WESTERN
ENVIRONMENTAL

Bushfire Management Plan

Subdivision Application: Botania Park
Lot 51 Caporn Street, Mariginiup and
Lots 20 and 21 Rousset Road, East Wanneroo

Western Environmental Pty Ltd
(08) 6162 8980
PO Box 437, Leederville, WA 6903
enquiries@westenv.com.au
westenv.com.au

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Lot 51 Caporn Street, Mariginiup and
Lots 20 and 21 Rousset Road, East Wanneroo

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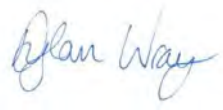
Prepared for:
Hesperia
Level 3, 338 Baker Road
Subiaco WA 6008

Prepared by
Western Environmental Approvals Pty Ltd
Unit 5, 162 Colin Street
West Perth WA 6005
westenv.com.au

Internal Review

Author	Reviewed by	Approved by
		
Dylan Wray Associate Level 2 Accredited BPAD Practitioner 44656	**Daniel Panickar** Senior Principal Level 3 Accredited BPAD Practitioner - 37802	**Daniel Panickar** Senior Principal Level 3 Accredited BPAD Practitioner - 37802
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WEPL will not be liable to update or revise this report to take into account any events or circumstances or facts becoming apparent after the date of this report.

Table of Contents

Tables

Figures

Appendices

1. Introduction

1.1 Proposal Details

Hesperia Projects Pty Ltd as Trustee for the Mariginiup Unit 1 Trust (the Proponent) is seeking to progress a subdivision application for Lot 51 (No. 199) Caporn Street, Mariginiup (Site A) and Lots 20 and 21 Rousset Road, East Wanneroo (Site B). An overview of both sites is provided in Figure 1 (hereafter referred to as the subject site). The proposed subdivision will result in an intensification of land use and involves the creation of 262 lots, public open space (POS), drainage and road reserves to be developed across five stages (Figure 2).

The subject sites are within a designated bushfire prone area (Area 2) as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2024; Figure 3), which triggers bushfire planning requirements under *State Planning Policy 3.7 Bushfire* (SPP 3.7; WAPC, 2024a) and the associated *Planning for Bushfire Guidelines* (the Guidelines; WAPC, 2024b).

Western Environmental Approvals Pty Ltd (WEPL) was commissioned to prepare a Bushfire Management Plan (BMP) to support the subdivision application. This BMP has been prepared by Associate Bushfire Consultant Dylan Wray (FPAA BPAD Level 2 Certified Practitioner No. BPAD44656) and reviewed by Senior Principal Bushfire Consultant Daniel Panickar (FPAA BPAD Level 3 Certified Practitioner No. BPAD37802).

1.1.1 Site context

The subject sites are located within the City of Wanneroo and zoned Rural under District Planning Scheme No. 2 and Urban Deferred under the Metropolitan Region Scheme. The subject sites have been identified under the East Wanneroo Precinct 7 - Lake Mariginiup Local Structure Plan (LSP) for residential development.

The subject sites have historically been used for market gardening and agribusiness and are surrounded by areas of unmanaged, classified vegetation as well as low threat vegetation and cleared areas. Site A is bound by Mariginiup Road to the east, Caporn Street to the south and rural properties to the west and north. Site B is bound by Rousset Road to the east, rural properties to the south, Mariginiup Road to the west and rural properties to the north.

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 subdivision application submitted to WAPC.

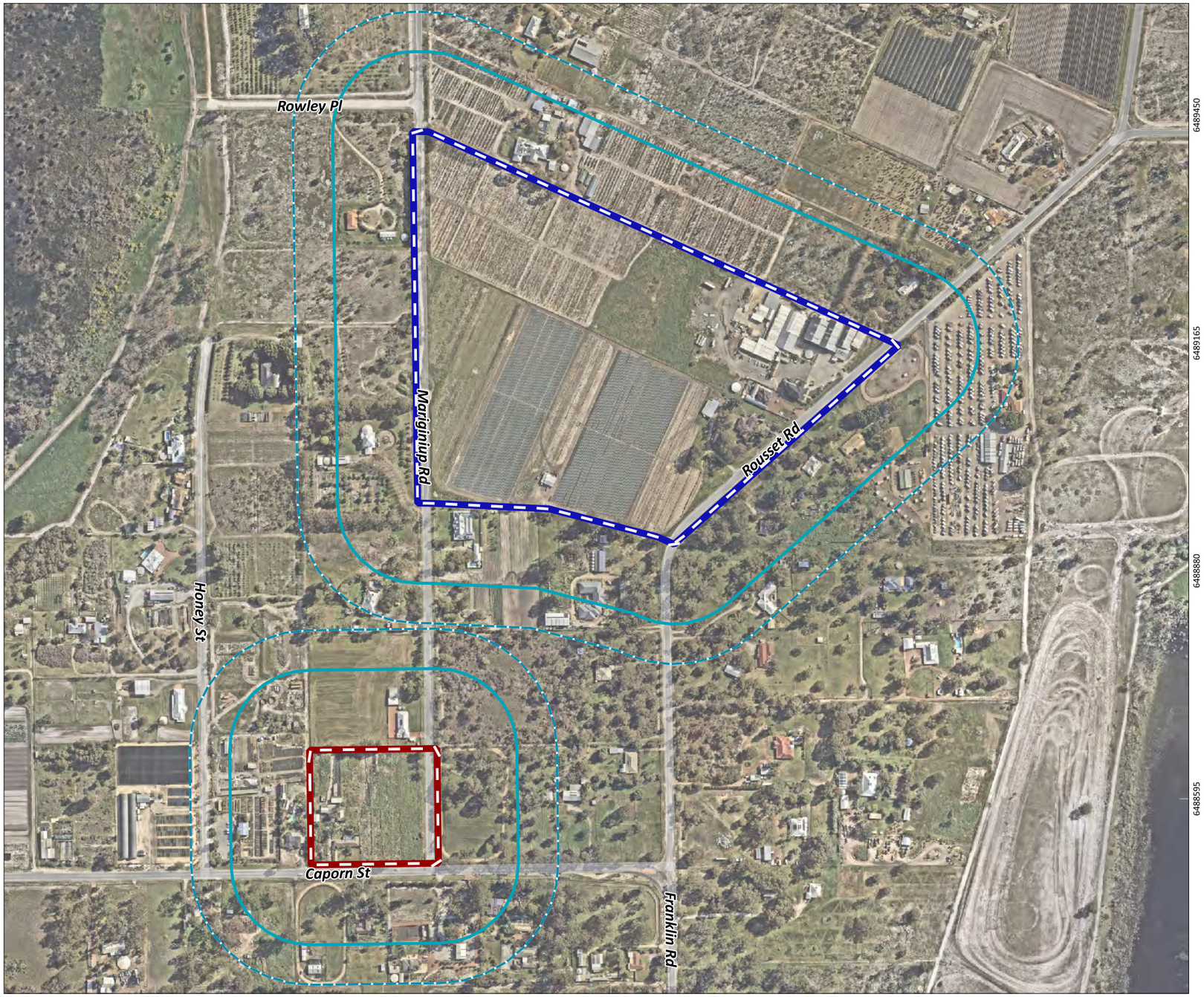
In addition, this BMP provides strategies and guidance to reduce the level of bushfire risk exposure for the subject sites through implementation of a range of bushfire management measures in accordance with the Guidelines.

