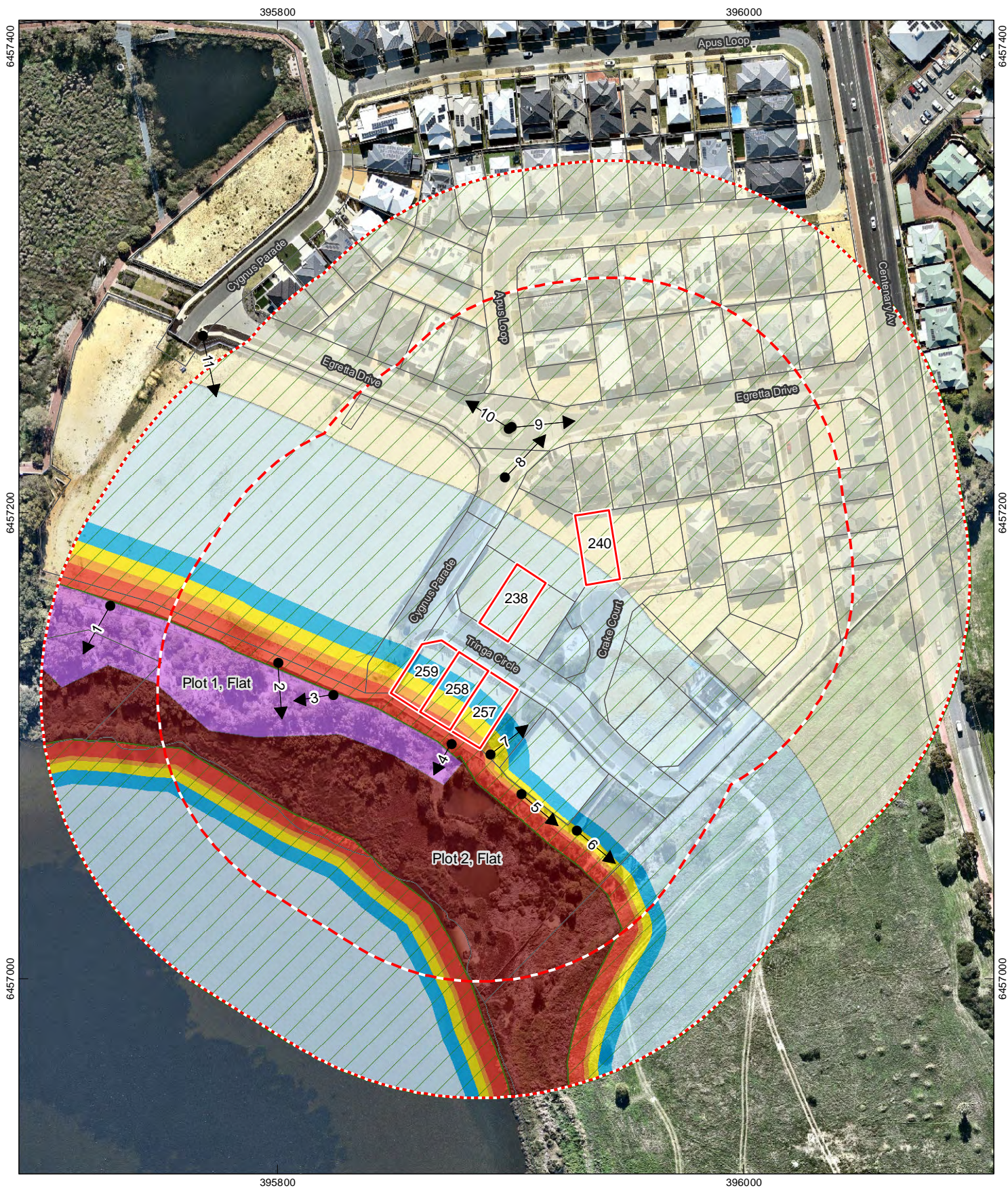


Figure 1: BAL compliance assessment: Lots 238 and 257–259 Tringa Circle and Lot 240 Crake Court, Cygnia Cove

