

PO Box 685 DUNSBOROUGH WA 6281 Ph: +61 8 9759 1960 info@ecosystemsolutions.com.au www.ecosystemsolutions.com.au

Bushfire Hazard Level Assessment

Lots 501, 502 & 504 Reef Drive, Lot 783 Mitchell Drive and Lot 503 Seagrass Place, Gnarabup

15 October 2025

Prepared for: Shire of Augusta Margaret River



Limitations Statement

This report has been prepared in accordance with the Agreement between Ecosystem Solutions Pty Ltd and the Shire of Augusta Margaret River ("Client"). It has been solely prepared for a Bushfire Hazard Level Assessment of Lots 501, 502 & 504 Reef Drive, Lot 783 Mitchell Drive and Lot 503 Seagrass Place, Gnarabup ("Site").

Information

In undertaking this work the authors have made every effort to ensure the accuracy of the information used. Unless otherwise stated in the report, Ecosystem Solutions Pty Ltd has not independently verified such information and cannot guarantee its accuracy or completeness.

Conclusions

Within the limitations imposed by the scope of work, preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable bushfire consultants under similar circumstances. No other warranty, expressed or implied, is made.

Reliance

This report is solely for the use of the Client and any reliance on this report by third parties will be at such party's sole risk. This report must only be presented in full and may not be used to support any other purpose than those set out in the report and the Agreement, except where prior written approval with comments are provided by Ecosystem Solutions Pty Ltd. All intellectual property rights in documents created by Ecosystem Solutions Pty Ltd remain the property of Ecosystem Solutions Pty Ltd.

Other parties should not rely on the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters. Ecosystem Solutions Pty Ltd accepts no Liability, or responsibility whatsoever for or in respect of any use or reliance upon this report and its supporting material subsequently used by others. Please note that the contents of this report may not be directly applicable towards another organisation's needs and may not contain sufficient information for purposes of other parties or for other uses.

Ecosystem Solutions Pty Ltd will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of this report.

STATEMENT OF CONFORMITY - PLANNING AND DEVELOPMENT ACT 2005



Gary McMahon

B.Sc. M. Env Mgmt. PG Dip Bushfire Protection. C.EnvP, BPAD Level 3 (35078)

Document Control

Client - Shire of Augusta Margaret River

Site - Lots 501, 502 & 504 Reef Drive, Lot 783 Mitchell Drive and Lot 503 Seagrass Place, Gnarabup

Version	Revision	Purpose	Author	Reviewer	Submitted	
					Form	Date
Report	Rev A	Report	DC (Level 2 BPAD - 48409)	GM (Level 3 BPAD-35078)	Electronic (email)	6/10/2025
Report	Rev B	Shire Feedback	DC (Level 2 BPAD - 48409)	GM (Level 3 BPAD-35078)	Electronic (email)	15/10/2025

Filename: Y:\PROJECTS\251924 Gnarabup Shire of AMR BHL Assessment\Reports\Gnarabup Shire of Augusta Margaret River BHL Rev B.docx

Table of Contents

Document	t Control	4
1	Introduction	6
2 2.1	Environmental Considerations Native Vegetation - Modification and Clearing	9 9
3 3.1 3.2 3.3	Fire Danger Index Vegetation Classification Slope and Topography	11 11 11 11
4 5 Land use	Assessment Against the Bushfire Protection Criteria 8: Vulnerable Touris	12 sm 14
6	Conclusion	18
7	References	19
Appendix	A Technical Standards of the Planning for Bushfire Guidelines	20
Appendix	B Current Vegetation Extent & BHL Mapping	21
Appendix	3	he 24
Appendix	D BHL with vegetation modification/removal contained wholly within t Site boundaries	he 27
Appendix	E Vegetation Classification Photographic Evidence	30
List c	of Figures	
Figure 1 Figure 2	Site Map Extract Map of Bushfire Prone Area, accessed 1st October 2025	7 8

1 Introduction

This Bushfire Hazard Level Assessment (BHL) has been prepared by Ecosystem Solutions Pty Ltd for Lots 501, 502 & 504 Reef Drive, Lot 503 Seagrass Place and Lot 783 Mitchell Drive, Gnarabup (hereafter referred to as the 'Site'). This report has been prepared by Dani Cuthbert (Dip.TM, Dip BM., BPAD Level 2 48409) with review provided by Gary McMahon (B.Sc M. Env Mgmt. Grad Dip Bushfire Protection, BPAD Level 3 35078).