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 considerations for the subject sites have previously been assessed as part of the LSP which identifies the subject site for future residential development. Furthermore, the environmental values letter report (WEPL, 2024) prepared to accompany the subdivision application concluded that the subject site is either cleared of vegetation or contains vegetation in a completely degraded condition. Two trees qualifying as potential black cockatoo breeding trees were recorded however, they are without suitable or potential breeding hollows.

WEPL also understands the Proponent and the City of Wanneroo are in the process of developing a Greening Strategy with the aim to reduce hardstand through urban greening and tree retention. While the Greening Strategy is yet to be developed, WEPL assumes that no revegetation is proposed within the subject sites and landscaping within the POS, drainage and road reserves will be maintained in a low-threat state.



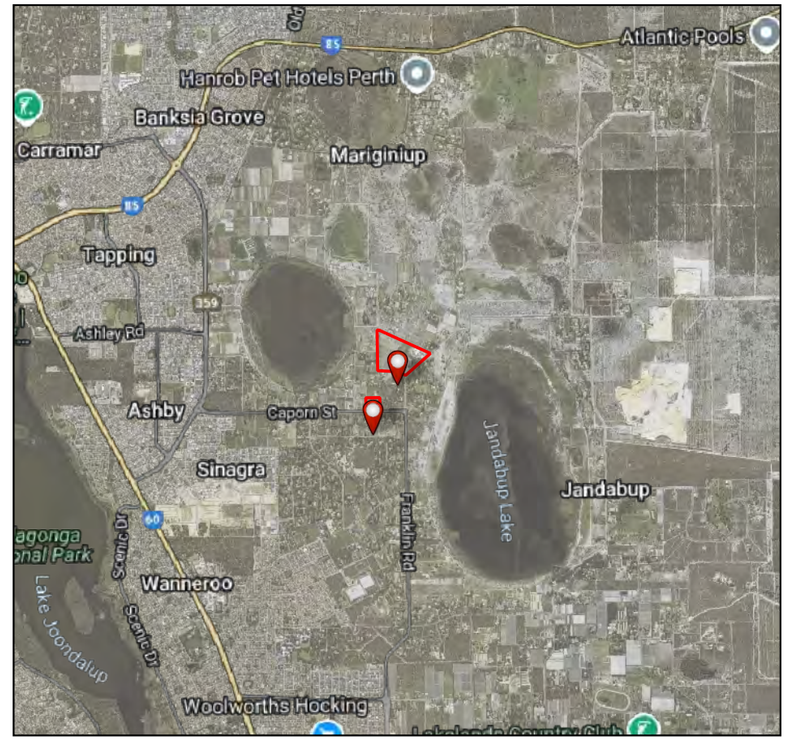


Figure 1: Site Overview

N 0 80 160 240 320 m		PROJECT/REPORT NAME: Bushfire Management Plan Lots 20 & 21 Rousset Road and Lot 51 Caporn Street, Mariginiup	
SCALE: 1:5,700	SHEET SIZE: A3 COLOUR	CLIENT: Hesperia Projects Pty Ltd ATF Mariginiup 1 Unit Trust	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50		PROJECT NUMBER: A24.120	VERSION: 0
DATA SOURCE: Nearmap Imagery (14 September, 2024)		DRAWN BY / REVIEWED BY: JP/DW	DATE: 11/12/2024

Legend
- Site A
- Site B
- Buffer 100m
- Buffer 150m

No	Description	Drawn	Approved	Date
A	Original issue	JP	DW	11/12/2024

NOTES:
Cadastral boundary (LGATE-002). Base map ESRI Topo. Townsites (LGATE-248).

WESTERN ENVIRONMENTAL
Western Environmental Pty Ltd
08 6244 2310 | enquiries@westenv.com.au
Level 3/25 Prowse St, West Perth WA 6005
westenv.com.au

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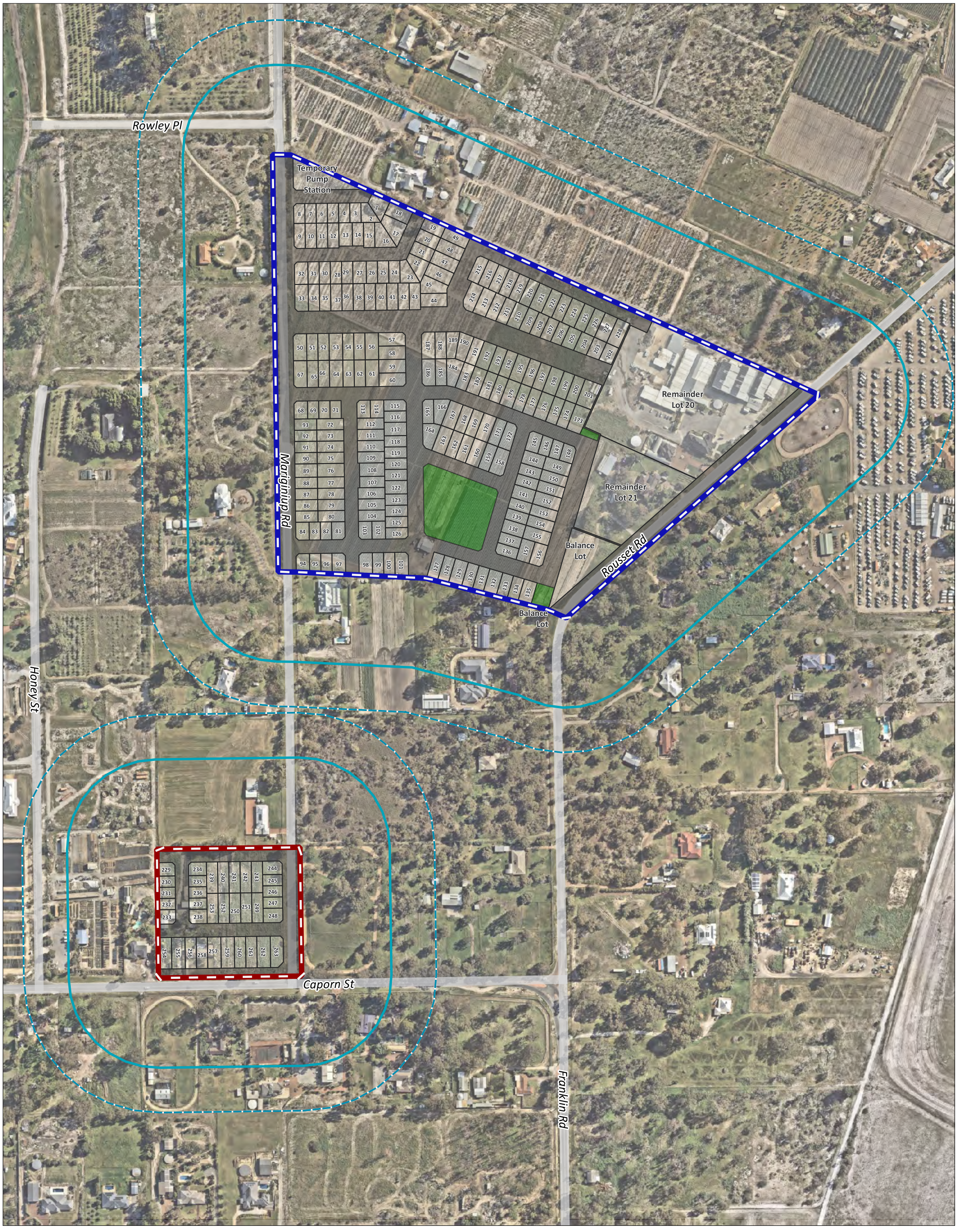

