



WESTERN
ENVIRONMENTAL

Bushfire Management Plan

Development Application: 1823
Frenchman Bay Road, Frenchman Bay

Western Environmental Pty Ltd

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Development Application: 1823
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Hub Property Group

Prepared by

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WESTERN
ENVIRONMENTAL

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1. Introduction

1.1 Proposal Details

Hub Property Group is seeking to progress a Development Application (DA) for 1823 Frenchman Bay Road, Frenchman Bay (hereafter referred to as the subject site, Figure 1). The proposed DA will result in an intensification of land use and involves the development of tourism accommodation comprising (Figure 2):

- A lodge and associated garage.
- Six 2-storey pods.
- Two Boutique Barn-style Retreats (BBRs).
- A shed.
- Six glamping tents.
- A refuge building (which would also be used as a yoga studio).

The subject site is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2021; Figure 3), which triggers bushfire planning requirements under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; WAPC, 2015) and reporting to accompany submission of the DA in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.4* (the Guidelines; WAPC, 2021).

Western Environmental Approvals Pty Ltd (WEPL) was commissioned to prepare a Bushfire Management Plan (BMP) to support the DA. This BMP has been prepared by Senior Principal Bushfire Consultant Daniel Panickar (FPAAC BPAD Level 3 Certified Practitioner No. BPAD37802).

1.1.1 Site context

A Local Development Plan was previously approved over the subject site by the City of Albany and was accompanied by a BMP (BDS, 2022; Appendix A). This development included the construction of: a caretaker's shed and accommodation; a luxury holiday lodge with 10-12 bedrooms; up to 25 single bedroom holiday chalets, day spa and manager's accommodation; and a kiosk/café and reception office. The approved development is no longer considered viable, and consequently a revised development proposal has been created, which has been assessed in this BMP.

Whilst the proposed development differs to that which was approved, the vegetation assessment and principles in the existing BMP (BDS, 2022) remain largely applicable to the proposed development and have been carried over into this BMP where relevant.

The subject site is located within City of Albany and is zoned *Special Use (SU13)* under the City of Albany Local Planning Scheme No. 1. The subject site contains a mixture of unmanaged, classifiable vegetation as well as cleared areas and is bound by:

- Coastal vegetation, Frenchman Bay and the Southern Ocean to the north.
- Coastal vegetation to the south and west.
- Frenchman Bay Road and coastal vegetation to the east.

1.2 Purpose and Application of the BMP

This BMP has been prepared in accordance with SPP 3.7 and the Guidelines to support the assessment of the DA for the subject site submitted to the City of Albany.

In addition, this BMP provides strategies and guidance to reduce the level of bushfire risk exposure for the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

The proposed land use is categorised as a vulnerable tourism land use as visitors may be unfamiliar with their surrounds and bushfire risk. A Bushfire Emergency Evacuation Plan (BEEP) is required to be submitted with the DA and will be required to be updated and maintained prior to occupancy of the development. This BMP and BEEP are to be used in conjunction with one another to ensure that the intent of SPP 3.7 is achieved.

1.3 Environmental Considerations

SPP 3.7 policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values.

Environmental values were addressed in the existing BMP (BDS, 2022; Appendix A). Further to this, Aurora Environmental has been engaged to undertake on-site ecological surveys and advise on environmental approvals required to facilitate development.

Bushfire management measures have been considered in the environmental advice being prepared by Aurora Environmental. This advice recommends the retention of certain trees within the subject site which may provide habitat for fauna. WEPL has considered this retention in the context of bushfire management measures for the subject site (specifically, Asset Protection Zones) and are comfortable that the proposed retention is possible without compromising these measures. This is discussed further in section 3.1.

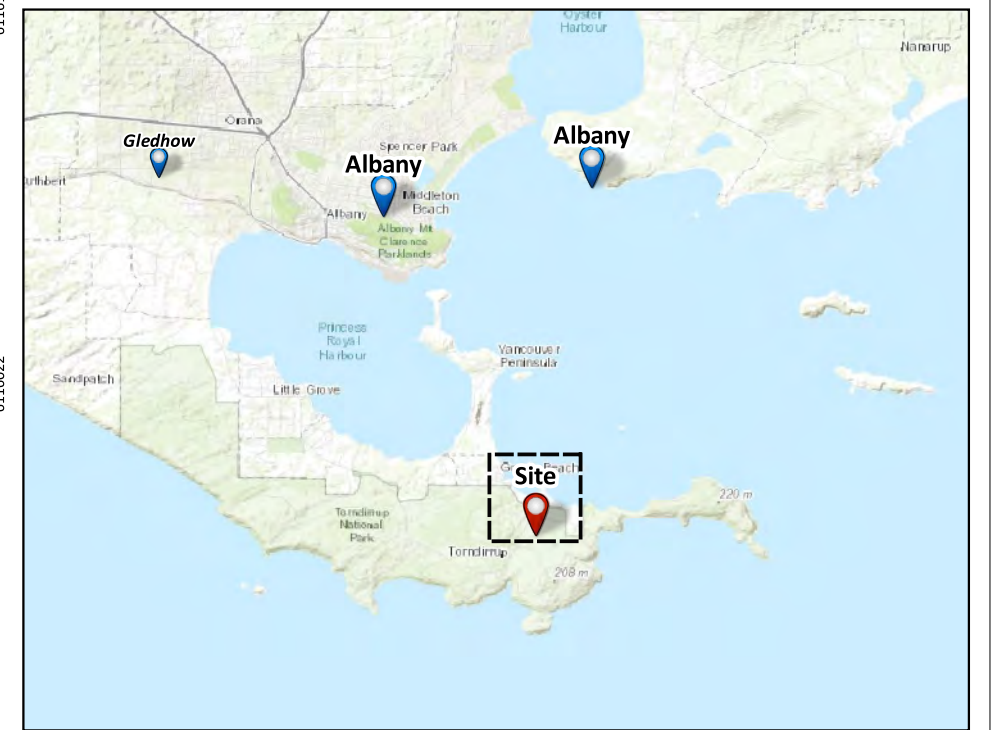
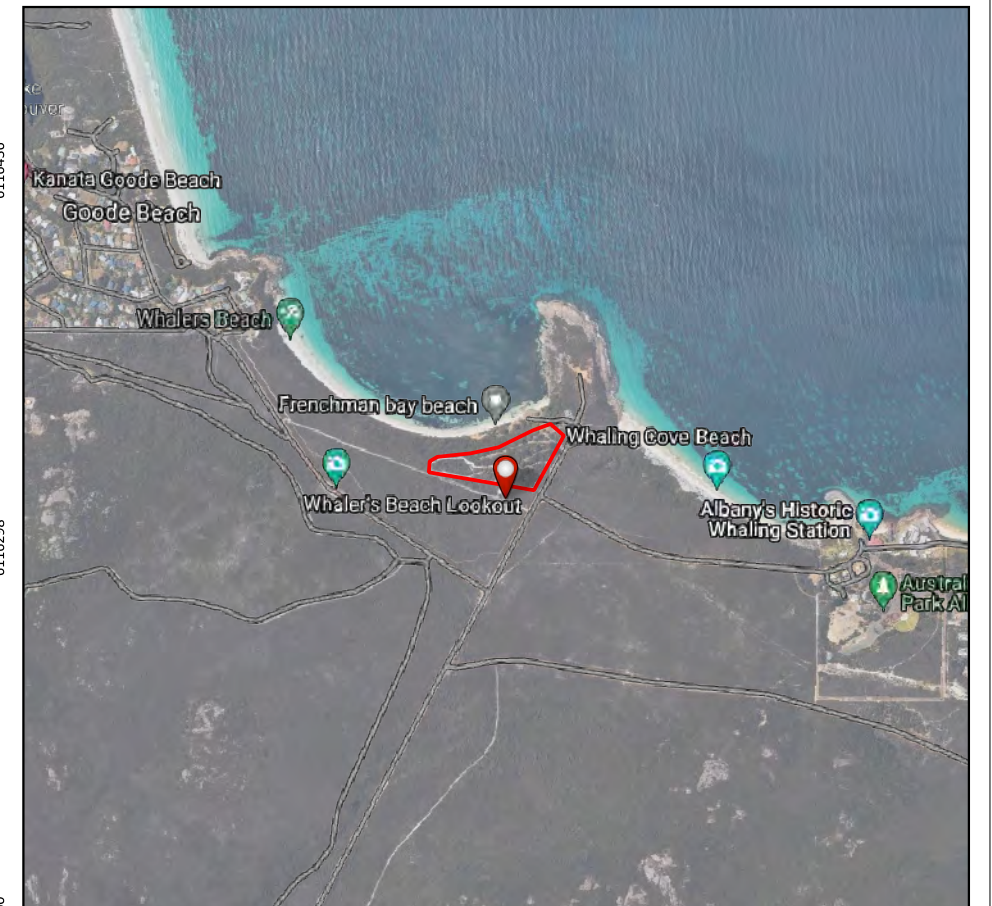


Figure 1: Site Overview

	PROJECT/REPORT NAME Bushfire Management Plan Frenchman Bay Resort		Legend Subject Site Buffer 100m Buffer 150m	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>MD</td> <td>DP</td> <td>30/11/2023</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	MD	DP	30/11/2023																				
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COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50		DRAWN BY / REVIEWED BY MD/DP	DATE 30/11/2023																															
DATA SOURCE LANDGATE AERIAL IMAGERY Summer 2023		NOTES: Cadastral boundary (LGATE-002), Base map ESRI Topo, Townsites (LGATE-248).																																



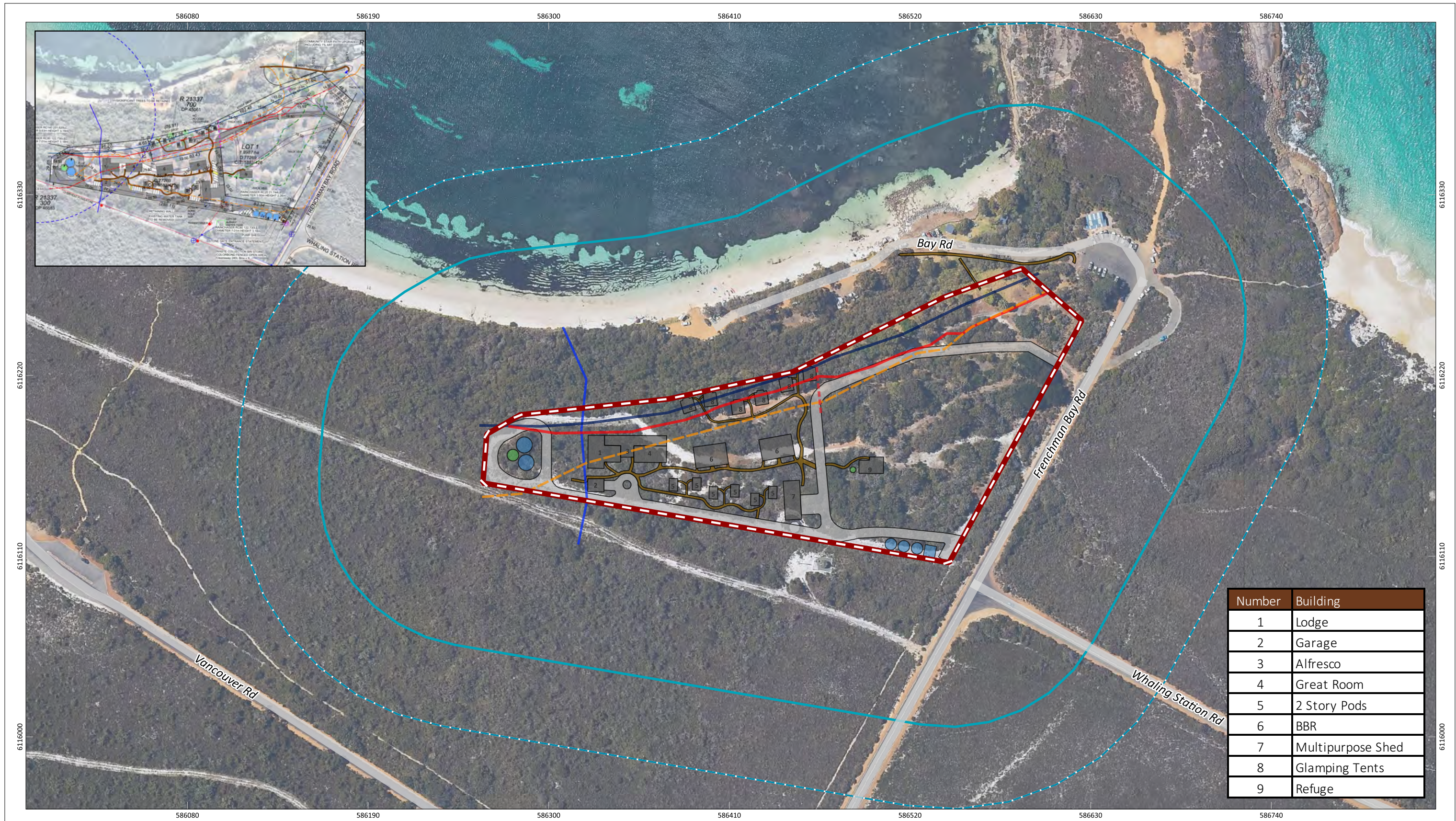


Figure 2: Site Plan

	PROJECT/REPORT NAME Bushfire Management Plan Frenchman Bay Resort		Legend 	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>MD</td> <td>DP</td> <td>30/11/2023</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	MD	DP	30/11/2023															
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Figure 3: Bushfire Prone Areas

 N		PROJECT/REPORT NAME Bushfire Management Plan Frenchman Bay Resort		Legend Subject Site Buffer 100m Buffer 150m Bush Fire Prone Areas 2021 (OBRM-019)	No	Description	Drawn	Approved	Date
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SCALE 1:2,481	SHEET SIZE A3 COLOUR	CLIENT Hub Property Group		NOTES: Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.					
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50		PROJECT NUMBER A23.093	VERSION 0						
DATA SOURCE LANDGATE AERIAL IMAGERY Summer 2023		DRAWN BY / REVIEWED BY MD/DP	DATE 30/11/2023						

2. Bushfire Assessment Results

2.1 Bushfire Assessment Inputs

A bushfire assessment has been undertaken for the proposed DA in accordance with the Guidelines. Inputs to this assessment are detailed below.

2.1.1 Fire Danger Index

A blanket Fire Danger Index (FDI) 80 is adopted for Western Australia, as outlined in *Australian Standard AS 3959: 2018 Construction of Buildings in Bushfire Prone Areas* (SA, 2018).

2.1.2 Vegetation Classification and Slope under Vegetation

Vegetation and effective slope (i.e. slope under vegetation) within the subject site and surrounding 150 m (the assessment area) remain unchanged from the assessment in BDS (2022). Validation of the BDS (2022) assessment was undertaken on 3/08/2023 in accordance with the Guidelines and AS 3959: 2018.

The classified vegetation and effective slope for the site from each of the identified vegetation plots are identified below in Table 1 and Figure 4, as well as in the existing BMP (BDS, 2022; Appendix A). Note: Vegetation within Plots 1, 8 and a portion of Plot 11 (only in areas south of the existing ramp to the beach) will be removed and maintained to a low threat state as per clause 2.2.3.2 (f) of AS 3959: 2018 to facilitate development. Photographs and descriptions for each Plot are provided in the existing BMP (BDS, 2022) which is included in Appendix A.

Table 1: Classified Vegetation as per AS 3959: 2018

Plot	Vegetation classification	Effective slope	Presence post-development
1	Class D Scrub	All upslopes and flat land (0 degrees)	Removed for development - not shown in Figure 4. Refer to Appendix A.
2	Class D Scrub	Downslope >0 to 5 degrees	Present.
3	Class D Scrub	All upslopes and flat land (0 degrees)	Present.
4	Class D Scrub	All upslopes and flat land (0 degrees)	Present.
5	Class D Scrub	Downslope >0 to 5 degrees	Present.
6	Class A Forest	Downslope >5 to 10 degrees	Present.
7	Class A Forest	Downslope >0 to 5 degrees	Present.
8	Class A Forest	All upslopes and flat land (0 degrees)	Removed for development - not shown in Figure 4. Refer to Appendix A.
9	Excluded - clause 2.2.3.2 (f)	-	Present.
10	Excluded - clause 2.2.3.2 (e)	-	Present.

Plot	Vegetation classification	Effective slope	Presence post-development
11	Class B Woodland	Downslope >0 to 5 degrees	Present north of the existing ramp to the beach. Modified to the south.
12	Class A Forest	All upslopes and flat land (0 degrees)	Present.



Figure 4: Vegetation Classification

	PROJECT/REPORT NAME Bushfire Management Plan Frenchman Bay Resort	Legend Subject Site Buffer 100m Buffer 150m Medium Scale Topo Contour Lines (Landgate - 015) Each 50m Each 10m	Class A - Forest Class B - Woodland Class D - Scrub Excluded AS 3959: 2018 2.2.3.2 (e) & (f) Vegetation to be removed and maintained as an Asset Protection Zone	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>MD</td> <td>DP</td> <td>30/11/2023</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>NOTES: Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.</p>	No	Description	Drawn	Approved	Date	A	Original issue	MD	DP	30/11/2023																				
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2.2 Bushfire Assessment Outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959: 2018 and the bushfire assessment inputs in Section 2.1.

2.2.1 BAL Assessment

All land located within 100 m of the classified vegetation depicted in Figure 4 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959: 2018.

A Method 1 BAL assessment (as outlined in AS 3959: 2018) has been completed for the proposed development and incorporates the following factors:

- Fire Danger Index (FDI) rating.
- Vegetation class.
- Slope under classified vegetation.
- Distance between proposed subdivision area and the classified vegetation.

Based on the identified BAL, construction requirements for relevant buildings/structures can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

2.2.2 Method 1 BAL Assessment

Table 2 and Figure 5 display the Method 1 BAL assessment that has been completed for the proposed development in accordance with AS 3959: 2018 methodology. BAL contours are depicted in Figure 5, however, as building locations within the subject site are known, exact separation distances and determined BAL ratings are provided in Table 2.

For the purposes of the BAL assessment, it has been assumed that:

- The entirety of the subject site will be maintained as either non-vegetated areas or low threat vegetation as per clause 2.2.3.2 (e) & (f) of AS 3959: 2018, or Asset Protection Zones.
- Vegetation within Plots 1, 8 and a portion of Plot 11 (only in areas south of the existing ramp to the beach) will be removed and maintained to a low threat state as per clause 2.2.3.2 (f) of AS 3959: 2018 to facilitate development.

Both of these assumptions were also included in the existing BMP (BDS, 2022).

Post-development, all proposed buildings, with the exception of the garage and multipurpose shed will be subject to BAL ratings of \leq BAL-29. The BAL-FZ ratings for these buildings however, are considered acceptable as discussed in section 2.3.

All six proposed glamping tents are subject to BAL-FZ, however these are considered to be a 'tolerable loss' and therefore their siting in an area of extreme bushfire risk is permitted.

Table 2: Method 1 BAL Calculation

Proposed Building/Asset	Plot Most Affecting BAL Rating	Separation Distance	BAL Rating
Lodge (includes alfresco and Great Room)	Plot 2, Class D Scrub	16.75 m	BAL-29
Garage	Plot 3, Class D Scrub	5.6 m	BAL-FZ
2-storey pod (1)	Plot 3, Class D Scrub	14.37 m	BAL-29
2-storey pod (2)	Plot 3, Class D Scrub	17.38 m	BAL-29
2-storey pod (3)	Plot 3, Class D Scrub	13.73 m	BAL-29
2-storey pod (4)	Plot 3, Class D Scrub	17.18 m	BAL-29
2-storey pod (5)	Plot 3, Class D Scrub	13.92 m	BAL-29
2-storey pod (6)	Plot 3, Class D Scrub	19.88 m	BAL-19
BBR (1)	Plot 7, Class A Forest	31.96 m	BAL-29
BBR (2)	Plot 7, Class A Forest	36.23 m	BAL-29
Shed	Plot 3, Class D Scrub	8.76 m	BAL-FZ
Glamping tent (1)	Plot 7, Class A Forest	1.54 m	BAL-FZ
Glamping tent (2)	Plot 7, Class A Forest	1.06 m	BAL-FZ
Glamping tent (3)	Plot 7, Class A Forest	9.25 m	BAL-FZ
Glamping tent (4)	Plot 7, Class A Forest	6.84 m	BAL-FZ
Glamping tent (5)	Plot 7, Class A Forest	1.79 m	BAL-FZ
Glamping tent (6)	Plot 7, Class A Forest	0.57 m	BAL-FZ
Refuge	Plot 3, Class D Scrub	44.34 m	BAL-12.5

2.3 Identification of Issues Arising from the BAL Assessment

Post-development, all buildings, with the exception of the garage and multipurpose shed will be subject to BAL ratings of \leq BAL-29. The BAL-FZ rating for the garage is considered acceptable given the building is a Class 10 structure, separated from the lodge by a distance >6 m. The BAL-FZ rating for the multipurpose shed is also considered acceptable as it is a non-habitable building.

All six proposed glamping tents are subject to BAL-FZ, however these are considered to be a 'tolerable loss' and therefore their siting in an area of extreme bushfire risk is permitted.

A reassessment of BAL ratings, through either a BMP addendum or revised BMP will be undertaken if changes to development design or classified vegetation within the assessment area which require a modified bushfire management response occur.

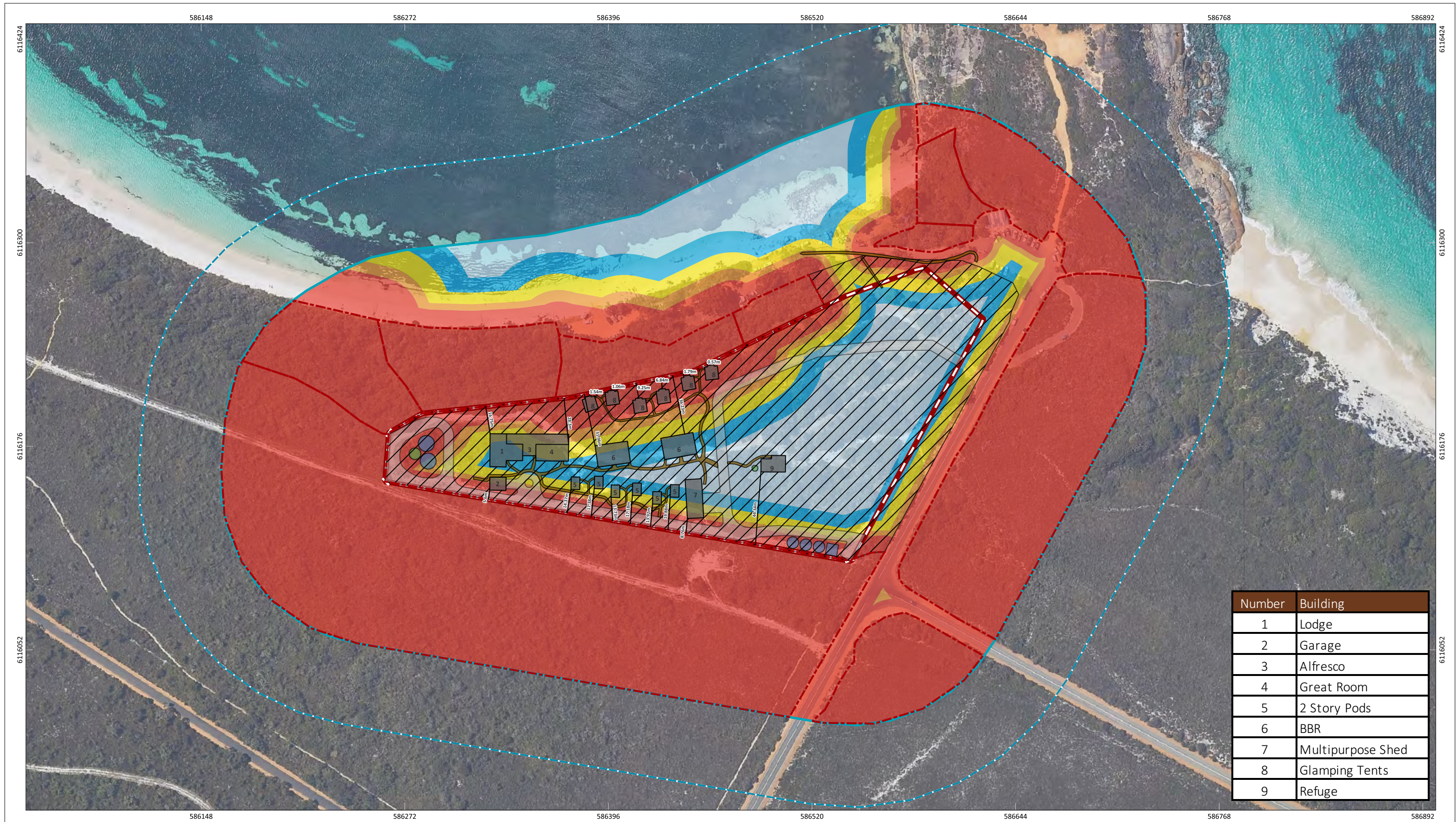


Figure 5: Bushfire Attack Level (BAL) contours

	PROJECT/REPORT NAME Bushfire Management Plan Frenchman Bay Resort		Legend 		
	CLIENT Hub Property Group	PROJECT NUMBER A23.093		VERSION 0	
SCALE 1:2,205	SHEET SIZE A3 COLOUR	DRAWN BY / REVIEWED BY MD/DP	DATE 30/11/2023		
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50				NOTES: Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.	

3. Assessment Against the Bushfire Protection Criteria

3.1 Compliance

The proposed DA is required to comply with policy measures 6.2, 6.5 and 6.6 of SPP 3.7 and the Guidelines.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection Criteria has been achieved through the application of bushfire risk management measures. These management measures are depicted in Figure 6 where relevant.

The proposed land use is considered a vulnerable tourism land use and consequently, has been assessed against Element 5 in the Guidelines, specifically the provisions related to *Other short-term accommodation - including motel, serviced apartments, tourist development (includes cabins and chalets), holiday accommodation and caravan park (which incorporates caravan parks)*. The proposed development complies with all of the Acceptable Solutions in this section of the Guidelines.

The existing BMP (BDS, 2022) proposed a performance solution for the previous development due to legacy issues associated with the existing road network making access to two different suitable destinations impossible. This performance solution is not required for the new proposed development assessed in this BMP as the maximum capacity of the development is <100 people (including staff). Whilst the performance solution is not relevant for this development, it may be utilised if development capacity is to be increased to ≥100 people in the future. Any such proposal would be supported by a DA and revised BMP which details this performance-based approach.

Implementation of this BMP is expected to meet objectives 5.1-5.4 of SPP 3.7.

Table 3: Assessment Against the Bushfire Protection Criteria (Element 5 - Vulnerable Tourism Land Use)

Bushfire Protection Criteria (Other short-term accommodation)	AS	PS	N/A
A5.7 Siting and Design			
<u>A5.7a (Asset Protection Zones - caravan parks)</u>	✓	☐	☐
Post-development, all buildings, with the exception of the garage and multipurpose shed will be subject to BAL ratings of ≤BAL-29 (Figure 5, Figure 6). The BAL-FZ ratings for the garage and multipurpose shed however, are considered acceptable as discussed in section 2.3.			
All proposed buildings are separated from bushfire hazards by an Asset Protection Zone (APZ) sufficient for the potential radiant heat flux to not exceed 29kW/m ² (40kW/m ² in the case of the garage) and will be managed in accordance with the requirements of 'Standards for Asset Protection Zones' (WAPC 2021; Appendix B).			
The proposed DA is considered to be compliant with A5.7a.			
<u>A5.7b (Tolerable loss assets)</u>	✓	☐	☐
All six proposed glamping tents are subject to BAL-FZ, however these are considered to be a 'tolerable loss' and therefore, their siting in an area of extreme bushfire risk is permitted.			
The proposed DA is considered to be compliant with A5.7b.			

Bushfire Protection Criteria (Other short-term accommodation)	AS	PS	N/A
<u>A5.7c (Asset Protection Zones - other short-term accommodation)</u>	✓	<input type="checkbox"/>	<input type="checkbox"/>

Post-development, all buildings, with the exception of the garage and multipurpose shed will be subject to BAL ratings of ≤BAL-29 (Figure 5, Figure 6). The BAL-FZ ratings for the garage and multipurpose shed however, are considered acceptable as discussed in section 2.3.

All proposed buildings are separated from bushfire hazards by an APZ sufficient for the potential radiant heat flux to not exceed 29kW/m² (40kW/m² in the case of the garage) and will be managed in accordance with the requirements of ‘Standards for Asset Protection Zones’ (WAPC, 2021; Appendix B).

Figure 6 depicts the APZ for the subject site. The entire site (excluding buildings) has been designated as an APZ to ensure that the BAL ratings in this BMP are not compromised. Aurora Environmental has recommended the retention of certain trees within the subject site which may provide habitat for fauna. WEPL has considered this retention in the context of the prescribed APZ and are comfortable that the proposed retention is possible as the total canopy cover of trees within the APZ will be <15% and will not be connected to the canopies of trees outside of the APZ.

The proposed DA is considered to be compliant with A5.7c.

<u>A5.7d (Landscaping)</u>	✓	<input type="checkbox"/>	<input type="checkbox"/>
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A landscape management plan will be prepared to identify on-going onsite vegetation management. This plan will show all areas of the subject site being modified to either: non-vegetated areas or low threat vegetation as per clause 2.2.3.2 (e) & (f) of AS 3959: 2018; or Asset Protection Zones in accordance with ‘Standards for Asset Protection Zones’ (WAPC, 2021).

The proposed DA is considered to be compliant with A5.7d.

<u>A5.7e - A 5.7g (On-site shelter)</u>	✓	<input type="checkbox"/>	<input type="checkbox"/>
---	---	--------------------------	--------------------------

An on-site shelter is proposed as detailed in A5.8.2e below.

