

Richard Noble
Bushfire Attack Level (BAL) Compliance Report
20 lots within Stages 8 and 9 Vivente Estate
Hammond Park, WA

7 October 2022
61728/147,549 (Rev 1)

JBS&G Australia Pty Ltd T/A Strategen-JBS&G



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Appendices

- Appendix A BAL certificates
- Appendix B Vegetation plot photos and description

1. Introduction

1.1 Site summary

Table 1 provides a summary of the project area and proposed development. The development layout and subject lots are shown in Figure 1 and Figure 2.

Table 1: Site/development summary

Site details	
Address details	20 proposed residential lots within Stages 8 and 9 Vivente Estate, Hammond Park WA, 6164
Local government area	City of Cockburn
Description of building works	Construction of single residential dwellings (Class 1a building and associated Class 10a buildings) within each lot

1.2 Purpose of report

This Bushfire Attack Level (BAL) compliance report has been prepared for 20 proposed residential lots within Stages 8 and 9 Vivente Estate (hereafter referred to as the project area), comprising four lots within Stage 8 and 16 lots within Stage 9.

The project area is designated bushfire prone on the Map of Bush Fire Prone Areas (DFES 2021, see Plate 1). As such, bushfire risk considerations and BAL assessment are applicable to all proposed lots within the project area and are required to support future building permit applications.

This report provides a post-subdivisional works update of the Bushfire Attack Level (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 (see Appendix A) have been prepared based on an updated site compliance check undertaken on 7 September 2022 and are appended to this report for use at the building permit stage to facilitate future lot sales and building approvals.

The BAL assessment outlined in this report has been prepared in consideration of the previous BAL compliance report for the project area (Strategen-JBS&G 2022) and previous BAL contour assessments documented in the Bushfire Management Plans (BMPs) prepared to accompany the Local Structure Plan (LSP) (Strategen 2015) and LSP amendment (Strategen-JBS&G 2020) for the development. 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; WAPC 2021).

The BAL assessment outlined in this report is the most up to date Strategen-JBS&G assessment relating to the project area and therefore supersedes any previous Strategen/Strategen-JBS&G assessments undertaken within the project area, including those documented in the following previously prepared reports:

- Fire Management Plan for Barfield Road Local Structure Plan, prepared by Strategen (2015)
- Bushfire Management Plan Amendment for Vivente Estate Structure Plan, including Stages 9 and 10, prepared by Strategen-JBS&G (2020)
- original BAL compliance prepared for 20 lots within Stages 8 and 9 Vivente Estate (Strategen-JBS&G 2022).