Figure 2: Subdivision Plan

N 0 30 60 90 120 m	PROJECT/REPORT NAME: Bushfire Management Plan Lots 20 & 21 Rousset Road and Lot 51 Caporn Street, Mariginiup		Legend: Site A; Site B; Buffer 100m; Buffer 150m; Lots; POS; Road Reserve
SCALE: 1:4,000	SHEET SIZE: A3 COLOUR	CLIENT NAME: Hesperia Projects Pty Ltd ATF Mariginiup 1 Unit Trust	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.120	VERSION: 0	
DATA SOURCE: Nearmap Imagery (14 September, 2024)	DRAWN BY / REVIEWED BY: JP/DW	DATE: 11/12/2024	

No	Description	Drawn	Approved	Date
A	Original issue	JP	DW	11/12/2024

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Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

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Western Environmental Pty Ltd
08 6244 2310 | enquiries@westenv.com.au
Level 3/25 Prowse St, West Perth WA 6005
westenv.com.au

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388600 388800 389000 389200 389400

6489600 6489400 6489200 6489000 6488800 6488600 6488400

Figure 3: Bushfire Prone Areas

N

0 30 60 90 120 m

PROJECT/REPORT NAME: Bushfire Management Plan Lots 20 & 21 Rousset Road and Lot 51 Caporn Street, Mariginiup		
SCALE: 1:4,000	SHEET SIZE: A3 COLOUR	CLIENT: Hesperia Projects Pty Ltd ATF Mariginiup 1 Unit Trust
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.120	VERSION: 0
DATA SOURCE: Nearmap Imagery (14 September, 2024)	DRAWN BY / REVIEWED BY: JP/DW	DATE: 11/12/2024

Legend

- Site A
- Site B
- Buffer 100m
- Buffer 150m

Bush Fire Prone Area Planning (OBRM-023)

- Bushfire Prone Area 2

No	Description	Drawn	Approved	Date
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Western Environmental Pty Ltd
08 6244 2310 | enquiries@westenv.com.au
Level 3/25 Prowse St, West Perth WA 6005
westenv.com.au

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2. Bushfire Assessment Results

2.1 Bushfire Assessment Inputs

A bushfire assessment has been undertaken for the proposed subdivision 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* (AS 3959: 2018; SA, 2018).

2.1.2 Vegetation Classification and Slope under Vegetation

Vegetation and effective slope (i.e. slope under vegetation) within the subject sites and surrounding 150 m (the assessment area) were assessed on 10/10/2024 in accordance with the Guidelines and AS 3959: 2018.

Identified vegetation plots and associated effective slope within the assessment areas are identified below in Table 1 and Figure 4.

Table 1: Classified Vegetation as per AS 3959: 2018

Plot	Vegetation classification	Effective slope
1	Class A Forest	Downslope >0 to 5 degrees
2	Class A Forest	All upslopes and flat land (0 degrees)
3	Class B Woodland	Downslope >0 to 5 degrees
4	Class B Woodland	All upslopes and flat land (0 degrees)
5	Class D Scrub	Downslope >0 to 5 degrees
6	Class D Scrub	All upslopes and flat land (0 degrees)
7	Class G Grassland	Downslope >0 to 5 degrees
8	Class G Grassland	All upslopes and flat land (0 degrees)
9	Excluded - clause 2.2.3.2 (e) & (f)	-

Photographs relating to each area and vegetation type are included in Appendix A.

2.1.3 Post Development Assumptions

Figure 5 illustrates the post-development vegetation plots following completion of the of the subdivisional works. The post development scenario has been based on the following assumptions:

- Proposed lots being cleared to facilitate future development;
- Retained vegetation or proposed landscaping within POS, drainage and road reserves being modified to a low threat state; and
- Vegetation on Lot 292 (83) Rousset Road, Mariginiup to the north of Site B being developed by the Proponent under subsequent stages and being cleared and/or managed to a low threat state.

The assessment outputs in this BMP have been based on the post development scenario.

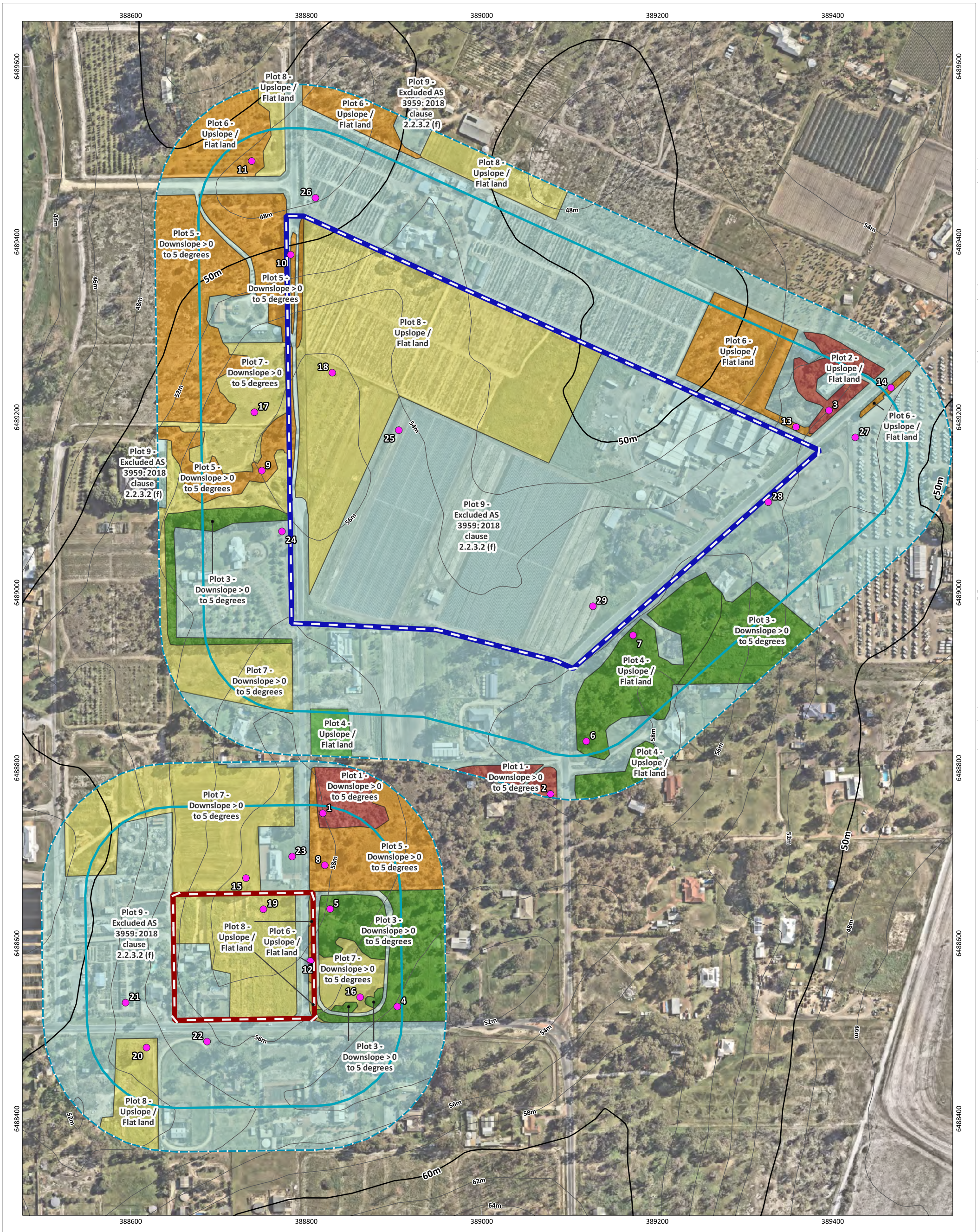

Figure 4: Vegetation Classification (Pre-Development)