A5.7e - Pedestrian paths to the proposed on-site shelter will be clearly signposted.

A5.7f - The proposed on-site shelter is in an area subject to a radiant heat flux <10kW/m² as detailed in section 3.2.

A5.7g - The proposed on-site shelter will be designed and constructed in accordance with the National Construction Code and the *Australian Building Codes Board Information Handbook: Design and Construction of Community Bushfire Refuges* (ABCB, 2014).

The proposed DA is considered to be compliant with A5.7e, A5.8f and A5.7g.

A5.8.1 Vehicular access for all proposals <u>A5.8.1a (Two access points)</u>	✓	<input type="checkbox"/>	<input type="checkbox"/>
--	---	--------------------------	--------------------------

The proposed internal road layout includes two access points onto Frenchman Bay Road (Figure 6).

The proposed DA is considered to be compliant with A5.8.1a.

<u>A5.8.1b (Internal access)</u>	✓	<input type="checkbox"/>	<input type="checkbox"/>
----------------------------------	---	--------------------------	--------------------------

The internal access network meets the requirements in the Guidelines as depicted in Figure 6.

Internal access roads will comply with the requirements for Private Driveways in the Guidelines (reproduced in **Appendix C**).

The proposed DA is considered to be compliant with A5.8.1b.

A5.8.2 Vehicular access for short-term accommodation outside of a residential built-out area <u>A5.8.2a - A5.8.2c (Access to two different suitable destinations)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------

Not compliant. Provision of two access routes to two different destinations is not possible given legacy issues associated with the existing road network as detailed in the existing BMP (BDS, 2022). However, compliance with A5.8.2e is possible (detailed below) which provides an alternate means of complying with A5.8.2.

Bushfire Protection Criteria (Other short-term accommodation)	AS	PS	N/A
<u>A5.8.2d (Public Roads)</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Not applicable. No public roads proposed as part of the proposed development.

<u>A5.8.2e (On-site shelter)</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
----------------------------------	-------------------------------------	--------------------------	--------------------------

The proposed development will have a maximum capacity of 100 people (including staff).

An on-site shelter has been included within the proposed development to serve as a refuge of last resort in the event that a bushfire emergency occurs and access to an off-site safer location is not possible. This shelter complies with A5.7e, A5.7f and A5.7g as detailed in section 3.2.

A5.9 Provision of water <u>A5.9b (Water tanks)</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	-------------------------------------	--------------------------	--------------------------

The subject site is located within a non-reticulated area and as such, dedicated firefighting water tanks will be provided which exceed the minimum requirements of Element 4, Schedule 2 in the Guidelines. Firefighting water supply for the proposed development is detailed in Section 0 below.

The proposed DA is considered to be compliant with A5.9b.

Note: AS - Acceptable solution, PS - Performance solution, N/A - Not applicable.

3.2 On-site shelter

An on-site shelter (refuge building) has been included within the proposed development to serve as a refuge of last resort in the event that a bushfire emergency occurs and access to an off-site safer location is not possible. This shelter complies with Acceptable Solutions A5.7e, A5.7f, A5.7g and A5.8.2e as detailed below.

Pedestrian paths to the proposed on-site shelter will be clearly signposted.

The proposed refuge building is in an area subject to a radiant heat flux $<10\text{kW/m}^2$. Section 5.2.6 in the existing BMP (BDS, 2022) included a Method 2 BAL assessment to ensure the on-site refuge in the previous development was located in an area within the $<10\text{kW/m}^2$ threshold. Vegetation classifications and effective slope from this previous assessment have been utilised within this BMP to calculate the 10kW/m^2 threshold. Results from this assessment are included in Table 4 and detailed calculations are provided in Appendix D.

Assumptions made for this assessment are:

- The entirety of the subject site will be maintained as either non-vegetated areas or low threat vegetation as per clause 2.2.3.2 (e) & (f) of AS 3959: 2018, or Asset Protection Zones.
- Vegetation within Plots 1, 8 and a portion of Plot 11 (only in areas south of the existing ramp to the beach) will be removed and maintained to a low threat state as per clause 2.2.3.2 (f) of AS 3959: 2018 to facilitate development.
- FDI: 80.
- Flame temperature: 1200K.

The proposed refuge building will be designed and constructed in accordance with the *National Construction Code and the Australian Building Codes Board Information Handbook: Design and Construction of Community Bushfire Refuges* (ABCB, 2014).

Table 4: Method 2 BAL Calculation - Refuge building

Plot	Vegetation classification	Effective slope	Site slope	Separation distance	Radiant heat flux
1	Class D Scrub	N/A - Will be maintained to a low threat state as per clause 2.2.3.2 (f) of AS 3959: 2018.			
2	Class D Scrub	0.4° downslope	1.2° downslope	69.54 m	5.01 kW/m ²
3	Class D Scrub	Flat	Flat	44.34 m	9.85 kW/m ²
4	Class D Scrub	Flat	Flat	107.11 m	2.31 kW/m ²
5	Class D Scrub	4° downslope	Flat	87.78 m	3.77 kW/m ²
6	Class A Forest	8° downslope	Flat	208.82 m	1.69 kW/m ²
7	Class A Forest	1° downslope	1.2° downslope	67.23 m	9.50 kW/m ²
8	Class A Forest	N/A - Will be maintained to a low threat state as per clause 2.2.3.2 (f) of AS 3959: 2018.			
9	Excluded - clause 2.2.3.2 (f)	N/A			
10	Excluded - clause 2.2.3.2 (e)	N/A			
11	Class B Woodland	4° downslope	Flat	138.15 m	1.88 kW/m ²
12	Class A Forest	15° upslope*	4.5° downslope	163.33 m	0.85 kW/m ²

*See note in Appendix D for notes on this slope.

3.3 Firefighting Water Tanks

As the subject site is within a non-reticulated area, a dedicated firefighting water supply will need to be provided. Typically, a ratio of one 10,000 L tank per habitable building should be provided. The proposed development contains 10 habitable buildings (the lodge, six 2-storey pods, two BBRs, and the refuge/café), therefore firefighting water tanks with a total capacity of 100,000 L are required.

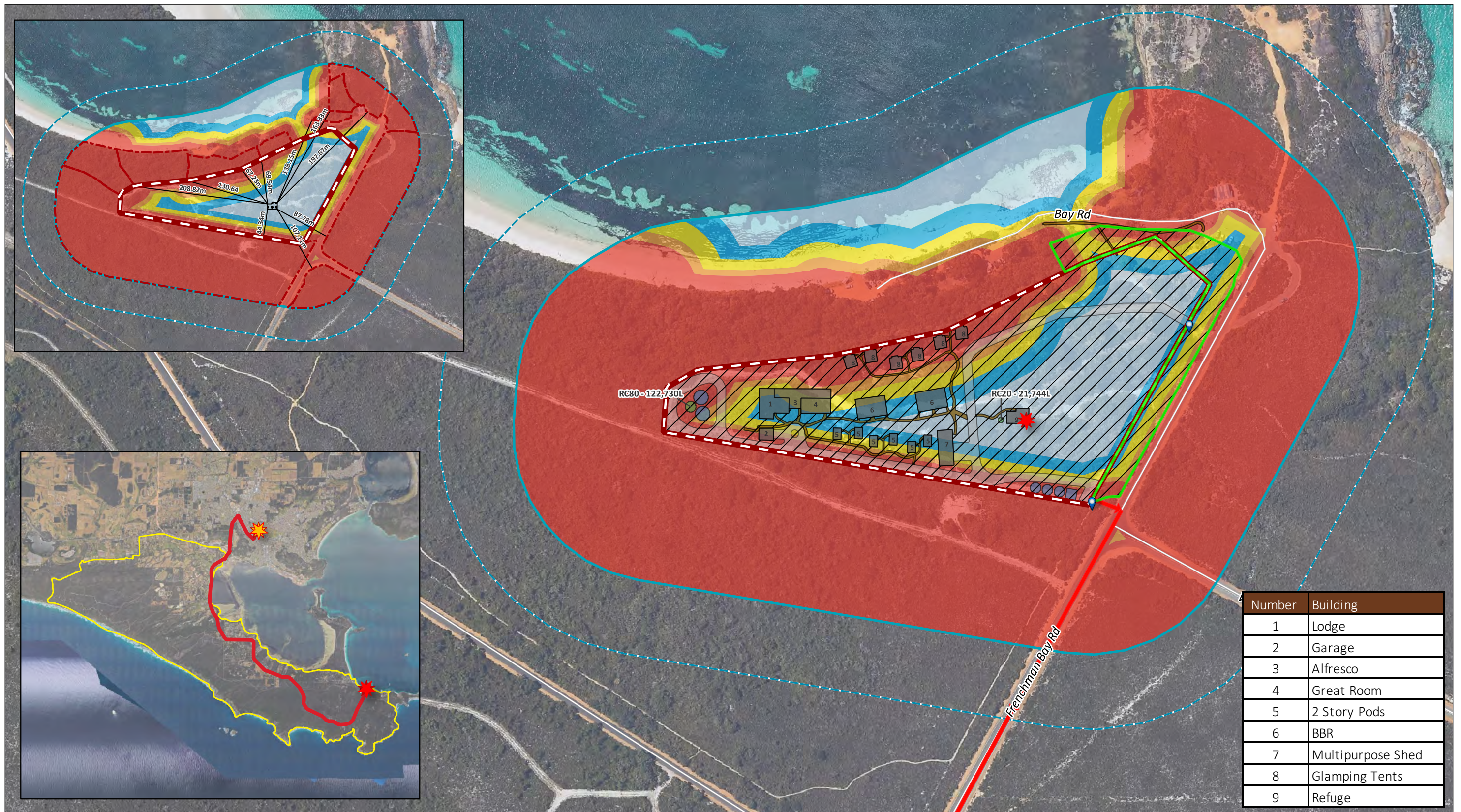
Two 50,000 L firefighting water tanks will be provided to the west of the proposed lodge, and in addition a 10,000 L firefighting water tank will be provided adjacent to the refuge as depicted in Figure 6.

Each tank will be:

- Constructed of metal or concrete.
- Fitted with 50 mm male camlock coupling with full flow valve.
- Located no further than 4 m from a hardstand turn around area with a 17.5 m kerb to kerb radius.

3.4 Bushfire Emergency Evacuation Plan

A BEEP has been prepared for the proposed development in accordance with Policy Measure 6.6 of SPP 3.7 and 'A Guide to developing a Bushfire Emergency Evacuation Plan' (WAPC, 2019). This BEEP (WEPL, 2023) details evacuation procedures in the event of a bushfire.



Number	Building
1	Lodge
2	Garage
3	Alfresco
4	Great Room
5	2 Story Pods
6	BBR
7	Multipurpose Shed
8	Glamping Tents
9	Refuge

Figure 6: Spatial representation of the bushfire management strategies

 SCALE 1:2,481	SHEET SIZE A3 COLOUR	PROJECT/REPORT NAME Bushfire Management Plan Frenchman Bay Resort		Legend Subject Site Buffer 100m Buffer 150m Shelter Trigger Zone Bushfire Attack Level (BAL) BAL-FZ BAL-40	BAL-29 BAL-19 BAL-12.5 BAL-LOW Access / egress route Seperation Distance Access point Verge landscaping - APZ standards Fire Water Tanks	Walk Paths Water Tanks Roads Buildings Asset Protection Zones / low threat vegetation	On-site assembly area - Refug building Off-site evacuation destination - Albany Leisure and Aquatic Centre																														
		CLIENT Hub Property Group	PROJECT NUMBER A23.093					VERSION 0	DATE 30/11/2023																												
COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50		DRAWN BY / REVIEWED BY MD/DP		<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>MD</td> <td>DP</td> <td>30/11/2023</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				No	Description	Drawn	Approved	Date	A	Original issue	MD	DP	30/11/2023																				
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A	Original issue	MD	DP	30/11/2023																																	
DATA SOURCE LANDGATE AERIAL IMAGERY Summer 2023		NOTES: Cadastral boundary from LANDGATE 2022. Label corresponds to the vegetation association number.		 WESTERN ENVIRONMENTAL Western Environmental Pty Ltd 08 6244 2310 enquiries@western.com.au Level 3/25 Prowse St, West Perth WA 6005 western.com.au																																	

4. Responsibilities for Implementation and Management of Bushfire Management Measures

Responsibility for implementation of the bushfire risk management measures outlined in Section 3 of this BMP applies to the developer, future owners/builders within the subject site and the local government. Table 5 provides a works program detailing these measures, timing of implementation and responsibility.

Table 5: Proposed Works Program

No.	Bushfire management measure
Developer responsibilities - Prior to occupancy	
1	Ensure that Asset Protection Zones (APZs) are established and maintained as per the design in Figure 6.
2	Place Section 165 Notification on Title for all lots within Bushfire Prone Areas.
3	Construct internal road network as per plan in Figure 6.
4	Provide firefighting water tanks in accordance with Figure 6 and ensure these are full.
5	Prepare landscape management plan for the proposed development, showing all areas of the subject site being modified to either: non-vegetated areas or low threat vegetation as per clause 2.2.3.2 (e) & (f) of AS 3959: 2018; or Asset Protection Zones in accordance with 'Standards for Asset Protection Zones' (WAPC, 2021).
6	Construct all relevant buildings to their determined Bushfire Attack Level (BAL) rating, with the exception of the proposed refuge which is to be constructed in accordance with the <i>National Construction Code</i> and the <i>Australian Building Codes Board Information Handbook: Design and Construction of Community Bushfire Refuges</i> (ABCB, 2014).
7	Implement and update Bushfire Emergency Evacuation Plan (BEEP) prior to occupancy of development (if required).
Facility operator responsibilities - Ongoing	
8	Maintain vehicular access routes within the lot to the required surface condition and clearances.
9	Maintain APZs to the standard in the Guidelines.
10	Maintain the firefighting water tanks, associated fittings and vehicular access in good working condition.

5. Conclusion

In the professional opinion of the author, the proposed DA satisfies the intent, aim and objectives of SPP 3.7 and the Guidelines and is recommended for approval.

6. References

Australian Building Codes Board (ABCB). (2014). *Design and Construction of Community bushfire Refuges*. Australian Government and States and Territories of Australia.

Bio Diverse Solutions (BDS). (2022). *BAL Contour Plan and Bushfire Management Plan: Lot 1 and 2 Frenchman Bay Road, Frenchman Bay*. Final v5. November 2022.

Department of Fire and Emergency Services (DFES). (2021). *Map of Bush Fire Prone Areas*. Retrieved on 30 July 2023 from:
<http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>.

Standards Australia (SA). (2018). *Construction of buildings in bushfire-prone areas (AS 3959: 2018)*.

Western Australian Planning Commission (WAPC). (2015). *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. Government of Western Australia.

Western Australian Planning Commission (WAPC). (2021). *Guidelines for Planning in Bushfire Prone Areas Version 1.4 (including appendices)*. Government of Western Australia.

Western Australian Planning Commission (WAPC). (2019). *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*. Government of Western Australia.

Western Environmental (WEPL). (2023). *Bushfire Emergency Evacuation Plan: Development Application: 1823 Frenchman Bay Road, Frenchman Bay*. Final v1. December 2023.

Appendix A: Existing BMP (BDS, 2022)

Bushfire Management Plan Coversheet

This Coversheet and accompanying Bushfire Management Plan has been prepared and issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme.

Bushfire Management Plan and Site Details

Site Address / Plan Reference: Lot 1 & 2 Frenchman Bay Road

Suburb: Frenchman Bay

State: WA

P/code: 6330

Local government area: City of Albany

Description of the planning proposal: To support Local Development Plan (LDP)

BMP Plan / Reference Number: MSC0403-002

Version: 5.0

Date of Issue: 17/11/2022

Client / Business Name: Frenchman Bay Albany Pty Ltd.

Reason for referral to DFES	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is the proposal any of the following special development types (see SPP 3.7 for definitions)?		
Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input checked="" type="checkbox"/>	<input type="checkbox"/>

If the development is a special development type as listed above, explain why the proposal is considered to be one of the above listed classifications (E.g. considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

Performance based assessment for access and Element A 5.8.2 of WAPC guidelines (WAPC, 2021)

Note: The decision maker (e.g. local government or the WAPC) should only refer the proposal to DFES for comment if one (or more) of the above answers are ticked "Yes".

BPAD Accredited Practitioner Details and Declaration

Name Kathryn Kinnear	Accreditation Level Level 2, level 3 pending	Accreditation No. BPAD30794	Accreditation Expiry 28/02/2023
Company Bio Diverse Solutions		Contact No. 9842 1575	

I declare that the information provided within this bushfire management plan is to the best of my knowledge true and correct

Signature of Practitioner

Kathryn Kinnear

Date 17/11/2022

BAL CONTOUR PLAN & BUSHFIRE MANAGEMENT PLAN



Lot 1 and 2 Frenchman Bay Road

Frenchman Bay, WA 6330

Final V 5

17/11/2022



Site Details					
Address:	Lot 1 & 2 Frenchman Bay Road				
Suburb:	Frenchman Bay	State:	W.A.	Postcode	6330
Local Government Area:	City of Albany				
Description of Building Works:	Proposed tourism development				
Stage of WAPC Planning	Local Development Plan				

BAL Contour Plan Details			
Report / Job Number:	MSC0403-002	Report Version:	Final v5
Assessment Date:	11/2/2020, 2021 and 7/11/2022	Report Date:	17 November 2022
BPAD Practitioner	Kathryn Kinnear (Level 2)	Accreditation No.	BPAD 30794



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Appendix D: ELA Bushfire Emergency Evacuation Plan (2018)

1. Introduction

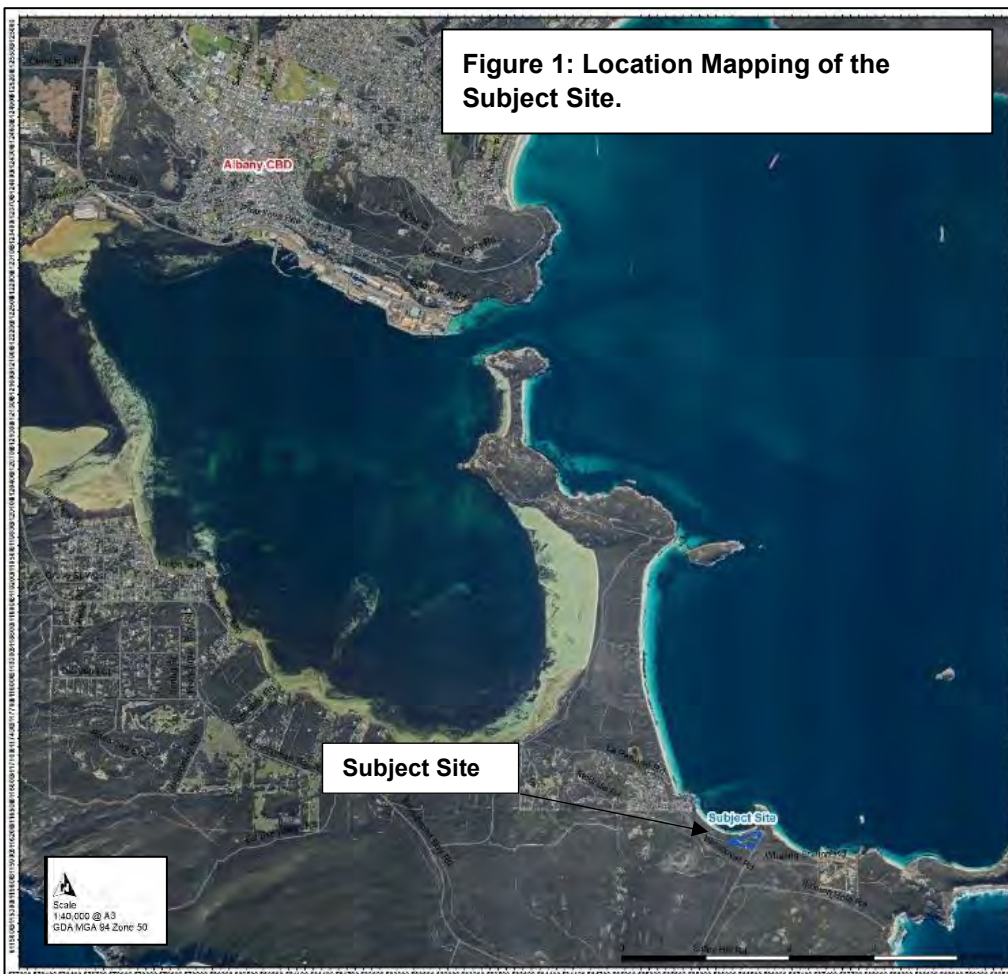
Bio Diverse Solutions (Bushfire Consultants) were commissioned to prepare an overarching Bushfire Management Plan (BMP) to guide future staged development of a Local Development Plan (LDP). The LDP is to the City of Albany for the construction of a variety of holiday accommodation styles at Lots 1 and 2 Frenchman Bay Road, Frenchman Bay (the Subject Site), within the City of Albany (CoA).

The Bushfire Management Plan (BMP) has been developed to assess the proposal to ensure it is consistent with the current and endorsed ‘Guidelines for Planning in Bushfire Prone Areas Version 1.4’ (WAPC, 2021), ‘State Planning Policy 3.7’ (WAPC, 2015). A previous BMP was prepared and approved through the CoA Development Approval process in 2018. In 2022 an updated version of the BMP report was produced to support a draft Local Development Plan (LDP). This version of the report (Version 0) updates the LDP plan and the current version of the WAPC guidelines (Vers 1.4, WAPC, 2021). Components of the previous approved BMP (2018) have been re-used in this plan to demonstrate the compliance to the performance-based assessment of the tourism / vulnerable land use components of the LDP.

This BMP has been developed as an **overarching BMP** to guide the planning of the LDP and subsequent staged development of the site and will be revised as required with updated information as available. Specifically, the implementation table (Section 6) of this document has outlined where and when updated information is required by the proponent to demonstrate compliance to this BMP report.

1.1 Location

The Subject Site is defined as Lot 1 and 2 Frenchman Bay Road, Frenchman Bay, within the municipality of the City of Albany (CoA). It is located approximately 21km southeast of the Albany CBD. The site is bound by Frenchman Bay Road to the east, Frenchman Bay beach to the north and CoA reserve to the south and west. The location of the Subject Site is shown on Figure 1.



1.2 Development Proposal

In September 2015, the CoA approved a Local Development Plan (LDP) for Lots 1 and 2 Frenchman Bay Road, which are designated as Special Use Site No. 13 under the provisions of the City of Albany’s Local Planning Scheme No. 1. The Special Use site provides for the development of Holiday Accommodation, Caravan Park, Caretaker’s Dwelling, and a shop, and is identified as an important Local Strategic Tourist site in Council’s Local Tourism Planning Strategy. Following approval of the LDP, a Development Application was lodged with the Southern Joint Development Assessment Panel in December 2017 and approved in June 2018. The developer subsequently resolved not to proceed with the development and the property has since been acquired by Frenchman Bay Albany Pty Ltd.

Frenchman Bay Albany Pty Ltd propose an alternative development to what was previously proposed. They propose separating the site into three components consisting of:

- Caretakers’ shed and accommodation;
- A luxury holiday lodge with 10-12 bedrooms;
- Up to 25 single bedroom holiday chalets, day spa and manager’s accommodation; and
- A kiosk/cafe and reception office.

The proposed LDP is shown in Figure 2.

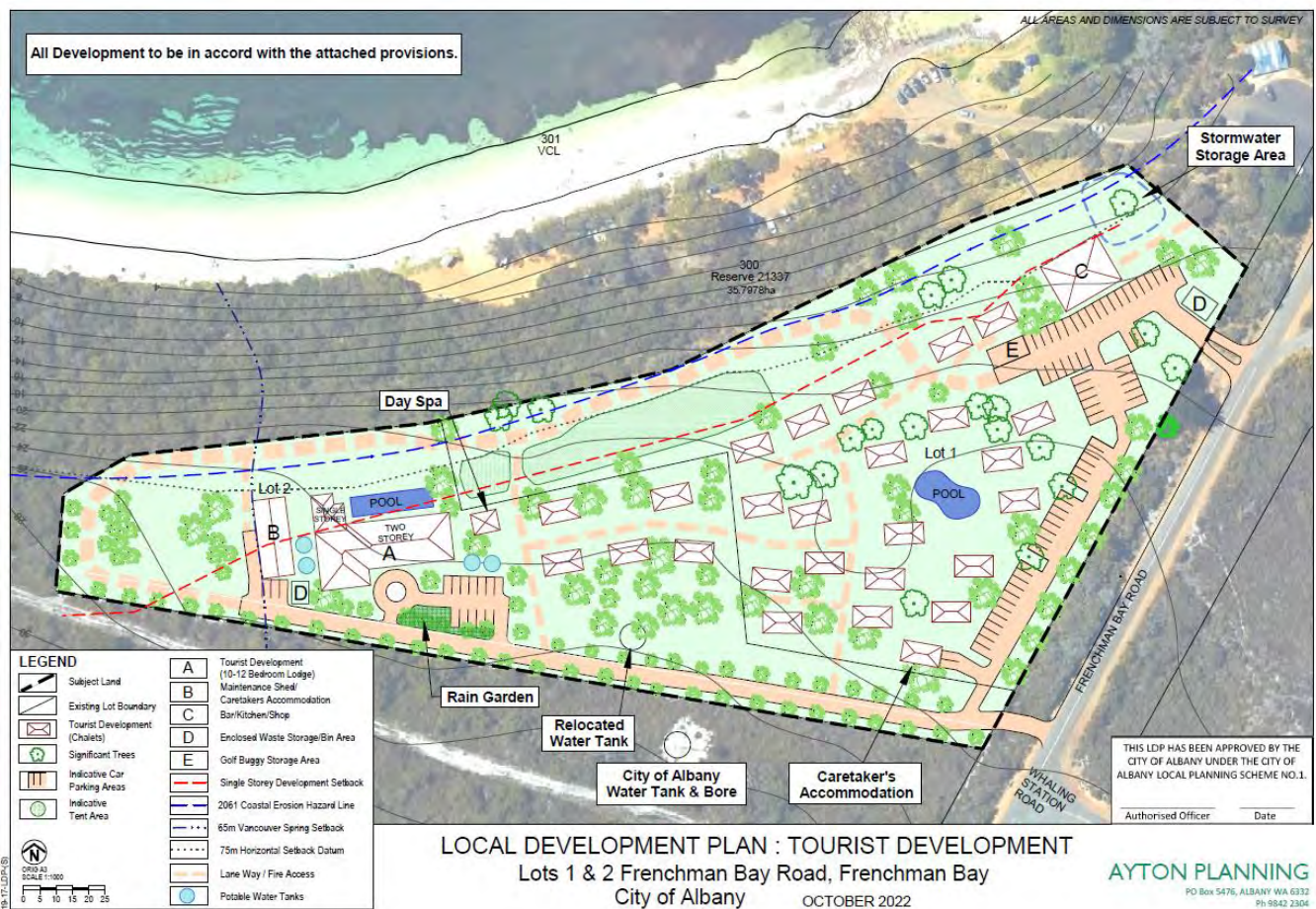


Figure 2: Local Development Plan.

The LDP is proposed to be developed in stages comprising of:

Stage 1: Caretakers / Manager’s accommodation (occupancy approx. 2 people);

Stage 2: A luxury holiday lodge with 10-12 bedrooms, Swimming pool and tennis court and maintenance shed; and

Stage 3: Balance of development, subject to further due diligence and design which includes up to 25 single bedroom holiday chalets, day spa and manager’s accommodation. A kiosk/cafe and reception office.

It is noted that each stage will still require planning approval from the City of Albany. The caretakers shed / managers accommodation is the first DA which will be applied for. This BMP is to guide the LDP and subsequent development stages of the site.

The Subject Site is zoned as Special Residential under the City of Albany Local Planning Scheme (No. 1). The publicly released Bushfire Prone Area Mapping (OBRM, 2021) shows that the Subject Site is located within a Bushfire Prone Area (within 100m of >1ha of bushfire prone vegetation) and as such is subject to a planning assessment of the bushfire risks. Bushfire Prone Area Mapping (OBRM, 2019) is shown in Figure 3.



Figure 3: Map of Bushfire Prone Areas and relevance to Subject Site (OBRM, 2021).

1.3 Statutory Framework

This document and the recommendations contained within are aligned to the following policy and guidelines:

- *Planning and Development Act 2005;*
- *Planning and Development (Local Planning Scheme) Regulations 2015;*
- State Planning Policy (SPP) 3.7 Planning in Bushfire Prone Areas 2015 (WAPC, 2015);
- Guidelines for Planning in Bushfire Prone Areas (WAPC, 2021, vers 1.4);

- *Building Act 2011;*
- *Building Regulations 2012;*
- Building code of Australia (National Construction Code) (NCC, n.d.);
- *Fire and Emergency Services Act 1998;*
- AS3959-2018 “Construction of Buildings in Bushfire Prone Areas” current and endorsed standards;
- *Bushfires Act 1954;* and
- City of Albany Fire Management Notice (CoA, 2022/23).

2 Environmental Considerations/

2.1 Native Vegetation – Modification and Clearing

The Subject Site lies within the WAR – Warren Region Interim Bio-geographic Regional Area (IBRA). Hearn *et al.* (2002) describes the Warren IBRA region as; ‘Dissected undulating country of the Leeuwin Complex, Southern Perth Basin (Blackwood Plateau), South-West intrusions of the Yilgarn Craton and western parts of the Albany Orogen with loamy soils supporting Karri forest, laterites supporting Jarrah-Marri forest, leached sandy soils in depressions and plains supporting low Jarrah woodlands and paperbark/sedge swamps, and Holocene marine dunes with *Agonis flexuosa* and Banksia woodlands and heaths.’ The vegetation has been mapped on a broad scale by J.S. Beard (Shepherd et al 2002) in the 1970’s, where a system was devised for state-wide mapping and vegetation classification based on geographic, geological, soil, climate structure, life form and vegetation characteristics (Sandiford and Barrett 2010). A GIS search of J.S. Beards (DPIRD, 2017) vegetation classification places the Subject Site within one System and Vegetation Association (DPIRD_006, 2017):

- **System Association Name:** Torndirrup.
- **Vegetation Association Number:** 423.
- **Vegetation Description:** Shrublands; Acacia scrub-heath (unknown spp.).