This report has been prepared in accordance with *State Planning Policy 3.7* (November 2024, SPP 3.7) and the *Planning for Bushfire Guidelines* ('the Guidelines', November 2024).

The Lot 783 Mitchell Drive is zoned 'Tourism T2' under the Shire of Augusta Margaret River Local Planning Scheme No.1, with Lots 501, 502 and 504 Reef Drive and Lot 503 Seagrass Place zoned as future development (Figure 1). The Site is located within a bushfire prone area, as declared by State Planning Policy 3.7 (Figure 2) and the majority of the Site is remnant scrub vegetation.

There is currently a proposal to develop a luxury hotel resort within Lot 783 Mitchell Drive, Gnarabup and a short stay accommodation survey-strata 'village' development within Lots 501, 502 and 504 Reef Drive and Lot 503 Seagrass Place, Gnarabup. This BHL Assessment considered the proposed development within the site in a post development state, both with vegetation modification extending into the adjacent reserves, as per the Bushfire Management Plan (Emerge, August 2021), and with vegetation modification limited to the extents of the lot boundaries.

Given the proposed development within the Site, which would be considered a Vulnerable Development, an against the Bushfire Protection Criteria 8: Development - Vulnerable tourism land uses and day uses of the *Planning for Bushfire Guidelines* (November 2024) has also been included (Section 5).