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SCALE: 1:4,000	SHEET SIZE: A3 COLOUR
	Hesperia Projects Pty Ltd ATF Mariginiup 1 Unit Trust
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.120 / VERSION: 0
DATA SOURCE: Nearmap Imagery (14 September, 2024)	DRAWN BY / REVIEWED BY: JP/DW / DATE: 11/12/2024

Legend

- Site A
- Site B
- Buffer 100m
- Buffer 150m
- Photos

2m Contours (DPIRD-072)

- 2m Contour
- 10m Contour

Vegetation Classification

- Class A - Forest
- Class B - Woodland
- Class D - Scrub
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (f)

No	Description	Drawn	Approved	Date
A	Original issue	JP	DW	11/12/2024

NOTES:

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Western Environmental Pty Ltd
08 6244 2310 | enquiries@westenv.com.au
Level 3/25 Prowse St, West Perth WA 6005
westenv.com.au

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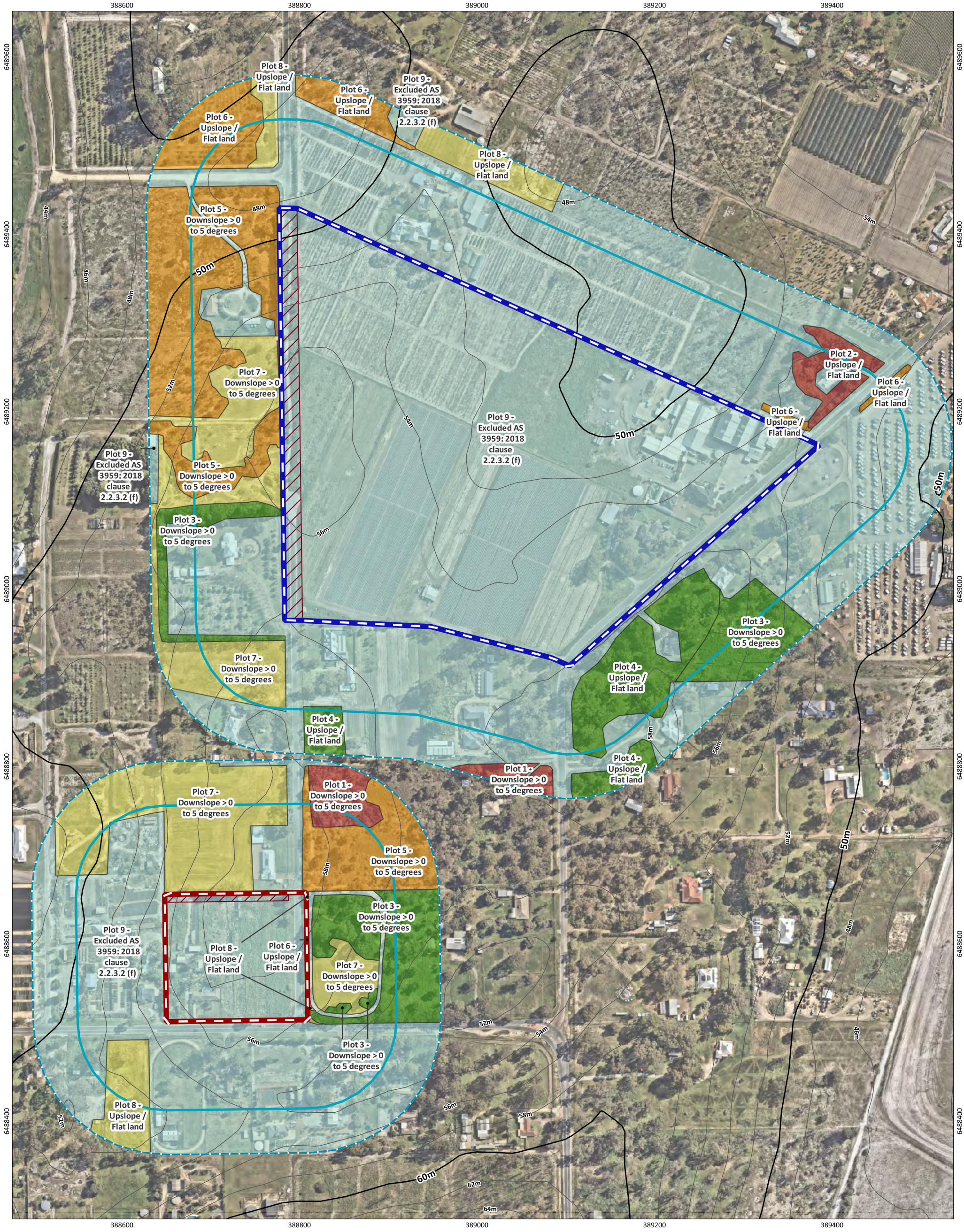

Figure 5: Vegetation Classification (Post-Development)

0 30 60 90 120 m

N

SCALE: 1:4,000	SHEET SIZE: A3 COLOUR
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.120 / VERSION: 0
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PROJECT/REPORT NAME
Bushfire Management Plan
Lots 20 & 21 Rousset Road and Lot 51 Caporn Street, Mariginiup

Hesperia Projects Pty Ltd ATF Mariginiup 1 Unit Trust

Legend

- Site A
- Site B
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)

2m Contours (DPIRD-072)

- 2m Contour
- 10m Contour

Vegetation Classification

- Class A - Forest
- Class B - Woodland
- Class D - Scrub
- Class G - Grassland
- Excluded AS 3959: 2018 2.2.3.2 (f)

No	Description	Drawn	Approved	Date
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08 6244 2310 | enquiries@westenv.com.au
Level 3/25 Prowse St, West Perth WA 6005
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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 5 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 subdivision and incorporates the following factors:

- Fire Danger Index (FDI) rating.
- Vegetation class.
- Slope under classified vegetation.
- Distance between proposed lots 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 6 display the Method 1 BAL assessment (in the form of BAL contours) that has been completed for the proposed subdivision in accordance with AS 3959: 2018 methodology.

Table 2: Method 1 BAL Calculation (BAL Contours)

Plot	Vegetation classification	Effective slope	Separation distances required (m)				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
1	Class A Forest	Downslope >0 to 5 degrees	<20	20-<27	27-<37	37-<50	50-<100
2	Class A Forest	All upslopes and flat land (0 degrees)	<16	16-<21	21-<31	31-<42	42-<100
3	Class B Woodland	Downslope >0 to 5 degrees	<13	13-<17	17-<25	25-<35	35-<100
4	Class B Woodland	All upslopes and flat land (0 degrees)	<10	10 - <14	14 - <20	20 - <29	29 - <100

Plot	Vegetation classification	Effective slope	Separation distances required (m)				
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL-12.5
5	Class D Scrub	Downslope >0 to 5 degrees	<11	11 - <15	15 - <22	22 - <31	31 - <100
6	Class D Scrub	All upslopes and flat land (0 degrees)	<10	10 - <13	13 - <19	19 - <27	27 - <100
7	Class G Grassland	Downslope >0 to 5 degrees	<7	7 - <9	9 - <14	14 - 20	20 - <50
8	Class G Grassland	All upslopes and flat land (0 degrees)	<6	6 - <8	8 - <12	12 - <17	17 - <50
9	Excluded - clause 2.2.3.2 (f)	-	No separation distances required - BAL-LOW				

2.3 Identification of Issues Arising from the BAL Assessment

Post-development, all lots contain sufficient development sites that can achieve a radiant heat impact not exceeding 29 kW/m^2 (BAL-29).