To the north, south and west of the Subject Site is City of Albany Reserve 7374. The Subject Site is located 212m away from an Environmentally Sensitive Area (ESA) being; Torndirrup National Park. A general habitat and vegetation survey was conducted over the Subject Site and adjoining foreshore area on the 28th of April 2017 in association with the Habitat and Tree Retention Survey (Bio Diverse Solutions, 2017). The Western Ringtail Possum was found to inhabit the site during the original survey. Records from the current caretakers indicate they may still be present.

A total of 51 species were recorded from the flora survey area (2018), of which 37 or 72.5% were native (14 weed species recorded). The survey found the area is predominately covered by peppermint woodland, with variations in species composition across the site. There was also found to be coastal heath present along the northern, western and southern boundaries of the Subject Site and open grassland within the eastern extent of the foreshore reserve, extending into the north-east extent of the Subject Site, and a small area along the southern boundary. The open grassland area remains largely cleared from the previous Caravan Park facility. Refer to Section 5.2 of this report for further information on future low fuel management and standards. Vegetation within the site will be managed in a low threat state as per the WAPC Asset Protection Zone (APZ) Schedule 1 Standards (refer to Appendix B).

This low fuel zone will be managed in perpetuity as per a maintenance regime over the site with additional requirements as outlined in Section 6 of this report. External low fuel areas are noted on this BMP, as per the previously approved BMP (2018) which was agreed to by the CoA reserves team when the original development was approved. The external low fuel zone is only required if there is a need for an onsite refuge for bushfire. Any clearing of vegetation may be subject to a Section 40 approval from DBCA as per the WA *Biodiversity Conservation Act* requires due to the presence of the Western Ring Tail Possum. Minimisation and avoidance will be exercised with trees remaining as marked on the LDP. The WRP was located near and around the Stage 3 development, which by nature will have trees remaining as much a possible while reaching a low fuel status, like the previous DA approvals in 2018.

A further flora survey has been undertaken of the site and adjacent road reserves for *Caladenia harringtoniae* and was not found in 2022. A copy of the targeted flora survey will be forwarded to the CoA as part of the approvals process.

Any native vegetation clearing outside of the Subject Site may also be subject to a DWER clearing permit (Area Permit), native vegetation clearing processes under Part V of the Environmental Protection Act 1986 (WA) (*EP Act*).

2.2 Review of the Environmental Data Sets (Landgate SLIP)

A review of the environmental data sets (Landgate SLIP) as identified in the Department of Planning Lands and Heritage BMP Template for a complex development application, does not identify that any regulated (restricted) vegetation will be affected by the proposal, see Table 1 Environment Dataset Review.

Table 1: Environmental Dataset Review.

CCW	Impact on Proposal	Comment
CCW and Buffers	No	
RAMSAR Wetlands	No	
Threatened and Priority Fauna	Yes	A Section 40 and fauna management plan will be required in Stage 2 development and prior to any vegetation modification. Avoidance of habitat.
Threatened and Priority Flora	No	A targeted flora survey has been undertaken of the site and adjacent road reserves for <i>Caladenia harringtoniae</i> and was not found in 2022.
Threatened Ecological Communities	No	
Bush Forever Areas 2000	No	
Clearing Regulations –ESA	No	
Swan Bioplan Regionally Significant Natural Areas 2010	N/A	
Conservation Covenants WA	No	

2.3 Revegetation or Landscaping

Revegetation is not proposed for this development, a Landscaping Masterplan is recommended to be prepared to support the BMP to guide the LDP staged development. This should be prepared prior to any site works and DA submission in Stage 2 and 3 of the development.

3 Bushfire Assessment Results

The bushfire assessment for this site has followed the Bushfire Attack Level (BAL) Assessment and WAPC Planning in Bushfire Prone Areas Guidelines (Vers 1.4, 2021).

3.1 Assessment Inputs

Bushfire Assessment inputs for the site has been calculated using the Method 1 BAL Assessment procedure as outlined in AS3959-2018. This incorporates the following factors:

- WA adopted Fire Danger Index (FDI), being FDI 80;
- Vegetation Classes;
- Effective Slope under classified vegetation; and
- Distance between proposed development site and classified vegetation.

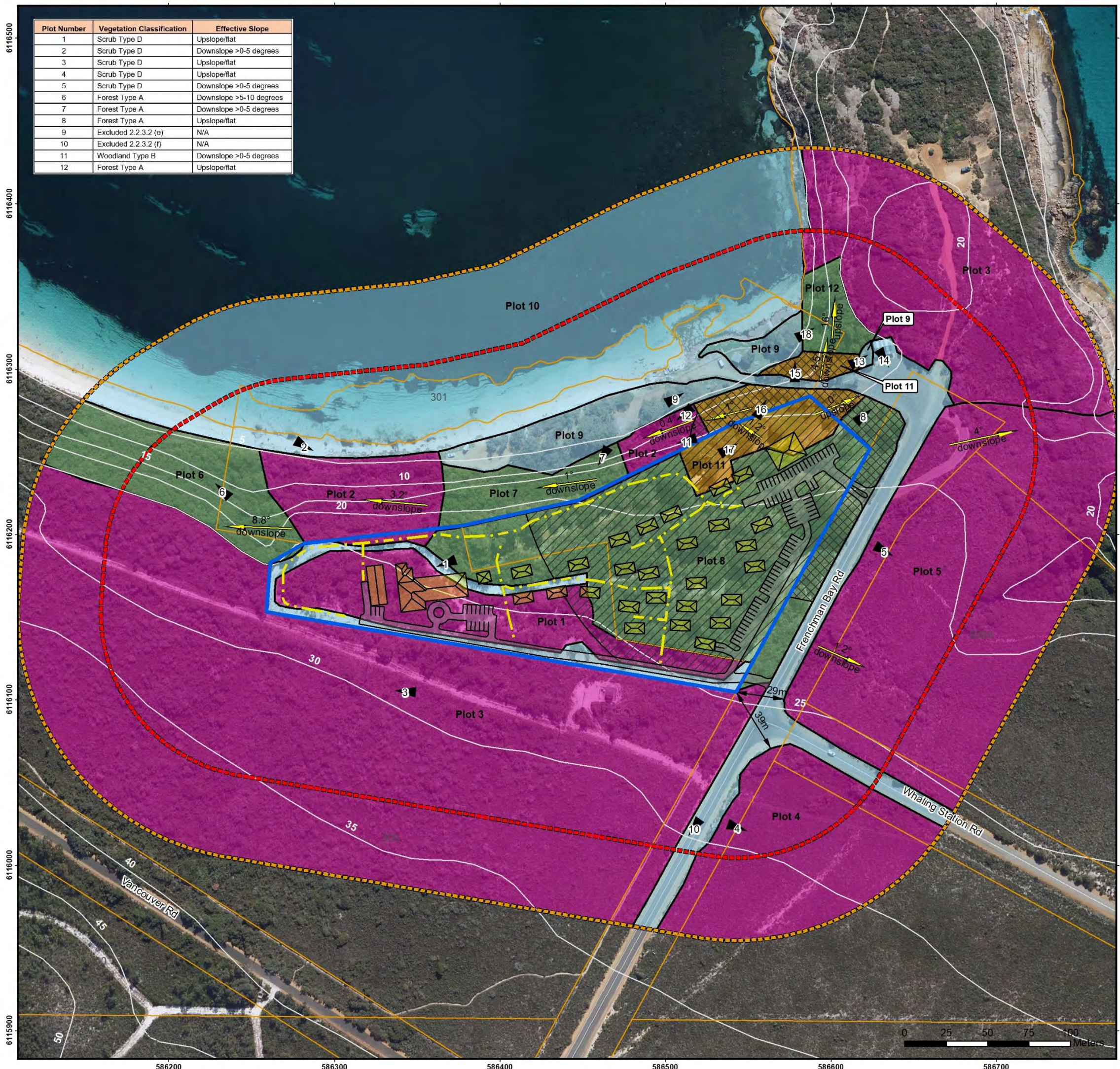
3.1.1 Vegetation Classification

Site assessment occurred on the 11th February 2020, reviewed in 2021 and on the 7th November 2022 by Kathryn Kinnear (BPAD 30794L2). All vegetation within 150m of the site / 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 in the following pages and shown on the Vegetation Classes Maps.

A summary of the plot data assessed as per Clause 2.2.3 of AS 3959-2018 is provided below in Table 2 below, detailed plot data is provided in Appendix A.

Table 2: Vegetation Classification Table (in accordance with AS 3959-2018) of the Subject Site.

Plot number	Vegetation Type (Table 2.3)	Slope (Table 2.4.3)
1	Scrub Type D	Upslope/flat
2	Scrub Type D	Downslope >0-5 degrees
3	Scrub Type D	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Scrub Type D	Downslope >0-5 degrees
6	Forest Type A	Downslope >5-10 degrees
7	Forest Type A	Downslope >0-5 degrees
8	Forest Type A	Upslope/flat
9	Excluded 2.2.3.2 (f)	N/A
10	Excluded 2.2.3.2 (e)	N/A
11	Woodland Type B	Downslope >0-5 degrees
12	Forest Type A	Upslope



Plot Number	Vegetation Classification	Effective Slope
1	Scrub Type D	Upslope/flat
2	Scrub Type D	Downslope >0-5 degrees
3	Scrub Type D	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Scrub Type D	Downslope >0-5 degrees
6	Forest Type A	Downslope >5-10 degrees
7	Forest Type A	Downslope >0-5 degrees
8	Forest Type A	Upslope/flat
9	Excluded 2.2.3.2 (e)	N/A
10	Excluded 2.2.3.2 (f)	N/A
11	Woodland Type B	Downslope >0-5 degrees
12	Forest Type A	Upslope/flat

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Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastre
- 5m Contours
- Separation Distance
- Slopes Degrees
- Photo Point
- Proposed Internal Roads and Carparks
- Lane Way / Fire Access
- Proposed Buildings
- Future Low Fuel (Onsite)
- Future Low Fuel (Offsite)
- Vegetation/Plot Boundary

Vegetation

- Forest Type A
- Woodland Type B
- Scrub Type D
- Low fuel or non vegetated 2.2.3.2



Scale
1:2,250 @ A3
GDA MGA 94 Zone 50

Data Sources

Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT

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Lot 1 & 2 Frenchman Bay Road
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Vegetation Classes

BAL Assessor KPK	QA Check JRB	Drawn by BRM
STATUS FINAL	FILE MSC0403-002	DATE 14/11/2022

3.2 Assessment Outputs

A Method 1 BAL calculation (in the form of BAL contours) has been completed for the proposed subdivision in accordance with AS3959-2018 methodology. The BAL rating gives an indication of the level of bushfire attack (i.e., the radiant heat flux) that may be received by proposed buildings and subsequently informs the standard of building construction required to increase building tolerance to potentially withstand such impacts in line with the assessed BAL.

The assessed BAL ratings for the LDP are depicted as BAL contours, as shown on Figure 5, Figure 6 and Table 3. Figure 5 outlines the BAL contour without low fuel works external to the Subject Site and Figure 6 outlines if a refuge is proposed on site the BAL contours from the low fuel works in the CoA Road Reserve.

Table 3: AS3959 Determined BAL rating for the proposed staged development on the site.

Stage	Building	Vegetation Classification	Effective Slope	Separation (m)	BAL Allocation
1	(A) –10-12 Bedroom Lodge	Scrub Type D (Plot 3)	Upslope/flat	13m	BAL-29
	(B) Maintenance Shed / Caretaker	Scrub Type D (Plot 3)	Upslope/flat	13m	BAL – 29
2	(E) Day Spa	Forest Type A (Plot 7)	Downslope >0-5 degrees	30m	BAL – 29
	(C) 25 Single Bedroom Chalets	Forest Type A (Plot 7)	Downslope >0-5 degrees	28m	BAL-29 or less can prevail
	(F) Manager's Accommodation	Forest Type A (Plot 8)	Upslope/flat	22m	BAL – 29
3	(D) Kiosk / Shop and Café	Forest Type A (Plot 7)	Downslope >0-5 degrees	46m	BAL-19 is recommended

Assumptions/comments on BAL Contour Plan:

- Method 1 (AS3959-2018) Simplified procedure was used for vegetation classification and BAL Assessment process;
- The BAL Contour Plan was prepared by an Accredited Level 2 Bushfire Planning Practitioner (BPAD30794);
- The BAL Contour Map (Figure 5 and 6) have been prepared in accordance with Department of Planning (WAPC) Guidelines for Planning in Bushfire Prone Areas (Version 1.4; WAPC, 2021);
- Figure 5 uses the assumption that the vegetation has been excluded in the Subject Site as can be modified to a low threat state and managed in perpetuity, therefore, it has been excluded from BAL contouring. Trees can remain however are managed in a fuel reduced state. It is assumed in Figure 5 that there is no on-site bushfire refuge requirement (which may be the case if a community refuge is developed for the Goode Beach and Frenchman Bay community);
- The assumptions contained within the BAL Contour Plans Figure 5 and 6 is based on plan of LDP as supplied by the client (Figure 2);
- The assumptions contained within the BAL Contour Plan Figure 6 utilises the assumption that low fuel works are required outside of the development footprint in the CoA Frenchman Bay Road Reserve to achieve 10kW/m² on the proposed café / kiosk; and
- Subject Site is in a Bushfire Prone Area, see Figure 3 (OBRM, 2019).

Plot Number	Vegetation Classification	Effective Slope
1	Scrub Type D	Upslope/flat
2	Scrub Type D	Downslope >0-5 degrees
3	Scrub Type D	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Scrub Type D	Downslope >0-5 degrees
6	Forest Type A	Downslope >5-10 degrees
7	Forest Type A	Downslope >0-5 degrees
8	Forest Type A	Upslope/flat
9	Excluded 2.2.3.2 (e)	N/A
10	Excluded 2.2.3.2 (f)	N/A
11	Woodland Type B	Downslope >0-5 degrees
12	Forest Type A	Upslope/flat

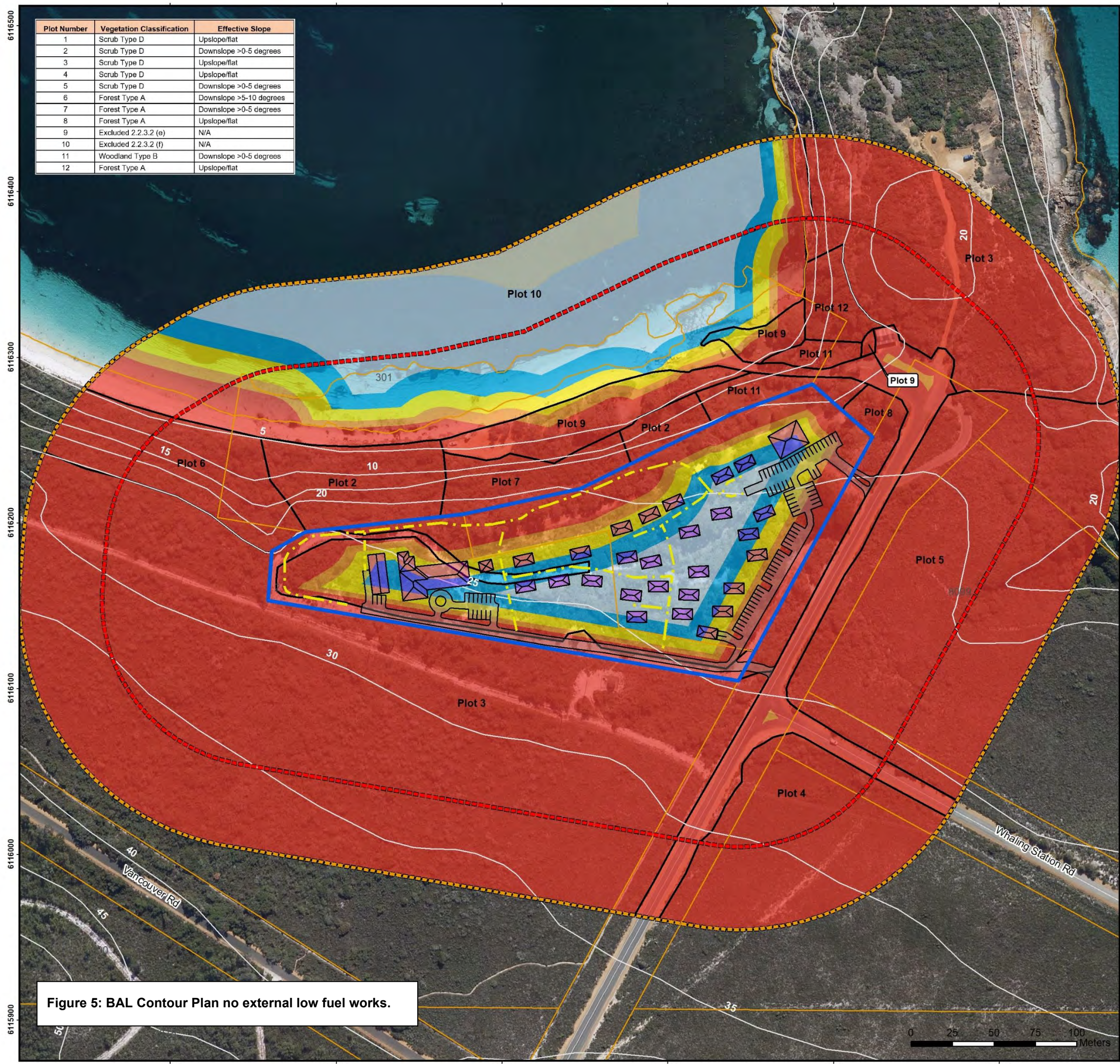


Figure 5: BAL Contour Plan no external low fuel works.

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Overview Map Scale 1:100,000

- Legend**
- Subject Site
 - 100m Assessment Boundary
 - 150m Assessment Boundary
 - Cadastre
 - 5m Contours
 - Proposed Internal Roads and Carparks
 - Lane Way / Fire Access
 - Proposed Buildings
 - Vegetation/Plot Boundary
- BAL Contours**
- BAL-FZ
 - BAL-40
 - BAL-29
 - BAL-19
 - BAL-12.5
 - BAL-LOW

Scale
1:2,250 @ A3
GDA MGA 94 Zone 50

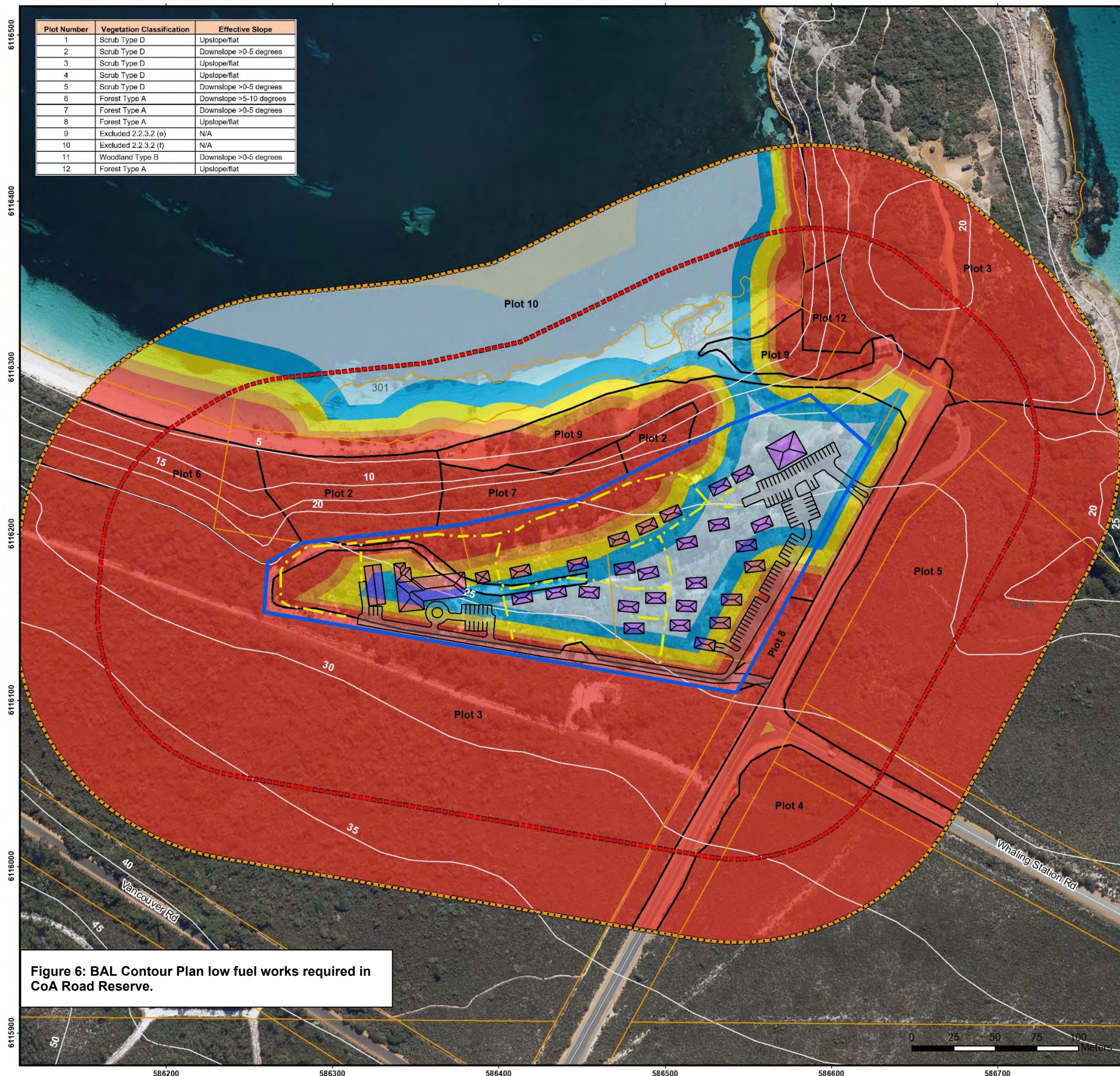
Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT
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Lot 1 & 2 Frenchman Bay Road
Frenchman Bay, WA 6330

BAL Contour Plan (Offsite Included)

BAL Assessor KPK	QA Check JRB	Drawn by BRM
STATUS FINAL	FILE MSC0403-002	DATE 14/11/2022

Plot Number	Vegetation Classification	Effective Slope
1	Scrub Type D	Upslope/flat
2	Scrub Type D	Downslope >0-5 degrees
3	Scrub Type D	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Scrub Type D	Downslope >0-5 degrees
6	Forest Type A	Downslope >5-10 degrees
7	Forest Type A	Downslope >0-5 degrees
8	Forest Type A	Upslope/flat
9	Excluded 2.2.3.2 (e)	N/A
10	Excluded 2.2.3.2 (f)	N/A
11	Woodland Type B	Downslope >0-5 degrees
12	Forest Type A	Upslope/flat



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Overview Map Scale 1:100,000

- Legend**
- Subject Site
 - 100m Assessment Boundary
 - 150m Assessment Boundary
 - Cadastre
 - 5m Contours
 - Proposed Internal Roads and Carparks
 - Lane Way / Fire Access
 - Proposed Buildings
 - Vegetation/Plot Boundary

- BAL Contours**
- BAL-FZ
 - BAL-40
 - BAL-29
 - BAL-19
 - BAL-12.5
 - BAL-LOW

Scale
1:2,250 @ A3
GDA MGA 94 Zone 50

Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT
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BAL Contour Plan (Offsite Excluded)

BAL Assessor KPK	QA Check JRB	Drawn by BRM
STATUS FINAL	FILE MSC0403-002	DATE 14/11/2022

Figure 6: BAL Contour Plan low fuel works required in CoA Road Reserve.

4 Identification of Bushfire Hazard Issues

4.1 Bushfire Hazard Level

The identified bushfire risks associated with the Subject Site is the continuous vegetation to the west, east and south of the Subject Site. This area presents as predominantly Forest Type A and Scrub Type D which are defined as Extreme Bushfire Hazard Level (BHL). Under hot, dry, and unstable conditions (Severe to Catastrophic bushfire weather) the Subject Site is most at risk from bushfire from these directions (west, east and south). Surrounding the Subject Site to the north is the Southern Ocean and a small sliver of vegetation fringing the City of Albany (CoA) recreation site of Frenchman Bay. The vegetation is less than 100m wide and presents limited fire run potential from this direction. Internal to the site will be low fuel areas with trees remaining for amenity and conservation of habitat trees as shown on the LDP.

All the new habitable buildings associated with the development application to the CoA are located in BAL-29, BAL-19 and BAL-12.5 zones (Figure 5 and Figure 6). All new buildings will be constructed in accordance with AS3959-2018 and subject to building approval and are in BAL-29 to BAL-12.5 zones. It is noted that only Class 1, 2, 3 and decks associated with 10A are required to be built to BAL under the *Building Act 2011*. Buildings classified under the Building Code of Australia (BCA), Class 4-9 are not required to build to AS3959 however, will need to be constructed according to the fire requirements in Part 2 of the BCA.

A Method 2 BAL calculation has been undertaken by the bushfire practitioners for the Café / Kiosk. Similar to the previous DA approval the café may act as an on-site “last resort refuge”, refer to Appendix C. If the last resort refuge is required for any of the tourism components for the site (lodge in Stage 2 and Stage 3 works), the method 2 calculations indicate 10kW/m^2 can be achieved on the Kiosk / Café as demonstrated in Figure 6. Also refer to the Method 2 BAL mapping Appendix C.

The development has been assessed to the bushfire protection criteria, namely:

‘Other short-term accommodation – including motel, serviced apartments, tourist development (includes cabins and chalets), holiday accommodation and caravan park (which incorporates caravan parks)’.

The 2021 WAPC planning guidelines are based on applying the performance-based criteria or the Acceptable Solutions for a proposal and therefore given the size and nature of the combined LDP (i.e., each is not assessed in isolation from each other) this is deemed by the practitioner the appropriate criteria to assess this proposal. Upon acceptance of the LDP and this BMP (given it is based on previous approved BMP with alterations) the performance-based solutions applicable to design will be incorporated into an updated BAL contour and BAL certificate for each proposed building. See Implementation Table Section 6.

4.2 Landscape Risk

Analysis of the vegetation types and corresponding bushfire fuels (to AS3959-2018) outlines the contiguous vegetation to the west, southwest, south, east and northwest which correspondingly has the highest risk of fire run into the subject site. Forest Type A and Scrub Type D are classified as Extreme BHL and present extreme risks to the Subject Site. The bushfire risks on a landscape scale are minimised from the north and north east due to the presence of the Southern Ocean and the low fuel area of the CoA Frenchman Bay recreation site along the foreshore. “Fire runs” into the area is potentially from the west, south and east. The development has been designed similarly to the previous ethos (previous approved BMP in 2018) whereby setbacks to achieve BAL 29 or less can be achieved through onsite modification of fuels whilst maintaining amenities of the tourist development site.

A 5km and 10km bushfire awareness map is shown in Figure 7.

61022006117006112200611270061132006113700611420061147006115200611570061162006116700611720061177006118200611870061192006119700612020061207006121200612170061222006122700612320061237006124200612470061252006125700612620061267006127200



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Overview Map Scale 1:500,000

- Legend**
- Subject Site
 - Evacuation Route
 - 2.5km Evacuation Zone
 - 5km Bushfire Awareness Zone

Scale
 1:62,000 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: WA Now, Landgate Subscription Imagery
 Cadastre, Relief Contours and Roads: Landgate 2017
 IRIS Road Network: Main Roads Western Australia 2017
 Overview Map: World Topographic map service, ESRI 2012

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Bushfire Awareness Map

BAL Assessor KPK	QA Check JRB	Drawn by BRM
STATUS FINAL	FILE MSC0403-002	DATE 14/11/2022

Figure 7: 5km and 10km Bushfire Awareness Mapping.

5745005749005753005757005761005765005769005773005777005781005785005789005793005797005810058500589005930059710062106820582905833058370584105845058490585305857058610586505869058730587705881058850588905893058970591059505990591305917059210592500

Figure 7 outlines that bushfire from the south and west will isolate the development with access for evacuation. Discussion on this risk is outlined in Figure 4.3.

4.3 Access

The proposed development area and existing CoA recreation site to the north is accessed from Frenchman Bay Road, along with the existing public road network provides safe access to the west and (subsequently) north to Albany city centre along the Torndirrup Peninsula. Frenchman Bay Road, (formed public road) terminates at the CoA recreation site to the north. As such, the development proposal does not meet the requirement of two access routes under the WAPC guidelines (2021). Two accesses into and out of the LDP provide for emergency access to Frenchman Bay Road in the east.

The development cannot meet the Acceptable Solution as Frenchman Bay Road is effectively a long cul-de-sac which is a legacy issue to the siting of the project and cannot be overcome. The tourism venture proposed cannot overcome the issue, this BMP present two options to meet a performance-based assessment (one previously approved by the decision maker (DM) in 2018). No-through roads or dead-end roads are to be avoided in bushfire prone areas; this cannot be avoided as the land is already approved for tourism under the Albany LPS and associated schemes.

To assist meeting the provision of access, Eco Logical Australia (Level 3 Bushfire Practitioners) prepared a BEEP in 2018 (refer to Section 5.2.7 of this report and Appendix D) which assists to to the extent possible for the site satisfy the intent to this element of the bushfire protection criteria and the intent of the performance-based assessment in the WAPC guidelines (WAPC, 2021). The previous BEEP (refer to Section 5.2.4 and Appendix D) was for 200 people on site and was approved by the DM at the time (Joint Development Assessment Panel (JDAP)). This BEEP will be updated and reviewed prior to planning approval and occupation to ensure all relevant persons and responsibilities are designated. The on-site refuge option may still be viable, however also there is the possibility of community refuge as a secondary destination in the Goode Beach / Frenchman Bay area. Refer to Section 4.4 for more detail.