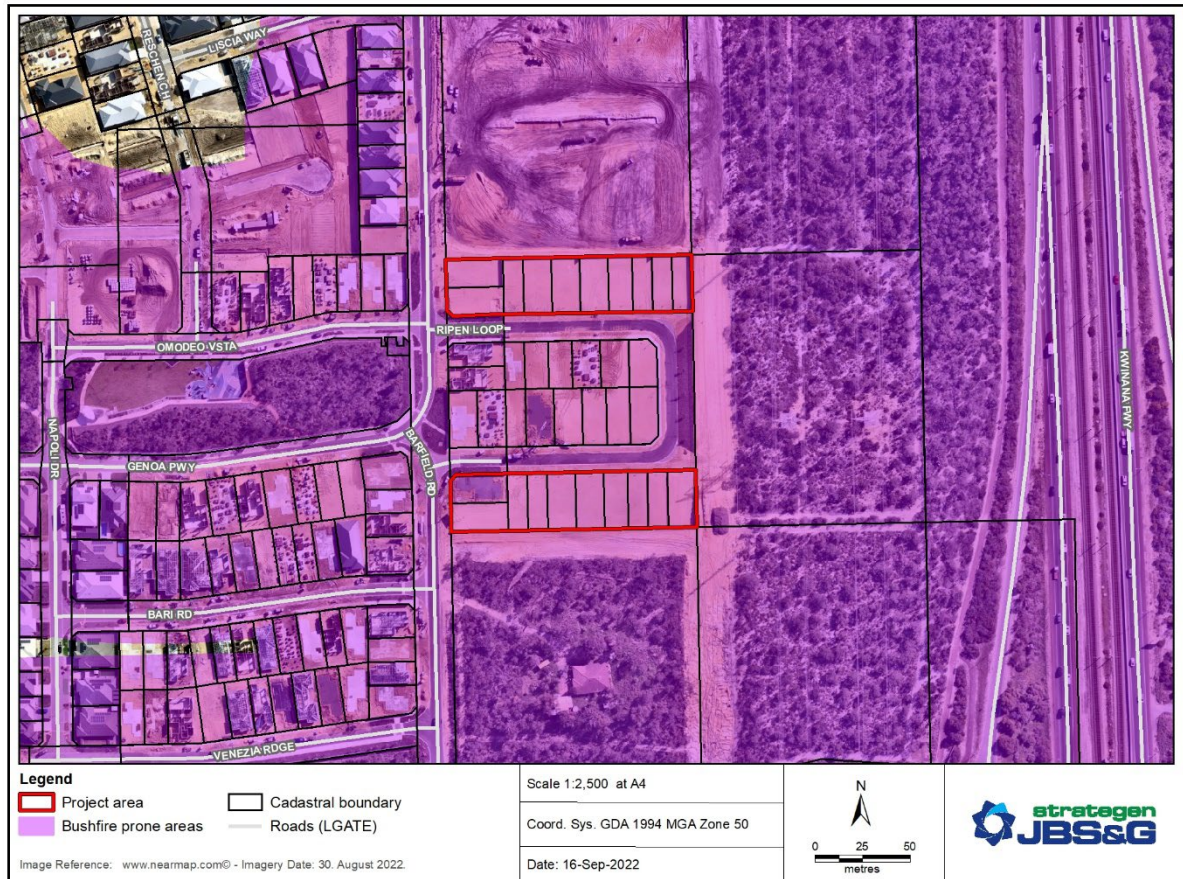


Plate 1: Map of Bush Fire Prone Areas (DFES 2021)

2. Bushfire assessment results

2.1 Assessment inputs

2.1.1 Vegetation classification

Strategen-JBS&G assessed classified vegetation and exclusions within the 150 m assessment area through on-ground verification on 12 October 2021 and reassessment on 7 September 2022 in accordance with AS 3959—2018 *Construction of Buildings in Bushfire-Prone Areas* (AS 3959; SA 2018) and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). Georeferenced photos and a description of the vegetation classifications and exclusions are contained in Appendix B and depicted in Figure 1.

The predominant vegetation classification within the 150 m wide assessment area is Class D Scrub, which is identified to the east and south of the project area.

Site observations indicate that the vegetation classifications have evolved following ongoing clearing and earthworks throughout the estate, such that the extent of cleared, low threat land has expanded beyond that determined in previous BMPs and BAL reports (e.g. Strategen-JBS&G 2022). In particular, land clearing to the north of the project area has caused the previously classified Class D scrub vegetation and Class G grassland vegetation (as assessed in Strategen-JBS&G 2022) to become a non-vegetated/low threat area excluded under Clauses 2.2.3.2 (e) and (f).

The 20 m wide cleared firebreak to the east of the project area and 16 m wide cleared low threat staging buffer to the south of the project area continue to be maintained in a low threat state and are excluded under Clauses 2.2.3.2 (e) and (f).

All other land within the 150 m assessment area was confirmed to be excluded from classification as per the following observations:

- the project area is in a cleared, non-vegetated state in preparation for development and is excluded from classification under Clauses 2.2.3.2 (e) and (f)
- existing non-vegetated and low threat managed land surrounding the project area, including land cleared for future development, existing residential development and low threat managed landscaped areas and staging buffers are excluded under Clauses 2.2.3.2 (e) and (f)
- a narrow strip of vegetation fronting Rowley Road that is less than 20 m wide and not within 20 m of other areas of classified vegetation or the site is excluded under Clause 2.2.3.2 (d).

