

STRUCTURE PLAN REPORT



***Lot 115 on Deposited Plan 30086,
House 1442 Wildwood Road,
Yallingup***

(Certificates of Title 2187-566, 2188-961 & 2188-962)



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September 2017 (Rev. 4)

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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:

27 September 2017

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



an officer of the Commission duly authorised by the Commission pursuant to section 16 of the Planning and Development Act 2005 for that purpose, in the presence of:



Witness

27 September 2017

Date

27 September 2027

Date of Expiry

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

Work leading up to this structure plan submission commenced in July 2015 when dialogue with the City of Busselton (CoB) first started with respect to lot size requirements over Lot 115 Wildwood Road, Yallingup.

The land has been held by the same farming family since its creation and release in the nineteen-twenties. Lot 115 is 62.6152 ha in area and is located 13.5 km by road southwest of the Dunsborough town centre in the CoB municipality (**refer to Appendix A – Location Plan**). Access to Lot 115 is gained principally by several crossovers and driveways onto Wildwood Road along the southwest boundary. Wildwood Road is a 70 km / h posted local distributor road (sealed, single-lane carriageway) that provides linkage between the Main Roads WA controlled Bussell Highway (east) and Caves Road (west). Secondary access is provided by the Wildbrook Place cul-de-sac head in the northwest corner. This is a local road with 6.2 m wide sealed pavement which, apart from the turning head, is contained in an under-width 10 m wide road reserve.

As with all adjoining properties, Lot 115 is zoned Rural Residential and included in the Landscape Value area pursuant to *City of Busselton Local Planning Scheme No. 21* (LPS 21). Lot 30 Millbrook Road shares part of the northern boundary and has an Additional Use (No. 52) provision that permits various low-key tourist accommodation uses. All surrounding land has been subdivided and developed for rural residential purposes under preceding local structure plans (development guide plans) and schemes, with Lot 115 being the only substantive undeveloped landholding in the precinct.

Land on the opposite side of Wildwood Road is zoned Viticulture and Tourism and similarly included in the Landscape Value area. This land is used for grazing, as is Lot 115. A point of difference being that Lot 115 currently operates *The Shearing Shed* business in the southern part of the property. *The Shearing Shed* is rural-tourist enterprise that provides sheep shearing and handling demonstrations, plus sells local and WA wool products and merchandise.

The subject property starts at height levels below 45 and 50 m Australian height datum (AHD) on the creek-line in the northeast and western corner adjoining Wildwood Road respectively. It then rises to create a high point above 100 m AHD near the southern corner in proximity to Wildwood Road. The land can be described as undulating, with steeper sections in the northeast adjoining Donald Creek. This creek is fenced from stock and is an upper tributary of Gunyulgup Brook.

Most of the subject property is cleared, but there are some stands of remnant trees scattered about.

Due to the size of the property there is some variation in soil types which in-turn influences the vegetation complexes. Most trees are the remnants and regrowth of *Eucalyptus marginata* (jarrah) and *Corymbia calophylla* (marri) woodland which sit over the more gravelly-loams, plus the granite gully along the creek. There is, however, a patch of *Agonis flexuosa* (peppermint) in the near centre of the property which occupies free draining, bleached sand. Non-endemic *Eucalyptus globulus* (Tasmanian blue gum) were planted in the northeast to assist with some salt and erosion issues, and have served this purpose now. Being a sheep grazing property, there is no understorey species, except in the fenced-off section of steep gully adjoining the creek.

Following confirmation of acceptable lot size parameters and a general layout with the CoB in October 2015, environmental studies and surveys were commissioned. The outcomes of these are documented in the environment and land capability assessment report enclosed. In addition to this a bushfire attack level (BAL) assessment has been undertaken by a qualified fire expert, culminating in a bushfire management plan (report). These two reports form part of this structure plan submission and may be found in the appendices at the rear.

The structure plan enclosed within this report is now formally put to the CoB and Western Australian Planning Commission (WAPC) for adoption and endorsement respectively. The structure plan overlaps the district-level Commonage Policy Area Consolidated Structure Plan approved by the WAPC on 18th October 2004 (**refer to Appendix B – Commonage Policy Area Consolidated Structure Plan**), and supersedes the outcomes of this plan as far as Lot 115 is concerned.

The structure plan submitted now proposes 29 rural residential lots that are to be used and developed in accordance with the Rural Residential zone requirements (**refer to Structure Plan**). The lots range from 1.007 ha to 4.060 ha in area, with an average size of 1.998 ha over a net subdivisible area of 57.9645 ha. A minimum lot size of 3 ha is applied to all lots fronting Wildwood Road and enable implementation of a suitable setback to this important tourist route.

The large rural residential lot sizes by modern standards reflects the original intent of providing a graduated transition to viticultural and tourism land south of Wildwood Road, most of which is still used for grazing. Such also respects the unique position on the western slope of the Leeuwin Naturaliste Ridge and internal views within the valley system containing the Gunyulgup Brook and its tributaries.

The existing rural-tourism enterprise *The Shearing Shed* will occupy proposed lot 11 post subdivision and will be permitted to retain access to Wildwood Road via the existing gravel formed crossover. Should this business close or relocate for a period of greater than 12 months in the future, the crossover shall be removed, reinstated and boundary fenced off by the registered proprietor(s) of the land at his/ her/ their full cost.

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

Table 1 - Overview of Subject Land

Item	Data		Structure Plan Ref. (Section No.)
Total area covered by the structure plan	62.6152 hectares		
Area of each land use proposed:	Hectares	Lot yield	
• Residential	0	0	
• Commercial	0	0	
• Industrial	0	0	
• Rural residential	58.4028	29	
Total estimated lot yield	29		
Estimated number of dwellings	29		
Estimated residential site density	0.50 dwellings per site / hectare		
Estimated population	75 (based on average people per household of 2.6 for Yallingup locality)		
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 %	

<ul style="list-style-type: none"> • District open space • Neighbourhood parks • Local parks 	0 hectares 0 hectares 0 parks 0 hectares 0 parks	0 %	
Estimated percentage of natural area	0 hectares 0 %		

Contents

PART ONE – IMPLEMENTATION	1
1. Structure plan area	1
2. Operation	1
3. Staging	1
4. Subdivision and development requirements	1
5. Local Development Plans	4
6. Other requirements	4
7. Additional information	4
Structure Plan	5
PART TWO – EXPLANATORY SECTION AND TECHNICAL APPENDICES	7
1. Planning Background	7
1.1 Introduction and purpose	7
1.2 Land description	11
1.2.1 Location	11
1.2.2 Area and land use	11
1.2.3 Legal description	12
1.3 Planning framework	12
1.3.1 Zoning and reservations	12
1.3.2 Regional and sub-regional structure plan	17
1.3.3 Planning strategies	17
1.3.4 Planning policies	19
1.3.5 Other approvals and decisions	21
1.3.6 Pre-lodgement consultation	21
2. Site conditions and constraints	22
2.1 Biodiversity and natural area assets	22
2.2 Landform, vegetation and soils	23
2.3 Groundwater and surface water	23
2.4 Bushfire hazard	24
2.5 Heritage	24
2.6 Coast and foreshores	24
2.7 Context and other land use constraints and opportunities	24
3. Conclusion	25
4. Technical studies appendices index	25
4.1 Appendix A – Location Plan	25
4.2 Appendix B – Commonage Policy Area Consolidated Structure Plan	25
4.3 Appendix C – Certificates of Title and Deposited Plan	25
4.4 Appendix D – Environment and Land Capability Assessment	25
4.5 Appendix E – Bushfire Management Plan	25

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PART ONE – IMPLEMENTATION

1. Structure plan area

This structure plan applies to all of Lot 115 on Deposited Plan 30086, House 1442 Wildwood Road, Yallingup as contained within Certificates of Title 2187-566, 2188-961 and 2188-962 (**refer to Appendix C – Certificates of Title and Deposited Plan**).

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 envisaged given the small number of lots proposed, the fact that all necessary infrastructure is available, and the intent of the family involved.

Notwithstanding this, given the only underground services will be power and telecommunications, while drainage could be accommodated by temporary easements over balance of title, it is conceivable that the subdivision could be staged if required. A road connection could be made to Wildbrook Place, while a temporary turnaround head could be developed at the bend about Lots 13 and 14 enabling a first release of 17 lots. The joining loop road and road extension to the east could subsequently be developed enabling the remaining 12 lots to be released.

4. Subdivision and development requirements

All lots will be subject to the Rural Residential zone land use, subdivision and development provisions within LPS 21. These include setback controls of 100 m to Wildwood Road, 20 m from other front and rear boundaries, and 15 m from sides. There is also a 7.5 m height restriction for dwellings in the Rural Residential zone, plus a requirement to locate all development inside a building envelope (i.e. as may be shown on a structure plan or building envelope plan required by WAPC subdivision approval condition) or other 2,000 m² square or rectangular area.

Land Use or Development Control	Specific Requirements
Setbacks	<ul style="list-style-type: none">- 100 m to Wildwood Road.- 20 m to other front or rear boundaries.- 15 m to side boundaries.
Site coverage	As may be identified on approved structure plan or building envelope plan or otherwise all dwellings and incidental development to be located inside a 2,000 m ² square or rectangular envelope.
Height restrictions	7.5 m measured vertically from any point of the building to the natural ground level.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

Clearing	Vegetation may only be felled, removed or damaged when - (a) associated with implementing approved development; (b) essential for achieving adequate fire protection; or (c) the vegetation is dead, dying or dangerous.
Fencing	Fencing prohibited except within and on the perimeter of a cleared area. All fencing is to be of farm standard post and wire construction.
Dams	No dam or lake shall be developed unless planning approval has been granted. No dams or lakes shall be developed unless they are shown on a structure plan, or in circumstances where the proposed dam or lake - (i) will not adversely affect environmental flows within the catchment or downstream of the dam; (ii) will only capture sufficient water to be used for domestic requirements, and/or, for the irrigation of a domestic garden, or for the purposes of a water supply to an approved land-use on the site; (iii) is an off stream dam; (iv) does not exceed a capacity of 1500 cubic metres or comprises a surface area greater than 500 square metres whichever is the lesser; and (v) will not significantly or unreasonably diminish the flow of water for use by downstream users including the environment.
Stock	On any lot on which it is permissible within the Rural Residential zone, the keeping of stock may only be approved where it does not require removal of vegetation and such that stock numbers are maintained at levels in accordance with stocking rates to the satisfaction of the Department of Agriculture and Food
Special exemptions	Lots above 20 hectares to be subject to the Agriculture zone requirements
Special restrictions	No development, or fencing within 30 metres of the centreline of any creek.