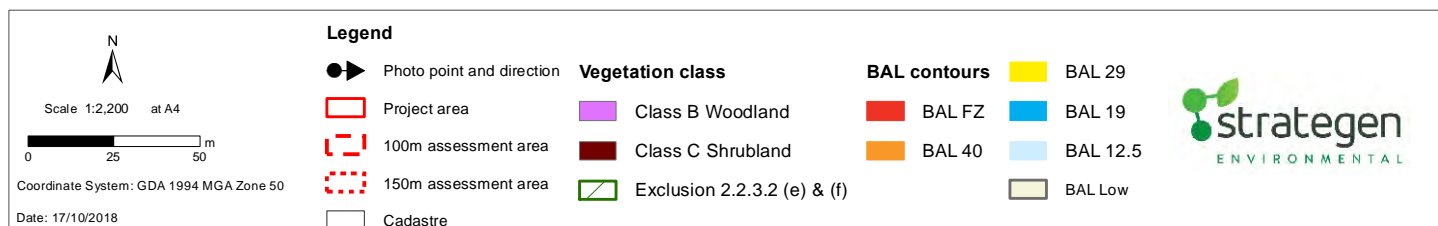


Table 1: Vegetation classification



| | |
|---------|------------------|
| Plot 1: | Class B woodland |
|---------|------------------|

| | |
|----------|---|
| Photo 1: | Area dominated by eucalyptus, sheoak and paperbark trees with a grassy understorey. |
|----------|---|



| | |
|---------|------------------|
| Plot 1: | Class B woodland |
|---------|------------------|

| | |
|----------|---|
| Photo 2: | Area dominated by eucalyptus, sheoak and paperbark trees with a grassy understorey. |
|----------|---|



| | |
|----------|---|
| Plot 1: | Class B woodland |
| Photo 3: | Area dominated by eucalyptus, sheoak and paperbark trees with a grassy understorey. |



| | |
|----------|--|
| Plot 2: | Class C shrubland |
| Photo 4: | Area is dominated by grasses and sedges 1 to 2 metres in height at maturity. |



| | |
|--------|-------------------|
| Plot 2 | Class C Shrubland |
|--------|-------------------|

| | |
|----------|--|
| Photo 5: | Area is dominated by grasses and sedges 1 to 2 metres in height at maturity. |
|----------|--|



| | |
|-----|---|
| N/A | Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f]) |
|-----|---|

| | |
|----------|--|
| Photo 6: | Area consists of managed grass and walking paths |
|----------|--|



| | |
|-----|---|
| N/A | Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f]) |
|-----|---|

| | |
|----------|--|
| Photo 7: | Public area consists of managed gardens and walking paths. |
|----------|--|



| | |
|-----|---|
| N/A | Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f]) |
|-----|---|

| | |
|----------|--|
| Photo 8: | This area has been cleared for a proposed residential development. |
|----------|--|



| | |
|----------|---|
| N/A | Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f]) |
| Photo 9: | This area comprises of existing residential dwellings with managed gardens and road verges. |



| | |
|-----------|--|
| N/A | Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f]) |
| Photo 10: | This area comprises existing residential dwellings with managed gardens and road verges. |



| | |
|-----|---|
| N/A | Excluded – Non-vegetated & Low threat (Clauses 2.2.3.2 [e] and [f]) |
|-----|---|

| | |
|-----------|--|
| Photo 11: | Public area consists of managed gardens and walking paths. |
|-----------|--|

Relevant Fire Danger Index

The fire danger index for this site/development has been determined in accordance with Table 2.1 of AS 3959–2009 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

| Fire Danger Index | | | |
|--|--|---|---|
| FDI 40 <input type="checkbox"/> Table 2.4.5 | FDI 50 <input type="checkbox"/> Table 2.4.4 | FDI 80 <input checked="" type="checkbox"/> Table 2.4.3 | FDI 100 <input type="checkbox"/> Table 2.4.2 |

Potential bushfire impacts

The potential bushfire impact to the site/development from each of the identified vegetation plots are identified in Table 2.