The adjacent west POS cell has been excluded under Clause 2.2.3.2 (f) as low threat vegetation due to the fragmentation of the vegetation cells and lack of fuel carrying capacity within the vegetation, as previously adopted by the City and DFES under the approved BMPs for Vivente Estate.

2.1.2 Effective slope

Strategen-JBS&G assessed effective slope under classified vegetation within the 150 m assessment area through on-ground verification on 12 October 2021 and reassessment on 7 September 2022 in accordance with AS 3959. Results were cross-referenced with DPIRD 2 m contour data and are depicted in Figure 1.

Site observations indicate that effective slope under classified vegetation aligns with the effective slopes identified within the endorsed BMPs, with that being an effective slope of flat/upslope (i.e. 0 degrees).

2.1.3 Summary of inputs

Figure 1 illustrates the current vegetation classifications and exclusions observed during the latest site inspection. The vegetation classifications/exclusions and effective slope are summarised in Table 2.

Table 2: Summary of vegetation classifications, exclusions and effective slope

Vegetation plot	Vegetation classification	Effective slope	Comments
1	Class D Scrub	Flat/upslope (0°)	Scrub vegetation 2–6 m in height with a continuous horizontal fuel profile.
2	Excluded – Clause 2.2.3.2 [d]	N/A	Narrow strip of vegetation less than 20 m wide and not within 20 m of other areas of classified vegetation or the project area.
3	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Existing non-vegetated areas (i.e. roads, buildings, cleared vacant lots, driveways, footpaths) and low threat managed vegetation (i.e. mowed grass, slashed staging buffers, managed gardens/POS, etc). Includes central vegetated POS which has been assessed as low threat due to fragmentation and lack of fuel carrying capacity.



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary
- 16m wide low threat buffer
- Vegetation classification**
- Class D Scrub
- Clause 2.2.3.2 (d)
- Clause 2.2.3.2 (e) & (f)
- Stage boundaries
- Proposed lots
- Indicative future subdivisions on adjacent stages
- Topographic contours (mAH)
- Photo point directions
- Roads



Job No: 61728

Client: Richard Noble

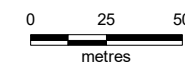
Version: A

Date 7/10/2022

Drawn By: jcrute

Checked By: CT

Scale 1:2,500 at A4



Coord. Sys. GDA 1994 MGA Zone 50

Stages 8 and 9, Vivente Hammond Park, WA

VEGETATION CLASSIFICATION AND EFFECTIVE SLOPE

FIGURE 1

2.2 Assessment outputs

2.2.1 Bushfire Attack Level (BAL) contour assessment

Strategen-JBS&G has undertaken a BAL contour assessment in accordance with Method 1 of AS 3959 for the project area (Figure 2). The Method 1 procedure incorporates the following factors:

- state adopted FDI 80 rating
- vegetation classification
- effective slope
- distance maintained between proposed development areas and the classified vegetation.

The BAL contours are based on the current on-ground site conditions confirmed during site assessment and results are detailed in Table 3 and illustrated in Figure 2.