Figure 1 Site Map

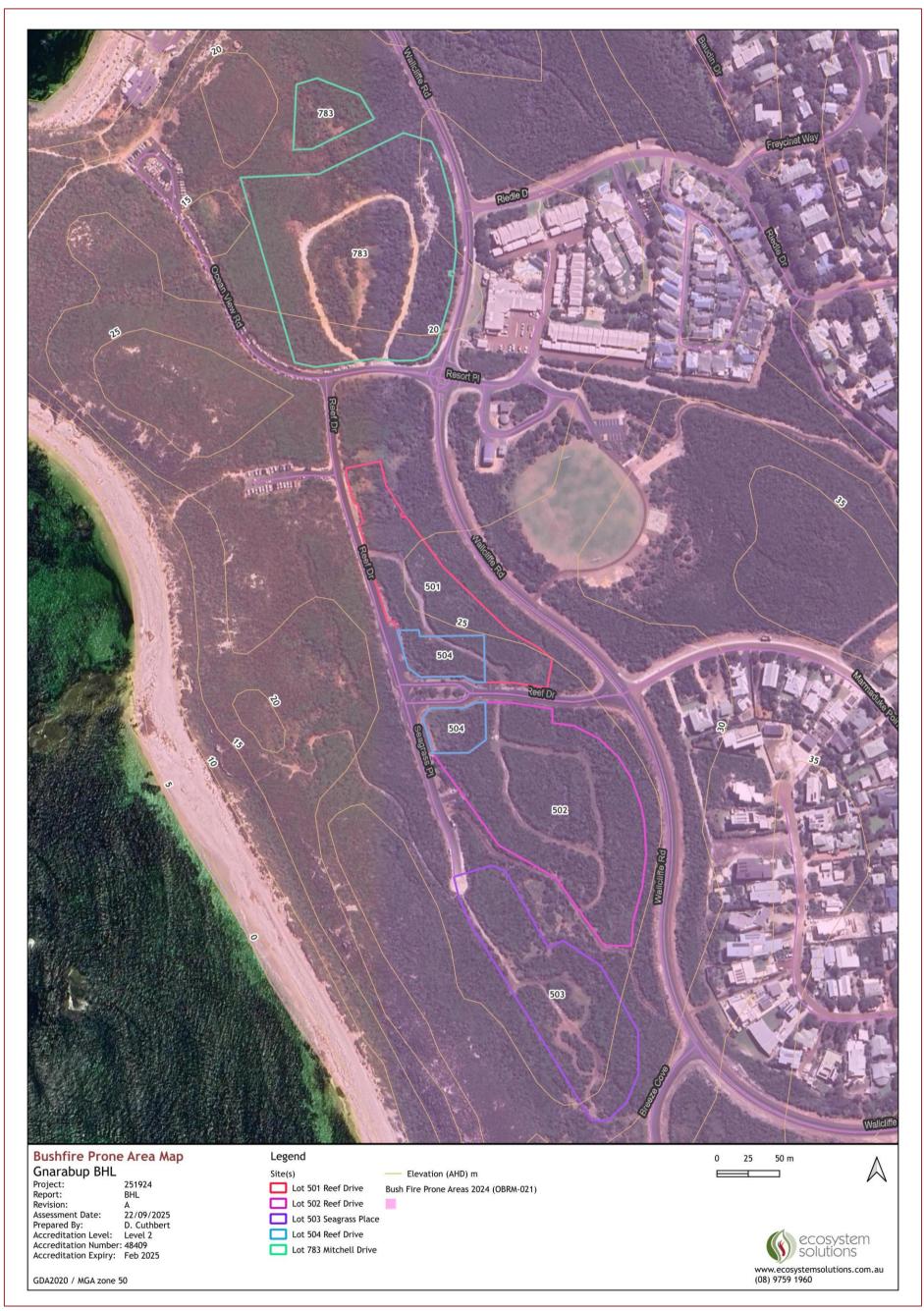


Figure 2 Extract Map of Bushfire Prone Area, accessed 1st October 2025

2 Environmental Considerations

2.1 Native Vegetation - Modification and Clearing

Policy objective 5.4 of SPP 3.7 prioritises the retention of native vegetation for biodiversity conservation, environmental protection, and landscape amenity.

The Site contains predominantly remnant vegetation which is required to be removed and/or modified to establish the development and associated Asset Protection Zones.

The Site and the surrounding 2km buffer have been assessed for environmental values using a simple desktop review (Table 1). The Protected Matters Search Tool identifies matters protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. A search was conducted on 22nd September 2025, identified that one Threatened Ecological Community, threatened flora and fauna species or species habitat may occur in the area.

Table 1 Environmental valued areas within and adjacent to the Site

Environmental Value	Yes or No	If Yes - describe
Conservation Covenants	No	Not applicable
Bush Forever Sites	No	Not applicable
Conservation Category Wetlands and Buffer	No	Not applicable
Threatened Ecological Communities (TECs)	Yes	The PMST report identified the following TEC that may occur in the area; • Empodisma peatlands of southwestern Australia ecological community (Endangered).
Threatened Flora	Yes	A PMST report identified a number of Threatened species or species habitat that are known to occur in the area.
Threatened Fauna	Yes	The PMST report identified a number of threatened fauna species or species habitat that are known to occur in the area including: Black Cockatoo species (Calyptorhynchus banksii naso - Vulnerable, Calyptorhynchus baudinii - Endangered & Calyptorhynchus latirostris - Endangered); and Western Ringtail Possum (Pseudocheirus occidentalis - Critically Endangered).
Environmentally Sensitive Area (DWER-046)	Yes	An ESA or ESA buffer are located adjacent to the Site.

3 Bushfire Hazard Level Assessment Inputs

This BHL Assessment has been prepared in accordance with the *Planning for Bushfire Guidelines* ('the Guidelines,' November 2024 - Appendix A), with the vegetation classified as per *Australian Standards* 3959-2018 (AS3959-2018).

3.1 Fire Danger Index

The default Fire Danger Index for Western Australia (Table 2.1 - AS 3959-2018) of 80 was utilised in this assessment.

3.2 Vegetation Classification

Vegetation within the subject site and the surrounding 150m assessment area has been classified in accordance with Table 2.3 of AS3959-2018 Construction of buildings in bushfire prone areas.

A site inspection of the site to determine the vegetation classifications, was undertaken by an accredited Bushfire Practitioner. The vegetation within 150m of the site has been classified as Class D Scrub in line with local knowledge of the vegetation, the potential for revegetation in the coastal dunes and as a worst-case scenario.