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.

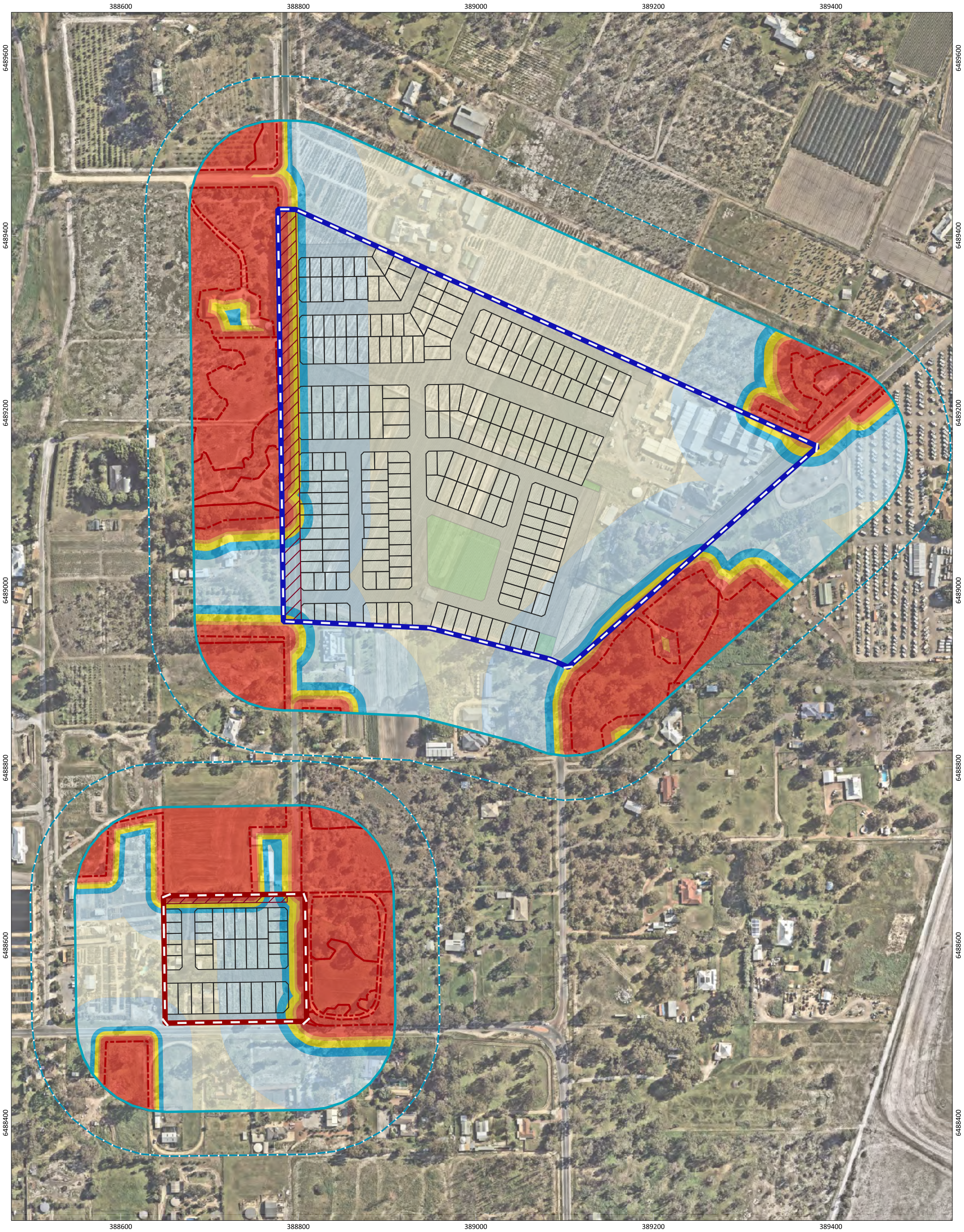

Figure 6: Bushfire Attack Level (BAL) Contours

0 30 60 90 120 m

N

SCALE: 1:4,000	SHEET SIZE: A3 COLOUR
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.120 / VERSION: 0
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PROJECT/REPORT NAME
Bushfire Management Plan
Lots 20 & 21 Rousset Road and Lot 51 Caporn Street, Mariginiup

CLIENT
Hesperia Projects Pty Ltd ATF Mariginiup 1 Unit Trust

Legend

- Site A
- Site B
- Buffer 100m
- Buffer 150m
- Bushfire hazard Interface
- Asset Protection Zone (APZ)
- Lots
- POS
- Road Reserve

Bushfire Attack Level (BAL)

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

No	Description	Drawn	Approved	Date
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Western Environmental Pty Ltd
08 6244 2310 | enquiries@westenv.com.au
Level 3/25 Prowse St, West Perth WA 6005
westenv.com.au

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3. Assessment Against the Bushfire Protection Criteria

3.1 Compliance

The proposed subdivision is required to comply with Policy Measure 7.1 of SPP 3.7 and Bushfire Protection Criteria 5 of the Guidelines.

Table 3 outlines the Acceptable Solutions (AS) that are relevant to the proposed subdivision and summarises how the intent of each Bushfire Protection Criteria has been achieved through the application of bushfire risk management measures. No Outcomes-Based Assessments (OA) have been proposed for this subdivision. These management measures are depicted in Figure 7 where relevant.

Implementation of this BMP is expected to meet Policy Outcomes 6.1 to 6.4 of SPP 3.7.

Table 3: Assessment Against the Bushfire Protection Criteria

Bushfire Protection Criteria 5: Structure Plans and Subdivision Applications	AS	OA	N/A
Element 1: Location	☐	☐	✓
Not applicable - The LSP has been previously assessed against SPP 3.7 (2015) and the Guidelines (2021). Section 1.3.1 of the Guidelines state where a strategic planning proposal was assessed against SPP 3.7 (2015) and the Guidelines, the subsequent planning stage(s) of the planning process should demonstrate compliance with SPP 3.7 (2024) and the Guidelines (2024), with the exception of the new methodology for Element 1: Location.			
Element 2: Siting and design of development **A2.1 Siting and design**	✓	☐	☐
All lots contain a sufficient development site that will achieve a radiant heat impact of 29 kW/m^2 (BAL-29) or below, as detailed on **Figure 6** and **Figure 7**. The subdivision is considered to be compliant with A2.1.			
A2.2 Asset Protection Zone (APZ)	✓	☐	☐
APZs will be established where the subject sites directly abut bushfire hazards on adjacent properties. The APZs will ensure there is sufficient separation between the proposed lots and areas of permanent or temporary bushfire hazards. The APZs will be established during the subdivisional works to ensure the radiant heat impact on future habitable buildings does not exceed 29 kW/m^2 (BAL-29). The APZs shall meet the technical requirements in Appendix B. The subdivision is considered to be compliant with A2.2.			
A2.3 Clearing of native vegetation	✓	☐	☐
The EAR (WEPL, 2024) concluded that the subject sites have historically been cleared with any existing vegetation (native or otherwise) in a completely degraded condition. This is consistent with the environmental assessments undertaken as part of the LSP which identified small areas of completely degraded vegetation on the subject sites. The subdivision is considered to be compliant with A2.3.			