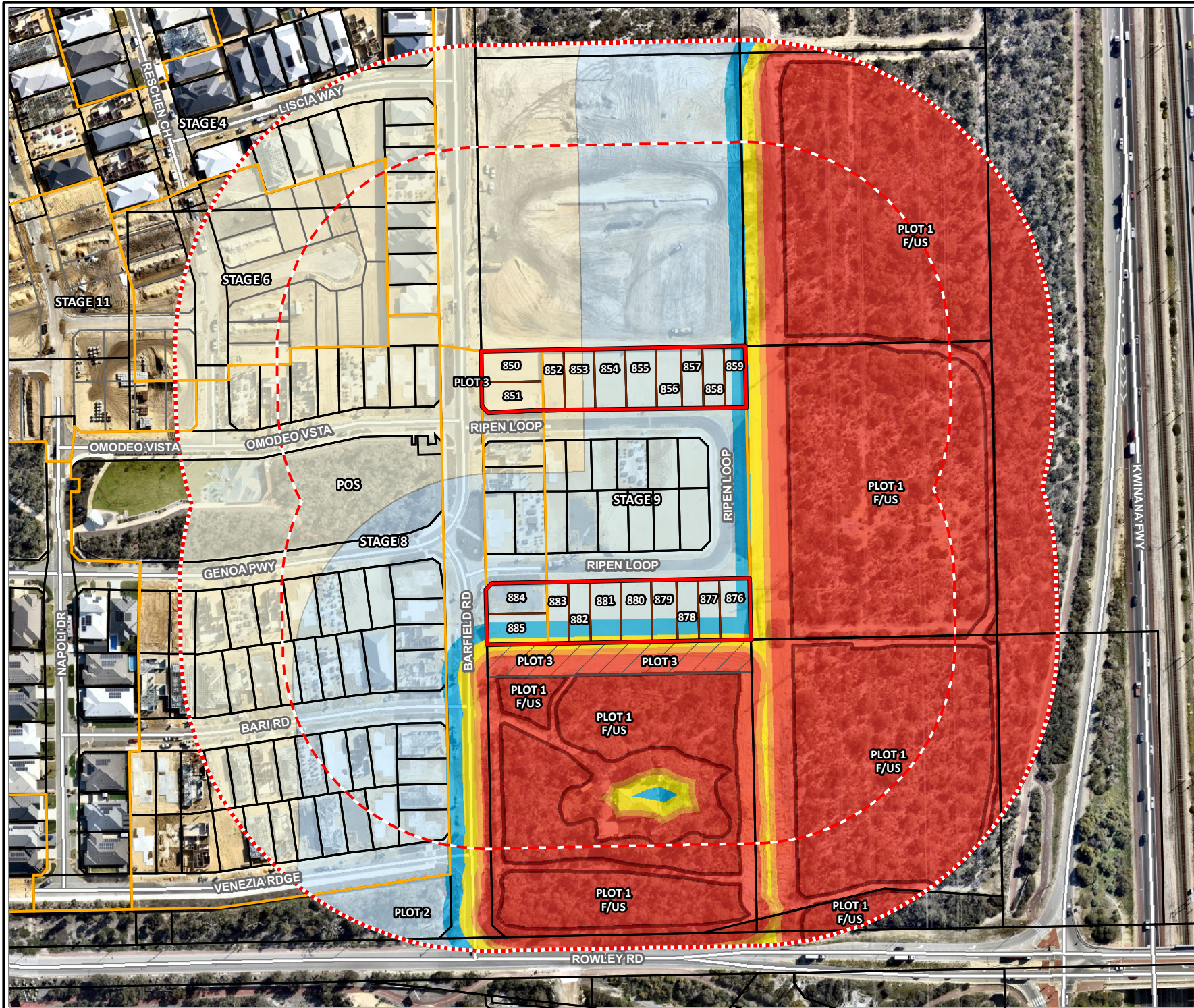
Table 3: BAL contour assessment results

Lot	Bushfire prone area	Plot No.	Vegetation classification	Effective slope	Separation distance	Highest BAL	Setback required to achieve lower BAL*	Potential new BAL with setback*
Stage 8								
850	Yes	1	Class D Scrub	Flat/upslope (0°)	>100 m	BAL-Low	N/A	N/A
851		1	Class D Scrub	Flat/upslope (0°)	>100 m	BAL-Low	N/A	N/A
884		1	Class D Scrub	Flat/upslope (0°)	31 m	BAL-12.5	N/A	N/A
885		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3 m side (south) setback	BAL-19
Stage 9								
852	Yes	1	Class D Scrub	Flat/upslope (0°)	>100 m	BAL-Low	N/A	N/A
853		1	Class D Scrub	Flat/upslope (0°)	94 m	BAL-12.5	N/A	N/A
854		1	Class D Scrub	Flat/upslope (0°)	79 m	BAL-12.5	N/A	N/A
855		1	Class D Scrub	Flat/upslope (0°)	64 m	BAL-12.5	N/A	N/A
856		1	Class D Scrub	Flat/upslope (0°)	51 m	BAL-12.5	N/A	N/A
857		1	Class D Scrub	Flat/upslope (0°)	41 m	BAL-12.5	N/A	N/A
858		1	Class D Scrub	Flat/upslope (0°)	30 m	BAL-12.5	N/A	N/A
859		1	Class D Scrub	Flat/upslope (0°)	20 m	BAL-19	N/A	N/A
876		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
877		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
878		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
879		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
880		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
881		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
882		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
883		1	Class D Scrub	Flat/upslope (0°)	16 m	BAL-29	3m rear (south) setback	BAL-19
NOTES:								
*The new BAL rating can only be confirmed once the building plan for the relevant lot has been prepared to demonstrate compliance with the recommended setback.								

2.2.2 BAL certificates

BAL certificates are provided in Appendix A in accordance with the BAL contour assessment results detailed in Table 3 and Figure 2.

Should a lower BAL be realistically achievable through an appropriate building setback, then the landowner can refer to the recommended setbacks listed in Table 3. The lower BAL 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.



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary
- 16m wide low threat buffer
- BAL contours
 - BAL FZ
 - BAL 40
