

STRUCTURE PLAN REPORT



*Lot 176 on Diagram 63890 &
Lots 201 & 9000 on Deposited Plan 65898,
Houses 604, 580 & 578 Rendezvous Road, Vasse
(Certificates of Title 1635/719, 2823/895 & 2823/896)*



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February 2024 (Rev. 3)

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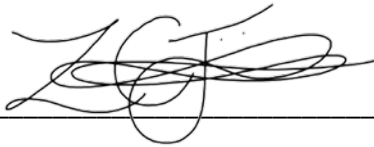
ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Busselton Local Planning Scheme No. 21.

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:


26 March 2024

Signed for and on behalf of the Western Australian Planning Commission:



an officer of the Commission duly authorised by the Commission pursuant to section 24 of the Planning and Development Act 2005 for that purpose, in the presence of:

Witness:



Date:

_____ **03 April 2024** _____

Date of Expiry:

_____ **03 April 2034** _____

TABLE OF AMENDMENTS

Amendment No.	Summary of the Amendment	Amendment type	Date approved by WAPC

TABLE OF DENSITY PLANS

Density Plan No.	Area of density plan application	Date endorsed by WAPC

EXECUTIVE SUMMARY

Lots 176 and 9000 are 6.3630 ha and 3.1745 ha in area, respectively, while Lot 201 is only 7,588 m². Collectively the lots make up a 10.2963 ha site located 3.4 km by road from the Vasse town centre to the northwest (**refer to Appendix A – Location Plan**).

The land within the study area starts at height levels above 6 m Australian height datum (AHD) in the south adjoining Rendezvous Road. It then falls very gently towards the unallocated Crown land (UCL) to the north. The land can be described as flat, with isolated highpoints above 5 m through the middle of the properties.

Most of the land is cleared, but there are some stands of exotic and Australian native trees scattered about, along with some interspersed local endemic trees in the north. Being grazing and horticulture land traditionally, there are no endemic understorey species intact.

Access to all three lots is gained principally by several crossovers and driveways onto Rendezvous Road along the southern boundaries. Rendezvous Road is a 100 km / h posted local distributor road (i.e. sealed, single-lane carriageway) that provides linkage between the rural distributors of Queen Elizabeth Avenue (east) and Kaloorup Road (west). Secondary access is provided to Lot 176 via the Bendjar Grove cul-de-sac head which abuts the western boundary at its north end. This is a local road with 6.2 m wide sealed pavement which, apart from the turning head, is contained in a 15 m wide road reserve.

As with most properties in the east Vasse, Lots 176, 9000 and 201 were originally zoned Rural Residential and included in the Development Investigation and Special Provision No. 4 (SP4) areas pursuant to *City of Busselton Local Planning Scheme No. 21* (LPS 21). Lot 176 also had small portions within the Wetland area.

Amendment No. 36 to LPS 21 that was gazetted on 4 June 2021 subsequently changed the base zoning to Urban Development and excluded the lots from the Development Investigation area. This amendment also made several changes to the SP4 area provisions, with an allowance that a separate structure plan for Lots 176, 9000 and 201 Rendezvous Road, can be prepared and implemented where demonstrated to the satisfaction of the WAPC that such does not prejudice the provision of the following to the balance of the SP4 area:

1. Reticulated sewerage.
2. Integrated road network and hierarchy.

The structure plan enclosed within this report is now formally put to the City of Busselton and WAPC for adoption and endorsement respectively in accordance with the new zoning and SP4 area provisions. The structure plan is intended to supersede the development guide plan already covering Lots 201 and 9000 endorsed by the WAPC in circa 2009. It also supersedes the structure plan for east Vasse covering the same land and which formed part of Amendment No. 336 to former *Shire of Busselton Town Planning Scheme No. 5* (TPS 5).

The structure plan submitted proposes 37 residential lots that are to be used and developed in accordance with the Urban Development zone, SP4 area provisions and specific structure plan requirements (**refer to Structure Plan – Pages 5 and 6**).

The large residential lot sizes by modern standards reflects the original intent of providing a graduated transition from the Vasse residential cells to the grazing and viticultural land south of Rendezvous

Road, most of which is still used for grazing. Such also respects the intent of the of the original structure plans to consolidate and increase special residential densities toward Vasse.

A summary of the structure plan outcomes is provided below (**refer to Table 1 – Overview of structure plan**).

Table 1 - Overview of structure plan

Item	Data		Structure Plan Ref. (Section No.)
Total area covered by the structure plan	10.3063 hectares		
Area of each land use proposed:	Hectares	Lot yield	
• Residential	7.6897	37	
• Commercial	0	0	
• Industrial	0	0	
• Rural residential	0	0	
Total estimated lot yield	37		
Estimated number of dwellings	37		
Estimated residential site density	0.21 dwellings per site / hectare		
Estimated population	111 based on 3 people per household (Vasse SSC – ABS, 2016)		
Number of high schools	0		
Number of primary schools	0		
Estimated commercial floor space	0 hectares		
Estimated area and percentage of public open space given over to:			
• Regional open space	0 hectares	0 %	
• District open space	0 hectares	0 %	
• Neighbourhood parks	0 hectares	0 %	
	0 parks		
• Local parks	0.9591 hectares	9.31 %	
	3 parks / reserves		
Estimated percentage of natural area	0.5153 hectares 5 %		

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PART ONE – IMPLEMENTATION

1. Structure plan area

This structure plan is intended to apply to the following lots:

- Lot 176 on Diagram 63890, House 604 Rendezvous Road, Vasse (Certificate of Title 1635/719).
- Lot 201 on Deposited Plan 65898, House 580 Rendezvous Road, Vasse (Certificate of Title 2823/895).
- Lot 9000 on Deposited Plan 65898, House 578 Rendezvous Road, Vasse (Certificate of Title 2823/896).

Relevant prints of the certificates of title are enclosed (**refer to Appendix B – Certificates of Title**).

2. Operation

The date the structure plan comes into effect is the date the structure plan is approved by the WAPC.

3. Staging

Staging of this structure plan is not considered desirable by the owners of Lots 176 and 9000 given –

- the small number of lots proposed;
- the fact that all required infrastructure, including reticulated sewerage, is available;
- extensive drainage (including sub-soil etc.) and bulk filling of lots is not required, making works less complicated and less costly; and
- the general intent of the major parties involved.

Notwithstanding this, given the only underground services will be power, sewer, water, gas and telecommunications, while drainage and access (including emergency access way) could be accommodated by temporary easements over balance of title, it is conceivable that the subdivision could be staged if required.

4. Subdivision and development requirements

4.1 Land use zones and reserves requirements within structure plan area

All lots will be subject to the Urban Development zone and SP4 area land use, subdivision and development provisions within LPS 21. The structure plan itself shows the lots as having an applied

coding of R5, where the lots will be subject to respective site requirements of *State Planning Policy No. 7.3: Residential Design Codes Volume 1* (R-Codes Volume 1). It should be noted, however, that while minimum R5 setbacks will apply, dwelling position will largely be dictated by the BMP and site-specific BAL assessment and certificate at the building permit application stage.

Following completion of the subdivision, and the registration of certificates of titles for all lots, it is anticipated that the City of Busselton will rezone the private lots Residential and apply an R5 coding, presumably by an omnibus amendment to the local planning scheme of the day. All reserves will be ceded to the Crown are expected to be reserved for their appropriate purpose under the same amendment to the local planning scheme.

4.2 Mechanisms to protect environmental or heritage features

The more site specific mechanisms to preserve natural / environmental features are listed on the second sheet of structure plan conditions, although the few-remaining natural features have been protected through avoidance by design. More specifically, the structure plan identifies several small reserves where retention and enhancement of wetland vegetation will occur.

4.3 Responses to hazards and separation areas

The greatest hazard facing this and surrounding lots is bushfire which is being addressed via the preparation and implementation of a BMP. Being predominantly flat but with highly-permeable soils, the property is not subject to water erosion issues, however surface and groundwater quality will need to be treated and protected appropriately via the drainage design prepared by the civil engineer.

4.4 Responses to or staging in relation to major infrastructure

As the subdivision relies upon cable and small pressure-pipe services only (i.e. underground power, telecommunications, sewer, water and natural gas), which do not require major upgrades, there is no need to stage development. There is also no district drainage scheme in place, so drainage will be dealt with on a site-specific basis. Road access is also available, both in terms of access from the existing distributor road (Rendezvous Road), plus road access from the existing local road system (Bendjar Grove) as identified on the approved structure plan for *Heron Lake* (what were Lots 27 and 9507 Rendezvous Road). The subdivision will be connected to both roads to meet contemporary bushfire planning access requirements, predominantly connection to two local roads in different directions of travel.

In this instance connection of the lots to the Water Corporation's reticulated sewerage scheme is not proposed following assessment against Clause 5.1.1 of *Government Sewerage Policy*.

The Water Corporation's sewer concept plan shows the land east of Lots 176, 201 and 9000 being serviced by the proposed sewer catchment / scheme draining / pumping east. Specifically, it shows Lots 178, 501, 1445 and 9003 Rendezvous Road / Busselton Bypass being gravity drained northeast and through *The Woods on Rendezvous* to a Type 90 pump station adjoining the Busselton Bypass. From there it is pumped east by pressure main to a future discharge point into a future gravity scheme in *Dunbarton* (infill sewerage scheme). Water Corporation has advised that the subject site can be serviced through an extension of the existing gravity sewer network on Bendjar Grove, and it is proposed the lots are connected to gravity sewer network.

4.5 Arrangements to interface with land adjoining the structure plan area

The structure plan generally shows R5 lots of a similar area, width and depth. Such is seen as a sensible transition to the slightly smaller, fully-serviced lots within *Heron Lake* to the northwest, while also being large enough to respect the existing traditional rural residential lots adjoining to the east and lower west.

4.6 Public open space

A minimum of 10 percent of the gross subdivisible area is to be given up for public open space in accordance with *Planning and Development Act 2005* and *Development Control Policy 2.3 – Public Open Space in Residential Areas*. The public open space will be ceded at first stage of subdivision in consistent with *Liveable Neighbourhoods 2009*. Alternatively, an equivalent cash-in-lieu contribution for public open space will be provided at the first stage of subdivision.

A public open space schedule is prepared below in accordance with *Liveable Neighbourhoods 2009*.

Public Open Space Schedule			
Site area			10.3063 ha
Less			
Environmental protection policy areas	0 ha		
Wetlands to be ceded	0 ha		
Protected bushland site	0 ha		
Unrestricted public open space sites not included in public open space contribution	0 ha		
Foreshore reserves to be ceded	0 ha		
Total		0 ha	
Net site area			10.3063 ha
Deductions			
Primary school	0 ha		
Town centres and commercial	0 ha		
Dedicated drainage reserve	0 ha		
Transmission corridors	0 ha		
Other approved contingencies	0 ha		
Gross subdivisible area			10.3063 ha
Public open space @ 10 per cent			1.0306 ha
Public open space contribution			
May comprise:			
- minimum 80 per cent unrestricted public open space		0.8245 ha	
- minimum 20 per cent restricted use public open space		0.2061 ha	
Unrestricted public open space sites			
1 local park			
- Lot 2001		0.6526 ha	
Restricted use public open space sites			
Useable portion of 2 pedestrian access and drainage reserves			
- Useable portion of Lot 2002 (2,246 m ² total, less 499 m ² dedicated to drainage)		0.1747 ha	
- Useable portion of Lot 2003 (1,845 m ² total, less 527 m ² dedicated to drainage)		0.1318 ha	
Public open space provision			0.9591 ha
			9.31 %
Note: Gross subdivisible area includes house lots, access roads, and any land incidental to the subdivision. The gross subdivisible area does not include areas for schools, shopping centres, infrastructure (e.g. land required for sewer pump stations), dedicated drainage sites not having a recreational function and land set aside for arterial roads and other non-residential uses.			

4.7 Residential density targets

There are no specific residential density targets applied under the higher level strategic plans and strategies and sub-regional structure plans prepared and / or endorsed by the WAPC.

5. Local development plans

None required.

6. Other requirements

6.1 Infrastructure corridors and / or infrastructure upgrades required

No significant infrastructure corridors are required, while servicing will be limited to extension of the four basic 'common trenching' underground services of water, sewer, power, gas and broadband telecommunications. These common services will be extended in the proposed road network, including the connections from the structure plan area further east, while sewerage to the land further east will be provided by Water Corporation's planned scheme extending west from Kookaburra Avenue, not from Vasse.

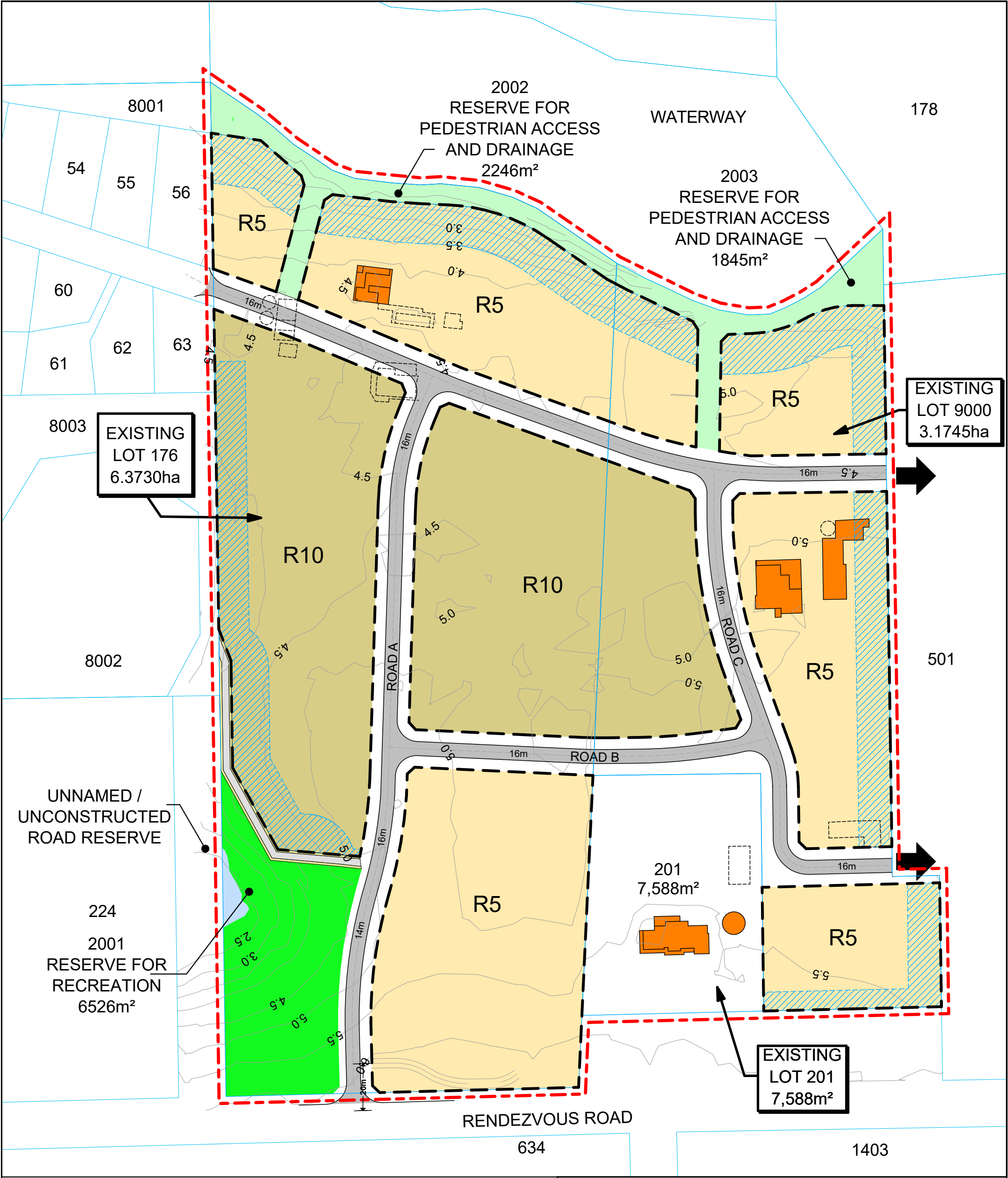
6.2 Funding arrangements for the provision of standard and community infrastructure

The current arrangement is for 'per-lot' contributions to be collected by the City of Busselton under its local planning scheme and local planning policies. These funds are then used for upgrades and improvements of roads, paths and general community infrastructure in the immediate locality and district. In a similar manner, Busselton Water and Western Power also require payment of infrastructure contributions (headworks) for each lot, plus relevant fees to connect each lot to the water and power supply networks.

7. Additional information

This structure plan requires the following additional information to be submitted at the set stages.

Additional information	Approval stage	Consultation required
Urban water management plan	Condition of subdivision approval requiring the plan to be prepared and approved prior to site works, and implemented prior to clearance of the same condition.	City of Busselton in consultation with Department of Water and Environmental Regulation
Foreshore management plan	Condition of subdivision approval requiring the plan to be prepared and approved prior to site works, and implemented prior to clearance of the same condition.	City of Busselton



Project: LOTS 176, 201 AND 9000 / HOUSES 604, 580 AND 578 RENDEZVOUS ROAD, VASSE

Drawing Title: STRUCTURE PLAN

Principal: BANYANDA DEVELOPMENTS PTY. LTD. AND K. BELL

N

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LEGEND

- SUBJECT LAND
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- RESIDENTIAL R10
- RESIDENTIAL R5

- EXISTING BUILDING / STRUCTURES TO BE RETAINED
- EXISTING BUILDING /STRUCTURES TO BE REMOVED
- HABITABLE BUILDING EXCLUSION AREA
- 3m WIDE PATH WITH 1m COMPACTED GRAVEL/LIMESTONE SHOULDER
- FUTURE ROAD CONNECTION

ABLE PLANNING & PROJECT MANAGEMENT

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Date:10/02/24	Scale:1:1500
Designed: AB	Checked: AB
Drawn: TL	
Local Authority: City of Busselton	Sheet 1 Of 1
Plan/Diagram Number	CT Number
63890	1635-719
65898	2823-895
65898	2823-896
Revision: DRAFT 4	ORIGINAL:A3

STRUCTURE PLAN CONDITIONS

1. As a condition of subdivision, and pursuant to section 150 of the *Planning and Development Act 2005* and Division 3 of the *Planning and Development Regulations 2009*, a covenant preventing vehicular access onto and from Rendezvous Road is to burden proposed lots 13, 32 and 33 on the deposited plan.

PART TWO – EXPLANATORY SECTION AND TECHNICAL APPENDICES

1. Planning Background

1.1 Introduction and purpose

INTRODUCTION

Work leading up to this structure plan submission commenced in March 2015 when dialogue with the City of Busselton first started with respect to lot size and servicing requirements over Lot 176 Rendezvous Road. At that early stage it was anticipated that Lot 176 and those adjoining to the east may connect to the vacuum sewerage system from Vasse, particularly the extension to service the *Heron Lake* development on Lots 27 and 9506 to the west. The intention was to create a fully-serviced, residential subdivision with lots averaging approximately 1,000 m² (i.e. R10).

Time was then taken in 2015 and 2016 to undertake groundwater level monitoring over Lot 176 and the largest of the adjoining properties, Lot 9000. By the time monitoring had been completed and the results published, the WAPC had published the Draft Government Sewerage Policy (DGSP). Around the same time it became clear from strategy maps forwarded by Water Corporation that Lots 176 and 9000 cannot be viably serviced by vacuum sewage system from Vasse and is outside the sewer catchment for the remainder of east Vasse toward Busselton. However, Water Corporation later advised that the proposed R5 density lot yield could be serviced by gravity sewer extension from Bendjar Grove (Heron Lake estate). Essentially, Lots 176, 9000 and the smaller Lot 201 between can be serviced with reticulated sewerage.

Lots 176 and 9000 are 6.3630 ha and 3.1745 ha in area, respectively, while Lot 201 is only 7,588 m². Collectively the study area totals approximately 10.3 ha and is located 3.4 km by road from the Vasse town centre to the northwest.

Access to all three lots is gained principally by several crossovers and driveways onto Rendezvous Road along the southern boundaries. Rendezvous Road is a 100 km / h posted local distributor road (i.e. sealed, single-lane carriageway) that provides linkage between the rural distributors of Queen Elizabeth Avenue (east) and Kaloorup Road (west). Secondary access is provided to Lot 176 via the Bendjar Grove cul-de-sac head that abuts the upper end of the western boundary. This is a local road with 6.2 m wide sealed pavement which, apart from the turning head, is contained in a 15 m wide road reserve.

As with most properties in the east Vasse, Lots 176, 9000 and 201 were originally zoned Rural Residential and included in the Development Investigation and Special Provision No. 4 (SP4) areas pursuant to LPS 21. Lot 176 also had small portions within the Wetland area.

Amendment No. 36 to LPS 21 that was gazetted on 4 June 2021 subsequently changed the base zoning to Urban Development and excluded the lots from the Development Investigation area. This amendment also made several changes to the SP4 area provisions, with an allowance that a separate structure plan for Lots 176, 9000 and 201 Rendezvous Road, can be prepared and implemented where demonstrated to the satisfaction of the WAPC that such does not prejudice the provision of the following to the balance of the SP4 area:

1. Reticulated sewerage.

2. Integrated road network and hierarchy.

The land within the study area starts at height levels above 6 m Australian height datum (AHD) in the south adjoining Rendezvous Road. It then falls very gently towards the UCL to the north. The land can be described as flat, with isolated highpoints above 5 m through the middle of the properties.

Most of the land is cleared, but there are some stands of exotic and Australian native trees scattered about, along with some interspersed local endemic trees, predominantly in the north. Being grazing and horticulture land traditionally, there are no understorey species intact. The subject land is considered prime for closer settlement given –

- it is predominantly cleared with no understorey (still being grazed by sheep today);
- it has only a low to moderate risk of uncovering acid sulfate soils (ASS);
- it has no trees significant to the three threatened species of black cockatoos or peppermint woodland canopy for western ringtail possum;
- it has mostly exotic or native Australian (non -local endemic) tree and shrub species (except for the vegetation next to the unnamed road reserve); and
- it has good permeable, free-draining soils with no perched groundwater issues.

The structure plan enclosed within this report is now formally put to the City of Busselton and WAPC for adoption and endorsement respectively.

The relevant background is as follows:

April 1997 – June 1998

The plan entitled ‘Proposed Overall Development Structure Plan for East Vasse’ covering the subject land and other lots to the east was advertised and adopted by the City of Busselton as part of the documentation supporting Amendment No. 336 to former TPS 5 (**refer to Appendix C – Proposed Overall Development Structure Plan for East Vasse**).

September 1999

Along with other land in the east Vasse structure plan cell, the subject lots were rezoned Rural Residential and included in the Special Provision (SP 4) area via preparation of the now revoked *Shire of Busselton District Town Planning Scheme No. 20* (DTPS 20). This rezoning occurred on 7 September 1999 with the publishing of the said district town planning scheme in the *Government Gazette*.

October 2014

LPS 21 was published in the *Government Gazette* on 15 October 2014 having force and effect from that day. LPS 21 carried forward the subject lots zoning and area designations under former *DTPS 20*.

September 2018

The City of Busselton confirmed in late September 2018 that a structure plan could be pursued over the cell without reticulated sewerage, environmental studies / investigations and surveys were promptly commissioned.

May 2019

The *Leeuwin-Naturaliste Sub-regional Strategy* was approved by the WAPC in May 2019 and identified the subject lots as Rural Living, an apparent mistake.

June 2019

The first version of the structure plan report (revision 0) was submitted in June 2019, but not formally processed due to perceived unresolved issues concerning zoning / local planning strategy, final *Government Sewerage Policy* (GSP) compliance and road access / permeability. The City of Busselton requested that the structure plan be held-over until the *Leeuwin-Naturaliste Sub-regional Strategy* is amended to correctly identify east Vasse for Urban, the *City of Busselton Local Planning Strategy* is endorsed and LPS 21 amended to rezone the land to Urban Development. During that time access and GSP compliance issues were to be resolved.

January 2020

The *Leeuwin-Naturaliste Sub-regional Strategy* was amended on 22 January 2020 to show east Vasse as Urban on the strategy plan.

March 2020

The *City of Busselton Local Planning Strategy* was endorsed on 13 March 2020 with the subject lots shown as Long Term Urban Growth on the strategy map.

February 2021

Amendment No. 28 to LPS 21 was published in the *Government Gazette* on 16 February 2021 having force and effect from that day. Amendment No. 28 to LPS 21 introduced the Urban Development zone, plus the relevant objectives and provisions for the same.

June 2021

Amendment No. 36 to LPS 21 was published in the *Government Gazette* on 4 June 2021 and changed the base zoning of Lots 176, 201 and 9000 to Urban Development and excluded the lots from the Development Investigation area. This amendment also made several changes to the SP4 area provisions, with an allowance that a separate structure plan for Lots 176, 9000 and 201 Rendezvous Road, Vasse, can be prepared and implemented where demonstrated to the satisfaction of the WAPC that such does not prejudice the provision of the following to the balance of the SP4 area—

- (a) reticulated sewerage; and
- (b) integrated road network and hierarchy.

April 2023

Water Corporation advised that existing gravity network nearby have capacity to support the lot yield at R5 density, through an extension from Bendjar Grove.

PURPOSE AND PROPOSAL

Yield, Lot Sizes and Layout

The structure plan proposes to develop 37 low density, R10 and R5 lots consistent with the Urban Development zoning.

The large residential lot sizes by modern standards reflects the original intent of providing a graduated transition to agricultural land south of Rendezvous Road, most of which is still used for grazing. Such also respects the position amongst the wetland systems to the north and west which have traditionally had low-density settlement forms around them.

Services

The table below provides an overview of the proposed servicing proposals (**refer to Table 3 - Servicing Availability and Servicing Proposals**).

Table 3 - Servicing Availability and Servicing Proposals

Table	Service Availability (Yes / No)	Servicing Proposal Notes
Water	Yes	Connection available to mains water via existing 150 mm Busselton Water working end in Bendjar Grove
Sewerage	Yes	Connection available to reticulated sewer via gravity sewer extension from Bendjar Grove.
Electricity	Yes	Connection available to underground power supply via existing Western Power high voltage working end in Bendjar Grove.
Natural Gas	Yes	Connection available to natural gas via existing 63 mm ATCO Gas working end in Bendjar Grove.
Telecommunications	Yes	Connection available to NBN Co fibre-optic network with fibre to the premises (FTTP) connection to dwellings.
Drainage	Yes	Road drainage to be contained in roadside swale drains throughout 1 in 1 year and 1 in 5 year events given high infiltration capacity of the sandy surface soil. Stormwater from larger events to be directed to natural water bodies over-flow channels. Stormwater within lots to be retained within lots via connection of roof and hardstand run-off to water tanks and / or soak wells.

All lots within the proposed estate will be cable and pressure pipe services only, being underground power, telecommunications, sewer, water and gas.

While a mains water supply will be provided, lot owners and builders will be encouraged to collect potable water from roof catchment, directed and stored in above ground tanks.

Structure Plan – Lots 176, 201 and 9000 Rendezvous Road, Vasse

Roads, Access and Drainage

Road access will be derived principally from Rendezvous Road via the new intersection and internal road network system. Secondary access will be provided by Bendjar Grove in the (northwest corner), plus the eventual road connections through to Lot 501 / House 572 Rendezvous Road (upper and lower east). Tertiary (fire emergency) access will be provided through an expansion of the existing easement (i.e. section 136C of *Transfer of Land Act 1893* right of carriageway) connection through to the reserve systems of *Heron Lake* (mid-west).

Lots 13, 32 and 33 will be prevented from direct access onto and from Rendezvous Road by virtue of proposed and existing covenants (i.e. section 150 of *Planning and Development Act 2005*).

The internal road network, with its central loop road system connected by linkages to the southwest and northwest (plus east in the future), is highly permeable to vehicles, cyclists and pedestrians. A short temporary cul-de-sac extending from the inner loop road provides access to two lots only and will serve as a future through-road connection when Lot 501 is developed in the future.

The total area ceded to the Crown under the proposed structure plan is 2.6166 ha, with 1.5549 ha dedicated as road reserve and 1.0617 ha committed as recreation or pedestrian access and drainage reserves depending on final vesting requirements.

In accordance with the earlier commitments to the City of Busselton, the structure plan provides for much stronger and permeable linkages to the north, east and northwest, certainly well beyond that envisaged by the 1997 structure plan.

All new roads and intersections will be required to be constructed to the specifications and standards of the City of Busselton. Exact design and construction details will be supplied with engineering drawings post subdivision approval and prior to site works.

The drainage system will be developed in accordance with an eventual urban water management plan, which will have an engineering design focus. In accordance with the LWMS (**refer to Appendix G – Local Water Management Strategy**) road drainage is to be contained in roadside swale drains throughout 1 in 1 year and 1 in 5 year average recurrence interval (ARI) events given high infiltration capacity of the sandy surface soil. Stormwater from larger events is to be directed by roads, swales and overland channels to the natural water bodies. Stormwater generated within lots shall be retained internally via connection of roof and hardstand run-off to water tanks and / or soak wells.

1.2 Land description

1.2.1 Location

Lots 176, 201 and 9000 collectively are approximately 3.4 km by road from the Vasse town centre to the northwest.

Access to all three lots is gained principally by several crossovers and driveways onto Rendezvous Road along the southern boundaries. Rendezvous Road is a 100 km / h posted local distributor road (i.e. sealed, single-lane carriageway) that provides linkage between the rural distributors of Queen Elizabeth Avenue (east) and Kaloorup Road (west). Secondary access is provided to Lot 176 via the Bendjar Grove cul-de-sac head which adjoins the upper end of the western boundary. This is a local

road with 6.2 m wide sealed pavement which, apart from the turning head, is contained in a 15 m wide road reserve.

1.2.2 Area and land use

Lots 176 and 9000 are 6.3630 ha and 3.1745 ha in area, respectively, while Lot 201 is only 7,588 m². The collective area of the structure plan cell is nearly 10.3 ha.

The land generally starts at height levels above 6 m AHD in the south adjoining Rendezvous Road respectively. It then falls very gently towards the UCL to the north. The land can be described as flat, with isolated highpoints above 5 m through the middle of the properties.

Most of the land is cleared, but there are some stands of exotic and Australian native trees scattered about, along with some interspersed local endemic trees in the north of Lot 176. Being grazing and horticulture land traditionally, there are no understorey species intact.

Lots 176 and 9000 are still used for rural living purposes and for some passive, hobby-scale agriculture, including grazing of sheep and fruit and nut trees. Lot 201 is used exclusively for rural living.

1.2.3 Legal description

This structure plan is intended to apply to all of the following lots:

- Lot 176 on Diagram 63890, House 604 Rendezvous Road, Vasse (Certificate of Title 1635/719), owned by Banyanda Developments Pty. Ltd.
- Lot 201 on Deposited Plan 65898, House 580 Rendezvous Road, Vasse (Certificate of Title 2823/895), owned by W and SE Radisich.
- Lot 9000 on Deposited Plan 65898, House 578 Rendezvous Road, Vasse (Certificate of Title 2823/896), owned by KJ Bell.

The table below provides overviews of the landholding involved in the structure plan submission (**refer to Table 4 - Overview of Subject Land**).

Table 4 - Overview of Subject Land

Lot Number	Diagram / Deposited Plan / Plan	House Number and Street	Certificate of Title	Limitations, Interests, Encumbrances and Notifications	Area
176	Diagram 63890	604 Rendezvous Road	1635-719	Easement burden - access (document K732518)	6.3730 ha
201	Deposited Plan 65898	580	2823-895	Notifications burden – connection to sewerage and mosquito breeding (documents M404786 and M404787)	7,588 m ²
9000	Deposited Plan 65898	578	2823-896	Notification burden - mosquito breeding area (document M404787)	3.1745 ha

Copies of the relevant titles are contained in the appendices of this report.

1.3 Planning framework

1.3.1 Zoning and reservations

CITY OF BUSSELTON LOCAL PLANNING SCHEME No. 21 (2014)

Zoning

Following gazettal of Amendment No. 36 to LPS 21, Lots 176, 9000 and 201 are now zoned Urban Development. All lots have been retained in the SP4 area, while Lots 176 and 9000 also retain small portions within the Wetland area, as does Lot 224 / House 620 Rendezvous Road to the west.

Lots on the southern side of Rendezvous Road are zoned Agriculture and used for grazing, while the recently completed *Heron Lake* residential subdivision to the northwest is now zoned Residential, coded R12.5 and included in a Special Provision (SP 55) area.

Clause 3.2 - Objectives of the Zone

Clause 3.2 contains the objectives and policies of the Urban Development zone as follows:

“Objectives

- a) To designate land for future urban development and provide a basis for more detailed structure planning in accordance with this Scheme.**
- b) To provide for a range of residential densities to encourage a diversity of residential housing opportunities.**
- c) To provide for the progressive and planned development of future urban areas for residential purposes and for commercial and other uses normally associated with residential development.**
- d) To proactively plan for vibrant and attractive activity centres in urban areas developed along ‘main-street’ lines with activated public streets, high levels of pedestrian and civic amenity and a mix of public spaces including, retail, commercial, café, restaurant, bar, entertainment, tourism and community uses.**
- e) To provide for a range of recreational, community, cultural and social facilities to meet the needs of a growing and diverse population.**
- f) To provide for the protection of natural areas and habitats within urban areas.”**

The structure plan proposal is considered to be consistent with the above objectives in that it–

- adds to the necessary mix of housing choice in Vasse and the City of Busselton generally, all while providing a high level of amenity in this planned residential area;
- creates larger lots and reduces lot yield to better reflect the rural character of the agricultural and rural residential properties surrounding;

- provides a new supply of suitably located land to meet the ongoing residential needs of Vasse and Busselton for several years to come;
- provides suitable level of services, commensurate with the existing power, reticulated water and broadband services already available in Vasse;
- enables better use of exiting physical and social infrastructure, including primary school, high school, sports grounds, etc; and
- protects the existing water bodies to the west and north appropriately.

Clause 5.5 - Wetland Area

Clause 5.5 of LPS 21 contains the specific provisions relating to the Wetland area, as follows:

“5.5.1 If land the subject of an application for development approval includes land to which this clause applies the development shall, wherever possible, be carried out on that part of the land which is not land identified in a Wetland area.

5.5.2 In the case of an application for subdivision or survey strata subdivision, the local government shall not support the application unless each lot to be created and intended to be used for the purpose of the erection of buildings includes land on which the buildings are intended to be erected which is not within a Wetland area.

5.5.3 Without limiting the local government's ability to grant development approval, the local government may grant development approval for the carrying out of development on land to which this clause applies where it is satisfied that–

a) the characteristics of the land are different from the general characteristics on which the delineation of the land was based; and

b) there are no other reasonable or practical alternatives in the circumstances.

5.5.4 The local government shall not grant development approval for the carrying out of development on land to which this clause applies unless the applicant has satisfied the local government that–

a) the development is essential for the reasonable economic use of the land, the provision of utility services or to reduce the risk of bushfires;

b) the development is proposed to be carried out in a manner which minimises–

(i) visual and scenic impact;

(ii) the risk of soil erosion (including erosion by wind);

(iii) the risk of water pollution, through increased siltation or otherwise;
(iv) the destruction of rare or locally important vegetation systems;
and

- c) appropriate measures are proposed to retain parts of existing vegetation or to landscape the site.**

5.5.5 The local government may require that a statement of environmental effects be prepared in accordance with Schedule 5 to accompany an application for development approval required by this clause to enable the local government to consider fully the environmental effects of the proposed development.

5.5.6 In determining an application for development approval required by this clause, the local government must consider –

- a) advice on the proposal as may be provided by the Department of Parks and Wildlife, the Department of Water and the Water Corporation;**
- b) the environmental effects of the proposed development, including the effect of the proposed development on –**
 - (i) the growth of native plant communities;**
 - (ii) the survival of native wildlife populations;**
 - (iii) the provision and quality of habitats for both indigenous and migratory species; and**
 - (iv) the surface and groundwater characteristics of the site on which the development is proposed to be carried out and of the surrounding area, including acidity, salinity and water quality;**
- c) whether feasible alternatives to the proposed development (either on other land or by other means) exist and, if so, the reasons given for choosing the proposed development;**
- d) whether adequate safeguards and rehabilitation measures have been, or will be, taken in respect of the effect of the proposal on the wetland; and**
- e) the public interest (if any) in the carrying out of the proposal compared with the public interest in the preservation of the wetland.”**

In response to the above, it should be noted that portions of the structure plan area that are subject to the Wetland area are proposed to be ceded as reserve or road, form part of the existing right of carriageway (easement) or fall within the setback area of lots and cannot be built over.

Clause 5.3 and Schedule 4 - Special Provision Area

Clause 5.3.1 of LPS 21 requires the use and development of land identified in a Special Provision area and specified in Schedule 3, shall be subject to those provisions listed within Schedule 3 specific to the land in addition to any provisions which are generally more applicable to such land under LPS 21.

Under Schedule 3, the following special provisions is listed for Lots 1445, 178, 501, 9000, 176, 201, 224 and 634 Rendezvous Road and Lot 9003 Vasse-Yallingup Siding Road, Vasse, as identified on the Scheme map:

- "1. A structure plan is to be prepared for the entire Special Provision Area unless demonstrated to the satisfaction of the WAPC, that a separate structure plan for Lots 176, 9000 & 201 Rendezvous Road, Vasse, can be prepared and implemented without prejudicing the provision of the following to the balance of the Special Provision Area:***

 - a) reticulated sewerage; and***
 - b) integrated road network and hierarchy.***
- 2. Lots 1445, 178, 501, 9000, 176, 201, 224 and 634 Rendezvous Road and Lot 9003 Vasse-Yallingup Siding Road, Vasse contain important environmental values including remnant vegetation, potential habitat for Commonwealth and State listed threatened fauna species, ecological linkages and wetlands. Structure planning shall require these values to be retained, managed and protected for conservation purposes. Structure planning is to include comprehensive environmental and water management assessments that investigate, but is not limited to, the following matters in consultation with the Department of Biodiversity, Conservation and Attractions and the Department of Water and Environmental Regulation and the satisfaction of the City of Busselton –***

 - a) Identification of vegetation having conservation significance, including survey(s) for Threatened Ecological Communities undertaken in the appropriate flowering season.***
 - b) Approved measures to ensure the retention, protection and ongoing management of those remnant vegetated areas having recognised environmental values within 'public open space' and/or conservation areas (as identified on the Structure Plan). Such measures are required to also address linkages and connectivity with contiguous areas of similarly important remnant vegetation on land adjoining the special provision area as well as management measures to ensure the habitat functions of these areas are maintained and, where possible, enhanced.***
 - c) Determination of boundaries of geomorphic wetlands and waterways foreshore areas, including identification of appropriate buffers.***
 - d) Preparation of a Foreshore Management Plan that includes hydrologically connected wetlands.***
 - e) A Local Water Management Strategy is required that establishes a framework to ensure that the quality and quantity of surface and groundwater is maintained post-development and is to address (but not be limited to):***

 - i. Flood management (major events);***

- ii. *Measures to ensure that existing hydrological and ecological functions of the geomorphic wetlands are not impacted by future development;*
 - iii. *Mitigation of nutrient loads in surface and groundwater flows into connected waterways and wetlands such as the Broadwater Wetlands (Conservation Category Wetland);*
 - iv. *Establish groundwater conditions, based on monitoring, and management requirements;*
 - v. *Development and implementation of a drainage system that addresses upstream stormwater conveyance and flood management;*
 - vi. *Identify and describe propose measures to capture and treat the minor events; and vii. Outline monitoring and management requirements.*
3. *Areas identified as having conservation significance (such as wetlands) & buffers) are to be identified on a structure plan as 'Reserve for Conservation' and ceded free of cost to the Crown at the time of subdivision in addition to any public open space land required as a condition of subdivision for residential purposes.*
 4. *Consideration of transitional lot sizes adjacent to areas of existing developed rural residential lots.*
 5. *Prospective conditions of subdivision shall require the preparation of vegetation, fauna, wetland and ASS management plans, the primary objective of which will be to ensure the protection and ongoing management of significant environmental, biodiversity, habitat and cultural values.*
 6. *Prior to subdivision or development, the proponent is to prepare a Development Contribution Plan to the satisfaction of the City of Busselton and WAPC to ensure appropriate and timely contributions towards community facilities, public open space and civil infrastructure on a progressive and staged basis."*

In response to point 1, the proposal is capable and will be connected to reticulated sewer network via gravity sewer extension from Bendjar Grove.

In respect to point 2, the following is offered in response to each alphabetical sub-point:

- a) The use of low-density lots that are only filled by purchasers to the extent required for dwelling pads are a deliberate ploy to save most local endemic tuart, peppermint and paperbark trees, while the introduced pine, flame, oak, jacaranda, palm and non-local endemic gum trees can be removed. Further, as Lots 176, 201 and 9000 were historically grazed and Lots 176 and 9000 continue to be grazed across the full property extents, and the adjoining wetlands are completely degraded, there is no likelihood of uncovering threatened ecological communities, unlike Lots 178 and 9003 that contain wetlands that have been fenced off from grazing and should be subject to flora survey.

- b) As above, the use of low density lots and the subdivision design itself are a deliberate strategy to retain the sporadically located tuart, peppermint and paperbark trees within the peripheries of lots, where they may be retained in the APZs of habitable dwellings. No active or passive public open space in accordance with City of Busselton direction and precedent, as this will further decrease the density of development and is not required on large lots where recreation needs are self-fulfilling. It is agreed that over Lots 178, 1445 and 90003 further east and north, where there are existing contiguous areas of existing remnant vegetation, it will be important to include habitat linkages in public open space and / or conservation reserves and connect them with similarly important remnant vegetation on land adjoining the special provision area.
- c) Geomorphic wetlands have been refined by the contours of their banks, which are the most reliable means of determining wetland extents when they have been grazed and are in a completely degraded state. Given the degraded state of the wetland occupying the unnamed / unconstructed road reserve and southwest corner of Lot 176, and the UCL abutting the northern boundary of Lots 176 and 9000, a buffer of road reserve and reserves for recreation and / or pedestrian access are considered appropriate, in addition to the buffering provided by building setbacks.
- d) As identified in section 7 of Part 1 of this structure plan report, a foreshore management plan will be prepared and submitted as required by a condition of subdivision approval.
- e) An LWMS accompanies this structure plan report that satisfies the criteria given and meets the requirements of the *Better Urban Water Management* policy document.

With regard to point 3, it is agreed that over Lots 178, 1445 and 9003 further east and north where there are existing wetlands and contiguous areas of remnant vegetation, it will be important to include these in conservation reserves, in addition to any active or passive public open space that is required.

In response to point 4, the use of low-density, R5 lots is the appropriate means of providing the necessary transition to the areas of existing developed rural living lots and rural land surrounding.

In respect to point 5, it is noted that prospective conditions of subdivision approval may require preparation of vegetation, fauna, wetland and acid sulfate soil management plans.

With regard to point 6, the subject lots currently fall in the Broadwater development contribution area, where an existing per lot contribution is payable.

1.3.2 *Regional and sub-regional structure plan*

PROPOSED OVERALL DEVELOPMENT STRUCTURE PLAN FOR EAST VASSE (1997)

Although not a regional or sub-regional structure plan, the plan entitled 'Proposed Overall Development Structure Plan for East Vasse' was advertised and adopted by the City of Busselton as part of the documentation supporting Amendment No. 336 to former TPS 5. It was processed between April 1997 to June 1998, and despite the amendment not being gazetted, its zoning and textual elements were carried into DTPS 20 in 1999.

The east Vasse structure plan shows a strong east-west road network with linkages to the Vasse townsite and Rendezvous Road. Lots ranging from 2 - 3 ha are shown adjoining Rendezvous Road, while the north of the structure plan area is identified for clustered lots ranging from 2,000 m² to 1 ha

lots. Conservation, recreation and drainage reserves cover the existing UCL along the northern boundary of Lots 176 and former Lot 177 (now Lot 9000).

It is generally accepted that the east Vasse structure plan is outdated and must be considered in the context of modern planning instruments promoting growth containment and sustainability. Since the east Vasse structure plan was first prepared, there have been a number of local and State strategies / policies providing further guidance to rural residential / special residential subdivision with reticulated water and strong capability for onsite effluent disposal, all of which are aimed at 'consolidating' these areas in the true sense of the word; that being to cluster and intensify settlement where opportunity permits. These further policies are covered in the forthcoming sections.

DEVELOPMENT GUIDE PLAN – LOT 177 RENDEZVOUS ROAD, VASSE (2009)

A development guide plan (structure plan) specific to former Lot 177 Rendezvous Road (now Lots 201 and 9000) was endorsed by the WAPC in 2009. It shows the creation of nine lots from Lot 177, ranging in size from 2,000 m² to 1 ha (refer to **Appendix D – Development Guide Plan for Lot 177 Rendezvous Road, Vasse**).

The plan proposed a first stage, being the creation of lot 8 (i.e. Lot 201) and the balance lot (i.e. Lot 9000). Lot 9000 was to be re-subdividable into eight lots once all infrastructure became available, including the central east-west road connection from Lot 176, plus all piped and cabled services (including reticulated sewerage).

Conditions 3.2 and 4 of the plan require instruments to be placed on the title of lot 8 requiring connection to reticulated sewerage and forfeiture of access to Rendezvous Road once alternative road access is provide. These conditions requiring reticulated sewerage and alternative road access to Lot 201 are intended to be upheld.

1.3.3 Planning strategies

LEEWIN-NATURALISTE SUB-REGIONAL STRATEGY (2019)

The Leeuwin-Naturaliste Sub-regional Strategy (LNSRS) was endorsed by the WAPC and published as a final in May 2019. The strategy plan originally identified the east Vasse cell as Rural living.

The LNSRS was amended in January 2020 and the revised strategy plan identified east Vasse as Urban. This designation is described in Table 4 of the LNSRS as follows:

“Land that is:

within the extent of an established townsite that is used for a range of uses typically undertaken within a town, including: residential, industrial, commercial, tourism, public and private institutions, and public purposes use including recreation, open space, utilities, emergency services, and cemeteries; and

adjoining land already zoned in a local planning scheme for ‘Future Development’ or similar and/or that has structure planning in place.”

Section 4 sets out the following WAPC strategic direction in respect to settlement:

- “11. “Adopt a presumption against the creation of new urban and rural living areas beyond those identified in existing local planning strategies or local planning schemes.”***

The R5 sized lots proposed by the structure plan are seen as a sensible approach of making the most efficient use of land already committed to urban development, while maintaining landscape and environmental values and mitigating the servicing inefficiencies of traditional rural residential subdivisions in the far east of Vasse.

SOUTH-WEST PLANNING AND INFRASTRUCTURE FRAMEWORK (2015)

The South-West Planning and Infrastructure Framework was released by the WAPC and Department of Planning in 2015. Section 6.2 (Building sustainable communities) includes perhaps the most pertinent reason for why the WAPC and City of Busselton are now seeking to increase density and lot yield from this former rural residential zoned area:

Specifically, it lists the following relevant manners in which to restrict the sprawl of centres and build on existing communities with established infrastructure and services:

“4. Constraining low-density urban sprawl through:

- ***preventing the creation of new rural residential lots beyond those identified in existing local planning strategies or local town planning schemes, while making provisions for the creation of conservation lots or other forms of lots that provide a mechanism for the protection of existing native vegetation or opportunities for revegetation of previously cleared land with endemic species;***
- ***support increasing the density of existing rural residential areas where this is seen as beneficial to the community as a whole and does not adversely impact on the landscape and environmental values of the locality; and***
- ***encourage infill consolidation in existing centres through the preparation of local planning strategies, schemes and structure plans. Such infill should be in line with the objectives and policies outlined in Liveable Neighbourhoods.***

5. Building on existing communities with established infrastructure and services by supporting strategies and plans that:

- ***have a presumption against development, unless consistent with the planned and staged rollout of major infrastructure;***
- ***concentrate retail, employment, recreational and other activities which attract large numbers of people in and around existing well serviced and easily accessible activity centres. Focus particularly on those that can be made accessible by public transport, so as to reduce the need for car-based travel, encourage noncar modes of transport and create attractive, high-amenity centres which will encourage business investment;***

- ***identify and use vacant and under-used land for higher densities where these can be achieved without detriment to neighbourhood character or the natural environment and encourage carefully planned urban expansion; and***
- ***support and plan for a variety of lots and dwellings in terms of size, type, affordability and location, with targets for the provision of wider housing opportunities and choice, (including 1-2 bedroom dwellings to create more affordable housing options) to reflect the changing demographics.”***

The South-West Framework has been cited by the City of Busselton as a document providing impetus for the review of strategies and plans guiding undeveloped greenfield rural residential land.

The proposed structure plan is considered to be consistent with the direction provided by the above, especially given the following:

- The subdivision increases the density of a former rural residential zoned area and provides community benefit in the form of improved bushfire escape for an adjoining subdivision, greater road permeability and accessibility to and from Vasse and more immediate environmental rehabilitation of the degraded wetland areas (i.e. before further loss of values).
- The subdivision can be seen as a form of infill development in the context of the once planned rural residential and special residential development once planned for the land and the remainder of east Vasse. In the same vein, the subdivision is considered a properly-planned, better intensive use of this underutilised land, but with the larger lots sizes retaining the rural character and natural environment.
- The subdivision is consistent with the staged rollout of major infrastructure, including reticulated sewerage.
- The subdivision underpins the overall strategy of providing for a variety of lots and dwellings in Vasse Busselton more generally in terms of size, type, affordability and location.

CITY OF BUSSELTON LOCAL RURAL PLANNING STRATEGY (2007)

The structure plan area is identified in Precinct 1 – Primary Rural of the endorsed City of Busselton Local Rural Planning Strategy. Listed as an undesirable land uses in the precinct is the following:

- “• ***Rural residential and rural small-holding uses other than in existing zoned areas pursuant to the Scheme.”***

Further, listed in the subdivision criteria is the following:

- “• ***Rural residential subdivision is limited to existing 'Rural Residential' zones and is to be in accordance with adopted Structure and Development Guide Plans.”***

The proposed subdivision not only sensibly departs from the minimum and average lot sizes stipulated on the east Vasse structure plan for consolidation purposes, it also logically adds more road connectivity from the northwest, southwest and east. All of this has produced a more compact yet permeable design, all without impinging on the environmental and landscape features of the site or the expected settlement character of this rural living precinct.

CITY OF BUSSELTON LOCAL PLANNING STRATEGY (2020)

The City of Busselton Local Planning Strategy (LPS) identifies the east Vasse cell as Long Term Urban Growth.

The relevant strategy notes for this cell are as follows:

“Vasse East (11)

Consideration and investigation for the further intensification of urban development in this location will occur via rezoning to urban development and structure planning. The reasons for this proposed residential investigation are as follows –

- ***Potential for increased residential density provides an opportunity for the consolidation of the Vasse settlement around the existing Vasse town centre;***
- ***Residential development is likely to represent the highest and best use for the land given its constraints, proximity to existing residential land use and services; and***
- ***Achieves better environmental outcomes than the previously envisaged unsewered rural residential development.”***

Further, the urban growth area framework identifies the following key issues in respect to east Vasse:

“Land currently zoned Rural-Residential and subdivision commenced in parts of the western portion.

Separated from current Vasse urban growth area by some environmentally sensitive areas.

May require upgrading/expansion of services in Vasse.

Consideration for the further intensification of urban development in this location to be investigated via rezoning to urban development and structure planning that addresses all relevant planning considerations, including but not limited to:

- ***Environmental impacts (e.g. wetlands and vegetation protection);***
- ***Servicing;***
- ***Access and traffic management;***
- ***Bushfire management;***
- ***Interface with the adjoining residential area; and***
- ***Transition to the adjoining rural residential area.***

Limited allocation of groundwater for irrigation of public open space.”

The following comments are provided in response to the above.

- The subdivision and adjoining *Heron Lake* development (completed) provide for the gradual transition and increase in residential density towards the Vasse settlement.
- The subdivision aligns with the notion that residential development represents the highest and best use for the land given its constraints, proximity to existing residential land use and services.
- The subdivision achieves better environmental outcomes than the previously envisaged unsewered rural residential development which, via the former SP 4 provisions, enabled the use of conventional, primary treatment systems (septic tanks and leach drains).
- This structure plan and its supporting documents, in addition to the bushfire hazard level assessment supporting Amendment No. 36 to LPS 21, plus exhaustive consultation with the City of Busselton and DPLH since 2018, have addressed all relevant planning considerations, including environmental impacts, servicing, access / traffic management, bushfire management and interface and transition to surrounding land uses.