The more site specific mechanisms to control environmental features are the set of conditions listed on the second sheet of the structure plan, although most of the sites features have been protected through avoidance by design. The structure plan identifies several development exclusion areas and revegetation areas where retention and enhancement of the stands of remnant trees and areas between will be enhanced. This includes the 20 m wide vegetation buffer along the full width of

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

Wildwood Road, plus the north-south environmental corridor which is a carryover from the Commonage Policy Area Consolidated Structure Plan (CPACSP).

The greatest hazard facing this and surrounding lots is fire. This is being addressed via the preparation and implementation of a bush fire management plan. There are some minor water erosion issues in the lower parts of the property in the north that will also need to be treated appropriately via the drainage design prepared by the civil engineers.

As the subdivision relies upon cables services only, underground power and telecommunications, 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 site specific basis. Road access is also available, both in terms of primary access from the existing distributor road (Wildwood Road), plus secondary and tertiary access from the existing local road system (i.e. Wildbrook Place and constructed road to Seascope Rise).

The structure plan generally shows lots of a similar area, width and depth being placed at the back of existing lots in adjoining estates. Such is seen as a sensible transition that acknowledges and respects the existing settlement pattern.

No public open space is provided consistent with the outcomes of the CPACSP plus the general practice applied to large lot rural residential subdivision. Lots over 1 ha generally contain their own degree of self-contained passive and active recreational spaces.

The CPACSP identifies a minimum lot size of 3 ha for the cell of lots fronting Wildwood Road, while the balance is identified with a 2 ha minimum, 3 ha average. These maximum density targets are largely superseded by new strategies, such as the South-West Framework released by the WAPC and Department of Planning in 2009.

Section 6.2 (Building sustainable communities) includes perhaps the most pertinent reason for increasing lot sizes and yields in this subdivision. Specifically, it lists the following relevant manners in which to restrict the sprawl of centres:

“4. Constraining low-density urban sprawl through:

- ***preventing the creation of new rural residential lots beyond those identified in existing local planning strategies or town planning schemes, while making provisions for the creation of conservation lots or other forms of lots that provide a mechanism for the re-vegetation of previously cleared land with endemic species;***
- ***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;***
- ***requiring complete reassessment of any plan, strategy or scheme not already endorsed by the WAPC to provide higher densities in centres and control urban sprawl.”*** (Emphasis added)

The South-West Framework has been cited by the CoB as a document providing impetus for the review of strategies and plans guiding undeveloped greenfield rural residential land. After some extensive discussion with the CoB, it was considered that more modern density rate for all except

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

those lots backing onto Wildwood Road. A 1 ha minimum and 2 ha average is now the benchmark for all lots, except the 3 ha minimum applied to lots backing onto Wildwood Road as carried over from the CPACSP. Given the small number of lots concerned, there is not considered a need to prepare a specific density plan showing this.

5. Local Development Plans

None required.

6. Other requirements

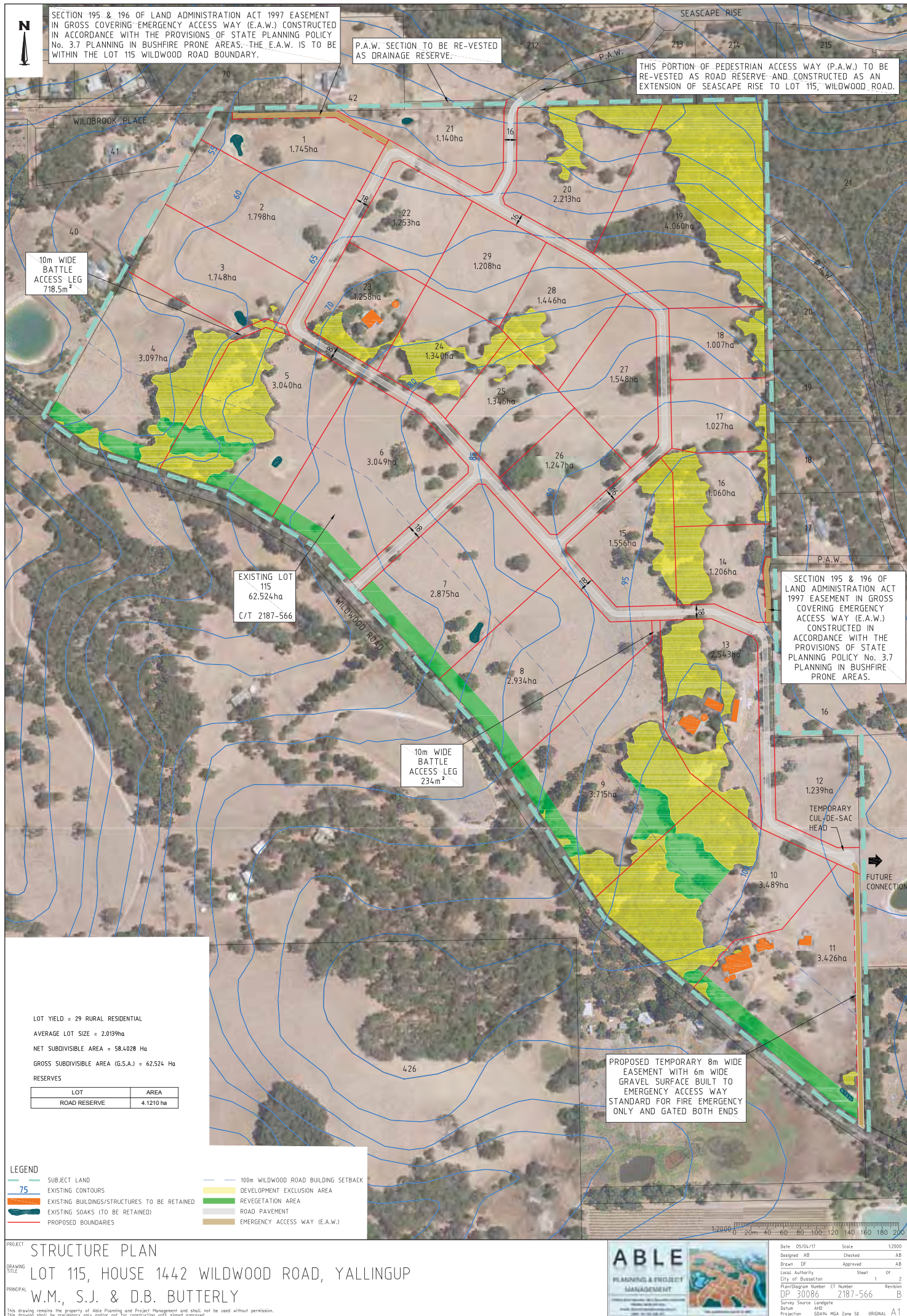
There are no infrastructure corridors or infrastructure upgrades specifically required by this subdivision.

The current arrangement is for per lot contributions to be collected by the CoB under its *6 – Development Contribution Policy*. These funds are then used for upgrades and improvements of community infrastructure in the immediate locality and district.

7. Additional information

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

Additional information	Approval stage	Consultation required
Stormwater management plan / 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.
Western grey kangaroo 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.	Department of Parks and Wildlife.
Revegetation 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



STRUCTURE PLAN
LOT 115 ON DEPOSITED PLAN 30086, HOUSE 1442 WILDWOOD ROAD,
YALLINGUP (CERTIFICATE OF TITLE 2187-566)

STRUCTURE PLAN CONDITIONS

1. Subdivision and development shall be generally in accordance with this structure plan.
2. There shall be no further subdivision of lots identified on this structure plan.
3. As a condition of subdivision, and prior to the commencement of subdivisional works, an urban water management plan is to be prepared by the landowner(s) / developer(s) and approved by the City of Busselton, in consultation with the Department of Water.
4. As a condition of subdivision, a western grey kangaroo management plan shall be prepared and implemented to the satisfaction of Department of Parks and Wildlife, prior to the clearance of the first stage of subdivision.
5. 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 Wildwood Road is to burden proposed lots 4 – 10 (inclusive) on the deposited plan.
6. Development on the following lots is to satisfy related setback distances:
 - i. Lot 4: No dwelling or ancillary development is permitted within 40m of the western boundary;
 - ii. Lot 17: No dwelling or ancillary development is permitted within 25m of the eastern boundary;
 - iii. Lot 18: No dwelling or ancillary development is permitted within 25m of the eastern boundary
7. The existing rural-tourism enterprise *The Shearing Shed* will occupy proposed lot 11 post subdivision and will be permitted to retain access to Wildwood Road via the existing gravel formed crossover.
8. Planning approval will be required for any change of land use on proposed lot 11. At such time, conditions of approval may require the completion of the Wildwood Road Revegetation Area (in accordance with the approved revegetation plan) and vehicular access to be via the internal road system.
9. No clearing of remnant local endemic vegetation may take place in the Development Exclusion Area without planning approval.
10. As a condition of subdivision, a revegetation plan is to be approved by the City of Busselton and implemented for the Revegetation Area and Development Exclusion Area.

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 July 2015 when dialogue with the CoB first started with respect to lot size requirements over Lot 115 Wildwood Road, Yallingup.

The land has been held by the same farming family since its creation and release in the nineteen-twenties. Lot 115 is 62.6152 ha in area and is located 13.5 km by road southwest of the Dunsborough town centre in the CoB municipality. Access to Lot 115 is gained principally by several crossovers and driveways onto Wildwood Road along the southwest boundary. Wildwood Road is a 70 km / h posted local distributor road (sealed, single-lane carriageway) that provides linkage between the Main Roads WA controlled Bussell Highway (east) and Caves Road (west). Secondary access is provided by the Wildbrook Place cul-de-sac head in the northwest corner. This is a local road with 6.2 m wide sealed pavement which, apart from the turning head, is contained in an under-width 10 m wide road reserve.

As with all adjoining properties, Lot 115 is zoned Rural Residential and included in the Landscape Value area pursuant to *City of Busselton Local Planning Scheme No. 21* (LPS 21). Lot 30 Millbrook Road shares part of the northern boundary and has an Additional Use (No. 52) provision that permits various low-key tourist accommodation uses. All surrounding land has been subdivided and developed for rural residential purposes under preceding local structure plans (development guide plans) and schemes, with Lot 115 being the only substantive undeveloped landholding in the precinct.