Table 2: Method 1 BAL calculation

| Classified vegetation | Effective slope | BAL contour width (m) | BAL rating | Comment |
|-----------------------|-----------------|-----------------------|------------|---|
| Class B woodland | Flat/upslope | <10 | BAL-FZ | No development will occur in this area subject to application of voluntary rear building setbacks |
| | | 10–<14 | BAL-40 | No development will occur in this area subject to application of voluntary rear building setbacks |
| | | 14–<20 | BAL-29 | Development will occur in this area |
| | | 20–<29 | BAL-19 | Development will occur in this area |
| | | 29–<100 | BAL-12.5 | Development will occur in this area |
| Class C shrubland | Flat/upslope | <7 | BAL-FZ | No development will occur in this area |
| | | 7–<9 | BAL-40 | No development will occur in this area subject to application of voluntary rear building setbacks |
| | | 9–<13 | BAL-29 | No development will occur in this area subject to application of voluntary rear building setbacks |
| | | 13–<19 | BAL-19 | Development will occur in this area |
| | | 19–<100 | BAL-12.5 | Development will occur in this area |

Determined Bushfire Attack Level

The Determined Bushfire Attack Level (highest BAL) for the proposed development has been determined in accordance with Clause 2.2.6 (Simplified Procedure [Method 1]) of AS 3959-2009 using the above analysis and documented in each of the BAL certificates in Appendix 1. No development will occur in areas of BAL-40 or BAL-FZ provided voluntary rear building setbacks for Lots 257–259 are applied. Setback dimensions are detailed in Table 3.

BAL certificates

BAL certificates are provided in Appendix 1 for all five residential lots within the project area as per the BAL compliance assessment outlined in Figure 1. Should a lower BAL rating be realistically achievable through an appropriate building setback, then the landowner can refer to detailed advice for recommended setbacks in Table 3. The lower BAL rating may be achieved if the recommended building setback is reflected on the building plan for that lot and a revised BAL certificate can be issued at that time.

Table 3: Recommended setbacks to achieve a lower BAL rating

| Lot number | Current separation distance | Current BAL rating | Recommended setback to achieve lower BAL | New separation distance | New BAL rating* |
|------------|-----------------------------|--------------------|--|-------------------------|-----------------|
| 257 | 7 m | BAL-FZ | 7 m tapered rear building setback | 14 m | BAL-29 |
| 258 | 7 m | BAL-FZ | 7 m rear building setback | 14 m | BAL-29 |
| 259 | 7.5 m | BAL-FZ | 6.5 m rear building setback | 14 m | BAL-29 |

*The new BAL rating in Table 3 can only be confirmed once the building plan for the relevant lot has been prepared to demonstrate compliance with the recommended setback. Once the setback has been confirmed, a new BAL certificate for the lower BAL rating can be prepared and issued to accompany the building permit application.

Conclusion and recommendations

This BAL compliance report has been prepared for five residential lots within Cygnia Cove Estate to provide a final BAL check for individual lots for use at the building permit stage. Assessment results are consistent with current on-ground conditions.

In the absence of any change in development design or post-development classified vegetation extent, Strategen considers that the BAL assessment and BAL certificates outlined in this report are accurate to inform individual lot building permit applications.

Should the extent of classified vegetation change or new vegetation be introduced within 100 m of proposed development, then the BAL rating should be reassessed at the building permit stage to ensure accuracy with on-ground conditions.

Should it be determined through demonstration on the building plan that compliance with the recommended building setbacks has been achieved and subsequently a lower BAL rating has been achieved (as per Table 3), then the lower BAL rating should apply and be reflected in an updated BAL certificate prepared at that time.

The BAL assessment outlined in this report is the most up to date assessment relating to the project area and therefore supersedes any previous Strategen BAL assessments undertaken within the project area.