1.3.4 Planning policies

STATE PLANNING POLICY No. 1: STATE PLANNING FRAMEWORK (2017)

State Planning Policy No. 1: State Planning Framework (SPP 1) restates and expands upon the key principles of the State Planning Strategy in planning for sustainable land use and development. It brings together existing State and regional policies, strategies, and guidelines within a central state planning framework which provides a context for decision-making on land use and development in Western Australia.

SPP 1 reinforces the primary aim of planning, which is to provide for the sustainable use and development of land, achieved by the six key principles which influence good decision-making in land use planning and development; these being environment, community, economy, infrastructure, regional development and governance.

STATE PLANNING POLICY No. 2: ENVIRONMENT AND NATURAL RESOURCES POLICY (2003)

State Planning Policy No. 2: Environment and Natural Resources (SPP 2) broadly defines the principles and considerations that represent good and responsible planning in terms of environment and natural resource issues within the framework of the State Planning Strategy.

The objectives of the policy are –

- “* ***to integrate environment and natural resource management with broader land use planning and decision-making.***
- * ***to protect, conserve and enhance the natural environment; and***
- * ***to promote and assist in the wise and sustainable use and management of natural resources.”***

The above objectives provide the context for the policy measures which are logical and aimed at preserving water resources, air quality, soil and land quality, biodiversity, landscapes etc. The subdivision proposed is considered consistent with the broad applying policy measures and objectives of SPP 2.

STATE PLANNING POLICY No. 2.9: WATER RESOURCES (2006)

State Planning Policy No. 2.9: Water Resources (SPP 2.9) requires that planning should contribute to the protection and wise management of water resources through local and regional planning strategies, structure plans, schemes, subdivisions, strata subdivisions and development applications.

The BUWM policy provides guidance on implementation of SPP 2.9. It identifies the requirements for water management strategies and plans that must be developed to accompany each land use planning and approvals process. This is discussed further below.

STATE PLANNING POLICY No. 3: URBAN GROWTH AND SETTLEMENT (2006)

State Planning Policy No. 3: Urban Growth and Settlement (SPP 3) sets out the principles and considerations which apply to planning for urban growth and settlement in Western Australia. The overall aim of this policy is to facilitate sustainable patterns of urban growth and settlement by setting out the requirements of sustainable settlements and communities and the broad policy in accommodating growth and change.

The policy particularly focuses on the need to reduce dependence upon car travel and the need for employment opportunities.

The policy also notes that outside the metropolitan region new settlements or townsite expansions are only likely to prove to be a sustainable development option where they address a significant shortfall of available housing land in the region, have a secure employment base, are large enough to support a range of local services including schools, shops and employment and there is no more sustainable alternative.

The subdivision proposal is considered consistent with the objectives and policy measures of SPP 3. Most relevant are the policy measures under section 5.1 below:

"The key requirements for sustainable communities are –

- * sufficient and suitable serviced land in the right location for housing, employment, commercial, recreational and other purposes, coordinated with the efficient and economic provision of transport, essential infrastructure and human services;***
- * variety and choice in the size, type and affordability of housing to support a range of household sizes, ages and incomes and which is responsive to housing demand and preferences;***
- * making the most efficient use of land in existing urban areas through the use of vacant and under-utilised land and buildings, and higher densities where these can be achieved without detriment to neighbourhood character and heritage values; the cost-effective use of urban land and buildings, schools and community services, infrastructure systems and established neighbourhoods; and promoting and encouraging urban development that is consistent with the efficient use of energy;"***

The key requirement for sustainable communities are listed above as a “variety and choice in the size, type and affordability of housing to support a range of household sizes, ages and incomes and which is responsive to housing demand and preferences”. Clearly, not only does this philosophy apply at the macro level of city and town planning, but also in each and every structure plan and subdivision area.

By introducing smaller lots to those once planned under the former Rural Residential zoning and structure plan, while maintaining larger setbacks to Rendezvous Road, the structure plan provides the necessary variety and choice in this rural residential cell. The now 1,800 m² minimum lot size is a much more efficient use of this now scarce greenfield land, including the development infrastructure required to be built (i.e. roads and associated drainage, emergency access ways / easements, underground power and telecommunications). On the strength of this, it is considered that the proposal is a more sustainable manner of rural residential development, certainly more than earlier development in the far east of Vasse.

It should also be noted here that a key aspect of the proposal is that it makes for the best intensive use of this land accordingly to its servicing, land capability and constraints; while tightly enforced subdivision and development controls will enable definitive character and amenity to emerge over time.

STATE PLANNING POLICY No. 6.1: LEEUWIN-NATURALISTE RIDGE POLICY (AMENDED 2003)

Table 5 – Settlement Hierarchy of *State Planning Policy No. 6.1: Leeuwin- Naturaliste Ridge Policy* (SPP 6.1) identifies Vasse as a fully serviced Village with a permanent population of 500 – 2,000 persons. Land use strategy (LUS) 1.8 states that the growth of the Village centres will require further investigations to determine a settlement size commensurate with their Village function.

Although having strong road and pedestrian linkages to Vasse via *Heron Lake*, the structure plan will be a separate entity in terms of land use. It is designed to replace the un-serviced low-density residential / rural residential proposals promoted by the BUGS, exchanging such for a fully-serviced subdivision that is sympathetic to the rural setting and environment while boosting land use efficiency at the same time. Because it provides full servicing arrangements, it will not be a de facto enclave (as per the definition under SPP 6.1) and undermine those specifically planned / developed at other villages and hamlets (i.e. Cowaramup, Witchcliffe, Kudardup and Karridale) under SPP 6.1.

STATE PLANNING POLICY No. 3.7: PLANNING IN BUSHFIRE PRONE AREAS (2015, AMENDED 2017)

State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7) and *Guidelines for Planning in Bushfire Prone Areas* (including appendices) require a bushfire attack level (BAL) contour map to be prepared where all or a section of the subject land is in a designated bushfire prone area. Further, if the BAL contour map indicates areas of the subject site as BAL-12.5 or above, a bushfire management plan (BMP) is to be provided in conformance with the requirements of SPP 3.7 and the *Guidelines for Planning in Bushfire Prone Areas*.

The Department of Fire and Emergency Services (DFES) bushfire prone area mapping overleaf, clearly shows all of the study area in a pink ‘bushfire prone area’.

Excerpt from bushfire prone area mapping (DFES, 2023)



Accordingly, a BMP which includes a BAL contour plan, has been prepared for the approval of the City of Busselton and WAPC in consultation with the Department of Fire and Emergency Services (DFES) (**refer to Appendix H – Bushfire Management Plan**). One of the key elements of the BMP is the identification of habitable building exclusion areas for all peripheral lots that –

- meet the primary street, side and rear setbacks requirements of Table 1 of the R-Codes Volume 1 as a minimum; and
- where required, provide additional setbacks to achieve adequate separation to achieve BAL-29 for habitable buildings.

STATE PLANNING POLICY No. 7.3: RESIDENTIAL DESIGN CODES VOLUME 1 (2019)

The proposed subdivision does not immediately comply with the minimum site area / lot size requirements of Table 1 of the R-Codes Volume 1 under which lots in R5 coded areas must comply with a minimum lot size of 2,000 square metres, with no average size specified. The variation to permit a 10 % variation to this minimum (i.e. minimum lot size of 1,800 m²), as sought under this structure plan, will be discussed further in the section addressing *Development Control Policy No. 2.2 Residential Subdivision*.

Notwithstanding this, the proposal is consistent with all other relevant requirements of the R-Codes Volume 1, including all lots having a minimum 30 metre frontage at the primary street setback line (12 metres) as specified for R5 coded areas under Table 1.

LIVEABLE NEIGHBOURHOODS (2009)

Liveable Neighbourhoods is an operational policy adopted by the WAPC for the design, assessment and approval of urban development. This operates as a development control policy, or code to facilitate the development of sustainable communities.

Amongst the principal aims of the *Liveable Neighbourhoods* adopted by the WAPC are:

- "1. To provide for an urban structure of walkable neighbourhoods clustering to form towns of compatibility mixed uses in order to reduce car dependence for access to employment, retail and community facilities.**
- 3. To foster a sense of community and strong local identity and sense of place in neighbourhoods and towns.**
- 4. To provide for access generally by way of an interconnected network of streets which facilitate safe, efficient and pleasant walking, cycling and driving.**
- 5. To ensure active street-land use interfaces, with building frontages to streets to improve personal safety through increased surveillance and activity.**
- 8. To provide a variety of lot sizes and housing types to cater for the diverse housing needs of the community at a density that can ultimately support the provision of local services.**
- 10. To provide for a more integrated approach to the design of open space and water management.**
- 11. To ensure cost-effective and resource efficient development to promote affordable housing.**
- 12. To maximise land efficiency wherever possible."**

The proposed structure plan maintains the principal structural elements embodied by the above aims, including those that guide movement network and general lot configuration. Much of the design is focussed on achieving principal aim 8 of the *Liveable Neighbourhoods*, that being to provide a variety of lot sizes and housing types to cater for the diverse housing needs of the community. However, none of this design effort has been at the expense of upholding the other equally important principal aims of the *Liveable Neighbourhoods*.

DEVELOPMENT CONTROL POLICY No. 2.2 RESIDENTIAL SUBDIVISION (2017)

DCP 2.2 sets minimum lot sizes (according to the corresponding R-Code) and approvable variations, requires connection to sewerage and underground power, outlines appropriate lot shapes and dimension ratios, outlines requirements for battle-axe lots, sets requirements for access, and outlines screen fencing requirements.

The structure plan predominantly proposes R5 density, which the R-Codes requires a minimum lot size of 2,000 m², and no average lot size is specified by the R-Codes.

The structure plan also proposes limited R10 density, which the R-Codes requires a minimum lot size of 825 m² (925 m² for battle-axe lots) and average lot size of 1,000 m².

The structure plan complies with all requirements of DCP 2.2.

DEVELOPMENT CONTROL POLICY No. 2.3 PUBLIC OPEN SPACE IN RESIDENTIAL AREAS (2002)

Development Control Policy No. 2.3 Public Open Space in Residential Areas requires that, where practicable, 10 percent of the gross subdivisible area be given up free of cost by the developer and vested in the Crown under section 152 of the *Planning and Development Act 2005* as reserve for recreation. The structure plan allocates a minimum 10% of the gross subdivisional area for public open space, or alternatively the equivalent cash-in-lieu contribution will be provided.

DEVELOPMENT CONTROL POLICY No. 2.6 RESIDENTIAL ROAD PLANNING (1998)

Development Control Policy No. 2.6 Residential Road Planning (DCP 2.6) sets out general principles for road planning in Western Australia. It generally embodies the principles evolving from the *Liveable Neighbourhoods*.

The structure plan adopts the contemporary concepts outlined within DCP 2.6, particularly the three most important concepts of permeability (i.e. the ability if people and vehicles to move through an area), legibility (i.e. the ease at which people can identify the movement network) and accessibility (i.e. the efficiency of transport and of land use).

The structure plan also meets the following policy objectives under section 2 of DCP 2.6:

- ** *To incorporate road planning as an integral part of neighbourhood design with the location of land uses appropriate to the road function.***
- * *To encourage innovative approaches to the design of roads, services and dwellings which are consistent with the most efficient and sustainable use of residential land and other resources, at densities appropriate to meet State housing objectives.***
- * *To provide road networks, within a clear road hierarchy, which are permeable and which offer all road users safe, convenient and legible access to all residential dwellings and destinations inside and outside the neighbourhood.***
- * *To create a domestic environment that is visually attractive and at a human scale.***
- * *To provide for a high-quality pedestrian/cycle network to facilitate the safe, convenient, legible and direct movement of pedestrian and cyclists both inside and outside the neighbourhood."***

BETTER URBAN WATER MANAGEMENT (2008)

As has been mentioned, LWMS has been prepared to accompany this structure plan. The LWMS embodies the water sensitive design principles in accordance with the direction of the *Better Urban Water Management* policy.

Stormwater runoff generated from the development will be dealt with under best practice stormwater management to avoid adverse environmental impacts. The impact of stormwater runoff will be negated by adopting appropriately sized drainage swales and basins with nutrient-stripping measures in the areas of road reserves and easements. This approach to stormwater management will adequately address drainage issues within the study area.

The LWMS will be expanded upon prior to subdivision to include further technical details. An urban water management plan will be required to be prepared as a condition of approval prior to the subdivision construction stage, consistent with policy and the approach taken with other similar projects.

GOVERNMENT SEWERAGE POLICY (2019)

As already outlined, the Lots 176, 9000 and the smaller Lot 201 between can be serviced with reticulated sewerage, therefore it meets Clause 5.1.1 of the *Government Sewerage Policy*.

ACID SULFATE SOILS PLANNING GUIDELINES (2008)

The Department of Water and Environment Regulation (DWER) acid sulfate soil (ASS) mapping below identifies the majority of the subject site within a moderate to low risk of ASS occurring within 3 m of natural soil surface. The northern and western periphery of the subject site is mapped as a moderate to high risk based on proximity to wetland areas.

Excerpt from acid sulfate soil mapping (DWER, 2023)



Given some deep excavation is required for reticulated sewerage, any ASS encountered will be dealt with by the civil contractor through one or a combination of the following:

- Direct soil neutralisation (using lime).

- Strategic reburial under water.
- Containment, treatment and disposal of dewatering effluent.

These actions are consistent with the DWER's *Treatment and management of soil and water in acid sulfate soil landscapes*.

Notwithstanding this, normal precautions will be undertaken during construction when carrying out any excavations, including shallow trenching to extend water pipes and power and telecommunication cables.

1.3.5 Other approvals and decisions

SHIRE OF BUSSELTON DISTRICT TOWN PLANNING SCHEME No. 20 (1999)

The only other decision of note for this land was the then Shire of Busselton's resolution to rezone the land Rural Residential via preparation of the now revoked DTPS 20. This rezoning occurred on 7 September 1999 with the publishing of the said district town planning scheme in the *Government Gazette*.

AMENDMENT No. 165 TO SHIRE OF BUSSELTON DISTRICT TOWN PLANNING SCHEME No. 20 (2013)

Amendment No. 165 to DTPS 20 was published in the *Government Gazette* on 18 January 2013, having force and effect from that day. This followed approval without modification on 8 January 2013 by the Minister for Planning. This amendment rezoned adjoining Lot 27 Rendezvous Road and Portion of Lot 9506 Heritage Drive (*Heron Lake*) to Special Purpose and included it in a Special Provision area.

STRUCTURE PLAN FOR HERON LAKE

On 29 June 2015 the structure plan for the adjoining *Heron Lake* development was approved for 63, fully serviced, residential lots.

SUBDIVISION APPROVAL FOR HERON LAKE

On 10 June 2015 the WAPC granted conditional subdivision approval (WAPC No. 151349) to create the 63, fully serviced, residential lots within the *Heron Lake* development.

1.3.6 Pre-lodgement consultation

31 MARCH 2015

An email was sent to the City of Busselton forwarding a concept plan for Lot 176 proposing 37 fully-serviced lots ranging from 818 m² to 2,360 m² at an average of approximately 1,360 m². The design was purported as –

- providing a gradual transition toward the more consolidated *Heron Lake* cell (which has 63 lots at an average of approximately 990 m²) and the tighter urban form of *Birchfields* and the Vasse village centre beyond;

- being in keeping with the road layout envisaged by the preceding structure plans for east Vasse (i.e. east- connection to Rendezvous Road and east-west road running through the centre Lots 177 and 178 to the east) while preserving the rural nature of Rendezvous Road using appropriate setback control;
- enabling a better pedestrian and emergency access linkage between *Heron Lake* and Rendezvous Road, and further growth and enhancement of the southern wetland conservation reserve; and
- being structurally consistent with the development concept plan which forms part of the structure plan / development guide plan report for Lot 177 and was an accompaniment to initial discussions involving *Heron Lake*.

In asking the City to review this concept plan, it was advised that –

- a programme of environmental work (mainly water level monitoring) was about to be commenced; and
- it was intended to use the concept as a basis for a structure plan covering Lot 176 and perhaps former Lot 177 (now Lots 201 and 9000) to the east.

10 JUNE 2015

The City of Busselton provided comment in response to the earlier concept for large residential-sized lots supported by the extension of sewer. Basically it was broadly supportive of the concept to extend suitably serviced residential development in this location, as reflected in the draft City of Busselton Local Planning Strategy adopted for advertising by council in late 2014. At that early stage it was recommended that an appropriate amendment to LPS 21 be initiated to appropriately zone the land to accommodate such residential development, but only after –

- final adoption (after public advertising) of the local planning strategy; and
- appropriate environmental investigations and relating management plans being completed.

The City also requested consideration be given to the following points moving forward:

- Road alignments relating to adjoining lots so as to reduce the potential for development to be constrained by non-participating landowners.
- Vegetation to be retained, including wetland areas and buffers, and any necessary development controls within these areas (including management of bushfire risk, as appropriate).
- Land required for infrastructure, open space and appropriate developer contributions arrangements (potential inclusion within Vasse Developer Contributions Plan).
- Guidance for built form including density coding, setbacks, etc.
- Any other relevant matters.

24 JANUARY 2018

Following completion and reporting of groundwater monitoring during 2015 and 2016 and subsequent completion and titling of the *Heron Lake* development to the west (providing new road frontage to Lot 176), contact was re-established with the City of Busselton. The main purpose was to advise that:

- There is no sewer catchment that Lot 176 and Lot 9000 can viably connect too. In short, *Heron Lake* took up all remaining vacuum sewer capacity in the vacuum sewer system to the northwest, while the land is not in forward sewer planning from the east.
- The only real alternative is look at lots above 2,000 m² using on-site effluent disposal given 176 and the lots to the immediate east are not within a 'sewage sensitive area' under the draft Government Sewerage Policy.

10 MARCH 2018

The City of Busselton forwarded an email from the DPLH providing the following comments:

- A definitive formal position on the future development / direction of this locality remains uncertain with the local planning strategy remaining incomplete.
- The development constraints /opportunities of the subject land are not well known given no comprehensive (qualitative / quantitative) planning assessment has been undertaken or provided to determine what would be an appropriate density or servicing outcome.
- Any consideration of the merit of on-site effluent disposal would need to be assessed against the DGSP.
- The constraints associated with Lots 176 and 9000 (with the exception of sewer capacity) are assumed to be similar to those in the *Heron Lake* subdivision, which achieved lots of approximately 1,000 m².
- The contention that sewer is too costly to connect to this land, does not factor in other potential development in east Vasse and its possible ability to assist with funding the extension / upgrading of the sewer.
- Remarkably, Lots 176 and 9000 are outside the sewage sensitive area, but the majority of east Vasse is predominantly in it. As such, the potential problem with letting Lots 176 and 9000 progress with lots greater than 2,000 m² with onsite disposal is prejudicing the delivery of sewer to the remainder of east Vasse, especially when no comprehensive analysis has been undertaken in respect to sewer capacity and viability.
- There is significant risk that other landowners in east Vasse will see the support for unsewered low density residential as a precedent.
- The DPLH generally no longer supports low density residential outcomes / lot sizes on Rural Residential zoned land and that existing low density residential areas in the Dunbarton locality should be rezoned to Residential to correct the zoning anomaly.

- Road connections into Vasse are undesirable primarily because the existing road network is either inaccessible or cannot accommodate additional traffic volumes.

The DPLH concluded by suggesting a comprehensive planning analysis and associated structure plan be required for the whole of the east Vasse locality, before supporting any concessions / increased development opportunities (i.e. going from rural residential to low density residential without sewer).

5 SEPTEMBER 2018

In the email dated 5 September to the City of Busselton it was advised that various options for wastewater had been investigated for a subdivision over Lot 176 and adjoining Lot 9000 to the immediate east, including discussions with Water Corporation. In fact Water Corporation had forwarded the conceptual plan for the long-term sewer scheme in east Vasse, which identified two things as follows:

1. That Lots 176, 201 and 9000 are outside the sewer catchment planned from the east, therefore its relationship to east Vasse proper is severed in respect to sewerage servicing. Accordingly, dot point 5, 6 and 7 of DPLH's earlier comments are no longer considered relevant as development of Lots 176 and 9000-
 - will not to assist with funding the extension / upgrading of sewer in east Vasse;
 - will not prejudice the delivery of sewer to the remainder of east Vasse; and
 - will not serve as a precedence to unsewered low-density residential in east Vasse.
2. That Water Corporation's plan to extend sewer from Vasse (northwest) to service Lots 176, 201 and 9000 is flawed both on practical and environmental grounds. The proposed sewer alignment through Lots 634 and Lot 224 covers land identified as 'EPP Lake', 'Resource Enhancement' (geomorphic wetland) and 'high to moderate risk of ASS within 3 m of surface', notwithstanding this sewer run requires clearing of many remnant *Melaleuca*, *Agonis* and *Eucalypt* trees. In addition, Lots 634 and 224 have little to no developable portions (the land is either fully inundated in winter or has insufficient depth to groundwater), making it difficult to see how these owners will agree (or least not frustrate) the provision of sewer over their land if it is not likely to be of benefit them and only add encumbrance.

Due to the above points, and the fact that Lots 176, 2001 and 9000, are not in a sewerage sensitive area and have depth to groundwater that exceed the requirements of the DGSP (see groundwater monitoring report within LWMS), it was put to the City that the cell of Lots 176 and 9000 was really on its own in terms of planning and servicing.

28 SEPTEMBER 2018

On 28 September the City of Busselton responded by advising:

- The subject lots (176,201 and 9000 Rendezvous Road) are situated outside an identified 'sewage sensitive area' and also the Water Corporation's long-term conceptual planning for the provision of a reticulated sewerage scheme to east Vasse. This is likely due to the established and generally acceptable depth to groundwater in that southern area (east of *Heron Lake*) for onsite effluent treatment in what is otherwise a broader location generally

prone to high groundwater levels, wetlands and correspondingly sensitive environmental conditions.

- The contentions made that the provision of sewerage connection (by mains extension) is unviable, and that the development will not cause any abiding and unwelcome precedent in term of any future development of similarly-zoned rural residential land in the locality, are probably reasonable based on the findings of groundwater monitoring.
- The subject land has been included in proposed Amendment No. 36 to LPS 1 that seeks to rezone the recognised 'Vasse East' locality to Urban Development and remove the land from any Development Investigation area [i.e. referred to as Future Urban Growth in the City of Busselton Draft Local Planning Strategy (2016) and Urban Expansion Area in the WAPC's Draft Leeuwin Naturaliste Sub-Regional Strategy), together with an amended Special Provision area to introduce comprehensive guidance for integrated structure planning, environmental investigations etc. This amendment has been held in abeyance pending further detailed review by the Environmental Protection Area (with which the City has been actively assisting) with an extended statutory assessment time subsequently permitted by the WAPC into early 2019.
- The earlier comments from DPLH that the general 'Vasse East' area is one perceived to be potentially capable of well-planned, properly integrated, thoughtfully designed, well-serviced urban development align with the City's preference. However, the requirement for undertaking time-consuming and expensive site analyses to prove up land capability for on-site effluent disposal, or the validated lack of economic feasibility (or need) for the introduction / extension of sewerage into a potential development cell that is not currently identified within a 'sewer sensitive area' for Lots 176, 201 and 9000 Rendezvous Road, seems problematic in light of the current zoning and represented geomorphology.
- The three strategic initiatives aimed at guiding and clarifying future development requirements for 'Vasse East' still being assessed and determined by the WAPC and other peak referral authorities.

The City concluded by advising there is an evident ability for the current landowners of Lots 176, 201 and 9000 Rendezvous Road to seek bona fide subdivision and development of their land in ways, and by means, that are appropriate to the *current* planning framework. Further, City staff would likely be obliged to support a structure plan across the subject lots, provided such was well-considered and integrated in a manner that addresses all requirements of the *Planning and Development (Local Planning Schemes) Regulations 2015* and other planning / environmental considerations.

The City put caveats on this window of opportunity in the event the planning framework in and around 'Vasse East' be finally amended (i.e. before determination of a structure plan) and given that final determination of structure plans and subdivision applications ultimately lies with the WAPC.

27 JUNE 2019

The first version of the structure plan report (revision 0) was submitted in June 2019, but not formally processed due to perceived unresolved issues concerning zoning / local planning strategy, GSP compliance and road access / permeability.

12 JUNE 2020

A meeting was held between staff from the DPLH and City of Busselton and the proponents on 12 June 2020 to discuss the need to submit further information to address the GSP and general road access design.

19 JUNE 2021

A letter was received from the City of Busselton on 19 June 2021 advising:

“Officers consider that the proposal does not adequately address the orderly and proper planning of the land. The City is therefore not prepared to support the proposal as currently submitted for the reasons discussed at a meeting consisting of Department of Planning, Lands and Heritage officers, City officers, you and your client on 12 June 2020.

Notwithstanding this, the City and DPLH officers will reconvene with you and your client after the following items have been addressed and justified in the Structure Plan Report.

1. Local Planning Strategy (LPS) 2019

Relevant planning considerations within the context of intensification of urban development in Vasse East (as identified on the LPS Map), including but not limited to:

- a) Access and traffic management, including conceptual planning of the road network and hierarchy;***
- b) The demonstrated benefit of low density development.***

2. Government Sewerage Policy (GSP) 2019

Relevant policy measures of the GSP, including but not limited to:

- a) Whether or not it is reasonable to connect the future subdivision to existing reticulated sewerage (via an extension from the vacuum sewer at Heron Lake);***
- b) Whether or not the absence of reticulated sewerage will prejudice, physically or financially, the ability to provide sewerage to the whole of Vasse East.”***

7 MAY 2021

A comprehensive statement addressing all requirements of the GSP policy measures and schedules was submitted to the City of Busselton on 7 May 2021 to overcome the continuing reservations it and the WAPC had in respect to points 2. a) and b) in respect to the GSP, and at the same time demonstrating the benefits of low density development as required by 1. b).

25 MAY 2021

On 25 May 2021 a comprehensive road hierarchy plan was submitted to the City of Busselton for the entire east Vasse developable area (**refer to Appendix I – Vasse East Developable Area Road Hierarchy Plan**).

The plan was submitted with the following relevant notes:

- Land uses for land outside Lots 175, 201 and 900 will need to be assigned by the landowners, their consultants and the City and DPLH / WAPC at the appropriate time through a formal structure plan process (including community consultation).
- The hierarchy of all existing and proposed roads are nominated using *Liveable Neighbourhood* descriptions, although it is expected there will be 'local' variations afforded to the requirements of the *Liveable Neighbourhood* design requirements, particularly as far as the low density development over Lots 176, 201 and 9000 is concerned so the 'rural type' road and drainage proposals can be implemented in accordance with the LWMS and its stormwater management plan.
- The alignment of the north / south integrator for the most part follows the route of the temporary carting road that MRWA used to construct the Busselton Bypass in 2000 / 2001. This was a logical place being well separated from our proposed intersection with Rendezvous Road in the west, and using the shortest route through the middle of the cleared zone / developable area of east Vasse where ground conditions are suitable.
- The 'modified grid' road network proposed is pliable enough for any other land uses to be integrated (e.g. any future local or neighbourhood activity centre, mixed use, civic and community, other public purposes, tourism etc.).
- Public open space could also be incorporated easily to this network, although noting that the mapped vegetation corridors / open space and areas adjoining will likely fulfill passive and active recreation needs.
- R10 lots are shown as a transition backing onto the larger lots created in *The Woods on Rendezvous* (east of subject land) and an R5 area is created over the parkland cleared area (northeast portion of subject land) to enable retention of paddock trees.
- Asset protection zones (APZs) to residential lots (and any future vulnerable uses determined through structure planning) are provided by the roads that separate open space areas and urban land.
- Some R10 lots in the east would require APZs through enforcement of extraordinary setbacks via local development plan.

28 MAY 2021

The City of Busselton sent an email on 28 May that, due to resourcing, time and capacity issues it cannot assess the statement addressing all requirements of the GSP policy measures and schedules or the road hierarchy plan for the east Vasse developable area, but invited submission of the structure plan including payment of fees.

2. Site conditions and constraints

2.1 Biodiversity and natural area assets

As reported in the LWMS, the subject site is in a Completely Degraded condition with all floristic values lost due to historical agricultural land uses.

Much of the vegetation is comprised of introduced species including paddock grasses, *Eucalyptus globulus*, *Pinus* spp, and a range of exotic garden and orchard species. Native species are predominately restricted to sporadic *Agonis flexuosa* and *Eucalyptus* spp., located in the northern portion of Lot 176.

Peppermint (*Agonis flexuosa*) trees are habitat of the western ringtail possum (*Pseudocheirus occidentalis*) which is a Critically Endangered species under the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999*. In Western Australia, the species is also listed as 'likely to become extinct' (Specially Protected) under the *Wildlife Conservation Act 1950*.

Eucalyptus spp., are also potential habitat for the three species of black cockatoo as follows, which are listed as Vulnerable or Endangered species:

- Baudin's black cockatoo (*Calyptorhynchus baudinii*).
- Carnaby's black cockatoo (*Calyptorhynchus latirostris*).
- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*).

Given the study area contains sporadic and isolated peppermint trees, it is not likely to contain western ringtail possums. Accordingly, there is considered to be no significant impact to western ringtail possums as a result of this proposal. Further, as the *Agonis flexuosa* and *Eucalyptus* spp. are in the very north of Lot 176, and within the setback areas of lots that are not proposed to be worked or filled, these are proposed to be retained.

There are no significant environmental impacts arising from the proposed structure plan and ensuing subdivision development. Protected flora and fauna species will not be adversely affected by subdivision or development, therefore there will be no significant impact to species that would normally raise concerns with the Environmental Protection Authority, Department of Biodiversity Conservation, and Attractions or the Federal Department of the Environment and Energy. Significant vegetation and habitat worthy of protection shall be protected within road reserves and lots where possible.

Further, the proposal when implemented will not cause any pollution to land or water given there are no indications of risks from natural and man-made contamination.

2.2 Landform, vegetation and soils

The structure plan area rises from the wetlands to the north and west, creating an elevated plain which is currently comprised of paddocks and residences. The contour lines indicate that the majority of the subject site is relatively flat with an elevation between 4 – 5 m Australian Height Datum (AHD). The elevation gently rises to 6 m AHD in the south of the subject site.

Most of the subject lots are cleared, but there are some stands of remnant trees scattered about, particularly in the north.

Geomorphologic classification for the subject site reported in the *Geological Survey of Western Australia Busselton Sheet 1930 I 1:50,000 Environmental Geology Series* (Belford 1987) indicates that the geology consists of sand derived from Tamala limestone and silty sand of alluvium origin. Furthermore, the geological mapping indicates the potential presence of heavy minerals within the sand.

In addition, subject to Tille and Lantzke's (1990) *Land Resources Series No 5 - Busselton Augusta Margaret River Area for Land Capability Study*, the subject site has been classified as Abba Plains Land System described as:

"Poorly drained flats, on the southern Swan Coastal Plain. Grey deep sandy duplex and wet soil."

2.3 Groundwater and surface water

Due to the proximity and elevation above the wetland system to the north and west, surface water is directed to this body by overland flow. However, transmission to this water body is predominantly by groundwater movement through the sandy surface soil and not by direct surface run-off.

As reported in the LWMS, the subject land has two groundwater aquifers, the shallow superficial aquifer and the deeper Leederville Aquifer which lies at depths of 15–200 m below ground level.

Groundwater monitoring bores were installed within the study area in May 2015 (Lot 176) and June 2016 (Lot 9000) with the levels recorded each month until October 2016.

Despite some of the bores being in proximity to wetland areas, results for the seasonal peak were all in excess of 1.4 m BGL.

2.4 Bushfire hazard

All of the subject land is identified in a 'bushfire prone area' under the mapping prepared by the DFES. To mitigate this bushfire hazard, and implement appropriate controls for the siting and construction treatment of dwellings, a bushfire management plan has been prepared under the terms of SPP 3.7 and the associated guidelines.

2.5 Heritage

A search of the Department of Aboriginal Affairs' Aboriginal Heritage Inquiry System (AHIS) reveals that there is no registered Aboriginal site or other heritage place within the subject lot or those adjoining.

Further, a search of the Heritage Council's inHerit places database finds there are no state registered or locally listed heritage places on the subject lot.

2.6 Coast and foreshores

The closest part of the coastline is Newtown Beach (Abbey) which is 2.9 kilometres to the north.

2.7 Context and other land use constraints and opportunities

BENEFITS OF BRINGING FORWARD STRUCTURE PLAN AND SUBDIVISION

There are many benefits with proceeding with the structure planning and subdivision of Lots 176, 201 and 9000 now, ahead of planned timeframes in the City of Busselton Local Planning Strategy. These primary benefits are:

- The structure plan and earlier subdivision will add a secondary escape access to *Heron Lake* to the northwest, bringing it in line with contemporary bushfire planning standards (*Heron Lake* missed the need to comply with State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7) by a matter of months). *Heron Lake* is rare in that it is effectively an island of development on a dead-end road surrounded by a regenerating woodland / forest, so focus should be on corrective action to lessen the vulnerability of lives and property in a bushfire emergency.
- The structure plan and earlier subdivision will improve general permeability in and out of Vasse, thereby easing further potential traffic pressures (especially with the planned south Vasse expansion and its traffic implications being largely unknown), but not to the extent that it could become a 'rat run' used in place of the more defined distributor and connector road network. The benefits of having multiple access routes, not only for emergency, but other instances of incident management, road re-building, service installation etc. should not be overlooked.
- The structure plan and earlier subdivision facilitates the rehabilitation, protection / management and proper connection of what remains of the inundated section of Resource Enhancement category wetland in the southwest, not to mention regeneration / stabilisation of the banks of the Multiple Use category wetland to the north. Such will improve water quality in these wetland branches and create further wildlife habitat opposite the already rehabilitated *Birchfields* foreshore. As is the experience with the New River (*Old Broadwater Farm*) and the northern *Birchfields* wetland, the sooner this rehabilitation and management is commenced the sooner a wetland eco-system can regenerate.

There are many other benefits that are not so time dependent, but these are the main reasons for advancing a 'standalone' structure plan for Lots 176, 201 and 9000, particularly as this limited cell will have no significant effect on boosting lot yield and population in Vasse or greater Busselton, even if it were developed to a fully serviced residential standard.

RETENTION OF EXISTING BUILDINGS / STRUCTURES

Each lot in the study area contains a single house grouped with outbuilding(s), water tank(s) and an ancillary dwelling in the case of Lot 176. The road and lot layout has been designed to retain the main dwellings and outbuildings where possible. The dwellings and outbuilding on Lot 176 will need to be removed for the eventual subdivision, as will the remote outbuildings on Lot 9000.

3. Conclusion

The study area is one of the last greenfield sites remaining in the east Vasse rural residential area. Since its identification in DTPS 20 in 199 for very large rural residential lots, there has been a series of endorsed strategies and policies aimed at consolidating rural residential estates through increased density and lot yield.

The same strategies and policies require there to be demonstrable community benefit from the subdivisions that derive increased yield. In this instance, not only will the social benefit be secured via additional one-off developer contributions and ongoing rate revenue for community infrastructure and facilities, but also through an improved access design making it safer and easier for vehicle, cycle and walk trips in this precinct close to Vasse.

Following proper consideration of the land's constraints and opportunities, and having addressed the relevant requirements of LPS 21, approved State planning policies and other adopted / endorsed strategies and plans, this structure plan submission is submitted for City of Busselton adoption and WAPC endorsement.

4. Technical studies appendices index

4.1 Appendix A – Location Plan

4.2 Appendix B – Certificates of Title

4.3 Appendix C – Proposed Overall Development Structure Plan for East Vasse

4.4 Appendix D – Development Guide Plan for Lot 177 Rendezvous Road, Vasse

4.5 Appendix E – Local Water Management Strategy

4.6 Appendix F – Bushfire Management Plan

4.7 Appendix G – Vasse East Development Area Concept Road Network Plan

4.8 Appendix H – Traffic Impact Statement

APPENDIX A
LOCATION PLAN



APPENDIX B
CERTIFICATES OF TITLE

WESTERN



AUSTRALIA

REGISTER NUMBER

176/D63890DUPLICATE
EDITION**2**

DATE DUPLICATE ISSUED

10/7/2015VOLUME
1635FOLIO
719**RECORD OF CERTIFICATE OF TITLE**
UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

**LAND DESCRIPTION:**

LOT 176 ON DIAGRAM 63890

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

BANYANDA DEVELOPMENTS PTY LTD OF 402 CAVES ROAD, SIESTA PARK

(T N056472) REGISTERED 8/7/2015

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. C460757 EASEMENT BURDEN SEE SKETCH ON VOL 1635 FOL 719. REGISTERED 29/12/1982.
2. K732518 EASEMENT TO ELECTRICITY NETWORKS CORPORATION FOR ELECTRICITY TRANSMISSION PURPOSES. SEE SKETCH ON DEPOSITED PLAN 56814 REGISTERED 3/10/2008.

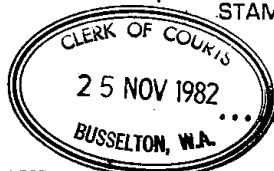
Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1635-719 (176/D63890)
PREVIOUS TITLE: 1635-718
PROPERTY STREET ADDRESS: 604 RENDEZVOUS RD, VASSE.
LOCAL GOVERNMENT AUTHORITY: CITY OF BUSSELTON

O/A. INSTRUMENT DATED 3/8/87
STAMPED \$ 495.00**NO DUTY PAYABLE HEREON
STAMP ACT 1921**

for COMMISSIONER OF STATE TAXATION

C460757

WESTERN AUSTRALIA.

Transfer of Land Act 1893 as amended

No.

TRANSFER OF LANDDESCRIPTION OF
LAND BEING
TRANSFERRED.
State whether whole
or part of land com-
prised in Certificate
of Title and/or
Crown Lease.

Portion of each of Sussex Location 23 and Vasse Lot 44
and being Lot 176 on Diagram 63890 and being formerly
part of the land comprised in Certificate of Title Vol-
ume 1548 Folio 992 and part of the land comprised in
Certificate of Title Volume 1170 Folio 707 but now being
the whole of the land comprised in Certificate of Title
Volume 1635 Folio 719

ESTATE AND
INTEREST BEING
TRANSFERRED.
Fee simple, Lease-
hold or as the case
may be.

Fee simple.

ENCUMBRANCES.
If none, insert 'Nil'.

Nil.

TRANSFEROR.
Full name, address
and occupation.

GRAEME REGINALD MARCHANT Farmer and VALERIE JEAN MARCHANT
Married Woman both of Kaloorup Road, Vasse.

ON 1st SCH (cont) of 1548-991 (orig only)
TRANSFER C460757 A right of carriageway over the portion of LOT 176 ON DIAGRAM 63890
coloured BROWN on the map in Transfer C460757 is RESERVED to the proprietor
or proprietors for the time being of THE WITHIN LAND as set out in the
said Transfer. Registered 29.11.82 2247
12. 2-12

CONSIDERATION
IN WORDS.

THIRTY THREE THOUSAND DOLLARS.

TRANSFeree.
Full name, address
and occupation. If
a minor, state date
of birth. If two or
more state whether
as Joint Tenants or
Tenants in Common.
If Tenants in
Common, specify
shares.

PETER DOUGLAS KEYNES Business Proprietor and LYNETTE
KEYNES Clerk both of P.O. Box 495 Busselton as joint
tenants.

FORM APPROVAL
No. 023
REGISTRAR OF TITLES

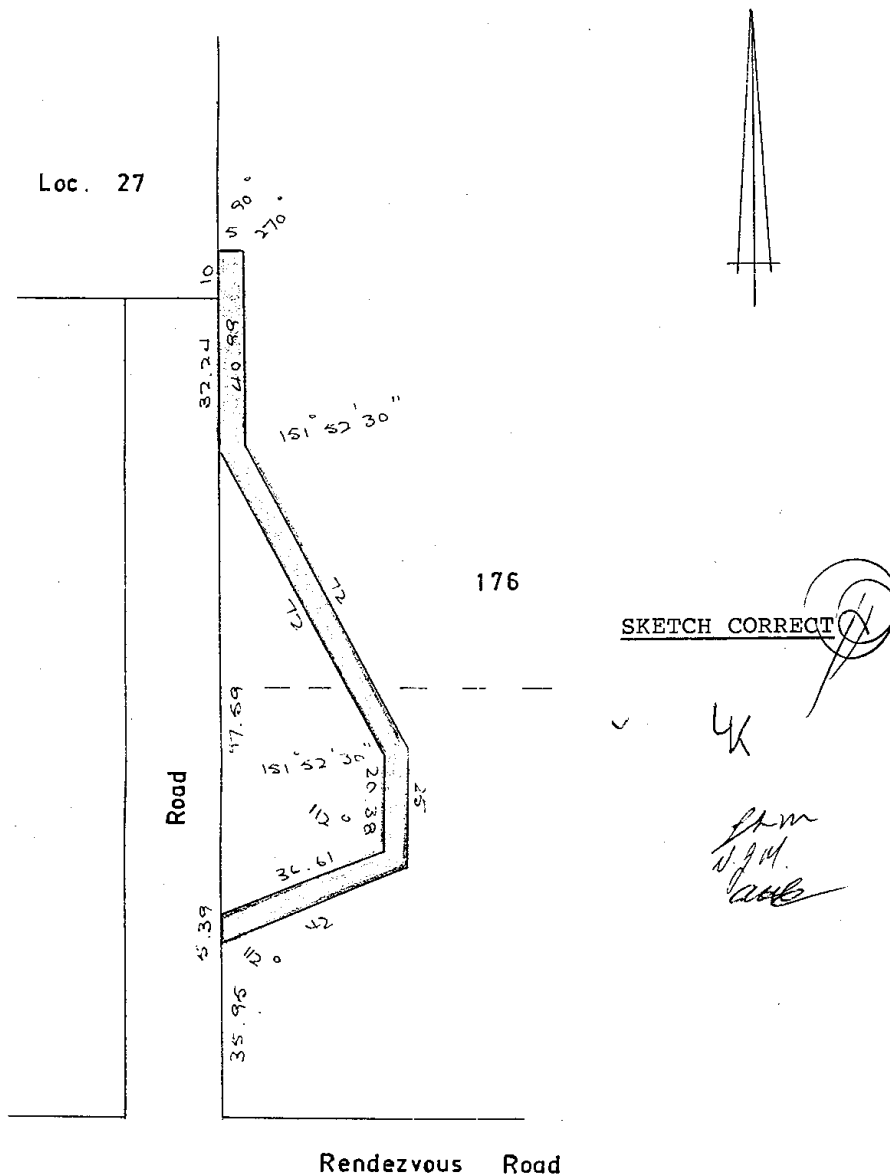
If insufficient space hereon sections may be added on page 2 or on an annexure sheet. See Note 3 on back hereof.

Sands & McDougall
STOCK FORM 317

THE TRANSFEROR for the consideration herein expressed HEREBY TRANSFERS TO THE TRANSFEREE the estate and interest herein specified in the land above described subject to the encumbrances as shown hereon

(a) Reserving to the registered proprietor for the time being of Sussex Location 27 and being the whole of the land comprised in Certificate of Title Volume 1548 Folio 991 ("Sussex Location 27") a right of carriageway to go pass and repass at all times hereafter and for all purposes and either with or without horses or any other animals, carts, other carriages or vehicles into or out from Sussex Location 27 or any part thereof through, over and along all that part of portion of each of Sussex Location 23 and Vasse Lot 44 and being Lot 176 on Diagram 63890 and being the whole of the land comprised in Certificate of Title Volume Folio as is delineated and coloured brown on the map set out hereunder.

a. Here set forth:
any Easements to be created as appurtenant to the land commencing with the words "together with" and/or
any Reservations hereby created encumbering the land commencing with the words "Reserving to" and/or
any Restrictive Covenants hereby created.



Dated this 25 day of November 19 92

TRANSFERORS SIGN HERE (see note 1)

Signature. Signed (b) *[Signature]*
GRAEME REGINALD MARCHANT
in the presence of (c) *[Signature]*
'Commissioner for Declarations
Signature, Address and Occupation of (d) *[Signature]*
Business. (See note 2)
Signed (b) *[Signature]*
VALERIE JEAN MARCHANT
in the presence of (c) *[Signature]*
'Commissioner for Declarations
Add attestations required.

TRANSFEREES AND OTHER PARTIES SIGN HERE (see note 1)

Signed (b) *[Signature]*
PETER DOUGLAS KEYNES
in the presence of (c) *[Signature]*
'Commissioner for Declarations
Signed (b) *[Signature]*
LYNETTE KEYNES
in the presence of (c) *[Signature]*
(d) *[Signature]*
121 Peel Terrace
Clunk

NOTES.

1. A separate attestation should be made by each person signing this document; i.e. each signature should be separately witnessed.
2. If executed within the Commonwealth of Australia or its Territories witnesses must be 18 years of age or over and not a party to this document. If executed outside the Commonwealth of Australia or its Territories the witness should be one of the persons listed in Section 145 of the Transfer of Land Act.
3. If any of the boxed sections on page 1 has insufficient space then the relevant information may be added on page 2 herein. If further space is required use Annexure Form B1. Appropriate headings should be shown in each case. The boxed sections should only contain the words "See page 2" or "See Annexure 'A'" (or as the case may be attached). Annexure sheets should be dated, signed by the persons signing this document and their witnesses and be pinned to this form.
4. No alteration should be made by erasure. The words rejected should be scored through and those substituted typed or written above them, the alteration being initialled by the persons signing this document and their witnesses.

C 460757 T



No. **C460757**



TRANSFER

FEES (office use)	\$	c
	23	

Parties

Lodged by *[Signature]* NOV 29 PM 2:47

Doc 29 p 2 12
WESTPAC BANKING CORPORATION

Lodged by **322 1155**

Address

Phone No.

Use this space for instructions if any documents are to issue to other than lodging party.

(47)

Titles, Crown Leases, Declarations, etc., lodged with this document.
 (To be filled in by person lodging.)

1.	} Received items No's
2.	
3.	
4.	
5.	
6.	

[Signature]
 Rec. Clerk.

BELOW THIS LINE FOR OFFICE USE ONLY

Encumbrances
 not notified
 on face.

New Titles
 to issue or
 Endorsing
 instruction.

EXAMINED.

[Signature]
 29/11/82

Registered *29 November 1982*
 at *2:47* o'clock and
 particulars entered in the Register Book.

Initials of
 Signing
 Officer

[Signature]

[Signature]

REGISTRAR OF TITLES

WESTERN



AUSTRALIA

REGISTER NUMBER

201/DP65898DUPLICATE
EDITION**1**

DATE DUPLICATE ISSUED

25/10/2013VOLUME
2823FOLIO
895

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 201 ON DEPOSITED PLAN 65898

REGISTERED PROPRIETOR:
 (FIRST SCHEDULE)

WADE RADISICH
 SUSAN ELIZABETH RADISICH
 BOTH OF POST OFFICE BOX 5026, CABLE BEACH
 AS JOINT TENANTS

(T M909270) REGISTERED 11/2/2015

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
 (SECOND SCHEDULE)

1. COVENANT BURDEN CREATED UNDER SECTION 150 P&D ACT TO CITY OF BUSSELTON SEE DEPOSITED PLAN 65898
2. *M404786 NOTIFICATION CONTAINS FACTORS AFFECTING THE WITHIN LAND. LODGED 17/9/2013.
3. *M404787 NOTIFICATION SECTION 165 PLANNING & DEVELOPMENT ACT 2005 LODGED 17/9/2013.
4. *M909271 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA REGISTERED 11/2/2015.
5. *M909272 CAVEAT BY CITY OF BUSSELTON LODGED 11/2/2015.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
 * Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
 Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: DP65898
 PREVIOUS TITLE: 2763-757
 PROPERTY STREET ADDRESS: 580 RENDEZVOUS RD, VASSE.
 LOCAL GOVERNMENT AUTHORITY: CITY OF BUSSELTON

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING M909271

WESTERN



AUSTRALIA

REGISTER NUMBER

9000/DP65898DUPLICATE
EDITION**N/A**

DATE DUPLICATE ISSUED

N/AVOLUME
2823FOLIO
896

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.



REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 9000 ON DEPOSITED PLAN 65898

REGISTERED PROPRIETOR:
 (FIRST SCHEDULE)

KEVIN JAMES BELL OF 578 RENDEZVOUS ROAD, VASSE

(T M404790) REGISTERED 17/9/2013

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
 (SECOND SCHEDULE)

1. *M404787 NOTIFICATION SECTION 165 PLANNING & DEVELOPMENT ACT 2005 LODGED 17/9/2013.
2. *M404791 MORTGAGE TO WESTPAC BANKING CORPORATION REGISTERED 17/9/2013.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
 * Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
 Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

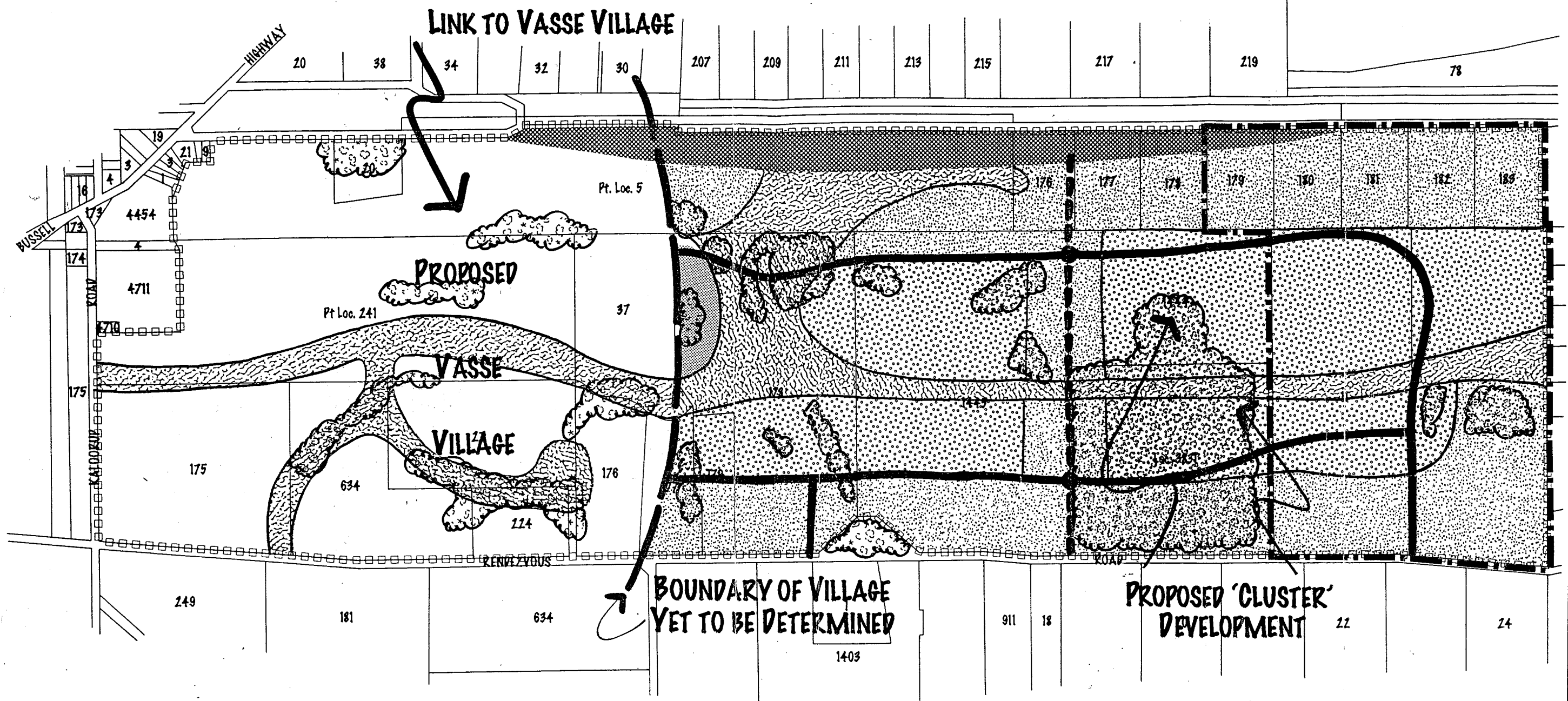
SKETCH OF LAND: DP65898
 PREVIOUS TITLE: 2763-757
 PROPERTY STREET ADDRESS: 578 RENDEZVOUS RD, VASSE.
 LOCAL GOVERNMENT AUTHORITY: CITY OF BUSSELTON

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING
 M404791

APPENDIX C

OVERALL STRUCTURE PLAN FOR EAST VASSE

This plan has been prepared for planning purposes only. Areas, contours and dimensions are subject to detailed survey.