Land on the opposite side of Wildwood Road is zoned Viticulture and Tourism and similarly included in the Landscape Value area. This land is used for grazing, as is Lot 115. A point of difference being that Lot 115 currently operates *The Shearing Shed* business in the southern part of the property. *The Shearing Shed* is rural-tourist enterprise that provides sheep shearing and handling demonstrations, plus sells local and WA wool products and merchandise.

The subject property starts at height levels below 45 and 50 m Australian height datum (AHD) on the creek-line in the northeast and western corner adjoining Wildwood Road respectively. It then rises to create a high point above 100 m AHD near the southern corner in proximity to Wildwood Road. The land can be described as undulating, with steeper sections in the northeast adjoining Donald Creek. This creek is fenced from stock and is an upper tributary of Gunyulgup Brook.

Most of the subject property is cleared, but there are some stands of remnant trees scattered about.

Due to the size of the property there is some variation in soil types which in-turn influences the vegetation complexes. Most trees are the remnants and regrowth of *Eucalyptus marginata* (jarrah) and *Corymbia calophylla* (marri) woodland which sit over the more gravelly-loams, plus the granite gully along the creek. There is, however, a patch of *Agonis flexuosa* (peppermint) in the near centre of the property which occupies free draining, bleached sand. Non-endemic *Eucalyptus globulus* (Tasmanian blue gum) were planted in the northeast to assist with some salt and erosion issues, and have served this purpose now. Being a sheep grazing property, there is no understorey species, except in the fenced-off section of steep gully adjoining the creek.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

Following confirmation of acceptable lot size parameters and a general layout with the CoB in October 2015, environmental studies and surveys were commissioned. The outcomes of these are documented in the environment and land capability assessment report enclosed. In addition to this a bushfire attack level (BAL) assessment has been undertaken by a qualified fire expert, culminating in a bushfire management plan (report). These two reports form part of this structure plan submission and may be found in the appendices at the rear.

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

The relevant background is as follows:

September 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 *Shire of Busselton District Town Planning Scheme No. 20*. This rezoning occurred on 7th September 1999 with the publishing of the said district town planning scheme in the *Government Gazette*.

October 2004

The WAPC endorsed the CPACSP on the 18th October 2004. Rather than being a new planning initiative, the CPACSP was simply a bringing-together of all precinct development guide plans adopted / endorsed in the nineteen-eighties and nineties.

In terms of the subject lot, the CPACSP identifies a minimum lot size of 3 ha for the cell of lots fronting Wildwood Road, while the balance is identified with a 2 ha minimum, 3 ha average. A through road connection is identified from a new central intersection on Wildwood Road to Wildbrook Place in the northwest, while pedestrian access ways (PAWs) are to join this new through road with land to the northeast and east.

October 2014

LPS 21 was published in the *Government Gazette* on 15th October 2014 having force and effect from that day. LPS 21 carries forward the land's zoning and area designation under former *Shire of Busselton District Town Planning Scheme No. 20* (DTPS 20). Lot 115 continues to be zoned Rural Residential and included in the Landscape Value area.

July 2015 – November 2015

First contact was made with the CoB in late July 2015 where the dated outcome of the CPACSP were queried against the raft of policy and framework changes since, most of which require more efficient and rational use of land already committed to rural residential purposes.

To assist the CoB's consideration of this, several iterations of a conceptual subdivision design were submitted to show a lot layout and road configuration proving that the land had a higher lot yield capacity than the CPACSP provides, but more importantly that better road and PAW connections could be established as a net community and safety benefit.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

The CoB advised in October 2015 that while retaining the 3 ha minimum lot size for lots fronting Wildwood Road, a 1 ha minimum for the remainder and 2 ha average over the whole site was appropriate based on the concept arrived at.

The Department of Planning (DoP) was similarly provided opportunity to comment on the design and lot yield parameters but declined citing workload, procedure / process and absence of comment from other referral agencies.

PURPOSE AND PROPOSAL

Yield, Lot Sizes and Layout

The structure plan proposes to develop 29 rural residential lots in accordance with the Rural Residential zone requirements. The lots range from 1.007 ha to 4.060 ha in area, with an average size of 2.01 ha over a net subdivisible area of 58.4028 ha. A minimum lot size of 3 ha is applied to all lots fronting Wildwood Road and enable implementation of a suitable setback to this important tourist route.

The large rural residential lot sizes by modern standards reflects the original intent of providing a graduated transition to viticultural and tourism land south of Wildwood Road, most of which is still used for grazing. Such also respects the unique position on the western slope of the Leeuwin Naturaliste Ridge and internal views within the valley system containing the Gunyulgup Brook and its tributaries.

Services

The table below provides an overview of the proposed servicing proposals (**refer to Table 2 - Servicing Availability and Servicing Proposals**).

Table 2 - Servicing Availability and Servicing Proposals

Service Type	Reticulated Service Availability (Yes / No)	Servicing Proposal Notes
Water	No	Not available. Potable water to be collected from roof catchment and stored in tank.
Sewerage	No	Not available. On-site effluent disposal systems required.
Electricity	Yes	Connection to underground power supply.
Natural Gas	No	Not available.
Telecommunications	Yes	Connection to high-speed underground telecommunications.
Drainage	Yes	Road drainage to be treated and channelled via swale drain to natural water courses. Stormwater 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 serviced only, being underground power and telecommunications. It is simply unviable for the lots to be connected to a potable mains water

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

supply. Future dwellings will therefore need to collect potable water from roof catchment, directed and stored in above ground tanks.

Effluent disposal will be provided by on-site systems. The test pits and laboratory results presented in the environment and land capability assessment (**refer to Appendix D – Environment and Land Capability Assessment**) indicates that the soil conditions on site broadly support the use of conventional septic tank and leach drain systems.

Roads, Access and Drainage

Road access will be derived principally from Wildwood Road via the new intersection and internal road network system. Secondary access will be provided by Wildbrook Road (northwest corner), the conversion of the Seascope Rise PAW to road (northeast) and subsequent upgrading, plus the eventual road connection through Lot 2656 Butterly Road (lower east). Tertiary (fire emergency) access will be provided through the PAW connection to the existing PAW in The Dell Retreat (east). A temporary right-of-carriageway easement will also be established over proposed lot 11 for an interim emergency access way to Wildwood Road until a through road connection is made in the future.

Lots 4 – 10 will be prevented from direct access onto and from Wildwood Road by virtue of a section 150 of *Planning and Development Act 2005* covenant. The existing rural-tourism enterprise *The Shearing Shed* will occupy proposed lot 11 post subdivision and will be permitted to retain access to Wildwood Road via the existing gravel formed crossover. Should this business close or relocate for a period of greater than 12 months in the future, the crossover shall be removed, reinstated and boundary fenced off by the registered proprietor(s) of the land at his/ her/ their full cost.

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 600 m long temporary cul-de-sac extending from the inner loop road provides access to seven lots only (six if you discount proposed lot 11), and will serve as a future through-road connection when Lot 2656 is developed in the future. To alleviate concerns regarding fire emergency access on this temporary cul-de-sac, a PAW is provided at the mid-way point of this dead end road while a temporary right-of-carriageway to Wildwood Road is to be created over proposed lot 11. A further PAW is provided along the mid northern boundary connecting the subdivision to the existing PAW which is in-turn connected to Seascope Rise.

The total area ceded to the Crown under the proposed structure plan is 4.5591 ha, with 4.4787 ha dedicated as road reserve and 0.0804 ha committed as PAW (strategic firebreak and emergency access).

In accordance with the earlier commitments to the CoB, the structure plan provides for much stronger and permeable linkages to the north, east and northwest, certainly well beyond that required by the CPACSP. At the time of drafting the first concept, noticeable constraints affecting access were the poor standard and / or location of the existing road and PAW working ends adjoining. These included:

- Wildbrook Place in the northwest corner is extraordinary insofar that the road reserve is only 10 m wide. While the only services lying in this road reserve are telecommunications and power, it is evident this road reserve should have been wider and incorporated some proper drainage swales. The owner of the battle-axe lot at the end of Wildbrook Place has hand dug a small swale to get the water off the upper section of this road. Unfortunately, there is little or no scope to direct stormwater down this road now.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

- The PAW extending from Seascape Rise along the northern boundary is well constructed, but this terminates right where an underground spring leaches to the surface on the subject lot. The proponents have a small soak dam here which is full all year round, but more water seeps from the ground than can be contained in the dam. The PAW has a rock pitched swale on the southern side of the pavement to redirect some of this water down to the creek, but some significant civil works need to be done to connect to this PAW in the western end.
- The PAW extending from The Dell Retreat in the southeast and along the eastern boundary is not much better than a trail, certainly nothing near the current emergency access and strategic firebreak standards. The design prepared will obviate any substantive reliance on this for emergency access, instead putting a new road in proximity to the shortest and most trafficable connection point through to The Dell Retreat.

While these are not insurmountable constraints, these construction issues need to be considered in the engineering design submission phase post subdivision approval.

All new roads and intersections will be required to be constructed to the specifications and standards of the CoB. 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 stormwater management plan. Generally speaking, road drainage will be treated and channelled via swale to lower natural water courses. Stormwater will be retained within lots via connection of roof and hardstand run-off to water tanks and / or soak wells.

1.2 Land description

1.2.1 Location

Lot 115 is located 13.5 km by road southwest of the Dunsborough town centre in the CoB municipality. Access to Lot 115 is gained principally by several crossovers and driveways onto Wildwood Road along the southwest boundary. Wildwood Road is a 7.4 m wide, 70 km / h posted local distributor road (sealed, single lane carriageway) that provides linkage between the Main Roads WA controlled Bussell Highway (east) and Caves Road (west). Secondary access is provided by the Wildbrook Place cul-de-sac head in the northwest corner. This is a local road with 6.2 m wide sealed pavement which, apart from the turning head, is oddly contained in an under-width 10 m wide road reserve.

1.2.2 Area and land use

Lot 115 is 62.6152 ha in area.

The land has been held by the same farming family since its creation in the nineteen-twenties. Over time it has been cleared, fenced and had water supplies developed in the form of several lower level soaks. It has been used for sheep grazing ever since the land was taken up, and in more recent times has incorporated *The Shearing Shed* rural-tourism business. *The Shearing Shed* provides sheep handling and shearing demonstrations, plus offers local and WA made wool products and wares for inspection and sale.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

1.2.3 Legal description

The subject lot is described as Lot 115 on Deposited Plan 30086.