Photographic evidence of the vegetation classifications is provided in Appendix E.

3.3 Slope and Topography

The slope of the land dramatically influences the fire behaviour in a bushfire event. The slope refers to the slope of the land under any classified vegetation in relation to a specific site. Due to the undulating landscape, individual slope categories were not practical to be measured for every aspect. Also, the variation over the landscape makes property specific assessments complex and unreliable, as areas of vegetation may have one slope category in one section, and a different slope category in another. The maximum slope with the assessment area is >15 degrees. Any classified vegetation with a greater than 10 degree slope has been classified as extreme.

4 Bushfire Hazard Level Assessment Outputs

A BHL is a decision-making tool to inform the suitability of future development by providing a 'broad brush' means of determining the potential intensity of a bushfire over a landscape.

A BHL Assessment categorises land within a designated bushfire prone area as having a low, moderate, or extreme bushfire hazard level. These categories are based on the vegetation type, as determined by AS3959-2018 and topography of the area, as per Table 2 below.

The Guidelines defines the assessment area for the BHL as the subject site and all land within 150m of the external boundary of the subject site.

The BHL Assessment (Appendix B) for the current site conditions has been prepared using the vegetation mapping above to allocate the appropriate hazard level (Table 2). Due to the proposed development within the Site, BHL's have been prepared based prepared for the following scenarios;

- With vegetation modification/removal is accordance with the Bushfire Management Plan (Emerge, August 2021), including modification in adjoining reserves (Appendix C)
- With vegetation modification/removal contained wholly within the Site boundaries. (Appendix D)

All areas that have been classified as Class D Scrub or have a slope greater than 10 degrees, have been allocated an extreme bushfire hazard level, with any areas within 100 metres of an extreme BHL being allocated a moderate BHL. Areas that are excluded from vegetation classification, which are not within 100 meters of an extreme BHL, will have allocated a low BHL.

Table 2 BHL and classified vegetation (as per AS3959 and the Guidelines)

Hazard Level	Characteristics
Extreme	 Class A: Forest Class B: Woodland (05) Class D: Scrub Any classified vegetation with a greater than 10-degree slope
Moderate	 Class B: Low woodland (07) Class C: Shrubland Class E: Mallee / Mulga Class G: Grassland, including sown pasture and crops. Vegetation that has a low hazard level but is within 100 metres of vegetation classified as a moderate or extreme hazard, is to adopt a moderate hazard level.
Low	 Low threat vegetation may include areas of maintained lawns, golf courses, public recreation reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips, and windbreaks. Managed grassland in a minimal fuel condition (insufficient fuel is available to significantly increase the severity of the bushfire attack). For example, short-cropped grasses to a nominal height of 100 millimetres. Non-vegetated areas including water ways, roads, footpaths, buildings, and rock outcrops.

Assessment Against the Bushfire Protection Criteria 8: Vulnerable Tourism Land use and Day uses

Element 2 - Siting and Design Outcomes:

Ensure siting and design solutions:

- Manage or mitigate the bushfire risk to people, property, and infrastructure; and
- Avoid, or where unavoidable, minimise the clearing of native vegetation.

Assessment Statements

The BHL for the Site based on the current vegetation extent (Appendix B) shows that the site has an extreme BHL due to the remnant vegetation. The BHL's for the post development scenarios (Appendix C & D) show the areas where a moderate BHL will be achieved with vegetation modification.

Asset Protection Zones around habitable buildings will be required to ensure a BAL-29 or lower rating can be achieved. The Guidelines (November 2024), requires APZ's to be solely contained within the boundaries of the Lots, except in instances where:

- The vegetation on the adjoining lot(s) is, and will continue to be, low threat as per Clause 2.2.3.2 of AS 3959 or the requirements of Appendix B.2, Table 2 APZ technical requirements (Appendix A), or an alternative standard in a local planning scheme, on an ongoing basis in perpetuity; or
- The adjoining land is and will remain in perpetuity, non-vegetated.