Bushfire Protection Criteria 5: Structure Plans and Subdivision Applications	AS	OA	N/A
Element 3: Vehicular Access **A3.1 Public Roads**	✓	☐	☐

The subject sites are accessed via the existing public road network. WEPL assumes the existing public road network meets the technical specifications under the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Austroad Standards and/or any applicable standard in the local government area.

The proposed public roads within the subject sites will be designed according to Liveable Neighbourhoods and the technical requirements in Appendix C. The existing and proposed public access arrangements will provide suitable access and egress for the community and emergency services personnel in the event of a bushfire.

The proposed subdivision is considered to be compliant with A3.1.

A3.2 Access routes	✓	☐	☐

Multiple access routes from the subject sites to more than two suitable destinations are available via the existing public network (**Figure 7**). Proposed lots within the subject sites will have direct frontage to a public road which provides access in multiple directions or in a single direction which complies with the no-through road technical requirements (refer A3.3a and A3.3b below).

The proposed subdivision is considered to be compliant with A3.2.

A3.3a No-through roads	✓	☐	☐

Two temporary no-through roads are proposed on Site A and five temporary and one permanent no-through roads is proposed on Site B (**Figure 7**). The temporary no-through roads will eventually become through roads once adjacent properties are developed, as envisaged under the LSP.

All no-through roads are either less than 200 m in length or exceed 200 m in length with the balance of the road wholly within a BAL-LOW area.

All no-through roads will comply with the requirements under A3.3b below.

The proposed subdivision is considered to be compliant with A3.3a.

A3.3b No-through road requirements	✓	☐	☐

The no-through road will comply with the public road specifications in Appendix C.

The proposed subdivision provides suitable arrangements for a Type 3.4 fire appliance vehicle to turnaround at the end of a no-through road, as detailed in **Figure 7**. This will be achieved as follows:

- The two temporary no-through roads on Site A will utilise intersections which enables a fire appliance vehicle to undertake a three-point turn.
- The two southern temporary no-through roads on Site B will utilise intersections which enables a fire appliance vehicle to undertake a three-point turn.
- The north-eastern temporary no-through road on Site B will utilise a proposed lot which enables a fire appliance vehicle to undertake a three-point turn. **Lot 28** will be withheld until through connection is available.
- The north-western temporary no-through roads on Site B will utilise two proposed lots to create loop access through the establishment of an emergency access way. **Lots 1 and 18** will be withheld until through connection is available.
- The permanent no-through road on Site B will be provided with a cul-de-sac.

The above arrangements enable fire appliance vehicles to effectively access and egress the subject sites.

The proposed subdivision is considered to be compliant with A3.3b.

A3.4 Emergency access way	✓	☐	☐

A temporary emergency access way will be established to link two no through roads, creating loop access and removing the requirements for turnaround areas. The emergency access way will be contained within a 10 m clearance strip and require the two proposed lots to be withheld until through connection is available.

The emergency access way will comply with the requirements in Appendix C.

The proposed subdivision is considered to be compliant with A3.4.

Bushfire Protection Criteria 5: Structure Plans and Subdivision Applications	AS	OA	N/A
A3.5a Perimeter roads	☐	☐	✓
Not applicable - perimeter roads are not required given all proposed lots adjoin existing public roads, managed properties or Class G Grassland.			
A3.5b Fire service access routes	☐	☐	✓
Not applicable - fire service access routes are not required given no lots will adjoin classified vegetation.			
A3.6 Battle-axe access legs	☐	☐	✓
Not applicable - no battle-axe lots are proposed.			
Element 4: Water Supply **A4.2 Water supply for subdivision applications**	✓	☐	☐
Reticulated water infrastructure is present within the area and will be extended to services the proposed subdivision. Proposed hydrants will be installed to meet Water Corporation specifications. The proposed subdivision is considered to be compliant with A4.2.			
A4.3 Water supply for existing habitable building(s)	✓	☐	☐
Existing habitable buildings will be retained on Lots 20 and 21. WEPL assumes these lots are serviced by the existing water supply along Rousset Road. The proposed subdivision is considered to be compliant with A4.3.			

Note: AS - Acceptable solution, OA - Outcomes assessment, N/A - Not applicable.

3.2 Additional Considerations

3.2.1 Withholding of Lots

The access arrangements for no-through roads identified above will require the withholding of lots until the northern adjacent property is developed and through access is established via the public road network. The following lots will be withheld from titles:

- Lot 228 in the north-east of Site B for the provision of a turnaround area to enable a Type 3.4 fire appliance vehicle to make a three-point turn at the end of the no-through road. The lot shall be withheld until the northern adjacent property has been developed and through connection has been established, removing the need for the turnaround area.

- Lot 1 and Lot 18 in the north-west of Site B for the provision of an emergency access way to enable loop access for a Type 3.4 fire appliance vehicle. These lots shall be withheld until the northern adjacent property has been developed and through connection has been established, removing the need for loop access.

3.2.2 Offsite Vegetation Management

Portions of Mariginiup Road adjacent Site B are proposed to be upgraded which involves the clearing of vegetation within the road reserve. Any retained vegetation within this section of road reserve shall be managed as low threat vegetation, in accordance with the APZ technical requirements (Appendix C).

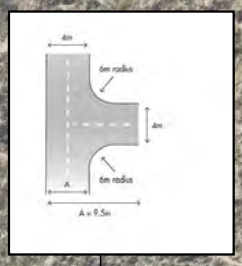
In addition, the Proponent is in the process of acquiring Lot 292 (83) Rousset Road, Mariginiup which will be developed under future subdivision stages. Accordingly, the vegetation on this site has been excluded on the basis that it will be cleared or modified to low threat during subdivisional works.

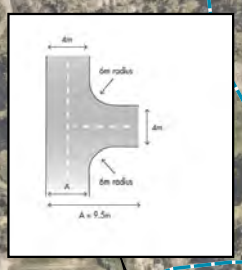
In the event acquisition of this lot is unsuccessful or the vegetation is unable to be cleared or modified, a revised BAL Contour Map will need to be submitted to the WAPC at the condition clearance stage. Retention and classification of vegetation on this site will still result in compliance with SPP 3.7 and the Guidelines being achieved, with all lots being subject to a radiant heat impact exceeding 29kW/m^2 (BAL-29).