PROPOSED OVERALL DEVELOPMENT STRUCTURE PLAN FOR EAST VASSE

ALLOCATION OF ROADS,
RESERVES & LAND USE ARE
CONCEPTUAL & SUBJECT TO
DETAILED SITE ANALYSIS



THOMPSON McROBERT
Urban and Rural Planning Consultants

- STRUCTURE PLAN BOUNDARY
- .-.- SUBJECT LAND BOUNDARY
- MAJOR LINK ROADS
- - - LOCAL DISTRIBUTOR ROADS
- ▨ LAND REQUIRED FOR BY-PASS
- ☁ VEGETATION TO BE PROTECTED

- ▨ 2-3HA LOTS
- ▨ 2000M²-1HA LOTS (INCLUDING CLUSTER DEVELOPMENT)
AVERAGE LOT SIZE APPROXIMATELY 1ha
- ▨ 1000M²-2000M² LOTS (SEWERED)
- ▨ CONSERVATION, RECREATION & DRAINAGE RESERVES

NORTH



SCALE 1 : 10 000

PLAN NO. : BY 94-27-4

DATE : APRIL 1997

APPENDIX D

DEVELOPMENT GUIDE PLAN FOR LOT 177 RENDEZVOUS ROAD, VASSE

PLANNING POLICY STATEMENTS

1. No Further Subdivision
Further subdivision of the lots shown on this Development Guide Plan is prohibited.

2. General Site Requirements

2.1 The applicable site requirements and minimum setbacks are set out in the table below:

Lot Size Range	Applicable R-Code or TPS Requirements	Front Setback (Primary Street)	Secondary Street Setbacks	Rear Setback	Side Setbacks
2,000 – 3,999m ²	R5	12m	6m	6m	3m
4,000 – 4,999m ²	R2.5	15m	7.5m	7.5m	7.5m
5,000 – 9,999m ²	R2	20m	10m	10m	10m
1 ha and greater	Rural Residential zone provisions in TPS	20m	15m	20m	15m

2.2 Setbacks to the northern boundaries of Lots 1 & 2 (adjacent to the POS) are to be a minimum setback distance of 10m.

2.3 All other site requirements are to be derived from the applicable R-Code or TPS provisions outlined in the table above.

2.4 No building envelopes shall apply to any of the proposed lots in this application.

3. Servicing

3.1 Proposed Lots 1-7 & 9 must be connected to reticulated services (sewer and water) to the satisfaction of the Shire of Busselton, Busselton Water Board and Water Corporation.

3.2 Proposed Lot 8 may be released as an initial stage of subdivision without connection to sewer or water. However, an instrument is to be placed on the title of this lot requiring it to be connected to sewer and water within one year of such services becoming available to the satisfaction of Water Corporation & Busselton Water.

4. Access

4.1 Proposed Lot 8 may be released as an initial stage of subdivision with reciprocal access (via easement) over the existing driveway and crossover to Rendezvous Road. However, an instrument is to be placed on the title of this lot terminating access to Rendezvous Road once the internal road is constructed and created.

4.2 The easement benefiting and providing access to Rendezvous Road for Lot 8 is to be withdrawn once Lot 9 is created and the joint crossover driveway removed and reinstated to the satisfaction of the Shire of Busselton.

5. Fire Management

Prior to subdivision approval for stage 2 (ie. Lots 1-7 & 9), a Fire Management Plan must be prepared that addresses fire management. The plan is to be prepared and implemented to the satisfaction of the Shire of Busselton and Fire & Emergency Services Authority (F.E.S.A.) of W.A. and to be submitted prior to stage 2.

6. Dust Management

Prior to any development or clearances of any subdivision of the land, a Dust Management Plan shall be prepared that addresses dust management at each and every stage of the development. The plan is to be prepared and implemented to the satisfaction of the Shire of Busselton ensuring that all policies of dust management endorsed by the Shire are met.

7. Mosquito Management

A Mosquito Management Plan is to be prepared and implemented prior to the issue of subdivision clearances.

8. Landscaping and Revegetation

8.1 A condition of subdivision approval shall require the preparation and implementation of a landscaping, revegetation and rehabilitation plan for the Public Open Space (POS) which is to include weed management, to the satisfaction of the Shire of Busselton and the Department of Environment and Conservation, prior to the issue of any clearances for stage 2 (ie. proposed Lots 1-7 and 9).

8.2 Measures are to be taken to the satisfaction of the Shire of Busselton, to ensure identification and protection of any vegetation on the site worthy of retention prior to commencement of site works.

9. Wetland & Drainage

The preparation and implementation of a Wetland and Drainage Management Plan as well as a Nutrient Management Plan (prior to any clearances for stage 2), to the satisfaction of the Shire of Busselton, Department of Environment and Conservation and Department of Water.

10. Notification of Surrounding Agricultural Activity

A notification is to be placed on the Certificate of Title of all proposed lots to ensure that prospective purchasers are aware of the potential risks which may result from chemical spray drift, odour, dust, noise etc. that may emanate from the southern rural production lots and adjacent farmland from time to time.

ADOPTION CLAUSE

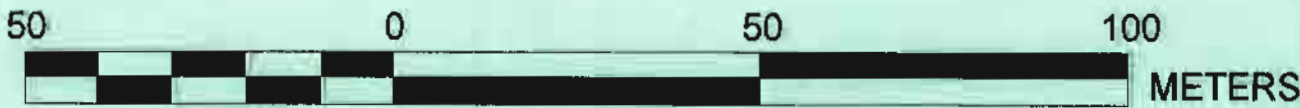
Adopted by Council pursuant to the Shire of Busselton District Town Planning Scheme No. 20

Chief Executive Officer

This drawing is the property of BSO Development Consultants and shall not be copied, displayed or reproduced in whole, or in part, for any other purpose than was originally intended unless written consent is given by BSO Development Consultants.



DEVELOPMENT GUIDE PLAN
LOT 177 RENDEZVOUS ROAD,
VASSE



Notes
1. Contours shown on this plan have been digitised from DLI SmartPlan October 2007.
2. Cadastral boundaries shown on this plan are indicative only and may not necessarily be in position as shown on the Aerial Photograph.
3. Digital Imagery supplied by the Department of Land Information under strict Commercial Licensing Agreement and no further copies of this plan are to be made under any circumstances.
(Aerial Photo dated 7/1/07.)

AREA CALCULATIONS

NET AREA OF PROPOSED LOTS = 3.7379ha
TOTAL LOT YIELD = 9 LOTS
AVERAGE LOT SIZE = 4153m² (OVER NET AREA)
AVERAGE LOT SIZE = 5026m² (OVER WHOLE OF LOT 177)
LOT RANGE = 2001m² - 1.0169ha

LEGEND

- Subject Land
- Existing Easement (Underground Power) Benefit to Electricity Networks Corporation
- Powerlines
- Dual Use Path / Strategic Firebreak
- Easement (Reciprocal rights of access)
- Uniform Fencing
- Future Road Widening

EXISTING
LOT 177
4.5230ha

ENDORSED STRUCTURE PLAN
This plan has been prepared and approved by the Shire of Busselton Planning & Development Committee.
Date: 18/6/08
Signature: [Signature]
Planning & Development Committee

APPENDIX E

LOCAL WATER MANAGEMENT STRATEGY

LOCAL WATER MANAGEMENT STRATEGY



**LOT 176, 201 AND
9000 RENDEZVOUS
ROAD, VASSE**

DECEMBER 2023

Telephone 0418 950 852

info@accendoaustralia.com.au

PO Box 5178 West Busselton WA 6280

ABN 11 160 028 642

www.accendoaustralia.com.au

Document Control

Version	Date	Author	Reviewer
V1	15/12/2015	KMT	AJB
V2	24/06/2019	KMT	AJB
V3	15/10/2021	PN	KMT
V4	23/11/2023	PN	KMT/AB
V5	13/12/2023	PN	KMT
Filename	1832_Vasse East LWMS		

Limitations

This report has been prepared by Accendo Australia Pty Ltd in accordance with the scope limitations provided in this report, or as otherwise agreed, between the Client and Accendo.

This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

This report has been prepared based upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report, which Accendo has not independently verified or checked beyond the agreed scope of work. Accendo does not accept liability in connection with such unverified information.

The conclusions and recommendations in this report are based on assumptions made by Accendo described in this report where and as they are required. Accendo disclaims liability arising from any of the assumptions being incorrect.

The report is based on site specific conditions encountered and information received at the time of preparation of this report or the time that site investigations were undertaken. Accendo disclaims responsibility for any changes that may have occurred after this time.

The preparation of this report has been undertaken and performed in a professional manner, in consideration of the scope of services and in accordance with environmental consulting practices. No other warranty is made.

EXECUTIVE SUMMARY

This Local Water Management Strategy (LWMS) has been prepared by Accendo Australia in consultation with WML Consulting Engineers on behalf of Banyanda Investments Pty Ltd to support development of Lot 176, 201 and 9000 Rendezvous Road, Vasse (herein referred to as the subject site). The subject site is located in the municipality of the City of Busselton within Western Australia and is approximately 9 km southwest of Busselton.

The subject site is approximately 10.3 hectares in area and is currently zoned 'Urban Development' pursuant to the City of Busselton's *Town Planning Scheme No. 21*. This enables residential subdivision within the subject site in accordance with an approved Structure Plan.

A Subdivision Plan (refer to **Appendix A**) has been prepared for the subject site which provides for a 34 lot rural residential development, including Lot 201 (7,588 m²) and 33 new lots ranging from 1,309 m² to 2,935 m² in size. It also incorporates three Reserves for Recreation and one reserve for Pedestrian Access and Drainage with a total area of 1.05 ha. A 30 m development setback has been provided to Rendezvous Road.

This LWMS provides an integrated total water cycle management approach for the development of the subject site. This includes an assessment of the pre-development environment, development of water use sustainability initiatives and a stormwater and groundwater management strategy.

The proposed stormwater management system for the development has been designed in accordance with the *Stormwater Management Manual for Western Australia* (DoW 2004-2007). Stormwater management for the subject site will be designed using the following key principles and objectives:

- All lots will infiltrate or retain stormwater on-site through infiltration;
- All roads will be designed to provide a flood route for events greater than 1-in-1 year ARI and up to 1-in-100 year ARI event;
- Roads will incorporate flush kerbing and swales for stormwater treatment prior to discharge into stilling ponds prior to overflow.

The overall objectives for groundwater management are to minimise any changes to the underlying groundwater level and quality as a result of development.

Further investigations will be completed prior to subdivision, including detailed drainage design. An Urban Water Management Plan will be prepared at subdivision stage, with the implementation of the plan to commence during development stages. Stormwater management considerations and strategies outlined in this report are likely to be refined as more detailed environmental and geotechnical information becomes available and the subdivision design is finalised.

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Figure 1. The Subject Site

Figure 2. Wetland Mapping

1 INTRODUCTION

1.1 Background

This Local Water Management Strategy (LWMS) has been prepared by Accendo Australia in consultation with WML Consulting Engineers on behalf of Banyanda Investments Pty Ltd, to support development of Lot 176, 201 and 9000 Rendezvous Road, Vasse (herein referred to as the subject site) (refer to **Figure 1**). The subject site is located in the municipality of the City of Busselton within Western Australia and is approximately 9km west-southwest of the Busselton town centre.

The subject site is approximately 10.3 hectares (ha) in area and is currently zoned 'Urban Development' pursuant to the City of Busselton's *Town Planning Scheme No. 21*. This enables residential subdivision within the subject site in accordance with an approved Structure Plan.

A Subdivision Plan (refer to **Appendix A**) has been prepared for the subject site which provides for a 34 lot rural residential development, including Lot 201 (7,588 m²) and 33 new lots ranging from 1,309 m² to 2,935 m² in size. It also incorporates three Reserves for Recreation and one reserve for Pedestrian Access and Drainage with a total area of 1.05 ha. A 30 m development setback has been provided to Rendezvous Road.

This LWMS provides an integrated total water cycle management approach for the development of the subject site. This includes an assessment of the pre-development environment, development of water use sustainability initiatives and a stormwater and groundwater management strategy.

1.2 Objectives

The LWMS for the subject site has been developed to address the following objectives:

- Assess the existing environment hydrological and hydraulic conditions;
- Undertake a desktop investigation of the current land use and conditions;
- Develop a stormwater management strategy for the site considering the receiving environment;
- Develop and document strategies for relevant hydrological conditions including water conservation, groundwater protection and environmental conservation; and
- Obtain support from the City of Busselton for the proposed strategy to manage stormwater and potential impacts across the site.

1.3 Key Reference Documents

This LWMS has been developed with reference to the following guidance documents:

- *Better Urban Water Management* (WAPC 2008);
- *Decision Process for Stormwater Management in Western Australia* (DWER 2017);
- *Stormwater Management Manual for Western Australia* (DoW 2007);
- *City of Busselton Engineering and Works Services Standards and Specifications – Section 2* (City of Busselton 2017); and
- *National Water Quality Management Strategy* (ANZECC 2000).

2 PRE-DEVELOPMENT ENVIRONMENT

2.1 Existing Land Use

The subject site is predominately cleared of remnant vegetation consisting of paddocks, an orchard and introduced *Eucalyptus* species. Native species are restricted to riparian vegetation associated with the fringing wetlands and sporadic *Agonis flexuosa* and *Eucalyptus* species.

The subject site is comprised of four existing residences and ancillary infrastructure. Historically, the subject site has been used for livestock grazing and associated rural activities.

2.2 Topography

The subject site rises from the wetlands to the north and west, creating an elevated plain which is currently comprised of paddocks and residences. The contour lines indicate that the majority of the subject site is relatively flat with an elevation between 4 – 5 m Australian Height Datum (AHD). The elevation gently rises to 6 m AHD in the south of the subject site.

2.3 Geotechnical

2.3.1 Surface Geology

Geomorphologic classification for the subject site reported in the *Geological Survey of Western Australia Busselton Sheet 1930 I 1:50,000 Environmental Geology Series* (Belford 1987) indicates that the geology consists of sand derived from Tamala limestone and silty sand of alluvium origin. Furthermore, the geological mapping indicates the potential presence of heavy minerals within the sand.

In addition, subject to Tille and Lantzke's (1990) *Land Resources Series No 5 for the Busselton Augusta Margaret River Area for Land Capability Study*, the subject site has been classified as 'Abba Plains Land System' described as 'poorly drained flats, on the southern Swan Coastal Plain. Grey deep sandy duplex and wet soil.'

WML Consultants (2019) undertook a geotechnical investigation (refer to **Appendix B**) within the subject site whereby the soil profile was described as follows:

- Dry, dark brown, loose, fine to medium grained, silty sand with a trace of organics and trace of fine to medium roots. Topsoil – typically 0.2m thick;
- Dry to moist, pale brown, medium dense, fine to medium grained, sand with a trace of silt; and
- Moist, pale cream yellow, medium dense, fine to medium grained, sand.

2.3.2 Phosphorus Retention Index

The geotechnical investigation also involved an assessment of Phosphorous Retention Index (PRI) in relation to onsite effluent disposal.

Six samples were analysed for PRI at variable depths whereby the values ranged from 13 to 35, with an average of 24 (refer to **Table 1**). Soil modification is expected to be required for 'moderately absorbing' soils to adequately increase PRI.

Further testing is suggested in order to better outline the phosphorus adsorption qualities for each lot to inform the need for soil modification at effluent disposal locations.

Table 1. PRI results from geotechnical investigation (WML Consultants 2019).

Location	PRI (mL/g)	Classification
HA1 0.2 – 0.6	21	Strongly absorbing
HA4 0.6 - 0.8	22	Strongly absorbing
HA4 0.9 – 1.2	13	Moderately absorbing
HA6 1.5 – 2.0	35	Strongly absorbing
HA7 0.2 – 0.6	33	Strongly absorbing
HA8 0.5 – 1.0	20	Moderately absorbing

2.3.3 Soil Permeability

Three *insitu* permeability tests were conducted within the subject site, with all tests conducted on surface soils to a depth of 650mm. Based on the results, a design value of permeability of 1m/day has been recommended for the subject site (WML Consultants 2019).

2.3.4 Acid Sulfate Soils

Acid Sulfate Soils (ASS) is the common name given to naturally occurring soil and sediment containing iron sulfides. They have become a potential issue in land development projects on the Swan Coastal Plain when the naturally anaerobic conditions in which they are situated are disturbed and they are exposed to aerobic conditions and subsequently oxidise. When oxidised, ASS produce sulfuric acid, which can result in a range of impacts to the surrounding environment. ASS that has oxidised and resulted in the creation of acidic conditions are termed “Actual ASS” (AASS), and those that have acid generating potential but remain in their naturally anaerobic conditions are termed “Potential ASS” (PASS).

ASS risk mapping (DWER 2021) indicates that there is a ‘moderate to low’ risk of ASS occurring within 3 m of natural soil surface. The northern and western periphery of the subject site is mapped as having a ‘moderate to high’ risk based on proximity to wetland areas.

2.4 Wetlands

The subject site contains a Resource Enhancement (RE) wetland (UFI 13206) and a Multiple Use (MU) wetland (UFI 15809), as described through the Department of Water and Environmental Regulation’s (DWER’s) *Geomorphic Wetlands, Swan Coastal Plain* dataset (refer to **Figure 2**).

The RE wetland mapping on the western boundary of the subject site contains an elevated area comprised of paddock grasses and introduced *Eucalyptus* species. Accordingly, this area is not representative of a RE wetland, which is further supported by the findings of the geotechnical investigation (refer to **Appendix B**). The Structure Plan has been designed to restrict the clearing of any riparian vegetation and protect 1,676 m² of wetland dependent vegetation within a Reserve for Recreation and Drainage.

The north-western extent of the subject site is mapped as a MU palusplain. This wetland category requires drainage strategies to be incorporated in the planning of the development in order to protect against flooding including protection of groundwater and surrounding surface water resources. The Structure Plan provides an extension of an existing Reserve for Recreation and Drainage within this area.

2.5 Vegetation

The subject site is in a 'Completely Degraded' condition with floristic values lost due to historical agricultural land uses.

Much of the vegetation is comprised of introduced species including paddock grasses, *Eucalyptus globulus*, *Pinus* spp, and a range of exotic garden and orchard species. Native species are predominately restricted to sporadic *Agonis flexuosa* and *Eucalyptus* spp., located in the northern portion of Lot 176.

2.6 Surface Water

The surface water characteristics of the subject site are discussed in detail in **Appendix C**.

2.7 Groundwater

2.7.1 Aquifers

The catchments within the subject site are underlain by the Superficial aquifer, which is approximately 10m thick. Below lies the Leederville aquifer, a confined aquifer that is recharged by direct infiltration of rainfall on the Blackwood Plateau.

Superficial Aquifer

The Superficial aquifer forms an unconfined aquifer beneath the Swan Coastal Plain and collectively includes the Tamala Limestone, Bassendean Sand, Guildford formation and Yoganup formation. As a result of the variable formations within the aquifer, a large variation in permeability, salinity, recharge rates and soil type is experienced. Throughout these formations there are areas of high potential ASS.

The soil within the Superficial aquifer is predominantly clay based, with 40% sand and limestone. The soil increases in clay content in proximity to the Whicher Scarp and the Bunbury Basalt.

The aquifer is fully recharged and saturated during the winter months resulting in large areas of water logging. However, the existing extensive drainage network captures and diverts the majority of excess water. Groundwater salinity increases from <1000 mg/L towards the southern boundary of the aquifer to approximately 7000 mg/L towards the coast (DWER 2018).

Leederville Aquifer

The Leederville Aquifer is a significant aquifer located to the north and west of the Gnangara Mound and has an average thickness of approximately 30m. Beneath the subject site the flow is northwards.

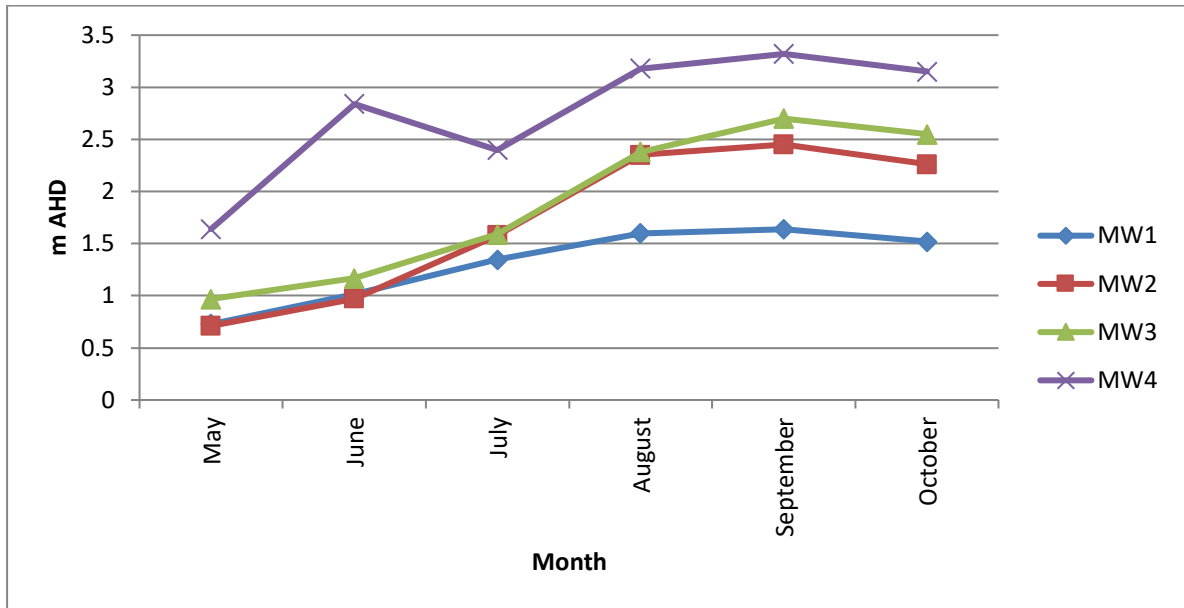
The Leederville formation consists predominantly of the Upper and Lower Vasse members overlying the deeper Yarragadee formation. Depth of the aquifer ranges from 15–200 m BGS depending on the site location and distance from the coast. The thickness of the aquifer increases significantly to the west, within the vicinity of the subject site.

Groundwater salinity ranges across the sub-area up to 1500 mg/L in the shallower parts of the aquifer towards the coast (DWER 2018).

2.7.2 Groundwater Levels

Four groundwater monitoring bores were installed within Lot 176 on the 7th May 2015. Monthly groundwater level monitoring was conducted at each of the four bores within Lot 176 from May to October 2015.

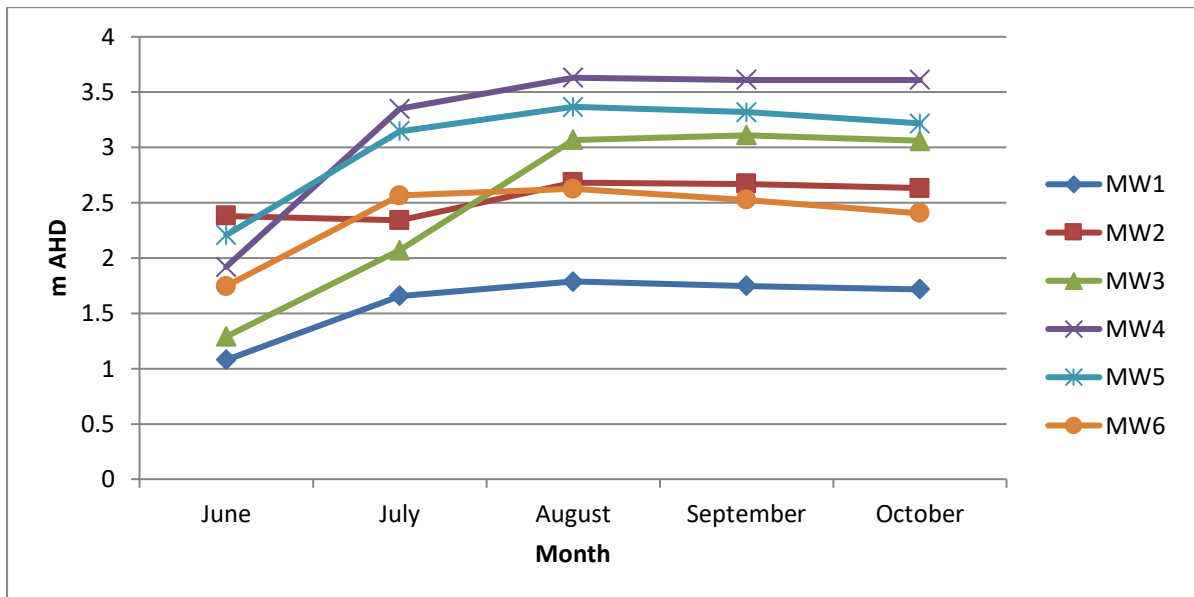
Results for the seasonal peak were all in excess of 1.7 m below ground level (BGL). The groundwater level results for the 2015 monitoring period are provided below in **Graph 1**.



Graph 1. 2015 groundwater levels within Lot 176.

Two groundwater monitoring bores were installed within Lot 9000 on the 24th June 2016. Monthly groundwater level monitoring was conducted at each of the four bores within Lot 176 and the two bores within Lot 9000 from June to October 2016.

Despite some of the bores being in proximity to wetland areas, results for the seasonal peak were all in excess of 1.4 m BGL. The groundwater level results for the 2016 monitoring period are provided below in **Graph 2**.



Graph 2. 2016 groundwater levels within the subject site.

Adjusted Maximum Groundwater Levels (MGLs) were calculated for each of the six monitoring bores and are provided below in **Table 2** (refer to **Appendix D**).

Table 2. Adjusted MGLs for the subject site.

Monitoring Bore	Adjusted MGL (m AHD)	Ground Level (m AHD)	Separation Distance (m AHD)
MW1	2.1	3.6	1.5
MW2	3.2	4.8	1.6
MW3	3.6	5.7	2.1
MW4	4.3	5.1	0.8
MW5	4.0	5.6	1.6
MW6	3.1	5.0	1.9

For the monitoring bores within the subject site a separation distance between the MGL and building floor level of 1.5 m AHD is largely achieved excluding one bore which is located immediately adjacent to the RE wetland (refer to **Appendix D**). Based on these results, it is considered likely that the fill requirements will be minimal to enable an adequate separation distance to groundwater from building floor levels.

2.7.3 Groundwater Quality

No investigations have yet been conducted into groundwater quality at the subject site. Nutrient levels are expected to be elevated in consideration of the historical land uses.

3 DESIGN OBJECTIVES AND CRITERIA

3.1 Key Elements

Key design criteria for the subject site are provided in **Table 3** and have been established consistent with criteria specified in the key reference documents previously detailed in **Section 1.4**. These design criteria are used to formulate the water management strategy for the subject site within the identified constraints and opportunities of the pre-development environment. Details associated with the stormwater strategy for the subject site are provided within **Appendix C**.

Table 3. Design criteria.

Strategy Elements	Design Criteria
<i>Water Use Sustainability</i>	
Water Efficiency	<ul style="list-style-type: none"> • Modern building standards (water efficient fixtures and fittings). • Maximising infiltration of stormwater.
Water Supply	<ul style="list-style-type: none"> • Connection to existing potable water supply.
Wastewater	<ul style="list-style-type: none"> • All lots are to be connected to reticulated sewerage.
<i>Stormwater</i>	
Flood Protection	<ul style="list-style-type: none"> • Provide flood paths for safe conveyance of overland flows within the development area. • Establish minimum habitable floor levels at 0.5m above the 100 year ARI flood levels.
Serviceability	<ul style="list-style-type: none"> • Roadside swales sized to convey the 1 in 5 year and 1 in 100 year ARI event.
Ecological Protection	<ul style="list-style-type: none"> • Initial 15mm of rainfall to be retained on site in roadside swales. • Water quality and outlet control established by basin chain in drainage reserve. • Establishment of storage invert levels no lower than seasonal maximum groundwater levels.
<i>Groundwater</i>	
Fill Requirement & Subsoil Drainage	<ul style="list-style-type: none"> • Habitable floor levels to have clearance to groundwater and flood levels to be achieved by imported fill on building pads. • No broadscale filling proposed as part of the development. • No subsoil drainage proposed.

3.2 Water Conservation Strategy

Water conservation measures consistent with Water Corporation's "Waterwise" land development criteria will be implemented within the development. This will include the following measures:

- The use of rainwater tanks for non-potable purposes.
- The use of waterwise practices including water efficient fixtures and fittings (taps, showerheads, toilets and appliances, rainwater tanks, waterwise landscaping) will be promoted.
- All houses to be built to modern building standards.
- Maximising on site retention of stormwater.

Landscaping of the roadside swales will be based on “Waterwise” principles and will not be irrigated.

3.3 Water Supply

The development is to be served by a reticulated mains water service. This water is to be provided by Busselton Water.

Future lot owners may install rainwater tanks to reduce the quantity of water consumption from the water mains. The predominant use will be for non-potable applications such as gardens, washdown and other outdoor purposes. The tanks have not been incorporated into the development’s stormwater modelling.

A suitable tank size should be determined according to the roof area of the buildings on a lot and the water usage practices. The exact size will be further detailed in the UWMP.

The subject site is located within the Busselton-Capel Groundwater Management Area and the Dunsborough-Vasse groundwater sub area. DWER’s online *Water Register for Licence and Water Availability Information* has advised that there is limited information available regarding the allocation of the superficial aquifer. This denotes that further investigation would be required regarding the availability of groundwater for future landowners.

No irrigation of Public Open Space (POS) is required for the development. The following groundwater licenses exist within the subject site according to the DWER’s online *Water Register*:

- Lot 201 Rendezvous Rd Vasse - the allocation is for 1500 kL/annum under license number 180585; and
- Lot 500 Rendezvous Rd Vasse - the allocation is for 1500 kL/annum under license number 176249.

This groundwater is not required for long term irrigation of the proposed development. It is noted that the use of groundwater for dust suppression would require groundwater licencing as advised by DWER.

3.4 Wastewater Management

All lots are to be connected to the Water Corporation’s reticulated (vacuum) sewerage network via the DN 100 main at the eastern end of Bendjar Grove.

4 GROUNDWATER MANAGEMENT

4.1 Groundwater Management

Based on available groundwater data (refer to **Appendix D**), the proposed development will not entail broadscale filling of the subject site. Only limited sand fill may be required in proximity to the RE wetland. Accordingly, no specific groundwater controls will be necessary.

Groundwater quality will be improved through the use of vegetated swales. These will provide a level of treatment to infiltrating water from the development.

Appropriate on lot practices will also assist with reducing the potential for pollutants from entering the groundwater. These are outlined further in **Section 5**.

4.2 Acid Sulfate Soils

Management of ASS will be addressed separately to this LWMS, if required, depending on excavation depths for engineering services. While they are considered unlikely, all assessment and management of ASS will be conducted in accordance with the *Acid Sulfate Soil Guideline Series Identification and Investigation of Acid Sulphate Soils* (DWER 2015).

4.3 Groundwater Monitoring

Due to the low impact of the proposed development, there is no requirement for post development groundwater monitoring. The treatment of stormwater as detailed in **Appendix C** means that there is a low risk of pollution to the groundwater post development. Monitoring would be unlikely to identify any potential changes from the development of the land compared to the likely high background data as a result of the historical and existing land uses. Therefore, post groundwater monitoring is considered of limited value for this low risk site and is not recommended.

5 WATER QUALITY MANAGEMENT

Stormwater will be treated through a system of vegetated swales to reduce nutrient loads leaving the subject site which will target achievement of the design parameters discussed in **Section 3**.

5.1 Nutrients

Water quality management refers to the quality of both the stormwater and groundwater within the subject site. The most important factor in both stormwater and groundwater quality is the level of nitrogen and phosphorus nutrients, which can cause algal blooms and eutrophication in rivers and lakes.

Potential sources of nutrients into the drainage system and waterways of the subject site come from both onsite and off-site, due to surrounding catchments discharging into the area, as well as groundwater inflows from off-site. These sources are discussed in detail below.

As a result of the effective retention of stormwater flows up to and including the 1 year ARI design event, it is not anticipated that the use of Gross Pollutant Traps (GPTs) or their variants will be required within the residential sections of the subject site. Within the residential areas, the expected pollutants can be effectively retained using the following measures:

- Discharge and subsequent settlement of runoff from all minor events into the designated roadside swales prior to release into the groundwater;
- Use of vegetated swales where possible to convey stormwater runoff; and
- Appropriate use of soils with a higher PRI in effluent disposal areas if deemed necessary.

5.2 Sediments

Sediments affect water quality in numerous ways affecting the health of aquatic organisms, in stream processes and aesthetics. Pollutants such as heavy metals and phosphates enter waterways through being attached to clay particles. Development works on the site with the potential to disturb soils include site remediation and bulk earthworks associated with construction.

It is recommended that earthworks at the subject site should commence during the summer months, when the locality does not experience significant rainfall, thereby minimising risks associated with runoff.

Due to the promotion of at source treatments within the development, the amount of sediment entering receiving environments post-construction is expected to be minimal.

Riparian vegetation will be planted in the treatment system to maximise the amount of fine sediments removed from surface water.

5.3 Structural Best Management Practices

Within the development a number of WSUD elements will be implemented to satisfy the structural best management practice (BMP) requirements. These are summarised in **Table 4** below and are discussed in further detail in the following Sections.

Table 4. WSUD elements for structural BMPs.

Level	Responsibility	BMP
Lot/group housing	Lot Owner	<ul style="list-style-type: none">• Infiltration• Amended topsoils• Mulch and other groundcover
Street	Local Authority	<ul style="list-style-type: none">• Street sweeping

Level	Responsibility	BMP
		<ul style="list-style-type: none"> • Infiltration • Sedimentation traps
Estate	Local Authority	<ul style="list-style-type: none"> • Retention / detention areas • Vegetated swales • Groundwater re-use

5.3.1 Lot / Group Housing Level Structural BMPs

Infiltration of stormwater is common practice in Western Australian land development projects and is considered an appropriate at source control measure that can significantly reduce the magnitude and volume of stormwater runoff generated from the site.

Rainwater generated from roof areas can be infiltrated into the groundwater without the need for pre-treatment, on the basis that the roof areas generate significantly lower nutrient loads. Runoff from residential buildings can be directed to the road stormwater infrastructure.

5.3.2 Street Level Structural BMPs

Road design for amenity should be separated from road design for flood protection based on the stormwater infrastructure requirements as a function of road hierarchy. Three types of design criteria are applicable:

- Pollution control – low level of requirement;
- Convenience and nuisance control – medium level of requirement; and
- Flood control – high / main level of requirement.

Road design will be discussed in further detail in the UWMP.

5.3.3 Estate Level Structural BMPs

It is proposed to establish a series of vegetated roadside swales within the development. Vegetated swales can be designed to perform both a detention storage function as well as a treatment function regarding the removal of sediment in the conveyance of stormwater.

5.4 Non-Structural Best Management Practices

A series of non-structural BMPs derived from the *Stormwater Management Manual for Western Australia* (DoW 2007) will be implemented for use in the development in combination with structural measures.

At a development scale, landscaping will consist primarily of native plantings which will require limited irrigation.

At a lot level, residents will be encouraged to use native vegetation for planting. Sustainability Packages will be provided at the point of sale, outlining appropriate fertiliser regimes and when and how it should be applied.

6 WETLAND MANAGEMENT

As previously discussed, a small portion of the subject site contains a RE wetland. This management category aims to protect the existing functions and ecological quality of the system and further enhance it through rehabilitation.

The design and management of the proposed subdivision will focus on maintaining the natural attributes and values that the area supports. Implementation of the proposed Structure Plan will result in the:

- Retention of wetlands with environmental values; and
- Retention of significant vegetation.

Due to the small amount of intact native vegetation remaining in the subject site, a key objective of the LWMS is to ensure that all areas of good quality native vegetation within the retained wetlands are protected.

A Landscaping and Revegetation Plan will be prepared which will provide management guidelines for the subject site, addressing a range of issues including access, management and revegetation. The aim of the Landscaping and Revegetation Plan will be to:

- Preserve the wetland's ecological values;
- Design and program for the wetland areas to provide habitat for native fauna;
- Incorporate water sensitive urban design principles;
- Reduce the potential for eutrophication of the water bodies by incorporating nutrient stripping features throughout the drainage systems; and
- Ensure that the hydrological regime and water balance for the wetland system is consistent with regimes in wetlands within the local area in order to be capable of supporting the range of biota.

7 IMPLEMENTATION

7.1 Maintenance Measures

The surface water drainage system may require periodic maintenance to ensure its efficient operation. It is considered that the following operating and maintenance practices will be implemented:

- Removal of debris to prevent blockages;
- Street sweeping to reduce particulate build up on road surfaces and gutters;
- Cleaning of sediment build up and litter layer on the bottom of swales;
- Undertake education campaigns regarding source control practices to minimise pollutant runoff into stormwater drainage system.

Specifically, the operation and maintenance program provided within **Table 5** is proposed.

Table 5. LWMS actions and responsibilities.

Element	Action	Responsibility	Timing
Water Quality and Quantity	Maintenance of swales and surface water drainage infrastructure	The proponent	Quarterly, until two years after practical completion of the development or until hand over to the City of Busselton
Reserves	Plant establishment		One to two years after planting
	Maintenance of Reserves		Annually for two years until handover to the City of Busselton
Drainage Infrastructure	Maintenance of drainage infrastructure		As required until two years after completion of the development. The extent of the maintenance commitment will be confirmed with the City of Busselton at the UWMP stage of the development.
Subdivision Management	Construction and site works management		As required during construction until hand over to the City of Busselton
	Waste and pollution management		As required during construction until hand over to the City of Busselton

7.2 Monitoring

No post development monitoring is proposed as part of this LWMS since the development is of a rural nature and poses a low risk to the receiving environment.

7.3 Additional Work

The preparation of an UWMP will be required as a condition of subdivision clearances. It is recommended that a UWMP is completed for the entire Structure Plan area regardless of whether subdivision occurs on a staged basis. Specifically, the UWMP will include the following design measures in more detail:

- Detailed stormwater drainage design including landscaping details;
- Specific detailed information on structural and non-structural best management practices to be implemented;
- Final subdivision layout including final cut and fill levels, minor and major drainage layouts and overland flow paths;

- Management of subdivisional works, including dewatering or dust suppression if required;
- Reserve management including proposed revegetation methods and species;
- Finalised monitoring performance values and list of likely contingency measures; and
- Finalised implementation plan including roles and responsibilities of all parties involved.

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FIGURES



Legend

- POS
- POS drainage
- Sewage Sensitive Area
- Proposed Lot boundaries

PROJECT Lot 176, 201 & 9000 Rendezvous Rd, Vasse

Project Number
1832

Drawing Number
Figure 1

Revision
B

DRAWING TITLE Figure 1 – The Subject site



Designed PN
Drawn PN

Checked
Approved

CLIENT Banyanda Investments Pty Ltd

Date
Local Authority
Sheet 1 of 1

13/12/2023
City of Busselton

PO Box 5178
West Busselton
Western Australia 6280
Mobile 0418 950 852

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or not for construction until signed approved.



PROJECT Lot 176, 201 & 9000 Rendezvous Rd, Vasse

Project Number
1832

Drawing Number
Figure 2

Revision
B

DRAWING TITLE Figure 2 – Wetland Mapping



Designed PN
Drawn PN

Checked
Approved

CLIENT Banyanda Investments Pty Ltd

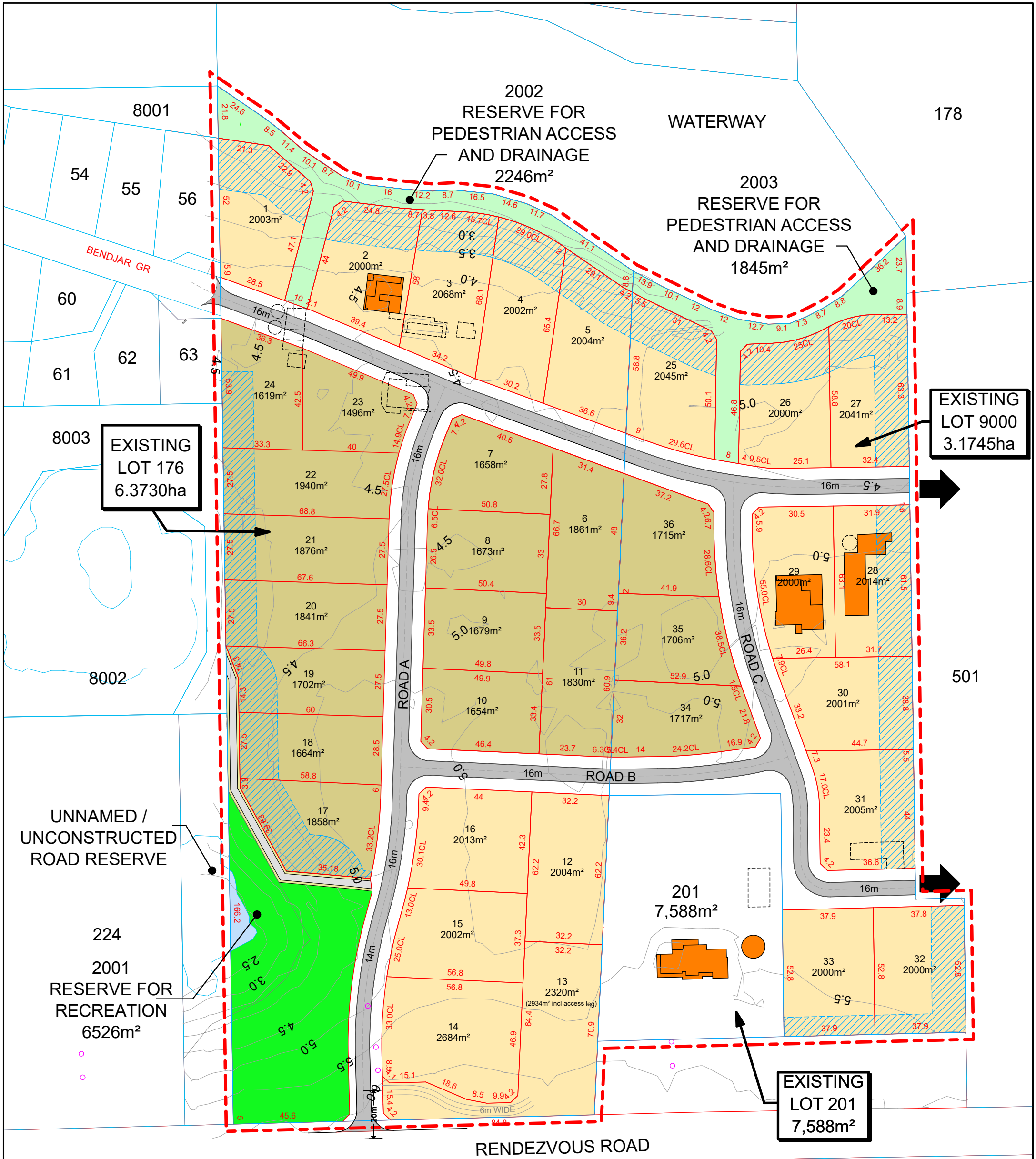
Date
Local Authority
Sheet 1 of 1

13/12/2023
City of Busselton

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APPENDIX A – SUBDIVISION PLAN



Project: LOTS 176, 201 AND 9000 / HOUSES 604, 580 AND 578 RENDEZVOUS ROAD, VASSE

Drawing Title: PLAN OF SUBDIVISION

Principal: BANYANDA DEVELOPMENTS PTY. LTD. AND K. BELL

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0 1 2 3 4 5 6 7 8 9 10

LEGEND

- SUBJECT LAND
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- RESIDENTIAL R10
- RESIDENTIAL R5
- EXISTING BUILDING / STRUCTURES TO BE RETAINED
- EXISTING BUILDING / STRUCTURES TO BE REMOVED
- HABITABLE BUILDING EXCLUSION AREA
- 3m WIDE PATH WITH 1m COMPACTED GRAVEL/LIMESTONE SHOULDER
- FUTURE ROAD CONNECTION

ABLE PLANNING & PROJECT MANAGEMENT

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Date: 10/02/24 Scale: 1:1500
Designed: AB Checked: AB
Drawn: TL
Local Authority: City of Busselton Sheet 1 Of 1
Plan/Diagram Number 63890 CT Number 1635-719
65898 2823-895
65898 2823-896
Revision: DRAFT 4 ORIGINAL: A3

APPENDIX B – GEOTECHNICAL REPORT

Our Ref: 8466-G-001.docx

Your Ref:

21 March 2019

Accendo Australia
PO Box 5178
WEST BUSSELTON WA 6280

Attention: Kirsten Muir-Thompson

Dear Kirsten

LOTS 176, 201 AND 9000 RENDEZOUS ROAD 'EAST VASSE' - GEOTECHNICAL INVESTIGATION

1 INTRODUCTION

Accendo Australia engaged WML Consultants (WML) on behalf of their client to carry out a geotechnical investigation at the above sites. WML understands it is proposed subdivide the lots into a new residential subdivision requiring a local water management strategy plan to be produced. Part of the work requires a geotechnical investigation to be conducted and this letter summarises our findings of the investigation.

2 SITE SETTING

The site is located south east of Vasse and directly bordering the Herron lake subdivision, approximately 10km west of Busselton. The three lots are mostly clear and flat with some large trees through the centre of the proposed subdivision and along the boundary of the separate lots. Four existing houses are found at the site and will all form part of the new subdivision. The proposed subdivision is approximately 11ha in size with the existing houses accounting for 2ha.

The 1:50,000 scale Geological Map 'Busselton' indicates that most of the site comprises SAND derived from weathered Tamala Limestone, with the immediate area surrounding Herron Lake at the west of the site comprised of 'Alluvium' (silty sands deposits).

3 FIELDWORK

3.1 Fieldwork

On 27 February 2019, an engineer from WML undertook an investigation of the site comprising the following;

- 9 Hand Augured (HA) boreholes – majority of boreholes were terminated at the target depth of 2m,
- 3 in-situ Permeability tests using the Talsma-Hallam Permeameter in accordance with AS1547-2012
- Sampling of 6 Phosphorus retention index (PRI) tests
- Sampling of 3 soil classification tests (PSD/PI)

Each borehole was logged, photographed and subsequently backfilled. The approximate location of each borehole is found on the attached site map 8466-G-001.

3.2 Sub-surface Profile

The sub-surface profile generally comprised:

1. Dry, dark brown, loose, fine to medium grained, **silty SAND** with a trace of organics and trace of fine to medium roots. *TOPSOIL – typically 0.2m thick*
2. Dry to moist, pale brown, medium dense, fine to medium grained, **SAND** with a trace of silt
3. Moist, pale cream yellow, medium dense, fine to medium grained, **SAND**

The subsurface profile can generally be described as consisting of a dark brown silty sandy topsoil occurring to a depth of 0.2-0.3m underlain by slightly less silty brown sand underlain by various layer of clean sand associated Tamala limestone.

Refusal at depths of 1.5m and 1.2m on rock was seen and HA2 and HA3 respectfully with all other borehole reaching the target depth of 2.0m. At HA6, HA7 and HA9 a depth between 1.5-2.0m the clean pale cream yellow sand was underlain by slightly cohesive sand with some clay of a similar colour which was sticky to touch and slightly coarser.

It should be noted that no penetrometer testing was conducted, and the various layer density was estimated from the observation of the difficulty of excavation. Typically, it becomes more difficult to excavate the material as depth increased.

3.3 Groundwater

Groundwater was not encountered during the investigation.

3.4 Laboratory Testing

Representative samples were submitted to Civitest Australia for an Atterberg Limits and Particle Size Distribution (PSD) testing while the Phosphorus Retention Index (PRI) samples were submitted to Environmental and Agricultural Testing Services (EATS). Both laboratories are NATA accredited. The test results are summarised in Table 1 below with the certificates attached at the end of this report:

Table 1: Laboratory Testing Summary

Location	Depth (m)	Test	PSD			Atterberg's		PRI
			Fines (%)	Sand (%)	Gravel (%)	PI (%)	LS (%)	mL/g
HA5	0.0 – 0.2	PSD/PI/LS	8	88	4	39	15.5	-
HA6	0.5 – 1.5	PSD/PI/LS	18	81	1	NO	0.0	-
HA6	1.5 – 2.0	PSD/PI/LS	17	79	4	NO	0.0	-
HA1	0.2 – 0.6	PRI	-	-	-	-	-	21
HA4	0.6 - 0.8	PRI	-	-	-	-	-	22
HA4	0.9 – 1.2	PRI	-	-	-	-	-	13
HA6	1.5 – 2.0	PRI	-	-	-	-	-	35
HA7	0.2 – 0.6	PRI	-	-	-	-	-	33
HA8	0.5 – 1.0	PRI	-	-	-	-	-	20

Note: PSD – Particle Size Distribution; PI – Plasticity Index; LS – Linear Shrinkage; PRI – Phosphorus Retention Index; NO – Not Obtainable; NP – Non-Plastic

3.5 Permeability Testing

One test was undertaken at HA3, HA5 and HA7 where a borehole 110mm in diameter and 650mm depth was excavated and filled with water to saturate the surrounding soil. A constant head of water was applied and a known volume of water was timed to dissipate. Generally, the permeability of the soil decreased with each successive test. These results are tabulated as a range of values and are also compared to an estimation based upon a PSD grading. The results are tabulated below:

Table 2: Permeability results

Location	Insitu Permeability Test		Empirical PSD Method (Hazen)	
	m/s	m/day	m/s	m/day
HA5	2.5×10^{-5}	2.2	1.7×10^{-5}	1.5
HA3	2.5×10^{-5}	2.2	-	-
HA7	1.6×10^{-5}	1.3	-	-

4 FINDINGS

4.1 Phosphorus Retention Index

Phosphorus Retention Index (PRI) can be defined as the ratio of phosphorus absorbed, to the phosphorus remaining when soil is left in contact with a standard phosphorus solution under standard conditions. It is generally used as a measure of a soils ability to strip an applied effluent of phosphorus and hence prevent leaching or contamination into the groundwater. In sandy soils the Phosphorus Retention Index is usually less than 5. Very strongly adsorbing soils include lateritic loams, iron rich peats, Karri loams with PRI >70.

Generally, irrigation areas need to contain soils with a PRI greater then 20 depending on the system of disposal used. For soils with a PRI less than 20 soil modification may be required to adequately increase the PRI. The measured PRI of the sandy soils found on site were generally greater than 20, however further testing is suggested to better determine the need for soil modification at effluent disposal locations.

4.2 Permeability

Three insitu permeability tests were conducted at HA3, HA5 and HA7, with all tests conducted on the near surface soils to a depth of 650mm. HA7 was conducted in the south of the site while HA3 was conducted along the western boundary in the middle of the site and HA7 conducted in the north east corner. The results varied from 1.3 to 2.2 m/day. The difference is not considered to be significant across the site and a single value of permeability is recommended for the site.

A design value of permeability of 1m/day is recommended for the site.