Any development within the Site will result in extensive clearing and modification to native vegetation, with a landscape management plan required to identify on-going on-site vegetation management. If an Asset Protection Zone extends outside the lot boundary within an area that is currently vegetated, agreement with the relevant landowner will need to be achieved prior to approval, to ensure the area will be continue to the managed as low threat on an ongoing basis. As an area within the lot can adequately contain an Asset Protection Zone, clearing of vegetation outside the lot boundary is considered avoidable, and therefore cannot achieve an outcomes based solution.

Due to the limited access to the Site (refer Element 3 below), an onsite shelter will be required within the site. The On-site shelter can be proposed where the development has a capacity of up to a maximum of 100 guests and employees at any one time. If more than 100 guests and employees are proposed, or the bushfire planning practitioner considered an on-site shelter not necessary, an outcomes-based approach will need to be prepared. An on-site shelter can be provided in the form of a building or an open-space area, and must meet the following requirements:

- Where a building is to function as an on-site shelter, there is sufficient separation distance from the predominant bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 10 kW/m², with an assumed flame temperature of 1200K; or
- Where an open space area if to function as an on-site shelter, there is to be sufficient separation distance from the bushfire prone vegetation to avoid exposure to a radiant heat flux exceeding 2 kW/m², with an assumed flame temperature of 1200K; and
- Buildings identified as suitable for on-site shelter, to be designed in accordance with *Building Code of Australia* and the *ABCB Design and Construction of Community Bushfire Refuges Handbook* and located within an area of 10 kW/m²; and
- Pedestrian paths to any on-site shelter should be provided and clearly signposted.

Compliance Statement:

• It is <u>likely</u> that a development within the Site can achieve compliance with the acceptable solutions Element 2, with the implementation of an Asset Protection Zone to achieve a BAL-29

rating.

• It is <u>unlikely</u> that a development can achieve compliance with the acceptable solution for an onsite shelter, therefore an outcomes based approach may be required.

Element 3 - Vehicular Access

Outcomes:

Ensure the design and capacity of vehicular access and egress provide:

- For efficient and effective evacuation to a suitable destination(s) and/or
- As a contingency measure for vulnerable land uses, an on-site shelter, where demonstrated appropriate, as a last resort.

Assessment Statements

The Site is accessed from well-constructed, existing public roads, including Wallcliffe Road, Ocean View Drive, Reef Drive and Seagrass Place. Public Roads are to meet the requirements of the relevant class of road in the Local Government Guidelines for Subdivisional Developments, Liveable Neighbourhoods, Austroads standards and/or applicable standards for the local government, where applicable to a development proposal and detailed investigation, upgrades and/or contributions to the upgrading of public roads may be required.

Access to the Site is provided by a series of no-through roads, which have a combined length exceeding 200m to where a choice of egress becomes available, located at Caves Road, approximately 5.5 km from the Site. The access to the site cannot achieve compliance with the acceptable solutions of the Guidelines. Whilst it does travel towards a suitable destination (Margaret River), it is not wholly located within BAL-LOW or within a residential built out area.

An Emergency Access Way (EAW) from the Site to provide a secondary egress route cannot achieve compliance with the acceptable solutions of the Guidelines. An EAW from the Site to where a choice of egress becomes available via a public road would be greater than 500m in length. An EAW within the Site may provide a secondary egress from the internal access of the Site itself and could be less than 500m in length, however this would still connect to the series of no-through roads, therefore not achieving two egress routes.

Due to the non-compliant access to the Site an on-site shelter could be proposed, as discussed above in Element 2.

Given the Site is surrounded by existing public roads, a fire service access route(s) is not required to meet the acceptable solutions of the Guidelines.

Internal access within the site that are greater than 70m in length should meet the requirements of the Guidelines (Appendix A) Table 10, Column 5, and have passing bays every 200m with a minimum length of 20m and a minimum additional carriage way of 2 metres and turn around areas to support the turning of a fire appliance.

Compliance Statement:

• It is <u>unlikely</u> that a development within the site can achieve compliance with the acceptable solutions for Element 3, due to the limited access via the public road network, therefore an outcomes based approach will be required.

Element 4 - Water	Outcomes: Ensure that sufficient water is available and
	accessible for emergency services, to enable people, property, and infrastructure to be defended from bushfire.