 - BAL 29
 - BAL 19
 - BAL 12.5
 - BAL Low
- Stage boundaries
- Proposed lots
- Indicative future subdivisions on adjacent stages
- Roads



Job No: 61728

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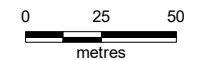
Version: A

Date 7/10/2022

Drawn By: jcrute

Checked By: CT

Scale 1:2,500 at A4



Coord. Sys. GDA 1994 MGA Zone 50

Stages 8 and 9, Vivente Hammond Park, WA

BAL CONTOUR MAP

FIGURE 2

3. Conclusion and recommendations

This BAL compliance report has been prepared for four residential lots within Stage 8 and 16 residential lots within Stage 9 Vivente Estate to provide a final BAL check and certification for use at the building permit stage.

Following the latest assessment of on-ground conditions on 7 September 2022, Strategen-JBS&G can confirm that the existing BMPs over the project area have been implemented throughout the duration of subdivisional works for the relevant Stage 8 and 9 lots and adjacent land to achieve the BAL outcomes as intended.

Nine lots can potentially achieve a lower BAL if building setbacks are implemented, as set out in Table 3. Should it be determined through demonstration on individual building plans that compliance with the recommended building setbacks has been achieved and subsequently a lower BAL rating has been attained (as per Table 3), then the lower BAL rating should apply and be reflected in an updated BAL certificate prepared at that time.

Strategen-JBS&G considers that the BAL contour assessment and BAL certificates outlined in this report are accurate to inform individual lot building permit applications.

4. References

Department of Fire and Emergency Services (DFES) 2021, *Map of Bush Fire Prone Areas*, [Online], Government of Western Australia, available from: <https://maps.slip.wa.gov.au/landgate/bushfireprone/>, [7/10/2022].

Department of Planning (DoP) 2016, *Visual guide for bushfire risk assessment in Western Australia*, Department of Planning, Perth.

Standards Australia (SA) 2018, *Australian Standard AS 3959–2018 Construction of Buildings in Bushfire-prone Areas*, Standards Australia, Sydney.

Strategen Environmental (Strategen) 2015, *Fire Management Plan: Barfield Road Local Structure Plan*, Strategen, Bunbury.