The property is owned in equal thirds by siblings William Michael Butterly, Stephen Joseph Butterly and Dawn Beverly Butterly. An interesting fact is the lot is contained by three share titles, being:

- Certificate of Title Volume 2187, Folio 566 (William Michael Butterly).
- Certificate of Title Volume 2188, Folio 961 (Stephen Joseph Butterly).
- Certificate of Title Volume 2188, Folio 962 (Dawn Beverly Butterly).

The table below provides overviews of the landholding involved in the structure plan submission (**refer to Table 3 – Overview of Subject Land**).

Table 3 - Overview of Subject Land

Lot Number	House / Rural No.	Diagram / Deposited Plan / Plan	Certificate of Title	Limitations, Interests, Encumbrances and Notifications	Area
115	1442	Deposited Plan 30086	2187-566 2188-961 2188-962	Nil	62.6152 ha

Copies of the relevant title and deposited plan 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

As with all adjoining properties, Lot 115 is zoned Rural Residential and included in the Landscape Value area pursuant to LPS 21. Lot 30 Millbrook Road which shares part of the northern boundary has an Additional Use (No. 52) provision that permits various low-key tourist accommodation uses. All surrounding land has been subdivided and developed for rural residential purposes under preceding local structure plans (development guide plans), with Lot 115 being the only substantive undeveloped landholding in the precinct.

Land on the opposite side of Wildwood Road is zoned Viticulture and Tourism and similarly included in the Landscape Value area. This land is used for grazing, as is Lot 115. A point of difference being that Lot 115 currently operates *The Shearing Shed* business in the southern part of the property. *The Shearing Shed* is rural tourist enterprise that provides sheep shearing and handling demonstrations, plus sells local and WA wool products and merchandise.

Clause 4.2 Objectives and Policies of the Zone

Clause 4.2.8 contains the objectives and policies of the Rural Residential zone as follows:

“Objectives

- (a) To encourage development for the purpose of closer rural settlement on land which is suitable for such a purpose, and is in reasonable proximity to existing urban areas.***
- (b) To ensure that development maintains the rural character of the locality, maintains a high level of residential amenity and minimises disturbance to the landscape through construction of buildings and structures, clearing, earthworks and access roads.***
- (c) To enable a range of activities and land uses associated with the residential occupation of land.***
- (d) To discourage or prohibit development not compatible with the predominantly rural nature and residential amenity of the zone.***
- (e) To enable the development of land for other purposes where it can be demonstrated by the applicant that suitable land or buildings for the proposed purposes are not available elsewhere, and where such purposes would not detrimentally affect the rural residential character of nearby land.***
- (f) To direct and control the form rural residential subdivision takes to prevent a demand for the unreasonable and uneconomic provision or extension of services and facilities.***
- (g) To promote and encourage cluster subdivision and other innovative rural residential designs, having consideration for conservation values.***
- (h) To discourage ribbon development along Caves Road and other roads and to maintain the rural and natural ambience of transport corridors generally.***

Policies

- (a) To encourage rural residential subdivision by permitting a range of lot sizes in conventional subdivision subject to a general minimum lot area of 1 hectare with an average minimum lot area of approximately 2 hectares; and providing greater flexibility for lots created within appropriate cluster subdivisions or by strata or survey strata subdivision, dependent upon the special physical characteristics of the land.***
- (b) To ensure the provision of road, electricity, postal and telephone services and, where appropriate and practical, water services.***
- (c) To ensure the provision of community facilities and emergency services in the vicinity of rural residential developments.***
- (d) To ensure that services, facilities and recreation areas are centrally located.***

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

- (e) To encourage generally, and require specifically in rural residential subdivision, the provision of vegetation and fauna corridors and the revegetation of the land.*
- (f) To adequately protect any areas or sites of conservation value within the design of any subdivision and development.*
- (g) To provide flexibility for the development of appropriately located and scaled tourist facilities consistent with preservation of residential amenity.*
- (h) To implement and adhere to the adopted recommendations and outcomes of the Local Rural Planning Strategy, adopted by local government and endorsed by the Commission.*
- (i) To provide opportunities for small-scale agriculture on cleared land of a type that will not lead to land use conflicts with the rural residential use of adjoining land."*

The proposal is considered to be consistent with the above objectives and policies for the following reasons:

- It is a modern, clustered, rural residential settlement that agglomerates development where appropriate, yet provides bigger transition lots adjoining larger lot subdivisions and Wildwood Road in order to protect existing residential and landscape amenity.
- It enables a rural-tourist experience operation to continue on an appropriately sized remnant lot.
- It complies with the Rural Residential zone's minimum lot size requirement of 1 ha and average of 2 ha across the site.
- It will provide sealed roads and underground power and telecommunications.
- It will provide for the protection of remnant vegetation and the fauna species that inhabit these areas.
- It complies with the endorsed local rural planning strategy.

Clause 5.37 Special Provisions Relation to the Rural Residential Zone

Clause 5.37 of LPS 21 contains the specific provisions relating to the Rural Residential zone, as follows:

"5.37.1 Subject to clause 5.37.2, the provisions of Part 5 of this Scheme relevant to the "Agriculture" Zone shall apply to all lots greater than 20 hectares within the "Rural Residential" Zone except for the use of "Intensive Agriculture";

5.37.2 On any lot in the Rural Residential zone, unless specified otherwise on a Development Guide Plan, buildings shall not be located –

- (a) within 100 metres of Caves Road, Commonage Road, Wildwood Road, Biddle Road or Hayes Road;***

(b) within 20 metres of any other road or a front or rear boundary;

(c) within 15 metres of a side boundary.

5.37.3 On any lot in the Rural Residential zone, where conventional and/or reticulated energy sources are to be used, then each dwelling shall be connected to the power supply in the locality by means of underground cable.

5.37.4 On any lot in the Rural Residential zone, no development, clearing of vegetation or fencing is to occur within 30 metres of the centre line of any creek-line.

5.37.5 On any lot in the Rural Residential zone, in areas of remnant vegetation, fencing will be prohibited except within and on the perimeter of a cleared area. All fencing is to be of farm standard post and wire construction.

5.37.6 (a) No dam or lake shall be developed unless Planning Approval has been granted.

(b) No dams or lakes shall be developed unless they are shown on a Development Guide Plan, or in circumstances where the proposed dam or lake:

(i) will not adversely affect environmental flows within the catchment or downstream of the dam;

(ii) will only capture sufficient water to be used for domestic requirements, and/or, for the irrigation of a domestic garden, or for the purposes of a water supply to an approved land-use on the site;

(iii) is an off stream dam;

(iv) does not exceed a capacity of 1500 cubic metres or comprises a surface area greater than 500 square metres whichever is the lesser; and

(v) will not significantly or unreasonably diminish the flow of water for use by downstream users including the environment. City of Busselton Local Planning Scheme No. 21.

5.37.7 On any lot on which it is permissible within the Rural Residential zone, the keeping of stock may only be approved where it does not require removal of vegetation and such that stock numbers are maintained at levels in accordance with stocking rates to the satisfaction of the Department of Agriculture and Food.”

In response to the above, the following comments are offered:

- The 100 m setback requirement to Wildwood Road is accommodated by the maintenance of 3 ha lots that back onto Wildwood Road. With lot depths of approximately 180 – 200 m, the 100 m setback will be easily achieved on most lots.
- An underground power supply will be made available to each lot.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

- Donald Creek is already fenced off and was done so under initiatives of the Cape to Cape Catchments Council to protect the Gunyulgup Brook and its tributaries.
- The boundaries of most lots provide opportunity for dividing fencing (post and five strand wire as standard) to be implemented without the removal or modification of vegetation.
- Existing dams are indicated on the structure plan and will be retained within lots.
- The keeping and rearing of stock will be monitored by the CoB's rangers in the future.

Clause 6.4 Landscape Value Area

Clause 6.4 of LPS 21 contains the specific provisions relating to the Rural Residential zone, as follows:

“6.4.1 The local government shall not grant planning approval for the clearing or development of any land identified within a Landscape Value area on the Scheme map, unless it has considered –

- (a) whether the development will be compatible with the maintenance and enhancement, as far as is practicable, of the existing rural and scenic character of the locality;***
- (b) whether the development will materially affect any wildlife refuge, significant wetland, coastal environment or any identified site containing Aboriginal archaeological relics; and***
- (c) disturbance to the natural environment, including –***
 - (i) visual effects of clearing for development;***
 - (ii) maintenance of rural character; and***
 - (iii) habitat disturbance.***

6.4.2 The local government shall not grant planning approval for the carrying out of development on land within the Landscape Value area or on land on or near any ridgelines where, in the opinion of the local government, that development is likely to substantially detract from the visual amenity of the area, having regard to, among other things, the cumulative visual effect of the development related to other development that may be anticipated in the locality and in the area generally.

6.4.3 Before granting planning approval for the erection of a building on land within the Landscape Value area, the local government shall make an assessment as to whether it should impose conditions relating to –

- (a) the siting of the proposed building;***
- (b) the use of prescribed materials on the external surfaces of the building; and***

- (c) *the number, type and location of existing trees and shrubs which are to be retained and the extent of landscaping to be carried out on the site.*

6.4.4 *In clause 6.4.3 - "external surfaces" means the external walls and cladding (if any), external doors, external door and window frames, columns, roofs, fences and any surface of a building or work visible from the exterior of a building or work; and "prescribed materials" means materials with dark tones or dark colouring and of low reflective quality or materials which are painted or similarly treated with dark toned or dark coloured paint or pigment of low reflective quality."*

The above clauses are aimed more at built form development rather than subdivision. Nevertheless, the subdivision design itself, with large 3 ha lots backing onto Wildwood Road and the smaller, higher lots sheltered behind the belts of remnant vegetation, ensures that settlement from Wildwood Road will be viewed in the mid-ground at best, while development will be undetectable when this upper western slope location is viewed from the coast. Certainly no development will skyline against the highest points of the site.

1.3.2 Regional and sub-regional structure plan

COMMONAGE POLICY AREA CONSOLIDATED STRUCTURE PLAN (2004)

The WAPC endorsed the CPACSP on the 18th October 2004. Rather than being a new planning initiative, the CPACSP was simply a bringing-together of all precinct development guide plans adopted / endorsed in the nineteen-eighties and nineties.