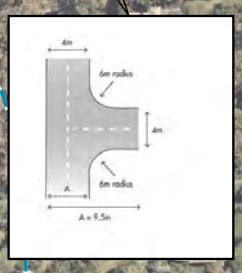
388600 388800 389000 389200 389400

6489600 6489400 6489200 6489000 6488800 6488600 6488400

Rowley Pl
Mariginiup Rd
Rousset Rd
Honey St
Caporn St
Franklin Rd
322m
218m







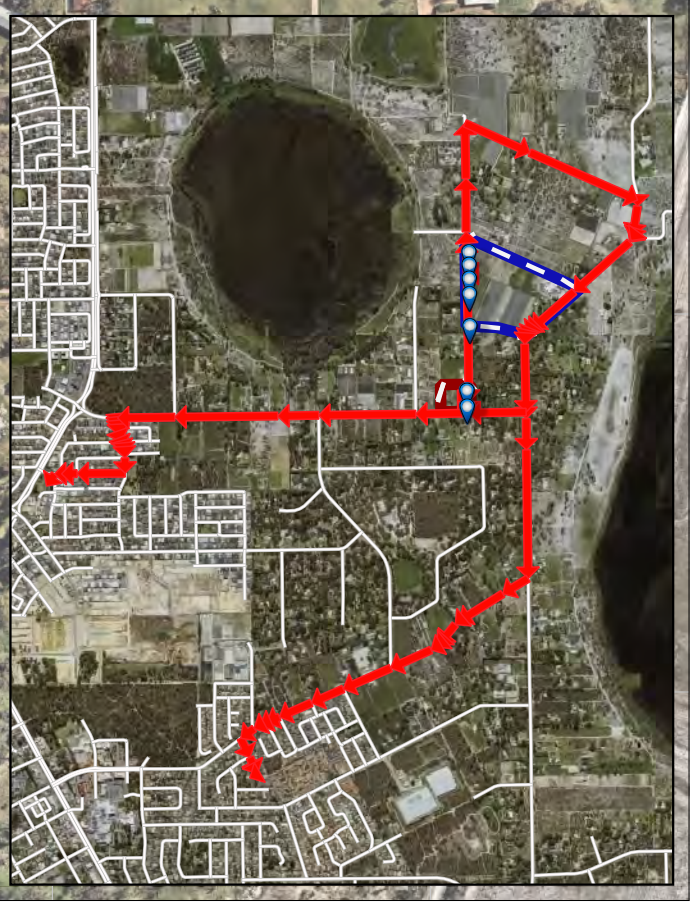


Figure 7: Spatial representation of the bushfire management strategies

0 30 60 90 120 m

N

SCALE: 1:4,000	SHEET SIZE: A3 COLOUR
PROJECT/REPORT NAME: Bushfire Management Plan Lots 20 & 21 Rousset Road and Lot 51 Caporn Street, Mariginiup	
CLIENT: Hesperia Projects Pty Ltd ATF Mariginiup 1 Unit Trust	
COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 50	PROJECT NUMBER: A24.120 / VERSION: 0
DATA SOURCE: Nearmap Imagery (14 September, 2024)	DRAWN BY / REVIEWED BY: JP/DW / DATE: 16/5/2025

Legend

- Site A
- Site B
- Buffer 100m
- Buffer 150m
- Asset Protection Zone (APZ)
- Emergency Access Way
- Lots
- Lots to be withheld
- POS
- Road Reserve
- Access point
- Permanent cul-de-sac
- Temporary Turnaround Area
- Access / egress route

Bushfire Attack Level (BAL)

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

No	Description	Drawn	Approved	Date
A	Original issue	JP	DW	16/5/2025

NOTES:

Cadastral boundary (LGATE-002). Label corresponds to the vegetation association number.

WESTERN ENVIRONMENTAL

Western Environmental Pty Ltd
08 6244 2310 | enquiries@westenv.com.au
Level 3/25 Prowse St, West Perth WA 6005
westenv.com.au

G:\GIS\Project Data\2024\A24.120\A24.120_BMP\A24.120_BMP.qgz

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 4 provides a works program detailing these measures, timing of implementation and responsibility.

Table 4: Proposed Works Program

No.	Bushfire management measure
Developer responsibilities - Prior to issue of Titles	
1	Ensure that Asset Protection Zones (APZs) are established in accordance with Figure 7 and the technical requirements in Appendix C.
2	Clear or modify vegetation on Lot 292 (83) Rousset Road, Mariginiup. Retained vegetation shall be modified to a low threat standard.
3	Construct road network (including temporary and permanent turnaround areas) as per plan in Figure 7.
4	Withold titles for Lots 1, 18 and 228 on Site B until the northern adjacent property is developed and through access is established via the public road network.
5	Provide reticulated water supply to all lots and hydrant connections in accordance with Water Corporation technical requirements.
Future landowner/Builder responsibilities - Ongoing	
6	Construct dwellings to relevant construction standard in AS 3959: 2018.
7	Maintain APZs to the technical requirements in Appendix C.
8	Maintain retained vegetation on Lot 292 (83) Rousset Road, Mariginiup to a low threat standard, until the lot is developed under future stages.

5. Conclusion

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

6. References

Department of Fire and Emergency Services (DFES). (2024). *Map of Bush Fire Prone Areas*. Retrieved on 21/08/2024 from: http://www.dfes.wa.gov.au/regulationandcompliance/bushfireproneareas/Pages/default.aspx.

Burgess Design Group. (2023). *East Wanneroo Precinct 7 - Lake Mariginiup Local Structure Plan*.

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

Western Australian Planning Commission (WAPC). (2024a). *State Planning Policy 3.7 Bushfire*. Government of Western Australia.

Western Australian Planning Commission (WAPC). (2024b). *Planning for Bushfire Guidelines*. Government of Western Australia.

Western Environmental Approvals Pty Ltd (WEPL). (2024). *Environmental Values - Subdivision Application - Lot 51 Caporn Street, Mariginiup and Lots 20 and 21 Rousset Road, East Wanneroo*.

Appendix A:
Classified Vegetation Photos

Plot 1	Class A Forest
Photo 1 Trees up to 20 m in height with overstorey canopy cover greater than 30% and dense understorey. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	
Plot 1	**Class A Forest**
Photo 2 Trees up to 20 m in height with overstorey canopy cover greater than 30% and dense understorey. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	
Plot 2	**Class A Forest**
Photo 3 Trees up to 20 m in height with overstorey canopy cover greater than 30% and dense understorey. The slope under this vegetation was assessed to be flat/upslope.	

Plot 3	Class B Woodland
Photo 4 Trees up to 20 m in height with overstorey canopy cover less than 30% and grassy understorey. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	
Plot 3	**Class B Woodland**
Photo 5 Trees up to 20 m in height with overstorey canopy cover less than 30% and grassy understorey. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	
Plot 4	**Class B Woodland**
Photo 6 Trees up to 20 m in height with overstorey canopy cover less than 30% and grassy understorey. The slope under this vegetation was assessed to be flat/upslope.	

Plot 4	Class B Woodland
Photo 7 Trees up to 20 m in height with overstorey canopy cover less than 30% and grassy understorey. The slope under this vegetation was assessed to be flat/upslope.	
Plot 5	**Class D Scrub**
Photo 8 Dense shrubs with an average height greater than 2 m and overstorey canopy greater than 30%. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	
Plot 5	**Class D Scrub**
Photo 9 Dense shrubs with an average height greater than 2 m and overstorey canopy greater than 30%. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	

Plot 5	Class D Scrub
Photo 10 Dense shrubs with an average height greater than 2 m and overstorey canopy greater than 30%. Vegetation within the road reserve will be cleared as part of the subdivisional works to upgrade Mariginiup Road. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	
Plot 6	**Class D Scrub**
Photo 11 Dense shrubs with an average height greater than 2 m and overstorey canopy greater than 30%. The slope under this vegetation was assessed to be flat/upslope.	
Plot 6	**Class D Scrub**
Photo 12 Dense shrubs with an average height greater than 2 m and overstorey canopy greater than 30%. The slope under this vegetation was assessed to be flat/upslope.	