Assessment Statements

The Site is within a reticulated water supply area, with existing hydrants located in the road reserves surrounding the Site.

The size and type of development may require the installation of additional hydrants and/or reticulated water supply.

Compliance Statement:

• It is <u>likely</u> that a development within the Site can achieve compliance with the acceptable solutions Element 4.

6 Conclusion

This report provides a BHL assessment for Lot 783 Mitchell Drive, Lots 501, 502 and 504 Reef Drive, Lot 503 Seagrass Place, Gnarabup. This BHL spatially illustrates areas that have an extreme, moderate, or low BHL post development for both vegetation modification extending into the adjoining reserves and being contained wholly within the Site. Land that achieves a low or moderate BHL is the most suitable for land use intensification.

The assessment against the Bushfire Protection Criteria 8: Development - Vulnerable Tourism Land use and day use, details the areas where the Site has non-compliance with the acceptable solutions of the Guidelines, where an outcomes-based approach(s) would be required.

7 References

Department of Fire and Emergency Services, 2021, *Map of Bush Fire Prone Areas*, Government of Western Australia

Environment Protection and Biodiversity Conservation Act 1999 (Cwth)

Land Administration Act 1997 (WA)

Planning and Development Act 2005 (WA)

Standards Australia, 2018, Construction of buildings on bushfire prone areas, AS3959-2018, SAI Global, Sydney

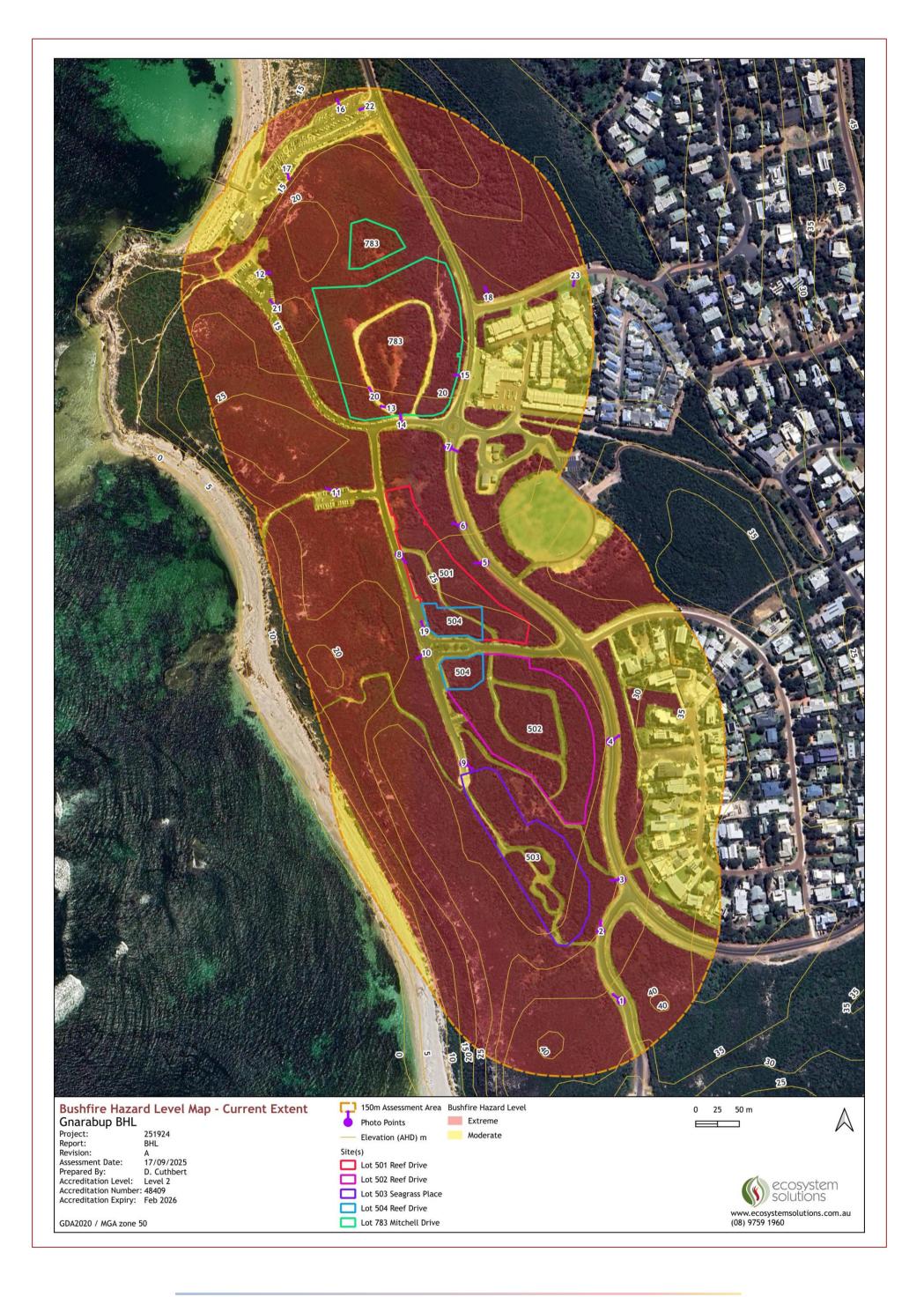
Western Australian Planning Commission, 2024, State Planning Policy 3.7 Planning in Bushfire Prone Areas WAPC, Perth