Yours faithfully,



Hayden Thorpe
Graduate Engineer

Author

Paul Foley
Group Manager Geotechnical & Pavements

Reviewer

For and on behalf of WML Consultants Pty Ltd

Attached

- Site Photographs
- Site Investigation Plan Drawing
- Test pit logs
- Laboratory Test Results

References

- 1:50,000 Geological Map 'Busselton'
- AS 1726:1993 – Geotechnical Site Investigations



Figure 1: Borehole Arising from HA1



Figure 2: Borehole arisings from HA7



Figure 3: Borehole Arising from HA6



Figure 4: General Site Photo Looking North form HA7

8466-G-001

Geotechnical Test Locations - Lots 176, 201 and 9000 Rendezous Road

Legend

- HA - Hand Auger
- HA - Hand Auger and Insitu Permeability



TEST REPORT

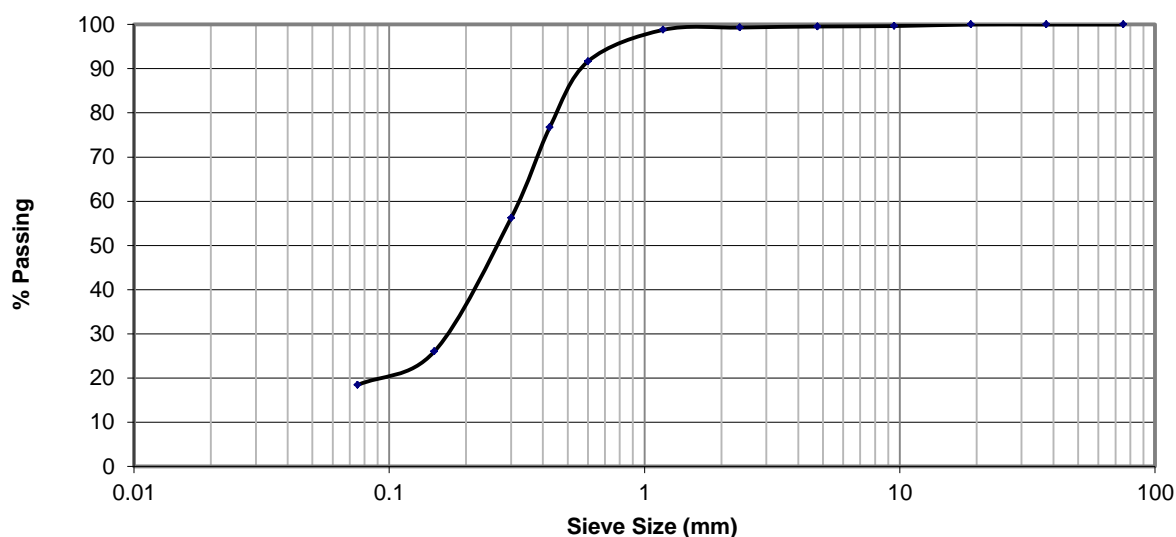
Page 1 of 1

CLIENT: W.M.L Consultants
PROJECT: Vasse East
LOCATION: Vasse
 HA6
PROPOSED USE: -
CLIENT REF: 8466

SAMPLE NO: CT 70202
JOB NO: 24-1-486
FIELD DESCRIPTION: Sand
DATE TESTED: 07-Mar-19
DEPTH TESTED mm: 0.5-1.5m

PARTICLE SIZE DISTRIBUTION

AS 1289.3.6.1



PARTICLE SIZE DISTRIBUTION AS 1289.3.6.1				PLASTICITY INDEX & LINEAR SHRINKAGE		
Sieve Size	% Passing	Sieve Size	% Passing			
75.0 mm	100	1.18 mm	99	Liquid Limit	% AS 1289.3.1.1	29
37.5 mm	100	0.600 mm	92	Plastic Limit	% AS 1289.3.2.1	Not Obtainable
19.0 mm	100	0.425 mm	77	Plasticity Index	% AS 1289.3.3.1	Non Plastic
9.5 mm	100	0.300 mm	56	Linear Shrinkage	% AS 1289.3.4.1	0.0
4.75 mm	100	0.150 mm	26	Length of Mould	mm	250
2.36 mm	99	0.075 mm	18	Sample history		Air Dried
				Sample Preparation Method		Dry Sieved
				Nature of Shrink		n/a

Notes:

Sample site selected by Client
 Sampled by Client

Approved Signatory: Jon Fogarty

Date: 11-Mar-19

Report Number: CT 70202 / 1



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 with ISO/IEC 17025 - Testing
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Bunbury Base Laboratory
 Ph: 08 9726 2204

PO Box 5068, Bunbury WA 6231
 47 Craigie St., Davenport, WA 6230

TEST REPORT

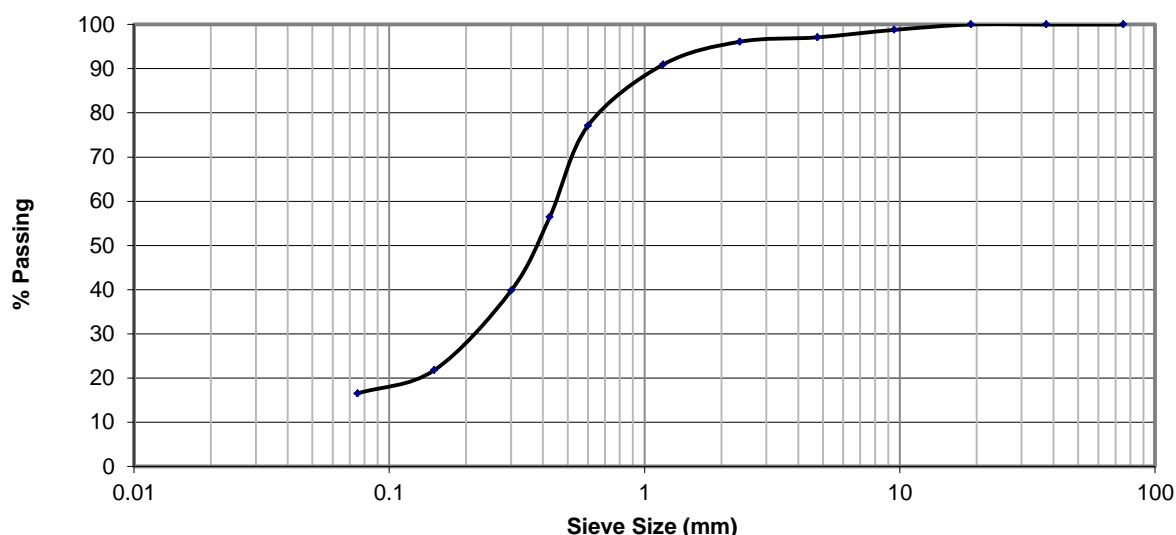
Page 1 of 1

CLIENT: W.M.L Consultants
PROJECT: Vasse East
LOCATION: Vasse
 HA6
PROPOSED USE: -
CLIENT REF: 8466

SAMPLE NO: CT 70203
JOB NO: 24-1-486
FIELD DESCRIPTION: Sand
DATE TESTED: 06-Mar-19
DEPTH TESTED mm: 1.5-2.0m

PARTICLE SIZE DISTRIBUTION

AS 1289.3.6.1



PARTICLE SIZE DISTRIBUTION AS 1289.3.6.1				PLASTICITY INDEX & LINEAR SHRINKAGE		
Sieve Size	% Passing	Sieve Size	% Passing			
75.0 mm	100	1.18 mm	91	Liquid Limit	% AS 1289.3.1.1	29
37.5 mm	100	0.600 mm	77	Plastic Limit	% AS 1289.3.2.1	Not Obtainable
19.0 mm	100	0.425 mm	56	Plasticity Index	% AS 1289.3.3.1	Non Plastic
9.5 mm	99	0.300 mm	40	Linear Shrinkage	% AS 1289.3.4.1	0.0
4.75 mm	97	0.150 mm	22	Length of Mould	mm	250
2.36 mm	96	0.075 mm	17	Sample history		Air Dried
				Sample Preparation Method		Dry Sieved
				Nature of Shrink		n/a

Notes:

Sample site selected by Client
 Sampled by Client

Approved Signatory: Jon Fogarty

Date: 11-Mar-19

Report Number: CT 70203 / 1



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TEST REPORT

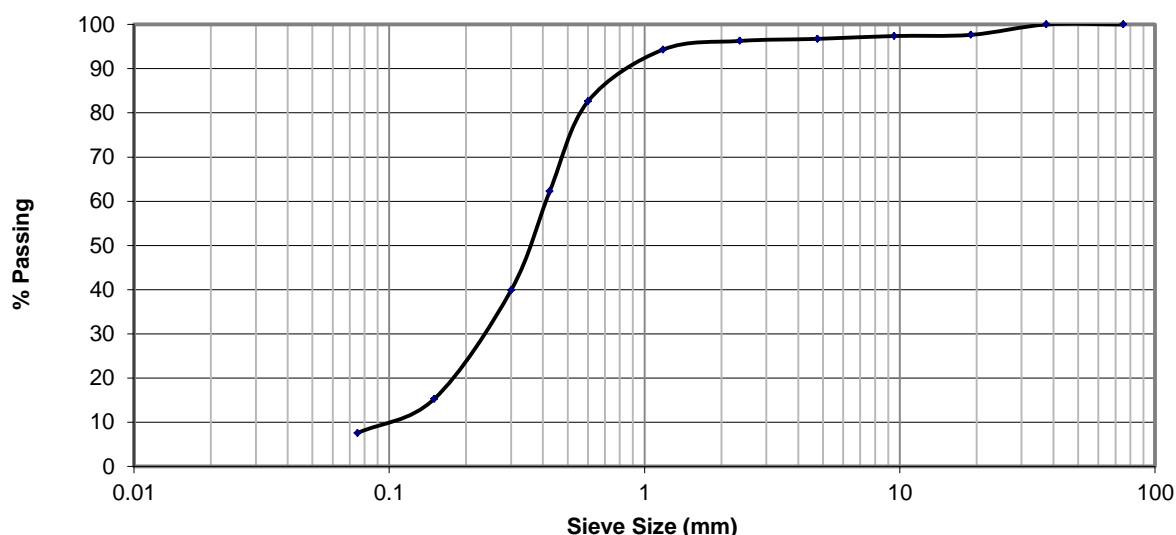
Page 1 of 1

CLIENT: W.M.L Consultants
PROJECT: Vasse East
LOCATION: Vasse
 HA5
PROPOSED USE: -
CLIENT REF: 8466

SAMPLE NO: CT 70204
JOB NO: 24-1-486
FIELD DESCRIPTION: Sand
DATE TESTED: 07-Mar-19
DEPTH TESTED mm: 0-0.2m

PARTICLE SIZE DISTRIBUTION

AS 1289.3.6.1



PARTICLE SIZE DISTRIBUTION AS 1289.3.6.1				PLASTICITY INDEX & LINEAR SHRINKAGE		
Sieve Size	% Passing	Sieve Size	% Passing			
75.0 mm	100	1.18 mm	94	Liquid Limit	% AS 1289.3.1.1	Not Obtainable
37.5 mm	100	0.600 mm	83	Plastic Limit	% AS 1289.3.2.1	Not Obtainable
19.0 mm	98	0.425 mm	62	Plasticity Index	% AS 1289.3.3.1	Non Plastic
9.5 mm	97	0.300 mm	40	Linear Shrinkage	% AS 1289.3.4.1	0.0
4.75 mm	97	0.150 mm	15	Length of Mould	mm	250
2.36 mm	96	0.075 mm	8	Sample history		Air Dried
				Sample Preparation Method		Dry Sieved
				Nature of Shrink		n/a

Notes:

Sample site selected by Client
 Sampled by Client

Approved Signatory: Jon Fogarty

Date: 11-Mar-19

Report Number: CT 70204 / 1



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 47 Craigie St., Davenport, WA 6230

Certificate of Analysis

Client Name:	WML Consultants		
Address:	PO Box 2023, Bunbury, WA, 6231		
Phone No:	9722 3544	Email:	
Lab No:	10973	Job No:	8466
Date samples received:	5/3/19	Report date:	11/3/19

Sample details: Six soil samples for phosphorus retention index, collected by client, labelled 'East Vasse: Job 8466'.

Test Methods: Samples are analysed on an as received basis using methods specified by the Australian Soil and Plant Analysis Council.

Test Results:

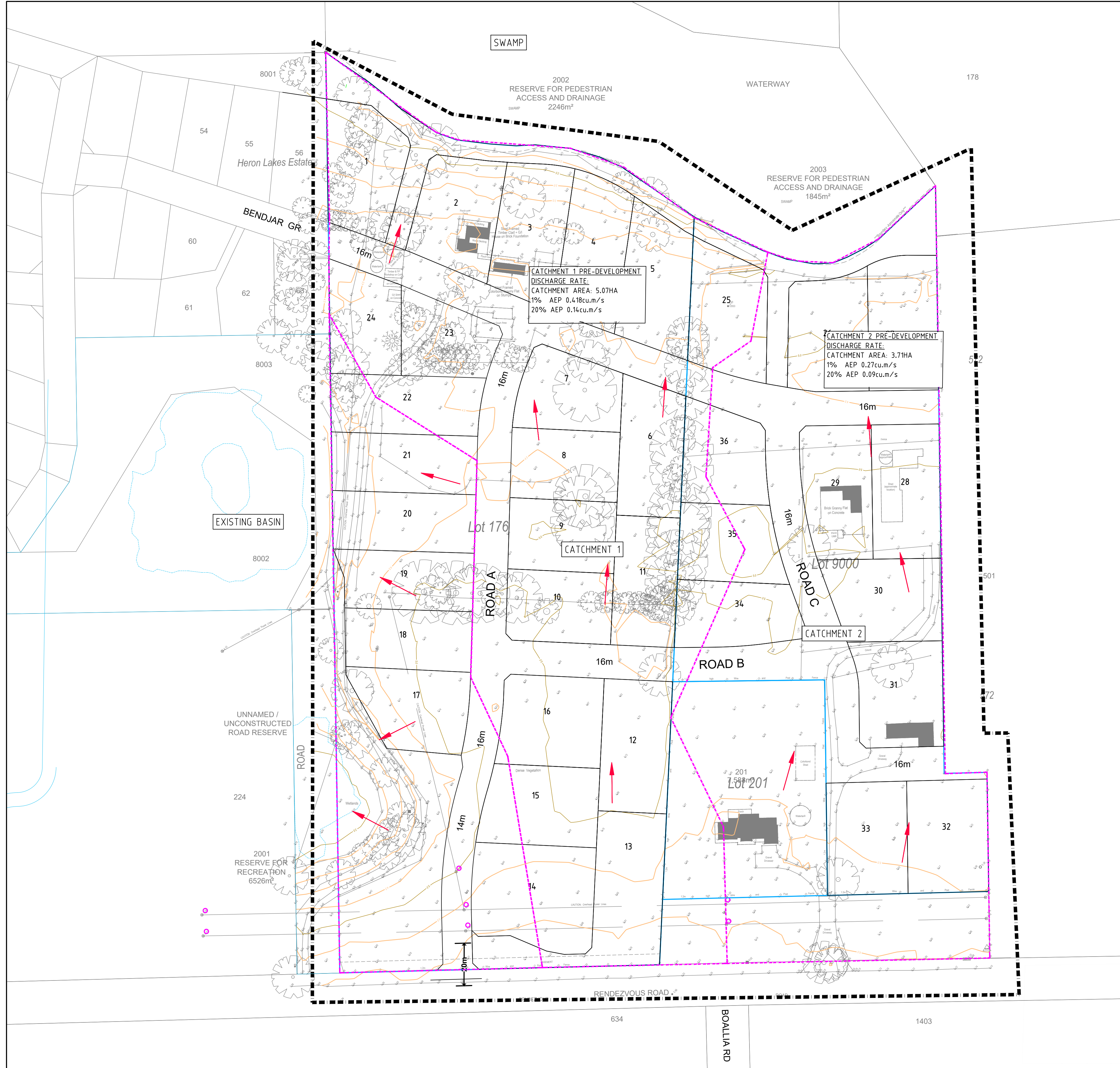
Sample	Phosphorus Retention Index (PRI)
HA1: 0.2 m - 0.6 m	21
HA4: 0.6 m – 0.8 m	22
HA4: 0.9 m - 1.2 m	13
HA6: 1.5 m – 2.0 m	35
HA7: 0.2 m – 0.6 m	33
HA8: 0.5 m - 1.0 m	20



Rachel Lancaster
BSc (Hort), PgDip (Agribusiness)

End of report

APPENDIX C – STORMWATER MANAGEMENT STRATEGY



LEGEND

15.5EXISTING NATURAL SURFACE CONTOUR (0.5m INTERVALS)

EXISTING PAVEMENT

26

LOT NUMBERS

LIMIT OF WORKS BOUNDARY (STAGE 1)

PRE-DEVELOPMENT CATCHMENT AREA

FLOW DIRECTION

NOTE
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DRAWING NUMBER
11052-SW-01 B

WML
Consulting Engineers

Civil | Geotechnical | Structural

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REVISIONS				
B	PRECAL UPDATED	L. RUSCONI	12/12/23	NT
A	ISSUED FOR REVIEW	L. RUSCONI	22/11/23	NT
N°	DESCRIPTION	APPROVED	DATE	DRAWN

NOTE: *INDICATES SIGNATURES ON ORIGINAL ISSUE OF DRAWING OR LAST REVISION OF DRAWING

NAMES PRINTED IN FULL		DATE
DESIGNED	NAOKI TANAKA	22/11/23
DRAWN	NAOKI TANAKA	22/11/23
VERIFIED		
APPROVED		

CLIENT	HANSON PROPERTY GROUP
PROJECT	LOT 176 RENDEZVOUS ROAD VASSE 33 LOTS

DRAWING TITLE
**PRE DEVELOPMENT DRAINAGE
SHEET 1 OF 1**

1:2000

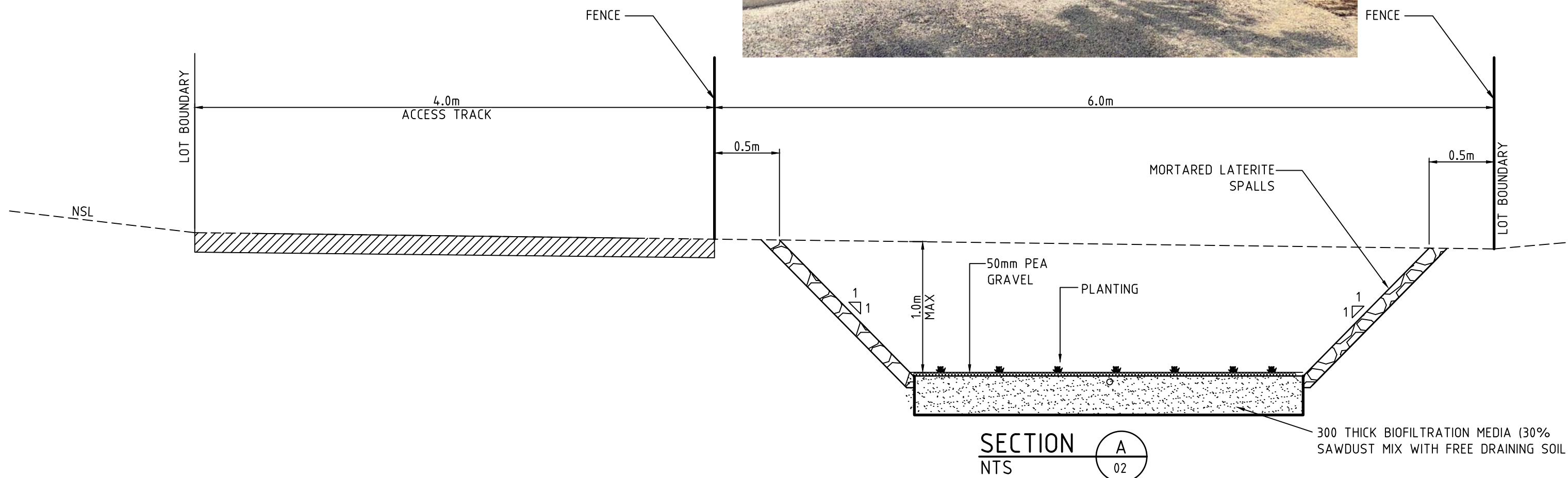
SCALE

0 20m 40 60 80 100 120 140 160 180 200 220 240 260 280 300

A1



- LEGEND**
- 15.5 EXISTING NATURAL SURFACE CONTOUR (0.5m INTERVALS)
 - EXISTING PAVEMENT
 - 26 LOT NUMBERS
 - LIMIT OF WORKS BOUNDARY (STAGE 1)
 - PROPOSED DRAINAGE PIPE/BOX CULVERT
 - DRAINAGE CATCHMENT AREA
 - DRAINAGE SUB-CATCHMENT AREA
 - PROPOSED 0.6m DEEP ATTENUATION SWALE
 - PROPOSED 0.35m DEEP ATTENUATION SWALE
 - PROPOSED DETENTION BASIN (INDICATIVE SIZE AND SHAPE ONLY)
 - FLOW DIRECTION
 - PROPOSED BASIN OVERFLOW WEIR
 - PROPOSED DRIVEWAY CROSSOVER WITH CULVERT
 - RESIDENTIAL R5
 - RESIDENTIAL R10
 - RESERVED FOR RECREATION
 - HABITABLE BUILDING EXCLUSION AREA
 - EXISTING BUILDING/STRUCTURE TO BE RETAINED
 - PROPOSED ACCESS TRACK



NOTE
THE FOLLOWING CONDITION WILL BE IMPOSED ON SUBDIVISION APPROVAL:

- A NOTIFICATION, PURSUANT TO SECTION 70A OF THE TRANSFER OF LAND ACT 1893, IS TO BE PLACED ON THE CERTIFICATE(S) OF TITLE OF THE PROPOSED LOTS 17 - 22 INCLUSIVE. NOTICE OF THIS NOTIFICATION IS TO BE INCLUDED ON THE DIAGRAM OR PLAN OF SURVEY (DEPOSITED PLAN). THE NOTIFICATION IS TO STATE AS FOLLOWS:
"STORMWATER RUNOFF IS TO BE RETAINED FOR USE AND / OR INFILTRATION WITHIN THE LOT AT A RATE OF 1 M³ OF STORAGE PER 40 M² OF IMPERVIOUS SURFACES." (LOCAL GOVERNMENT)
- THE LANDOWNER/APPLICANT SHALL PROVIDE A WRITTEN UNDERTAKING TO ADVISE PROSPECTIVE PURCHASERS OF SPECIFIC STORMWATER MANAGEMENT PROVISIONS WHICH APPLY TO PROPOSED LOTS 17 - 22 INCLUSIVE. (LOCAL GOVERNMENT)

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REVISION: **C1**

REVISIONS				
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A	ISSUED FOR REVIEW	L. RUSCONI	22/11/23	NT

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DRAWN	NAOKI TANAKA	22/11/23
VERIFIED		
APPROVED		

CLIENT	
HANSON PROPERTY GROUP	
PROJECT	
LOT 176 RENDEZVOUS ROAD VASSE 33 LOTS	

DRAWING TITLE
**POST DEVELOPMENT DRAINAGE
SHEET 1 OF 1**

APPENDIX D - GROUNDWATER MONITORING REPORT

15 February 2017

Aaron Bell
c-/ Banyanda Investments Pty Ltd & Kevin Bell
Aaron@ableplanning.com.au

Dear Aaron,

RE – Groundwater Monitoring report for Lots 176, 201 and Lot 9000 Rendezvous Road, Vasse

The expectations regarding pre-development hydrological monitoring and stormwater management have been provided by the Department of Water (DoW) and are documented within a number of guidelines, including the *National Water Quality Management Strategy* (ANZECC, 2000) and the *Stormwater Management Manual for Western Australia* (DoW, 2007). These documents indicate that groundwater data coverage should be sufficient to provide characterisation of the existing hydrological environment to not only direct management actions, but to also allow assessment of the need for post-development contingency actions.

Accendo Australia Pty Ltd (Accendo) understands that it is proposed to subdivide and develop Lots 176, 201 and Lot 9000 Rendezvous Road, Vasse (herein referred to as the 'subject site'). Accordingly, Accendo has undertaken pre-development hydrological monitoring to support subdivision.

The subject site is located within the City of Busselton, approximately 9 km south-west of the Busselton town centre. The subject site is approximately 9.4 (hectares) ha in area and is currently zoned 'Rural Residential' pursuant to the City's Town Planning Scheme No. 21.

The proposed subdivision and development of the subject site will consists of 53 residential lots including Reserves for Recreation and Drainage on the periphery of wetland areas. A Scheme Amendment will be required to rezone the subject site to allow for the proposed residential development.

The usual expectations of the DoW are that groundwater levels will be collected over two seasonal peaks. For Lot 176, groundwater levels for the 2015 and 2016 seasonal peak have been captured while, for Lot 9000, only the 2016 seasonal peak has been recorded. However, given that above average rainfall (based on data recorded from 1997 to 2015) was experienced in Busselton in 2016, one seasonal peak for Lot 9000 is considered adequate.

The purpose of the hydrological monitoring investigation was to characterise the underlying groundwater levels and demonstrate the extent of seasonal fluctuations. This information will assist in the design of lot levels in consideration of Maximum Groundwater Levels (MGLs) and identify any potential changes to the hydrological environment post development.

Methodology

Four groundwater monitoring bores were installed within Lot 176 on the 7th May 2015 and two groundwater monitoring bores were installed within Lot 9000 on the 24th June 2016 (refer to **Figure 1**). The monitoring bores were positioned based on Accendo's understanding of the hydrology of the subject site and to ensure maximum longevity of the bores.

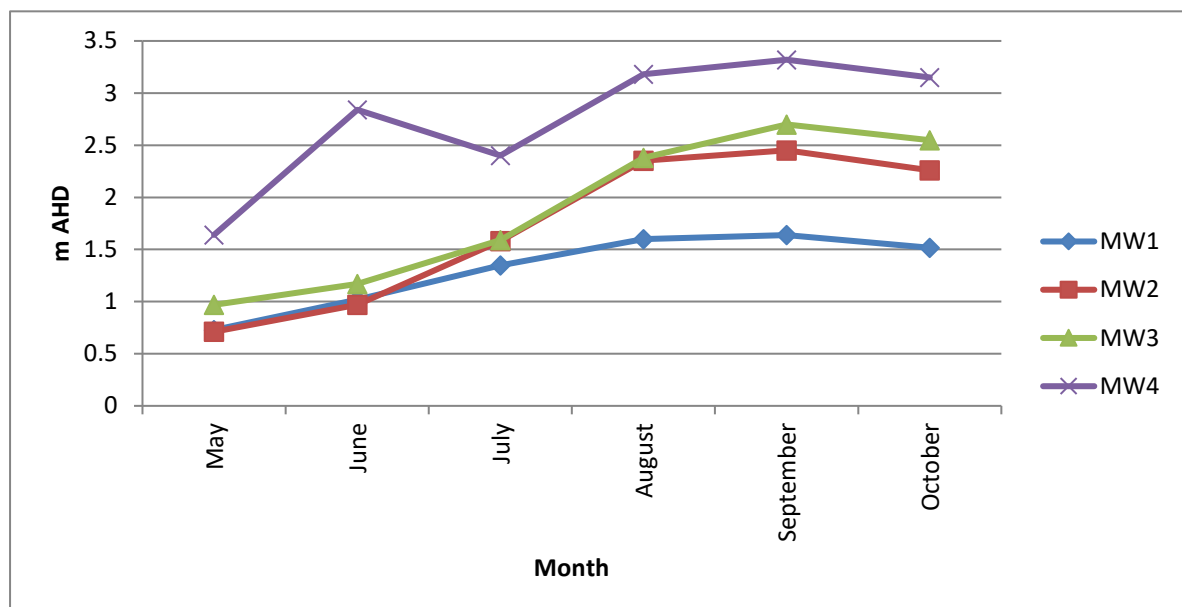
The monitoring bores were installed using a drill rig to an approximate depth of 4 – 6 m below ground level (BGL). Each monitoring bores was installed with 50 mm PVC casings and approximately 2 m screening to capture seasonal fluctuations. In order to obtain accurate groundwater level readings, the bore heights were surveyed to an accuracy of +/- 2 mm. During the installation of the monitoring bores, soil logs were recorded in order to characterise the soil types located within the subject site (refer to **Appendix A**).

Groundwater level monitoring was conducted at each of the four bores within Lot 176 from May to October 2015 and from June to October 2016, and at the two bores within Lot 9000 from June to October 2016. The sampling program involved measurement of groundwater level monitoring on a monthly basis.

Results

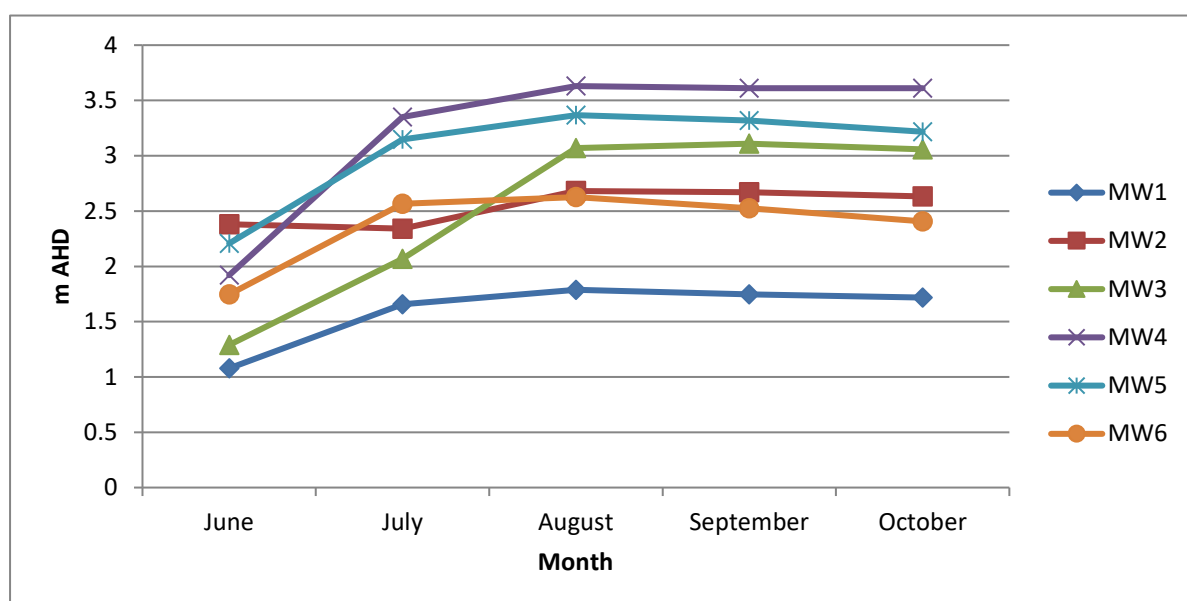
A summary of the monthly groundwater monitoring results are provided within **Appendix B**. The groundwater level results were analysed for the subject site to determine if a peak existed within the data. For the 2015 monitoring period, all groundwater monitoring bores within Lot 176 exhibited a localised peak on the 25th September. Despite some of the bores being in proximity to wetland areas, results for the seasonal peak were all in excess of 1.7 m BGL. The groundwater level results for the 2015 monitoring period are provided below in **Graph 1**.

Graph 1. 2015 groundwater levels within Lot 176.



For the 2016 monitoring period, all groundwater monitoring bores within the subject site exhibited a localised peak on the 26th August, however only a very minor decrease in groundwater levels was recorded in September. Despite some of the bores being in proximity to wetland areas, results for the seasonal peak were all in excess of 1.4 m BGL. The groundwater level results for the 2015 monitoring period are provided below in **Graph 2**.

Graph 2. 2016 groundwater levels within the subject site.



In order to establish long-term trends for groundwater behaviour within the subject site, a search for neighbouring DoW bores was undertaken. The search did not identify any DoW bores within proximity to the subject site that have sufficient data to enable a meaningful comparison, and that are geologically similar. As a result, data from DoW bores has not been used to calibrate groundwater levels within the subject site.

Alternatively, a review of Busselton's long term averages for rainfall (between 1997 and 2014) was undertaken to determine when a seasonal peak is likely to have occurred during this period. Based on climatology data, the wettest August was recorded in 1998 with a total of 169 mm. The total rainfall recorded within Busselton during August 2016 was 133 mm which equates to an approximate 20% decrease in comparison to the recorded rainfall in August 1998.

Adjustment factors are typically applied to MGLs to provide conservative values in consideration of potential risks. Given that no comparative data is available from nearby DoW bores, it is considered reasonable to apply a 20% adjustment factor to the recorded MGLs in consideration of the rainfall data recorded in 1998. On this basis, **Figure 2** displays the adjusted MGL contours across the subject site. The recorded MGLs for each of the six monitoring bores are provided below in **Table 1**.

Table 1. Adjusted MGLs for the subject site.

Monitoring Bore	Adjusted MGL (m AHD)	Ground Level (m AHD)	Separation Distance (m AHD)
MW1	2.1	3.6	1.5
MW2	3.2	4.8	1.6
MW3	3.6	5.7	2.1
MW4	4.3	5.1	0.8
MW5	4.0	5.6	1.6
MW6	3.1	5.0	1.9

For the monitoring bores within the subject site a separation distance between the MGL and building floor level of 1.5 m AHD is largely achieved excluding MW4, which can be attributed to its location immediately adjacent to a wetland area. Based on these results and depending on the final subdivision design, it is considered likely that the fill requirements will be minimal to enable an adequate separation distance to groundwater from building floor levels.

Conclusion

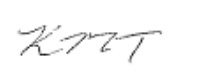
Four groundwater monitoring bores were installed within Lot 176 on the 7th May 2015 and two groundwater monitoring bores were installed within Lot 9000 on the 24th June 2016.

Groundwater level monitoring was conducted at each of the four bores within Lot 176 from May to October 2015 and from June to October 2016, and at the two bores within Lot 9000 from June to October 2016. The sampling program involved measurement of groundwater level monitoring on a monthly basis.

Based on the adjusted MGL, it is considered likely that the fill requirements will be minimal to enable an adequate separation distance to groundwater from building floor levels.

Should you have any queries or concerns relating to any of the above, please do not hesitate to contact the undersigned.

Yours sincerely,



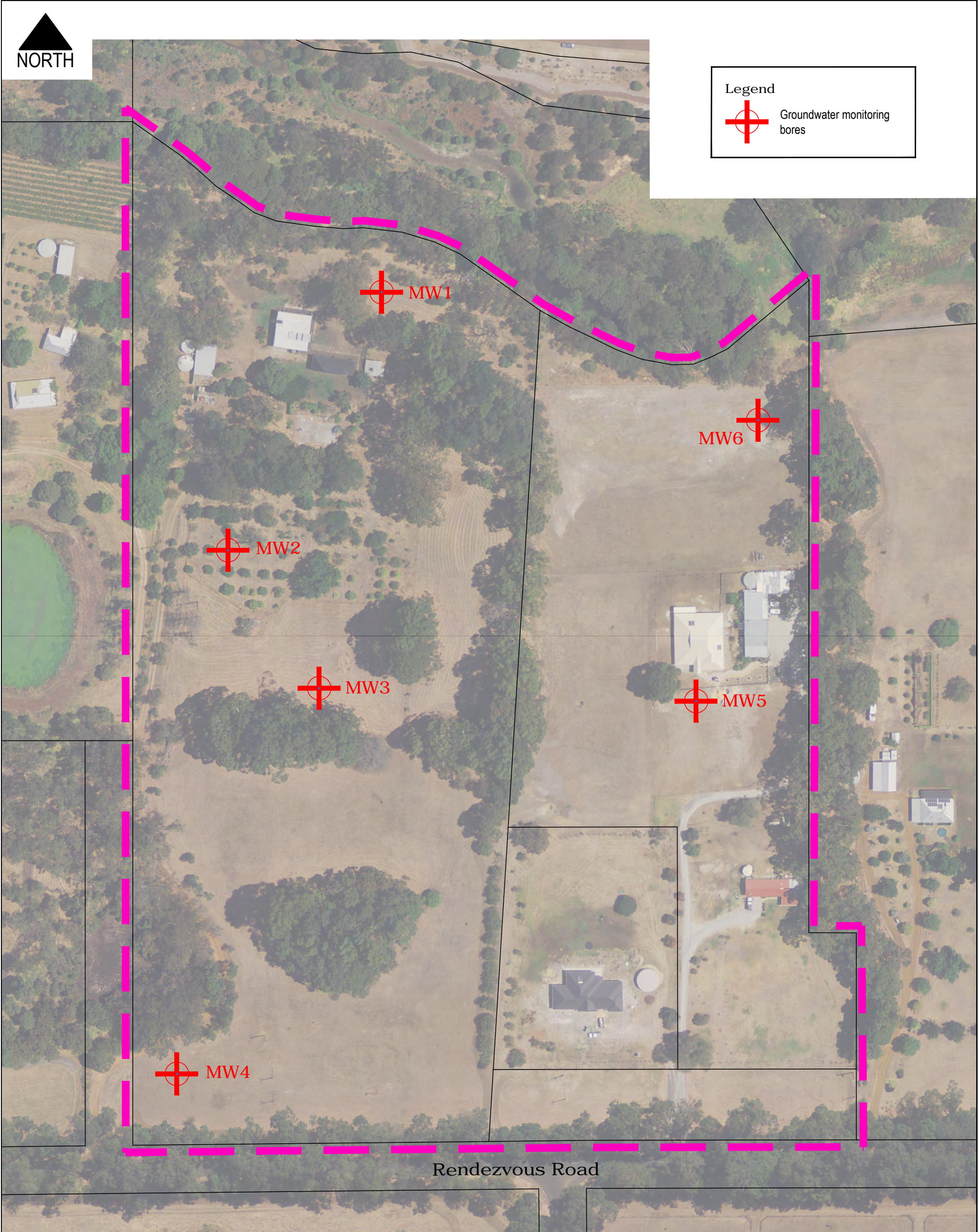
Kirsten Muir-Thompson

Principal Consultant

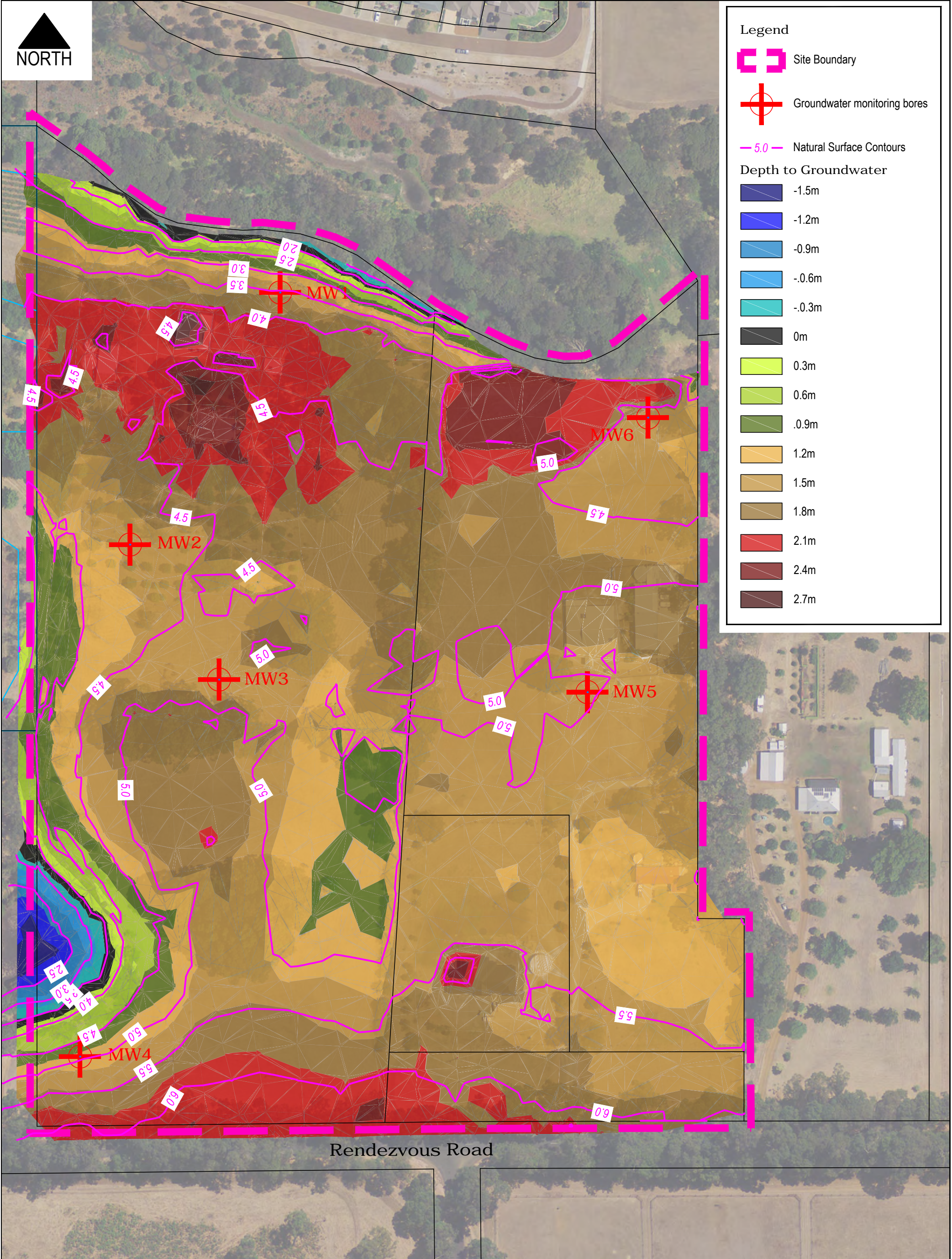
Telephone 9755 7217

Mobile 0418 950 852

FIGURES



PROJECT		Lot 176, 201 and 9000 Rendezvous Road, Vasse			Scale					
DRAWING TITLE		Figure 1 - Monitoring Bore Locations			1:1500					
CLIENT		Banyanda Investments Pty. Ltd. and K.Bell			0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150					
<div>PO Box 5178 West Busselton Western Australia 6280 Telephone (08) 9755 7217 Mobile 0418 950 852</div>					Project Number		Drawing Number		Revision	Original
					1509		FIG 1		A	A3
					Designed KMT		Checked		Date 07-06-16	
					Drawn DTF		Approved		Sheet 1 of 1	
					Local Authority		City of Busselton			
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PROJECT Lot 176, 201 and 9000 Rendezvous Road, Vasse

DRAWING TITLE Figure 2 - Depth to Groundwater

CLIENT Banyanda Investments Pty. Ltd. and K.Bell

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Scale 1:1500 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PO Box 5178
West Busselton
Western Australia 6280
Telephone (08) 9755 7217
Mobile 0418 950 852

Project Number	Drawing Number	Revision	Original
1509	FIG 2	A	A3
Designed KMT	Checked	Date 07-02-17	
Drawn DTF	Approved	Sheet 1 of 1	
Local Authority City of Busselton			

APPENDIX A

SOIL LOGS

Project Number: 1509

Conditions: Sunny, clear

Site Name: lot 176

Method: Drill rig



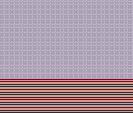
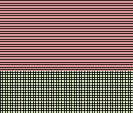

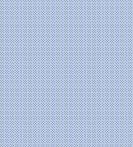
Bore Name: MW1

Depth to Water: 3.6m

Date: 07/05/2015

Total Depth: 4.8m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SP - SAND, fine grained, dark brown, moderately sorted, some organic matter, dry.
		SP - SAND, pale brown/orange, fine grained, moderately sorted, no organic matter.
		SC - SANDY CLAY, pale brown, chunks of dry clay, low plasticity, moderately sorted.
		SC - SANDY CLAY, orangey brown, grey chunks of clay, medium plasticity, moderately sorted, dry.
		CL - CLAY, bluey-grey with some orange mottling, high plasticity, fine grained, moist.
3		
		SC - SANDY CLAY, cream, course grained, wet.
4		



SOIL LOG



Project Number: 1509

Conditions: Sunny, clear

Site Name: Lot 176

Method: Drill rig

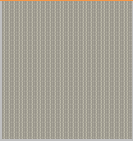
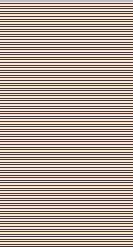


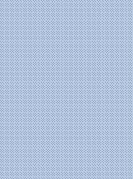
Bore Name: MW2

Depth to Water: 4.0m

Date: 07/05/2015

Total Depth: 5.6m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SAND - fine grained, dark brown, moderately sorted, some organic matter, dry.
		SAND - orangey yellow, fine to medium grained, small chunks of grey clay, moderately sorted dry.
		SANDY CLAY - orange sand, grey clay, low to medium plasticity, fine to medium grained, moderately sorted, clay particles.
3		CLAY, bluey-grey, high plasticity, fine grained, moist.
4		SANDY CLAY, cream, silica, moderately sorted, fine grained, wet.



TEST PIT SOIL LOG

Project Number: 1509

Site Name: Lot 176

Bore Name: MW3

Date: 07/05/2015

Conditions: Sunny, clear

Method: Drill rig

Depth to Water: 4.5m

Total Depth: 5.2m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SAND - fine grained, orangey brown, fine grained, some organic matter, dry.
		SAND - fine to medium grained, orange, no organic matter, dry.
		SAND - browney orange, medium grained, small clumps of clay, dry.
		SANDY CLAY - creamy orange, medium grained, low plasticity, dry.
3		CLAYEY SAND - brown, medium grained, moderate plasticity, wet at depth, no rocks.
4		



SOIL LOG

Project Number: 1509

Conditions: Sunny, clear

Site Name: Lot 176

Method: Drill rig

Bore Name: MW4

Depth to Water: 3.3m

Date: 07/05/2015

Total Depth: 5.3m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SP - SAND, fine grained, dark brown, moderately sorted, some organic matter, dry.
		SP - SAND, orangey brown, fine grained, moderately sorted, no organic matter.
		SC - SANDY CLAY, dark orange, chunks of grey clay, fine grained, dry.
		SC - SANDY CLAY, orangey brown, feldspar rocks (occasional), course grained, dry.
3		SC - SANDY CLAY, orangey brown, medium plasticity, increased clay content, grey clay and orange sand, dry.
4		SC - SANDY CLAY, cream, course grained, low plasticity, wet, no rocks.



SOIL LOG

Project Number: 1618

Conditions: Sunny, clear

Site Name: Lot 9000

Method: Drill rig

Bore Name: MW5

Depth to Water: 4.5m

Date: 24/06/2016

Total Depth: 5.0m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SAND - fine grained, orangey brown, fine grained, some organic matter, dry.
		SAND - fine to medium grained, dark brown, no organic matter, moist.
		SAND - orange, medium grained, small amount of clay, moist.
3		CLAYEY SAND - brown/orange, medium grained, moderate plasticity, wet at depth, no rocks.
4		



SOIL LOG

Project Number: 1618

Site Name: Lot 9000

Bore Name: MW6

Date: 24/06/2016

Conditions: Sunny, clear

Method: Drill rig

Depth to Water: 3.0m

Total Depth: 5.5m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SAND - fine grained, orangey brown, fine grained, some organic matter, dry.
		SAND - fine to medium grained, orange, no organic matter, dry.
		SAND - browney orange, medium grained, small clumps of clay, moist.
3		CLAYEY SAND - creamy orange, medium grained, low plasticity, moist.
4		



APPENDIX B

Groundwater Level Monitoring 2016										
	25-Jun		28-Jul		26-Aug		27-Sep		28-Oct	
	Level from Collar	Level AHD	Level from Collar	Level AHD	Level from Collar	Level AHD	Level from Collar	Level AHD	Level from Collar	Level AHD
MW1	2.56	1.078	1.98	1.658	1.85	1.788	1.89	1.748	1.92	1.718
MW2	2.45	2.381	2.49	2.341	2.15	2.681	2.16	2.671	2.2	2.631
MW3	4.5	1.289	3.72	2.069	2.72	3.069	2.68	3.109	2.73	3.059
MW4	3.18	1.920	1.75	3.350	1.47	3.630	1.49	3.610	1.49	3.610
MW5	3.43	2.207	2.49	3.147	2.27	3.367	2.32	3.317	2.42	3.217
MW6	3.28	1.746	2.46	2.566	2.4	2.626	2.5	2.526	2.62	2.406
										Collar Heights
										3.638
										4.831
										5.789
										5.100
										5.637
										5.026

Groundwater Level Monitoring 2015												
	28-May		22-Jun		31-Jul		27-Aug		25-Sep		23-Oct	
	Level from Collar	Level AHD	Level from Collar	Level AHD	Level from Collar	Level AHD	Level from Collar	Level AHD	Level from Collar	Level AHD	Level from Collar	Level AHD
MW1	2.91	0.728	2.62	1.018	2.29	1.348	2.04	1.598	2	1.638	2.12	1.518
MW2	4.12	0.711	3.86	0.971	3.25	1.581	2.48	2.351	2.38	2.451	2.57	2.261
MW3	4.82	0.969	4.62	1.169	4.2	1.589	3.41	2.379	3.09	2.699	3.24	2.549
MW4	3.46	1.640	2.26	2.840	2.7	2.400	1.92	3.180	1.78	3.320	1.95	3.150
												Collar Heights
												3.638
												4.831
												5.789
												5.100

APPENDIX F

BUSHFIRE MANAGEMENT PLAN

Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address: Lots (176,201,9000) Rendezvous Road, Vasse (BPP# 180831)

Site visit: Yes ☒ No ☐

Date of site visit (if applicable): Day 20 Month 10 Year 2022

Report author or reviewer: Michael Whitelaw (BPAD L3)

WA BPAD accreditation level (please circle):

Not accredited ☐ Level 1 BAL assessor ☐ Level 2 practitioner ☐ Level 3 practitioner ☒

If accredited please provide the following.

BPAD accreditation number: 37265 Accreditation expiry: Month February Year 2025

Bushfire management plan version number: 1.6

Bushfire management plan date: Day 26 Month 02 Year 2024

Client/business name: Able Planning & Project Management

	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 bushfire protection criteria elements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Is the proposal any of the following (see [SPP 3.7 for definitions](#))?

	Yes	No
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"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

None of the above ☒

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer



Date 26/2/24



Bushfire Management Plan (BMP)



**Lots (176, 201, 9000) Rendezvous Road,
Vasse**

City of Busselton

Planning Stage: Structure Plan

Development Type: Subdivision (37 Lots)

26 February 2024

Job Reference No: 180831

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

ACN: 39 166 551 784 | ABN: 39 166 551 784

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GUILDFORD WA 6935

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**DOCUMENT CONTROL**


PREPARATION					
Author:	Mick Whitelaw (BPAD Level 3 No. 37265)				
VERSION HISTORY					
Version	Status/Details			Date	
1.0	Original			25 February 2019	
1.1	Revised Proposal (2021)			14 September 2021	
1.2	Site Plan Updates (2022)			5 April 2022	
1.3	City of Busselton - Schedule of Modifications			4 November 2022	
1.4	Proposed Staging Plan (Stage 1) – Addendum #1			18 November 2022	
1.5	Site Plan Updates (2023)			14 February 2024	
1.6	Changes to text in response to City of Busselton email 23/02/2024			26 February 2024	
DISTRIBUTION					
Destination		Version	No. Copies	Hard Copy	Electronic Copy
Person/Company	Email				
ABLE PLANNING & PROJECT MANAGEMENT	Aaron@ableplanning.com.au	1.6	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>Limitations: The protection measures that will be implemented based on information presented in this Bushfire Management Plan are minimum requirements and they do not guarantee that buildings or infrastructure will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required protection measures (including bushfire resistant construction) and any other required or recommended measures, will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control. All surveys, forecasts, projections and recommendations made in this report associated with the proposed development are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations. Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents, arising out of the services provided by their consultants.</p> <p>Copyright © 2024 BPP Group Pty Ltd: All intellectual property rights, including copyright, in format and proprietary content contained in documents created by Bushfire Prone Planning, remain the property of BPP Group Pty Ltd. Any use made of such format or content without the prior written approval of Bushfire Prone Planning, will constitute an infringement on the rights of the Company which reserves all legal rights and remedies in respect of any such infringement.</p>					

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SUMMARY STATEMENTS

THIS DOCUMENT – STATEMENT OF PURPOSE

The Bushfire Management Plan (BMP)

The BMP sets out the required package of bushfire protection measures to lessen the risks associated with a bushfire event. It establishes the responsibilities to implement and maintain these measures.

The BMP also identifies the potential for any negative impact on any environmental, biodiversity and conservation values that may result from the application of bushfire protection measures or that may limit their implementation.