Ongoing requirements of the current City of South Perth annual firebreak notice should continue to be implemented as required, particularly with regards to ongoing fuel management of vacant land and road reserves.

Appendix 1

BAL certificates

Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2009

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

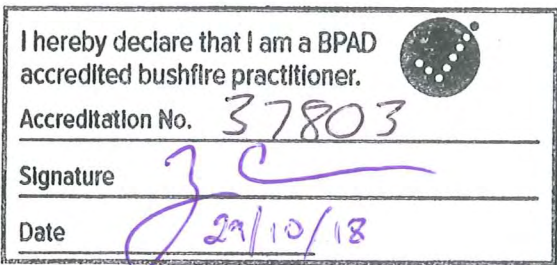
Property Details and Description of Works

| | | | | | |
|--------------------------------------|---|------------------------|----------------------|------------------------------------|----------|
| Address Details | Unit no | Street no | Lot no | Street name / Plan Reference | |
| | | | 238 | Tringa Circle / Cygnia Cove Estate | |
| Local government area | Suburb | | | State | Postcode |
| | Waterford | | | WA | 6152 |
| Main BCA class of the building | City of South Perth | | | | |
| Description of the building or works | Class 1a | Use(s) of the building | Residential dwelling | | |
| | Class 1a building with associated Class 10a structure | | | | |

Determination of Highest Bushfire Attack Level

| AS 3959 Assessment Procedure | Vegetation Classification | Effective Slope | Separation Distance | BAL |
|------------------------------|---------------------------|----------------------------|---------------------|------------|
| Method 1 | Class B Woodland | Flat / upslope (0 degrees) | 52 m | BAL – 12.5 |

BPAD Accredited Practitioner Details

| | |
|---|---|
| Name Zac Cockerill |  <p>I hereby declare that I am a BPAD accredited bushfire practitioner. Accreditation No. 37803 Signature [Signature] Date 29/10/18</p> |
| Company Details Strategen Environmental | |
| I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendments 1, 2 and 3). | |

Authorised Practitioner Stamp

Reliance on the assessment and determination of the Bushfire Attack Level contained in this certificate should not extend beyond a period of 12 months from the date of issue of the certificate. If this certificate 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 certificate issued.

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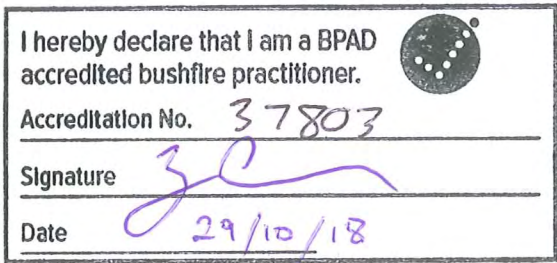
Property Details and Description of Works

| | | | | | |
|--------------------------------------|---|------------------------|----------------------|----------------------------------|----------|
| Address Details | Unit no | Street no | Lot no | Street name / Plan Reference | |
| | | | 240 | Crake Court / Cygnia Cove Estate | |
| Local government area | Suburb | | | State | Postcode |
| | Waterford | | | WA | 6152 |
| Main BCA class of the building | City of South Perth | | | | |
| Description of the building or works | Class 1a | Use(s) of the building | Residential dwelling | | |
| | Class 1a building with associated Class 10a structure | | | | |

Determination of Highest Bushfire Attack Level

| AS 3959 Assessment Procedure | Vegetation Classification | Effective Slope | Separation Distance | BAL |
|------------------------------|---------------------------|----------------------------|---------------------|------------|
| Method 1 | Class B Woodland | Flat / upslope (0 degrees) | 91 m | BAL – 12.5 |