The internal driveways / road layout of the development currently proposes cul-de-sacs due to the low key “back to nature” style of the development. To overcome this limitation linking lane ways / fire service access through to the driveway / road network roads have been proposed to ensure there is always two-way access to Frenchman Bay Road is available. The linking Fire Service Access Ways occurs along the west and northern sections to assist connectivity on the site and fire appliances accessing the vegetation outside of the development footprint. All access is to meet the minimum technical standards of the WAPC guidelines as outlined in Table 5 of this report. The internal access is shown in Figure 8 – Access Plan.



Figure 8: Access Plan.

4.4 Community Safer Place

Access in / out of the Goode Beach and Frenchman Bay precinct and the current water supply through the reticulated network, would be severely impacted from bushfire emanating from the west as shown on Figure 7 – Bushfire Awareness Mapping. The management of bushfire fuels, strategic water supply and a community refuge area / neighbourhood safer place are recommended for the wider Goode Beach and Frenchman Bay precinct. As the development is staged there would be sufficient time to investigate a community refuge option further. Also refer to Section 5.2.7 of this report whereby a BEEP was prepared (and approved) by ELA in the original 2018 Development Application. This BEEP will be updated and reviewed prior to planning approval and occupation to ensure all relevant persons and responsibilities are designated. It is also noted further due diligence and planning is required for the Café / Kiosk area, to re-enforcing the requirement of a detailed and more defined BEEP at Development Approval stages. Consultation with the Local Emergency Management Committee (LEMC), CoA and DFES is continuing by the bushfire practitioner on the viability of a community refuge in the Goode Beach / Frenchman Bay area, March-May 2022. As the development is staged then there would be sufficient time to investigate this refuge option further for Stage 2 and 3 tourist developments.

If a last resort refuge on site is viable then a Method 2 BAL calculation has been provided to demonstrate how this may be achieved (section 5.2.6 and Appendix C). Prior to development the secondary safe place / destination should be identified and documented prior to the development application.

4.5 Water Supply

The development may be provided with reticulated scheme water or sourced via other onsite sources. Water supply has not been confirmed at the time of the LDP. ‘Trickle’ feed is currently available to the site from Water Corporation WA however, is not a viable option for the tourist development. Strategic water for bushfire will be supplied in accordance with the requirements of the BMP and the staged development. Refer to section 5.2.3.

In the initial stages of the development onsite rainfall capture to tanks and bore water supply will supply water to the caretakers shed in Stage 1. A 10,000L is to be installed as a standalone water supply until strategic bushfire tanks are installed for the larger development. There is also an existing bore for water supply located on site from the previous caravan park.

Stage 2 involves the creation of the lodge and will have onsite potable water supply from rainfall and on-site capture. A 10,000L tank is to be supplied as a standalone supply until any strategic bushfire tanks are installed for the larger tourist development. 150,000L strategic water is recommended for the final tourist development.

Given this is an overarching BMP to guide development there is a possibility that reticulated water may still occur for the larger development, however the larger development on Lot 1 is still subject to further due diligence. The CoA will be provided with detail on water supply for each stage as planning approval is sought.

The commercial buildings will be subject to detailed hydraulic design by a qualified consultant and requirements and specification to the BCA will be subject to approval from the City of Albany at building construction stages.

5 Assessment against the Bushfire Protection Criteria

5.1 Compliance Table

The Guidelines for Planning in Bushfire Prone Areas (WAPC, 2021, Vers 1.4) outlines bushfire protection criteria which subdivision and development proposals are assessed for compliance. The Bushfire Protection Criteria (BPC) (Appendix 4, WAPC, 2021, Vers 1.4) are performance-based criteria utilised to assess bushfire risk management measures and they outline four elements, being:

- Element 1: Location;
- Element 2: Siting and Design of Development;
- Element 3: Vehicle Access;
- Element 4: Water and
- Element 5: Vulnerable Tourism Land Uses

The Subject Site and the LDP / future development proposal will be assessed to and are required to meet the “Acceptable Solutions” of each element of the bushfire mitigation measures (WAPC, 2021, vers 1.4). The proposal will be assessed against ‘Element 5’ of the bushfire protection criteria (Table 4) applicable to ***‘Other short-term accommodation – including motel, serviced apartments, tourist development (includes cabins and chalets), holiday accommodation and caravan park (which incorporates caravan parks)’***.

Note: A Performance based assessment has been provided to address “Access” provision of additional information that meets the Acceptable Solutions is provided.

This BMP has been developed as an overarching BMP to guide the planning of the LDP and subsequent staged development of the site and updated compliance to the BPC will be required prior to each staged development for approval from the City of Albany.

Table 4: Bushfire Protection Criteria applicable to the Subject Site.

Element	Acceptable Solution	Applicable or not Yes/No	Proposal meets Acceptable Solution
Element 5.7 - Siting and design	A5.7a Siting and Design.	Yes	<p style="text-align: center;">Compliant</p> <p>The LDP has all buildings / facilities in APZ areas that will upon completion be subject to a BAL rating of BAL-29 or lower. BAL-19, BAL-12.5 or BAL-LOW will apply to future buildings on the Subject Site as demonstrated in the BAL Contour Plans Figure 5 and Figure 6. This includes all buildings in all classes of the BCA, noting only Class 1, 2 and 3 and 10a structures associated with Class 1, 2 and 3 buildings are required to build to AS3959 under the BCA. It is recommended that the class building outside of the requirements (i.e., non habitable sheds, day spa and café) are built to BAL or the BCA/ NCC as deemed appropriate by a building certifier / surveyor. Noting if the Café is to be used as a last resort refuge this will have additional building requirements to the ABCB handbook and is recommended to be built to a minimum of BAL-19. A method 2 BAL calculation has been provided for the proposed refuge for Stage 2. See Section 5.2.6 and Appendix C. An updated BAL assessment or BAL contour Plan is to be provided prior to DA at each staged development application.</p> <p style="text-align: center;">Proposal with further supporting information at each staged development meets Acceptable Solution A5.7a.</p>
	A5.7b Siting and Design.	Yes	<p style="text-align: center;">Compliant</p> <p>APZ areas associated with BAL-29 or less can be achieved within the subject lot and apply to all buildings as identified in the LDP (Figure 2) and demonstrated on the BAL contour Plan Figure 5. If the low fuel works along the Frenchman Bay Road Reserve are not required (i.e., no onsite refuge is required) then the BAL Contour Plan Figure 5 indicates that APZ's can still be achieved within the lot boundary. An updated BAL contour plan indicating the APZ to achieve BAL 29 is to be provided prior to any DA application.</p> <p style="text-align: center;">Proposal with further supporting information at each staged development meets the Acceptable Solution A5.7b.</p>
	A5.7c Siting and Design.	Yes	<p style="text-align: center;">Compliant</p> <p>An APZ for the site can be provided in accordance with Element 2 – Siting and Design. The APZ for all “short term accommodation” buildings are to meet BAL-29 requirements as the BAL contour plan clearly demonstrates (Figure 5). The APZ utilises the future low fuel areas of the internal site (Figure 5) and (if required) the Frenchman Bay access road and the existing recreation site (Figure 6). If the Frenchman Bay Road Reserve does not need to be modified for the community refuge, APZ's commensurate with BAL-29 or less can be achieved on all buildings. Any landscaping / replanting is to conform to WAPC APZ standards (WAPC, 2021, vers 1.4). This is an overarching BMP (not DA) and any landscaping in these areas should be documented into a Landscaping Masterplan prior to each staged Development Approval. Refer to the standard Appendix B and further information Section 5.2.2 of this report.</p> <p style="text-align: center;">Proposal with further supporting information at each staged development meets the Acceptable Solution A5.7c.</p>

Table 4 cont.

Element	Acceptable Solution	Applicable or not Yes/No	Proposal meets Acceptable Solution
Element 5.7 - Siting and design	A5.7d Siting and Design.	Yes	<p style="text-align: center;">Compliant</p> As outlined in sections above a Landscape Masterplan is to be developed and reviewed by the Bushfire Practitioner prior to each staged DA approval sought with the CoA. The Landscaping plans are to confirm the low fuel status of the APZ and the elements in the site conform to this BMP. This is noted in the Implementation Table Section 6 of this report and is to be provided prior to DA and before any staged planning approval to guide the staged development of the site. Upon development of Landscaping Masterplan the proposal meets Acceptable Solution A5.8d.
	A5.7e Siting and Design.	Yes	<p style="text-align: center;">Compliant</p> As outlined in sections above a Landscape Masterplan is to be developed prior to DA and reviewed by the Bushfire Practitioner which confirms the linking footpaths through the site. If on-site shelter is proposed through the subsequent staged development, then footpaths are to clearly link to the on-site refuge (proposed Café / Kiosk). This is noted in the Implementation Table Section 6 of this report and is to be provided prior to DA and before any staged planning approval to guide the staged development of the site. Upon development of Landscaping Masterplan the proposal meets Acceptable Solution A5.7e.
	A5.7f Siting and Design.	Yes	<p style="text-align: center;">Compliant</p> The Frenchman Bay community and adjacent developments in consultation with the CoA may consider “community refuge” options for the Goode Beach and Frenchman Bay precinct, several options may be viable and subject to further investigations. If community refuge for the area is proposed this would greatly assist in a secondary access / location for the safety of the existing Goode Beach area and any development in the Frenchman Bay commercial precinct. If this is not a viable option during the staged development (either Stage 2 or Stage 3) then the Café area is proposed to the last resort refuge area, refer to Method 2 calculations for the Café / Kiosk (Section 5.2.6 and Appendix C), the original BEEP Appendix D and the summary of the BEEP in section 5.2.7. If onsite refuge is proposed then the method 2 BAL assessment to achieve 10kW/m ² has been demonstrated for the current location of the Café / Kiosk. Further detail would need to be provided prior to DA for the lodge or larger tourist development. Consultation with LEMC, CoA and DFES is continuing by the bushfire practitioner on the viability of a community refuge in the Goode Beach/Frenchman Bay area. If an onsite refuge area is required, 10kW/m ² can be achieved on the Café / Kiosk building with offsite vegetation modification. It is noted there is no restriction on numbers in the refuge to meet AS 5.7f. a square meter floor space is required to meet the ABCB handbook for tenable environment, refer to the method 2 documentation for further detail. The proposal meets Acceptable Solution A5.7f.
	A5.7g Siting and Design.	Yes	<p style="text-align: center;">Compliant</p> If onsite refuge is proposed then the Café is to be built to BAL-19 and in accordance with the NCC and the ABCB Handbook: Design and construction of Community Bushfire Refuges (2014). Documentation to the CoA is to provide evidence of this prior to any tourist development. The proposal may meet Acceptable Solution A5.7e with further documentation in subsequent stages.

Table 4 cont.

Element	Acceptable Solution	Applicable or not Yes/No	Proposal meets Acceptable Solution
A5.8.1 Vehicular access for all proposals	A5.8.1a	Yes	<p style="text-align: center;">Compliant</p> <p>The trafficable carriageway of the proposed new internal roads is to be 6m (subject to detailed civil engineering design). Two access points are provided for on the LDP onto Frenchman Bay Road meeting the requirements of 5.8.1a. The internal driveways/road layout has a cul-de-sacs within the development this is due to the low key “back to nature” style of the development. The development will have linked lane ways / fire service access through to the driveway / road network roads to ensure there is always two-way access to Frenchman Bay Road available. The linking Fire Service Access Ways occurs along the west and northern sections to assist connectivity on the site and fire appliances accessing the vegetation outside of the development footprint. Any staged development is to incorporate the two access points and linking internal access network to Frenchman Bay Road.</p> <p style="text-align: center;">Proposal meets Acceptable Solution A5.8.1a.</p>
A5.8.1 Vehicular access for all proposals	A5.8.1b	Yes	<p style="text-align: center;">Compliant</p> <p>The internal driveway / road network is to meet the minimum requirements of the WAPC guidelines and as outlined in Table 5 of this report. These are to be detailed in civil engineering designs and approved by the CoA at any staged development. Passing bays are to be provided if the internal driveway network exceeds 200m Turnaround areas are to meet the WAPC requirements of Figure 9 of this report.</p> <p style="text-align: center;">Proposal meets Acceptable Solution A5.8.1a.</p>
	A5.8.1c	Yes	<p style="text-align: center;">Compliant</p> <p>Signage is to be provided within the site advising of where access routes travel and to exit points to Frenchman Bay Road. Signage in public spaces it to also reflect actions to take in the event of a bushfire. To be developed with the updated BEEP and prior to Development Approval. Refer to Section 5.2.8 for further detail on signage.</p> <p style="text-align: center;">Proposal meets Acceptable Solution A5.8.1c</p>
P5viii	A 5.8.2	Not able to achieve compliance to AS Performance based assessment	<p>A performance-based assessment of the proposal through the provision of BEEP (2018) has been supplied. Although prepared for a previous development the numbers of the previous Development Approval were similar (200 people), whereas this development is proposing 176 people. The internal linking service and driveway access has 2 access points and the ability for the site to be evacuated in an emergency through the principles of the BEEP, See Section 5.2.7 and Appendix C. As outlined in previous sections, if a community refuge is proposed in the Goode Beach Precinct then two destinations may be achieved which also meets the intent of a safe destination. As the development is greater than 100 persons then A5.8.2 (outside of a built-up area) cannot meet the Acceptable Solutions. The risk of bushfire is accepted and the provision of elements in this BMP (and specifically detailed in Section 5.2 of this report) have addressed and responded to the level of risk in the allocation of BAL, management of the landscaping and internal access and the provision of a Bushfire Emergency Evacuation Plan. Proposal meets the intent of a performance-based assessment with an updated BEEP prior to DA and provision of either a community safer place in the local area or an onsite refuge at the Café. A method 2 BAL calculation has been provided in the event an onsite refuge is required. Refer to Section 5.2.6 of this report.</p> <p style="text-align: center;">Proposal meets intent of performance-based assessment P5viii, further documentation is to be provided prior to DA.</p>

Element	Acceptable Solution	Applicable or not Yes/No	Proposal meets Acceptable Solution
A5.9 Provision of water	A5.9a Identification of future water supply	Yes	<p>Compliant.</p> <p>A reticulated water supply is currently not available to the site. Water is proposed to be reticulated in the long term via extension of the scheme reticulated system to the site or through on-site supply. Staged development will include onsite water supply and to be provided in accordance with the strategic supply as outlined in Section 5.2 of this report. Provision of strategic water (see Section 5.9b) is also proposed to support the risk of bushfire and loss of water pressure or water in an extreme event. As water supply is still being investigated for the larger development on Lot 1, strategic water supply is to be identified prior to any DA for a tourism proposal.</p> <p>Proposal with further supporting information at each staged development meets the Acceptable Solution A5.9a.</p>
	A5.9b Water for firefighting supply	Yes	<p>Compliant.</p> <p>Additional strategic water is proposed, relocating the existing site tank along the southern boundary (see LDP Figure 2). Strategic water is to meet the requirements as outlined in Schedule 2 of the WAPC guidelines and Section 5.2.3 of this report.</p> <p>Proposal with further supporting information at each staged development meets the Acceptable Solution A5.9b.</p>

Further to the provisions of Element A5.8.1 in Table 4 above, the following vehicular access standards Table 5 and Figure 9 are to apply to turn around areas and are to be scheduled in the civil engineering plans and approved via the City of Albany.

Table 5 – Vehicle Access Requirements.

Technical requirements	1. Emergency Access Ways ¹	2. Fire Service Access Ways ¹	3. Private Driveways ²
Minimum trafficable surface (m)	6*	6	6
Minimum Horizontal clearance (m)	6	6	6
Minimum Vertical clearance (m)	4.5		
Minimum weight capacity (t)	15		
Maximum grade unsealed road ³	1 in 10 (10%)		
Maximum grade sealed road ³	1:7 (14.3%)		
Maximum average grade sealed road	1 in 10 (10%)		
Curves minimum inner radius (m)	8.5		

Notes:

¹ To have crossfalls between 3 and 6%.

² Where driveways and battle-axe legs are not required to comply with widths in A3.5 or A3.6, they are to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

³ Dips must have no more than a 1 in 8 (12.5%- 7.1 degrees) entry and exit angle.

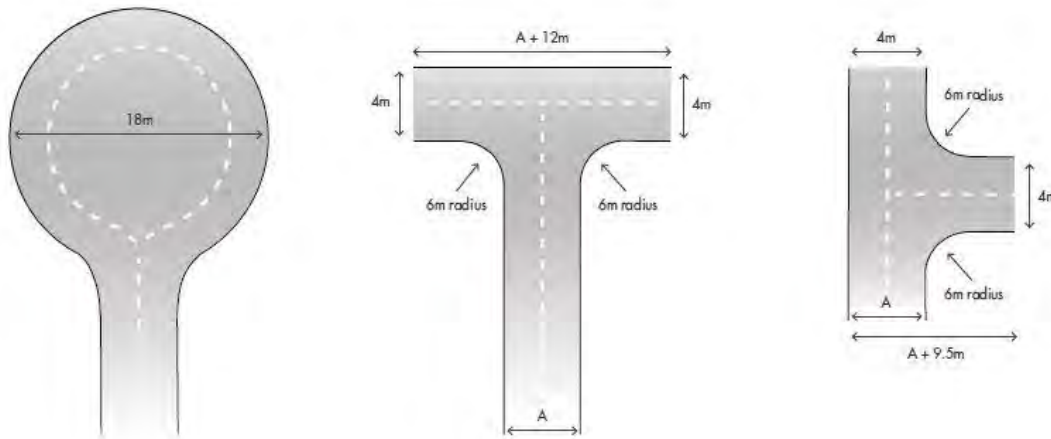


Figure 9: Turn Around Standards (WAPC, 2021).

5.2 Other Bushfire Mitigation Measures

The bushfire risk assessment (Section 4.0) has outlined the extreme bushfire risks for the site the future development of new facilities. The following section outlines additional measures to assist in mitigating the bushfire risk for the proposed development.

5.2.1 Minimise Ignition Sources

There is little control of offsite ignition sources, however the following is recommended to be undertaken by the developer while in ownership of the land and during construction periods.

Prior to the bushfire season (October) the following activities are undertaken:

- Mowing, slashing and brush cutting (noting illegal to do so on designated total fire ban days);
- Maintenance of road access into and out of the site; and
- Sub-contractors are aware of their obligations through contractual requirements.

During the summer bushfire season (1st December to 30th April inclusive as designated in the CoA fire management notice) maintenance activities internal to the site should be planned and risk assessed prior to commencement.

This includes but not limited to:

- Mowing, slashing and brush cutting (noting illegal to do so on designated total fire ban days);
- Welding, grinding and hot works (not undertaken on designated total fire ban days);
- Temporary waste disposal areas and green waste dumps – ensure piles are not exceeding 1.5m high and have bare mineral earth surrounding (min of 10m); and
- A water tender (min of 200L) fast attack unit is on site during the fire season (any site construction activities).

The Site Construction manager in consultation with developer are responsible for safety in during the bushfire season and are to always ensure safety of the site and adjacent properties from potential ignition sources.

5.2.2 Fuel Reduction and APZ Management

Ongoing fuel reduction to ensure the allocated BAL applies through selective native plant removal, trimming, mechanical slashing and mowing will be required to be undertaken regularly to ensure all internal grasses are maintained. Buildings are to be inspected regularly for build-up of wind-borne debris and leaf accumulation in gutters and at penetrations to buildings (doors, windows, etc). The site manager is to be responsible for implementation of the maintenance schedule to maintain the BAL and general bushfire preparedness which should generally reflect the following actions, refer to Table 6.

Table 6: Maintenance Schedule.

Frequency	Activity
Weekly (During fire season operations and prior to event)	Check all buildings for wind borne debris build up and remove.
	Check waste materials collected from site are correctly sorted and stored (i.e., green waste, refuelling in designated areas only).
	Check personal safety equipment before each use.
	Check dust filters on equipment.
	Visually check vehicles and equipment for leaks or potential oil spills, check on fuel storage areas (if applicable).
	Check signage, gates and access gates are unlocked and accessible on emergency cues points.
	Check gutters are free from vegetation or overhand.
	Trimming and removing dead plants or leaf litter.
	Pruning climbing vegetation (such as vines) on a trellis, to ensure it does not connect to a building, particularly near windows and doors.
	Removing vegetation in close proximity to a water tank to ensure it is not touching the sides of a tank.
	Check fire firefighting water tanks are full and serviceable.
	Check outdoor objects around buildings (see list below).
	Raking and cleaning underfloor spaces (if applicable).
Monthly	Mowing, slashing and maintaining grasses, more frequent during spring and Autumn growth periods.
	Whipper snipper/grass cutter around all buildings.
	Ensure all Fire Service Access tracks are traversable and no erosion or washouts.
	Check no combustible materials are store near buildings or penetrations of buildings (windows, doors, etc.) includes, but not limited to – gas bottles, fences, stored combustible material, vines, plants etc.
Yearly (prior to bushfire season)	Undertake any fuel reduction burning (if applicable).
	Maintain firebreaks and fire service access tracks, check gates can easily be opened and closed.
	Check locks are in working order, check gates which are not to be locked (i.e., for emergency access) are not locked.
	Check water tank cam lock (Storz) valves are working and in good order (i.e., open and shut).
	Check hardstand areas are clear and traversable adjacent to firefighting storage tanks.
	Ensure weeds or woody material is not encroaching into the APZ area around buildings (20m minimum), attend to any dead material through trimming and pruning, raking and removing to green waste.
	Any material from pre fire season preparation is either disposed to green waste or burn in piles away for the buildings with a 10m mineral earth break around the pile.

Prior to a bushfire event best practice recommends that objects within the APZ are moved away from the building prior to any bushfire event. Objects may include, but are not limited to:

- Door mats;
- Outdoor furniture;
- Potted plants;
- Shade sails or umbrellas;
- Plastic garbage bins;
- Firewood stacks;
- Flammable sculptures; and
- Playground equipment and children's toys.

These should always be considered in the proximity to buildings and stored appropriately when not in attendance at site. Consider any replanting or landscaping refer to the Country Fire Authority's Landscaping for Bushfire: Garden Design and Plant Selection (CFA, 2012) – Plant Selection Key or aim for plants within the APZ that have the following characteristics:

- Grow in a predicted structure, shape and height.
- Are open and loose branching with leaves that are thinly spread.
- Have a coarse texture and low surface-area-to-volume ratio.
- Will not drop large amounts of leaves or limbs, that require regular maintenance.
- Have wide, flat, and thick or succulent leaves.
- Trees that have bark attached tightly to their trunk or have smooth bark.
- Have low amounts of oils, waxes, and resins (which will often have a strong scent when crushed).
- Do not produce or hold large amounts of fine dead material in their crowns.
- Will not become a weed in the area.

Also refer to Schedule 1, Appendix B of this report.

5.2.3 Strategic Water Sources for Bushfire

Strategic, standalone water sources for bushfire and structure fires is required for this site due to the extreme bushfire risk. Strategic water is supplied for bushfire in addition to water required for drinking and domestic water purposes. A minimum of 150,000L is recommended for additional safety if the power and/or scheme water sources fail in a bushfire event. The following standards are to apply for strategic water sources as per Schedule 2 of the WAPC guidelines (WAPC, 2021, vers 1.4), to be implemented for this site:

Above ground tanks: should be constructed of a non-combustible material and may need to comply with AS/NZ 35001:2018. Fittings for above ground tanks are to be in accordance with the following standards:

- Commercial land uses: 125mm Storz fitting; or
- Strategic water tanks: 50mm or 100mm male camlock coupling with full flow valve;
- Combined water tanks: 50mm male camlock coupling with full flow valve or a domestic fitting, being a standard house hold tap that enables an occupant to access the water supply with domestic hoses or buckets for extinguishing minor fire.

Below ground tanks: should have a 200mm dia access hole to allow tankers or emergency service vehicles to refill direct from the tank with the outlet clearly marked on the top. The tank may need to comply with AS/NZ 35001:2018.

Tank outlets: where an outlet is provided for an emergency service then an unobstructed, hardened surface is to be provided within 4m of the water supply. Refer to figure 6 below outlining the location of a tank to a hardstand area.

Pipe fittings: all above-ground exposed water supply pipes and fittings should be metal. Fittings should be located away from the source of the bushfire attack.

Water tank location: Tanks are to be located with a consideration to surrounding vegetation and should avoid locations where the tanks is situated near or under vegetation or where vegetation might grow or overhand the tank. Refer to Figure 10 below.



Figure 10: A good and a bad example of landscaping around a water tank and relation to hardstand areas. (WAPC, 2021)

5.2.4 Barrier Fencing

In November 2010, the Australian Bushfire CRC issued a “Fire Note” (Bushfire CRC, 2010), which outlined the potential for residential fencing systems to act as a barrier against radiant heat, burning debris and flame impingement during bushfire. The research aimed to observe, record, measure and compare the performance of commercial fencing of Colourbond steel and timber (treated softwood and hardwood).

The findings of the research found that:

“.. Colourbond steel fencing panels do not ignite and contribute significant heat release during cone calorimeter exposure” (exposure to heat)

“.. Colourbond steel (fencing) had the best performance as a non-combustible material. It maintained structural integrity as a heat barrier under all experimental exposure conditions, and it did not spread flame laterally and contribute to fire intensity during exposure”

It is also noted that non-combustible fences are recommended by WAPC (2021, Vers 1.4), through APZ standards: Fences and sheds within the APZ are constructed using non-combustible materials e.g., colourbond iron, brick, limestone, metal post and wire. The developer will be encouraged to build Colourbond or non-combustible fences where applicable.

5.2.5 Evaporative Air Conditioners

Evaporative air conditioning units can catch fire because of embers from bushfires entering the unit. These embers can then spread quickly through the home causing rapid destruction. It can be difficult for fire-fighters to put out a fire in the roof spaces of homes.

It is also recommended that the proponent:

- Ensure that suitable external ember screens are placed on roof top mounted evaporative air conditioners compliant with AS3959-2018 (current and endorsed standards) and that the screens are checked annually; and
- Maintain evaporative air conditioners regularly as per DFES recommendations, refer to the DFES website for further details: <http://www.dfes.wa.gov.au>

5.2.6 Method 2 BAL calculations

A Method 2 BAL calculation has been completed for the proposed café/kiosk building. The BAL rating gives an indication of the level of bushfire attack (i.e., the radiant heat flux) that may be received by proposed buildings and subsequently informs the standard of building construction required to increase building tolerance to potentially withstand such impacts in line with the assessed BAL.

The potential bushfire impact to kW/m² to the Café / Kiosk from each of the identified vegetation plots are identified below in Table 7. Refer to mapping and details as outlined in Appendix C.

Table 7: Potential Bushfire Impacts to AS3959 Method 2.

Plot	Vegetation Classification	Effective Slope	Site slope	Separation (m)	kW/m ² Method 2 BAL
1	Scrub Type D	-	-	NA future low fuel	NA
2	Scrub Type D	0.4	1.2	46	9.49
3	Scrub Type D	0	0	89m	3.24
4	Scrub Type D	-	-	>150m	NA
5	Scrub Type D	4	0	59	6.46
6	Forest Type A	-	-	>150m	NA
7	Forest Type A	1.0	1.2	84	6.49
8	Forest Type A	0	0	76	7.34
9	Excluded 2.2.3.2 (f)			NA	NA
10	Excluded 2.2.3.2 (e)			NA	NA
11	Woodland Type B	-	-	NA future low fuel	NA
12	Forest Type A	-16	4.5	50	6.64

Assumptions in BAL Assessment

- Internal areas within the Subject Site are to be maintained in a low fuel state as per WAPC defined Asset Protection Zone Standards, refer to Appendix B of the BMP report;
- All upslopes have been calculated using either “0” or the observed “–“ degrees;
- FDI of 80 used for all plots (including Grassland G); and
- Flame temperature of 1200K.

It is recommended that:

- If the Café / Kiosk is to be utilised for a last resort refuge area then the building is to be built to BAL-19 construction standards and the ABCB Handbook for Design and Construction of Community Bushfire Refuges (2014).
- The design and construction of the Café / Kiosk is to meet the acceptance criteria of Table 1 of the ABCB (2014) hand book.
- Consideration to the floor space available for the total number of people to be potentially refuge on site. The ABCB handbook recommends between 1m² to 0.75m² per person. The floor area is noted of the Café to be 300m².
- Consider smoke with the ventilation system and consideration of a long period of time of shelter.
- Water supply to the building standalone – consider increased standalone supply.
- The building will require standalone power/generator supply.
- Airconditioning, also see NCC for class 6 and 9 buildings.
- Internal and external reflective signage (pathways to the refuge).
- Signage to primary evacuation routes to Albany townsite for vehicle access.

- A BEEP is developed to assess evacuation procedures, routes, and potential refuge on site if evacuation is compromised. This plan should be prepared as per the requirements of State Planning Policy 3.7 (SPP) and WAPC Guidelines for Planning in a Bushfire Prone Area (WAPC, 2021).