Strategen-JBS&G 2020, *Bushfire Management Plan: Vivente Estate Structure Plan Amendment, including Stages 9 and 10*, Strategen-JBS&G, Bunbury.

Strategen-JBS&G 2022, *Bushfire Attack Level Compliance Report: Stages 9 and 12 Vivente Estate*, Strategen-JBS&G, Bunbury.

Western Australian Planning Commission (WAPC) 2017, *Guidelines for Planning in Bushfire Prone Areas, Version 1.4 December 2021*, Western Australian Planning Commission, Perth.

5. Limitations

Scope of services

This report ("the report") has been prepared by Strategen-JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Strategen-JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

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Environmental conclusions


Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.









The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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Appendix B Vegetation plot photos and description

Plot 1	
Vegetation classification	Class D Scrub
Description / justification	Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity
<div> <div> <div>NW</div> <div>N</div> <div>IE</div> <div>E</div> <div>SE</div> </div> <div> <div>330</div> <div>0</div> <div>30</div> <div>60</div> <div>90</div> <div>120</div> </div> <div> <div>43°NE (T)</div> <div>32.180459°S, 115.853337°E ±5m</div> <div>▲ 32m</div> </div> </div>  <div> <div>Photo ID: 1a</div> </div>	<div> <div> <div>E</div> <div>SE</div> <div>S</div> <div>SW</div> </div> <div> <div>90</div> <div>120</div> <div>150</div> <div>180</div> <div>210</div> <div>240</div> </div> <div> <div>162°SE (T)</div> <div>32.180731, 115.84818 ±24 m</div> <div>▲ 2 m</div> </div> </div>  <div> <div>Photo ID: 1b</div> </div>
<div> <div> <div>NW</div> <div>N</div> <div>NE</div> <div>E</div> </div> <div> <div>300</div> <div>330</div> <div>0</div> <div>30</div> <div>60</div> <div>90</div> </div> <div> <div>9°N (T)</div> <div>50S 392082 6439126 ±4 m</div> <div>▲ 9 m</div> </div> </div>  <div> <div>Photo ID: 1c</div> </div>	

Plot 2	
Vegetation classification	Excluded – Clause 2.2.3.2 [d]
Description / justification	Strips of vegetation less than 20 m in width (regardless of length) and not within 20 m of the site or each other or other areas of classified vegetation.
 <p>Photo ID: 2a</p>	

Plot 3	
Vegetation classification	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
Description / justification	Low threat cultivated gardens and maintained lawns within surrounding properties and non-vegetated areas including roads, footpaths, driveways and building footprints
<p>  89°E (T) ● 32.176544°S, 115.853417°E ±39ft ▲ 100ft </p>  <p>07 Sep 2022, 09:17:53</p> <p>Photo ID: 3a</p>	<p>  127°SE (T) ● 32.176544°S, 115.853371°E ±19ft ▲ 116ft </p>  <p>07 Sep 2022, 09:18:16</p> <p>Photo ID: 3b</p>
<p>  44°NE (T) ● 32.178015°S, 115.853356°E ±26ft ▲ 160ft </p>  <p>07 Sep 2022, 09:21:53</p> <p>Photo ID: 3c</p>	<p>  300°W (T) ● -32.17831, 115.853159 ±4 m ▲ -3 m </p>  <p>12NOV2021-12:37:58</p> <p>Photo ID: 3d</p>

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Document Status

Report version	Rev No.	Purpose	Author	Reviewed and Approved for Issue	
				Name	Date
Final Report	Rev 0	Issued for use: to accompany future lot sale and building permit applications	Jasmin Culverwell	Louisa Robertson (BPAD 36748, Level 3)	14 February 2022
Final Report	Rev 1	Issued for use: to facilitate future lot sale and building approvals	Olivia Johnston	Zac Cockerill (BPAD 37803, Level 2)	7 October 2022