In terms of the subject lot, the CPACSP identifies a minimum lot size of 3 ha for the strip of lots fronting Wildwood Road, while the balance is identified with a 2 ha minimum, 3 ha average. A through road connection is identified from a new central intersection on Wildwood Road to Wildbrook Place in the northwest, while PAWs are to join this new through road with land to the northeast and east.

It is generally accepted by most that the CPACSP is outdated and must be considered in the context of modern planning instruments promoting growth containment and sustainability. Since the CPACSP was first prepared, there have been a number of local and State strategies / policies providing further guidance to rural residential subdivision, 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.

1.3.3 Planning strategies

CITY OF BUSSELTON LOCAL RURAL PLANNING STRATEGY (2007)

Flowing on from SPP 6.1, and at the very local policy level, the endorsed Local Rural Planning Strategy summarises the main outcomes that SPP 6.1 promotes which includes ***"[c]hoices in rural lifestyle opportunities by enhancing the design of existing and approved rural residential developments"***.

It then goes on to include a vision for Precinct 6 – Commonage being to ***"[c]onsolidate rural residential land use and provide for a diversification in smallscale and low-key tourist, rural and home based activities in a manner that sustains the existing natural environment, landscape values and residential amenity of the area with well developed pedestrian and habitat/biodiversity links"***.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

The proposed subdivision not only sensibly departs from the minimum and average lot sizes stipulated on the CPACSP for consolidation purposes, it also logically adds proper road connectivity from the northwest to the east / southeast, whereas only a PAW connection was to be provided on the CPACSP. 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.

SOUTH-WEST FRAMEWORK (2009)

The South-West Framework was released by the WAPC and Department of Planning in 2009. Section 6.2 (Building sustainable communities) includes perhaps the most pertinent reason for increasing lot sizes and yields from this subdivision. Specifically, it lists the following relevant manners in which to restrict the sprawl of centres:

“4. Constraining low-density urban sprawl through:

- preventing the creation of new rural residential lots beyond those identified in existing local planning strategies or town planning schemes, while making provisions for the creation of conservation lots or other forms of lots that provide a mechanism for the re-vegetation of previously cleared land with endemic species;
- 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;
- requiring complete reassessment of any plan, strategy or scheme not already endorsed by the WAPC to provide higher densities in centres and control urban sprawl.” (Emphasis added)

The South-West Framework has been cited by the CoB as a document providing impetus for the review of strategies and plans guiding undeveloped greenfield rural residential land. While the increased density promoted by this document has some social and community benefit in itself, particularly where this provides for more sustainable outcomes, the proponents recognised early on that extra effort was required in order to satisfy the community benefit test.

While the CoB will receive additional developer contributions and rate revenue to aid its community facilities and infrastructure programme now and in the future, the social enhancements from the subdivision design are the true community benefit. The road and PAW network proposed by the CPACSP and implemented via the earlier surrounding subdivisions were poor. The proponents of Lot 115 were cognisant of this and set about designing a subdivision that would provide better access for motorised vehicles, cyclists and pedestrians, including in times of fire or other emergency. For this reason, the over-length PAW connection to the east was replaced with—

- a road for a future thoroughfare to Butterly Road in the east;
- a more appropriate, shortened PAW connection to the most accessible east-west section of the existing PAW from The Dell Retreat in the east;
- construction of the current Seascape Rise PAW to become a road (following conversion by the CoB); and

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

- a temporary emergency access easement through proposed lot 11 through to Wildwood Road.

The developers have also foregone the use of cul-de-sacs elsewhere in the subdivision, instead providing each lot with at least two directions of departure.

The cost of the extra length(s) of road is something the proponents are willing to bear for a safer and generally more permeable movement network for the residents of the precinct to enjoy.

1.3.4 Planning policies

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 structure plan enclosed is considered consistent with the broad applying policy measures and objectives of SPP 2.

STATE PLANNING POLICY 3 – URBAN GROWTH AND SETTLEMENT (2006)

State Planning Policy No. 3 – Urban Growth and Settlement (SPP 3) identifies a key requirement for sustainable communities 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 maintaining the largest 3 ha lots along Wildwood Road, while also introducing smaller lots down to 1 ha at variance to the CPACSP, the structure plan provides the necessary variety and choice in this rural residential cell. The now applied 1 ha minimum and 2 ha average is also 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, strategic firebreak / emergency access PAWs, 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 that previously seen in Yallingup, Yallingup Siding and Quindalup.

STATE PLANNING POLICY 6.1 – LEEUWIN-NATURALISTE RIDGE POLICY (1998, AMENDED 2003)

In addition to SPP 3, the more locally-targeted *State Planning Policy 6.1 Leeuwin-Naturaliste Ridge* (SPP 6.1) provides the following land use strategy (LUS):

“LUS 1.25 Subdivision and development design that facilitates better use of land already committed for Rural Residential development will be encouraged. Assessment of proposals will address the following criteria—

- ***provision for clustered settlement;***
- ***provision of community-based activities and services;***
- ***provision for walking, cycling and possible future public transport;***
- ***opportunities for local enterprise development such as limited small-scale tourism development, including accommodation, attractions and cottage industries; and***
- ***suitability for small-scale intensive agriculture.”***

The proposed subdivision meets this key land use strategy through—

- its clustered and consolidated design facilitating the best and most intensive use of this land already committed for rural residential purposes;
- its superior accessibility and connectivity providing for multi-directional walking and cycling; and
- its lots providing opportunity for forms of recreation agriculture, but also the retention of *The Shearing Shed* rural-tourism experience for the foreseeable future.

STATE PLANNING POLICY No. 3.7 – PLANNING IN BUSHFIRE PRONE AREAS (2015)

State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) requires fire hazard to be considered in planning decisions to avoid increasing the risk through inappropriately located or designed land use and development. It generally requires that a bushfire attack level (BAL) assessment should be undertaken by an appropriately qualified person to determine the nature and extent of controls necessary to reduce fire risks inherent in the subdivision and development of land.

The underlying *Guidelines for Planning in Bushfire Prone Areas* document provides that more intensive and closer development (such as residential, rural-residential, hobby farms, tourist and industrial developments) should not be permitted in moderate or extreme fire hazard areas without permanent hazard level reduction measures being implemented to reduce the hazard level. In such cases, compliance with the acceptable solutions and / or performance principles set out within the guidelines is required.

The guidelines generally require that where land is designated bushfire prone or has a potential fire risk, a subdivision application must be accompanied by a BAL assessment and / or BAL contour plan. At the same time, it is pertinent to demonstrate that all fire protection requirements (including those relating to fire suppression response, subdivision / development design, access, water supply, siting of buildings etc.) can be achieved.

Structure Plan – Lot 115, House 1442 Wildwood Road, Yallingup

In this instance, a bushfire management plan, including a BAL assessment for each lot, has been prepared for the approval by the CoB, Department of Parks and Wildlife (DPaW) and Department of Fire and Emergency Services (DFES) (refer to Appendix E – Bushfire Management Plan).

STORMWATER MANAGEMENT MANUAL FOR WESTERN AUSTRALIA (2004)

The structure plan has been designed to enable incorporation of water sensitive design principles in accordance with the direction of the *Stormwater Management Manual for Western Australia*. 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 on the existing creek system will be negated by adopting appropriately sized drainage swales with nutrient-stripping measures in the verges of road reserves. This approach to stormwater management will adequately address drainage issues within the study area.

Consistent with the approach of other similar recent projects in areas outside the Swan Coastal Plain, a definitive and detailed stormwater management plan will be required to be prepared as a condition of subdivision.

ACID SULFATE SOILS PLANNING GUIDELINES (2008)

The Department of Environment Regulation (DER) acid sulfate soil (ASS) risk mapping indicates that the Lots 115 has areas with only a moderate to low risk of acid sulfate soil (ASS) occurring within 3 m of natural soil surface. On this basis, and given that deep excavation is not required for this subdivision, there is not considered to be a real threat from ASS being uncovered or disturbed. This is consistent with the interpretation of the *Acid Sulfate Soils Planning Guidelines*.

Notwithstanding this, normal precautions will be undertaken during construction when carrying out any excavations, including trenching to extend 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 *Shire of Busselton District Town Planning Scheme No. 20*. This rezoning occurred on 7th September 1999 with the publishing of the said district town planning scheme in the *Government Gazette*.

1.3.6 Pre-lodgement consultation

JULY 2015

First contact was made with the CoB in late July 2015 where the dated outcome of the CPACSP were queried against the raft of policy and framework changes since, most of which require more efficient and rational use of land already committed to rural residential purposes.

To assist the CoB's consideration of this, several iterations of a conceptual subdivision design were submitted to show a lot layout and road configuration proving that the land had a higher lot yield capacity than the CPACSP provides, but more importantly that better road and PAW connections could be established as a net community and safety benefit.

OCTOBER 2015

The CoB advised in October 2015 that while retaining the 3 ha minimum lot size for lots fronting Wildwood Road, a 1 ha minimum for the remainder and 2 ha average over the whole site was appropriate based on the concept arrived at.

The DoP was similarly provided opportunity to comment on the design and lot yield parameters but declined citing workload, procedure / process and absence of comment from other referral agencies.

2. Site conditions and constraints

2.1 Biodiversity and natural area assets

WA peppermint (*Agonis flexuosa*) trees are habitat of the western ringtail possum (WRP) (*Pseudocheirus occidentalis*) which is a threatened (vulnerable) species under the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999*. In Western Australia, the species is also listed as fauna that is rare or likely to become extinct (specially protected) under the *Wildlife Conservation Act 1950*.

The subject lot contains only one small and isolated area of WA peppermint vegetation. Given the site is away from coast and is remote from other similar vegetation it is not likely to contain WRPs. Accordingly, there is considered to be no significant impact to WRP as a result of this proposal, particularly as vegetation is proposed to be retained within lots.

The stands of the more predominant, remnant jarrah (*Eucalyptus marginata*) and marri (*Corymbia calophylla*) trees could be habitat for the three species of black cockatoo as follows:

- Baudin's Black Cockatoo (*Calyptorhynchus baudinii*).
- Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*).
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*).

These three threatened (vulnerable or endangered) species of black cockatoo species will be the subject of an eventual individual tree habitat assessment prior to construction as recommended by the environmental and land capability assessment report. With most trees to be retained within road reserves and within private lots, the actual impact to the three species is anticipated to be insignificant.