5.2.7 Bushfire Emergency Evacuation Plan (BEEP)

Access into the site is restricted to a one-way access along Frenchman Bay Road. This access is also within Extreme bushfire hazards with the likelihood of the site being closed when bushfire rated as “Extreme/catastrophic” FDR (see Figure 11). The BEEP (Appendix D) has been prepared by ELA, Level 3 BPAD Bushfire Practitioners, and is to be always made available to all visitors / residents / lodgers. The BEEP is guided by the following overarching principles:

- All clients are notified at time of deposit / confirmation of stay that Frenchman Bay Retreat is in a bushfire prone area and may be subject to closure and / or re-schedule of stay if weather conditions are Catastrophic Fire Danger Rating (FDR), see Figure 11.
- The key to the evacuation plan is off-site evacuation is always safer and the priority. It is also dependant that adequate time is available to complete it safely. Confirm with Lead Agency (DFES or other Emergency Service) prior to evacuating and follow all directions.
- Evacuation of the site to Albany Leisure and Aquatic centre (ALAC) or another off site activated undertaken prior to a bushfire event occurring.
- Evacuation well in advance of a fire’s predicted arrival time is safer than remaining on-site.
- Off-site evacuation is to occur by driving directly to ALAC on Barker Road (this has been previously used as an evacuation centre for the town).
- Preparedness of all guests and staff during the bushfire danger period (1st November to 30th April) on bushfire evacuation procedures.
- Evacuation plan is a poster style to be displayed in guest’s rooms and in reception.
- Evacuation and management triggers are provided for specific actions for both managers and guests for the site.
- Site closures on Catastrophic FDR days.
- Provides for staged construction.

It is noted that the current BEEP provides for “on-site refuge” in the previous Café / Caretakers building for 200 people. Since the development of this BEEP the “Bushfire Resilience in the Great Southern” (BRIGS) (Bio Diverse Solutions, 2020) project has identified options of 3 neighbourhood safer place or a community refuge area (see Figure 7.). If a neighbourhood safer place or a community refuge area is located at the Historic Whaling Station to the east, it is recommended that the BEEP is updated to reflect this change and that community safety is undertaken for the whole of the area in a more holistic way and documented with LEMC. If a community refuge area cannot be sourced as per the BRIGS recommendations, then an updated Method 2 BAL calculation will be required on the café to confirm the application of as onsite refuge.

The BEEP outlines evacuation of any lodgers to evacuate to ALAC via road. The ALAC is an evacuation point consistent with CoA LEMC planning.

The BEEP is to be included into the facilities emergency response procedures and guides the procedures that occupants and staff at the site are to follow in a bushfire emergency. The BEEP prepared by ELA is a two-page standalone poster which is designed to assist occupants in the event of a bushfire emergency.

The BEEP will be updated prior to the next stages of Development Approval (currently LDP) occupation of the site to include specific details required for the implementation (i.e., contact numbers of the site office and caretaker).

Australian Fire Danger Rating System

YOUR FIRE RISK TODAY IS

BE READY TO ACT
UPDATED 25/09/2022

Moderate: Plan and prepare.
Most fires can be controlled. Stay up to date and be alert for fires in your area.

High: Be ready to act.
Fires can be dangerous. Decide what you will do if a fire starts. Leave bushfire risk areas if necessary.

Extreme: Take action now to protect your life and property.
Fires will spread quickly and be extremely dangerous. Put your bushfire plan into action. If you and your property are not prepared to the highest level, plan to leave early.

Catastrophic: For your survival, leave bushfire risk areas.
These are the most dangerous conditions for a fire. If a fire starts and takes hold, lives are likely to be lost. Homes cannot withstand fires in these conditions.

When there is minimal risk, Fire Danger Ratings will be set to 'No Rating'. On these days you still need to remain alert and abide by local seasonal laws and regulations.

Monitor conditions and emergency.wa.gov.au for ratings and bushfire warnings. If a fire starts near you, take action immediately to protect your life. Do not wait for a warning.

Your life may depend on the decisions you make, even before there is a fire. Create or review your bushfire plan at mybushfireplan.wa.gov.au

Fire Danger Ratings and Bushfire Warnings

When a bushfire starts, things can change in a matter of minutes so it's important to stay up to date through official information sources.

During a bushfire, emergency services will provide you with as much information as possible, but no system is foolproof. If you believe you are in danger, act immediately to stay safe and do not wait for a warning.

If you see smoke or flames call Triple Zero (000) and put your bushfire plan into action immediately.

Bushfire warning levels change to reflect the increasing risk to your life or property, and the decreasing amount of time you have until the fire arrives.

The warning levels for bushfires are:

Advice	Watch and Act	Emergency Warning	All Clear
A fire has started but there is no immediate threat to lives or homes. Be aware and keep up to date.	There is a possible threat to lives or homes. You need to leave or get ready to defend – do not wait and see.	There is a threat to lives or homes. You are in danger and need to take immediate action to survive.	The danger has passed and the fire is under control. Take care and remain vigilant in case the situation changes.

Where to find ratings and warnings:

- Emergency WA emergency.wa.gov.au
- DFES Emergency Information Line 13 DFES (13 3337)
- ABC Radio or 6PR - Your local radio frequency
- DFES Facebook facebook.com/dfeswa
- DFES Twitter twitter.com/dfes_wa

Make a plan

Dangerous bushfires can start at any time and can quickly turn into a life-threatening situation for you and your loved ones. Your safety will depend on how prepared you are and the decisions you make. Create a bushfire plan in under 15 minutes at mybushfireplan.wa.gov.au

For more information visit dfes.wa.gov.au/prepare

Figure 11: DFES Warning Systems (DFES, 2022).

5.2.8 Signage for Emergency Fire Exit

Reflective directional signage for emergency fire exit to be used along driveways, Emergency Access Ways and Fire Service Access Ways, as applicable to site. The signage is to assist people to navigate the access in a smoke and ember filled environment. It is noted that evacuation should always be early and ahead of fire scenarios.

Reflective signage is to assist to guide vehicles and cars along the access way. Approval from the Local government should be sought prior to ordering the signage. Examples below are of and can be ordered from most sign makers in WA.



Figure 12: National signage standards directional signage examples.

2.5.1 Hazard Marker Series: MR-HM




Sign	Name	Sign No.	Replace with
	LARGE ARROW	MR-HM-13 (L or R)	Use <u>MR-HM-3</u> .
	LARGE ARROW	MR-HM-14 (L or R)	
	LARGE ARROW BIDIRECTIONAL	MR-HM-15	Use <u>MR-HM-2</u> .

Figure 13: Main Roads Western Australia (MRWA) directional hazard marking signs, (MRWA, 2022).

6 Implementation Actions

The responsibilities of the developer(s), Landowners and local government are shown in Table 8, 9 and 10.

6.1 Developer's Responsibility

It is recommended the developer be responsible for the following:

Table 8: Implementation actions land owner/developer prior to each staged DA.

Developer		
No	Implementation Action	DA Clearance
1	Where a building has been identified as requiring an increased construction standard (i.e., BAL/AS3959) ensure that the design and construction of any building is compliant with the requirements of AS3959 (current and endorsed standards).	✓
2	Establish/maintain APZ's to the standard stated in this BMP, see Schedule 1 Standards for APZ's (See Appendix B). A S40 in accordance with the Biodiversity Conservation Act is applied for prior to any vegetation disturbances.	Prior to DA
3	Ensure (if reticulated) water is supplied in accordance with the Water Corporation's No 63 Water Reticulation Standard (WC, 2016) and hydrants are to be identified by standard pole and/or road markings.	✓
4	Strategic onsite water supply is detailed in each DA in accordance with the specifications as outlined in Section 5.2.3 of this report.	Prior to DA
5	Update the BEEP prior to occupation of the tourist components of the site. If onsite refuge is to be utilised then an update of the Method 2 BAL assessment is required.	Prior to DA
6	All internal driveway's to be designated/ installed for access into the development to the minimum technical standards as required by WAPC. To be demonstrated to CoA at planning approval stages.	✓
7	The Subject Site is to be compliant with the relevant local government's annual firebreak notice issued under s33 of the <i>Bushfires Act 1954</i> .	✓
8	Ensuring that suitable external ember screens are placed on roof top mounted evaporative air conditioners compliant with AS3959-2018 (current and endorsed standards) and that the screens are checked annually.	✓
9	The commercial buildings will be subject to detailed hydraulic design by a qualified consultant and requirements and specification to the BCA will be subject to approval from the City of Albany at building construction stages.	✓
10	Update the BAL contour plan and provide certification of BAL Contour prior to lodgement of DA.	Prior to DA
11	Ensure the Fire Service Access Ways are constructed at Stage 1 to provide for access around the site, minimum construction standards as per Table 5.	✓
12	The soft and hard landscaping treatments such as linking footpaths, fencing and other soft and hard landscaping treatments should be documented into a Landscaping Masterplan prior to Development Approval.	Prior to DA
13	If the café is to be designated as a refuge, then any architectural designs are to respond and be built in accordance with the NCC and the ABCB (2014) <i>Handbook: Design and construction of Community Bushfire Refuges</i> .	Prior to DA

Table 8 cont.

14	Signage is to be provided within the site advising of where access routes travel and to exit points to Frenchman Bay Road. Signage in public spaces it to also reflect actions to take in the event of a bushfire. To be developed with the updated BEEP prior to Development Approval.	Prior to DA
15	An update and review of this BMP is required if any aspect of design changes in the subsequent stages and to document the updated BEEP and refuge strategies for the site.	Prior to DA

6.2 Local Government Responsibility

It is recommended the local government be responsible for the following:

Table 9: Implementation actions, City of Albany.

SoD		
No	Implementation Action	Clearance Stage
1	Request BAL certification at Building Approval stages on any proposed habitable buildings. Buildings to be in BAL-29, BAL-19 and BAL-12.5 zones.). Certified BAL on specific buildings as required for buildings approval.	Building approval
2	All internal driveways to be designated/ installed for access into the site to the minimum technical standards as required by WAPC and outlined in Table 5 of this document. To be demonstrated to CoA at planning approval / building approval stages.	Development Approval
3	Ensure reticulated water is supplied in accordance with the Water Corporation's No. 63 Water Reticulation Standard (WC, 2016) and hydrants are to be identified by standard pole and/or road markings.	Development Approval
4	Monitor landowner compliance with the Bushfire Management Plan and the annual CoA Fire Management Notice (CoA, 2020).	Ongoing
5.	Request a Landscaping Masterplan prior to Development Approval.	Prior to DA
6	If the Café is to be designated as a refuge, then any architectural designs are to respond and be built in accordance with the NCC and the ABCB (2014) <i>Handbook: Design and construction of Community Bushfire Refuges</i> .	Prior to DA
7	Signage is to be provided within the site advising of where access routes travel and to exit points to Frenchman Bay Road. Signage in public spaces it to also reflect actions to take in the event of a bushfire. To be developed with the updated BEEP and prior to Development Approval.	Prior to DA
8	An update and review of this BMP is required if any aspect of design changes in the subsequent stages and to document the updated BEEP and refuge strategies for the site.	Prior to DA

7 Disclaimer


The recommendations and measures contained in this assessment report are based on the information available at the time of writing following the instructions of the regulatory authorities and following the requirements of the Australian Standards 3959-2018 – Building in Bushfire Prone Areas, WAPC State Planning Policy 3.7 (WAPC, 2015), WAPC Guidelines for Planning in Bushfire Prone Areas (WAPC, 2021, vers 1.4), and applying best practise as described by Fire Protection Association Australia. These are considered the minimum standards required to balance the protection of the dwellings and occupants with the aesthetic and environmental conditions required by local, state and federal government authorities. They DO NOT guarantee that a building will not be destroyed or damaged by a bushfire, people injured, or fatalities occur either at the site or while evacuating. All surveys and forecasts, projections and recommendations made in this assessment report and associated with this proposed development are made in good faith based on the information available to the fire protection consultant at the time of assessment. The achievement of the level of implementation of fire precautions will depend amongst other things on actions of the landowner or occupiers of the land, over which the bushfire consultant has no control. Notwithstanding anything contained within, the consultant/s will not, except as the law may require, be liable for any loss or other consequences (whether or not due to negligence of the bushfire consultant) arising out of the services rendered by the consultant.

AS3959-2018 disclaimer: It should be borne in mind that the measures contained within this Standard (AS3959-2018) 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 condition.

Building to AS3959-2018 is a standard primarily concerned with improving the ability of buildings in designated bushfire prone areas to better withstand attack from bushfire thus giving a measure of protection to the building occupants (until the fire front passes) as well as to the building itself (AS3959, 2018).

8 Certification

I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level (s) stated in this document have been prepared in accordance with the requirements of AS 3959-2018 and the Guidelines for Planning in Bushfire Prone Areas (WAPC, 2021, Vers 1.4).

SIGNED, ASSESSOR:  DATE: 17/11/2022

Kathryn Kinnear, Bio Diverse Solutions

Accredited Level 2 Bushfire Practitioner (Accreditation No: BPAD30794)

(Note: A peer review to a L3 Bushfire Practitioner as per FPAA PN03 is occurring during the referrals process)



9 Revision Record

Revision	Prepared By	Summary	Reviewed By	Date
Draft Id 5/04/2022	Kathryn Kinnear	Internal QA review	Mary Holt	5/04/2022
Draft Id 6/04/2022	Kathryn Kinnear	Internal Technical review	Jason Benson	7/04/2022
Draft Id 8/04/2022	Kathryn Kinnear	Issued to client	Nick Ayton	8/04/2022
Final Id Vers 3.0 11/04/2022	Kathryn Kinnear	Updated from client review, final issued to client		11/04/2022
Final ID V4	Kathryn Kinnear	Updated from consultation with CoA, ELA and client.		05/09/2022
Final ID V5	Kathryn Kinnear	Updated from site re- assessment, inclusion of Method 2 BAL assessment to meet performance-based assessment	Jason Benson	17/11/2022

10 References

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11 Appendices

Appendix: A: Vegetation Classifications to AS3959-2018

Appendix: B: Schedule 1 - WAPC Asset Protection Zone (APZ) standards to apply

Appendix C: Method 2 BAL Assessment

Appendix D: ELA Bushfire Emergency Evacuation Plan (2018)

Appendix A

Vegetation Classification to AS3959-2018

Vegetation classification to AS3959-2018

Site Details			
Address:	Lot 1 & 2 Frenchman Bay Road		
Suburb:	Frenchman Bay	State:	W.A.
Local Government Area:	City of Albany		
Stage of WAPC Planning	Local Development Plan		

BMP Plan Details			
Report / Job Number:	MSC0403	Report Version:	Final
Assessment Date:	11/2/2020 & 7/11/2022	Report Date:	16 November 2022
BPAD Practitioner	Kathryn Kinnear	Accreditation No.	BPAD 30794

Vegetation Classification

Site assessment occurred on the 11th February 2020, reviewed in 2021 and on the 7th November 2022 by Kathryn Kinnear (BPAD 30794). All vegetation within 150m of the site / 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 (BAL) is identified in the following pages and shown on the Vegetation Classes Map Page 3.

Plot number	Vegetation Type (Table 2.3)	Slope (Table 2.4.3)
1	Scrub Type D	Upslope/flat
2	Scrub Type D	Downslope >0-5 degrees
3	Scrub Type D	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Scrub Type D	Downslope >0-5 degrees
6	Forest Type A	Downslope >5-10 degrees
7	Forest Type A	Downslope >0-5 degrees
8	Forest Type A	Upslope/flat
9	Excluded 2.2.3.2 (f)	N/A
10	Excluded 2.2.3.2 (e)	N/A
11	Woodland Type B	Downslope >0-5 degrees
12	Forest Type A	Upslope

Plot Number	Vegetation Classification	Effective Slope
1	Scrub Type D	Upslope/flat
2	Scrub Type D	Downslope >0-5 degrees
3	Scrub Type D	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Scrub Type D	Downslope >0-5 degrees
6	Forest Type A	Downslope >5-10 degrees
7	Forest Type A	Downslope >0-5 degrees
8	Forest Type A	Upslope/flat
9	Excluded 2.2.3.2 (e)	N/A
10	Excluded 2.2.3.2 (f)	N/A
11	Woodland Type B	Downslope >0-5 degrees
12	Forest Type A	Upslope/flat

Albany Office: 29 Hercules Crescent Albany, WA 6330 (08) 9842 1575
Denmark Office: 7/40 South Coast Highway Denmark, WA 6333 (08) 9848 1309
Esperance Office: 2A/113 Dempster Street Esperance, WA 6450 (08) 9072 1382



Overview Map Scale 1:100,000

Legend

- Subject Site
 - 100m Assessment Boundary
 - 150m Assessment Boundary
 - Cadastre
 - 5m Contours
 - Separation Distance
 - Slopes Degrees
 - Photo Point
 - Proposed Internal Roads and Carparks
 - Lane Way / Fire Access
 - Proposed Buildings
 - Future Low Fuel (Onsite)
 - Future Low Fuel (Offsite)
 - Vegetation/Plot Boundary
- Vegetation**
- Forest Type A
 - Woodland Type B
 - Scrub Type D
 - Low fuel or non vegetated 2.2.3.2



Scale
1:2,250 @ A3
GDA MGA 94 Zone 50

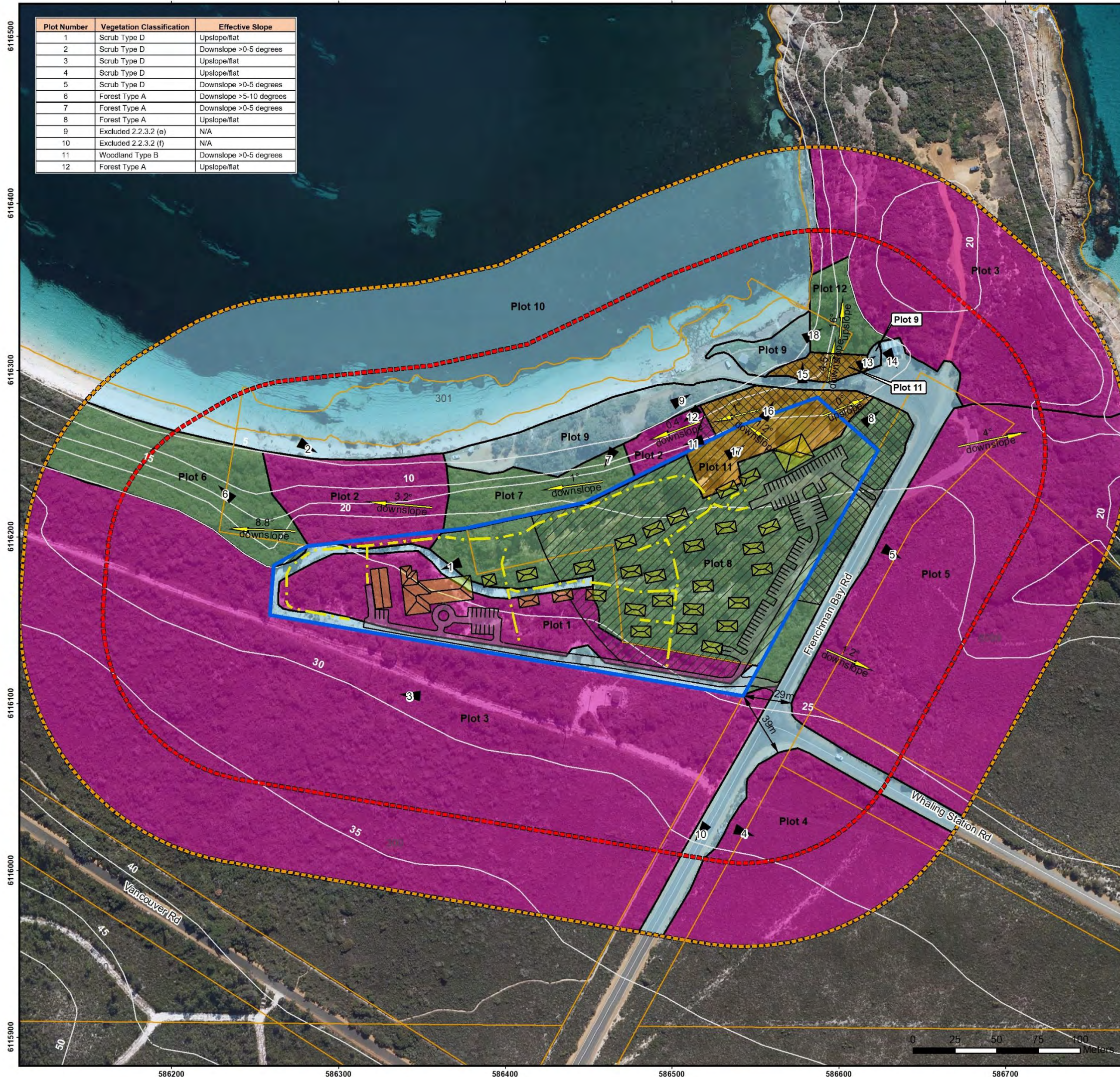
Data Sources
Aerial Imagery: WA Now, Landgate Subscription Imagery
Cadastre, Relief Contours and Roads: Landgate 2017
IRIS Road Network: Main Roads Western Australia 2017
Overview Map: World Topographic map service, ESRI 2012

CLIENT

Paul King
Lot 1 & 2 Frenchman Bay Road
Frenchman Bay, WA 6330

Vegetation Classes

BAL Assessor KPK	QA Check JRB	Drawn by BRM
STATUS FINAL	FILE MSC0403-002	DATE 14/11/2022




Plot	1	Classification or Exclusion Clause	Scrub Type D
		<p>Location: Within the Subject Site, making up the southern portion of the site.</p> <p>Separation Distance: 0m.</p> <p>Description: Coastal scrub and some stunted Jarrah.</p> <p>Average vegetation height: 3.5m general not exceeding 4m, with isolated Jarrah reaching 5m.</p> <p>Vegetation Coverage: >30%.</p> <p>Available fuel loading: 25 t/ha.</p> <p>Effective slope: Upslope.</p>	

Photo Id 1: View looking at Plot 1 in a westerly direction from within the plot.


Plot	2	Classification or Exclusion Clause	Scrub Type D
		<p>Location: Adjacent to the north and north-west boundary of the site, with a small portion of the plot within the Subject Site.</p> <p>Separation Distance: 0m.</p> <p>Description: Coastal scrub.</p> <p>Average vegetation height: 3.5m with isolated trees reaching 4m.</p> <p>Vegetation Coverage: >30%.</p> <p>Available fuel loading: 25 t/ha.</p> <p>Effective slope: >0 to 5 degrees downslope.</p>	

Photo Id 2: View looking along beach edge of Plot 2 in easterly direction, located to the north of the subject site.


Plot	2 cont.	Classification or Exclusion Clause	Scrub Type D
			<p>Additional photo of plot 2.</p> <p>Note: re-assessed in November 2022 based on average vegetation type – peppermint scrub 4m.</p>

Photo Id 11: View looking through scrub Type D, located to the north of the subject site. Note 1.5m height staff.


Plot	2 cont.	Classification or Exclusion Clause	Scrub Type D
			<p>Additional photo of plot 2.</p> <p>Note: re-assessed in November 2022 based on average vegetation type – peppermint scrub 4m.</p>

Photo Id 12: View looking through scrub Type D, located to the north of the subject site.


Plot	3	Classification or Exclusion Clause	Scrub Type D
			<p>Location: In two locations, one to the south and west of the Subject Site and the other to the north-east.</p> <p>Description: Low coastal scrub of stunted Jarrah, banksia and Tea tree.</p> <p>Average vegetation height: 3.5m with occasional taller jarrah at 5m.</p> <p>Vegetation Coverage: >30%.</p> <p>Available fuel loading: 25 t/ha.</p> <p>Effective slope: Upslope.</p>

Photo Id 3: View looking toward the west from western boundary of the Subject Site


Plot	4	Classification or Exclusion Clause	Scrub Type D
			<p>Location: To the south of the Subject Site adjoining Frenchman Bay Road on the northern and southern side of road.</p> <p>Separation Distance: 0 to 40m.</p> <p>Description: Low coastal shrubs and herbs. Open heathland.</p> <p>Average vegetation height: 1.2m.</p> <p>Vegetation Coverage: >30%.</p> <p>Available fuel loading: 25 t/ha.</p> <p>Effective slope: Upslope.</p>

Photo Id 4: View looking east in Plot 4 to the east of Frenchman Bay Road.


Plot	5	Classification or Exclusion Clause	Scrub Type D
		<p>Location: To the east of the Subject Site on the eastern side of Frenchman Bay Rd.</p> <p>Separation Distance: 26m.</p> <p>Dominant species & description: Low coastal shrubs.</p> <p>Average vegetation height: 1.2m.</p> <p>Vegetation Coverage: >30%.</p> <p>Available fuel loading: 25 t/ha.</p> <p>Effective slope: >0 to 5 degrees downslope.</p>	

Photo Id 5: View looking east across plot 5 from the eastern edge of Frenchman Bay Road.


Plot	6	Classification or Exclusion Clause	Forest Type A
		<p>Location: Located directly to the north-west of the Subject Site.</p> <p>Separation Distance: 24m.</p> <p>Description: Tall coastal scrub interspersed with Jarrah and Peppermint trees. Multilayered; bracken, woody scrubs mid-storey and smaller herbs and shrubs as understorey.</p> <p>Average vegetation height: 7m.</p> <p>Vegetation Coverage: >30 – 70%.</p> <p>Available fuel loading: 25 - 35t/ha.</p> <p>Effective slope: >5 to 10 degrees downslope.</p>	

Photo Id 6: View looking west through Plot 6 from inside the plot.

Plot	7	Classification or Exclusion Clause	Forest Type A
			<p>Location: To the north of the Subject Site.</p> <p>Separation Distance: 0m.</p> <p>Description: Jarrah and peppermint trees, not multilayered, grasses and bracken to 0.5m.</p> <p>Average vegetation height: 7m.</p> <p>Vegetation Coverage: >30-70% foliage cover.</p> <p>Available fuel loading: 245 - 35t/ha.</p> <p>Effective slope: >0 to 5 degrees downslope.</p> <p>Note: areas of this Plot will be fuel reduced to AS3959 Exclusion 2.2.3.2 (f)</p>

Photo Id 7: View north through Plot 7 towards the subject site. Photo taken from the CoA recreation site.

Plot	8	Classification or Exclusion Clause	Forest Type A
			<p>Location: Located within the Subject Site in previous disturbed areas of the caravan park site. Also, along Frenchman Bay road reserve.</p> <p>Separation Distance: 0m.</p> <p>Description: Peppermint trees and tall coastal vegetation. Not multilayered, grasses and bracken to 0.5m understorey.</p> <p>Average vegetation height: 6m-8m.</p> <p>Vegetation Coverage: <30-70% foliage cover</p> <p>Available fuel loading: 25 - 35t/ha.</p> <p>Effective slope: Upslope/flat.</p> <p>Note: areas of this Plot will be fuel reduced to AS3959 Exclusion 2.2.3.2 (f). Heavily weed infested areas within plot from previous verge disturbances.</p>

Photo Id 8: View looking north east within plot from northern access into the subject site.

Plot	9	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (f)
			<p>Location: Foreshore area to the north of the Subject Site in Frenchman Bay recreation site.</p> <p>Description: Managed lawns and gardens and other low-threat vegetation. Includes maintained beach picnic area etc.</p> <p>Excluded as per AS3959 exclusion clause 2.2.3.2 (f).</p> <p>Available fuel loading: <2 t/ha.</p>

Photo Id 9: View looking towards recreation site to the north of the subject site.

Plot	9 cont.	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (f)
			<p>Additional photo of plot 9</p>

Photo Id 13: View looking towards low fuel area, located to the west of the CoA toilet block, north east of the subject lot.


Plot	10	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (e)
			<p>Location: Frenchman Bay beach and the Southern Ocean to the north of the Subject Site. Adjacent roads include Frenchman Bay Road, Whaling Station Road and the firebreak track within the Subject Site.</p> <p>Description: Roads, driveways, tracks, water bodies, bare beach areas, buildings and other non-vegetated areas.</p> <p>As per exclusion clause 2.2.3.2 (e) of AS3959-2018.</p>

Photo Id 10: View looking south along Frenchman Bay Road of low fuel exclusion (e).



Plot	10 cont.	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (e)
			<p>Additional photo of Plot 10.</p>

Photo Id 14: View looking towards the toilet block and carparking area of the CoA recreation site, located to the north east of the subject lot.


Plot	11	Classification or Exclusion Clause	Woodland Type B
		<p>Location: Located within the Subject Site in previous disturbed areas of the caravan park site. Also, along Frenchman Bay Road Reserve.</p> <p>Separation Distance: 0m.</p> <p>Description: Peppermint trees and tall coastal vegetation. Not multilayered, grasses and bracken to 0.5m understorey. Crown separation, heavily weed infested from previous clearing activities.</p> <p>Average vegetation height: 6m-8m.</p> <p>Vegetation Coverage: <30% foliage cover</p> <p>Available fuel loading: 15-25t/ha.</p> <p>Effective slope: Upslope/flat.</p> <p>Note: This Plot may be fuel reduced to AS3959 Exclusion 2.2.3.2 (f) to assist with method 2. Heavily weed infested areas within plot from previous verge disturbances.</p>	
<p><i>Photo Id 15: View looking north along Frenchman Bay recreation site access road of Woodland Type B.</i></p>			

Plot	11 cont.	Classification or Exclusion Clause	Woodland Type B
			<p>Additional photo of Plot 11.</p>

Photo Id 16: View looking towards the front foreshore area adjacent to the subject site. Previously maintained areas of the recreation site and the old caravan park site.

Plot	11 cont.	Classification or Exclusion Clause	Woodland Type B
			<p>Additional photo of Plot 11.</p>

Photo Id 17: View looking towards the front foreshore area adjacent to the subject site. Previously maintained areas of the recreation site and the old caravan park site.

Plot	12	Classification or Exclusion Clause	Forest Type A
		<p>Location: Located to the north east of the subject site on the upslope of the gully north of the subject site and north east of the recreation site.</p> <p>Separation Distance: 46m.</p> <p>Description: Peppermint trees and tall coastal eucalyptus vegetation. Multilayered with crown connection.</p> <p>Average vegetation height: 8m.</p> <p>Vegetation Coverage: >30% - 70% foliage cover</p> <p>Available fuel loading: 25-35t/ha.</p> <p>Effective slope: Upslope/flat.</p> <p>Note: This Plot has been re-assessed and is deemed upslope of the subject site due to the gully to the west of the toilet block.</p>	
<p><i>Photo Id 18: View to the north east of Forest Type A located upslope of the subject site to the north. Small plot of vegetation across gully near Toilet block. Plot re-assessed in 2022.</i></p>			

COMMENTS ON VEGETATION CLASSIFICATIONS:

- Distances from vegetation were made based on surface fuels to edge of lot (subject site) boundary;
- Effective slopes were measured in the field using a Nikon Forestry Pro and represented on the respective plots;
- Method 1 (AS3959-2018) Simplified procedure was used for vegetation classification Assessment process;
- All vegetation was classified within the subject site and within 150m of the lot boundaries to AS3959 Table 2.3; and
- The perimeter of the vegetation was measured using field GPS and notations on field GIS maps.