Risks Associated with Bushfire Events

The relevant risks are the potential for loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss. For a given site, the level of that risk to persons and assets (the exposed elements) is a function of the potential threat levels generated by the bushfire hazard, and the level of exposure and vulnerability of the at risk elements to the threats.

Bushfire Protection Measures

The required package of protection measures is established by *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, its associated *Guidelines* and any other relevant guidelines or position statements published by the Department of Planning, Lands and Heritage. These measures are limited to those considered by the WA planning authorities as necessary to be addressed for the purpose of land use planning. They do not encompass all available bushfire protection measures as many are not directly relevant to the planning approval stage. For example:

- Protection measures to reduce the vulnerability of buildings to bushfire threats is primarily dealt with at the building application stage. They are implemented through the process of applying the Building Code of Australia (Volumes 1 and 2 of the national Construction Code) in accordance with WA building legislation and the application of construction requirements based on a building's level of exposure - determined as a Bushfire Attack Level (BAL) rating); or
- Protection measures to reduce the threat levels of consequential fire (ignited by bushfire and involving combustible materials surrounding and within buildings) and measures to reduce the exposure and vulnerability of elements at risk exposed to consequential fire, are not specifically considered.

The package of required bushfire protection measures established by the Guidelines includes:

- The requirements of the bushfire protection criteria which consist of:
 - Element 1: Location (addresses threat levels).
 - Element 2: Siting and Design of Development (addresses exposure levels of buildings).
 - Element 3: Vehicular Access (addresses exposure and vulnerability levels of persons).
 - Element 4: Water (addresses vulnerability levels of buildings).
 - Element 5: Vulnerable Tourism Land Uses (addresses exposure and vulnerability as per Elements 1-4 but in use specific ways and with additional considerations of persons exposure and vulnerability).
- The requirement to develop Bushfire Emergency Plans / Information for 'vulnerable' land uses for persons to prepare, respond and recover from a bushfire event (this addresses vulnerability levels).
- The requirement to assess bushfire risk and incorporate relevant protection measures into the site emergency plans for 'high risk' land uses (this addresses threat, exposure and vulnerability levels).

Compliance of the Proposed Development or Use with SPP 3.7 Requirements

The BMP assesses the capacity of the proposed development or use to implement and maintain the required 'acceptable' solutions and any additionally recommended bushfire protection measures - or its capacity to satisfy the policy intent through the justified application of additional bushfire protection measures as supportable 'alternative' solutions.

THE PROPOSED DEVELOPMENT/USE – BUSHFIRE PLANNING COMPLIANCE SUMMARY		
Required Bushfire Protection Measures The Acceptable Solutions of the Bushfire Protection Criteria (Guidelines)		Assessment Outcome
Element	The Acceptable Solutions	
1: Location	A1.1 Development location	Fully Compliant
2: Siting and Design of Development	A2.1 Asset Protection Zone (APZ)	Fully Compliant
3: Vehicular Access	A3.1 Public roads	Fully Compliant
	A3.2a Multiple access routes	Fully Compliant
	A3.2b Emergency access way	N/A
	A3.3 Through-roads	Fully Compliant
	A3.4a Perimeter roads	N/A
	A3.4b Fire service access route	N/A
	A3.5 Battle-axe legs	Fully Compliant
	A3.6 Private driveways	N/A
4: Water	A4.2 Provision of water for firefighting purposes	Fully Compliant

EXECUTIVE SUMMARY

Bushfire Prone Planning (BPP Group Pty Ltd) has been commissioned by Able Planning & Project Management to prepare a Bushfire Management Plan for Lots (176,201,9000) Rendezvous Road, Vasse, in the City of Busselton. The proposed subdivision site (37 Lots) of approximately 10 hectares in size is within a designated bushfire prone area and the Proposal requires the application of State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7).

Against the Bushfire Protection Criteria, the decision maker's assessment of the Proposal will be on the basis of it being able to meet the Acceptable Solutions, once construction and landscaping is complete. The assessed bushfire risk is considered to be manageable and will be achieved by the identified stakeholders implementing and maintaining the bushfire risk management measures that are presented in this Plan. Assessment of the planned location, vegetation and consideration of existing infrastructure indicates that compliance is able to be achieved against all applicable bushfire related legislation, policy, standards and guidelines, including the Bushfire Protection Criteria.

Contained within this bushfire management plan, contour mapping is utilised to visually show the potential radiant heat impacts (from bushfire prone vegetation), as separate Bushfire Attack Level contours across the site. The BAL's have been derived for the proposed Lots within the assessed area. The purpose is to inform future development planning by indicating the Bushfire Attack Levels (BAL's) that future buildings, within the development site, are potentially subject to.

Rendezvous Road, Bendjar Grove and the development of an internal road network will provide safe access and egress to two different destinations. As sealed public roads, they will be available to all residents and the public at all times and under all weather conditions.

The site will be provided with a reticulated water supply. Hydrants will be installed in accordance with the relevant water corporation standards.

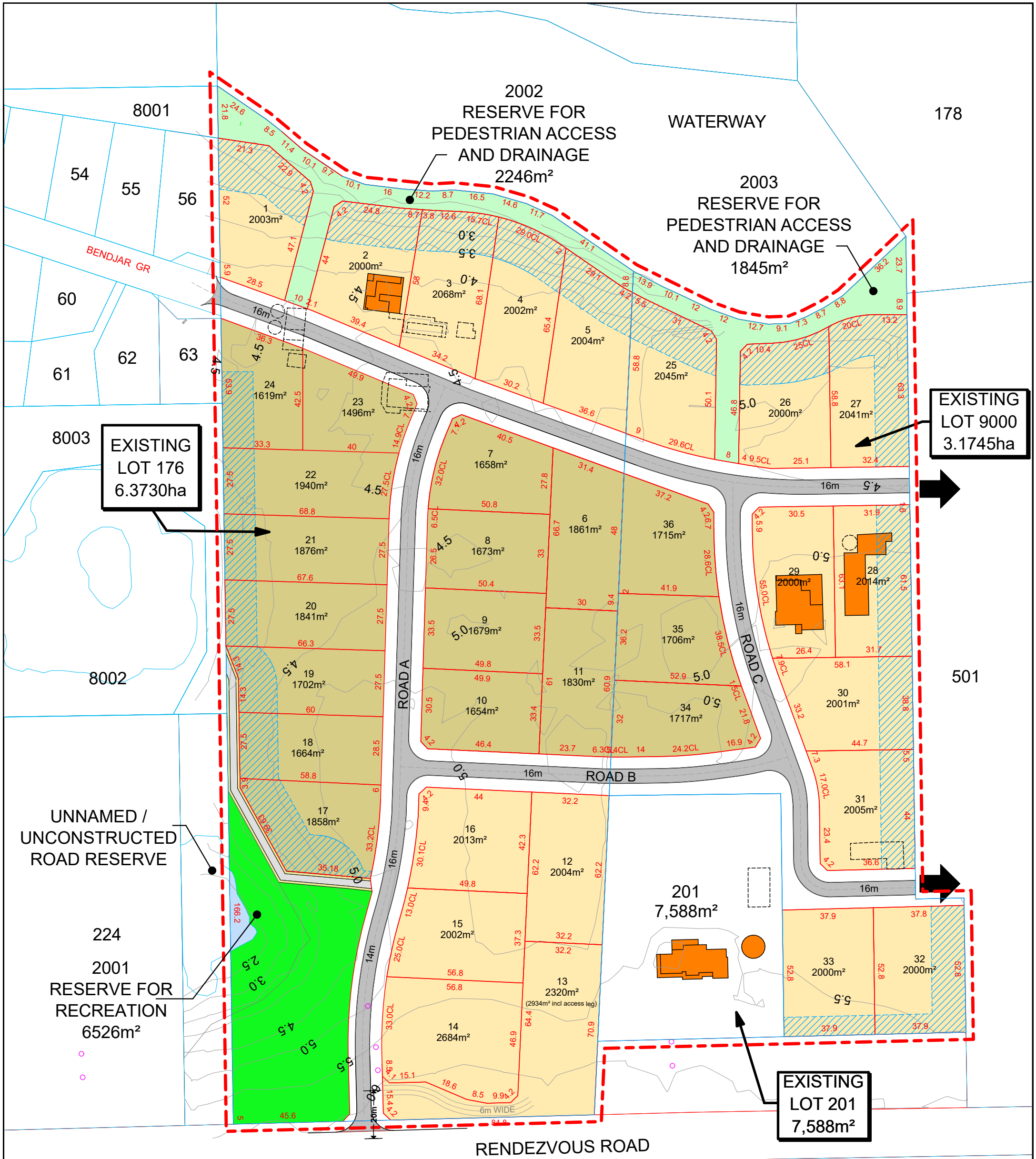
Future buildings within 100 metres of classified vegetation will be constructed to standards which correspond to the determined BAL's, as detailed by AS 3959-2018 Construction of buildings in bushfire prone areas. As this proposal does not identify the actual location of future building works, there may be a requirement by the City to determine the BAL ratings for individual building works once a building site has been identified.

The first stage of the proposed subdivision works (Only Lot 176) of approximately 6 Hectares in size (24 proposed residential lots) has been assessed in Addendum #1 of this Bushfire Management Plan (Subdivision Staging Plan). Assessment of the planned location, vegetation and consideration of planned infrastructure within the first stage indicates that compliance can be achieved against all applicable bushfire related legislation, policy, standards and guidelines, including the Bushfire Protection Criteria (Bushfire Guidelines Version 1.4)

1 PROPOSAL DETAILS AND THE BUSHFIRE MANAGEMENT PLAN

1.1 The Proposed Development/Use Details, Plans and Maps

Proponent	Banyanda Investments Pty. Ltd.
Bushfire Prone Planning Commissioned to Produce the Bushfire Management Plan (BMP) By:	Able Planning & Project Management
For Submission To:	WA Planning Commission (WAPC)
The Proposal's Planning Stage For which certain bushfire planning documents are required to accompany the planning application.	To accompany a Strategic Proposal (Structure Plan)
'Subdivision' Site Area:	Approx. 10 Hectares
No. of Existing lots:	3
No. of Proposed Lots:	37



Project:		Date: 10/02/24		Scale: 1:1500	
LOTS 176, 201 AND 9000 / HOUSES 604, 580 AND 578 RENDEZVOUS ROAD, VASSE		Designed: AB		Checked: AB	
Drawing Title: PLAN OF SUBDIVISION		Drawn: TL		Sheet 1 Of 1	
Principal: BANYANDA DEVELOPMENTS PTY. LTD. AND K. BELL		Local Authority: City of Busselton		Plan/Diagram Number: 63890	
				CT Number: 1635-719	
				65898 2823-895	
				65898 2823-896	
		Revision: DRAFT 4		ORIGINAL: A3	

LEGEND

- SUBJECT LAND
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- RESIDENTIAL R10
- RESIDENTIAL R5
- EXISTING BUILDING / STRUCTURES TO BE RETAINED
- EXISTING BUILDING / STRUCTURES TO BE REMOVED
- HABITABLE BUILDING EXCLUSION AREA
- 3m WIDE PATH WITH 1m COMPACTED GRAVEL/LIMESTONE SHOULDER
- FUTURE ROAD CONNECTION

ABLE PLANNING & PROJECT MANAGEMENT

29 New River Ramble, West Busselton WA 6280
Mobile: 0438 521 419
Email: Aaron@ableplanning.com.au
Web: www.ableplanning.com.au

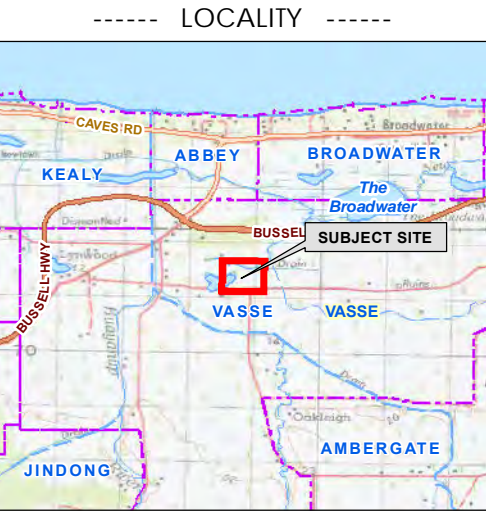
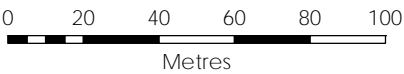
0 1 2 3 4 5 6 7 8 9 10



Figure 1.1
Proposed Subdivision

Lot 176 on Diagram 63890, Area : 63,730 sq m
Lot 201 on Plan 65898, Area : 7,588 sq m
Lot 9000 on Plan 65898, Area : 31,745 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
- Subject Site
 - Other Lots
 - Proposed Subdivision
 - Emergency Access
 - Fire Service Access Route
 - Existing Building
 - Dwelling
 - Shed
 - Water Tank
 - Habitable Building Exclusion Area



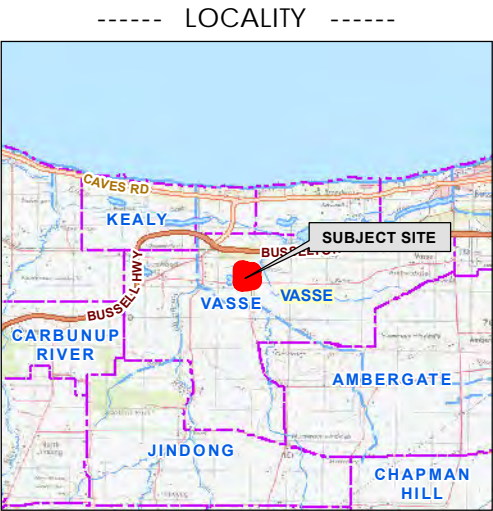
Aerial Imagery : Landgate/SLIP
Image Date : June 2023
Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 22/01/2024
Map updated by: Ian 22/01/2024
A3 Scale 1:2,000



Figure 1.2
Proposed Subdivision Site

Lot 176 on Diagram 63890, Area : 63,730 sq m
Lot 201 on Plan 65898, Area : 7,588 sq m
Lot 9000 on Plan 65898, Area : 31,745 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
- Subject Site
 - Other Lots
 - Proposed Subdivision
 - Habitable Building Exclusion Area
 - Existing Building
 - Dwelling
 - Shed
 - Water Tank



Aerial Imagery : Landgate/SLIP
Image Date : May 2023
Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 22/01/2024
Map dated by: Ian 22/01/2024
A3 Scale 1:5,000

1.2 The Bushfire Management Plan (BMP)

1.2.1 Commissioning and Purpose

Bushfire Prone Planning commissioned to produce the BMP by:	ABLE PLANNING & PROJECT MANAGEMENT
Purpose of the BMP:	<p>To assess the proposal's ability to meet all relevant requirements established by State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7), the associated 'Guidelines and any relevant Position Statements; and</p> <p>To satisfy the requirement for the provision of a Bushfire Management Plan to accompany the subdivision application.</p>
BMP to be submitted to:	WA Planning Commission (WAPC)

1.2.1 Other Documents with Implications for Development of this BMP

This section identifies any known assessments, reports or plans that have been conducted and prepared previously, or are being prepared concurrently, and are relevant to the planned proposal for the subject. They potentially have implications for the assessment of bushfire threats and the identification and implementation of the protection measures that are established by this Bushfire Management Plan.

Table 1.4: Other relevant documents that may influence threat assessments and development of protection measures.

RELEVANT EXISTING DOCUMENTS		
Existing Document	Copy Provided by Client	Title
Site Plan	Yes	DRAFT 6 - LOT 176 RENDEZVOUS ROAD, VASSE
Certificate of title and Easement information	Yes	Superseded CT - Lot 176 & Easements
Environmental Information/ Report	Yes	Figure 3 from 1832_Vasse East LWMS_v2_reduced (Accendo Australia)
Historical Bushfire Risk Assessments (Fire Management Plan - 2020)	Yes	180831 - Lot 176, 201 & 9000, Rendezvous Road, Vasse (BMP)_v1.0
Historical Bushfire Risk Assessments (Fire Management Plan - 2021)	Yes	180831 - Lot 176, 201 & 9000, Rendezvous Road, Vasse (BMP)_v1.1
Historical Bushfire Risk Assessments (Fire Management Plan - 2022)	Yes	180831 - Lot 176, 201 & 9000, Rendezvous Road, Vasse (BMP)_v1.2
Overall Development Plan	Yes	20 EAST VASSE STRUCTURE PLAN (1997)

Shire of Busselton (Strategy Plan)	Yes	Busselton_Urban_Growth_Strategy_Plan (1999)
South West Fire Services - FMP	Yes	Fire Management Plan (2014)
Accendo Australia – Management Plan	Yes	P1543_Wetland Management Plan_V3 (Jan 2017)
Detailed Tree Survey (9-2-21)	Yes	Surveyed Tree Overlay V2 – Lots 176, 201 & 9000/ Houses 604,580 and 578, Rendezvous Road, Vasse
City of Busselton Response to BMP_v1.2	Yes	Attachment N – Schedule of Modifications PROPOSAL: DP19/0004 – Local (Standard) Structure Plan – Lots 176, 201, 9000 Rendezvous Road, Vasse
DFES Response to BMP_v1.2	Yes	DP19 0004 - Lot 176, 201 & 9000 Rendezvous Road Vasse - DFES Response
Structure Plan/ Subdivision (2023) (Able Planning & Project Management)	Yes	STRUCTURE PLAN - LOT LAYOUT SHOWN_V3 (9-12-23)

2 BUSHFIRE PRONE VEGETATION – ENVIRONMENTAL & ASSESSMENT CONSIDERATIONS

2.1 Environmental Considerations – ‘Desktop’ Assessment

This ‘desktop’ assessment must not be considered as a replacement for a full Environmental Impact Assessment. It is a summary of potential environmental values at the subject site, inferred from information contained in listed datasets and/or reports, which are only current to the date of last modification. These data sources must be considered indicative where the subject site has not previously received a site-specific environmental assessment by an appropriate professional.

Many bushfire prone areas also have high biodiversity values. Consideration of environmental priorities within the boundaries of the land being developed can avoid excessive or unnecessary modification or clearing of vegetation. Approval processes (and exemptions) apply at both Commonwealth and State levels. Any ‘modification’ or ‘clearing’ of vegetation to reduce bushfire risk is considered ‘clearing’ under the **Environmental Protection Act 1986** (EP Act) and requires a clearing permit under the **Environmental Protection (Clearing of Native Vegetation) Regulations 2004** (Clearing Regulations) – unless for an exempt purpose.

Clearing native vegetation is an offence, unless done under a clearing permit or the clearing is for an exempt purpose. Exemptions are contained in the EP Act or are prescribed in the Clearing Regulations (note: these do not apply in environmentally sensitive areas).

The **Department of Water and Environmental Regulation** (DWER) is responsible for issuing ‘clearing’ permits and the framework for the regulation of clearing. Approvals under other legislation, from other agencies, may also be required, dependent on the type of flora or fauna present.

Local Planning Policy or Local Biodiversity Strategy: Natural areas that are not protected by the above Act and Regulation (or any other National or State Acts) may be protected by a local planning policy or local biodiversity strategy. Permission from the local government will be required for any modification or removal of native vegetation in these Local Natural Areas (LNA’s). Refer to the relevant local government for detail.

2.2 Identified Requirement for Onsite Vegetation Modification or Removal

IDENTIFICATION OF POTENTIAL NATIVE VEGETATION MODIFICATION OR REMOVAL	
Has a requirement to modify or remove native vegetation to establish the required bushfire protection measures on the subject site been identified?	Yes
<p>Yes (Refer to Figure 3.1.1 – Indicative APZ)</p> <p>Any retained vegetation or proposed revegetation/ landscaping works within the nominated Asset Protection Zone will be managed in accordance with the technical requirements established by the Schedule 1: ‘Standards for Asset Protection Zones (Guidelines)’.</p>	

2.3 Additional Advice from the Proponent (7-2-2024):

- The east / west section of Lot 2002 (Reserve for Pedestrian Access and Drainage) is to be used for a shared path (2.5 m wide pavement) with the remainder to be woodchip mulched and / or covered in crushed limestone (the latter is used to prevent weeds spread from private lots to the current UCL / eventual reserve to the north). The three significant existing trees in this section will be retained. This section has been deemed by the City of Busselton to be classifiable vegetation as management of grasses and weeds cannot be guaranteed (Refer to Figure 3.1.1, Appendix E & F).
- The north / south sections of Lot 2002 will contain rock pitched drainage swales / basins on one side and shared path (2.5 m wide pavement) to the other, with pea gravel spread to the surrounds and base of the swales / basins. These sections are deemed by the City of Busselton to be excluded from classification (low-threat) (Refer to Figure 3.1.1, Appendix E & F)
- Lot 2001 will remain Class A Forest, which provides the ability for some rehabilitation to occur in these areas if required (Refer to Figure 3.1.1).
- The subject land is not in an Environmentally Sensitive Area, nor subject to a Conservation category wetland. It has only Resource Enhancement and Multiple Use wetlands, but these do not prevent development in accordance with a structure plan.

Assessment

The bushfire assessment and management strategies contained in the BMP, assume there are no environmental restrictions over the site or clearing permit exemptions will apply. The key assumption used to facilitate the determining of Bushfire Attack Levels on the Proposed development site is that vegetation onsite is under the control of the landowner and therefore can be removed or modified as required.

Note: any proposed vegetation removal may be subject to local government approval. It is advised that the proponent seek advice from the City for further information on the condition and species contained within the proposed development area and the requirement for referral of the proposal or the requirements for a detailed vegetation management plan for this site.

3 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT

BUSHFIRE ATTACK LEVELS (BAL) - UNDERSTANDING THE RESULTS

The potential transfer (flux/flow) of radiant heat from the bushfire to a receiving object is measured in kW/m². The AS 3959:2018 BAL determination methodology establishes the ranges of radiant heat flux that correspond to each bushfire attack level. These are identified as BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

The bushfire performance requirements for certain classes of buildings are established by the Building Code of Australia (Vol. 1 & 2 of the NCC). The BAL will establish the bushfire resistant construction requirements that are to apply in accordance with AS 3959:2018 - *Construction of buildings in bushfire prone areas* and the NASH Standard – *Steel framed construction in bushfire areas (NS 300 2021)*, whose solutions are deemed to satisfy the NCC bushfire performance requirements.

DETERMINED BAL RATINGS

A BAL Certificate can be issued for a determined BAL. A BAL can only be classed as ‘determined’ for an existing or future building/structure when:

1. It's final design and position on the lot are known and the stated separation distance from classified bushfire prone vegetation exists and can justifiably be expected to remain in perpetuity; or
2. It will always remain subject to the same BAL regardless of its design or position on the lot after accounting for any regulatory or enforceable building setbacks from lot boundaries as relevant and necessary (e.g., R-codes, restrictive covenants, defined building envelopes, habitable building exclusion areas on local development plans) or the retention of any existing classified vegetation either onsite or offsite.

If the BMP derives determined BAL(s), the BAL Certificate(s) required for submission with building applications can be provided, using the BMP as the assessment evidence.

INDICATIVE BAL RATINGS

A BAL Certificate cannot be issued for an indicative BAL. A BAL will be classed as ‘indicative’ for an existing or future building/structure when the required conditions to derive a determined BAL are not met.

This class of BAL rating indicates what BAL(s) could be achieved and the conditions that need to be met are stated.

Converting the indicative BAL into a determined BAL is conditional upon the currently unconfirmed variable(s) being confirmed by a subsequent assessment and evidential documentation. These variables will include the future building(s) location(s) being established (or changed) and/or classified vegetation being modified or removed to establish the necessary vegetation separation distance. This may also be dependent on receiving approval from the relevant authority for that modification/removal.

BAL RATING APPLICATION – PLANNING APPROVAL VERSUS BUILDING APPROVAL

1. **Planning Approval:** SPP.3.7 establishes that where BAL- LOW to BAL-29 will apply to relevant future construction (or existing structures for proposed uses), the proposed development may be considered for approval (dependent on the other requirements of the relevant policy measures being met). That is, BAL40 or BAL-FZ are not acceptable on planning grounds (except for certain limited exceptions).

Because planning is looking forward at what can be achieved, as well as looking at what may currently exist, both determined and indicative BAL ratings are acceptable assessment outcomes on which planning decisions can be made (including conditional approvals).

2. **Building Approval:** The Building Code of Australia (Vol. 1 & 2 of the NCC) establishes that relevant buildings in bushfire prone areas must be constructed to the bushfire resistant requirements corresponding to the BAL rating that is to apply to that building. Consequently, a determined BAL rating and the BAL Certificate is required for a building permit to be issued - an indicative BAL rating is not acceptable.

3.1 Assessment Input

3.1.1 Fire Danger Index (FDI) Applied

AS 3959:2018 Table 2.1 specifies the fire danger index values to apply for different regions.

Table 3.1: Applied FDI Value

FDI VALUE			
Vegetation Areas	As per AS 3959:2018 Table 2.1	As per DFES for the Location	Value Applied
1-11	80	N/A	80

3.1.2 Vegetation Classification and Effective Slope

Classification: Bushfire prone vegetation identification and classification has been conducted in accordance with AS 3959:2018 s2.2.3 and the Visual Guide for Bushfire Risk Assessment in WA (DoP February 2016). When more than one vegetation type is present, each type is identified separately, and the applied classification considers the potential bushfire intensity and behaviour from the vegetation types present and ensures the worst-case scenario is accounted for – this may not be from the predominant vegetation type. The vegetation structure has been assessed as it will be in its mature state.

Effective Slope: Refers to the ground slope under each area of classified vegetation and is described in the direction relative to the view from the building or proposed development site. Effective slope is not the same as 'average slope', rather it is the slope which most significantly influences fire behaviour. This slope has a direct and significant influence on a bushfire's rate of spread and intensity.





Table 3.1.2: Vegetation classification and effective slope (Pre-Development)



ALL VEGETATION WITHIN 150 METRES OF THE PROPOSED DEVELOPMENT				
Vegetation Area	Identified Vegetation Types ¹ or Description if 'Excluded'	Applied Vegetation Classification ¹	Effective Slope (degrees) ² (AS 3959:2018 Method 1)	
			Assessed	Applied Range
1	Open forest A-03	Class A Forest	0	upslope or flat
2	Woodland B-05	Class B Woodland	0	upslope or flat
3	Sown pasture G-26	Class G Grassland	0	upslope or flat
4	Woodland B-05	Class B Woodland	0	upslope or flat
5	Open forest A-03	Class A Forest	0	upslope or flat
6	Open forest A-03	Class A Forest	0	upslope or flat
7	Open forest A-03	Class A Forest	0	upslope or flat
8	Open scrub D-14	Class D Scrub	0	upslope or flat
9	Sown pasture G-26	Class G Grassland	0	upslope or flat
10	Excluded – Managed Vegetation	Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation	-	-

Table 3.1.3: Vegetation classification and effective slope (Post - Development)

ALL VEGETATION WITHIN 150 METRES OF THE PROPOSED DEVELOPMENT				
Vegetation Area	Identified Vegetation Types ¹ or Description if 'Excluded'	Applied Vegetation Classification ¹	Effective Slope (degrees) ² (AS 3959:2018 Method 1)	
			Assessed	Applied Range
1	Excluded – Managed Vegetation	Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation	-	-
2	Excluded – Managed Vegetation	Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation	-	-
3	Excluded – Managed Vegetation	Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation	-	-
4	Woodland B-05	Class B Woodland	0	upslope or flat
5	Open forest A-03	Class A Forest	0	upslope or flat
6	Open forest A-03	Class A Forest	0	upslope or flat
7	Open forest A-03	Class A Forest	0	upslope or flat
8	Open scrub D-14	Class D Scrub	0	upslope or flat
9	Sown pasture G-26	Class G Grassland	0	upslope or flat
10	Excluded – Managed Vegetation	Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation	-	-
*11	Woodland B-05	Class B Woodland	0	downslope >0-5

***Note** – The formation of Area 11 is a result of the east / west section of Proposed Lot 2002 (Reserve for Pedestrian Access and Drainage) being used for a shared path (2.5 m wide pavement) with the remainder to be woodchip mulched and / or covered in crushed limestone (the latter is used to prevent weeds spread from private lots to the current UCL / eventual reserve to the north). The three significant existing trees in this section will be retained. This section has been deemed by the City of Busselton to be classifiable vegetation as management of grasses and weeds cannot be guaranteed (Based on Advice from the Proponent 31-3-2022). Refer to Figure 3.1.1, Appendix E & F for justification on the Class B Woodland Classification.

VEGETATION AREA 11 – Post Development Vegetation Classification	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	<p>The east / west section of Proposed Lot 2002 (8-metre-wide strip “Reserve for Pedestrian Access and Drainage”) is to be used for a shared path (2.5 m wide pavement) with the remainder to be woodchip mulched and / or covered in crushed limestone (the latter is used to prevent weeds spread from private lots to the current UCL / eventual reserve to the north). The three significant existing trees in this section will be retained. This section has been deemed by the City of Busselton to be classifiable vegetation as management of grasses and weeds cannot be guaranteed.</p> <p>The precautionary principle has been applied and the most appropriate vegetation classification for this area (Post Development) was deemed to be Class B Woodland, as this narrow strip of vegetation will have limited overstory and a significantly modified understory. Refer to Figure 3.1.1, Appendix E & F for justification on the Class B Woodland Classification.</p>
	
Photo ID: 11a	Photo ID: 11b
	
Photo ID: 11c	Photo ID: 11d

VEGETATION AREA 11 – Post Development Vegetation Classification	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	<p>The east / west section of Proposed Lot 2002 (8-metre-wide strip “Reserve for Pedestrian Access and Drainage”) is to be used for a shared path (2.5 m wide pavement) with the remainder to be woodchip mulched and / or covered in crushed limestone (the latter is used to prevent weeds spread from private lots to the current UCL / eventual reserve to the north). The three significant existing trees in this section will be retained. This section has been deemed by the City of Busselton to be classifiable vegetation as management of grasses and weeds cannot be guaranteed.</p> <p>The precautionary principle has been applied and the most appropriate vegetation classification for this area (Post Development) was deemed to be Class B Woodland, as this narrow strip of vegetation will have limited overstory and a significantly modified understory. Refer to Figure 3.1.1, Appendix E & F for justification on the Class B Woodland Classification.</p>
	
Photo ID: 11e	Photo ID: 11f
	
Photo ID: 11g	Photo ID: 11h

3.2 BAL Assessment Summary (Contour Map Format)

INTERPRETATION OF THE BAL CONTOUR MAP

The BAL contour map is a diagrammatic representation of the results of the bushfire attack level assessment.

The map presents different coloured contours extending out from the areas of classified vegetation. Each contour represents a set range of radiant heat flux that potentially will transfer to an exposed element (building, person or other defined element), when it is located within that contour.

Each of the set ranges of radiant heat flux corresponds to a different BAL rating as defined by the AS 3959:2018 BAL determination methodology.

The width of each shaded BAL contour will vary dependant on both the BAL rating and the relevant parameters (calculation inputs) for the subject site. Their width represents the minimum and maximum vegetation separation distances that correspond to each BAL rating (refer to the relevant table below for these distances).

The areas of classified vegetation to be considered in developing the BAL contours, are those that will remain at the intended end state of the subject development once earthworks, clearing and/or landscaping and re-vegetation have been completed. Variations to this statement that may apply include:

- Both pre and post development BAL contour maps are produced; and/or
- Each stage of a development is assessed independently.

3.2.1 BAL Determination Methodology and Location of Data and Results

LOCATION OF DATA & RESULTS					
BAL Determination Methodology		Location of the Site Assessment Data			Location of the Results
AS 3959:2018	Applied to Assessment	Classified Vegetation and Topography Map(s)	Calculation Input Variables		Assessed Bushfire Attack Levels and/or Radiant Heat Levels
			Summary Data	Detailed Data with Explanatory and Supporting Information	
Method 1 (Simplified)	Yes	Figure 3.1	Table 3.1	Appendix A1	Table 3.2.2 & Figure 3.2 (BAL Contour Map)

3.3 Assessment Output

3.3.1 Bushfire Attack Level Results - BAL Contour Map Format

INTERPRETATION OF THE BUSHFIRE ATTACK LEVEL (BAL) CONTOUR MAP

The contour map will present different coloured contour intervals extending from the areas of classified bushfire prone vegetation. These represent the different bushfire attack levels that will exist at varying distances away from the classified vegetation in the event of a bushfire in that vegetation. The areas of classified vegetation to be considered in developing the BAL contours, are those that will remain as the intended end state of the subject development once earthworks, clearing and/or landscaping and re-vegetation have been completed (or each stage completed). That range is defined by the AS 3959:2018 BAL determination methodology.

VEGETATION AREAS APPLIED TO THE DEVELOPMENT OF THE BAL CONTOUR MAP

All identified areas of classified vegetation have been applied with the following exceptions:

1. The BAL contours are constructed based on the Figure 3.1.1: Vegetation classification and effective slope. (Post - development)
2. For Figure 3.2, all classified vegetation within the proposed subdivision site is excluded and the BAL contours are constructed into the lot from any classified vegetation outside the boundaries; and

This approach is applied to indicate the achievable bushfire attack levels within the specified lot and the resultant area of developable land (i.e. subject to BAL-29 or less). It is based on the following assumptions:

1. Any classified vegetation within each lot can potentially be managed by the landowner to meet asset protection zone standards and dimensions corresponding to an indicated BAL; and
2. Each lot must be considered independent of what development may or may not take place on the adjoining lot.

VEGETATION SEPARATION DISTANCES APPLIED

Table 3.1: Vegetation separation distances applied to construct the BAL contours.

BAL CONTOUR MAP – APPLIED VEGETATION SEPARATION DISTANCES								
Derived from the Application of Method 1 BAL Determination Methodology (AS 3959:2018 Section 2, Table 2.5) ¹								
Vegetation Area	Vegetation Classification	Effective Slope (degree range)	BAL and Corresponding Separation Distance (m)					
			BAL-FZ	BAL-40	BAL-29	BAL-19	BAL12.5	BAL-LOW
4	Class B Woodland	upslope or flat	<10	10-<14	14-<20	20-<29	29-<100	>100
5	Class A Forest	upslope or flat	<16	16-<21	21-<31	31-<42	42-<100	>100
6	Class A Forest	upslope or flat	<16	16-<21	21-<31	31-<42	42-<100	>100
7	Class A Forest	upslope or flat	<16	16-<21	21-<31	31-<42	42-<100	>100
8	Class D Scrub	upslope or flat	<10	10-<13	13-<19	19-<27	27-<100	>100
9	Class G Grassland	upslope or flat	<6	6-<8	8-<12	12-<17	17-<50	>50
11	Class B Woodland	downslope >0-5	<13	13-<17	17-<25	25-<35	35-<100	>100

Advice from the Proponent (7-2-2024):

* A 'habitable building exclusion area' has been applied to Lots 1-5, 13-15, 17-22, 24, 25-28 and 30-33 based on the following setback parameters: Any portion of the lot/s impacted by BAL-FZ or BAL-40 is a setback where it is greater than the R-Code setbacks listed below.

In all other cases apply R5 setbacks being-

- 12 m from the primary street;
- 6 m from the secondary street;
- 6 m from the rear

3.3.2 Bushfire Attack Level Results - Derived from The BAL Contour Map

Table 3.2.2: Indicative BAL(s) for future building works on proposed lots.

BUSHFIRE ATTACK LEVEL FOR FUTURE BUILDING WORKS ON PROPOSED LOTS			
BAL Determination Methodology Applied		Method 1 as per AS 3959:2018 s2.2.6 and Table 2.5.	
Lot No.	Indicative BAL	Lot No.	Indicative BAL
1	BAL – FZ (Indicative *BAL-29)	20	BAL – FZ (Indicative *BAL-29)
2	BAL – FZ (Indicative *BAL-29)	21	BAL – FZ (Indicative *BAL-29)
3	BAL – FZ (Indicative *BAL-29)	22	BAL – FZ (Indicative *BAL-29)
4	BAL – FZ (Indicative *BAL-29)	23	BAL - 12.5
5	BAL – FZ (Indicative *BAL-29)	24	BAL – FZ (Indicative *BAL-29)
6	BAL - 12.5	25	BAL – FZ (Indicative *BAL-29)
7	BAL - 12.5	26	BAL – FZ (Indicative *BAL-29)
8	BAL - 12.5	27	BAL – FZ (Indicative *BAL-29)
9	BAL - 12.5	28	BAL – FZ (Indicative *BAL-29)
10	BAL - 12.5	29	BAL - 12.5
11	BAL - 12.5	30	BAL – FZ (Indicative *BAL-29)
12	BAL - 12.5	31	BAL – FZ (Indicative *BAL-29)
13	BAL – FZ (Indicative *BAL-29)	32	BAL – FZ (Indicative *BAL-29)
14	BAL – FZ (Indicative *BAL-29)	33	BAL – FZ (Indicative *BAL-29)
15	BAL-29	34	BAL - 12.5
16	BAL - 19	35	BAL - 12.5
17	BAL – FZ (Indicative *BAL-29)	36	BAL - 12.5
18	BAL – FZ (Indicative *BAL-29)	201	BAL – FZ (Indicative *BAL-29)
19	BAL – FZ (Indicative *BAL-29)		

* A 'habitable building exclusion area' has been applied to these Lots.



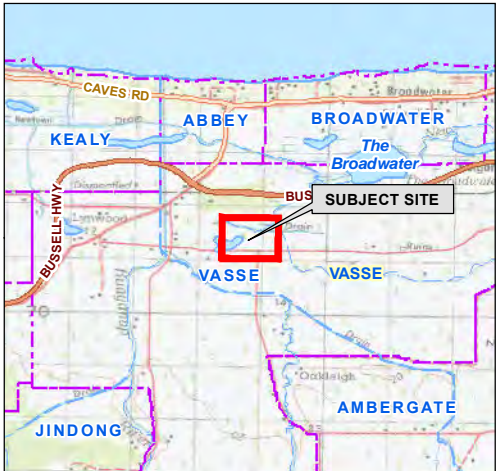
Figure 3.1
Topography & Classified
Vegetation (Pre Development)

Lot 176 on Diagram 63890, Area : 63,730 sq m
Lot 201 on Plan 65898, Area : 7,588 sq m
Lot 9000 on Plan 65898, Area : 31,745 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
- Subject Site
 - Other Lots
 - Photo & Direction
 - Proposed Subdivision
 - Emergency Access
 - Fire Service Access Route
 - Existing Building
 - Dwelling
 - Shed
 - Water Tank
 - 150m Vegetation Assessment Area
 - 150m from Subject Site
 - 100m Vegetation Assessment Area
 - 100m from Subject Site
 - Classified Vegetation
 - Class (A) Forest
 - Class (B) Woodland
 - Class (D) Scrub
 - Class (G) Grassland
 - Exclusion 2.2.3.2

0 20 40 60 80 100
Metres

----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : Oct 2020

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 5/02/2024
Map updated by: Ian 5/02/2024
A3 Scale 1:2,750



Figure 3.1.1
Topography & Classified
Vegetation (Post Development)

Lot 176 on Diagram 63890, Area : 63,730 sq m
 Lot 201 on Plan 65898, Area : 7,588 sq m
 Lot 9000 on Plan 65898, Area : 31,745 sq m
 Rendezvous Road,
 VASSE 6280

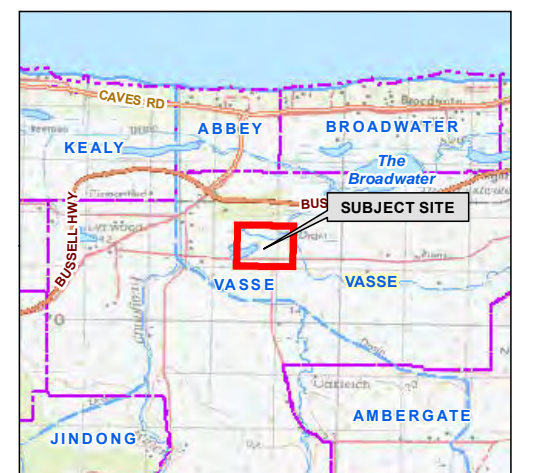
CITY OF BUSSELTON

----- LEGEND -----

- Subject Site
- Other Lots
- Photo & Direction
- Proposed Subdivision
- Asset Protection**
- Indicative APZ
- Existing Building**
- Dwelling
- Shed
- Water Tank
- 5m Wide Path
- Habitable Building Exclusion Area
- 150m Vegetation Assessment Area**
- 150m from Subject Site
- 100m Vegetation Assessment Area**
- 100m from Subject Site
- Classified Vegetation**
- Class (A) Forest
- Class (B) Woodland
- Class (D) Scrub
- Class (G) Grassland
- Exclusion 2.2.3.2

0 20 40 60 80 100
 Metres

----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : Oct 2020

Coordinate System: GDA 1994 MGA Zone 50
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 Map compiled by: Ian Ross 12/02/2024
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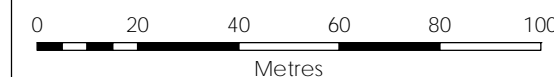
Figure 3.1.2
Topography & Classified
Vegetation (Post Development)

Lot 176 on Diagram 63890, Area : 63,730 sq m
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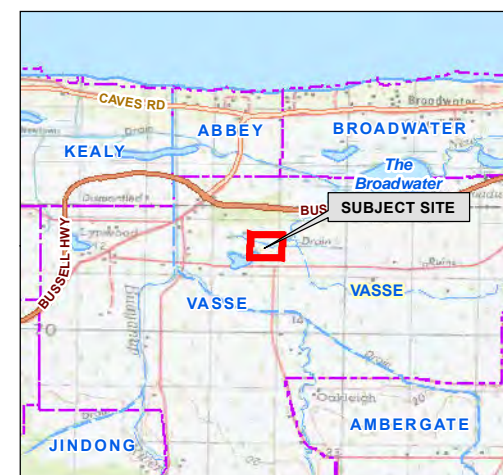
CITY OF BUSSELTON

----- LEGEND -----

- Subject Site
- Other Lots
- Photo & Direction
- Proposed Subdivision
- Asset Protection
 - Indicative APZ
- Existing Building
 - Dwelling
 - Shed
 - Water Tank
 - 5m Wide Path
 - Habitable Building Exclusion Area
- 150m Vegetation Assessment Area
 - 150m from Subject Site
- 100m Vegetation Assessment Area
 - 100m from Subject Site
- Classified Vegetation
 - Class (A) Forest
 - Class (B) Woodland
 - Class (D) Scrub
 - Class (G) Grassland
 - Exclusion 2.2.3.2



----- LOCALITY -----

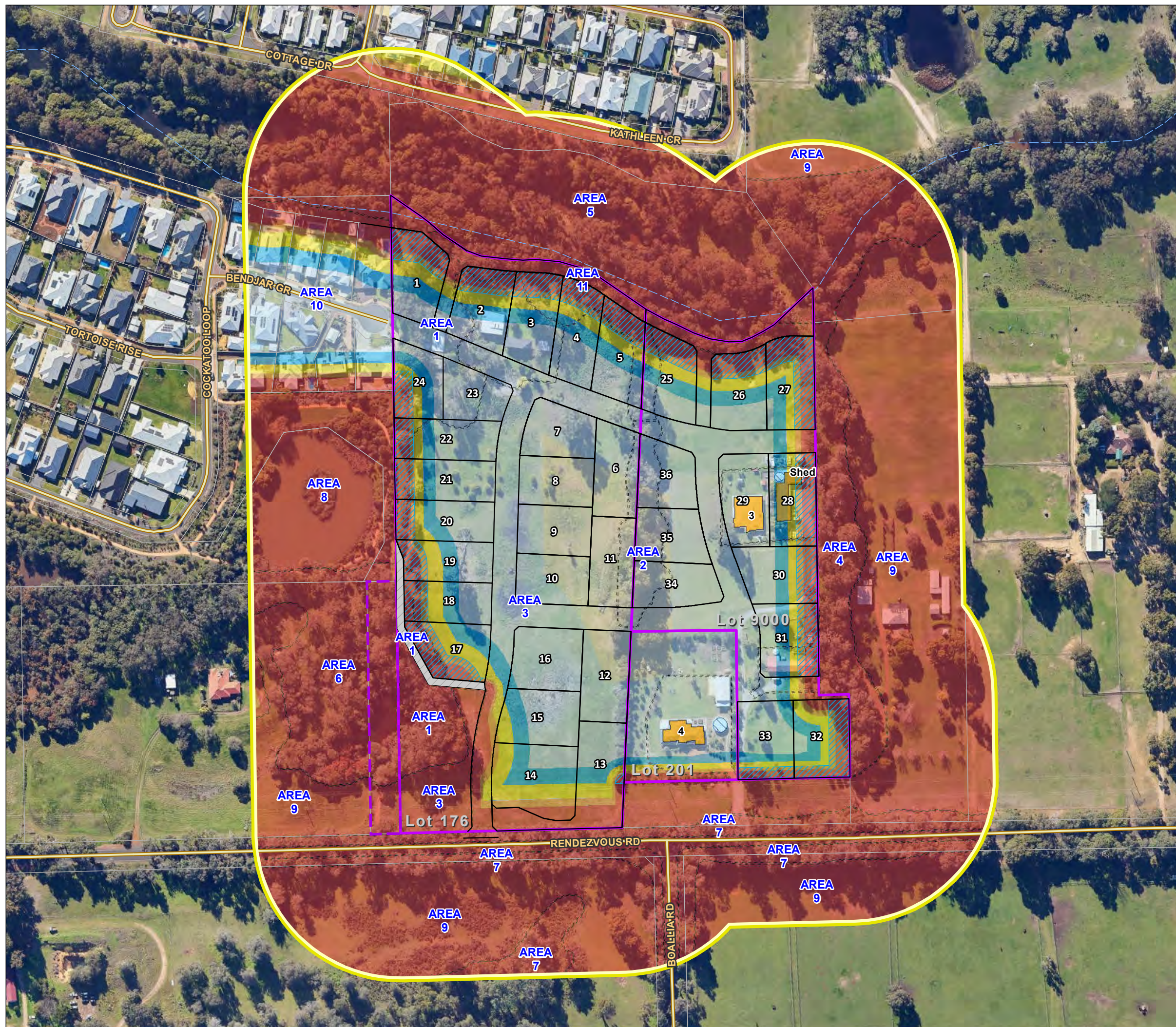


Aerial Imagery : Landgate/SLIP
Image Date : May 2023

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 5/02/2024
Map dated by: Ian 5/02/2024
A3 Scale 1:1,500

Figure 3.2
BAL Contour Map

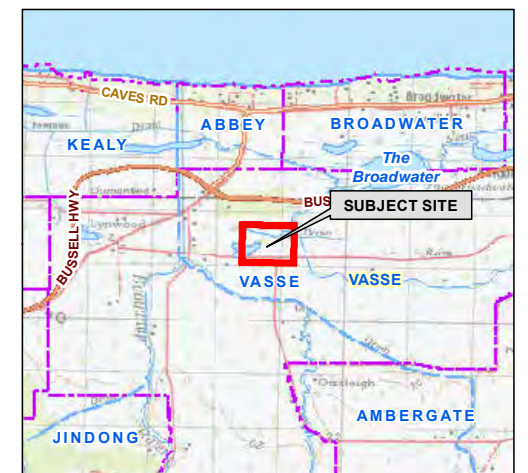
Lot 176 on Diagram 63890, Area : 63,730 sq m
 Lot 201 on Plan 65898, Area : 7,588 sq m
 Lot 9000 on Plan 65898, Area : 31,745 sq m
 Rendezvous Road,
 VASSE 6280
 CITY OF BUSSELTON



- LEGEND -----
- Subject Site
 - Other Lots
 - Proposed Subdivision
- Existing Building
- Dwelling
 - Shed
 - Water Tank
 - 5m Wide Path
 - Habitable Building Exclusion Area
- 100m Vegetation Assessment Area
- 100m from Subject Site
- Indicative Bushfire Attack Levels
- BAL FZ
 - BAL 40
 - BAL 29
 - BAL 19
 - BAL 12.5
 - BAL LOW

0 20 40 60 80 100
Metres

----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
 Image Date : May 2023

Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map compiled by: Ian Ross 8/02/2024
 Map updated by: Ian Ross 8/02/2024
 A3 Scale 1:2,500

4 IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

The Guidelines for Planning in Bushfire Prone Areas (WAPC 2021 v1.4), Appendix 5, establish that the application of this section of the BMP is intended to support **strategic planning** proposals. At the strategic planning stage there will typically be insufficient proposed development detail to enable all required assessments, including the assessment against the bushfire protection criteria.

Strategic Planning Proposals

For strategic planning proposals this section of the BMP will identify:

- Issues associated with the level of the threats presented by any identified bushfire hazard;
- Issues associated with the ability to implement sufficient and effective bushfire protection measures to reduce the exposure and vulnerability levels (of elements exposed to the hazard threats), to a tolerable or acceptable level; and
- Issues that will need to be considered at subsequent planning stages.

All Other Planning Proposals

For all other planning stages, this BMP will address what are effectively the same relevant issues but do it within the following sections:

- Section 2 – Bushfire Prone Vegetation - Environmental and Assessment Considerations: Assess environmental, biodiversity and conservation values;
- Section 3 – Potential Bushfire Impact: Assess the bushfire threats with the focus on flame contact and radiant heat; and
- Section 5 – Assessment Against the Bushfire Protection Criteria (including the guidance provided by the *Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2'*): Assess the ability of the proposed development to apply the required bushfire protection measures thereby enabling it to be considered for planning approval for these factors.

Is the proposed development a strategic planning proposal?	Yes
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In response to the Bushfire Management Plan requirements established by Appendix 5 of the Guidelines for Planning in Bushfire Prone Areas (WAPC v1.4), the following statements are made to assist in the understanding of whether the proposal is likely to be able to comply with the bushfire protection criteria now or in subsequent planning stages.

Table 4.1: Identification of Bushfire Hazard Issues

Spatial Context - Broader Landscape Considerations	
Wider road network and access constraints	The surrounding area has an extensive public road network associated with the residential zoning and corresponding lot sizes. The proposed subdivision will improve vehicle access/egress options for existing landowners to the west of proposed subdivision site by providing through access onto Rendezvous Road from Bendjar Grove.
Proximity of settlements and emergency services	The Busselton town centre is <6 km from site. Emergency services are in the Busselton townsite.
Bushfire prone vegetation types and extent	There are significant extents of bushfire prone vegetation (predominantly Grassland and vegetation associated with the water courses) across the broader landscape.
Topography and fire behaviour interactions.	The topography of the area is predominately flat, with limited areas of slope adjacent to the wetland area.
Bushfire Hazard Issues	
Onsite Vegetation	<p>The key assumption used to facilitate the determining of Bushfire Attack Levels on the Proposed development site is that vegetation onsite is under the control of the landowner and therefore can be removed or modified as required.</p> <p><i>(Note: any proposed vegetation removal may be subject to local government approval, dependent on the lot's specific situation with respect to identified environmental protection areas and the lot size).</i></p>
Offsite Vegetation	Vegetation offsite is not within the control of the landowner and therefore the vegetation cannot be removed or modified. As a result, the BAL impact from these vegetation areas is unable to be reduced.

5 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (GUIDELINES V1.4)

5.1 Bushfire Protection Criteria Elements Applicable to the Proposed Development/Use

APPLICATION OF THE CRITERIA, ACCEPTABLE SOLUTIONS AND PERFORMANCE ASSESSMENT

The criteria are divided into five elements – location, siting and design, vehicular access, water and vulnerable tourism land uses. Each element has an intent outlining the desired outcome for the element and reflects identified planning and policy requirements in respect of each issue.

The example acceptable solutions (bushfire protection measures) provide one way of meeting the element's intent. Compliance with these automatically achieves the element's intent and provides a straightforward pathway for assessment and approval.

Where the acceptable solutions cannot be met, the ability to develop design responses (as alternative solutions that meet bushfire performance requirements) is an alternative pathway that is provided by addressing the applicable performance principles (as general statements of how best to achieve the intent of the element).

A merit based assessment is established by the SPP 3.7 and the Guidelines as an additional alternative pathway along with the ability of using discretion in making approval decisions (sections 2.5, 2.6 and 2.7). This is formally applied to certain development (minor and unavoidable – sections 5.4.1 and 5.7). Relevant decisions by the State Administrative Tribunal have also supported this approach more generally.