Western Australian Planning Commission, 2024, Planning for Bushfire Guidelines, WAPC, Perth

Appendix A Technical Standards of the Planning for Bushfire Guidelines

Appendix B Current Vegetation Extent & BHL Mapping





Appendix C

BHL with vegetation modification/removal in accordance with the Bushfire Management Plan (Emerge, August 2021)





Appendix D BHL with vegetation modification/removal contained wholly within the Site boundaries





Appendix E Vegetation Classification Photographic Evidence







This Plot coastal remnant vegetation up to 6m in height, therefore this is classified as Class D Scrub. There are some areas within this plot that are under 2m in height, and align with the Class C Shrubland classification, however the potential for revegetation has been consider, and a worst case scenario of Class D Scrub classification applied.

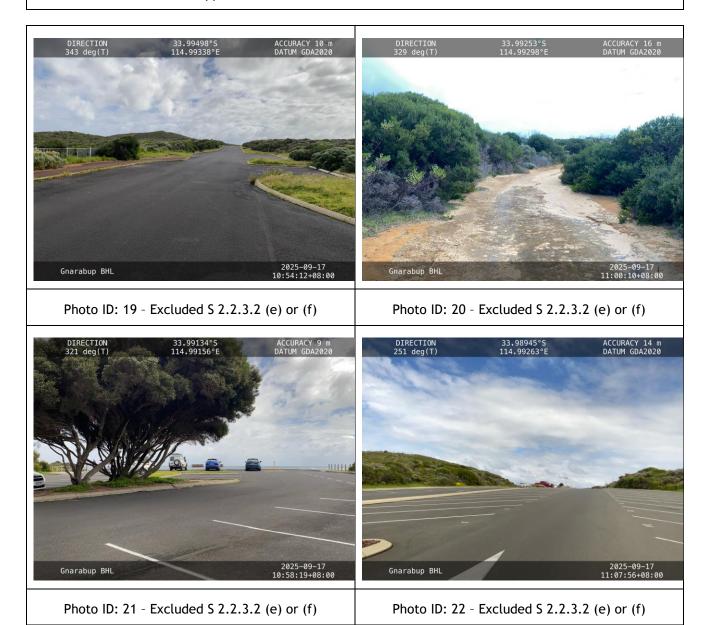




Photo ID: 23 - Excluded S 2.2.3.2 (e) or (f)

Existing roads, buildings, access ways and water bodies are excluded under \$ 2.2.3.2 (e). Low threat vegetation included managed gardens and grasses are excluded under \$ 2.2.3.2 (f).

For the purposes of this BHL, post development, the Site has been excluded under S 2.2.3.2 (e) or (f). Appendix C also excludes some vegetation within the adjoining reserve, which aligns with the proposed vegetation modification in the Bushfire Management Plan (Emerge, August 2021).