There are no significant environmental impacts arising from the proposed structure plan and ensuing subdivision development. Declared rare flora (DRF), threatened ecological communities (TEC) or threatened 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 (EPA), DPaW, DER or the Federal Department of the Environment (DotE). 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 subject property starts at height levels below 45 and 50 m Australian height datum (AHD) on the creek-line in the northeast and western corner adjoining Wildwood Road respectively. It then rises to create a high point above 100 m AHD near the southern corner in proximity to Wildwood Road. The land can be described as undulating, with steeper sections in the northeast adjoining Donald Creek. This creek is fenced from stock and is an upper tributary of Gunyulgup Brook.

Most of the subject property is cleared, but there are some stands of remnant trees scattered about.

Due to the size of the property there is some variation in soil types which in-turn influences the vegetation complexes. Most trees are the remnants and regrowth of *Eucalyptus marginata* (jarrah) and *Corymbia calophylla* (marri) woodland / forest which sit over the more gravelly-loams, plus the granite gully along the creek. There is, however, a patch of *Agonis flexuosa* (peppermint) in the near centre of the property which occupies free draining, bleached sand. Non-endemic *Eucalyptus globulus* (Tasmanian blue gum) were planted in the northeast to assist with some salt and erosion issues, and have served this purpose now. Being a sheep grazing property, there is no understorey species, except for a small section of steep gully adjoining the creek which is fenced off from stock.

The subject lot is located on the east-west transitioning of land units from Cowaramup Uplands system in the east to the Wilyabrup Valleys system in the west. The majority of the subject lot falls in the WL3 – Wilyabrup gentle slopes phase sub-system. The northeast valley abutting the Donald Creek falls inside the WL4 – Wilyabrup moderate slopes phase, while the creek and its immediate banks are described as WLv – Wilyabrup narrow valley floors phase. Only the south east corner falls within the Cowaramup Uplands land unit, being CO2 – Cowaramup gentle slopes phase. All land unit subsystems are described below as follows:

WL3: Gentle slopes phase. Gentle valley slopes; loamy gravels, duplex sandy gravels, brown deep loamy duplexes and friable red-brown and brown loamy earths. Marri-jarrah forest and woodland, with pockets of karri.

WL4: Moderate slopes phase. Moderate valley slopes; loamy gravels, duplex sandy gravels, brown deep loamy duplexes and friable red-brown and brown loamy earths. Marri-jarrah forest and woodland.

WLv: Narrow valleys floors phase. Loamy gravels, duplex sandy gravels, brown deep loamy duplexes and friable red/brown and brown loamy earths.

CO2: Gentle slopes phase. Lateritic rises and gentle slopes; loamy gravels and duplex sandy gravels. Marri-jarrah forest and woodland.

2.3 Groundwater and surface water

The Donald Creek, which is a branch tributary of the Gunyulgup Brook, runs through the very northeast corner of the subject lot. The creek line was fenced off several years ago under the fencing scheme set up under the Gunyulgup Brook Action Plan. As a result, the bush alongside this section of creek line is regenerating and can be described as in fair to good condition.

In late autumn, winter and spring, the Donald Creek receives overland flows and seepage from the northern and northwestern slopes of the valley. The western and southwestern slopes also have

overland flows that make their way to the lower areas adjoining Wildwood Road, eventually crossing the road via culvert.

Stock water is derived from the several soak dams in the lower levels of the site, several of which receive surface flow recharge and others that receive feed by underground spring. The two dams on the northern boundary appear to be fed by spring, not only overland flow, as they contain water all year round.

2.4 Bushfire hazard

All of the subject lot is identified as Bush Fire 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 Smiths Beach which is 3.7 km away.

As mentioned, the Donald Creek runs through the very northeast corner of the subject lot, but is already fenced off from stock and its valley sufficiently rehabilitated by natural regeneration and natural rocky outcrops. Consistent with other rural residential and agricultural subdivisions, the creek will remain in private ownership following subdivision, rather than being ceded to reserve. It is simply impractical for creeks to be put under reserve and management.

2.7 Context and other land use constraints and opportunities

The Shearing Shed rural-tourism business operates from the old shearing and machinery sheds and sheep yards in the southern corner of the property. This comprises a grouping of several outbuildings and other structures. Further to the north and away from Wildwood Road is the first family-occupied dwelling grouped with outbuilding and water tanks. The largest of the sheds occupies much of the farm's machinery and implements. In the central northwest of the site is the other family-occupied dwelling and water tank. Potable water is derived from roof rainfall catchment and above-ground tank storage.

Various fencing divides the property into a number of paddocks, with the gates to these paddocks and the dwellings / outbuildings interconnected by a number of gravel-formed and informal sand tracks. Annual firebreaks surround the periphery of the property, save for the section of the gully adjoining the fence which is fenced and where the firebreak runs on the internal side of this fence.

3. Conclusion

The subject lot is one of the last greenfield sites remaining in the Commonage rural residential policy area. Since its identification in the CPACSP 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 southern precinct.

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 CoB adoption and WAPC endorsement.

4. Technical studies appendices index

4.1 Appendix A – Location Plan

4.2 Appendix B – Commonage Policy Area Consolidated Structure Plan

4.3 Appendix C – Certificates of Title and Deposited Plan

4.4 Appendix D – Environment and Land Capability Assessment

4.5 Appendix E – Bushfire Management Plan

APPENDIX A

LOCATION PLAN

APPENDIX B

COMMONAGE POLICY AREA CONSOLIDATED STRUCTURE PLAN

APPENDIX C

CERTIFICATES OF TITLE AND DEPOSITED PLAN

WESTERN



AUSTRALIA

REGISTER NUMBER N/A	
DUPLICATE EDITION N/A	DATE DUPLICATE ISSUED N/A

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
2187FOLIO
566

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



THIS IS A SHARE TITLE

LAND DESCRIPTION:

1/3 UNDIVIDED SHARES OF
LOT 115 ON DEPOSITED PLAN 30086

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

WILLIAM MICHAEL BUTTERLY OF NORMAN ROAD, BUSSELTON
AS SOLE PROPRIETOR OF THE SHARE SHOWN IN THE LAND DESCRIPTION
(A 1176916) REGISTERED 17 JULY 2002

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

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: DP30086.
PREVIOUS TITLE: 1695-360.
PROPERTY STREET ADDRESS: 1442 WILDWOOD RD, YALLINGUP.
LOCAL GOVERNMENT AREA: CITY OF BUSSELTON.

WESTERN



AUSTRALIA

REGISTER NUMBER N/A	
DUPLICATE EDITION N/A	DATE DUPLICATE ISSUED N/A

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
2188FOLIO
961

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REGISTRAR OF TITLES



THIS IS A SHARE TITLE

LAND DESCRIPTION:

1/3 UNDIVIDED SHARES OF
LOT 115 ON DEPOSITED PLAN 30086

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

STEPHEN JOSEPH BUTTERLY OF WILDWOOD ROAD, YALLINGUP
AS SOLE PROPRIETOR OF THE SHARE SHOWN IN THE LAND DESCRIPTION
(A 1176916) REGISTERED 17 JULY 2002

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

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: DP30086.
PREVIOUS TITLE: 1695-361.
PROPERTY STREET ADDRESS: 1442 WILDWOOD RD, YALLINGUP.
LOCAL GOVERNMENT AREA: CITY OF BUSSELTON.

WESTERN



AUSTRALIA

REGISTER NUMBER N/A	
DUPLICATE EDITION N/A	DATE DUPLICATE ISSUED N/A

RECORD OF CERTIFICATE OF TITLE
UNDER THE TRANSFER OF LAND ACT 1893

VOLUME
2188FOLIO
962

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



THIS IS A SHARE TITLE

LAND DESCRIPTION:

1/3 UNDIVIDED SHARES OF
LOT 115 ON DEPOSITED PLAN 30086

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

DAWN BEVERLY BUTTERLY OF WILDWOOD ROAD, YALLINGUP
AS SOLE PROPRIETOR OF THE SHARE SHOWN IN THE LAND DESCRIPTION
(A 1176916) REGISTERED 17 JULY 2002

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

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: DP30086.
PREVIOUS TITLE: 1695-362.
PROPERTY STREET ADDRESS: 1442 WILDWOOD RD, YALLINGUP.
LOCAL GOVERNMENT AREA: CITY OF BUSSELTON.

LOT	FORMER TENURE	ON PLAN/DAGRAH	TITLE
114	LOT 110	DP 23459	2213 - 362
	PT LOT #63	CD 829	1695 - 360
			1695 - 361
115	PT LOT #63	CD 829	1695 - 362
			1695 - 360
			1695 - 362

INTERESTS AND NOTIFICATIONS

INTERESTS AND NOTIFICATIONS						
SUBJECT	PURPOSE	STATUTORY REFERENCE	WORTH	LAND REQUESTED	BENEFIT TO	COMMENTS
③	RIGHT OF CARRIAGEWAY	SECT. 136C OF THE T.L.A.	DP 25459	LOT 114	LOTS 112 & 113 ON DP 20043	

DP 30086



APPENDIX D
**ENVIRONMENT AND LAND CAPABILITY
ASSESSMENT**

ENVIRONMENT AND LAND CAPABILITY ASSESSMENT REPORT



**LOT 115
WILDWOOD ROAD,
YALLINGUP**

APRIL 2016

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EXECUTIVE SUMMARY

The Butterly family are seeking to subdivide and develop approximately 62.63 hectares on Lot 115 Wildwood Road, Yallingup (herein referred to as the subject site). The subject site is located within the municipality of the City of Busselton, approximately nine kilometres south of Dunsborough.

This Environment and Land Capability Assessment Report has been prepared to support the proposed subdivision of the subject site. It investigates the existing environment and the environmental opportunities and constraints associated with the development of the site, including recommended management measures to mitigate impacts.