CERTIFICATION

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 3959-2018.



SIGNED, ASSESSOR: DATE: 16/11/2022

Kathryn Kinnear , Bio Diverse Solutions
Accredited Level 2 BAL Assessor (Accreditation No: BPAD30794)



REVISION RECORD

Revision	Prepared By	Summary	Reviewed By	Date
Draft Id 16/07/2021	Kathryn Kinnear	Internal Review	Bianca Theyer	16/07/2021
Final Id 16/07/2021	Kathryn Kinnear	Final Issued to Client		3/08/2021
Final Id 11/11/2022	Kathryn Kinnear	Final Issued to Client, updated from site re-assessment in 2022.	Bob McGonnell & M.Holt	16/11/2022

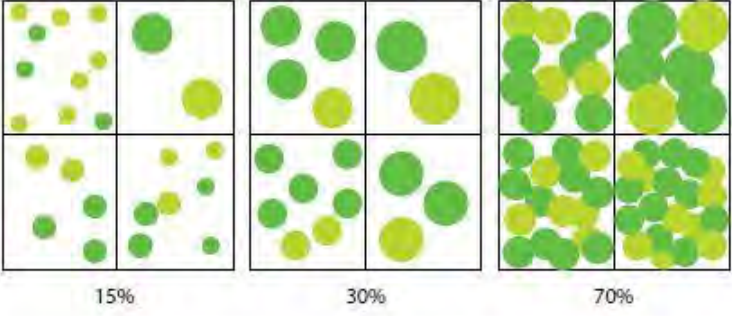
Appendix B

Schedule 1 WAPC Asset Protection Zone (APZ) standards to apply

Schedule 1

Standards for an Asset Protection Zone (APZ)

(WAPC, 2021)

Fences within the APZ	<ul style="list-style-type: none"> Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
<p>Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)</p>	<ul style="list-style-type: none"> Should be managed and removed on a regular basis to maintain a low threat state. Should be maintained at <2 tonnes per hectare (on average). Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	<ul style="list-style-type: none"> Trunks at maturity should be a minimum distance of six metres from all elevations of the building. Branches at maturity should not touch or overhang a building or powerline. Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. Canopy cover within the APZ should be <15 per cent of the total APZ area. Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ. <p>Figure 19: Tree canopy cover – ranging from 15 to 70 per cent at maturity</p> 
<p>Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.</p>	<ul style="list-style-type: none"> Should not be located under trees or within three metres of buildings. Should not be planted in clumps >5 square metres in area. Clumps should be separated from each other and any exposed window or door by at least 10 metres.
<p>Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)</p>	<ul style="list-style-type: none"> Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.

Grass	<ul style="list-style-type: none"> • Grass should be maintained at a height of 100 millimetres or less, at all times. • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
Defendable space	<ul style="list-style-type: none"> • Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	<ul style="list-style-type: none"> • Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure.

* Plant flammability, landscaping design and maintenance should be considered – refer to explanatory notes

Appendix C

Method 2 BAL Assessment

Method 2 BAL Assessment Report

AS3959-2018

Site Details			
Address:	Proposed Café/Kiosk Lot 1 Frenchman Bay Road		
Suburb:	Frenchman Bay	State:	W.A.
Local Government Area:	City of Albany		
Class of BCA class of the building	Class 6	Use of the buildings	Café/Kiosk
Description of building	Shop or other building for supply of services and retail		

BAL Report Details			
Report / Job Number:	MSC0403	Report Version:	FINAL
Assessment Date:	23/11/2021	Report Date:	17/11/2022
BPAD Practitioner	Kathryn Kinnear	Accreditation No.	BPAD 30794 L2
BPAD Practitioner	Erika Dawson	Accreditation No.	BPAD 36371 L3
Company Details	Bio Diverse Solutions 29 Hercules Crescent Albany WA 6330 98421 575	<p>I hereby declare that I am a BPAD accredited bushfire practitioner.</p> <p>Accreditation: No. BPAD30794</p> <p>Signature: </p> <p>Date: 11 November 2022</p> 	



Validity
<p>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.</p>

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1. Introduction

Bio Diverse Solutions (Bushfire Consultants) were commissioned to prepare an overarching Bushfire Management Plan (BMP) to guide future staged development of a Local Development Plan (LDP). The LDP is to the City of Albany for the construction of a variety holiday accommodation styles at Lots 1 and 2 Frenchman Bay Road, Frenchman Bay (the subject site), within the City of Albany (CoA).

The method 2 BAL assessment will form part of the performance-based assessment for the Bushfire Management Plan (BMP) and will be integral to the Bushfire Emergency Evacuation Plan (BEEP).

The overarching BMP has been developed to assess the proposal to ensure it is consistent with the current and endorsed Guidelines for Planning in Bushfire Prone Areas Vers 1.4 (WAPC, 2021), State Planning Policy 3.7 (WAPC, 2015). The BAL allocations and certification of new buildings for the kiosk inform the building approval under the *Building Act 2011 and Building Regulations 2012* and the transitional provision relating to *Building Amendment Regulations 2019*.

2. Development Proposal / Background Information

In September 2015, the CoA approved a Local Development Plan (LDP) for Lots 1 and 2 Frenchman Bay Road, which are designated as Special Use Site No. 13 under the provisions of the City of Albany's Local Planning Scheme No. 1. The Special Use site provides for the development of Holiday accommodation, Caravan Park, Caretaker's Dwelling and a shop and is identified as an important Local Strategic Tourist site in Council's Local Tourism Planning Strategy. Following approval of the LDP, a development application was lodged with the Southern Joint Development Assessment Panel in December 2017 and approved in June 2018. The developer subsequently resolved not to proceed with the development and the property has been acquired by Frenchman Bay Albany Pty Ltd.

Frenchman Bay Albany Pty Ltd propose an alternative development to what was previously proposed. They propose separating the site into three components consisting of:

- A caretakers Shed;
- A luxury holiday lodge with 10-12 bedrooms;
- Up to 25 single bedroom holiday chalets, day spa and manager's accommodation; and
- A signature café/restaurant with associated kiosk/shop and reception office.

The proposed LDP is shown in Figure 1.

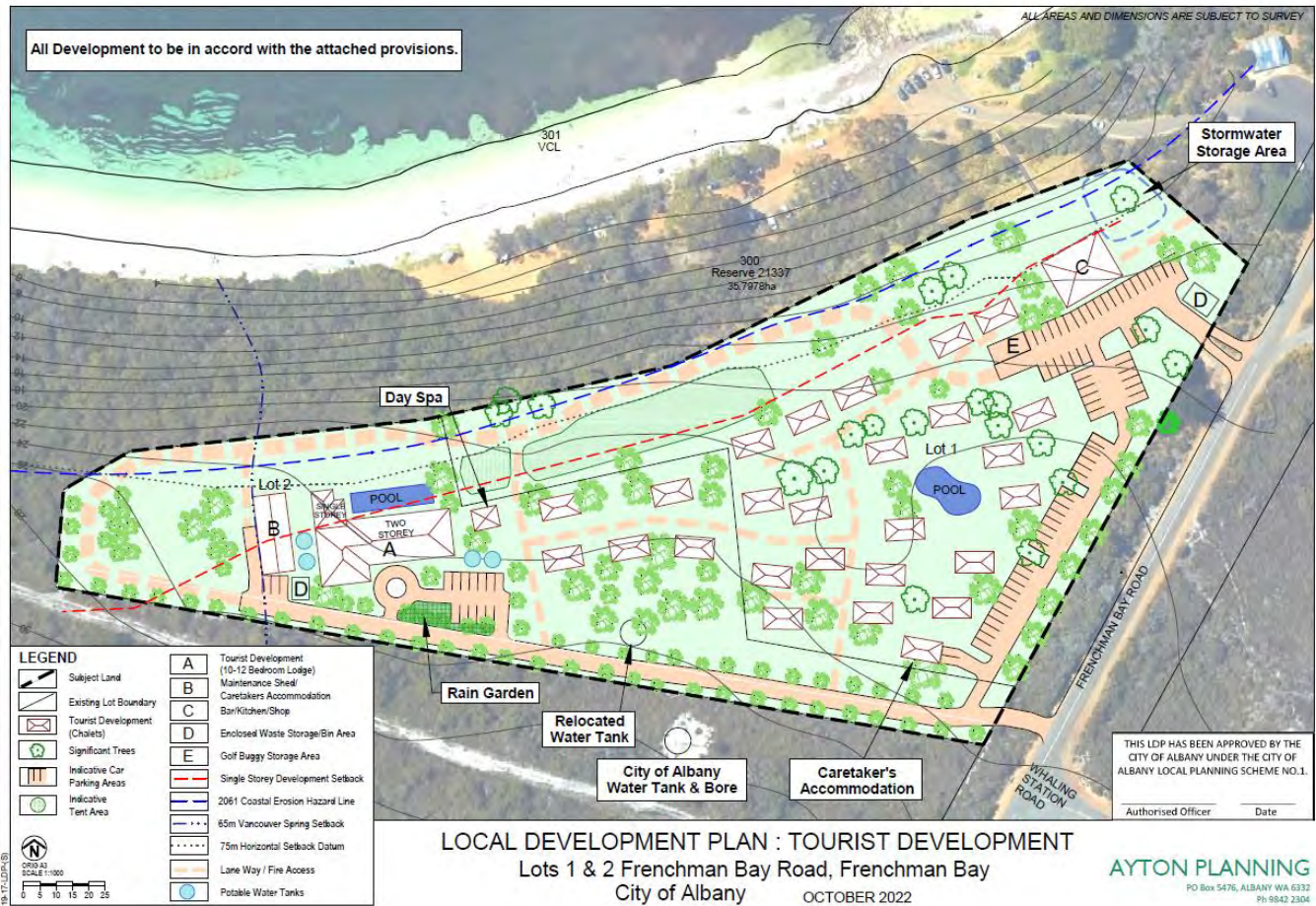


Figure 1: Local development plan

3. Method 2 Bushfire Attack Level Assessment Inputs

The method 2 inputs have been utilised as AS3959 Flamesol Method 2 program (Appendix B) and as per the requirements of the WAPC planning for bushfire prone areas (Appendix A).

3.1. Vegetation Classification

Site assessment occurred on the 11th February 2020, reviewed in 2021 and on the 7th November 2022 by Kathryn Kinnear (BPAD 30794). All vegetation within 150m of the site / 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 in the following pages and shown on the Vegetation Classes Map (Figure 2) Page 3. Detailed vegetation plot data is provided in the BMP report.

4. Method 2 Bushfire Attack Level Assessment Outputs

A Method 2 BAL calculation has been completed for the proposed café/kiosk building. The BAL rating gives an indication of the level of bushfire attack (i.e., the radiant heat flux) that may be received by proposed buildings and subsequently informs the standard of building construction required to increase building tolerance to potentially withstand such impacts in line with the assessed BAL.

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below in Table 1.

Table 1- Potential Bushfire impacts to AS3959 Method 2

Plot	Vegetation Classification	Effective Slope	Site slope	Separation (m)	kW/m ² Method 2 BAL
1	Scrub Type D	-	-	NA future low fuel	NA
2	Scrub Type D		1.2	46	9.49
3	Scrub Type D	0	0	89m	3.24
4	Scrub Type D	-	-	>150m	NA
5	Scrub Type D	4	0	59	6.46
6	Forest Type A	-	-	>150m	NA
7	Forest Type A	1.0	1.2	84	6.49
8	Forest Type A	0	0	76	7.34
9	Excluded 2.2.3.2 (f)			NA	NA
10	Excluded 2.2.3.2 (e)			NA	NA
11	Woodland Type B	-	-	NA future low fuel	NA
12	Forest Type A	-16	4.5	50	6.64

Assumptions in BAL Assessment

- Internal areas within the subject site are to be maintained in a low fuel state as per WAPC defined Asset Protection Zone Standards, refer to Appendix B of the BMP report.
- All upslopes have been calculated using either “0” or the observed “-“ degrees;
- FDI of 80 used for all plots (including Grassland G); and
- Flame temperature of 1200K.

The full method 2 calculations are shown in Appendix B of this this document.

Plot Number	Vegetation Classification	Effective Slope
1	Scrub Type D	Upslope/flat
2	Scrub Type D	Downslope >0-5 degrees
3	Scrub Type D	Upslope/flat
4	Scrub Type D	Upslope/flat
5	Scrub Type D	Downslope >0-5 degrees
6	Forest Type A	Downslope >5-10 degrees
7	Forest Type A	Downslope >0-5 degrees
8	Forest Type A	Upslope/flat
9	Excluded 2.2.3.2 (e)	N/A
10	Excluded 2.2.3.2 (f)	N/A
11	Woodland Type B	Downslope >0-5 degrees
12	Forest Type A	Upslope/flat

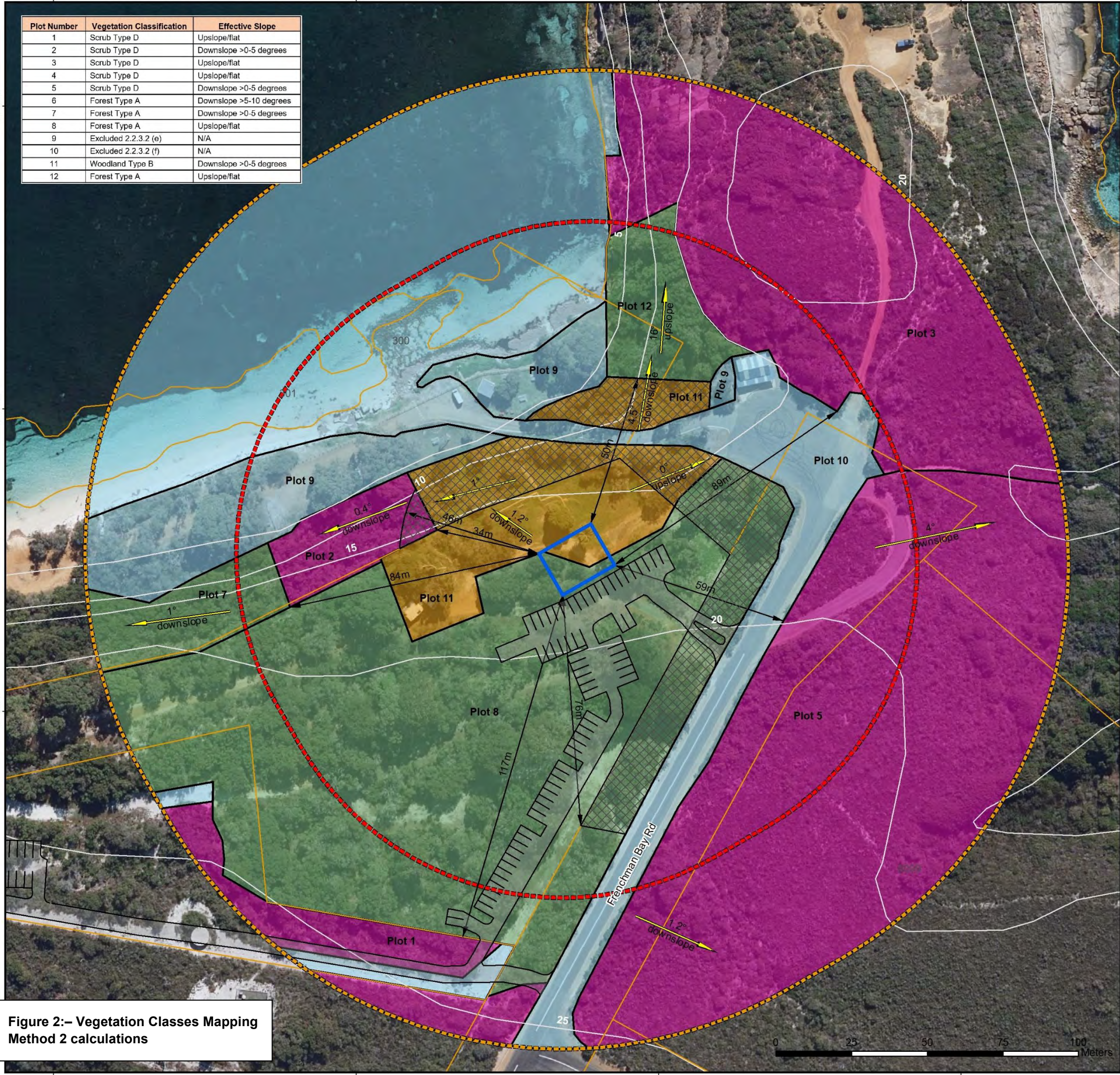


Figure 2:- Vegetation Classes Mapping Method 2 calculations

Albany Office: 29 Hercules Crescent Albany, WA 6330 (08) 9842 1575
 Denmark Office: 7/40 South Coast Highway Denmark, WA 6333 (08) 9848 1309
 Esperance Office: 2A/113 Dempster Street Esperance, WA 6450 (08) 9072 1382



Overview Map Scale 1:100,000

Legend

- Subject Site
 - 100m Assessment Boundary
 - 150m Assessment Boundary
 - Cadastre
 - 5m Contours
 - Separation Distance
 - Slopes Degrees
 - Proposed Internal Roads and Carparks
 - Future Low Fuel (Offsite)
 - Vegetation/Plot Boundary
- Vegetation**
- Forest Type A
 - Woodland Type B
 - Scrub Type D
 - Low fuel or non vegetated 2.2.3.2

Scale
 1:1,250 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: WA Now, Landgate Subscription Imagery
 Cadastre, Relief Contours and Roads: Landgate 2017
 IRIS Road Network: Main Roads Western Australia 2017
 Overview Map: World Topographic map service, ESRI 2012

CLIENT
 Paul King
 Lot 1 & 2 Frenchman Bay Road
 Frenchman Bay, WA 6330

Vegetation Classes - Method 2		
BAL Assessor	QA Check	Drawn by
KPK	JRB	BRM
STATUS	FILE	DATE
FINAL	MSC0403-002	15/11/2022

5. Actions arising from Method 2 BAL Assessment process

It is recommended that:

- If the café/kiosk is to be utilised for a last resort refuge area then the building is to be built to BAL-19 construction standards and the ABCB Handbook for Design and Construction of community bushfire refuges (2014).
- Will need to meet the acceptance criteria of Table 1 of the ABCB (2014) hand book, see note below.
- Consideration to the floor space available for the total number of people to be potentially refuged on site. The ABCB handbook recommends between 1m² to 0.75m² per person. The floor area is noted of the café to be 300m².
- Consider smoke with the ventilation system and consideration of a long period of time of shelter.
- Water supply to the building standalone – consider increased standalone supply.
- The building will require standalone power/generator supply.
- Airconditioning also see NCC for class 6 and 9 buildings.
- Internal and external reflective signage (pathways to the refuge).
- Signage to primary evacuation routes to Albany townsite for vehicle access.
- A Bushfire Emergency Evacuation Plan (BEEP) is developed to assess evacuation procedures, routes, and potential refuge on site if evacuation is compromised. This plan should be prepared as per the requirements of State Planning Policy 3.7 (SPP) and WAPC Guidelines for Planning in a Bushfire Prone Area (WAPC, 2021).

Note on the acceptance criteria (ABCB< 2014)

Acceptance criteria for nominated components of refuges designed to comply with performance criteria in 2.3 are presented in Table 1.

Acceptance criteria in the Table may not address all the 'heads of consideration' listed in the performance criteria. Therefore; any design consideration not addressed in the Table must be addressed from first principles.

6. Disclaimer

The recommendations and measures contained in this assessment report are based on the information available at the time of writing following the instructions of the regulatory authorities and following the requirements of the Australian Standards 3959-2018 – Building in Bushfire Prone Areas, WAPC State Planning Policy 3.7 (WAPC, 2015), WAPC Guidelines for Planning in Bushfire Prone Areas (WAPC, 20121) Vers 1.4, and applying best practise as described by the Fire Protection Association Australia. These are considered the minimum standards required to balance the protection of the dwellings and occupants with the aesthetic and environmental conditions required by local, state, and federal government authorities. They DO NOT guarantee that a building will not be destroyed or damaged by a bushfire, people injured, or fatalities occur either at the site or while evacuating. All surveys and forecasts, projections and recommendations made in this assessment report and associated with this proposed development are made in good faith based on the information available to the fire protection consultant at the time of assessment. The achievement of the level of implementation of fire precautions will depend amongst other things on actions of the landowner or occupiers of the land, over which the bushfire consultant has no control. Notwithstanding anything contained within, the consultant/s will not, except as the law may require, be liable for any loss or other consequences (whether or not due to negligence of the bushfire consultant) arising out of the services rendered by the consultant.

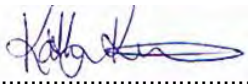
AS3959-2018 Disclaimer: It should be borne in mind that the measures contained within this Standard (AS3959-2018) cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather condition.

Building to AS3959-2018 is a standard primarily concerned with improving the ability of buildings in designated bushfire prone areas to better withstand attack from bushfire thus giving a measure of protection to the building occupants (until the fire front passes) as well as to the building itself.

(AS3959, 2018)

7. Certification

I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level (s) stated in this document have been prepared in accordance with the requirements of AS 3959-2018 and the WAPC Guidelines for planning in bushfire prone areas (WAPC, 2021).

SIGNED, ASSESSOR:  DATE: 17/11/2022

Kathryn Kinnear, Bio Diverse Solutions

Accredited Level 2 , (Pending level 3) Bushfire Practitioner (Accreditation No: BPAD30794)



8. Revision Record

Revision	Prepared By	Summary	Reviewed By	Date
Draft Id 27/10/2022	Kathryn Kinnear	Internal QA review	Melanie Haymont	27/10/2022
Draft Id Ver 1.0	Kathryn Kinnear	Draft 1 release to RTIO for review	Kathryn Kinnear	27/10/2022
Draft Id Ver 1.0	Kathryn Kinnear	Level 3 review	Erika Dawson	

Appendix A***Extract from WAPC Guidelines***

Planning in Bushfire prone areas (WAPC, 2021)

Performance criteria for the Method 2 and acceptable solutions and performance-based solution applied.

Section A5 8.1 and 8.2

PERFORMANCE PRINCIPLE	ACCEPTABLE SOLUTIONS
<p>P5viii</p> <p>The design and capacity of vehicular access and egress allows the occupants to evacuate to a suitable destination before a bushfire arrives to the site, whilst allowing emergency service personnel to attend the site; or it is demonstrated through a risk assessment that the risk can be managed.</p>	<p>A5.8.1 Vehicular access for all proposals</p> <p>A5.8.1a Internal vehicular access/private driveway is to provide emergency egress/access for all patrons and staff, in the event of a bushfire. Where possible, this is to include the provision of at least two internal access/egress points to the public road network.</p> <p>A5.8.1b Internal vehicular access/private driveways longer than 50 metres are to meet all the following requirements:</p> <ul style="list-style-type: none"> • Requirements in Table 6, Column 4; • Passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (that is, the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and • Turn-around areas as shown in Figure 28. <p>A5.8.1c Signage to be provided within the site, advising of where each access route travels to and the distance and general information signs on what to do in the event of a bushfire.</p> <p>A5.8.2 Vehicular access for short-term accommodation outside of a residential built-out area</p> <p>A5.8.2a Public road access is to be provided in two different directions to at least two different suitable destinations.</p> <p>A5.8.2b All public roads to be through roads. No-through roads are not recommended but if unavoidable, or they are existing, the following requirements apply:</p> <ul style="list-style-type: none"> • No more than 200 metres in length, where the adjoining classified vegetation, excluding the road reserve, has an extreme BHL; or • No more than 500 metres in length, where the adjoining classified vegetation, excluding the road reserve, has a moderate BHL; or • No limitation, where the adjoining classified vegetation, excluding the road reserve, has a low BHL or is not identified as bushfire prone. <p>A5.8.2c Where it is demonstrated that A5.8.2a and A5.8.2b cannot be achieved, an emergency access way can be considered as an acceptable solution.</p> <p>An emergency access way is to meet all of the following requirements:</p> <ul style="list-style-type: none"> • Requirements in Table 6, Column 2; • Provide a through connection to a public road; • Be no more than 600 metres in length; and • Must be signposted and if gated, gates must remain unlocked. <p>A5.8.2d A public road is to meet the requirements in Table 6, Column 1.</p> <p>A5.8.2e Where A5.8.2a, A5.8.2b and A5.8.2c (if required), cannot be achieved, and the proposed development has a capacity of up to a maximum of 100 guests and staff at any one time, an on-site shelter is to be provided in accordance with A5.7e, A5.7f and A5.7g Siting and Design.</p>

Appendix B***Method 2 BAL calculations - Flamesol***



Calculated November 15, 2022, 8:05 pm (BALc v.4.9)

Plot 4 Frenchman Bay cafe

Bushfire Attack Level calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	80	Rate of spread	4.16 km/h
Vegetation classification	Scrub	Flame length	11.62 m
Understorey fuel load	25 t/ha	Flame angle	82 °
Total fuel load	25 t/ha	Panel height	11.51 m
Vegetation height	3 m	Elevation of receiver	5.75 m
Effective slope	0 °	Fire intensity	53,815 kW/m
Site slope	0 °	Transmissivity	0.767
Distance to vegetation	59 m	Viewfactor	0.07539999999999999
Flame width	100 m	Radiant heat flux	6.46 kW/m ²
Windspeed	45 km/h	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Catchpole et al. 1998

Flame length - Byram, 1959

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005



Calculated November 10, 2022, 7:37 pm (BALc v.4.9)

Plot 8 Frenchman Bay Cafe

Bushfire Attack Level calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	80	Rate of spread	2.4 km/h
Vegetation classification	Forest	Flame length	19.8 m
Understorey fuel load	25 t/ha	Flame angle	79 °
Total fuel load	35 t/ha	Panel height	19.43 m
Vegetation height	n/a	Elevation of receiver	9.710000000000001 m
Effective slope	0 °	Fire intensity	43,400 kW/m
Site slope	0 °	Transmissivity	0.745
Distance to vegetation	84 m	Viewfactor	0.074
Flame width	100 m	Radiant heat flux	6.17 kW/m ²
Windspeed	n/a	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005



Calculated November 10, 2022, 7:22 pm (BALc v.4.9)

Plot 12 Frenchman Bay Cafe

Bushfire Attack Level calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	80	Rate of spread	0.79 km/h
Vegetation classification	Forest	Flame length	9.369999999999999 m
Understorey fuel load	25 t/ha	Flame angle	86.5 °
Total fuel load	35 t/ha	Panel height	9.35 m
Vegetation height	n/a	Elevation of receiver	1.05 m
Effective slope	-16 °	Fire intensity	14,388 kW/m
Site slope	4.5 °	Transmissivity	0.784
Distance to vegetation	46 m	Viewfactor	0.0856
Flame width	100 m	Radiant heat flux	7.5 kW/m ²
Windspeed	n/a	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Mcarthur, 1973 & Noble et al., 1980

Flame length - NSW Rural Fire Service, 2001 & Noble et al., 1980

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005



Calculated November 15, 2022, 7:59 pm (BALc v.4.9)

Plot 2 Frenchman Bay cafe

Bushfire Attack Level calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	80	Rate of spread	4.28 km/h
Vegetation classification	Scrub	Flame length	11.77 m
Understorey fuel load	25 t/ha	Flame angle	81.2 °
Total fuel load	25 t/ha	Panel height	11.63 m
Vegetation height	3 m	Elevation of receiver	4.85 m
Effective slope	0.4 °	Fire intensity	55,321 kW/m
Site slope	1.2 °	Transmissivity	0.785
Distance to vegetation	46 m	Viewfactor	0.1082
Flame width	100 m	Radiant heat flux	9.49 kW/m ²
Windspeed	45 km/h	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Catchpole et al. 1998

Flame length - Byram, 1959

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005



Calculated November 15, 2022, 8:04 pm (BALc v.4.9)

Plot 3 Frenchman Bay cafe

Bushfire Attack Level calculator - AS3959-2018 (Method 2)

Inputs		Outputs	
Fire Danger Index	80	Rate of spread	4.16 km/h
Vegetation classification	Scrub	Flame length	11.62 m
Understorey fuel load	25 t/ha	Flame angle	84 °
Total fuel load	25 t/ha	Panel height	11.56 m
Vegetation height	3 m	Elevation of receiver	5.78 m
Effective slope	0 °	Fire intensity	53,815 kW/m
Site slope	0 °	Transmissivity	0.741
Distance to vegetation	89 m	Viewfactor	0.0391
Flame width	100 m	Radiant heat flux	3.24 kW/m ²
Windspeed	45 km/h	Bushfire Attack Level	BAL-12.5
Heat of combustion	18,600 kJ/kg		
Flame temperature	1,200 K		

Rate of Spread - Catchpole et al. 1998

Flame length - Byram, 1959

Elevation of receiver - Douglas & Tan, 2005

Flame angle - Douglas & Tan, 2005

Radiant heat flux - Drysdale, 1999, Sullivan et al., 2003, Douglas & Tan, 2005

Appendix D

ELA (2018)

Bushfire Emergency Evacuation Plan (BEEP)

1. Location details

Facility type:

- Short-term accommodation in Rural Area

Location:

- Lots 1 and 2 Frenchman Bay Road, Albany, Western Australia

Infrastructure:

- 25 accommodation units, including café and **caretaker's residence**

Occupation / Visitation (number of people):

- Maximum visitors: 200 (based on 150 residential guests/caretaker, and 50 café patrons)

Access:

- Frenchman Bay Road (one formal and one emergency access route), internal paths and tracks within site.