Plot 6	Class D Scrub
Photo 13 Dense shrubs with an average height greater than 2 m and overstorey canopy greater than 30%. The slope under this vegetation was assessed to be flat/upslope.	
Plot 6	**Class D Scrub**
Photo 14 Dense shrubs with an average height greater than 2 m and overstorey canopy greater than 30%. The slope under this vegetation was assessed to be flat/upslope.	
Plot 7	**Class G Grassland**
Photo 15 Open paddocks containing unmanaged grass greater than 100mm in height. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	

Plot 7	Class G Grassland
Photo 16 Open paddocks containing unmanaged grass greater than 100mm in height. The trees depicted have been classified under Plot 3. The slope under this vegetation was assessed to be downslope 0 - 5 degrees.	
Plot 8	**Class G Grassland**
Photo 17 Open paddocks containing unmanaged grass greater than 100mm in height. The slope under this vegetation was assessed to be flat/upslope.	
Plot 8	**Class G Grassland**
Photo 18 Open paddocks containing unmanaged grass and weeds greater than 100mm in height. The slope under this vegetation was assessed to be flat/upslope.	

Plot 8	Class G Grassland
Photo 19 Open paddocks containing unmanaged grass and weeds greater than 100mm in height. The slope under this vegetation was assessed to be flat/upslope.	
Plot 8	**Class G Grassland**
Photo 20 Open paddocks containing unmanaged grass greater than 100mm in height. The slope under this vegetation was assessed to be flat/upslope.	
Plot 9	**Excluded - clause 2.2.3.2 (f)**
Photo 21 Existing plant nursery which contains low threat vegetation. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	

Plot 9	Excluded - clause 2.2.3.2 (f)
Photo 22 Reticulated grassy paddock used for the training of horses. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	
Plot 9	**Excluded - clause 2.2.3.2 (f)**
Photo 23 Residential property which includes cleared areas, lawns and landscaping which are maintained to a low-threat state. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	
Plot 9	**Excluded - clause 2.2.3.2 (f)**
Photo 24 Residential property which includes cleared areas, lawns and landscaping which are maintained to a low-threat state. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	

Plot 9	Excluded - clause 2.2.3.2 (f)
Photo 25 Existing strawberry farm on the subject site which contains low threat vegetation. This area will be cleared as part of the subdivisional works. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	
Plot 9	**Excluded - clause 2.2.3.2 (f)**
Photo 26 Existing plant nursery which contains low threat vegetation. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	
Plot 9	**Excluded - clause 2.2.3.2 (e)**
Photo 27 Caravan storage depot which is devoid of vegetation. Non-vegetated areas have been excluded in accordance with Clause 2.2.3.2 (e) of AS 3959: 2018.	

Plot 9	Excluded - clause 2.2.3.2 (f)
Photo 28 Residential property which includes cleared areas, lawns and landscaping which are maintained to a low-threat state. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	
Plot 9	**Excluded - clause 2.2.3.2 (f)**
Photo 29 Existing strawberry farm on the subject site which contains low threat vegetation. This area will be cleared as part of the subdivisional works. Low threat vegetation has been excluded in accordance with Clause 2.2.3.2 (f) of AS 3959: 2018.	

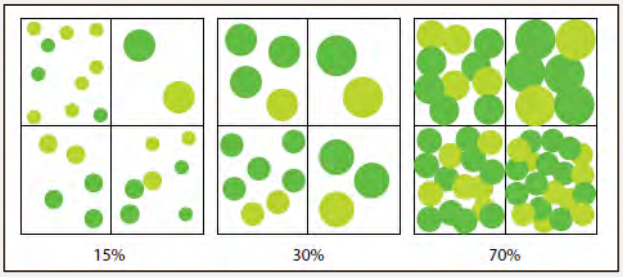
Appendix B:
Asset Protection Zones (APZ) Technical Requirements (WAPC, 2024)

The following standards have been extracted from the Planning for Bushfire Guidelines (WAPC, 2024b).

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: the APZ is measured from the development site, and of sufficient size to ensure the radiant heat impact of a bushfire does not exceed 29kW/m² (BAL-29) in all circumstances.
b. Location: the APZ should be contained solely within the boundaries of the lot, 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 APZ technical requirements, or an alternative standard on a local planning scheme, on an ongoing basis in perpetuity; or
    - the adjoining land is and will remain in perpetuity, non-vegetated.
c. Management: the APZ is managed in accordance with the APZ technical requirements (below), or an alternative standard in a gazetted local planning scheme.

APZ Technical Requirements

Object	Requirement
Fences within the APZ	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).
Fine fuel load (Combustible, dead vegetation matter less than 6 mm in thickness)	• Should be managed and removed on a regular basis to be maintained as a low threat vegetation. • Should be maintained at less than two tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel, shells, rock or crushed mineral earth or wood mulch more than five millimetres in thickness.
Trees* **(more than 6 m 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 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 less than 15 per cent of the total APZ area. • Tree canopies at maturity should be at least 5 m apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided the total canopy cover within the APZ does not exceed 15 per cent and is not connected to the tree canopy outside the APZ.  Tree canopy cover – ranging from 15 to 70 per cent at maturity

Object	Requirement
Shrub* and scrub* (0.5 m to 6 m in height). Shrub and scrub more than 6 m 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 more than five square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground cover*(less than 0.5 m in height. Ground cover more than 0.5 m in height is to be treated as shrub)	• 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 more than 100 mm in height.
Grass	• Grass should be maintained at a height of 100 mm 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 cover, grass and non-combustible mulches as prescribed above.
Liquid petroleum gas cylinders	• Should be located on the side of a building farthest 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 in the Guidelines.**	

ADDITIONAL NOTES

An Asset Protection Zone (APZ) is a low fuel area, maintained around a building to increase the likelihood a building will survive a bushfire, by reducing the potential for direct flame contact, radiant heat exposure and ember attack. The APZ allows emergency services access and provides an area for firefighters and homeowners to defend their property.

An APZ should be contained within the boundaries of the lot on which the building is situated, except in instances where it is demonstrated the vegetation on the adjoining land is, and will continue to be, low threat as per cl. 2.2.3.2 of AS 3959, or the vegetation on the adjoining lot is, and will remain in perpetuity, non-vegetated. However, it should be noted there is no requirement for a neighbouring landowner or land manager (public or private) to be party to a legal agreement to undertake ongoing management of vegetation as low threat, in perpetuity.

Appendix C:
Vehicular Access Technical Requirements (WAPC, 2024)

Technical requirements	Perimeter Roads		Public Roads		Emergency Access Way[3]		Fire Service Access Route[3]		Battle-Axe and Private Driveways[1]	
Map of Bush Fire Prone Areas Designation	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1	Area 2	Area 1
Minimum horizontal clearance (m)	12	8	See note 5		10	6	10	6	6	
Minimum vertical clearance (m)	4.5									
Minimum weight capacity (t)	15									
Maximum grade unsealed road[2]	See note 5		See note 5		1:10 (10% or 6 degrees)					
Maximum grade sealed road[2, 4]					1:7 (14.3% or 8 degrees)					
Maximum average grade sealed road					1:10 (10% or 6 degrees)					
Minimum inner radius of road curves (m)					8.5					

NOTES

1. Driveways and battle-axe legs to comply with the Residential Design Codes and Development Control Policy 2.2 Residential Subdivision where not required to comply with the widths in this Appendix or the Guidelines.

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

3. To have crossfalls between 3 per cent and 6 per cent.

4. For sealed roads only the maximum grade of no more than 1 in 5 (20 per cent) (11.3 degrees) for no more than 50 metres is permissible, except for short constrictions to 3.5 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed.

5. As outlined in the Institute of Public Works Engineering Australasia (IPWEA) subdivision guidelines, Liveable Neighbourhoods, Austroads Standards Main Roads standard, supplement, policy or guideline and/or any applicable or relevant local government standard or policy.