Elements 1 – 4 should be applied for all strategic planning proposals, subdivision or development applications, except for vulnerable tourism land uses which should refer to Element 5. Element 5 incorporates the bushfire protection criteria in Elements 1 – 4 but caters them specifically to tourism land uses. (Guidelines DPLH 2021v1.4)

The Bushfire Protection Criteria	Applicable to the Proposed Development/Use
Element 1: Location	Yes
Element 2: Siting and Design	Yes
Element 3: Vehicular Access	Yes
Element 4: Water	Yes

5.2 Local Government Variations to Apply

Local governments may add to or modify the acceptable solutions to recognise special local or regional circumstances (e.g., topography / vegetation / climate). These are to be endorsed by both the WAPC and DFES before they can be considered in planning assessments. (Guidelines DPLH 2021v1.4).

Do endorsed regional or local variations to the acceptable solutions apply to the assessments against the Bushfire Protection Criteria for the proposed development /use?	Yes
Local Planning Policies	Applicable to the Proposed Development/Use
Local Planning Policy No.4.2 (BUSHFIRE)	Yes

5.3 Assessment Statements for Element 1: Location

LOCATION			
Element Intent	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
Acceptable Solutions - Assessment Statements All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas .			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A1.1 Development location	Applicable:	Yes	Compliant: Yes
ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES			
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The subdivision application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.			
Supporting Assessment Details: The proposed subdivision will provide an area of land within each lot that can be considered suitable for development as BAL-40 or BAL-FZ construction requirements will not be required to be applied. This meets the requirements established by Acceptable Solution A1.1 and its associated explanatory note.			
<u>Advice from the Proponent (7-2-2024):</u> * A 'habitable building exclusion area' has been applied to Lots 1-5, 13-15, 17-22, 24, 25-28 and 30-33 based on the following setback parameters: Any portion of the lot/s impacted by BAL-FZ or BAL-40 is a setback where it is greater than the R-Code setbacks listed below. In all other cases apply R5 setbacks being- <ul style="list-style-type: none"> - 12 m from the primary street; - 6 m from the secondary street; - 6 m from the rear 			

ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019)

“Consideration should be given to the site context where ‘area’ is the land both within and adjoining the subject site. The hazards remaining within the site should not be considered in isolation of the hazards adjoining the site, as the potential impact of a bushfire will be dependent on the wider risk context, including how a bushfire could affect the site and the conditions for a bushfire to occur within the site.”

Strategic Planning Proposals: Consider the threat levels from any vegetation adjoining and within the subject site for which the potential intensity of a bushfire in that vegetation would result in it being classified as an Extreme Bushfire Hazard Level (BHL). Identify any proposed design strategies to reduce these threats.

Structure Plans (lot layout known) and Subdivision Applications: As for strategic planning proposals but within the subject site the relevant threat levels to consider are the radiant heat levels represented by BAL-FZ and BAL-40 ratings.

The Hazard Within the Subject Site

The key assumption used to facilitate the determining of Bushfire Attack Levels on the Proposed development site is that vegetation onsite (Figure 3.1.1 – Indicative Asset Protection Zone) is under the control of the landowner and therefore can be removed or modified to present a low bushfire threat.

Retained vegetation will be managed in accordance with the technical requirements established by the Schedule 1: ‘Standards for Asset Protection Zones (Guidelines)’. The primary bushfire threat from bushfire prone vegetation remaining within the proposed lots will be embers. This threat will be mitigated by the application of appropriate building design, bushfire construction standards and the ongoing maintenance of the APZ.

The Hazard Adjoining the Subject Site

Bushfire prone vegetation within this locality exists as native vegetation classified as Class A Forest, Class B Woodland, and Class G Grassland. Most of the land within the locality supports this vegetation except for the asset protection zones surrounding existing dwellings (neighbouring properties).

The likely potential bushfire impact on persons and property within the proposed lots will be ember attack in the event of a bushfire. This ember threat will be mitigated by the application of appropriate building design, bushfire construction standards and the ongoing maintenance of the minimum BAL-29 dimensioned APZ.

5.4 Assessment Statements for Element 2: Siting and Design

SITING AND DESIGN OF DEVELOPMENT			
Element Intent	To ensure that the siting and design of development minimises the level of bushfire impact. (BPP Note: not building/construction design)		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
Acceptable Solutions - Assessment Statements All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas .			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A2.1 Asset Protection Zone (APZ)	Applicable:	Yes	Compliant: Yes
APZ DIMENSIONS – DIFFERENCES IN REQUIREMENTS FOR PLANNING ASSESSMENTS COMPARED TO IMPLEMENTATION A key required bushfire protection measure is to reduce the exposure of buildings/infrastructure (as exposed vulnerable elements at risk), to the direct bushfire threats of flame contact, radiant heat and embers and the indirect threat of consequential fires that result from the subsequent ignition of other combustible materials that may be constructed, stored or accumulate in the area surrounding these structures. This reduces the associated risks of damage or loss. This is achieved by separating buildings (and consequential fire fuels as necessary) from areas of classified bushfire prone vegetation. This area of separation surrounding buildings is identified as the Asset Protection Zone (APZ) and consists of no vegetation and/or low threat vegetation or vegetation continually managed to a minimal fuel condition. The required separation distances will vary according to the site specific conditions and local government requirements. The APZ dimensions stated and/or illustrated in this Report can vary dependent on the purpose for which they are being identified. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><i>Note: Appendix B 'Onsite Vegetation Management' provides further information regarding the different APZ dimensions that can be referenced, their purpose and the specifications of the APZ that are to be established and maintained on the subject lot.</i></p> </div>			
THE 'PLANNING BAL-29' APZ DIMENSIONS Purpose: To provide evidence of the development or use proposal's ability to achieve minimum vegetation separation distances. To achieve 'acceptable solution' planning approval for this factor, it must be demonstrated that the minimum separation distances corresponding to a maximum level of radiant transfer to a building of 29 kW/m ² , either exist or can be implemented (with certain exceptions). These separation distances are the 'Planning BAL-29' APZ dimensions. <i>The 'Planning BAL-29' APZ is not necessarily the size of the APZ that must be physically implemented and maintained by a landowner. Rather, its sole purpose is to identify if an acceptable solution for planning approval can be met.</i>			

THE 'REQUIRED' APZ DIMENSIONS

Purpose: Establishes the dimensions of the APZ to be physically implemented by the landowner on their lot: These will be the minimum required separation distances from the subject building(s) to surrounding bushfire prone vegetation (identified by type and associated ground slope). These are established by:

- A. The 'BAL Rating APZ' of the subject building(s) when distances are greater than 'B' below (except when 'B' establishes a maximum distance); or
- B. The 'Local Government' APZ' derived from the Firebreak/Hazard Reduction Notice when distances are greater than 'A' above, other than when a maximum distance is established, in which case this will apply; or
- C. A combination of 'A' and 'B'.

Within this Report/Plan it is the 'Planning BAL-29' APZ that will be identified on maps, diagrams and in tables as necessary – unless otherwise stated.

The 'Required' APZ dimension information will be presented in Appendix B1.1 and on the Property Bushfire Management Statement, when required to be included for a development application.

ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES

☒ ☐ ☐ **APZ Width:** The proposed (or a future) habitable building(s) on the lot(s) of the proposed development - or an existing building for a proposed change of use - can be (or is) located within the developable portion of the lot and be surrounded by a 'Planning BAL-29' APZ of the required dimensions (measured from any external wall or supporting post or column to the edge of the classified vegetation), that will ensure their exposure to the potential radiant heat impact of a bushfire does not exceed 29 kW/m².

☒ ☐ ☐ **Restriction on Building Location:** It has been identified that the current developable portion of a lot(s) provides for the proposed future (or a future) building/structure location that will result in that building/structure being subject to a BA-40 or BAL-FZ rating. Consequently, a condition of subdivision approval should be imposed requiring preparation of a local development plan to identify habitable building exclusion areas (refer to code L3 of Model Subdivision Conditions Schedule, WAPC January 2024)

☐ ☐ ☒ **APZ Location:** The required dimensions for a 'Planning BAL-29' APZ can be contained solely within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use - is situated.

☒ ☐ ☐ **APZ Location:** The required dimensions for a 'Planning BAL-29' APZ can be partly established within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use - is situated. The balance of the APZ would exist on adjoining land that satisfies the exclusion requirements of AS 3959:2018 cl 2.2.3.2 for non-vegetated areas and/or low threat vegetation and/or vegetation managed in a minimal fuel condition.

☒ ☐ ☐ **APZ Location:** It can be justified that any adjoining (offsite) land forming part of a 'Planning BAL-29' APZ will:

- If non-vegetated, remain in this condition in perpetuity; and/or
- If vegetated, be low threat vegetation or vegetation managed in a minimal fuel condition in perpetuity.

☒ ☐ ☐ **APZ Management:** The area of land (within each lot boundary), that is to make up the required 'Landowner' APZ dimensions (refer to Appendix B, Part B1), can and will be managed in accordance with the requirements of the Guidelines Schedule 1 'Standards for Asset Protection Zones' (refer to Appendix B).

☒ ☐ ☐ **Subdivision Staging:** There are undeveloped future stages of subdivision, containing bushfire prone vegetation, that have been taken into consideration for their potentially 'temporary' impact on the ability to establish a 'Planning BAL-29' APZ on adjoining developed lots. A staging plan is developed to manage this.

ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019)

Strategic Planning Proposals: "At this planning level there may not be enough detail to demonstrate compliance with this element. The decision-maker may consider this element is satisfied where A1.1 is met."

Structure Plans (lot layout known) and Subdivision Applications: "Provided that Element 1 is satisfied, the decision-maker may consider approving lot(s) containing BAL-40 or BAL-FZ.

The lots sizes provide sufficient area to accommodate a building and the establishment of an APZ dimensioned to ensure a maximum BAL rating of BAL-29 will apply to that building.

Advice from the Proponent (7-2-2024):

* A 'habitable building exclusion area' has been applied to Lots 1-5, 13-15, 17-22, 24, 25-28 and 30-33 based on the following setback parameters: Any portion of the lot/s impacted by BAL-FZ or BAL-40 is a setback where it is greater than the R-Code setbacks listed below.

In all other cases apply R5 setbacks being-

- 12 m from the primary street;
- 6 m from the secondary street;
- 6 m from the rear

Subdivision Staging: There are undeveloped future stages of subdivision, containing bushfire prone vegetation, that have been taken into consideration for their potentially 'temporary' impact on the ability to establish a 'Planning BAL-29' APZ on adjoining developed lots. A staging plan has been developed to manage this (Refer to Addendum #1 – Subdivision Staging Plan)

5.5 Assessment Statements for Element 3: Vehicular Access

VEHICULAR ACCESS			
Element Intent	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
<p align="center">Acceptable Solutions - Assessment Statements</p> <p><i>All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.</i></p> <p><i>The technical construction requirements for access types and components, and for each firefighting water supply component, are also presented in Appendices 2 and 3. The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply (these are included in the relevant appendix if requested by the local government).</i></p>			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A3.1 Public roads	Applicable:	Yes	Compliant: Yes
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The technical construction requirements of vertical clearance and weight capacity (Guidelines, Table 6) can and will be complied with (Refer also to Appendix C in this BMP).</p>			
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A traversable verge is available adjacent to classified vegetation (Guidelines, E3.1), as recommended.</p>			
A3.2a Multiple access routes	Applicable:	Yes	Compliant: Yes
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> For each lot, two-way public road access is provided in two different directions to at least two different suitable destinations with an all-weather surface.</p>			
<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The two-way access <u>is</u> available at an intersection no greater than 200m from the relevant boundary of each lot, via a no-through road.</p>			
<p>The two-way access is <u>not</u> available at an intersection within 200m from the relevant boundary of each lot. However, the available no-through road satisfies the established exemption for the length limitation in every case. These requirements are:</p> <ul style="list-style-type: none"> • Demonstration of no alternative access (refer to A3.3 below); • The no-through road travels towards a suitable destination; and • The balance of the no-through road that is greater than 200m from the relevant lot boundary is within a residential built-out area or is potentially subject to radiant heat levels from adjacent bushfire prone vegetation that correspond to the BAL-LOW rating (<12.5 kW/m²). <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>			

A3.2b Emergency access way	Applicable:	Yes	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed or existing EAW provides a through connection to a public road.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed or existing EAW is less than 500m in length and will be signposted and gated (remaining unlocked) to the specifications stated in the Guidelines and/or required by the relevant local government.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.2b. Refer also to Appendix C in this BMP), can and will be complied with.				
A3.3 Through-roads	Applicable:	Yes	Compliant:	Yes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A no-through public road is necessary as no alternative road layout exists due to site constraints.				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The no-through public road length does not exceed the established maximum of 200m to an intersection providing two-way access (Guidelines, E3.3).				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The no-through public road exceeds 200m but satisfies the exemption provisions of A3.2a as demonstrated in A3.2a above.				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The public road technical construction requirements (Guidelines, Table 6 and E3.1. Refer also to Appendix C in this BMP), can and will be complied with as established in A3.1 above.				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The turnaround area requirements (Guidelines, Figure 24) can and will be complied with.				
A3.4a Perimeter roads	Applicable:	Yes	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed greenfield or infill development consists of 10 or more lots (including those that are part of a staged subdivision) and therefore should have a perimeter road. This is planned to be installed.				
<div> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> <div> <p>The proposed greenfield or infill development consists of 10 or more lots (including those that are part of a staged subdivision). However, it is not required on the established basis of:</p> <ul style="list-style-type: none"> • The vegetation adjoining the proposed lots is classified Class G Grassland; • Lots are zoned rural living or equivalent; • It is demonstrated that it cannot be provided due to site constraints; or • All lots have existing frontage to a public road. </div> </div>				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4a) can and will be complied with.				
A3.4b Fire service access route	Applicable:	Yes	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The FSAR can be installed as a through-route with no dead ends, linked to the internal road system every 500m and is no further than 500m from a public road.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4b. Refer also to Appendix C in this BMP), can and will be complied with.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The FSAR can and will be signposted. Where gates are required by the relevant local government, the specifications can be complied with.				

<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	Turnaround areas (to accommodate type 3.4 fire appliances) can and will be installed every 500m on the FSAR.
A3.5 Battle-axe access legs	Applicable: Yes Compliant: Yes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	A battle-axe leg cannot be avoided due to site constraints.
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	The proposed development is in a reticulated area and the battle-axe access leg length from a public road is no greater than 50m. No technical requirements need to be met.
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The proposed development is not in a reticulated area. The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.5. Refer also to Appendix C in this BMP), can and will be complied with.
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.
A3.6 Private driveways	Applicable: No Compliant: N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The private driveway to the most distant external part of the development site is within a lot serviced by reticulated water, is accessed via a public road with a speed limit of 70 km/hr or less and has a length is no greater than 70m (measured as a hose lay). No technical requirements need to be met.
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.6. Refer also to Appendix C in this BMP), can and will be complied with.
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/>	The turnaround area requirements (Guidelines, Figure 28, and within 30m of the habitable building) can and will be complied with.

5.6 Assessment Statements for Element 4: Water

FIREFIGHTING WATER			
Element Intent	To ensure water is available to enable people, property and infrastructure to be defended from bushfire.		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
Acceptable Solutions - Assessment Statements <i>All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines).</i>			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A4.1 Identification of future firefighting water supply	Applicable:	No	Compliant: N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> It can be demonstrated that reticulated or sufficient non-reticulated water for firefighting can be provided at the subdivision and/or development application stage in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2.			
A4.2 Provision of water for firefighting purposes	Applicable:	Yes	Compliant: Yes
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A reticulated water supply is available to the proposed development. The existing hydrant connection(s) are provided in accordance with the specifications of the relevant water supply authority.			
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A reticulated water supply will be available to the proposed development. Hydrant connection(s) can and will be provided in accordance with the specifications of the relevant water supply authority.			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A static water supply (tank) for firefighting purposes will be installed on the lot each lot that is additional to any water supply that is required for drinking and other domestic purposes. The proposed subdivision will retain an existing habitable building for which the same standard of water supply will be provided.			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A strategic water supply (tank or tanks) for firefighting purposes will be installed within or adjacent to the proposed development that is additional to any water supply that is required for drinking and other domestic purposes. The required land will be ceded free of cost to the local government and the lot or road reserve where the tank is to be located will be identified on the plan of subdivision.			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The strategic static water supply (tank or tanks) will be located no more than 10 minutes travel time from a subject site (at legal road speeds).			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The technical requirements (location, number of tanks, volumes, design, construction materials, pipes and fittings), as established by the Guidelines (A4.2, E4 and Schedule 2) and/or the relevant local government, can and will be complied with.			
Supporting Assessment Details: The site will be provided with a reticulated water supply. Hydrants will be installed in accordance with the relevant standards. The technical requirements established by the Guidelines and/or the local government can and will be complied with.			

6 BUSHFIRE PROTECTION MEASURES - RESPONSIBILITY FOR IMPLEMENTATION CHECKLIST

6.1 Developer Responsibilities – Prior to Issue of Titles

DEVELOPER RESPONSIBILITIES – PRIOR TO ISSUE OF TITLES		
No.	Implementation Actions	Subdivision Clearance
1	<p><i>Condition that may be imposed (refer to Code F1 of Model Subdivision Conditions Schedule, WAPC June 2021 and Guidelines DPLH, 2021 v1.4, s5.3.2)</i></p> <p>Information is to be provided to demonstrate that the measures contained in Section 6 of the bushfire management plan have been implemented during subdivisional works. This information should include a completed 'Certification by Bushfire Consultant' from the bushfire management plan.</p>	<input type="checkbox"/>
2	<p><i>Condition that may be imposed (refer to Code F2 of Model Subdivision Conditions Schedule, WAPC June 2021 and Guidelines DPLH, 2021 v1.4, s5.3.2)</i></p> <p>A notification, pursuant to Section 165 of the <i>Planning and Development Act 2005</i>, is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows: <i>"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is/may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land."</i> (WAPC)</p>	<input type="checkbox"/>
3	<p>Conditions (as per codes L3 and L4 of Model Subdivision Conditions Schedule, WAPC January 2024), as set out below:</p> <p>"L3. Local Development Plan(s) being prepared and approved for lots shown on the plan dated [INSERT VALUE] (attached) that address the following:</p> <ul style="list-style-type: none"> a) Habitable building exclusion areas; and b) c) (INSERT SPECIFIC REQUIREMENTS AS APPROPRIATE). (Local Government) <p>L4. The landowner/applicant shall make arrangements to ensure that prospective purchasers of lots subject of a Local Development Plan are advised in writing that Local Development Plan provisions apply. (Local Government)"</p>	<input type="checkbox"/>
4	Construct the public roads & battle axe(s) to the standard in the Bushfire Guidelines.	<input type="checkbox"/>
5	Install the reticulated water supply to the standards stated in the Bushfire Guidelines.	<input type="checkbox"/>
6	If staging forms part of the subdivision works, the Bushfire Management Plan will need to be updated to ensure the detail in this Plan is still accurate (Staging Plan).	<input type="checkbox"/>

6.2 Developer / Landowner Responsibilities

DEVELOPER/LANDOWNER RESPONSIBILITIES – Prior to Sale of Lot(s)	
No.	Implementation Actions
1	Prior to sale and post planning approval, the entity responsible for having the BMP prepared should ensure that anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information and informed that it contains their responsibilities. This includes the landowners/proponents (including future landowners where the Plan was prepared as part of a subdivision approval), local government and any other authorities or referral agencies ('Guidelines' s4.6.3).
2	Prior to any building work, inform the builder of the existence of this Bushfire Management Plan and the responsibilities it contains, regarding the required construction standards. This will be: The standard corresponding to the determined BAL, as per the bushfire provisions of the Building Code of Australia (BCA);
3	Prior to sale of the subject lots, the onsite vegetation (within the proposed subdivision site) will be maintained in a Low threat state (Figure 3.1.1 – Indicative APZ) as per the AS 3959-2018 s2.2.3.2.
4	Prior to sale of the subject lots, the offsite vegetation within the east-west section of Proposed Lot 2002 (Reserve for Pedestrian Access and Drainage) will be modified through civil works (by landowner / developer), including construction of paths, drainage maintenance access tracks (see post-development drainage plan at appendix C of local water management strategy) and weed suppression (mulch and crushed limestone).

6.3 Landowner / Occupier Responsibilities – Ongoing Management

LANDOWNER/OCCUPIER – ONGOING MANAGEMENT	
No.	Management Actions
1	Maintain a minimum 25 metre Asset Protection Zone (APZ) within the Lot Boundary to the standards established by the Bushfire Guidelines or as varied by the local government through their Firebreak Notice.
2	Maintain vehicular access routes within the lot to the required surface condition and clearances as stated in the BMP.
3	Ensure that any builders (of future structures on the lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to a determined BAL.
4	<p>Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with:</p> <ol style="list-style-type: none"> 1. the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and with any identified additional requirements established by this BMP or the local government.

APPENDIX A: DETAILED BAL ASSESSMENT DATA AND SUPPORTING INFORMATION

A1: BAL Assessment Inputs Common to the Method 1 and Method 2 Procedures

A1.1: FIRE DANGER INDICES (FDI/FDI/GFDI)

When using Method 1 the relevant FDI value required to be applied for each state and region is established by AS 3959:2018, Table 2.1. Each FDI value applied in Tables 2.4 – 2.7 represents both the Forest Fire Danger Index (FFDI) and a deemed equivalent for the Grassland Fire Danger Index (GFDI), as per Table B2 in Appendix B. When using Method 2, the relevant FFDI and GFDI are applied.

The values may be able to be refined within a jurisdiction, where sufficient climatological data is available and in consultation with the relevant authority.

Relevant Jurisdiction:	WA	Region:	Whole State	Method 1	Applied FDI:	80
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A1.2: VEGETATION ASSESSMENT AND CLASSIFICATION

Vegetation Types and Classification

In accordance with AS 3959:2018 clauses 2.2.3 and C2.2.3.1, all vegetation types within 100 metres of the 'site' (defined as "the part of the allotment of land on which a building stands or is to be erected"), are identified and classified. Any vegetation more than 100 metres from the site that has influenced the classification of vegetation within 100 metres of the site, is identified and noted. The maximum excess distance is established by AS 3959: 2018 cl 2.2.3.2 and is an additional 100 metres.

Classification is also guided by the Visual Guide for Bushfire Risk Assessment in WA (WA Department of Planning February 2016) and any relevant FPA Australia practice notes.

Modified Vegetation

The vegetation types have been assessed as they will be in their natural mature states, rather than what might be observed on the day. Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its expected re-generated mature state. Modified areas of vegetation can be excluded from classification if they consist of low threat vegetation or vegetation managed in a minimal fuel condition, satisfying AS 3959:2018 s2.2.3.2(f), and there is sufficient justification to reasonable expect that this modified state will exist in perpetuity.

The Influence of Ground Slope





Where significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.





THE INFLUENCE OF VEGETATION GREATER THAN 100 METRES FROM THE SUBJECT SITE

Vegetation area(s) within 100m of the site whose classification has been influenced by the existence of bushfire prone vegetation from 100m – 200m from the site:	None
Assessment Statement:	No vegetation types exist close enough, or to a sufficient extent, within the relevant area to influence classification of vegetation within 100 metres of the subject site.

VEGETATION AREA 1	
AS 3959:2018 Vegetation Classification Applied:	Class A Forest
Vegetation Type Present:	Open forest A-03
Description/Justification:	Mixed Eucalypt, Banksia & Peppermint Forest (12-14m high) >70% Canopy Cover, scrub/ Balga understory
<div>   </div>	
Photo ID: 1a	Photo ID: 1b
VEGETATION AREA 2	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	Mixed Eucalypt Woodland with limited understory (Unmanaged Windbreaks)
<div>   </div>	
Photo ID: 2a	Photo ID: 2b

VEGETATION AREA 3	
AS 3959:2018 Vegetation Classification Applied:	Class G Grassland
Vegetation Type Present:	Sown pasture G-26
Description/Justification:	Open Grassland within the development site
<div> <div> <div> DIRECTION 304 deg(T) 33.68375°S 115.26258°E ACCURACY 1.19 km DATUM WGS84 </div>  <div> 2021-07-27 11:37:03+08:00 </div> </div> <div> <div> DIRECTION 138 deg(T) 33.68277°S 115.26295°E ACCURACY 6 m DATUM WGS84 </div>  <div> 2021-07-27 11:21:48+08:00 </div> </div> </div>	
Photo ID: 3a	Photo ID: 3b

VEGETATION AREA 4	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	Mixed Eucalypt Woodland with limited understory (Unmanaged Windbreaks) – Semi managed bushland (historical) that is not being managed as low threat vegetation. The precautionary principle has been applied.
<div> <div> DIRECTION 104 deg(T) 33.68253°S 115.26304°E ACCURACY 6 m DATUM WGS84  2021-07-27 11:20:54+08:00 </div> <div> DIRECTION 26 deg(T) 33.68520°S 115.26454°E ACCURACY 12 m DATUM WGS84  2021-07-27 11:46:11+08:00 </div> </div>	
Photo ID: 4a	Photo ID: 4b
VEGETATION AREA 4	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	Mixed Eucalypt Woodland with limited understory (Unmanaged Windbreaks) – Semi managed bushland (historical) that is not being managed as low threat vegetation. (<20 metres in width – Single line of trees in sections). The precautionary principle has been applied .
<div> <div> DIRECTION 117 deg(T) 33.68264°S 115.26398°E ACCURACY 9 m DATUM WGS84  2022-10-20 13:42:40+08:00 </div> <div> DIRECTION 146 deg(T) 33.68228°S 115.26435°E ACCURACY 5 m DATUM WGS84  2022-10-20 13:44:12+08:00 </div> </div>	
Photo ID: 4c	Photo ID: 4d

VEGETATION AREA 4	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	Mixed Eucalypt & Peppermint Woodland with limited understory (Unmanaged Windbreaks) – Single line of trees in sections - Semi managed bushland (historical) that is not being managed as low threat vegetation. (<20 metres in width). The precautionary principle has been applied .
 	
Photo ID: 4e	Photo ID: 4f
VEGETATION AREA 4	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	Mixed Eucalypt Woodland with limited understory (Unmanaged Windbreaks) – Semi managed bushland (historical) that is not being managed as low threat vegetation. (<20 metres in width). The precautionary principle has been applied .
 	
Photo ID: 4g	Photo ID: 4h

VEGETATION AREA 4	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	Mixed Eucalypt Woodland with limited understory (Unmanaged and semi managed Windbreaks) – semi managed bushland (historical) that is not being managed as low threat vegetation. The precautionary principle has been applied.






Photo ID: 4i	Photo ID: 4j
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VEGETATION AREA 4	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	Mixed Eucalypt Woodland with limited understory (Unmanaged and semi managed Windbreaks) – semi managed bushland (historical) that is not being managed as low threat vegetation. The precautionary principle has been applied.



Photo ID: 4k	Photo ID: 4l
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VEGETATION AREA 5	
AS 3959:2018 Vegetation Classification Applied:	Class A Forest
Vegetation Type Present:	Open forest A-03
Description/Justification:	Wetland vegetation >70% Canopy Cover, Mixed Paperbark & Eucalypt, Forest with a scrub understory
 	
Photo ID: 5a	Photo ID: 5b
VEGETATION AREA 6	
AS 3959:2018 Vegetation Classification Applied:	Class A Forest
Vegetation Type Present:	Open forest A-03
Description/Justification:	Jarrah & Marri Forest (12-14m high) >70% Canopy Cover, scrub/ balga understory
 	
Photo ID: 6a	Photo ID: 6b

VEGETATION AREA 7	
AS 3959:2018 Vegetation Classification Applied:	Class A Forest
Vegetation Type Present:	Open forest A-03
Description/Justification:	Eucalypt Forest with a scrub understory (Roadside Vegetation)
<div> <div> DIRECTION 175 deg(T) 33.68520°S 115.26280°E ACCURACY 4 m DATUM WGS84  2021-07-27 11:33:48+08:00 </div> <div> DIRECTION 250 deg(T) 33.68534°S 115.26105°E ACCURACY 6 m DATUM WGS84  2021-07-27 11:40:34+08:00 </div> </div>	
Photo ID: 7a	Photo ID: 7b
VEGETATION AREA 8	
AS 3959:2018 Vegetation Classification Applied:	Class D Scrub
Vegetation Type Present:	Open scrub D-14
Description/Justification:	Wetland Area (Revegetation works being maintained as Scrub)
<div> <div> DIRECTION 351 deg(T) 33.68366°S 115.26131°E ACCURACY 12 m DATUM WGS84  2021-07-27 10:38:22+08:00 </div> <div> DIRECTION 345 deg(T) 33.68325°S 115.26119°E ACCURACY 4 m DATUM WGS84  2021-07-27 10:39:55+08:00 </div> </div>	
Photo ID: 8a	Photo ID: 8b

VEGETATION AREA 9	
AS 3959:2018 Vegetation Classification Applied:	Class G Grassland
Vegetation Type Present:	Sown pasture G-26
Description/Justification:	Open Grassland outside the development site (neighbouring properties)
<div> <div> DIRECTION 271 deg(T) 33.68519°S 115.26108°E ACCURACY 6 m DATUM WGS84  2021-07-27 11:40:00+08:00 </div> <div> DIRECTION 92 deg(T) 33.68519°S 115.26279°E ACCURACY 4 m DATUM WGS84  2021-07-27 11:33:46+08:00 </div> </div>	
Photo ID: 9a	Photo ID: 9b
VEGETATION AREA 10	
AS 3959:2018 Vegetation Classification Applied:	Excluded as per Section 2.2.3.2 (f) Low Threat Vegetation
Vegetation Type Present:	Excluded Vegetation – Managed Grassland
Description/Justification:	Residential area– Managed Grass around buildings/ Gardens/ Cleared Areas
<div> <div> DIRECTION 292 deg(T) 33.68233°S 115.26135°E ACCURACY 6 m DATUM WGS84  2021-07-27 10:44:25+08:00 </div> <div> DIRECTION 65 deg(T) 33.68084°S 115.26148°E ACCURACY 6 m DATUM WGS84  2021-07-27 10:56:35+08:00 </div> </div>	
Photo ID: 10a	Photo ID: 10b

Note: This assessment is reliant on the surrounding land (Area 10) being maintained in a low fuel condition as per the City's Firebreak Notice, reflecting the state of the vegetation at the time of the assessment. There are restrictions on accessing individual properties/ backyards to assess the status of vegetation (Managed/ unmanaged).

A1.3: EFFECTIVE SLOPE

Measuring

Effective slope refers to the slope “under the classified vegetation which most significantly influences bushfire behaviour (AS 3959:2018, clause B4, CB4). It is not the average slope.

It is described as upslope, flat or downslope when viewed from the exposed element (e.g., building) looking towards the vegetation – and measured in degrees. Ground slope has a direct and significant influence on a bushfire’s rate of spread and intensity, which increases when travelling up a slope.

The slope under the vegetation in closest proximity to the exposed element(s), over the distance that will most likely carry the entire depth of the flaming front, will be a significant consideration in the determination of the effective slope. This distance is determined as a function of the potential quasi-steady rate of spread and expected residence time (i.e., the flaming combustion period at a single point on the ground), of a bushfire in the specific vegetation type/landscape scenario.

Slope Variation Within Areas of Vegetation

Where a significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

Slope Variation Due to Multiple Development Sites

When the effective slope, under a given area of bushfire prone vegetation, will vary significantly relative to multiple proposed development sites (exposed elements), then the effective slopes corresponding to each of the different locations, are separately identified.

The relevant (worst case) effective slope is determined in the direction corresponding to the potential directions of fire spread towards the subject building(s).

Differences in Application of Effective Slope - AS 3959:2018 Method 1 versus Method 2 Procedures

The Method 1 procedure provides five different slope ranges from flat (including all upslopes) to 20 degrees downslope to define the effective slope and bushfire behaviour model calculations apply the highest value in each range (i.e., 0°, 5°, 10°, 15° or 20°).

The Method 2 procedure requires an actual slope (up or down in degrees) to be determined. AS 3959:2018, clause B1 limits the effective slope that can be applied to 30 degrees downslope and 15 degrees upslope. Where any upslope is greater than 15 degrees, then 15 degrees is to be used.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

The effective slopes determined from the site assessment are recorded in Table 3.1 of this Bushfire Management Plan.

A1.4: SEPARATION DISTANCE

Measuring

The separation distance is the distance in the horizontal plane between the receiver (building/structure or area of land being considered) and the edge of the classified vegetation (AS 3959:2018, clause 2.2.4)

The relevant parts of a building/structure from which the measurement is taken is the nearest part of an external wall or where a wall does not exist, the supporting posts or columns. Certain parts of buildings are excluded including eaves and roof overhangs.

The edge of the vegetation, for forests and woodlands, will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk (AS 3959:2018, clause C2.2.5).

Measured Separation Distance as a Calculation Input

If a separation distance can be measured because the location of the building/structure relative to the edge of the relevant classified vegetation is known, this figure can be entered into the BAL calculation. The result is a determined BAL rating.

Assumed Separation Distance as a Calculation Input

When the building/structure location within the lot is not known, an assumed building location may be applied that would establish the closest positioning of the building/structure relative to the relevant area of vegetation.

The assumed location would be based on a factor that puts a restriction on a building location such as:

- An established setback from the boundary of a lot, such as a residential design code setback or a restrictive covenant; or
- Within an established building envelope or habitable building exclusion areas on a local development plan.

The resultant BAL rating would be indicative and require later confirmation (via a Compliance Report) of the building/structure actual location relative to the vegetation to establish the determined BAL rating.

Separation Distance as a Calculation Output

With the necessary site specific assessment inputs and using the AS 3959:2018 bushfire modelling equations, the range of separation distances that will correspond to each BAL rating (each of which represents a range of radiant heat flux), can be calculated. This has application for bushfire planning scenarios such as:

- When the separation distance cannot be measured because the exact location of the exposed element (i.e., the building, structure or area), relative to classified vegetation, is yet to be determined.

In this scenario, the required information is the identification of building locations onsite that will correspond to each BAL rating. That is, indicative BAL ratings can be derived for a variety of potential building/structure locations; or

- The separation distance is known for a given building, structure or area (and a determined BAL rating can be derived), but additional information is required regarding the exposure levels (to the transfer of radiant heat from a bushfire), of buildings or persons, that will exist at different points within the subject site.

The calculated range of separation distances corresponding to each BAL rating can be presented in a table and/or illustrated as a BAL Contour Map – whichever is determined to best fit the purpose of the assessment.

For additional information refer to the information boxes in Section 3 'Bushfire Attack Levels (BAL) - Understanding the Results and Section 3.2. 'Interpretation of the BAL Contour Map'.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

For the subject site the applicable separation distances values are derived from calculations applying the assessed site data. They are an output value, not an input value and therefore are not presented or justified in this appendix. The derived values are presented in Section 3 and illustrated as a BAL contour map in Figure 3.2.

APPENDIX B: ADVICE - ONSITE VEGETATION MANAGEMENT - THE APZ

THE ASSET PROTECTION ZONE (APZ) - DESCRIPTION

This is an area surrounding a habitable building containing low threat fire fuel fuels (including vegetation), or vegetation managed in a minimal fuel condition, no fire fuels or any combination. The primary objectives include:

- To ensure the building is sufficiently separated from the bushfire hazard to limit the impact of its direct attack mechanisms. That is, the dimensions of the APZ will, for most site scenarios, remove the potential for direct flame contact on the building, reduce the level of radiant heat to which the building is exposed and ensure some reduction in the level of ember attack (with the level of reduction being dependent on the vegetation types of present);
- To ensure any vegetation retained within the APZ is low threat and/or is managed in a minimum fuel condition and prevents surface fire spreading to the building;
- To ensure other combustible materials that can result in consequential fire (typically ignited by embers) within both the APZ and parts of the building, are eliminated, minimised and/or appropriately located or protected. (Note: The explanatory notes in the Guidelines provide some guidance for achieving this objective and other sources are available. Research shows that consequential fire, ignited by embers, is the primary cause of building loss in past bushfire events); and
- To provide a defensible space for firefighting activities.

B1: Asset Protection Zone (APZ) Dimensions

APZ DIMENSIONS – DIFFERENCES IN REQUIREMENTS FOR PLANNING ASSESSMENTS COMPARED TO IMPLEMENTATION

THE 'PLANNING BAL-29' APZ DIMENSIONS

The 'Planning BAL-29' APZ is not necessarily the size of the APZ that must be physically implemented and maintained by a landowner. Rather, its purpose is to identify if an acceptable solution for planning approval can be met i.e., can a specified minimum separation distance from bushfire prone vegetation exist.

An assessment against the Bushfire Protection Criteria is conducted for planning approval purposes. To satisfy 'A2.1: Asset Protection Zone', it must be demonstrated that certain minimum separation distances between the relevant building/structure and different classes of bushfire prone vegetation, either exist or can be created and will remain in perpetuity. These minimum separation distances determine the 'Planning BAL-29' APZ dimensions.

Dimensions: The minimum dimensions are those that will ensure the potential radiant heat impact on subject buildings does not exceed 29 kW/m². These dimensions will vary dependent on the vegetation classification, the slope of the land they are growing on and certain other factors specific to the subject site.

Note: For certain purposes associated with vulnerable land uses, the 'Planning BAL-29' APZ may be replaced with dimensions corresponding to radiant heat impact levels of 10 kW/m² and 2 kW/m² and calculated using 1200K flame temperature.

Location: The identified 'Planning BAL-29' APZ must not extend past lot boundaries onto land the landowner has no control over either now or potentially at some point in the future. Limited exceptions include:

- When adjoining land is not vegetated (e.g., built out, roads, carparks, drainage, rock, water body etc.);
- When adjoining land currently or, will in the short term, contain low threat vegetation and or vegetation managed in a minimal fuel condition as per AS 3959:2018 cl. 2.2.3.2. It must be reasonable (justifiable) to expect this low threat vegetation and/or level of management will continue to exist or be conducted in perpetuity and require no action from the owner of the subject lot.

Such areas of land include formally managed areas of vegetation (e.g., public open space / recreation areas / services installed in a common section of land). For specific scenarios, evidence of the formal

commitment to manage these areas to a certain standard may be required and would be included in the BMP.

These areas of land can also be part of the required APZ on a neighbouring lot for which the owner of that lot has a recognised responsibility to establish and maintain; and

- When there is a formalised and enforceable capability and responsibility created for the subject lot owner, or any other third party, to manage vegetation on land they do not own in perpetuity. This would be rare, and evidence of the formal authority would be included in the BMP.

The bushfire consultant's 'Supporting Assessment Detail', that is presented in the assessment against the acceptable solution A2.1, will identify and justify how any adjoining land within the 'Planning BAL-29 APZ will meet the APZ standards. Or otherwise, explain how this condition cannot be met.

THE 'BAL RATING' APZ DIMENSIONS

The applicable BAL rating will have been stated in the BAL Assessment Data section of the BAL Assessment Report or BMP (as relevant). The BAL rating can be assessed as 'determined' or 'indicative' or be 'conditional', dependent of the specific conditions associated with the site and the stage of assessment or planning. It is the eventual assessment of the 'Determined' BAL that will establish both the BAL rating that is to apply and its corresponding 'BAL Rating' APZ dimensions.

Dimensions: The minimum dimensions of the 'BAL Rating' APZ to be established and maintained will be those that correspond to the determined BAL rating for the subject building/structure that has accounted for surrounding vegetation types, the slope of the land they are growing on and certain other factors specific to the subject site and surrounding land.

Establishing the 'BAL Rating' APZ will ensure that the potential radiant heat exposure of the building/structure will be limited to the level that the applied construction requirements are designed to resist when that building/structure is required to be constructed to the standard corresponding to the Determined BAL.

Note: For certain purposes associated with vulnerable land uses, the 'BAL Rating' APZ dimensions may be replaced with dimensions corresponding to the specific radiant heat impact levels of 10 kW/m² and 2 kW/m² and calculated using 1200K flame temperature.

Location: The same conditions will apply as for the 'Planning BAL-29' APZ.

THE 'LOCAL GOVERNMENT' APZ DIMENSIONS

Some Local Government's establish the dimensions of the APZ that must be established surrounding buildings in their annual Firebreak/Hazard Reduction Notice. Or for a specific site they may establish a maximum allowable dimension (typically that corresponding to BAL-29). When established, the landowner will need to be comply with these.

THE 'REQUIRED' APZ DIMENSIONS

This is the APZ that is to be established and maintained by the landowner within the subject lot and surrounding the subject building(s). It will be identified on the Property Bushfire Management Statement when it is required to be included in this Report/Plan.

Dimensions: The 'Required APZ' dimensions are the minimum (or maximum when relevant) distances away from the subject building(s) that the APZ must extend. These distances will not necessarily be the same all around the building(s). They can vary and are dependent on the different vegetation types (and their associated ground slope) that can exist around the building(s), and specific local government requirements. The dimensions to implement are determined by:

- A. The 'BAL Rating APZ' of the subject building(s) when distances are greater than 'B' below (except when 'B' establishes a maximum distance); or
- B. The 'Local Government' APZ' derived from the Firebreak/Hazard Reduction Notice when distances are greater than 'A' above, other than when a maximum distance is established, in which case this will apply; or
- C. A combination of 'A' and 'B'.

Location: The same conditions will apply as for the 'Planning BAL-29' APZ.

B2: The Standards for the APZ as Established by the Guidelines (DPLH, v1.4)

Within the Guidelines (source: <https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas>), the management Standards are established by:

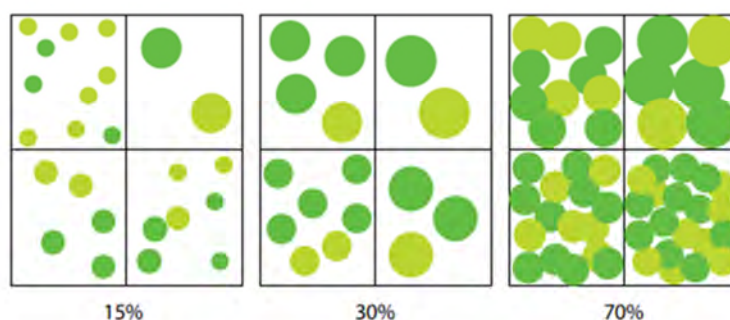
- Schedule 1: Standards for Asset Protection Zones (see extract below) established by the Guidelines; and
- The associated explanatory notes (Guidelines E2) that address (a) managing an asset protection zone (APZ) to a low threat state (b) landscaping and design of an asset protection zone and (c) plant flammability.

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
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).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	<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.

Figure 19: Tree canopy cover – ranging from 15 to 70 per cent at maturity



Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	<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.
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	<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*

B3: The Standards for the APZ as Established by the Local Government

Refer to the firebreak / hazard reduction notice issued annually (under s33 of the Bushfires Act 1954) by the relevant local government. It may state Standards that vary from those established by the Guidelines and that have been endorsed by the WAPC and DFES as per Section 4.5.3 of the Guidelines.

A copy of the applicable notice is not included here as they are subject to being reviewed and modified prior to issuing each year. Refer to ratepayers notices and/or the local government's website for the current version.

B4: Vegetation and Areas Excluded from Classification - Ensure Continued Exclusion

AS 3959:2018 establishes the methodology for determining a bushfire attack level (BAL). The methodology includes the classification of the subject site's surrounding vegetation according to their 'type' and the application of the corresponding relevant bushfire behaviour models to determine the BAL.

Certain vegetation can be considered as low threat or managed in a minimal fuel condition and can be excluded from classification. Where this has occurred in assessing the site, the extract from AS3959:2018 below states the requirements that must continue to exist for the vegetation on those areas of land to be excluded from classification (including the size of the vegetation area if relevant to the assessment).

15

AS 3959:2018

2.2.3.2 Exclusions—Low threat vegetation and non-vegetated areas

The following vegetation shall be excluded from a BAL assessment:

- (a) Vegetation of any type that is more than 100 m from the site.
- (b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.
- (c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.
- (d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.
- (e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
- (f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

NOTES:

- 1 Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).
- 2 A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.

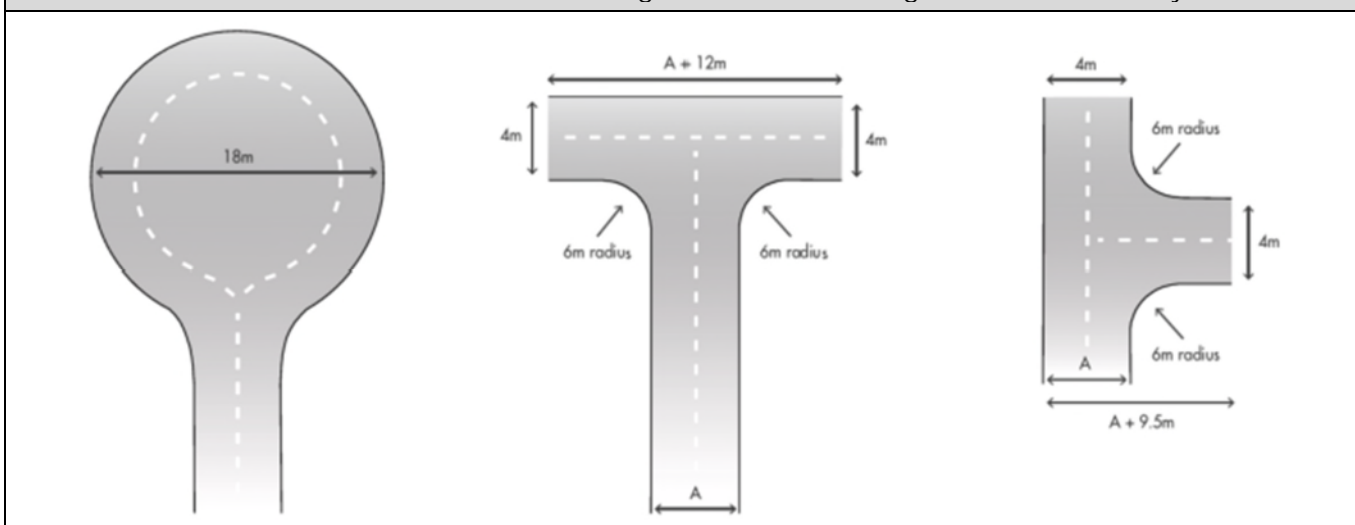
APPENDIX C: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

The design/layout requirements for access are established by the acceptable solutions of the Guidelines (DPLH, 2021 v1.4) Element 3 and vary dependent on the access component, the land use and the presence of 'vulnerable' persons. Consequently, the best reference source are the Guidelines. The technical requirements that are fixed for all components and uses are presented in this appendix.

GUIDELINES TABLE 6, EXPLANATORY NOTES E3.3 & E3.6 AND RELEVANT ACCEPTABLE SOLUTIONS

Technical Component	Vehicular Access Types / Components			
	Public Roads	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		1:7 (14.3%)		
Maximum Average Grade Sealed Road		1:10 (10%)		
Minimum Inner Radius of Road Curves (m)		8.5		

Turnaround Area Dimensions for No-through Road, Battle-axe Legs and Private Driveways ⁴



Passing Bay Requirements for Battle-axe leg and Private Driveway

When the access component length is greater than the stated maximum, passing bays are required every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum 6m).

Emergency Access Way – Additional Requirements

Provide a through connection to a public road, be no more than 500m in length, must be signposted and if gated, gates must be open the whole trafficable width and remain unlocked.

¹ To have crossfalls between 3 and 6%.

² Where driveways and battle-axe legs are not required to comply with the 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% or 7.1 degree) entry and exit angle.

⁴ The turnaround area should be within 30m of the main habitable building.

APPENDIX D: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER SUPPLY

D1: Reticulated Areas – Hydrant Supply

The Guidelines state “where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.”

The main scheme water suppliers / authorities in WA are The Water Corporation, AqWest – Bunbury Water Corporation and Busselton Water Corporation. Various local authority exists in other non-scheme and regional areas. However, most existing fire hydrants are connected to Water Corporation water mains.

Consequently, the hydrant location specifications from The Water Corporation’s ‘No 63 Water Reticulation Standard’ (Ver 3 Rev 15) are provided in the extract below with the key distances relevant to bushfire planning assessments being highlighted. This Standard is deemed to be the baseline criteria for developments and should be applied unless different local water supply authority conditions apply. Other applicable specification will be found in the Standard.

Note: The maximum distance from a hydrant to the rear of a lot/building is generally interpreted as not applicable to large lot sizes where the maximum distance becomes an impractical limitation i.e., typically rural residential areas.

Design Standard DS 63
Water Reticulation Standard



2.2.1.5 Appurtenances

c. Hydrants

Hydrants shall be screw-down hydrant with built-in isolation valve and installed only on DN100 or larger pipes. Hydrants shall be located:

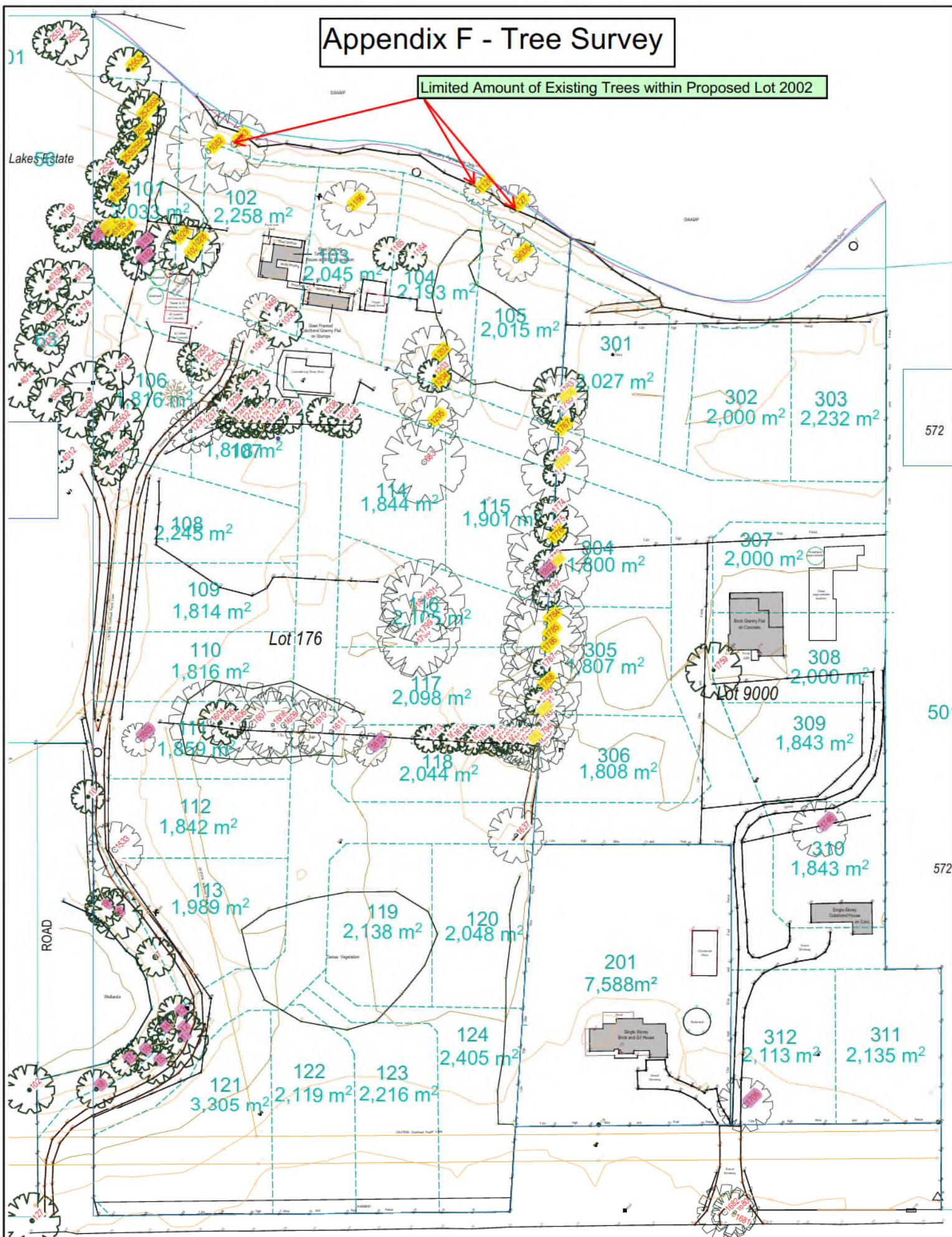
- so that the maximum distance between a hydrant and the rear of a building envelope, (or in the absence of a building envelope the rear of the lot) shall be 120m;
- so that spacing (as measured by hose-run) between hydrants in non-residential or mixed use areas shall be maximized and no greater than 100m;
- so that spacing (as measured by hose-run) between hydrants in residential areas with lots per dwelling <10,000m² shall be maximized and no greater than 200m;
- so that spacing between hydrants (as measured by hose-run) in rural residential areas where minimum lots per dwelling is >10,000 m² (1ha) shall be maximized and no greater than 400m;
- centrally along the frontage of a lot to avoid being under driveways, unless the lot features a frontage 6m or less, in which case it shall be placed to the side opposite the driveway;
- at lots that have the widest frontage in the local area;
- where appropriate at the truncation of road junctions or intersections so that they can serve more than one street and can be readily located;
- on both sides of the major roads at staggered intervals where there are mains on both sides of the road;
- at major intersections on dual multi-lane roads, where two hydrants are to be sited on diagonally opposite corners;
- hydrants should be located at least 20m from traffic calming devices i.e., median slow points or chokers, chicanes, mini traffic circles, and intersection ‘pop-outs’ to ensure traffic is not impeded;
- in a position not less than 10m from any high voltage main electrical distribution equipment such as transformers and distribution boards, liquefied petroleum gas or other combustible storage;
- directly on top of the main using a tee unless proved to be impractical.