Fire Weather Forecast Area:

- South West Land Division Fire District
- Stirling Coast

2. Communications

Mobile:

- Mobile reception is available – however, mobile communications can become unreliable during bushfire/emergency events due to the volume of usage

Landline / NBN:

- The resort will have a landline available for emergency use

Radio:

- ABC: Albany - Local Radio (630 AM), Southern Agricultural – News Radio (92.1 FM)

Internet Sites:

- Preparing your Property – [DFES Link](#)
- Emergency WA – www.emergency.wa.gov.au
- DFES on Facebook – www.facebook.com/dfeswa
- DFES on Twitter – www.twitter.com/dfes_wa
- National Bushfires app – www.bushfireblankets.com/bushfire-app.html

3. Contacts

Fire reporting	000	
Resort Manager	TBC	TBC
DFES (Emergency Information)	13 33 37	
SES (Emergency Assistance)	132 500	
WA Police	000	
WA Ambulance	000	
Bureau of Meteorology (BoM) Recorded Information	1300 659 213	

4. Evacuation preparedness

- All guests must be briefed during the Bushfire Danger Period on the bushfire evacuation procedures with updated advice provided when the Fire Danger Rating (FDR) exceeds Very High or a fire warning is issued by Emergency Services (currently DFES) for the locality.
- This Evacuation Plan is to be displayed in **guest's** rooms, reception and communal areas.

BUSHFIRE PREPAREDNESS MATRIX

ACTION	LOW/MOD	HIGH	VERY HIGH	SEVERE	EXTREME	CATASTROPHIC
Resort Manager to perform daily check (after 4 pm) on the DFES and BoM websites to determine the Fire Danger Rating (FDR) for the following day and weekly prediction. Update resort visitors if there is a likelihood of the site being closed to visitors due to FDR.						
Resort Manager to monitor Emergency WA / or DFES website or ABC Radio or 'National Bushfires' app for fire incidents	Min. 1 pm	Min. 1pm, 3pm	Min. 11am, 1pm, 3pm	Min. 11am, 1pm, 3pm (or more frequently if fire event in locality)		Resort Closed to visitors
Complete building preparedness checks			By 10 am	By 8 am	By 8 am	

5. Evacuation triggers

A decision to evacuate off-site or to the nominated bushfire shelter (shelter-in-place: the café/caretakers building) is to be determined by:

- Instructions from Police, DFES, other Emergency Services or **Resort Manager**
- the Bushfire Evacuation Matrix (overleaf)
- A warning regarding a known bushfire in the locality (see Bushfire Evacuation Matrix overleaf)

SEE EVACUATION DECISION MATRIX (OVERLEAF)

6. Evacuation Procedures

Every bushfire attack is different. The response to each must therefore be specific and be in response to bushfire warnings

Bushfire Warning Notification

- Emergency WA website, SMS or **the 'National Bushfires' App** (for smartphones) will provide initial notification of a fire and evacuation instructions.
- DFES, Police (or other incident personnel) may also attempt to notify visitors (on site).
- The Resort Manager is also responsible to ensure any visitors are aware of a fire warning has been issued.

Off-site evacuation

- Off-site evacuation is always safer, provided adequate time is available to complete safely. Confirm with Lead Agency (DFES or other Emergency Service) prior to evacuating and follow all directions.
- Off-site evacuation is to occur by driving private vehicles directly to Albany Leisure and Aquatics Centre (ALAC) on Barker Road (this has previously been used as an evacuation centre for the town). The ALAC is an evacuation point consistent with City of Albany Local Emergency Management Committee (LEMC) planning. Obtain further advice from media warnings once safely in Albany.
- Evacuation well in advance of a **fire's predicted arrival time is safer** than remaining on-site.

On-site evacuation

- Evacuating to the nominated on-site refuge may be required where it is not possible to evacuate to Albany safely.
- This nominated building (café/caretakers building) has been constructed to a BAL-29 standard, is situated in an area subject to a radiant heat flux of <10kW/m², and will provide for a greater level of protection than remaining outdoors.

Staging works

- Due to staging works, the café/caretakers building (i.e. on-site refuge) will not be available pre-Stage 3a, and will be subject to a separate Development Approval. Until the café/caretakers building is constructed, a temporary site sales office will be located in the **café/caretaker's** garage area/location and constructed to BAL-29. The site sales office will be moved once the café/caretakers building is established and operational and can be used as the on-site refuge.

The temporary on-site refuge will contain an office/sales area and a conference room which is commensurate with the maximum number of potential residents on site. For example, by the end of stage 3 construction and prior to Stage 4 the temporary site sales office will contain 85m² of useable space to cater for 84 residents (i.e. 14 units @6 persons) in the event it is required as an on-site refuge.

7. Visitor welfare during shelter-in-place

- This will be provided by the Resort Manager. Serious medical needs will require emergency response via 000.

8. Building Preparedness Checks

- Include such tasks as ensuring reduced fuel loads around buildings, routine house maintenance is up to date including cleaning of gutters, fire breaks are in place, and static water supply is available.
- Detailed information and checklists are available on the DFES website including the **'The Homeowner's Bushfire Survival Manual'** and the **'Prepare Act Survive Booklet'** published by DFES:

https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES_Bushfire-Homeowners_Survival_Manual.pdf

https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/DFES_Bushfire-Prepare_Act_Survive_Booklet.pdf

9. Notes on Fire Danger Rating and Total Fire Ban Declaration

- The Fire Danger Rating (FDR) gives an indication of the potential consequences of a fire, if a fire was to start.
- The rating is based on predicted conditions such as the forecast temperature, humidity, wind and dryness of the landscape.
- The higher the fire danger rating, the more dangerous the conditions.
- During the Bushfire Danger Period (1st November – 30th April) the forecast FDR for the following day is typically released around 4pm but can be changed as weather conditions unfold.
- Both predicted and current FDR are available from the DFES and BoM websites.



A **'Total Fire Ban'** (known as TFB) is a separate declaration (i.e. a particular day or part thereof may have both **'Severe'** FDR and a TFB).

10. What to do if caught in a bushfire

The following provide current guidelines* on what to do if caught in a bushfire in a building or on foot. Each requires a different response involving critical decisions for your survival.

What to do if caught in a bushfire IN A BUILDING

Outside your building

- Ensure you drink plenty of water so you do not dehydrate
- Block your downpipes, (a sock full of sand/soil will help) and fill your gutters with water
- Move flammable items such as outdoor furniture, doormats,
- Gas cylinders should have the valve facing away from the building
- Do not stand on the roof with a hose. In bush fires, often more people are injured by falling from roofs than suffering burns
- Patrol the outside of the building, putting out any embers and spot fires that may start. An ember or spark can reach your home hours before the fire front arrives
- Just before the fire arrives, wet down timber decks and gardens close to the building
- Move any firefighting equipment to a place where it will not get burnt.

Inside your building

- Continue to drink water so you do not dehydrate
- Close doors, windows, vents, blinds and curtains to prevent flames, smoke and embers from entering
- Put tape across the inside of the windows so they stay in place if they break
- Shut off gas at the meter or bottle
- Move furniture away from the windows to prevent any embers that enter the building from igniting
- Fill sinks, bath and buckets with water for putting out any fires that may start inside
- Place wet towels around window and door edges to stop smoke and embers from entering
- Put a ladder next to the access hole to the roof space so you can check for spot fires.

During the fire

- When the fire arrives, go inside to protect you from the radiant heat
- Ensure you have torches ready as it is likely to become completely dark and you will not be able to see
- Patrol the inside of the building, including the roof space for sparks and embers
- Remember – if your life is at risk, call Triple Zero (000) immediately.

After the fire

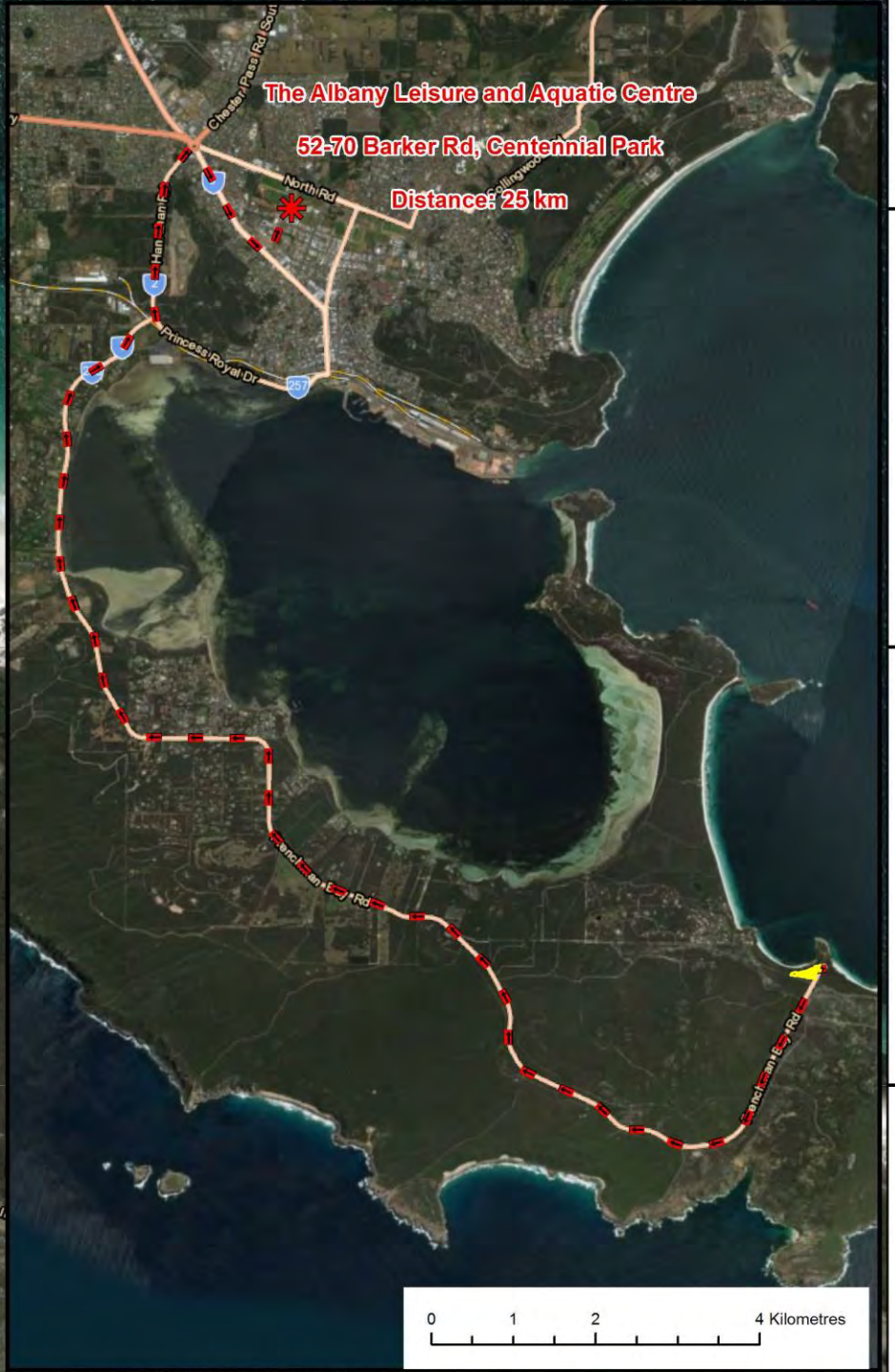
- Once the fire has passed, you may need to patrol the property for hours. Go outside and put out any part of the building which is alight.
- An ember or spark from a fire can impact on a house many hours after the main fire front has passed and small spot fires can quickly get out of control.

What to do if caught in a bushfire ON FOOT

- Try to move on to bare or burnt ground at least 100 m from where fire is likely to burn, if this is not feasible find the largest bare or burnt ground possible
- Do not run uphill or away from the fire unless you know a safe refuge is able to be reached before the fire arrives. Try and position yourself downhill of the on-coming fire.
- Move across the slope out of the path of the fire front and work your way downslope towards the back of the fire or onto burnt ground.
- Do not attempt to run through flames unless you can see clearly behind them. This generally means that the flames are less than 1 metre high and less than 1 to 2 metres deep at the back or on the flanks of the fire.
- Lulls in the fire often result in the flames in these parts being low enough to step or run through to the burnt ground beyond.
- When conditions become severe use every possible means to protect yourself from radiation. On bare ground cover yourself, use wheel ruts, depressions, large rocks or logs to give protection.
- Take refuge in ponds, running streams or culverts, but behind solid objects such a rock
- Remain calm and do not run blindly from the fire. If you become exhausted you are much more prone to heat stroke and you may easily overlook a safe refuge. Consider an alternative course of action.

* adapted from NSW RFS bushfire training modules.

BUSHFIRE RESPONSE AND EVACUATION PLAN - Frenchman Bay Retreat: Lots 1 & 2 Frenchman Bay Road, Albany



RISK STATUS	LOW/ MOD	HIGH	VERY HIGH	SEVERE	EXTREME	CATASTROPHIC
Fire predicted to impact site or egress	Evacuate to the Albany township if safe (seek advice from DFES / Emergency Services) or if instructed to do so*3					
	Allow for at least 2-4 hours for evacuation					
Time to fire impact is <time available to evacuate*2	If safe to do so; move directly to the nominated on-site refuge*1					
Fires exist in region but no risk to site		<ul style="list-style-type: none"> Guests booked for the following 3 days alerted to possible Resort closure. Brief guests of emergency service advice and maintain regular communications with them 	<ul style="list-style-type: none"> Obtain emergency service advice on whether to close the Resort and evacuate guests off-site or shelter in place. 			<ul style="list-style-type: none"> Close Resort for forecast period
No fires	Maintain appropriate monitoring as per Bushfire Preparedness Matrix					

*1 Relocate – ONLY if safe to do so e.g. flames are not visible or nearby dense smoke is not blown directly toward you. If you risk being caught on foot or in your car prior to reaching the on-site refuge, stay inside the accommodation dwelling.
 *2 NB: time to relocate is the estimated time for all occupants/guests to pack up and drive to the Albany township PLUS adding extra precautionary time based upon the FDR. Check with emergency service warnings before evacuating. Leaving at least 24 hours prior to the predicted arrival of the fire may be required.
 *3 Evacuation safety is dependent on factors such as Fire Danger Rating, wind strength and direction, and the proximity and direction of the fire. Follow advice of emergency service broadcast fire warnings or telephone them. Do not evacuate to Albany unless this can be completed many hours before the potential fire arrival. Advice from DFES or other Emergency Service should be sought before evacuating.

- Accommodation block
- Primary Egress
- Secondary Egress
- Off-site Refuge (Albany Leisure and Aquatic Centre)
- On-site Refuge (Café)
- Temporary on-site Refuge (Site Office) – to be used during staging works
- Maintained APZ

Datum/Projection:
GDA 1994 MGA Zone 50

eco logical AUSTRALIA
www.ecoaus.com.au
Prepared by: LT Date: 13/04/2018

Appendix B:

Standards for Asset Protection Zones

The following standards have been extracted from the *Guidelines for Planning in Bushfire Prone Areas v 1.4* (WAPC, 2021).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

- a. Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29) in all circumstances.
- b. Location: the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).
- c. Management: the APZ is managed in accordance with the requirements of '*Standards for Asset Protection Zones*' (below):

- Fences within the APZ:

- Should be constructed from non-combustible materials or bushfire-resisting timber referenced in Appendix F of AS 3959.

- Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness):

- Should be managed and removed on a regular basis to maintain a low threat state.
- Should be maintained at <2 tonnes per hectare (on average).
- Mulches should be non-combustible (e.g. stone, gravel or crushed mineral earth) or wood mulch >6 millimetres in thickness.

- Trees (>6 metres in height):
- Trunks at maturity should be a minimum distance of six metres from all elevations of the building;

- Branches at maturity should not touch or overhand a building or powerline.
- Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation.
- Canopy cover within the APZ should be <15 per cent of the total APZ area.
- Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.

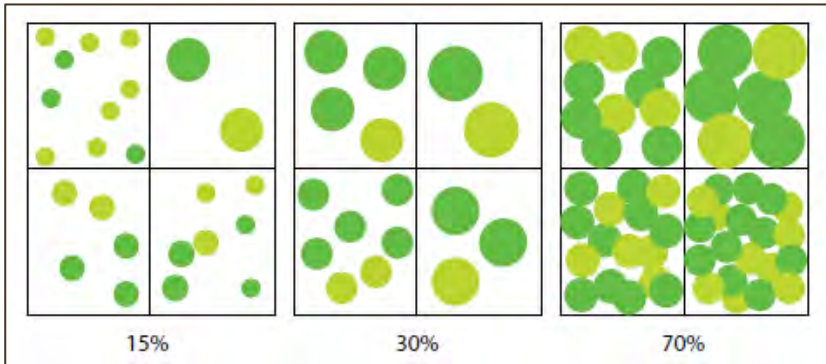


Figure 7: Illustrated tree canopy cover projection (WAPC, 2021)

- Shrub and scrub 0.5 metres to six metres in height (shrub or scrub >6 metres in height are to be treated as trees):
 - Should not be located under trees or within three metres of buildings.
 - Should not be planted in clumps >5 square metres in area.
 - Clumps should be separated from each other and any exposed window or door by at least 10 metres.
- Ground covers <0.5 metres in height (ground covers >0.5 metres in height are to be treated as shrubs):
 - Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above.
 - Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
- Grass:
 - Grass should be maintained at a height of 100 millimetres or less, at all times.
 - Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
- Defendable space:
 - Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.

- LP Gas Cylinders:
 - Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building.
 - The pressure relief valve should point away from the house.
 - No flammable material within six metres from the front of the valve.
 - Must site on a firm, level and non-combustible base and be secured to a solid structure.

ADDITIONAL NOTES

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

Plant flammability, landscaping design and maintenance should also be considered for trees, shrub, scrub and ground covers with the APZ. Please refer to explanatory notes '*E2 Managing an Asset Protection Zone (APZ) to a low threat state,*' '*E2 Landscaping and design of an asset protection zone,*' and '*E2 Plant flammability*' in the Guidelines for further information relating to APZ standards.

Appendix C:

Vehicular access technical requirements (WAPC, 2021)

Technical requirements	Public road	Emergency access way ¹	Fire service access route ¹	Battle-axe and private driveways ²
Minimum trafficable surface (m)	In accordance with A3.1	6	6	4
Minimum horizontal clearance (m)	N/A	6	6	6
Minimum vertical clearance (m)	4.5			
Minimum weight capacity (t)	15			
Maximum grade unsealed road ³	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum grade sealed road ³	As outlined in the IPWEA Subdivision Guidelines	1:7 (14.3%)		
Maximum average grade sealed road	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Minimum inner radius of road curves (m)	As outlined in the IPWEA Subdivision Guidelines	8.5		

1To have crossfalls between 3 and 6%

2Where driveways and battle-axe legs are not required to comply with the widths in A3.5 or A3.6, they are to comply with Residential Design Codes and Development Control Policy 2.2 Residential Subdivision.

3Dips must have no more than a 1 in 8 (12.5% - 7.1 degree) entry and exit angle.

Appendix D: Method 2 BAL Assessment Calculations

Calculation notes:

- 3 m is used for the elevation of receiver for Class D Scrub plots. There is a bug with the NBC software that requires an elevation of receiver to be input for this vegetation type. The developer has advised that manually inputting 3 m as the elevation of receiver is the correct workaround for this issue.
- 15° upslope is used to calculate the radiant heat flux associated with Plot 12. Whilst this plot is actually subject to an effective slope of 16° upslope, the NBC software does not allow upslopes in excess of 15°. As 15° upslope has a faster rate of spread than 16° upslope, this substitute is considered acceptable.



NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 30/11/2023

Assessment Date: 22/11/2023

Site Street Address: 1823 Frenchman Bay Road, Frenchman Bay

Assessor: Daniel Panickar; Western Environmental

Local Government Area: WA

Alpine Area: No

Equations Used

Transmissivity: Fuss and Hammins, 2002

Flame Length: RFS PBP, 2001/Vesta/Catchpole

Rate of Fire Spread: Noble et al., 1980

Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005

Peak Elevation of Receiver: Tan et al., 2005

Peak Flame Angle: Tan et al., 2005

Run Description: Plot 11 Class B Woodland

Vegetation Information

Vegetation Type: Woodland

Vegetation Group: Forest and Woodland

Vegetation Slope: 4 Degrees

Vegetation Slope Type: Downslope

Surface Fuel Load(t/ha): 15

Overall Fuel Load(t/ha): 25

Vegetation Height(m): 2

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 0 Degrees

Site Slope Type: Level

Elevation of Receiver(m): Default

APZ/Separation(m): 138.15

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL LOW

Peak Elevation of Receiver(m): 7.63

Radiant Heat(kW/m²): 1.88

Flame Angle (degrees): 84

Flame Length(m): 15.34

Maximum View Factor: 0.024

Rate Of Spread (km/h): 1.9

Inner Protection Area(m): 116

Transmissivity: 0.711

Outer Protection Area(m): 22

Fire Intensity(kW/m): 24512

Run Description: Plot 12 Class A Forest

Vegetation Information

Vegetation Type: Forest

Vegetation Group: Forest and Woodland

Vegetation Slope: 15 Degrees

Vegetation Slope Type: Upslope

Surface Fuel Load(t/ha): 25

Overall Fuel Load(t/ha): 35

Vegetation Height(m): 2

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 4.5 Degrees

Site Slope Type: Downslope

Elevation of Receiver(m): Default

APZ/Separation(m): 163.33

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL LOW

Peak Elevation of Receiver(m): 0

Radiant Heat(kW/m2): 0.85

Flame Angle (degrees): 92

Flame Length(m): 9.74

Maximum View Factor: 0.011

Rate Of Spread (km/h): 0.85

Inner Protection Area(m): 131

Transmissivity: 0.694

Outer Protection Area(m): 31

Fire Intensity(kW/m): 15417

Run Description: Plot 2 Class D Scrub

Vegetation Information

Vegetation Type: Scrub/Tall Heath

Vegetation Group: Shrub & Heath

Vegetation Slope: 0.4 Degrees

Vegetation Slope Type: Downslope

Surface Fuel Load(t/ha): 25

Overall Fuel Load(t/ha): 25

Vegetation Height(m): 3

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 1.2 Degrees

Site Slope Type: Downslope

Elevation of Receiver(m): 3

APZ/Separation(m): 69.54

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 4.39

Radiant Heat(kW/m2): 5.01

Flame Angle (degrees): 83

Flame Length(m): 11.78

Maximum View Factor: 0.059

Rate Of Spread (km/h): 4.28

Inner Protection Area(m): 70

Transmissivity: 0.757

Outer Protection Area(m): 0

Fire Intensity(kW/m): 55322

Run Description: Plot 3 Class D Scrub

Vegetation Information

Vegetation Type: Scrub/Tall Heath

Vegetation Group: Shrub & Heath

Vegetation Slope: 0 Degrees

Vegetation Slope Type: Level

Surface Fuel Load(t/ha): 25

Overall Fuel Load(t/ha): 25

Vegetation Height(m): 3

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 0 Degrees

Site Slope Type: Level

Elevation of Receiver(m): 3

APZ/Separation(m): 44.34

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 5.73

Radiant Heat(kW/m2): 9.85

Flame Angle (degrees): 80

Flame Length(m): 11.63

Maximum View Factor: 0.112

Rate Of Spread (km/h): 4.17

Inner Protection Area(m): 44

Transmissivity: 0.788

Outer Protection Area(m): 0

Fire Intensity(kW/m): 53816

Run Description: Plot 4 Class D Scrub

Vegetation Information

Vegetation Type: Scrub/Tall Heath

Vegetation Group: Shrub & Heath

Vegetation Slope: 0 Degrees

Vegetation Slope Type: Level

Surface Fuel Load(t/ha): 25

Overall Fuel Load(t/ha): 25

Vegetation Height(m): 3

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 0 Degrees

Site Slope Type: Level

Elevation of Receiver(m): 3

APZ/Separation(m): 107.11

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL LOW

Peak Elevation of Receiver(m): 5.79

Radiant Heat(kW/m2): 2.31

Flame Angle (degrees): 84

Flame Length(m): 11.63

Maximum View Factor: 0.028

Rate Of Spread (km/h): 4.17

Inner Protection Area(m): 107

Transmissivity: 0.73

Outer Protection Area(m): 0

Fire Intensity(kW/m): 53816

Run Description: Plot 5 Class D Scrub

Vegetation Information

Vegetation Type: Scrub/Tall Heath

Vegetation Group: Shrub & Heath

Vegetation Slope: 4 Degrees

Vegetation Slope Type: Downslope

Surface Fuel Load(t/ha): 25

Overall Fuel Load(t/ha): 25

Vegetation Height(m): 3

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 0 Degrees

Site Slope Type: Level

Elevation of Receiver(m): 3

APZ/Separation(m): 87.78

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 6.55

Radiant Heat(kW/m2): 3.77

Flame Angle (degrees): 83

Flame Length(m): 13.2

Maximum View Factor: 0.045

Rate Of Spread (km/h): 5.49

Inner Protection Area(m): 88

Transmissivity: 0.743

Outer Protection Area(m): 0

Fire Intensity(kW/m): 70921

Run Description: Plot 6 Class A Forest

Vegetation Information

Vegetation Type: Forest

Vegetation Group: Forest and Woodland

Vegetation Slope: 8 Degrees

Vegetation Slope Type: Downslope

Surface Fuel Load(t/ha): 25

Overall Fuel Load(t/ha): 35

Vegetation Height(m): 2

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 0 Degrees

Site Slope Type: Level

Elevation of Receiver(m): Default

APZ/Separation(m): 208.82

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg) 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 80

Program Outputs

Level of Construction: BAL LOW

Peak Elevation of Receiver(m): 15.49

Radiant Heat(kW/m2): 1.69

Flame Angle (degrees): 82

Flame Length(m): 31.29

Maximum View Factor: 0.022

Rate Of Spread (km/h): 4.17

Inner Protection Area(m): 163

Transmissivity: 0.681

Outer Protection Area(m): 45

Fire Intensity(kW/m): 75374

Run Description: Plot 7 Class A Forest

Vegetation Information

Vegetation Type: Forest
Vegetation Group: Forest and Woodland
Vegetation Slope: 1 Degrees
Vegetation Slope Type: Downslope
Surface Fuel Load(t/ha): 25
Overall Fuel Load(t/ha): 35
Vegetation Height(m): 2
Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope: 1.2 Degrees
Site Slope Type: Downslope
Elevation of Receiver(m): Default
APZ/Separation(m): 67.23

Fire Inputs

Veg./Flame Width(m): 100
Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95
Relative Humidity(%): 25
Heat of Combustion(kJ/kg) 18600
Ambient Temp(K): 308
Moisture Factor: 5
FDI: 80

Program Outputs

Level of Construction: BAL 12.5
Peak Elevation of Receiver(m): 8.79
Radiant Heat(kW/m2): 9.5
Flame Angle (degrees): 77
Flame Length(m): 20.91
Maximum View Factor: 0.112
Rate Of Spread (km/h): 2.57
Inner Protection Area(m): 49
Transmissivity: 0.761
Outer Protection Area(m): 18
Fire Intensity(kW/m): 46500





WESTERN
ENVIRONMENTAL

Bushfire Emergency Evacuation Plan

Development Application:

Tourism development: 1823 Frenchman Bay Road,
Frenchman Bay

Western Environmental Pty Ltd

(08) 6162 8980

PO Box 437, Leederville, WA 6903

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WESTERN
ENVIRONMENTAL

Bushfire Emergency Evacuation Plan

Development Application:
Tourism development: 1823 Frenchman Bay
Road, Frenchman Bay

Report No:

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Status

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Prepared for:

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WESTERN
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The bushfire management measures and risk treatments proposed in this document do not guarantee that buildings or infrastructure will not be damaged in a bushfire, nor that there will be no injuries or fatalities either on the site or offsite while evacuating. Primarily, this is due to the unpredictable nature and behaviour of fire and fire weather conditions. In addition, implementation of the required bushfire management measures (including construction standards, maintenance etc.) and any other required or recommended measures, will depend upon, among other things, the ongoing actions of landowners and/or operators over which WEPL has no control.

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Appendices

Appendix A: Analysis: Bushfire Management and Emergency Procedures

Appendix B: Information: Fire Danger Ratings, Behaviour Indices and Warnings

Appendix C: Bushfire Preparedness

1. Using this Bushfire Emergency Evacuation Plan

This Bushfire Emergency Evacuation Plan (BEEP) is for the proposed tourism facility at 1823 Frenchman Bay Road, Frenchman Bay and has been designed to assist management to protect life and property in the event of a bushfire.

This plan was developed in line with ‘*A Guide to developing a Bushfire Emergency Evacuation Plan*’ (WAPC, 2019). Some items are listed as To Be Confirmed (TBC) as the required information was not available during the time this plan was developed. It is critical that this plan be updated with all required information prior to the occupation of the subject site.

This plan assumes that the Bushfire Management Plan prepared for the development (WEPL, 2023) will be implemented, including recommendations to construct the habitable buildings within the subject site to their respective Bushfire Attack Level (BAL) ratings.

This plan outlines procedures for both EVACUATION and SHELTER-IN-PLACE to enhance the protection of occupants from the threat of a bushfire. It is critical that all persons within the tourism facility understand:

- The PRIMARY BUSHFIRE MANAGEMENT PROCEDURE.
- The PRIMARY BUSHFIRE EMERGENCY PROCEDURE.
- Relevant TRIGGERS and associated BUSHFIRE MANAGEMENT/EMERGENCY PROCEDURES and ACTIONS to be undertaken.
- The designated EVACUATION ROUTES and DESTINATIONS.
- EMERGENCY CONTACTS and INFORMATION SOURCES.
- That **any direct and specific evacuation messages regarding this site from DFES or other emergency personnel will override this BEEP.**

2. Primary Bushfire Management and Bushfire Emergency Procedures

The PRIMARY BUSHFIRE MANAGEMENT PROCEDURE is

EARLY CLOSURE OF THE TOURISM FACILITY UNDER A CATASTROPHIC FIRE DANGER RATING.