During the assessment, the key environmental features identified within the subject site include:

- The majority of the subject site is contained within the Wilyabrup gentle slope Phase, Wilyabrup moderate slope Phase and Cowaramup gentle slope Phase soil units;
- The majority of the subject site is classified as having a “*moderate to low risk of ASS, generally occurring at a greater depth than 3 metre*”;
- No contaminated sites were identified within or in proximity to the subject site. Given the previous land use and absence of any evidence relating to contamination, the risk of site contamination is considered low;
- Anecdotal information suggest that groundwater levels are variable across the subject site with a minimum depth to groundwater of approximately 7 m;
- Surface water from the northern and western portion of the subject site drains towards the Donald Creek while surface water from the southern face drains into two soaks in proximity to Wildwood Road. The Donald Creek intersects the north-eastern corner of the subject site which is an ephemeral tributary of the Gunyulgup Brook;
- The majority of the subject site is cleared of remnant vegetation and is considered to be in a ‘Degraded’ to ‘Completely Degraded’ condition. No flora or vegetation communities of conservation significance are likely to occur given the limited number of native species and the history of anthropogenic disturbances;
- A desktop assessment identified four key fauna species of conservation significance that may occur within the subject site, including:
 - Baudin’s Black Cockatoo (*Calyptorhynchus baudinii*);
 - Carnaby’s Black Cockatoo (*Calyptorhynchus latirostris*);
 - Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*); and
 - Western Ringtail Possum (*Pseudocheirus occidentalis*).
- Results of the Department of Aboriginal Affairs database search revealed that no Aboriginal heritage sites are present within the subject site; and
- The use of onsite effluent disposal systems is considered suitable within the Wilyabrup gentle slope Phase, Wilyabrup moderate slope Phase and Cowaramup gentle slope Phase soil units within the subject site.

In consideration of the abovementioned key environmental features, the following management measures have been proposed to minimise potential impacts associated with the subdivision of the subject site:

- Strategically position building envelopes and road alignments in a manner conducive to the retention of Black Cockatoo habitat trees and remnant vegetation as far as practicable;
- Implement suitable erosion and sedimentation controls during construction works;

- Implement specific fauna management measures during construction works to minimise potential impacts to species of conservation significance as far as practicable;
- Provide a setback of 30 m from the Donald Creek to the development footprint;
- Prepare a Local Water Management Strategy prior to subdivision; and
- The Wilyabrup gentle slope Phase, Wilyabrup moderate slope Phase and Cowaramup gentle slope Phase soil units are suitable for onsite effluent disposal provided the following measures are implemented:
 - The surface gradient of the disposal area should be less than 10%;
 - The distance between the base of the disposal system (i.e. trench bottom, bed base) and the groundwater table and impermeable layer (i.e. bedrock, clay) should not be less than 1.2 m ;
 - On completion of the proposed disposal area, appropriate landscaping should be undertaken (i.e. planting of shallow rooted grasses / shrubs); and
 - Connection to reticulated water for human consumption, noting that a 30 m buffer is required from private water supplies (intended for human consumption) to the effluent disposal area; and
 - Provision of a 30 m setback from the Donald Creek and any soaks

Based on this assessment, Accendo considers that there are no fatal flaws or key environmental values that cannot be accommodated to enable development of the subject site for its intended purpose.

CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION	1
1.1 BACKGROUND	1
1.2 SCOPE AND PURPOSE	1
1.3 PROPOSED SUBDIVISION	1
2 BIOPHYSICAL ENVIRONMENT	2
2.1 LAND USE	2
2.2 TOPOGRAPHY, LANDFORM AND SOILS	2
2.3 ACID SULFATE SOILS	3
2.4 SITE CONTAMINATION	3
2.5 HYDROLOGY	3
2.5.1 Groundwater	3
2.5.2 Surface Water	4
2.6 WETLANDS	4
2.7 VEGETATION AND FLORA	5
2.7.1 Flora	5
2.7.2 Vegetation	6
2.7.3 Environmentally Sensitive Areas	7
2.8 FAUNA	7
2.8.1 Black Cockatoo Habitat Tree Assessment	9
2.9 ABORIGINAL HERITAGE	10
3 LAND CAPABILITY ASSESSMENT	11
3.1 EFFLUENT DISPOSAL CRITERIA	11
3.2 SITE SPECIFIC INVESTIGATION	11
3.3 ASSESSMENT OF LAND QUALITIES	12
3.3.1 Waterlogging	13
3.3.2 Microbial Purification Risk	13
3.3.3 Land Instability Hazard	13
3.3.4 Soil Absorption Ability	14
3.3.5 Ease of Excavation	14
3.3.6 Flood Risk	14

3.4	ONSITE EFFLUENT DISPOSAL.....	14
3.5	SUMMARY	15
4	POTENTIAL IMPACTS AND MANAGEMENT	17
4.1	GEOMORPHOLOGY, GEOLOGY AND SOILS.....	17
4.2	SITE CONTAMINATION	17
4.3	HYDROLOGY	17
4.3.1	Groundwater.....	17
4.3.2	Surface Water.....	17
4.4	VEGETATION AND FLORA.....	18
4.5	FAUNA	18
4.6	ABORIGINAL HERITAGE.....	19
4.7	ONSITE EFFLUENT DISPOSAL.....	19
5	SUMMARY.....	20
	BIBLIOGRAPHY	22
	FIGURES	24
	APPENDIX A – STRUCTURE PLAN	25
	APPENDIX B – TEST PIT SOIL LOGS	26
	APPENDIX C- DPAW FLORA SEARCH RESULTS.....	27
	APPENDIX D – EPBC ACT SEARCH RESULTS	28
	APPENDIX E – FLORA CLASSIFICATIONS	29
	APPENDIX F - FAUNA CLASSIFICATIONS	30
	APPENDIX G – HABITAT TREE ASSESSMENT	31

TABLES

Table 1. Wetland classifications (Semeniuk 1995).	4
Table 2. Database search results for significant flora known to occur within proximity to the subject site.	5
Table 3. Extent of pre-European vegetation remaining the Warren IBRA region.	6
Table 4. Significant fauna potentially occurring within the subject site as identified by State and Commonwealth database searches.	8
Table 5. Land use capability class and sub-class rating.	12
Table 6. PRI rating for each soil type within the subject site.	13
Table 7. Land capability rating for onsite effluent disposal of the assessed soil units.....	14

FIGURES

Figure 1. Regional Location of the Subject Site

Figure 2. The Subject Site

Figure 3. Soil Types

Figure 4. Acid Sulfate Soil Mapping

1 INTRODUCTION

1.1 Background

The Butterly family (the proponent) are seeking to subdivide and develop approximately 62.63 hectares (ha) of Lot 115 Wildwood Road, Yallingup (herein referred to as the subject site). The subject site is located within the municipality of the City of Busselton, approximately nine kilometres south of the Dunsborough town centre (refer to **Figure 1** and **Figure 2**).

Pursuant to the City of Busselton's Local Planning Scheme No. 21 the subject site is zoned 'Rural Residential'. To enable future rural residential development over the site, a Structure Plan (Able Planning 2015) has been prepared which proposes the development of 29 rural residential lots each in excess of 10,000 m² (refer to **Appendix A**). Connection to the existing reticulated sewerage network is not feasible and therefore onsite effluent disposal will be necessary.

This Environment and Land Capability Assessment Report has been prepared to support the proposed subdivision of the subject site. It investigates the existing environment and the environmental opportunities and constraints associated with the development of the site, including recommended management measures to mitigate impacts.

The subject site presents a unique opportunity for residential development within the locality in consideration of its proximity to existing town centres and transport routes.

1.2 Scope and Purpose

This report provides a synthesis of a range of information regarding the environmental attributes and values of the subject site and is based on a variety of sources including both existing information and site specific assessments. Collectively, this information will be used to inform the subdivision design process.

This report also includes a Land Capability Assessment to determine the subject site's capability to support onsite effluent disposal. This involved a desktop assessment in addition to onsite field work and laboratory analysis of soil samples.

Specifically, this document provides an analysis of the following environmental issues relevant to the subject site:

- Existing, historic and surrounding land uses;
- Flora and vegetation;
- Hydrology and protected wetlands;
- Significant fauna;
- Potential soil and groundwater contamination;
- Land capability for onsite effluent disposal; and
- Aboriginal heritage.

1.3 Proposed Subdivision

The proponent is seeking to subdivide and develop the subject site for rural residential purposes in the short-term.

Currently, it is proposed to create 29 lots ranging in size from 10,070 m² to 43,360 m². Connection to the existing reticulated sewerage network is not feasible and therefore onsite effluent disposal will be necessary.

2 BIOPHYSICAL ENVIRONMENT

During this assessment a range of specific environmental and heritage issues were explored in relation to the subject site. This involved a detailed desktop assessment and a site visit conducted on the 3rd December 2015.

2.1 Land Use

The subject site was historically cleared of native vegetation for agricultural purposes and is currently being used for livestock grazing. Site specific features for the subject site include:

- Isolated paddock trees predominately consisting of Marri (*Corymbia calophylla*), Jarrah (*Eucalyptus marginata*) and Peppermint (*Agonis flexuosa*);
- Several small remnants of native vegetation which have predominately been subjected to livestock grazing (excluding the remnant in the proposed Lot 19);
- Two existing residences and a tourism facility (shearing shed);
- Five existing soaks/dams; and
- A watercourse, Donald Creek, which intersects the north-eastern corner of the subject site.

2.2 Topography, Landform and Soils

The natural topography of the subject site is undulating with the elevation ranging from approximately 45 metres (m) Australian Height Datum (AHD) in the north-east to 100 m AHD in the south-east of the subject site. The lower lying area within the subject site corresponds with the Donald Creek.

The subject site lies in the Leeuwin Block geomorphic zone. The Leeuwin Block is a narrow area along the west coast extending between Cape Naturaliste and Cape Leeuwin, dominated by a gently undulating lateritic plateau lying 20-80 m above sea level. Soils on the plateau include loamy gravels and grey deep sandy duplex soils.

The Department of Agriculture and Food's (DAF's) Shared Land Information Portal (SLIP) maps the subject site as occurring within the Wilyabrup Valleys and the Cowaramup Uplands soil-landscape unit systems, described as:

- Wilyabrup Valleys System: Granitic valleys, in the Leeuwin Zone. Loamy gravel, sandy gravel and loamy earth; and
- Cowaramup Uplands System: Lateritic plateau, in the Leeuwin Zone. Sandy gravel, loamy gravel and grey sandy duplex.

The soil units associated with these systems that occur within the subject site include (refer to **Figure 3**):

- Wilyabrup narrow valley floor Phase: Narrow V-shaped drainage depressions (approximately 1.67 ha);
- Wilyabrup gentle slope Phase: Gentle valley slopes on colluvium and weathered mantle over granite (approximately 38.51 ha);
- Wilyabrup moderate slope Phase: Moderate valley slopes on colluvium and weathered mantle over granite (approximately 5.87 ha); and
- Cowaramup gentle slope Phase: Lateritic rises and gentle slopes on weathered mantle over granite (approximately 16.58 ha).

During the Accendo site visit, three test pits were excavated to an approximate depth of 1.5 m below ground surface (refer to **Appendix B** for soil logs). Two discrete soil units were observed within the subject site which included:

- Loamy gravels (TP1 and TP3); and
- Grey, deep sandy duplex soils (TP2).