APPENDIX E: ADDITIONAL EVIDENCE FOR 'PROPOSED LOT 2002' (POST DEVELOPMENT)

VEGETATION AREA 11 Comparative photo evidence of what the proposed vegetated drainage reserve – 'Proposed Lot 2002' is expected to look like (Post development).	
AS 3959:2018 Vegetation Classification Applied:	Class B Woodland
Vegetation Type Present:	Woodland B-05
Description/Justification:	<p>The east / west section of Proposed Lot 2002 (8-metre-wide strip "Reserve for Pedestrian Access and Drainage") is to be used for a shared path (2.5 m wide pavement) with the remainder to be woodchip mulched and / or covered in crushed limestone (the latter is used to prevent weeds spread from private lots to the current UCL / eventual reserve to the north). The three significant existing trees in this section will be retained. This section has been deemed by the City of Busselton to be classifiable vegetation as management of grasses and weeds cannot be guaranteed.</p> <p>The precautionary principle has been applied and the most appropriate vegetation classification for this area (Post Development) was deemed to be Class B Woodland, as this narrow strip of vegetation will have limited overstory and a significantly modified understory.</p>
	
Photo ID: A1	Photo ID: A2
	
Photo ID: A3	Photo ID: A4

Appendix F - Tree Survey

Limited Amount of Existing Trees within Proposed Lot 2002



Project: LOTS 176, 201 AND 9000 / HOUSES 604, 580 AND 578 RENDEZVOUS ROAD, VASSE

Drawing Title:

Principal: BANYANDA INVESTMENTS PTY. LTD. AND K. BELL



29 New River Ramble, West Busseton WA 6280
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Date: 09/02/21 Scale: 1:1200
Designed: AB Checked: AB
Drawn: TL
Local Authority: City of Busseton Sheet 1 Of 2
Plan/Diagram Number CT Number
63890 1635-719
65898 2823-895
65898 2823-896
Revision: V2 ORIGINAL: A3

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This drawing shall be preliminary only and/or not for construction until signed approval.

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ADDENDUM 1:

LOTS (176,201,9000) RENDEZVOUS ROAD, VASSE (SUBDIVISION STAGING PLAN)_V1.2



Addendum 1 of BMP# 180831_v1.6

Subdivision Staging Plan

PROPERTY LOCATION DETAILS

Lot 176 Rendezvous Road, Vasse

City of Busselton

STAGING PLAN DETAILS

Planning Stage: Subdivision Staging Plan

Original BMP: 180831 - Lots (176,201,9000) Rendezvous Road, Vasse (BMP_SD)_v1.6

BMP Date of Issue: 26 February 2024 **BMP #:** 180831 (BPP) **BMP Version:** v_1.6

Description: Subdivision Staging Plan (Lot 176 Rendezvous Road, Vasse)

REPORT DETAILS

Job Reference Number: 180831

Report Version: v1.2

Assessment Date: 20 October 2022

Report Date: 26 February 2024

BUSHFIRE PLANNING AND DESIGN (BPAD) ACCREDITED PRACTITIONER DETAILS

Name: Michael Whitelaw

Company Details:

BPP Group Pty Ltd t/a Bushfire Prone Planning

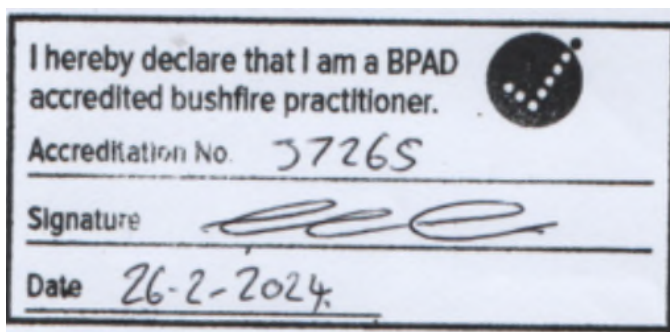
ACN: 39 166 551 784 | ABN: 39 166 551 784

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This report has been prepared by an Accredited BPAD Practitioner.

Fire Protection Association Australia as the accrediting body for BPAD accreditation, makes no warranties as to the accuracy of the information provided in the report. All enquiries related to the information and conclusions presented in this report must be made to the practitioner who prepared this report.

Limitation of Liability: The measures contained in this Report, are considered to be minimum requirements and they do not guarantee that a building will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating. This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required bushfire protection measures will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control. All surveys, forecasts, projections and recommendations made in this report associated with the proposed development are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations. Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents, arising out of the services provided by their consultants.

DOCUMENT CONTROL

VERSION HISTORY		
Version	Version Details	Date
1.0	Original – Stage 1 Subdivision Staging Plan	18 November 2022
1.1	Updated Site Plans – Stage 1 Subdivision (Staging Plan)	14 February 2024
1.2	Changes to text in response to City of Busselton email 23/02/2024	26 February 2024

EXECUTIVE SUMMARY

Bushfire Prone Planning (BPP Group Pty Ltd) has been commissioned to prepare an Addendum to the Bushfire Management Plan for Lots (176, 201, 9000) Rendezvous Road, Vasse. The focus of this Addendum is a proposed Subdivision Staging Plan (Lot 176 only). This Addendum has assessed the proposal against the current WAPC Bushfire Guidelines (Version 1.4).

Against the Bushfire Protection Criteria, the decision maker's assessment of the Proposal will be on the basis of it being able to meet the Acceptable Solutions, once construction and landscaping is complete.

The first stage of the subdivision (Only Lot 176) of approximately 6 Hectares in size (24 proposed residential lots) is within a designated bushfire prone area. Assessment of the planned location, vegetation and consideration of planned infrastructure within the first stage indicates that compliance can be achieved against all applicable bushfire related legislation, policy, standards and guidelines, including the Bushfire Protection Criteria (Bushfire Guidelines Version 1.4)

Table 1.0: Original Structure Plan Vs Subdivision Staging Plan (Stage 1)

Original Structure Plan Proposal		
Lot	Lot Yield	Size
Original Parent Lots (176, 201& 9000)	37 Proposed Lots	Approx. 10 Hectares
Subdivision Staging Plan – Stage 1		
Lot	Lot Yield	Size
Proposed Stage 1 – Lot 176 Only (Residential Development)	24 Proposed Lots	Approx. 6 Hectares
Balance Lots (Lot 201 & 9000)	2 Proposed Lots	Approx. 4 Hectares

SUMMARY STATEMENTS

BUSHFIRE PLANNING COMPLIANCE SUMMARY Subdivision Staging Plan (Stage 1)		
Required Bushfire Protection Measures The Acceptable Solutions of the Bushfire Protection Criteria (Guidelines_v1.4)		Assessment Outcome
Element	The Acceptable Solutions	
1: Location	A1.1 Development location	Fully Compliant
2: Siting and Design of Development	A2.1 Asset Protection Zone (APZ)	Fully Compliant
3: Vehicular Access	A3.1 Public roads	Fully Compliant
	A3.2a Multiple access routes	Fully Compliant
	A3.2b Emergency access way	N/A
	A3.3 Through-roads	Fully Compliant
	A3.4a Perimeter roads	N/A
	A3.4b Fire service access route	N/A
	A3.5 Battle-axe legs	Fully Compliant
	A3.6 Private driveways	N/A
4: Water	A4.1 Identification of future water supply	N/A
	A4.2 Provision of water for firefighting purposes	Fully Compliant

IDENTIFICATION OF BUSHFIRE HAZARD ISSUE

In response to the Bushfire Management Plan requirements established by Appendix 5 of the Guidelines for Planning in Bushfire Prone Areas (WAPC 2021 v1.4), the following statements are made to assist in the understanding of whether the proposal is likely to be able to comply with the bushfire protection criteria now or in subsequent planning stages.

Spatial Context - Broader Landscape Considerations	
Wider road network and access considerations	Rendezvous Road & Bendjar Grove are considered to be through roads. Two short cul-de-sacs of <100 metres in length form part of this staging plan Proposal. This is the first stage of subdivision, and it is expected that as future stages are constructed the cul-de-sacs will be replaced by through roads or loop roads in accordance with the bushfire guidelines.
Proximity of settlements and emergency services	The Busselton town centre is <6 km from site. Emergency services are in the Busselton townsite.
Bushfire prone vegetation types and extent	There are significant extents of bushfire prone vegetation (predominantly Grassland and vegetation associated with the water courses) across the broader landscape.
Provision of Access Within the Subject Site	
Road network and access considerations	There is no access constraint for the subject site with regard to what is considered acceptable from a planning perspective.

ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA ESTABLISHED BY THE GUIDELINES

6.4 Bushfire Protection Criteria Elements Applicable to the Proposed Development/Use

APPLICATION OF THE CRITERIA, ACCEPTABLE SOLUTIONS AND PERFORMANCE ASSESSMENT

The criteria are divided into five elements – location, siting and design, vehicular access, water and vulnerable tourism land uses. Each element has an intent outlining the desired outcome for the element and reflects identified planning and policy requirements in respect of each issue.

The example acceptable solutions (bushfire protection measures) provide one way of meeting the element's intent. Compliance with these automatically achieves the element's intent and provides a straightforward pathway for assessment and approval.

Where the acceptable solutions cannot be met, the ability to develop design responses (as alternative solutions that meet bushfire performance requirements) is an alternative pathway that is provided by addressing the applicable performance principles (as general statements of how best to achieve the intent of the element).

A merit based assessment is established by the SPP 3.7 and the Guidelines as an additional alternative pathway along with the ability of using discretion in making approval decisions (sections 2.5, 2.6 and 2.7). This is formally applied to certain development (minor and unavoidable – sections 5.4.1 and 5.7). Relevant decisions by the State Administrative Tribunal have also supported this approach more generally.

Elements 1 – 4 should be applied for all strategic planning proposals, subdivision or development applications, except for vulnerable tourism land uses which should refer to Element 5. Element 5 incorporates the bushfire protection criteria in Elements 1 – 4 but caters them specifically to tourism land uses. (Guidelines DPLH 2021v1.4)

The Bushfire Protection Criteria	Applicable to the Proposed Development/Use
Element 1: Location	Yes
Element 2: Siting and Design	Yes
Element 3: Vehicular Access	Yes
Element 4: Water	Yes

6.5 Local Government Variations to Apply

Local governments may add to or modify the acceptable solutions to recognise special local or regional circumstances (e.g., topography / vegetation / climate). These are to be endorsed by both the WAPC and DFES before they can be considered in planning assessments. (Guidelines DPLH 2021v1.4).

Do endorsed regional or local variations to the acceptable solutions apply to the assessments against the Bushfire Protection Criteria for the proposed development /use?	Yes
Local Planning Policies	Applicable to the Proposed Development/Use
Local Planning Policy No.4.2 (BUSHFIRE)	Yes

6.6 Assessment Statements for Element 1: Location

LOCATION			
Element Intent	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
Acceptable Solutions - Assessment Statements All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas .			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A1.1 Development location	Applicable:	Yes	Compliant: Yes
ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES			
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The subdivision application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.			
<p>The ongoing development of the subject land (Staged Development) can provide an area of land within each individual lot that can be considered suitable for development as BAL-40 or BAL-FZ construction standards will not be required to be applied. This proposal can meet the requirements established by Acceptable Solution A1.1 and its associated explanatory note.</p> <p>Compliance with this element is achieved as per the original Bushfire Management Plan by:</p> <ul style="list-style-type: none"> Ensuring future building work on the lot/s can have established around it an APZ of the required dimensions (minimum 25 APZ within the Lot Boundary) - to ensure that the potential radiant heat from a bushfire to impact future building/s, does not exceed 29 kW/m² (i.e. a BAL rating of BAL-29 or less will apply to determine building construction standards); The APZ/s can be established fully within the/each lot boundaries; and The landowner/s having the responsibility of continuing to manage the required APZ as low threat vegetation in a minimal fuel state, by maintaining the APZ to the required dimensions and standard (minimum 25 APZ within the Lot Boundary), including compliance with the local government's annual firebreak notice. <p>Supporting Assessment Details:</p> <p>The proposed subdivision will provide an area of land within each lot that can be considered suitable for development as BAL-40 or BAL-FZ construction requirements will not be required to be applied. This meets the requirements established by Acceptable Solution A1.1 and its associated explanatory note.</p> <p>Advice from the Proponent (7-2-2024):</p> <p>* A 'habitable building exclusion area' has been applied to Lots within Stage 1 based on the following setback parameters: Any portion of the lot/s impacted by BAL-FZ or BAL-40 is a setback where it is greater than the R-Code setbacks listed below.</p> <p>In all other cases apply R5 setbacks being -12 m from the primary street; 6 m from the secondary street; 6 m from the rear</p>			

ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019)

“Consideration should be given to the site context where ‘area’ is the land both within and adjoining the subject site. The hazards remaining within the site should not be considered in isolation of the hazards adjoining the site, as the potential impact of a bushfire will be dependent on the wider risk context, including how a bushfire could affect the site and the conditions for a bushfire to occur within the site.”

Strategic Planning Proposals: Consider the threat levels from any vegetation adjoining and within the subject site for which the potential intensity of a bushfire in that vegetation would result in it being classified as an Extreme Bushfire Hazard Level (BHL). Identify any proposed design strategies to reduce these threats.

Structure Plans (lot layout known) and Subdivision Applications: As for strategic planning proposals but within the subject site the relevant threat levels to consider are the radiant heat levels represented by BAL-FZ and BAL-40 ratings.

The Hazard Within the Subject Site

The key assumption used to facilitate the determining of Bushfire Attack Levels on the Proposed development site is that vegetation onsite (Figure 3.1.1 (A) – Indicative Asset Protection Zone) is under the control of the landowner and therefore can be removed or modified to present a low bushfire threat. Retained vegetation will be managed in accordance with the technical requirements established by the Schedule 1: ‘Standards for Asset Protection Zones (Guidelines)’. The primary bushfire threat from bushfire prone vegetation remaining within the proposed lots will be embers. This threat will be mitigated by the application of appropriate building design, bushfire construction standards and the ongoing maintenance of the APZ.

The Hazard Adjoining the Subject Site

Bushfire prone vegetation within this locality exists as native vegetation classified as Class A Forest, Class B Woodland, and Class G Grassland. Most of the land within the locality supports this vegetation except for the asset protection zones surrounding existing dwellings (neighbouring properties). The likely potential bushfire impact on persons and property within the proposed lots will be ember attack in the event of a bushfire. This ember threat will be mitigated by the application of appropriate building design, bushfire construction standards and the ongoing maintenance of the minimum BAL-29 dimensioned APZ.

Additional Advice from the Proponent (7-2-2024):

1. The east / west section of Lot 2002 (Reserve for Pedestrian Access and Drainage) is to be used for a shared path (2.5 m wide pavement) with the remainder to be woodchip mulched and / or covered in crushed limestone (the latter is used to prevent weeds spread from private lots to the current UCL / eventual reserve to the north). The three significant existing trees in this section will be retained. This section has been deemed by the City of Busselton to be classifiable vegetation as management of grasses and weeds cannot be guaranteed (Refer to Figure 3.1.1(A), Appendix E & F).
2. The north / south sections of Lot 2002 will contain rock pitched drainage swales / basins on one side and shared path (2.5 m wide pavement) to the other, with pea gravel spread to the surrounds and base of the swales / basins. These sections are deemed by the City of Busselton to be excluded from classification (low-threat) (Refer to Figure 3.1.1(A), Appendix E & F).
3. Lot 2001 will remain Class A Forest, which provides the ability for some rehabilitation to occur in these areas if required (Refer to Figure 3.1.1(A)).
4. The subject land is not in an Environmentally Sensitive Area, nor subject to a Conservation category wetland. It has only Resource Enhancement and Multiple Use wetlands, but these do not prevent development in accordance with a structure plan.
5. A ‘habitable building exclusion area’ has been applied to relevant Lots based on the following setback parameters: Any portion of the lot impacted by BAL-FZ or BAL-40 is a setback where it is greater than the R-Code setbacks listed below.
6. In all other cases apply R5 setbacks being - 12 m from the primary street; 6 m from the secondary street; 6 m from the rear

6.7 Assessment Statements for Element 2: Siting and Design

SITING AND DESIGN OF DEVELOPMENT			
Element Intent	To ensure that the siting and design of development minimises the level of bushfire impact. (BPP Note: not building/construction design)		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
Acceptable Solutions - Assessment Statements All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas .			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A2.1 Asset Protection Zone (APZ)	Applicable:	Yes	Compliant: Yes
APZ DIMENSIONS – DIFFERENCES IN REQUIREMENTS FOR PLANNING ASSESSMENTS COMPARED TO IMPLEMENTATION A key required bushfire protection measure is to reduce the exposure of buildings/infrastructure (as exposed vulnerable elements at risk), to the direct bushfire threats of flame contact, radiant heat and embers and the indirect threat of consequential fires that result from the subsequent ignition of other combustible materials that may be constructed, stored or accumulate in the area surrounding these structures. This reduces the associated risks of damage or loss. This is achieved by separating buildings (and consequential fire fuels as necessary) from areas of classified bushfire prone vegetation. This area of separation surrounding buildings is identified as the Asset Protection Zone (APZ) and consists of no vegetation and/or low threat vegetation or vegetation continually managed to a minimal fuel condition. The required separation distances will vary according to the site specific conditions and local government requirements. The APZ dimensions stated and/or illustrated in this Report can vary dependent on the purpose for which they are being identified. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p><i>Note: Appendix B 'Onsite Vegetation Management' provides further information regarding the different APZ dimensions that can be referenced, their purpose and the specifications of the APZ that are to be established and maintained on the subject lot.</i></p> </div>			
THE 'PLANNING BAL-29' APZ DIMENSIONS Purpose: To provide evidence of the development or use proposal's ability to achieve minimum vegetation separation distances. To achieve 'acceptable solution' planning approval for this factor, it must be demonstrated that the minimum separation distances corresponding to a maximum level of radiant transfer to a building of 29 kW/m ² , either exist or can be implemented (with certain exceptions). These separation distances are the 'Planning BAL-29' APZ dimensions. <i>The 'Planning BAL-29' APZ is not necessarily the size of the APZ that must be physically implemented and maintained by a landowner. Rather, its sole purpose is to identify if an acceptable solution for planning approval can be met.</i>			

THE 'REQUIRED' APZ DIMENSIONS

Purpose: Establishes the dimensions of the APZ to be physically implemented by the landowner on their lot: These will be the minimum required separation distances from the subject building(s) to surrounding bushfire prone vegetation (identified by type and associated ground slope). These are established by:

- D. The 'BAL Rating APZ' of the subject building(s) when distances are greater than 'B' below (except when 'B' establishes a maximum distance); or
- E. The 'Local Government' APZ' derived from the Firebreak/Hazard Reduction Notice when distances are greater than 'A' above, other than when a maximum distance is established, in which case this will apply; or
- F. A combination of 'A' and 'B'.

Within this Report/Plan it is the 'Planning BAL-29' APZ that will be identified on maps, diagrams and in tables as necessary – unless otherwise stated.

The 'Required' APZ dimension information will be presented in Appendix B1.1 and on the Property Bushfire Management Statement, when required to be included for a development application.

ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES

☒ ☐ ☐ **APZ Width:** The proposed (or a future) habitable building(s) on the lot(s) of the proposed development - or an existing building for a proposed change of use - can be (or is) located within the developable portion of the lot and be surrounded by a 'Planning BAL-29' APZ of the required dimensions (measured from any external wall or supporting post or column to the edge of the classified vegetation), that will ensure their exposure to the potential radiant heat impact of a bushfire does not exceed 29 kW/m².

☒ ☐ ☐ **Restriction on Building Location:** It has been identified that the current developable portion of a lot(s) provides for the proposed future (or a future) building/structure location that will result in that building/structure being subject to a BA-40 or BAL-FZ rating. Consequently, a condition of subdivision approval should be imposed requiring preparation of a local development plan to identify habitable building exclusion areas (refer to code L3 of Model Subdivision Conditions Schedule, WAPC January 2024).

☐ ☐ ☒ **APZ Location:** The required dimensions for a 'Planning BAL-29' APZ can be contained solely within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use - is situated.

☒ ☐ ☐ **APZ Location:** The required dimensions for a 'Planning BAL-29' APZ can be partly established within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use - is situated. The balance of the APZ would exist on adjoining land that satisfies the exclusion requirements of AS 3959:2018 cl 2.2.3.2 for non-vegetated areas and/or low threat vegetation and/or vegetation managed in a minimal fuel condition.

☒ ☐ ☐ **APZ Location:** It can be justified that any adjoining (offsite) land forming part of a 'Planning BAL-29' APZ will:

- If non-vegetated, remain in this condition in perpetuity; and/or
- If vegetated, be low threat vegetation or vegetation managed in a minimal fuel condition in perpetuity.

☒ ☐ ☐ **APZ Management:** The area of land (within each lot boundary), that is to make up the required 'Landowner' APZ dimensions (refer to Appendix B, Part B1), can and will be managed in accordance with the requirements of the Guidelines Schedule 1 'Standards for Asset Protection Zones' (refer to Appendix B).

ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019)

Strategic Planning Proposals: "At this planning level there may not be enough detail to demonstrate compliance with this element. The decision-maker may consider this element is satisfied where A1.1 is met."

Structure Plans (lot layout known) and Subdivision Applications: "Provided that Element 1 is satisfied, the decision-maker may consider approving lot(s) containing BAL-40 or BAL-FZ.

The ongoing development of the subject land (Staged Development) can provide an area of land within each individual lot that can be considered suitable for development as BAL-40 or BAL-FZ construction standards will not be required to be applied. This proposal can meet the requirements established by Acceptable Solution A2.1 and its associated explanatory note.

There is a revised level of BAL Contour impact (Figure 3.2 (A)) from the Class G Grassland on the eastern boundary of the development. This impact has been offset through a new (additional) "Habitable Building Exclusion Area" on the Eastern Boundary (Approx. 8 Metre in width) (Figure 3.2 (A))

Compliance with this element is achieved as per the original Bushfire Management Plan by:

- Ensuring future building work on the lot/s can have established around it an APZ of the required dimensions - to ensure that the potential radiant heat from a bushfire to impact future building/s, does not exceed 29 kW/m². The APZ/s can be established fully within the/each lot boundaries; and
- The landowner/s having the responsibility of continuing to manage the required APZ as low threat vegetation in a minimal fuel state, by maintaining the APZ to the required dimensions and standard (minimum 25 APZ within the Lot Boundary), including compliance with the City firebreak notice.

The lots sizes provide sufficient area to accommodate a building and the establishment of an APZ dimensioned to ensure a maximum BAL rating of BAL-29 will apply to that building.

Advice from the Proponent (7-2-2024):

* A 'habitable building exclusion area' has been applied to Stage 1 Lots based on the following setback parameters: Any portion of the lot/s impacted by BAL-FZ or BAL-40 is a setback where it is greater than the R-Code setbacks listed below.

In all other cases apply R5 setbacks being-

- 12 m from the primary street;
- 6 m from the secondary street;
- 6 m from the rear

6.8 Assessment Statements for Element 3: Vehicular Access

VEHICULAR ACCESS			
Element Intent	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
<p align="center">Acceptable Solutions - Assessment Statements</p> <p><i>All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.</i></p> <p><i>The technical construction requirements for access types and components, and for each firefighting water supply component, are also presented in Appendices 2 and 3. The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply (these are included in the relevant appendix if requested by the local government).</i></p>			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A3.1 Public roads	Applicable:	Yes	Compliant: Yes
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The technical construction requirements of vertical clearance and weight capacity (Guidelines, Table 6) can and will be complied with (Refer also to Appendix C in this BMP).</p>			
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A traversable verge is available adjacent to classified vegetation (Guidelines, E3.1), as recommended.</p>			
A3.2a Multiple access routes	Applicable:	Yes	Compliant: Yes
<p><input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> For each lot, two-way public road access is provided in two different directions to at least two different suitable destinations with an all-weather surface.</p>			
<p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The two-way access <u>is</u> available at an intersection no greater than 200m from the relevant boundary of each lot, via a no-through road.</p>			
<p>The two-way access is <u>not</u> available at an intersection within 200m from the relevant boundary of each lot. However, the available no-through road satisfies the established exemption for the length limitation in every case. These requirements are:</p> <ul style="list-style-type: none"> • Demonstration of no alternative access (refer to A3.3 below); • The no-through road travels towards a suitable destination; and • The balance of the no-through road that is greater than 200m from the relevant lot boundary is within a residential built-out area or is potentially subject to radiant heat levels from adjacent bushfire prone vegetation that correspond to the BAL-LOW rating (<12.5 kW/m²). <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p>			

A3.2b Emergency access way	Applicable:	Yes	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed or existing EAW provides a through connection to a public road.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed or existing EAW is less than 500m in length and will be signposted and gated (remaining unlocked) to the specifications stated in the Guidelines and/or required by the relevant local government.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.2b. Refer also to Appendix C in this BMP), can and will be complied with.				
A3.3 Through-roads	Applicable:	Yes	Compliant:	Yes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A no-through public road is necessary as no alternative road layout exists due to site constraints.				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The no-through public road length does not exceed the established maximum of 200m to an intersection providing two-way access (Guidelines, E3.3).				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The no-through public road exceeds 200m but satisfies the exemption provisions of A3.2a as demonstrated in A3.2a above.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The public road technical construction requirements (Guidelines, Table 6 and E3.1. Refer also to Appendix C in this BMP), can and will be complied with as established in A3.1 above.				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The turnaround area requirements (Guidelines, Figure 24) can and will be complied with.				
A3.4a Perimeter roads	Applicable:	Yes	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed greenfield or infill development consists of 10 or more lots (including those that are part of a staged subdivision) and therefore should have a perimeter road. This is planned to be installed.				
<div> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> <div> The proposed greenfield or infill development consists of 10 or more lots (including those that are part of a staged subdivision). However, it is not required on the established basis of: <ul style="list-style-type: none"> • The vegetation adjoining the proposed lots is classified Class G Grassland; • Lots are zoned rural living or equivalent; • It is demonstrated that it cannot be provided due to site constraints; or • All lots have existing frontage to a public road. </div> </div>				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4a) can and will be complied with.				
A3.4b Fire service access route	Applicable:	Yes	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The FSAR can be installed as a through-route with no dead ends, linked to the internal road system every 500m and is no further than 500m from a public road.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4b. Refer also to Appendix C in this BMP), can and will be complied with.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The FSAR can and will be signposted. Where gates are required by the relevant local government, the specifications can be complied with.				

<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> Turnaround areas (to accommodate type 3.4 fire appliances) can and will be installed every 500m on the FSAR.				
A3.5 Battle-axe access legs	Applicable:	Yes	Compliant:	Yes
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A battle-axe leg cannot be avoided due to site constraints.				
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The proposed development is in a reticulated area and the battle-axe access leg length from a public road is no greater than 50m. No technical requirements need to be met.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The proposed development is not in a reticulated area. The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.5. Refer also to Appendix C in this BMP), can and will be complied with.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.				
A3.6 Private driveways	Applicable:	No	Compliant:	N/A
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The private driveway to the most distant external part of the development site is within a lot serviced by reticulated water, is accessed via a public road with a speed limit of 70 km/hr or less and has a length is no greater than 70m (measured as a hose lay). No technical requirements need to be met.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.6. Refer also to Appendix C in this BMP), can and will be complied with.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.				
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="radio"/> The turnaround area requirements (Guidelines, Figure 28, and within 30m of the habitable building) can and will be complied with.				
<p>Supporting Assessment Details:</p> <p>A site visit was conducted on the 20-10-2022. The proposed design (Figure 1.1(A)) and capacity of the vehicular access and egress within the first stage of subdivision provides the community with options to evacuate to a suitable destination before a bushfire arrives at the site while also allowing emergency services personnel to attend the site in accordance with the Bushfire Guidelines Version 1.4. The construction technical requirements established by the Guidelines and/or the local government can and will be complied with.</p> <p>Rendezvous Road and Bendjar Grove are public roads that have been constructed in accordance with technical requirements established by the Guidelines. Stage 1 includes the development of two cul-de-sacs both of which are approximately <100 metres in length. The construction technical requirements established by the Guidelines (Cul-de-sacs) and/or the local government can and will be complied with (Figure 1.1(A)). One Lot will have a battle-axe access of approximately 35m in length form part of this proposal (Lot 13). The construction technical requirements established by the Guidelines and/or the local government can and will be complied with.</p>				

6.9 Assessment Statements for Element 4: Water

FIREFIGHTING WATER			
Element Intent	To ensure water is available to enable people, property and infrastructure to be defended from bushfire.		
Proposed Development/Use – Relevant Planning Stage	(Sb) Structure plan where the lot layout is known and subdivision application		
Element Compliance Statement	The proposed development/use achieves the intent of this element by being fully compliant with all applicable acceptable solutions.		
Acceptable Solutions - Assessment Statements <i>All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines).</i>			
Solution Component Check Box Legend	<input checked="" type="checkbox"/> Relevant & met	<input checked="" type="checkbox"/> Relevant & not met	<input type="checkbox"/> Not relevant
A4.1 Identification of future firefighting water supply	Applicable:	No	Compliant: N/A
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> It can be demonstrated that reticulated or sufficient non-reticulated water for firefighting can be provided at the subdivision and/or development application stage in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2.			
A4.2 Provision of water for firefighting purposes	Applicable:	Yes	Compliant: Yes
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A reticulated water supply is available to the proposed development. The existing hydrant connection(s) are provided in accordance with the specifications of the relevant water supply authority.			
<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A reticulated water supply will be available to the proposed development. Hydrant connection(s) can and will be provided in accordance with the specifications of the relevant water supply authority.			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A static water supply (tank) for firefighting purposes will be installed on the lot each lot that is additional to any water supply that is required for drinking and other domestic purposes. The proposed subdivision will retain an existing habitable building for which the same standard of water supply will be provided.			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> A strategic water supply (tank or tanks) for firefighting purposes will be installed within or adjacent to the proposed development that is additional to any water supply that is required for drinking and other domestic purposes. The required land will be ceded free of cost to the local government and the lot or road reserve where the tank is to be located will be identified on the plan of subdivision.			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The strategic static water supply (tank or tanks) will be located no more than 10 minutes travel time from a subject site (at legal road speeds).			
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> The technical requirements (location, number of tanks, volumes, design, construction materials, pipes and fittings), as established by the Guidelines (A4.2, E4 and Schedule 2) and/or the relevant local government, can and will be complied with.			
Supporting Assessment Details: The site will be provided with a reticulated water supply. Hydrants will be installed in accordance with the relevant standards. The technical requirements established by the Guidelines and/or the local government can and will be complied with.			

RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE PROTECTION MEASURES

Table 3.1: BMP Addendum Implementation responsibilities.

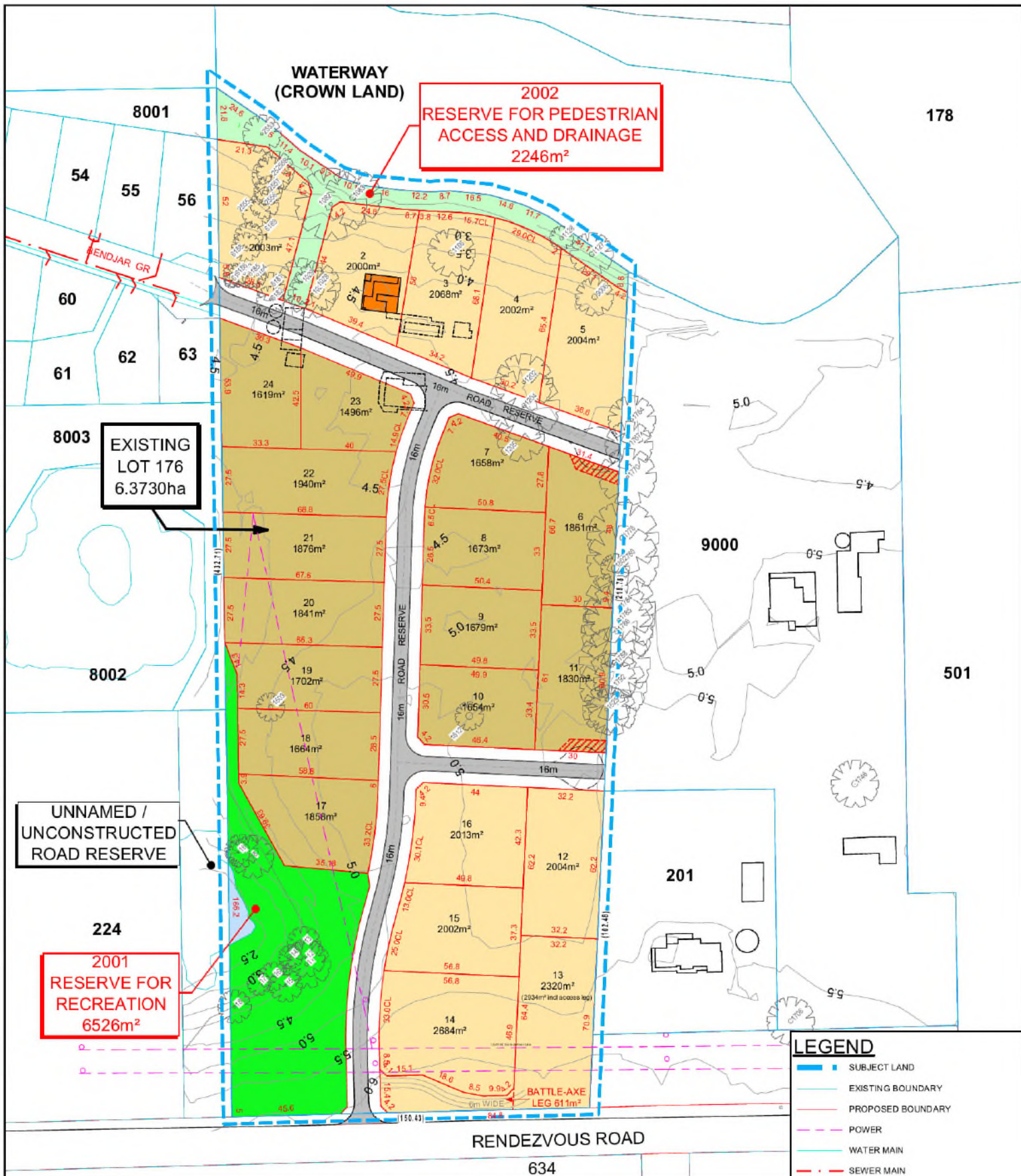
Developer Responsibilities (Landowner) - Prior to Issue of Titles (Stage 1)		
No.	Implementation Actions	Subdivision Clearance
<p>Note: Planning approval may be conditioned with the requirements:</p> <ol style="list-style-type: none"> 1. To place certain notifications on the certificates of title and the deposited plan, regarding the existence of this bushfire management plan and the obligations it creates; and 2. To provide certification of the implementation of certain bushfire protection measures established by this bushfire management plan. 		
1	Condition (as per Code F1 of Model Subdivision Schedule, WAPC April 2020): Information is to be provided to demonstrate that the measures contained in Section 3; of this Bushfire Management Plan Addendum, have been implemented during subdivisional works.	<input type="checkbox"/>
2	Condition (as per Code F2 of Model Subdivision Schedule, WAPC April 2020): A notification, pursuant to Section 165 of the <i>Planning and Development Act 2005</i> , is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows: <i>"This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is/may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land."</i> (Western Australian Planning Commission).	<input type="checkbox"/>
3	<p>Conditions (as per codes L3 and L4 of Model Subdivision Conditions Schedule, WAPC January 2024), as set out below:</p> <p>"L3. Local Development Plan(s) being prepared and approved for lots shown on the plan dated [INSERT VALUE] (attached) that address the following:</p> <ol style="list-style-type: none"> a) Habitable building exclusion areas; and b) c) (INSERT SPECIFIC REQUIREMENTS AS APPROPRIATE). (Local Government) <p>L4. The landowner/applicant shall make arrangements to ensure that prospective purchasers of lots subject of a Local Development Plan are advised in writing that Local Development Plan provisions apply. (Local Government)"</p>	<input type="checkbox"/>
4	Construct the public roads & battle axe(s) to the standard in the Bushfire Guidelines.	<input type="checkbox"/>
5	Install the reticulated water supply to the standards stated in the Bushfire Guidelines.	<input type="checkbox"/>

Table 3.2: BMP Implementation responsibilities prior to lot sale, occupancy or building.

Landowner Responsibilities (Developer) - Prior to Sale of Lot(s) – (Stage 1)	
No.	Implementation Actions
1	Prior to sale and post planning approval, the entity responsible for having the BMP prepared should ensure that anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information and informed that it contains their responsibilities. This includes the landowners/proponents (including future landowners where the Plan was prepared as part of a subdivision approval), local government and any other authorities or referral agencies ('Guidelines' s4.6.3).
2	<p>Prior to any building work, inform the builder of the existence of this Bushfire Management Plan and the responsibilities it contains, regarding the required construction standards. This will be:</p> <ul style="list-style-type: none"> The standard corresponding to the determined BAL, as per the bushfire provisions of the Building Code of Australia (BCA);
3	Prior to sale of the subject lots, the onsite vegetation (within the proposed subdivision site) will be maintained in a Low threat state (Figure 3.1.1(A) – Indicative APZ) as per the AS 3959-2018 s2.2.3.2.
4	Prior to sale of the subject lots, the offsite vegetation within the east-west section of Proposed Lot 2002 (Reserve for Pedestrian Access and Drainage – Figure 1.0(A)) will be modified through civil works (by landowner / developer), including construction of paths, drainage maintenance access tracks (see post-development drainage plan at appendix C of local water management strategy) and weed suppression (mulch and crushed limestone).

Table 3.3: Ongoing management responsibilities for the Landowner/Occupier.

Landowner/Occupier Responsibilities – Ongoing (Stage 1)	
No.	Ongoing Management Actions
1	Maintain a minimum 25 metre Asset Protection Zone (APZ) within the Lot Boundary to the standards established by the Bushfire Guidelines or as varied by the local government through their Firebreak Notice
2	Maintain vehicular access routes within the lot to the required surface condition and clearances as stated in the BMP.
3	Ensure that any builders (of future structures on the lot) are aware of the existence of this Bushfire Management Plan and the responsibilities it contains regarding the application of construction standards corresponding to a determined BAL.
4	<p>Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with:</p> <ol style="list-style-type: none"> 1. the requirements of the WA Building Act 2011 and the bushfire provisions of the Building Code of Australia (BCA); and 2. with any identified additional requirements established by this BMP or the local government.



EXISTING LOTS = 1
TOTAL SUBDIVISION AREA = 6.3730ha

R-CODE	NUMBER OF LOTS	NET AREA (m²)	AVERAGE	LOT RANGE
R5	10	21,714	2171	2000 - 2685
R10	14	24,333	1738	1496 - 1940

PROPOSED ROADS, RESERVES & PEDESTRIAN ACCESS WAYS

RESERVE	PURPOSE	AREA (m²)
LOT 2001	RESERVE FOR RECREATION	6,526
LOT 2002	RESERVE FOR PEDESTRIAN ACCESS & RECREATION	2,246
ROADS	PEDESTRIANS, CYCLES AND VEHICLES	8,911
TOTAL		17,683

LEGEND

- SUBJECT LAND
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- POWER
- WATER MAIN
- SEWER MAIN
- EXISTING CONTOURS
- RESIDENTIAL R10
- RESIDENTIAL R5
- EXISTING BUILDING / STRUCTURES TO BE RETAINED
- EASEMENT IN GROSS FOR TEMPORARY TURN AROUND
- EXISTING BUILDING / STRUCTURES TO BE REMOVED

Project: LOTS 176 (#604) RENDEZVOUS ROAD, VASSE

Drawing Title: PLAN OF SUBDIVISION

Principal: BANYANDA DEVELOPMENTS PTY. LTD.



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Date: 14/01/24 Scale: 1:1500

Designed: AB Checked: AB

Drawn: TL

Local Authority: City of Busseton Sheet 1 Of 1

Plan/Diagram Number CT Number

63890 1635-719

Revision: V3 ORIGINAL: A3

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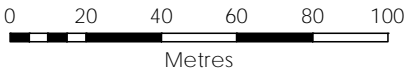
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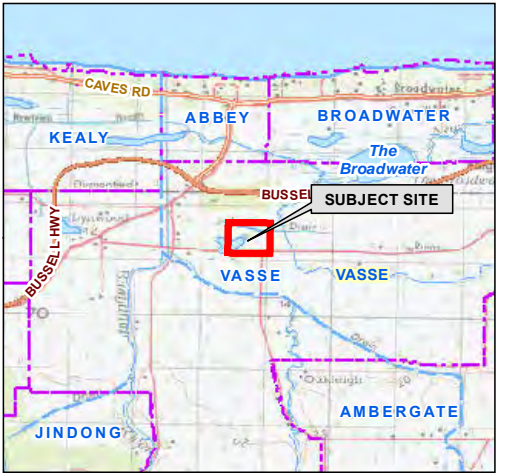
Figure 1.1(A)
Proposed Subdivision

Lot 176 on Diagram 63890, Area : 63,730 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
- Subject Site
 - Other Lots
 - Proposed Subdivision
 - 5m Pathway
 - Easement for Temporary Turn Around
 - Habitable Building Exclusion Area
 - Existing Building
 - Dwelling



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : Jun 2023




Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 8/02/2024
Map dated by: Ian Ross 8/02/2024
A3 Scale 1:2,000





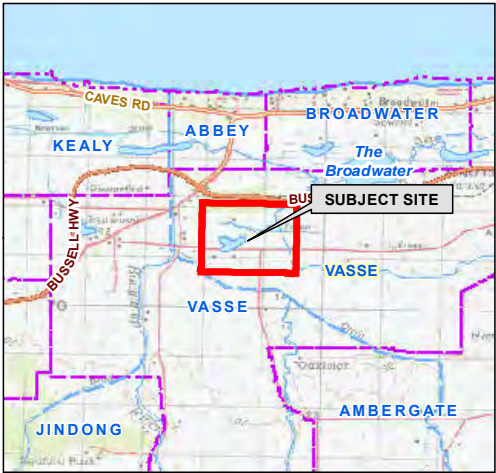
Figure 1.2(A)
Proposed Subdivision Site

Lot 176 on Diagram 63890, Area : 63,730 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
-  Subject Site
 -  Other Lots
 -  Proposed Subdivision



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : Jun 2023

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 8/02/2024
Map dated by: Ian Ross 8/02/2024
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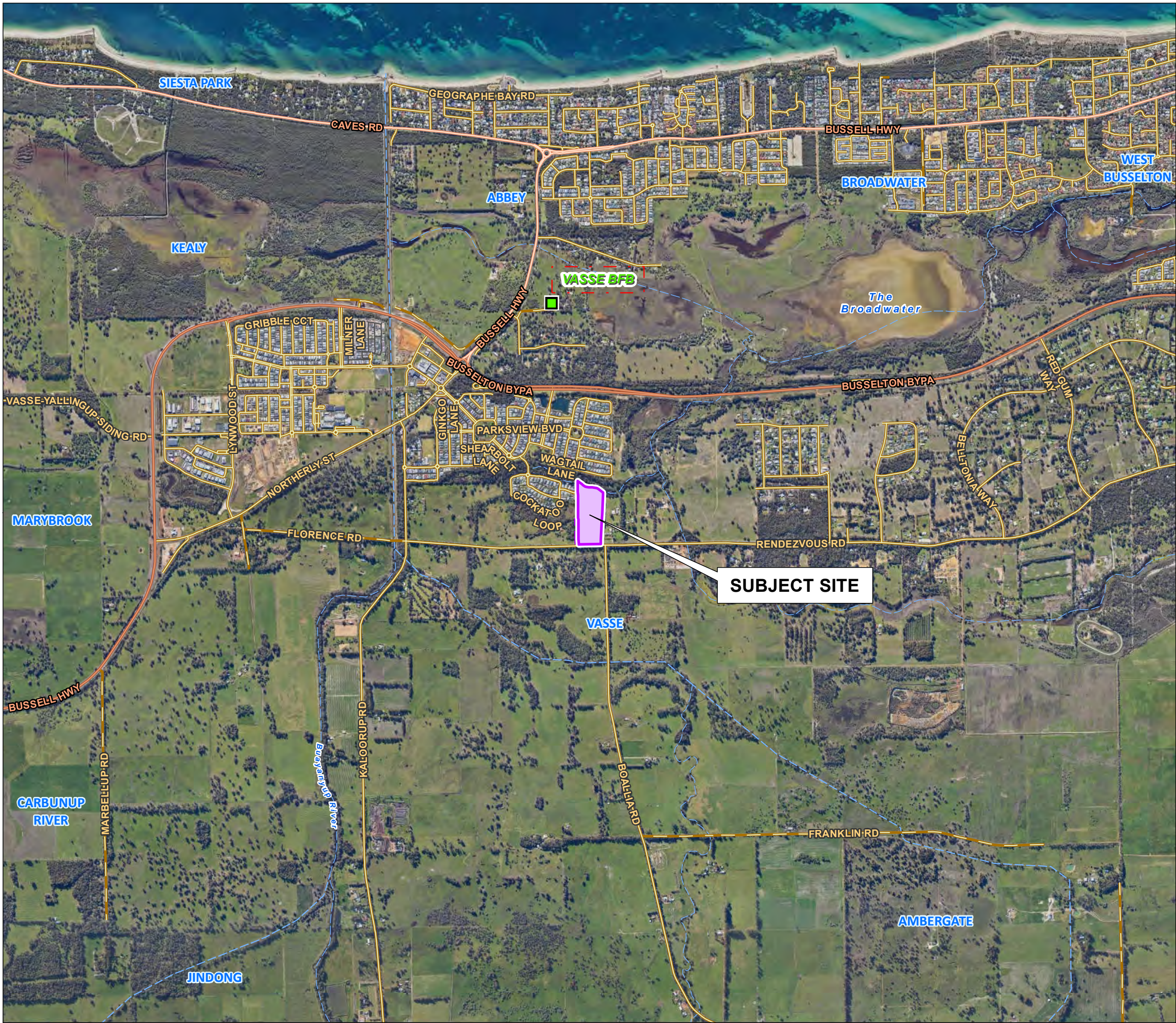


Figure 1.3(A)
Location Plan

Lot 176 on Diagram 63890, Area : 63,730 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
- Subject Site
 - Bush Fire Brigade

0 250 500 750 1,000 1,250
Metres

----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : Jun 2023

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 8/02/2024
Map dated by: Ian Ross 8/02/2024
A3 Scale 1:25,000

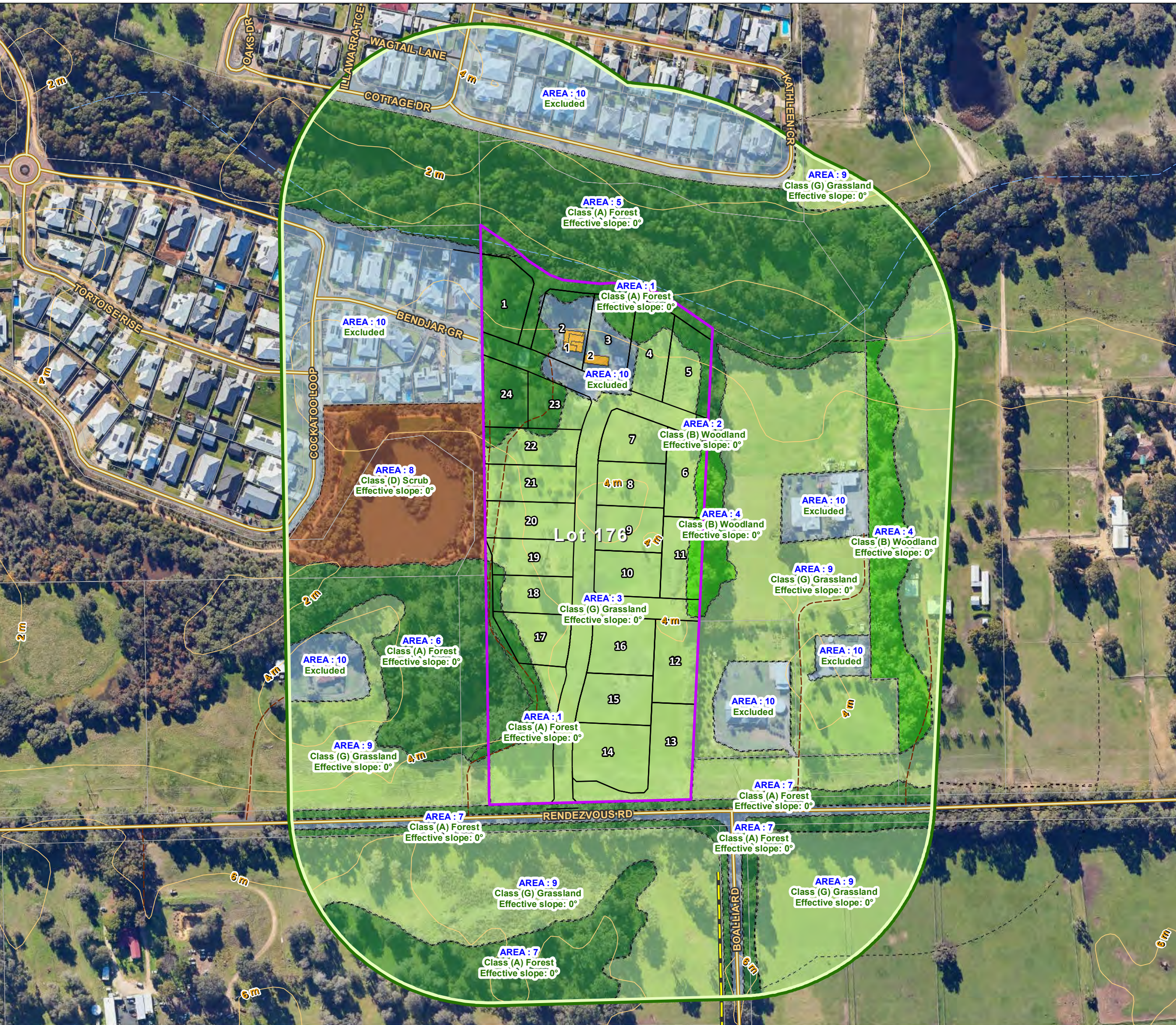
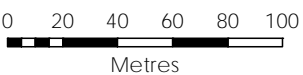
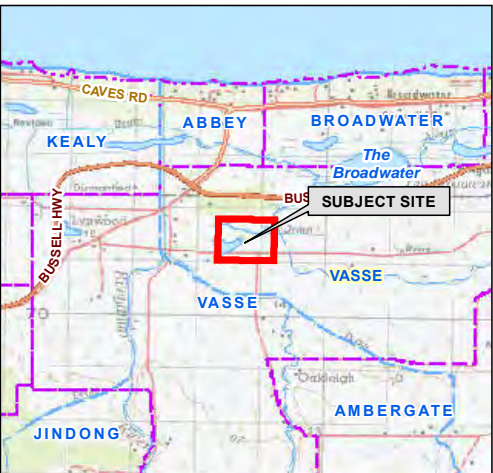