BPAD Accredited Practitioner Details

| | |
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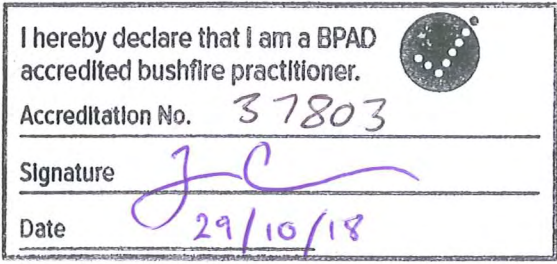
Property Details and Description of Works

| | | | | | |
|--------------------------------------|---|------------------------|----------------------|------------------------------------|----------|
| Address Details | Unit no | Street no | Lot no | Street name / Plan Reference | |
| | | | 257 | Tringa Circle / Cygnia Cove Estate | |
| Local government area | Suburb | | | State | Postcode |
| | Waterford | | | WA | 6152 |
| Main BCA class of the building | City of South Perth | | | | |
| Description of the building or works | Class 1a | Use(s) of the building | Residential dwelling | | |
| | Class 1a building with associated Class 10a structure | | | | |

Determination of Highest Bushfire Attack Level

| AS 3959 Assessment Procedure | Vegetation Classification | Effective Slope | Separation Distance | BAL |
|------------------------------|---------------------------|----------------------------|---|----------|
| Method 1 | Class B Woodland | Flat / upslope (0 degrees) | 7 m (lower BAL achievable with rear building setback) | BAL – FZ |

BPAD Accredited Practitioner Details

| | |
|---|---|
| Name Zac Cockerill |  <p>I hereby declare that I am a BPAD accredited bushfire practitioner.</p> <p>Accreditation No. 37803</p> <p>Signature <i>[Signature]</i></p> <p>Date 29/10/18</p> |
| Company Details Strategen Environmental | |
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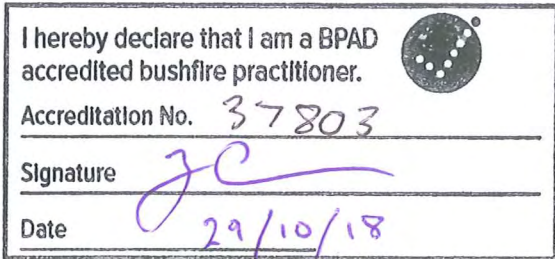
Property Details and Description of Works

| | | | | | | |
|--------------------------------------|---|------------------------|----------------------|------------------------------------|----------|--|
| Address Details | Unit no | Street no | Lot no | Street name / Plan Reference | | |
| | | | 258 | Tringa Circle / Cygnia Cove Estate | | |
| Local government area | Suburb | | | State | Postcode | |
| | Waterford | | | WA | 6152 | |
| Main BCA class of the building | City of South Perth | | | | | |
| Description of the building or works | Class 1a | Use(s) of the building | Residential dwelling | | | |
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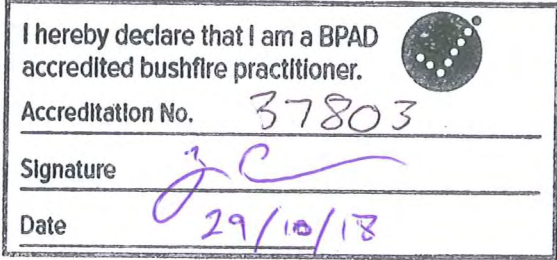
Property Details and Description of Works

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|--------------------------------------|---|------------------------|----------------------|------------------------------------|----------|--|
| Address Details | Unit no | Street no | Lot no | Street name / Plan Reference | | |
| | | | 259 | Tringa Circle / Cygnia Cove Estate | | |
| Local government area | Suburb | | | State | Postcode | |
| | Waterford | | | WA | 6152 | |
| Main BCA class of the building | City of South Perth | | | | | |
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Determination of Highest Bushfire Attack Level

| AS 3959 Assessment Procedure | Vegetation Classification | Effective Slope | Separation Distance | BAL |
|------------------------------|---------------------------|----------------------------|---|----------|
| Method 1 | Class B Woodland | Flat / upslope (0 degrees) | 7.5 m (lower BAL achievable with rear building setback) | BAL – FZ |

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