The PRIMARY BUSHFIRE EMERGENCY PROCEDURE is

EVACUATE OFF SITE (ONLY IF THERE IS NO BUSHFIRE IN THE SHELTER TRIGGER ZONE DEPICTED IN FIGURE 1 OR AS OTHERWISE ADVISED BY EMERGENCY SERVICES).

Justification for these procedures is provided in Appendix A.

Early, safe evacuation is the preferred course of action. However, bushfires are unpredictable by nature and in the event of a bushfire impacting the subject site before there is sufficient time to safely evacuate guests, staff and contractors, all occupants will be required to SHELTER-IN-PLACE due to the bushfire threat posed to the, the potential time required to evacuate and highly constrained access/egress options.

3. Facility Details

Name of on-site contact person:	TBC
Phone number:	TBC
Type of facility:	TBC
Number of buildings:	TBC
Number of employees:	TBC
Number of occupants:	TBC
Number of vulnerable occupants/with support needs:	TBC
Estimated maximum number of visitors:	TBC

4. Responsibilities and Emergency Contacts

RESPONSIBILITIES				
Position	Name	Building / area of responsibility	Responsibility	Phone number
Chief Fire Warden	TBC	Whole of facility	Contact with DFES. Evacuation of all occupants (includes guests, staff and visitors).	TBC
Secondary Fire Warden	TBC	Whole of facility	Ensure all doors and windows closed. Notify all occupants on activities and tasks on advice from Facility Manager of actions. Account for location of all guests, staff and visitors.	TBC
Gardener/landscape contractor	TBC	Outside Grounds	Irrigation system enabled if impact of fire imminent; Maintenance of landscaping as per Appendix C of this BEEP	TBC

EMERGENCY CONTACTS		
Name or organisation	Office / Contact	Contact details
EXTERNAL CONTACTS		
Fire, Police, Ambulance	Fire or Emergency	000
Department of Fire & Emergency Services	Emergency information	13 33 37 (13 DFES)
Bureau of Meteorology	Fire Danger Ratings	http://www.bom.gov.au/wa/forecasts/fire-danger-ratings.shtml
Emergency WA	Warnings and Incidents	www.emergency.wa.gov.au
SES	Emergency Assistance	132 500
Albany Police Station	Local Police Office	(08) 9892 9300
Albany Heath Campus	Local Hospital	(08) 9892 2222
Bureau of Meteorology (BoM)	Recorded Information	1300 659 213
ABC Radio	Warnings and Incidents	630 AM
INTERNAL CONTACTS		
TBC	Caretaker/Manager	TBC
TBC	Chief Fire Warden	TBC
TBC	Secondary Fire Warden	TBC

5. Bushfire Awareness and Management Procedures

Bushfire Awareness and Management Procedures have been developed with reference to Fire Danger Ratings (FDRs) and the Fire Behaviour Index (FBI). Information about FDRs and the FBI is provided in Appendix B.

It is imperative that the Facility Manager monitors FDRs daily (after 4pm) on the DFES and BoM websites to determine the FDR for the following day and weekly prediction. Staff, guests, contractors and other visitors are to be updated if there is a likelihood of the facility being closed due to a Catastrophic Fire Danger Rating. Bushfire Management Procedures for each FDR are provided below.

In addition, DFES has the ability to put in place Total Fire Bans (TFB) for Local Government Areas based on the predicted extreme fire weather for any part of a day. The TFB is announced by DFES and with information to be found on their website or call the TFB hotline on 1800 709 355. Additional bushfire awareness measures are applicable when a TFB is issued over the area where the facility is located, as detailed below.

In addition to these bushfire awareness measures, bushfire preparedness measures are provided in Appendix C which are to be undertaken at specified times of year. Some of these bushfire preparedness measures are referred to below.

BUSHFIRE AWARENESS AND MANAGEMENT PROCEDURES

Actions	Frequency	Responsible Person
Days forecast with No Rating		
No actions required		
Days forecast as Moderate FDR		
Monitor Emergency WA / or DFES website or ABC Radio for fire incidents	Once daily (1pm)	Facility Manager
Days forecast as High FDR		
Monitor Emergency WA / or DFES website or ABC Radio for fire incidents	Twice daily (1pm and 3pm)	Facility Manager
Complete building preparedness checks (refer to Appendix C)	Once daily (prior to 10am)	Facility Manager
Days forecast as Extreme FDR		
Monitor Emergency WA / or DFES website or ABC Radio for fire incidents	Four times daily (9am, 11am, 1pm and 3pm) or more frequently if fire event in locality	Facility Manager
Complete building preparedness checks (refer to Appendix C)	Once daily (prior to 8am)	Facility Manager
Days forecast as Catastrophic FDR		
FACILITY CLOSED		
Additional Controls - Total Fire Ban in area where Facility is located		
Monitor Emergency WA / or DFES website or ABC Radio for fire incidents	Four times daily (9am, 11am, 1pm and 3pm) or more frequently if fire event in locality	Facility Manager

FIRE WEATHER FORECAST AREA: Stirling Coast

6. Emergency Procedures

The PRIMARY BUSHFIRE EMERGENCY PROCEDURE is

EVACUATE OFF SITE (ONLY IF THERE IS NO BUSHFIRE IN THE SHELTER TRIGGER ZONE DEPICTED IN FIGURE 1 OR AS OTHERWISE ADVISED BY EMERGENCY SERVICES).

Off site evacuation is always safer, provided adequate time is available to complete it safely. Confirm with Lead Agency (DFES or other Emergency Service) prior to evacuating and follow all directions. Sheltering on site is a last resort option, where there is inadequate time to evacuate the site safely.

Procedures for evacuation and shelter-in place are below. Any direct and specific evacuation messages regarding this site from DFES or other emergency personnel will override these procedures.

Triggers for the BUSHFIRE EMERGENCY PROCEDURES in this BEEP are detailed below. These triggers are aligned to the DFES Bushfire Warning Levels.

Specific details for the Off site evacuation and Shelter-in-Place locations are provided in sections 6.1 and 6.2.

TRIGGERS: BUSHFIRE EMERGENCY PROCEDURES			
Trigger	Safe, early, off site EVACUATION	SHELTER-IN-PLACE	Procedure
1. DFES issue an ADVICE bushfire warning	✓	<input type="checkbox"/>	<p>If a fire is spotted, report immediately to 000 and then Facility Manager. Request information from DFES regarding bushfire time to arrival and if OFF SITE EVACUATION should be undertaken.</p> <p>If OFF SITE EVACUATION is to occur, undertake actions in Row 2 below.</p> <p>Establish regular communication between the Facility Manager or delegate for the facility and all guests, staff and visitors to provide awareness of potential bushfire threat.</p> <p>Facility Manager to account for location of all guests, staff and visitors.</p> <p>Facility Manager or delegate to inform parents/guardians of the bushfire threat and advise them not to attend the school and to keep updated with the DFES advice via Emergency WA website.</p> <p>Continually monitor DFES alerts for change in conditions and advice and prepare for evacuation.</p>
2. DFES issue a WATCH AND ACT bushfire warning and there is NO FIRE in the <i>Shelter Trigger Zone</i> indicated in Figure 1	✓	<input type="checkbox"/>	<p>If a fire is spotted, report immediately to 000 and then Facility Manager. Request information from DFES regarding bushfire time to arrival and if OFF SITE EVACUATION to Albany Leisure and Aquatic Centre should be undertaken.</p> <p>If DFES and/or the Facility Manager confirm OFF SITE EVACUATION is to be undertaken, all guests, staff and visitors are to be informed and instructed to move to the On-site assembly area (with the exception of those with specific bushfire responsibilities).</p> <p>Facility Manager or delegate to advise on evacuation to Albany Leisure and Aquatic Centre.</p> <p>All visitors and other non-essential personnel to be asked to leave the facility if safe to do so.</p> <p>Facility Manager to account for location of all guests, staff and visitors and organise transport.</p> <p>Evacuate to Albany Leisure and Aquatic Centre.</p> <p>If SHELTER-IN-PLACE is to occur, undertake actions in Row 3 below.</p>

TRIGGERS: BUSHFIRE EMERGENCY PROCEDURES

<p>3. DFES issue a WATCH AND ACT bushfire warning and there is <u>A FIRE</u> in the Shelter Trigger Zone indicated in Figure 1</p>	<p style="text-align: center;"><input type="checkbox"/></p>	<p style="text-align: center;">✓</p>	<p>Facility Manager to account for location of all guests, staff and visitors.</p> <p>Facility Manager or delegate to supervise and ensure that all guests, staff and visitors are located indoors, onsite within the <u>SHELTER-IN-PLACE</u> building, in a room with an exit from the building on the northern side (if possible).</p> <p>Ensure all windows/doors are closed.</p> <p>Soak towels and rugs in water and lay them along the inside of external doorways.</p> <p>All flammable material and equipment are removed away from windows, doors and air-conditioner units.</p> <p>Facility Manager or delegate to nominate a sole liaison officer to contact DFES immediately to determine appropriate course of action and inform all staff, children, visitors and parents/guardians.</p>
<p>4. DFES issue an EMERGENCY WARNING bushfire warning</p>	<p style="text-align: center;"><input type="checkbox"/></p>	<p style="text-align: center;">✓</p>	<p>Facility Manager to account for location of all guests, staff and visitors.</p> <p>Facility Manager or delegate to supervise and ensure that all guests, staff and visitors are located indoors, onsite within the SHELTER-IN-PLACE building, in a room with an exit from the building on the northern side (if possible).</p> <p>Ensure all windows/doors are closed.</p> <p>All flammable material and equipment are removed away from windows, doors and air-conditioner units.</p> <p>Facility Manager or delegate to nominate a sole liaison officer to contact DFES immediately to determine appropriate course of action and inform all staff, children, visitors and parents/guardians.</p>

6.1 Evacuation

OFF-SITE EVACUATION ROUTES and DESTINATIONS	
On-site assembly area (prior to off site evacuation)	
Name/Description	Refuge building (Figure 1)
Off site evacuation Destination	
Destination	Albany Leisure and Aquatic Centre Nearest intersection: Barker Rd/Sanford Rd
Evacuation route	Travel northwest on Frenchman Bay Rd for approx. 18 km, turn left onto Hanrahan Rd and travel for approx. 2.2 km, turn right onto Albany Hwy and travel for approx. 1.8 km, turn left onto Barker Rd and travel for approx. 550 m and follow the road into the Albany Leisure and Aquatic Centre car park (refer to Figure 1).
Vehicles	All guests, staff and contractors will use private vehicles.

6.2 Shelter-in-place

SHELTER-IN-PLACE DETAILS	
Building / Area	Location
Refuge building	Refer to Figure 1

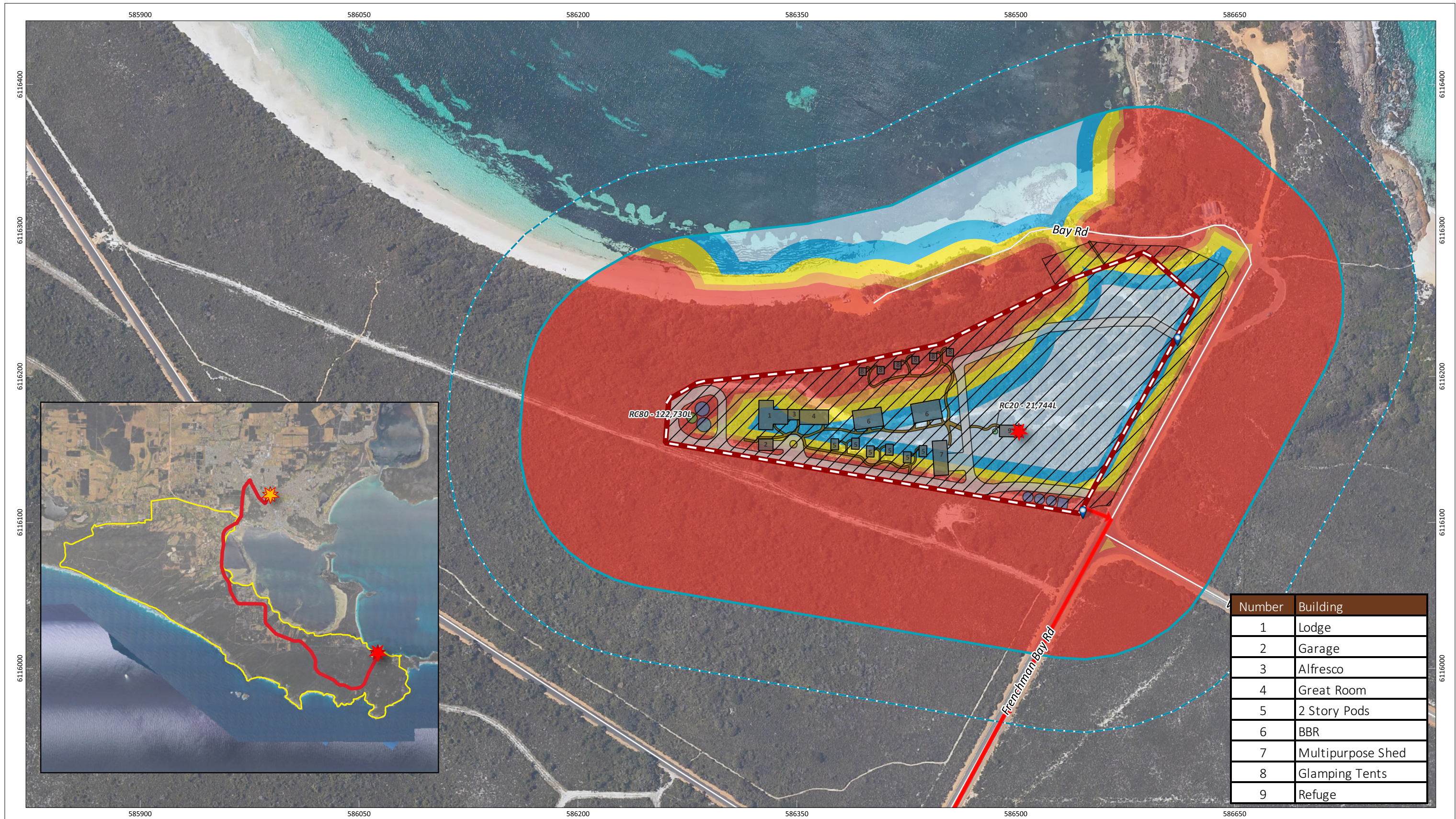


Figure 1: Bushfire Emergency Evacuation Plan

	PROJECT/REPORT NAME Bushfire Management Plan Frenchman Bay Resort		Legend 	<table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Drawn</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Original issue</td> <td>MD</td> <td>DP</td> <td>16/11/2023</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Drawn	Approved	Date	A	Original issue	MD	DP	16/11/2023																														
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COORDINATE REFERENCE SYSTEM GDA2020 / MGA zone 50	PROJECT NUMBER A23.093	VERSION 0																																										
DATA SOURCE LANDGATE AERIAL IMAGERY Summer 2023	DRAWN BY / REVIEWED BY MD/DP	DATE 16/11/2023																																										

Number	Building
1	Lodge
2	Garage
3	Alfresco
4	Great Room
5	2 Story Pods
6	BBR
7	Multipurpose Shed
8	Glamping Tents
9	Refuge

7. Recovery

Following a bushfire emergency event impacting on the tourism facility, the following actions should be undertaken:

- Account for all guests, staff and visitors, ensure their safety and seek medical assistance for those requiring it.
- Follow the directions of emergency services personnel at all times.
- If OFF SITE EVACUATION occurred:
 - No person should re-enter the tourism facility until it is deemed safe to do so (this may be advised by emergency services and power/gas supply technicians).
 - The fire warden (or person responsible) to arrange the movement of occupants back to the tourism facility.
 - All occupants are to be accounted for on their return.
 - Inform the police/emergency service of the return of persons to the tourism facility.
- If SHELTER-IN-PLACE occurred:
 - Remain in the shelter-in-place location until advised to leave by emergency services (unless there is an imminent threat to life).
- Review this Bushfire Emergency Evacuation Plan for effectiveness, make note of weaknesses and amend as necessary.
- In the event of the tourism facility being impacted by a bushfire, critical incident stress support should be provided to all guests, staff and other affected people.

8. References

Australian Building Codes Board (ABCB). (2014). *Design and Construction of Community bushfire Refuges*. Australian Government and States and Territories of Australia.

Department of Fire and Emergency Services (DFES). (2021). Map of Bush Fire Prone Areas. Retrieved on 26 July 2023 from:
<http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx>.

Standards Australia (SA). (2018). *Construction of buildings in bushfire-prone areas (AS 3959: 2018)*.

Western Australian Planning Commission (WAPC). (2015). *State Planning Policy 3.7 Planning in Bushfire Prone Areas*. Government of Western Australia.

Western Australian Planning Commission (WAPC). (2021). *Guidelines for Planning in Bushfire Prone Areas Version 1.4 (including appendices)*. Government of Western Australia.

Western Australian Planning Commission (WAPC). (2019). *A guide to developing a Bushfire Emergency Evacuation Plan, October 2019*. Government of Western Australia.

Western Environmental (WEPL). (2023). *Bushfire Management Plan: Development Application: Tourism development: 1823 Frenchman Bay Road, Frenchman Bay*. Final. November 2023.

Appendix A:

Analysis: Bushfire Management and Emergency Procedures

In consideration of the risk to the site and occupants' characteristics, the following points were considered in determining the evacuation requirements of the tourism facility:

- Site risk:
 - Vegetation to the west, southwest, south, east and northwest present the highest bushfire threat to the subject site. Bushfire threat on a landscape scale is minimised from the north and northeast due to the presence of the Southern Ocean and the low fuel area of the Frenchman Bay recreation site along the foreshore.
 - The development is situated at the end of Frenchman Bay Road, which is effectively a long cul-de-sac, thereby limiting options for safe egress during a bushfire emergency.
 - The proposed development has been designed similarly to that which was previously approved, whereby setbacks to achieve BAL ratings of \leq BAL-29 for future habitable buildings can be achieved through onsite modification of fuels whilst maintaining amenities of the tourist development site.
 - Potential ignition sources are likely to be from nearby vehicles using major roads, people accessing the nearby bushland areas, or lightning strike.
 - Potential bushfire time to arrival is less than 45 minutes from reporting of a bushfire before it impacts the site, however it is possible that impacts could be experienced earlier in the event of rapid-onset bushfire (i.e. bushfire scenarios which occur with limited warning and result in insufficient time to evacuate before bushfire attack is experienced).
- Occupant characteristics:
 - Up to 100 people including guests and staff.
- Available transport: Private vehicles (guests, staff and contractors).

- Evacuation timing:
 - Time for notification of an approaching bushfire and that evacuation is required – 20 minutes.
 - Time for assembly and mobilisation of all guests, staff and contractors – 20 minutes.
 - Off site evacuation location is Albany Leisure and Aquatic Centre, an approximately 23 km drive northwest.
 - Time to travel to off site evacuation location – 30 minutes.
 - Total time to load and travel – 1 hour and 10 minutes.
 - Adding a safety factor of 1.5 results in total evacuation time of 1 hour and 45 minutes.
 - In a rapid onset bushfire scenario, the safest option is to remain on site.
 - These timings are to be reassessed in an update to the BEEP prior to occupancy.

- Limitations:
 - In times of stressful situations such as evacuation and fire, human behaviour can be erratic.
 - Traffic conditions in a bushfire emergency may impact on the time required (and safety) of the evacuation to Albany Leisure and Aquatic Centre.
 - Smoke and heat from a bushfire (particularly in a rapid-onset event) may limit the ability for evacuation to Albany Leisure and Aquatic Centre.

- Given the possibility for multiple bushfire scenarios to affect the proposed tourism facility, multiple bushfire risk management measures are proposed, which include:
 - Construction of all habitable buildings to their appropriate BAL rating.
 - APZs within the site to ensure the calculated BAL ratings are not compromised.
 - Closure of the facility based on the highest FDR rating.
 - An evacuation plan that identifies clear triggers and actions.
 - A dedicated on-site refuge building designed and constructed with the *National Construction Code and the Australian Building Codes Board Information Handbook: Design and Construction of Community Bushfire Refuges* (ABCB, 2014).

Given the bushfire threat posed to the site and highly constrained access/egress options, WEPL considers that a bushfire within the *Shelter Trigger Zone* depicted in Figure 1 is likely to compromise off site evacuation. Consequently, bushfire management strategies have been developed for the proposed development which will allow for on-site shelter in the event that safe egress is not possible.

Based on the above analysis, the following actions are recommended:

1. The primary bushfire management action is EARLY CLOSURE OF THE TOURISM FACILITY UNDER A CATASTROPHIC FIRE DANGER RATING.
2. The primary action to follow in a bushfire emergency is EVACUATE OFF SITE (ONLY IF THERE IS NO BUSHFIRE IN THE SHELTER TRIGGER ZONE DEPICTED IN FIGURE 1 OR AS OTHERWISE ADVISED BY EMERGENCY SERVICES).
3. The secondary action to follow in a bushfire emergency is SHELTER-IN-PLACE.

If shelter-in-place is required, the proposed refuge building has been determined to be a suitable on-site safer location based on the following inputs:

- The proposed refuge building is large enough to provide floor space for the maximum 100 users on site. Minimum recommended floor space is 0.75 m² per person (ABCB, 2014) which equals 75 m². The total useable floor space of the proposed refuge building is approximately 104 m² within a total building area of 120 m².
- The proposed refuge building will have an APZ sufficient to ensure the maximum radiant heat flux exposure of the building will be <10 kW/m².
- The proposed refuge building will be built in accordance with the *National Construction Code* and the *Australian Building Codes Board Information Handbook: Design and Construction of Community Bushfire Refuges* (ABCB, 2014).
- The proposed refuge building is easily accessible by emergency services through use of the proposed carpark and driveway and direct access to Frenchman Bay Road.

Any direct and specific evacuation messages regarding this site from DFES or other emergency personnel will override the above actions.

Appendix B:

Information: Fire Danger Ratings, Behaviour Indices and Warnings



Introducing the new Australian Fire Danger Rating System

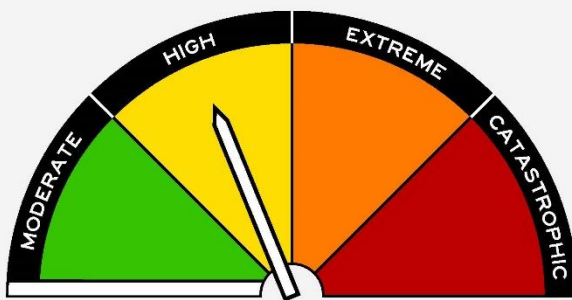


Fire Danger Ratings describe the potential level of danger should a bushfire start.

They are important because they provide people with information so that they can take action to protect themselves and others from the potentially dangerous impacts of bushfires.

Launched on 1 September 2022, the new Australian Fire Danger Rating System is a simplified, action-oriented Fire Danger Rating System.

The new Australian Fire Danger Rating System (AFDRS) levels are:



- Moderate**
Plan and prepare

- High**
Be ready to act

- Extreme**
Take action now to protect life and property

- Catastrophic**
For your survival, leave bushfire risk areas

- The AFDRS also introduces **'No Rating'** for days where bushfires are unlikely to spread in a dangerous or life-threatening way. On these days you still need to remain alert and abide by local seasonal laws and regulations.
- The AFDRS is informed by one of Australia's largest social research projects which found that most Australians did not understand the old system and would prefer a simpler, action-oriented set of Fire Danger Ratings.
- The AFDRS has been implemented consistently across Australia and means that wherever you are across the country, you will be able to understand the threat posed on any given day and make appropriate decisions to keep you and your family safe.

This publication is intended to be a guide only. While every effort is made to ensure accuracy at the time of publication, WEST makes no representation as to the content or suitability of the information provided. WEST expressly disclaims liability for any action or omission, or for any loss or damage, in reliance on the information and for any consequences whether direct or indirect, arising from such use of or reliance on this publication.

UNL/2022/01



HOW FIREPROOF IS YOUR PLAN?





Understanding the Fire Behaviour Index



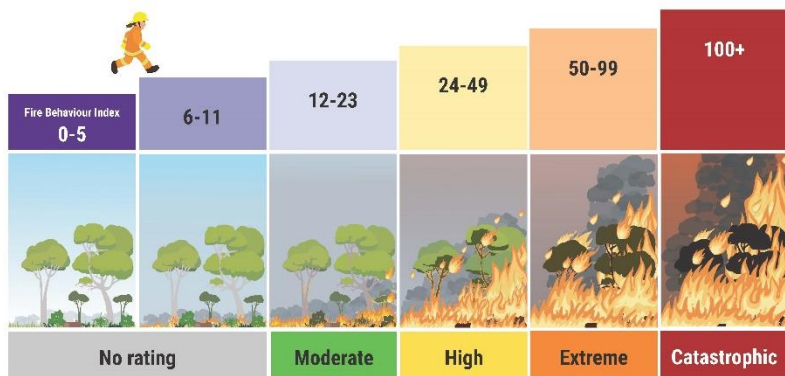
While the AFDRS Fire Danger Ratings are primarily intended for community messaging, the Fire Behaviour Index is intended to support operational fire management decision making.

Features of the Fire Behaviour Index (FBI):

A Fine Scale of Fire Behaviour	The FBI is expressed in whole numbers from 0 to 100+. As the FBI rises, the more dangerous a fire that starts will become.	Takes advantage of decades of improved understanding of fire behaviour, fuels and fire weather.
Stepped Categories	Links transitions in fire behaviour to implications for operational decision making.	Turns the FBI into a powerful operational tool and takes advantage of improved understanding of the relationship between fire behaviour, fire spread, suppression and impacts.
Fuel Type Specific	Eight different Fire Behaviour Indexes based on eight different fire behaviour models.	Takes advantage of decades of improved knowledge of fire behaviour in different fuels to produce more specific results.
Nationally Consistent	The index is the same anywhere in Australia.	Supports cross border operations and resource sharing.

The Stepped categories are controlled by tables that define FBI thresholds. The thresholds represent changes in the underlying fire behaviour that have consequences for operational decision making, including:

- Indicative fire behaviour and fire weather.
- Implications for prescribed burning.
- Fire suppression and containment strategies that are appropriate.
- Potential for impact on life, property and infrastructure.



For more information visit dfes.wa.gov.au/prepare or email AFDRS@dfes.wa.gov.au



EMERGENCY WARNING

An out of control fire is approaching fast and you need to take immediate action to survive. If you haven't prepared your home it is too late.

You must seek shelter or leave now if it is safe to do so.



WATCH AND ACT

A fire is approaching and there is a possible threat to lives or homes. Put your plan into action. If your plan is to leave, make sure you leave early. If your plan is to stay, check all your equipment is ready.

Only stay and defend if you are mentally and physically prepared.



ADVICE

A fire has started but there is no immediate danger. Stay alert and watch for signs of a fire.

Be aware and keep up to date.

Where can I get information during an emergency?

- emergency.wa.gov.au ☎ 13 DFES (13 33 37)
- @dfeswa ● @dfes_wa ● Local ABC Radio



Appendix C: Bushfire Preparedness

The following actions are to be undertaken by facility operators at the specified times.

ONGOING ACTIONS (YEAR-ROUND)

Ensure the landscaped grounds are maintained to the requirements of *Standards for Asset Protection Zones* (WAPC, 2021) with the following items checked prior to 1 October each year:

- Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.
- Fine Fuel load: combustible dead vegetation matter less than 6 millimetres (mm) in thickness reduced to and maintained at an average of two tonnes per hectare.
- Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy.
- Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.
- Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.
- Grass: should be managed to maintain a height of 100 millimetres or less.

Detailed information and checklists are available on the DFES website including 'Preparing Your Property'¹ and the 'My Bushfire Plan Toolkit'² published by DFES.

¹ <https://publications.dfes.wa.gov.au/publications/preparing-your-property>

² <https://mybushfireplan.wa.gov.au/>

ACTIONS IMMEDIATELY PRIOR TO THE BUSHFIRE SEASON

- Review this Emergency Evacuation Plan to ensure details, procedures and contact phone numbers are correct and up to date.
- Ensure staff and children are informed and familiar with the procedures laid out in this Emergency Evacuation Plan.
- Place current version of the Bushfire Emergency Map (Figure 1) in facility in visible location(s).
- Ensure adequate levels of drinking water are available in the facility in case of emergency.
- Ensure any firefighting equipment (hoses etc.) are serviceable and available.
- Ensure no hazards are present around buildings (for example, rubbish piles) that could contribute to increased fire intensity.
- Ensure property access is kept clear and easily trafficable.
- Ensure first aid kits, fire extinguishers, emergency lighting and other emergency resources are current, serviceable and accessible.
- Ensure roof and gutters are free from leaf litter and debris.
- Ensure an emergency evacuation kit containing a copy of this Emergency Evacuation Plan has been prepared and is easily accessible by staff. Refer to <https://www.dfes.wa.gov.au/hazard-information/emergency-kits> for examples of potentially relevant items to include in the kit.
- Conduct evacuation drills and update this Emergency Evacuation Plan as required.
- Brief all staff on the bushfire evacuation procedures with updated advice provided when fire warnings are issued by Emergency Services (currently DFES) for the locality.

ONGOING ACTIONS DURING THE BUSHFIRE SEASON

- Maintain the landscaped grounds and APZs in accordance with *Standards for Asset Protection Zones*.
- Maintain compliance with the local government's annual firebreak and fuel load notice issued under s33 of the *Bush Fires Act 1954*.
- Ensure defensible spaces around buildings and assembly points are maintained.
- Update contact details of the emergency management team and employees.
- Ensure that attendance and visitor registers are updated and accurate at least twice daily.