Figure 3.1 (A)
Topography & Classified
Vegetation (Pre Development)
Lot 176 on Diagram 63890, Area : 63,730 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
- Subject Site
 - Other Lots
 - Proposed Subdivision
 - Emergency Access
 - Fire Service Access Route
 - Existing Building
 - Dwelling
 - 150m Vegetation Assessment Area
 - 150m from Subject Site
 - Classified Vegetation
 - Class (A) Forest
 - Class (B) Woodland
 - Class (D) Scrub
 - Class (G) Grassland
 - Exclusion 2.2.3.2



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : Jun 2023
Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 8/02/2024
Map dated by: Ian Ross 8/02/2024
A3 Scale 1:2,750

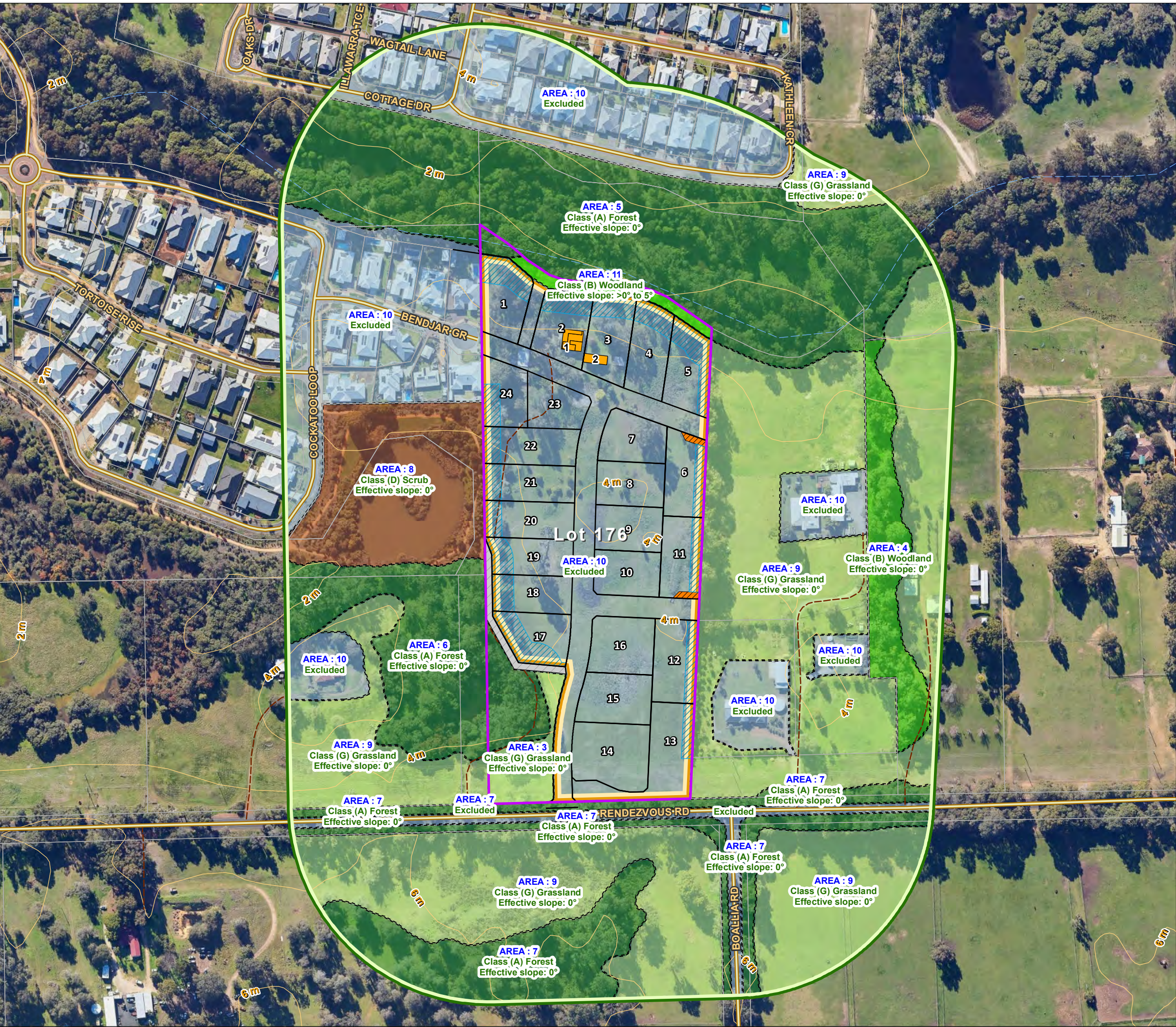


Figure 3.1.1(A)
Topography & Classified
Vegetation (Post Development)
Lot 176 on Diagram 63890, Area : 63,730 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

----- LEGEND -----

- Subject Site
- Other Lots
- Proposed Subdivision
- 5m Pathway
- Easement for Temporary Turn Around
- Habitable Building Exclusion Area

Asset Protection

- Indicative APZ

Existing Building

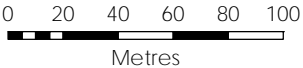
- Dwelling

150m Vegetation Assessment Area

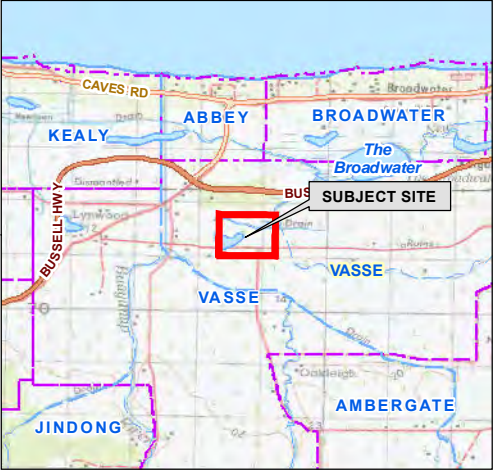
- 150m from Subject Site

Classified Vegetation

- Class (A) Forest
- Class (B) Woodland
- Class (D) Scrub
- Class (G) Grassland
- Exclusion 2.2.3.2



----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : Jun 2023

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 12/02/2024
Map dated by: Ian 12/02/2024
A3 Scale 1:2,750



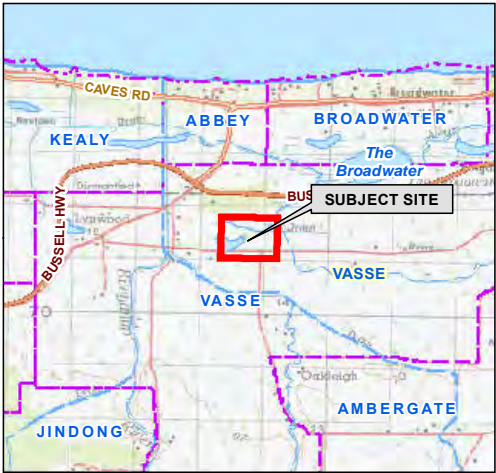
Figure 3.2(A)
BAL Contour Map

Lot 176 on Diagram 63890, Area : 63,730 sq m
Rendezvous Road,
VASSE 6280
CITY OF BUSSELTON

- LEGEND -----
- Subject Site
 - Other Lots
 - Proposed Subdivision
 - 5m Pathway
 - Easement for Temporary Turn Around
 - Habitable Building Exclusion Area
 - Existing Building
 - Dwelling
 - 100m Vegetation Assessment Area
 - 100m from Subject Site
 - Indicative Bushfire Attack Levels
 - BAL FZ
 - BAL 40
 - BAL 29
 - BAL 19
 - BAL 12.5
 - BAL LOW

0 20 40 60 80 100
Metres

----- LOCALITY -----



Aerial Imagery : Landgate/SLIP
Image Date : Jun 2023

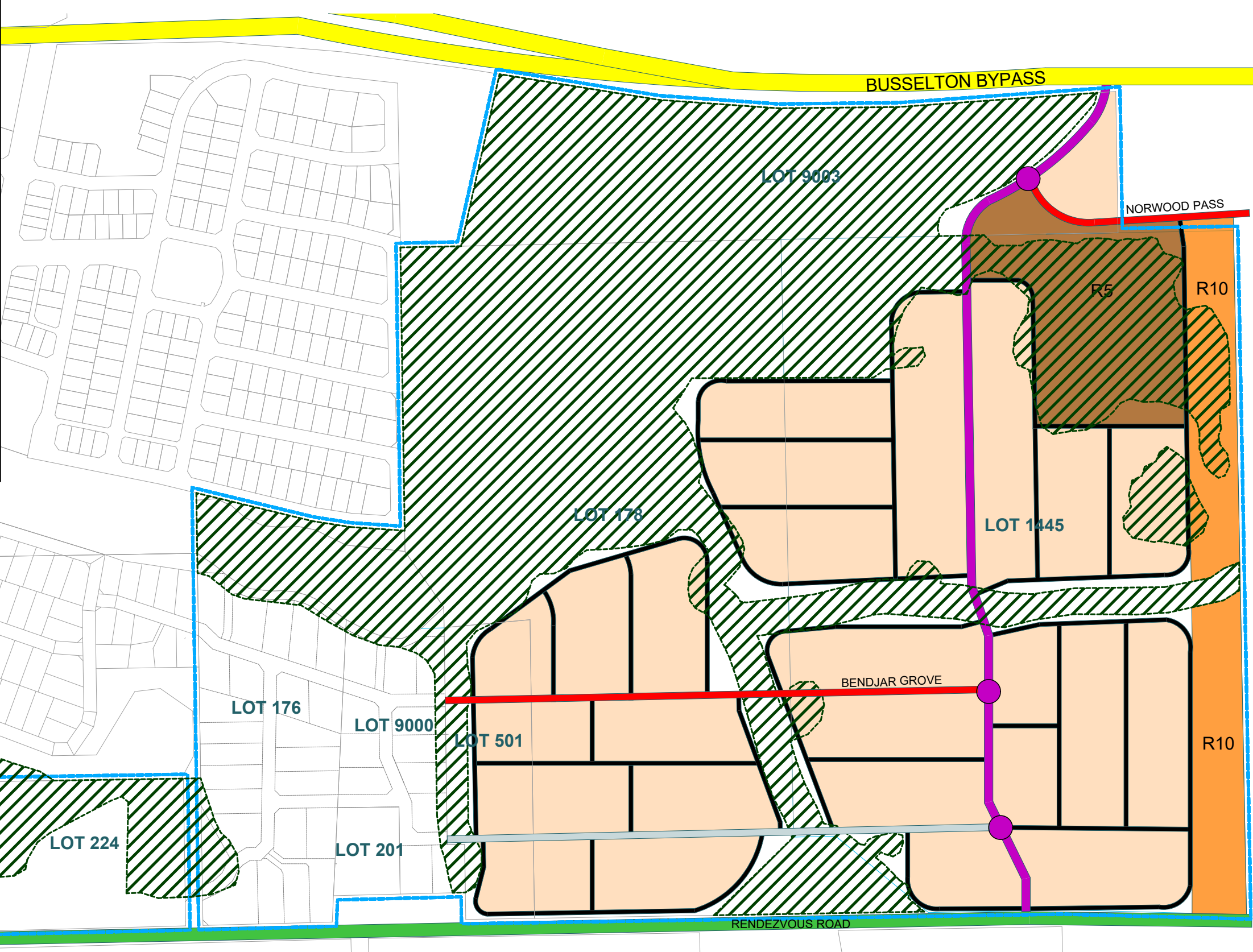
Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 8/02/2024
Map dated by: Ian Ross 8/02/2024
A3 Scale 1:2,750

APPENDIX G

VASSE EAST DEVELOPABLE AREA CONCEPT ROAD NETWORK PLAN

ROAD HIERARCHY

- PRIMARY DISTRIBUTOR
- LOCAL DISTRIBUTOR
- INTEGRATOR B
- NEIGHBOURHOOD CONNECTOR B
- ACCESS STREET C
- ACCESS STREET D



Project: LOTS 176, 201 AND 9000 / HOUSES 604, 580 AND 578 RENDEZVOUS ROAD, VASSE

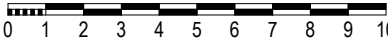
Drawing Title: VASSE EAST DEVELOPABLE AREA ROAD NETWORK PLAN

Principal: BANYANDA INVESTMENTS PTY. LTD. AND K. BELL

LEGEND

- SUBJECT LAND
- EXISTING CADASTRAL BOUNDARY
- DESIGNATED 'PUBLIC OPEN SPACE'
- R5 PRECINCT
- R10 PRECINCT
- RESIDENTIAL

N



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Web: www.ableplanning.com.au

Date: 24/05/21 Scale: 1:5000
Designed: AB Checked: AB
Drawn: TL
Local Authority: City of Busselton Sheet 1 Of 1
Plan/Diagram Number CT Number
63890 1635-719
65898 2823-895
65898 2823-896
Revision: V1 ORIGINAL:A3

APPENDIX H

TRAFFIC IMPACT STATEMENT

Project:	Proposed Residential Subdivision Lots 176, 201 and 9000 Rendezvous Road, Vasse
Client:	Banyanda Developments Pty Ltd c/- Hanson Property Group
Author:	Liomar De Leon
Date:	12 th December 2023
Shawmac Document #:	2311010-TIS-001

Document Status: Updated Structure Plan Layout

Version	Prepared By	Reviewed By	Approved By	Date
A	L. De Leon	P. Nguyen	P. Nguyen	06/12/2023
B	L. De Leon	-	P. Nguyen	12/12/2023

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1. Introduction

1.1. Proponent

Shawmac Pty Ltd has been engaged by Hanson Property Group to prepare a Transport Impact Statement (TIS) for a proposed subdivision development in Vasse.

This TIS has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines* Vol 3: Subdivision which includes the following section:

- Proposed subdivision
- Vehicle access and parking
- Provision for service vehicles
- Daily traffic volumes and vehicle types
- Traffic management on frontage streets
- Public transport access
- Pedestrian access
- Cycle access
- Site specific issues
- Safety issues.

1.2. Site Location

The site is located on lots 176, 201 and 9000 Rendezvous Road in Vasse. The local authority is the City of Busselton (CoB).

The site location is shown in Figure 1. An aerial view of the existing site is shown in Figure 2.

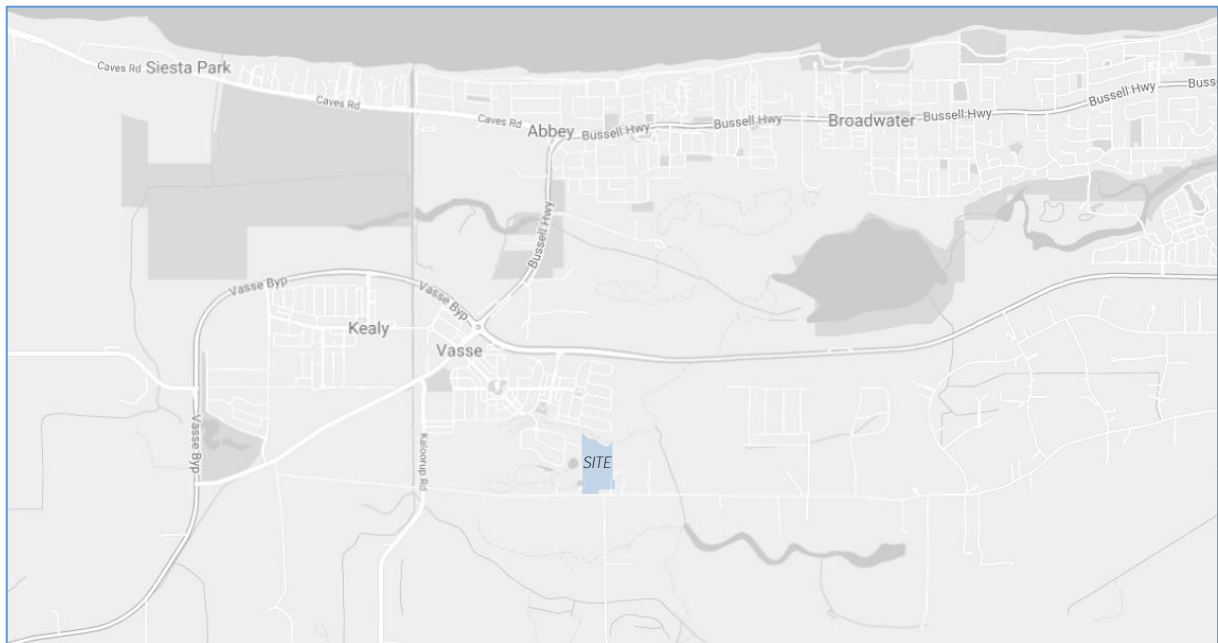


Figure 1: Site Location



Figure 2: Aerial Imagery (October 2023)

2. Proposed Subdivision

2.1. Land Use

There are several single dwellings on the site and some will be retained.

It is proposed to subdivide Lots 176 and 9000 to create 36 residential (mixture of R5 and R10) lots ranging from 1,309 – 2,684m².

Access to the site will be via Bendjar Grove and a new intersection on Rendezvous Road. All proposed internal roads will have a road reserve between 14 – 16m wide.

The proposed subdivision plan is shown in Figure 3.

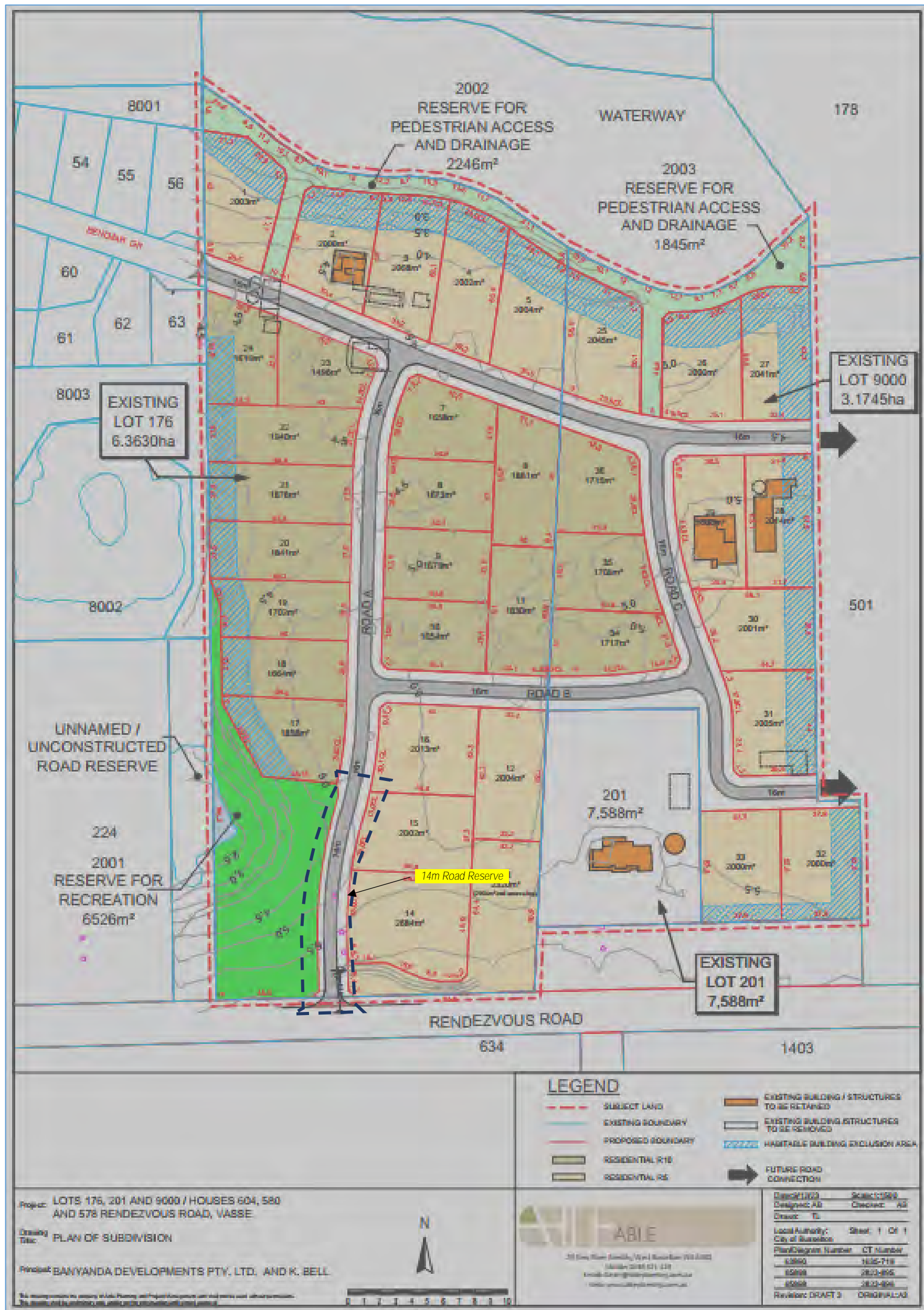


Figure 3: Proposed Subdivision Layout

3. Traffic Management on Frontage Streets

3.1. Road Network

The layout and hierarchy of the existing local road network according to the Main Roads WA *Road Information Mapping System* is shown in Figure 4.

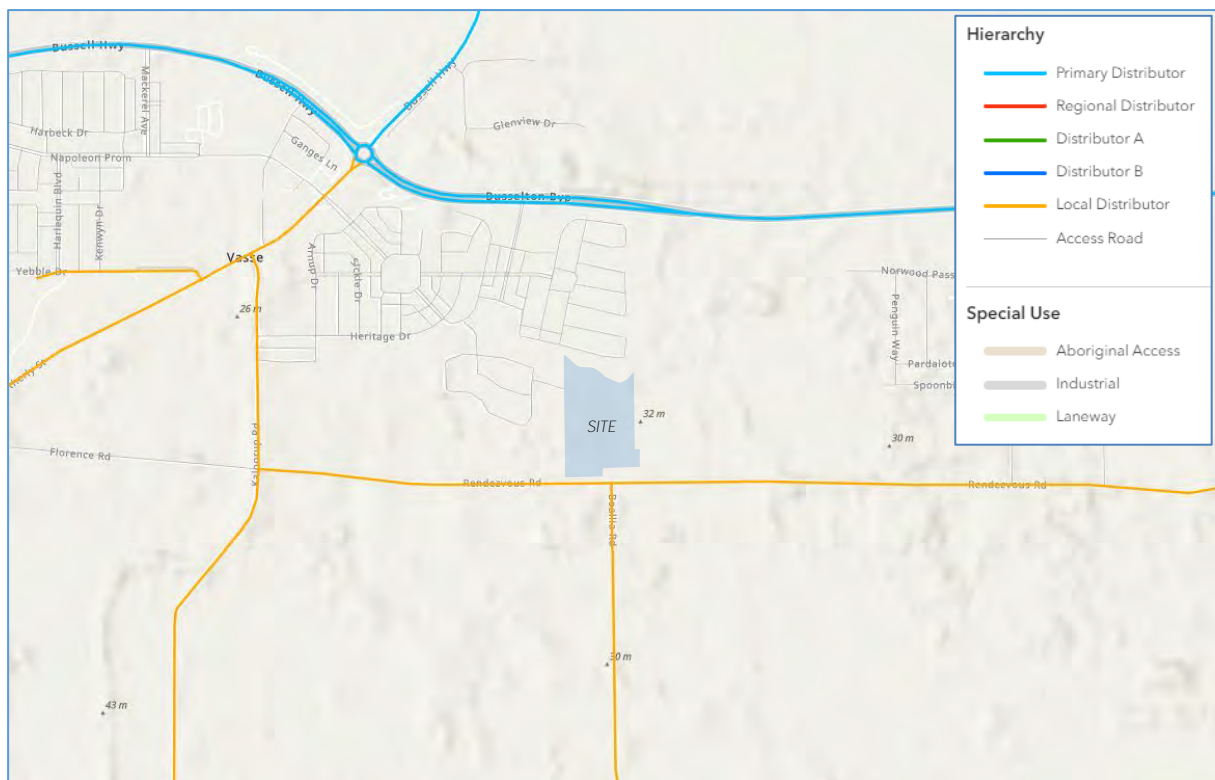


Figure 4: Existing Road Network Hierarchy

3.2. Speed Limits

The existing speed limits on the surrounding road network are shown in Figure 5.

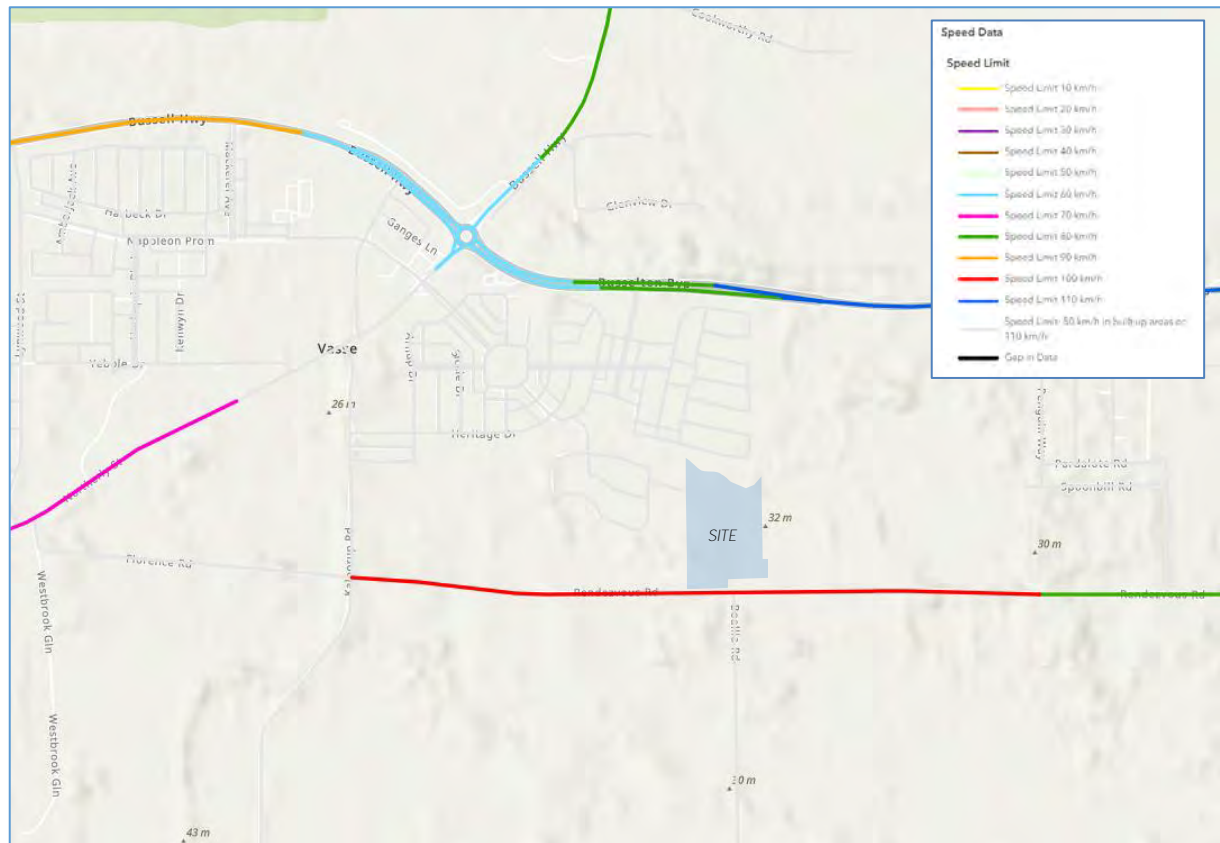


Figure 5: Existing Speed Limits

3.3. Traffic Volumes

The latest traffic volumes were provided by the CoB in November 2023. The midblock traffic volumes on Rendezvous Road 100m west of Boallia Road in September 2022 are shown in Figure 6.

Weekly Vehicle Counts (Virtual Week)									
VirtWeeklyVehicle-696									
Site: 2022042.0.1WE									
Description: rendezvous rd (100m west of boallia rd)									
Filter time: 12:53 Monday, 15 August 2022 => 11:45 Tuesday, 6 September 2022									
Scheme: Vehicle classification (AustRoads94)									
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100)									
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
Hour								1 - 5	1 - 7
0000-0100	0.0	0.8	0.0	1.3	0.3	2.0	2.3	0.5	1.0
0100-0200	0.7	0.3	0.3	0.0	0.0	1.3	1.3	0.3	0.5
0200-0300	0.0	1.0	1.3	1.3	1.0	1.3	0.7	0.9	1.0
0300-0400	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.1
0400-0500	0.7	0.0	0.0	0.3	1.3	0.0	0.7	0.4	0.4
0500-0600	3.7	3.8	4.0	5.7	5.0	2.3	1.7	4.4	3.7
0600-0700	21.0	20.0	28.0	32.3	29.0	10.7			20.7
0700-0800	47.7	44.8	53.0	58.3	44.3	22.0	15.7	49.3	41.0
0800-0900	142.7	112.0	146.0	131.0	138.0	42.7	25.3	132.6	105.7
0900-1000	77.0	53.5	77.0	78.0	83.3	53.3	47.3	72.5	66.5
1000-1100	54.7	46.8	57.0	64.0	62.0	54.3	60.3	56.3	56.5
1100-1200	35.3	52.8	59.0	63.3	63.0	65.3	67.7	54.6	57.8
1200-1300	37.0	60.3	61.7	60.3	67.7	63.7			56.4
1300-1400	50.3	55.0	59.3	58.3	75.3	59.3			57.4
1400-1500	54.0	74.7	69.3	68.7	90.7	49.0	58.7	70.4	65.9
1500-1600	79.8	113.0	111.0	111.3	115.7	49.7	56.0	104.5	90.4
1600-1700	68.0	93.3	100.0	101.7	101.0	53.7	57.3	91.3	81.5
1700-1800	53.0	79.3	72.7	90.7	76.7	56.7	40.3	73.1	66.4
1800-1900	22.3	34.0	33.3	41.3	39.7	28.3	18.3	33.4	30.6
1900-2000	5.5	14.0	12.0	13.7	14.7	12.3	10.0	11.6	11.5
2000-2100	4.8	6.3	11.7	10.3	9.7	11.3	8.0	8.3	8.7
2100-2200	4.5	6.0	4.3	7.3	13.7	12.3	3.7	7.0	7.3
2200-2300	1.5	2.7	1.3	2.7	6.3	6.3	3.7	2.8	3.4
2300-2400	0.0	0.0	1.3	1.7	3.0	3.0	0.3	1.1	1.3
Totals									
0700-1900	721.6	819.4	899.3	927.0	957.3	598.0	544.0	852.0	776.1
0600-2200	757.3	865.8	955.3	990.7	1024.3	644.7	560.7	850.7	824.2
0600-0000	758.8	868.4	958.0	995.0	1033.7	654.0	573.7	909.5	828.9
0000-0000	763.8	874.2	963.7	1003.7	1041.3	661.7	580.7	916.0	835.6

Figure 6: City of Busselton - Daily and Hourly Volumes

As shown, the average vehicle volumes on Rendezvous Road is 916 vehicles per day with 133 vehicles during the AM peak hour and 105 vehicles during the PM peak hour. According to Austroads *Guide to Traffic Management Part 3: Transport Study and Analysis Methods*, the capacity of a two-lane highway is 1,700 passenger cars per hour for each direction of travel. The above volumes are well within the capacity of Rendezvous Road.

3.4. Road Network Changes

The site forms part of the Vasse East development area as shown in Figure 7.

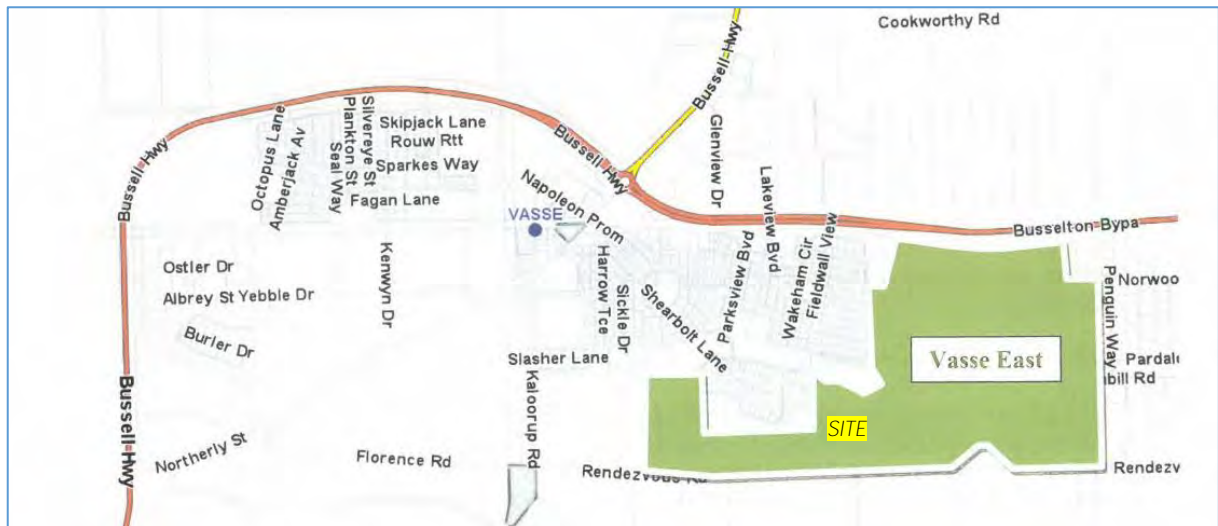


Figure 7: Local Planning Scheme No 21 (2021)

All proposed internal roads will ultimately continue past the eastern boundary to connect to the future development to the east. The client has also provided the conceptual road network plan back in 2021 as shown in Figure 8.

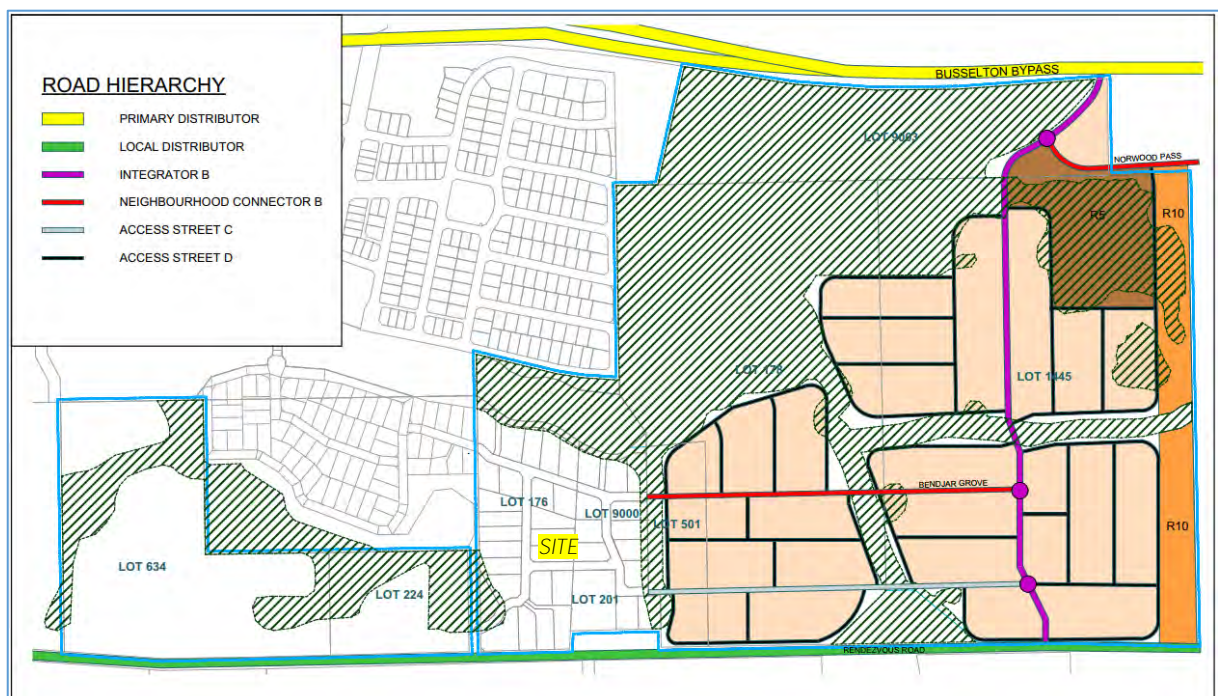


Figure 8: Vasse East Development Area Road Network Plan 2021

4. Vehicle Access and Parking

4.1. Vehicle Access

Access to the site is proposed via Bendjar Grove and a new intersection on Rendezvous Road. The end of Bendjar Grove is currently constructed as a cul-de-sac which the proposed internal road will be connected and will extend up to the eastern boundary.

The proposed site access arrangements is shown in Figure 9.

Vehicle access to the lots will be from the new internal roads and no direct lot access from Rendezvous Road is proposed. It is recommended to maintain this arrangement to reduce conflicts.

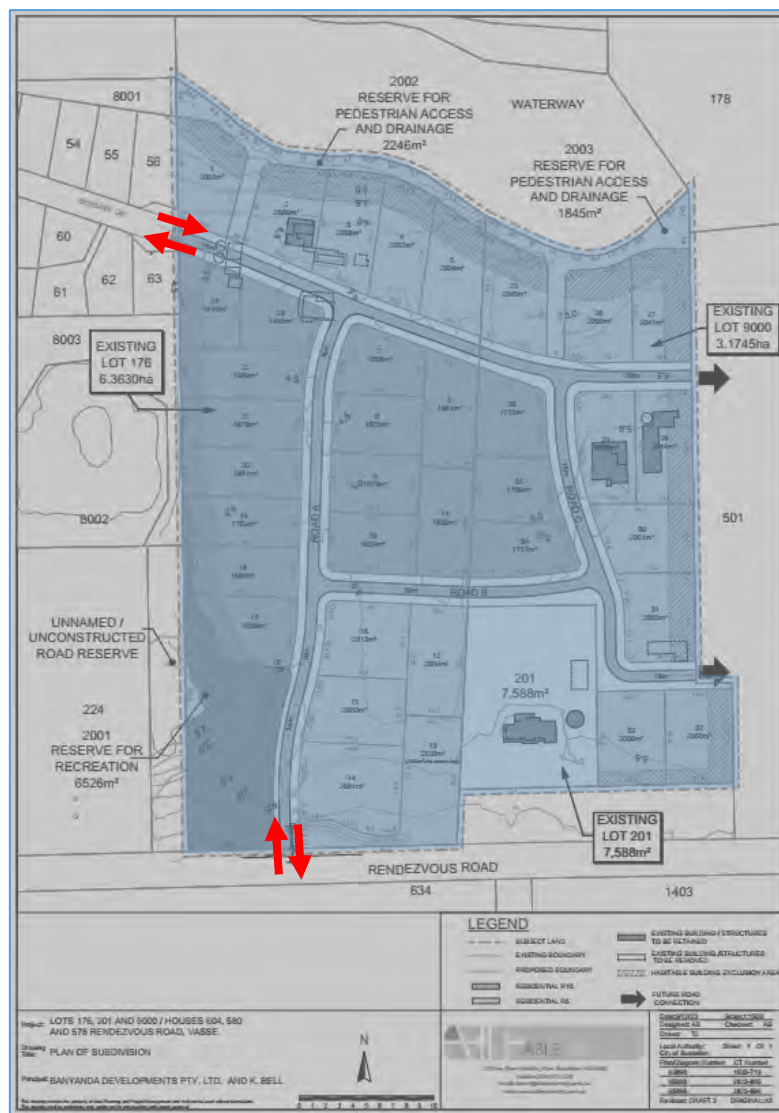


Figure 9: Vehicle Access Layout

5. Traffic Impact Assessment

5.1. Traffic Generation

The volume of traffic generated by the proposed subdivision has been estimated using trip generation rates from the NSW Roads and Maritime Service (RMS) *Guide to Traffic Generating Developments*.

The estimated trip generation is calculated in Table 1.

Table 1: Proposed Subdivision Vehicle Trip Generation

Land Use	Units	Quantity	Generation Rate			Number of Trips		
			Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Low density residential dwellings (regional area)	Dwellings	35	7.4	0.71	0.78	259	25	28

As shown, the proposed subdivision is predicted to generate approximately 259 vehicle trips per day, including 25 trips during the morning peak hour and 28 during the afternoon peak hour.

According to the WAPC TIA guidelines, an increase of between 10 to 100 peak hour vehicles is considered to have a low to moderate impact and is generally deemed acceptable without requiring detailed capacity analysis. The estimated 25 to 28 vehicles per hour is around the lower end of this range and so the development traffic is considered to have a low to moderate impact and can be accommodated within the existing capacity of the road network.

5.2. Impact On External Road Network

Based on the location of the subdivision site and the layout of the external road network, the main external traffic attractors would be Vasse local centre towards the north-west and Busselton towards the north east. The majority of traffic generated by the subdivision is assumed to enter and leave the area via Heron Lake to access Busselton Bypass and Northerly Street. The Vasse local centre and Busselton townsite can also be accessed via Rendezvous Road but this route is slightly longer and expected to be used less.

As highlighted in Section 5.1, the subdivision is estimated to generate 25 vehicles during the AM peak hour and 28 vehicles during the PM peak hour. This volume of traffic is low and will have a minimal impact on the traffic flow, safety and residential street functionality of the roads through Heron Lake.

5.3. Internal Road Layout

5.3.1. Road Widths and Geometry

The proposed internal roads primarily provide access to the individual lots and so the most appropriate road classification would be an Access Way in accordance with the CoB's *Engineering and Works Services Standards and Specifications Section 2 – Designs and Plans for Roads, Earthworks, Paths and Storm Water Drainage* (Section 2 standards). According to the CoB Section 2 standards, an Access Way requires a road reverse width between 12 – 16m.

The internal roads are proposed within a 16m wide road reverse which complies with the CoB minimum requirements. A section of Road A adjacent to the public open space is reduced to 14m which is permitted according to the WAPC *Liveable Neighbourhoods*, provided utility services are not compromised. The road reserve widths are also consistent with recent subdivisions in the area which provide 15 – 16m wide road reserves for Access Ways.

5.3.2. Intersection Layout

The selection of intersection types is guided by Austroads *Guide to Traffic Management Part 6 - Intersections, Interchanges and Crossings Management* (AGTM06) which is based on the Safe System intersection hierarchy of control. Table 3.4 of AGTM06 (shown as Figure 10) describes the suitability of types of traffic control based on different intersection layouts.

Table 3.4: Suitability of types of traffic control to different intersection layouts

Intersection layout	Roundabout	Signals	Stop or give way	Road rules only
T-intersections	All forms of control generally work well.			
Four-way intersection	Generally work well.	Generally work well.	A staggered T-intersection is preferred(1).	
Y-junction	Generally work well.	Generally work well.	Not recommended due to poor observation angle on the minor road.	Not recommended due to poor observation angle on the minor road. Also confusion regarding who has right-of-way.
Multileg intersection (more than four legs)	Single lane roundabouts generally work well. Multileg, multilane roundabouts cause significant driver confusion in terms of the appropriate lane choice for the intended movement.	Can experience high crash rates. Can result in inadequate sighting of lanterns. Can produce a high proportion of inter-green time.	Can cause confusion as to who has right-of-way.	

¹ Staggered T-intersections are deemed to be safer than four-way unsignalised intersections with aligned minor legs (see Commentary 5).

Source: Based on Queensland Department of Transport and Main Roads (TMR) (2015a).

Figure 10: Recommended Intersection Control

All new intersections are proposed as T-intersections which work well under all forms of control as noted above. On this basis, give-way control is considered appropriate for all new intersections.

5.3.3. Intersection Sight Distance

The proposed new intersections are to achieve Safe Intersection Sight Distance (SISD). SISD is calculated in accordance with MRWA Supplement to *Austroads Guide to Road Design – Part 4A*.

The 85th percentile speed on Rendezvous Road were sourced from the CoB vehicle counts undertaken in 2022. The operating speeds on the internal roads are assumed to be the default speed limit of 50km/h in built up areas. The grades on Rendezvous Road were estimated based on Landgate contours and the internal roads are assumed to be relatively flat.

The required SISD is calculated in Table 2.

Table 2: Calculation of SISD Requirement

Vehicle	Operating (85 th Percentile) Speed V	Decision Time D _T	Deceleration Coefficient d	Direction	Grade a	Required SISD
Rendezvous Road / Road A Intersection						
Cars	92.5km/h	5s	0.36	West	0%	222m
				East	0%	222m
Trucks	82.5km/h	5s	0.29	West	0%	207m
				East	0%	207m
Internal Roads						
Cars	50km/h	5s	0.36	All Direction	0%	97m
Trucks	40km/h	5s	0.29	All Direction	0%	77m

As shown in Figure 11, the minimum SISD of 97m is achieved at all intersections in all directions with the exception of two instances which only achieves 75 and 70m. In both instances, the reduced sight distance is considered acceptable as vehicles approaching from this direction will be travelling at a reduced speed which will decrease the SISD requirement.

The SISD check for the Rendezvous Road / Road A intersection is shown in Figure 12. Vegetation clearing may be required on either side of the intersection to achieve the required SISD. It is also noted that the speed limit along Rendezvous Road may potentially be lowered in the future as development continues along this road.

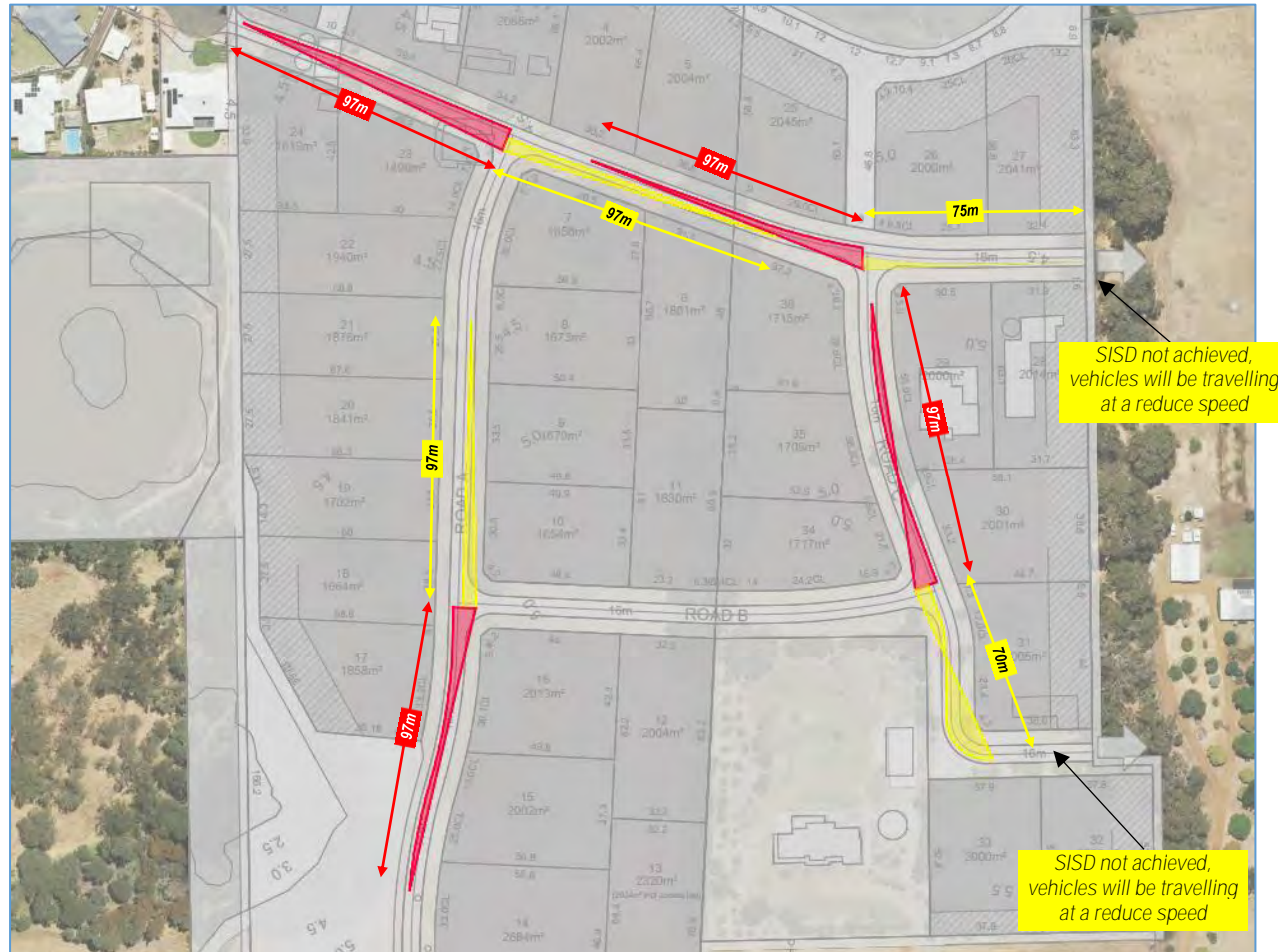


Figure 11: SISD Check – Internal Roads



Figure 12: SISD Check – Rendezvous Road / Road A Intersection

6. Pedestrian and Cyclist Access

There is currently an existing path on the northern side of Bendjar Grove. The CoB standard and specification indicates that the road reserve is to accommodate variety of pedestrian and vehicular activities and therefore it is recommended to construct paths on at least one side of all internal roads.

Rendezvous Road does not currently provide any paths which is consistent with the rural setting. All proposed lots will be accessed from the new internal roads and no direct access from Rendezvous Road is provided. Therefore, the provision of pedestrian path on Rendezvous Road is not required.

7. Public Transport Access

The only public transport service currently operating within the vicinity of the site is TransBusselton Bus Route 816 which operates between Napoleon Promenade and Albert Street. The closest stops are located on Lakeview Boulevard which is approximately 1km from the Bendjar Grove. This service operates between 7:32am – 5:22pm Monday – Saturday.

The demand for public transport is expected to be low and so the provision of new services to accommodate the proposed subdivision is not required. As development continues in the area, the demand is likely to increase, and it is recommended that the CoB liaise with the Public Transport Authority to discuss potential new or extended services for the area.

8. Site Specific Issues and Safety Issues

8.1. Crash History

The crash history of the adjacent road network was obtained from the MRWA database.

No crashes have been recorded along the immediate vicinity of the site frontages on Rendezvous Road and Bendjar Grove over the five year period from January 2018 to December 2022.

The proposed subdivision will generate a low volume of traffic and there is no indication that the development would increase the risk of crashes to unacceptable levels.

9. Conclusion

This Transport Impact Statement for the proposed subdivision of Lot 176, 201 and 9000 in Vasse concluded the following:

- The proposed development is predicted to generate approximately 259 vehicle trips per day including 20 trips during the morning peak hour and 28 during the afternoon peak hour. This volume of traffic can be accommodated within the existing capacity of the road network.
- The proposed internal roads provides between 14 - 16m wide road reserve which complies with the City's minimum requirements.
- The City's standards specify that the road reserve is to accommodate variety of pedestrian and vehicular activities and therefore it is recommended to construct paths on at least one side of all proposed roads.
- All new intersections are proposed as T-intersections which work well under all forms of control and so give-way control is considered appropriate for all new intersections.
- The minimum required SISD is achieved in both directions from all proposed new internal intersections with the exception of two instances which only achieves 75 and 70m. In both instances, the reduced sight distance is considered acceptable as vehicles approaching from this direction will be travelling at a reduced speed which will decrease the SISD requirement.
- At the Rendezvous Road / Road A intersection, vegetation clearing may be required to achieve the minimum required SISD.
- The demand for public transport is expected to be low and so the provision of new services to accommodate the proposed subdivision is not required.
- The crash history does not indicate any major issue on the adjacent road network. The traffic generated by the proposed subdivision is unlikely to increase the risk of crashes to unacceptable levels.
- The demand for public transport is expected to be low and so the provision of new services to accommodate the proposed subdivision is not required. As development continues in the area, the demand is likely to increase, and it is recommended that the CoB liaise with the Public Transport Authority to discuss potential new or extended services for the area.