2.3 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).

Mapping prepared by the Department for Planning and Infrastructure (DPI) to support the Western Australian Planning Commission’s (WAPC’s) Planning Bulletin 64: *Acid Sulfate Soils* (WAPC 2007) indicates that the majority of the subject site is classified as having a “*moderate to low risk of ASS, generally occurring at a greater depth than 3 metres*” with the remainder of the subject site having “*no known risk of ASS, generally occurring at a greater depth than 3 metres*” (refer to **Figure 4**).

During excavation of the three test pits, no soil or groundwater characteristics associated with ASS or the formation of ASS were identified.

2.4 Site Contamination

The majority of the land within the subject site can be described as cleared land for rural purposes. Based on anecdotal evidence, chemicals and petrochemical substances have not been stored or used on the subject site. Furthermore, no evidence of asbestos, chemical drums/containers or other indicators of contamination were identified during the recent site visit.

A search of the Department of Environment Regulation’s (DER’s) known contaminated sites database (DER 2015) identified that the subject site is not listed as a contaminated site. No contaminated sites have been identified in proximity to the subject site.

Given the previous land use and absence of any evidence relating to contamination, the risk of site contamination is considered low.

2.5 Hydrology

2.5.1 Groundwater

The subject site is located within the proclaimed Busselton–Capel Groundwater Area and the Dunsborough–Vasse Groundwater Sub-area.

Groundwater within the locality typically occurs in thin lenses of coarse quartz sands overlying bedrock usually at depths greater than 7 m beneath the ground and do not represent a significant groundwater resource (Tille and Lantzke 1990). During excavation of the test pits, no groundwater was encountered.

To protect the State’s drinking water resources the Department of Water (DoW) has defined certain Priority Classification Areas within Public Drinking Water Source Areas (PDWSA) providing three levels of groundwater quality protection. These are based on the principles of risk avoidance (Priority 1), risk

minimisation (Priority 2) and pollution limiting (Priority 3). The subject site does not lie within any existing or potential PDWSAs.

2.5.2 Surface Water

Surface water from the northern and western portion of the subject site drains towards the Donald Creek while surface water from the southern face drains into two soaks in proximity to Wildwood Road. The Donald Creek intersects the north-eastern corner of the subject site which is an ephemeral tributary of the Gunyulgup Brook. The Gunyulgup Brook catchment drains an area of 47 km² and discharges into the sea at Smith's Beach, south of Yallingup townsite (Hunt *et al.* 2002).

The subject site contains five soaks which have been excavated to provide water for livestock (refer to **Plate 1**). It is probable that they receive water by a combination of underground springs and the seepage of rainwater along the interface between soil and bedrock.



Plate 1. Dam located on the western boundary of the subject site.

2.6 Wetlands

Wetlands within Western Australia are classified on the basis of landform and water permanence pursuant to the Semeniuk (1995) classification system (refer to **Table 1**).

Table 1. Wetland classifications (Semeniuk 1995).

Water Longevity	Landform				
	Basin	Channel	Flat	Slope	Highland
Permanent Inundation	Lake	River	-	-	-
Seasonal Inundation	Sumpland	Creek	Floodplain	-	-
Intermittent Inundation	Playa	Wadi	Barlkarra	-	-
Seasonal Waterlogging	Dampland	Trough	Palusplain	Paluslope	Palusmont

Areas of wetlands have been mapped previously by Semeniuk (1995) across the entire Swan Coastal Plain. This mapping has been converted into a digital dataset that is maintained by the DPaW and is referred to as the '*Geomorphic Wetland of the Swan Coastal Plain*' dataset. This dataset contains information on geomorphic wetland types and assigns management categories that guide the recommended management approach for each wetland area.

The *Geomorphic Wetlands of the Swan Coastal Plain* dataset does not extend to the subject site. Furthermore, the subject site does not contain any other wetlands of conservation significance.

2.7 Vegetation and Flora

2.7.1 Flora

A search for known rare and Priority flora within or in proximity to the subject site was undertaken through a review of the following databases:

- DPaW's Threatened (Declared Rare) Flora database;
- DPaW's Declared Rare and Priority Flora list; and
- EPBC Act Protected Matters database.

A total of 19 conservation significant flora have been recorded within 5 km of the subject site (refer to **Appendix C**). This included 14 species of Priority Flora and five Declared Rare species. The EPBC Act Protected Matters database search (**Appendix D**) returned ten results for listed Threatened flora species. A summary of these species, their conservation status and preferred habitat type is provided within **Table 2**.

Table 2. Database search results for significant flora known to occur within proximity to the subject site.

Species	DPaW Status ¹	EPBC Act Status	Preferred Habitat	Likelihood of Occurrence
<i>Acacia inops</i>	P3	-	Black peaty sand, clay. Swamps, creeks.	Unlikely
<i>Acacia lateriticola</i> <i>glabrous</i> variant (B.R. Maslin 6765)	P3	-	Lateritic soils.	Possible
<i>Acacia semitrullata</i>	P4	-	Sandplains, swampy areas.	Unlikely
<i>Acacia subracemosa</i>	P3	-	Red or yellow sand over limestone.	Unlikely
<i>Banksia sessilis</i> var. <i>cordata</i>	P4	-	White/grey sand. Coastal limestone	Unlikely
<i>Boronia capitata</i> <i>subsp. gracilis</i>	P3	-	White/grey or black sand. Winter-wet swamps, hillslopes.	Unlikely
<i>Caladenia excelsa</i>	T	Endangered	Deep white, grey or brown sands or sandy loam of the Leeuwin-Naturaliste Ridge.	Unlikely
<i>Caladenia huegelii</i>	T	Endangered	Grey or brown sand, clay loam.	Unlikely
<i>Drakaea micrantha</i>	T	Vulnerable	Sandy disturbed patches.	Unlikely
<i>Eucalyptus phylacis</i>	T	Endangered	Loamy granitic and lateritic soils.	Unlikely
<i>Gahnia sclerioides</i>	P4	-	Loam, sandy soils. Moist shaded situations	Unlikely
<i>Galium leptogonium</i>	P3	-	Clay soils.	Unlikely
<i>Gastrolobium</i> <i>argyrotichum</i>	P1	-	Granitic and lateritic outcrops with shallow, gravelly loam soils.	Possible
<i>Gastrolobium papilio</i>	T	Endangered	Shallow, peaty grey-brown sandy clay.	Unlikely
<i>Isopogon formosus</i> <i>subsp. dasylepis</i>	P3	-	Sand, sandy clay, gravelly sandy soils over laterite. Often swampy areas.	Unlikely
<i>Johnsonia inconspicua</i>	P3	-	White-grey or black sand. Low dunes, winter-wet flats.	Unlikely
<i>Pimelea ciliata</i> subsp. <i>longituba</i>	P3	-	Grey sand over clay, loam.	Unlikely

Species	DPaW Status ¹	EPBC Act Status	Preferred Habitat	Likelihood of Occurrence
<i>Stylidium lowrieanum</i> (Lowrie's Triggerplant)	P3	-	Sand or sandy loam over limestone.	Unlikely
<i>Stylidium striatum</i> (Fan-leaved Triggerplant)	P4	-	Brown clay loam over laterite.	Unlikely

¹Refer to **Appendix E** for classification descriptions.

Based on available soil types within the subject site, it is possible for two species of conservation significance to occur within the subject site. Nonetheless, it is considered highly unlikely that the subject site supports any flora species of conservation significance given that it has predominately been cleared and has experienced prolonged livestock grazing.

2.7.2 Vegetation

The vegetation of the subject site falls within Beard's Menzies botanical sub-districts of the Darling Botanical District (Beard 1981). Beard described Vegetation Systems within the botanical districts which summarize the range of vegetation formations present. The subject site is situated within the Chapman Vegetation System which consists of Jarrah–Marri forests that may be stunted in places by poor drainage. Within the locality Flooded gum (*Eucalyptus rudis*) and Black butt (*E. patens*) may occur locally on heavier soils with thickets dominated by *Taxandria linearifolia* found in a narrow zone along drainage lines.

According to vegetation mapping by Matiske (1998), the subject site falls within the Cowaramup (C2) and Wilyabrup (W2) Vegetation Complexes. These are described as:

- Cowaramup (C2) – Open forest of *Eucalyptus marginata* subsp. *marginata* – *Corymbia calophylla* – *Banksia grandis* on lateritic uplands in perhumid and humid zones; and
- Wilyabrup (W2) – Open forest of *Corymbia calophylla* – *Allocasuarina decussata* – *Agonis flexuosa* on deeply incised valleys in perhumid and humid zones.

The mapped Matiske (1998) vegetation complexes can be used to determine vegetation extent and status within a bioregion (refer to **Table 3**). The EPA recognises vegetation associations that are not well represented in reserves as being 'significant'.

Table 3. Extent of pre-European vegetation remaining the Warren IBRA region.

System	Pre-European (ha)	Current Extent (ha)	Remaining Extent (%)
IBRA Bioregion¹ Warren	833,982	664,123.16	79.63
Local Government¹ City of Busselton	90,478	53,038	58.8
Matiske Vegetation² Cowaramup – C2	13,688	4588.85	33.52
Wilyabrup – W2	4,108	1357.17	33.04

1 – Government of Western Australia (2015)

2 – Matiske (1998)

The national objectives and targets for biodiversity conservation in Australia have a target to prevent clearance of ecological communities with an extent below 30% of their pre- European extent remaining. In relation to the subject site, the vegetation complexes have in excess of 30% still extant. Furthermore, based on a recent site visit, vegetation within the subject site is not considered representative of these

vegetation complexes given the absence of under and mid-storey species, lack of species diversity and high degree of weed incursion.

Based on site observations and analysis of aerial photography, the subject site has been extensively cleared, resulting in highly degraded vegetation primarily consisting of introduced grasses. Areas of remnant vegetation have historically been heavily grazed by livestock resulting in scattered paddock trees and isolated remnants of Jarrah, Marri and Peppermint trees (refer to **Plate 2** and **Plate 3**). On this basis, the vegetation condition is considered to range from 'Degraded' to 'Completely Degraded'.



Plate 2. Cleared paddock with scattered trees.



Plate 3. Remnant of Jarrah and Marri trees.

A search was undertaken of the DPaW's Threatened Ecological Communities (TEC) database and the EPBC Act Protected Matters database for TECs. No known TECs have been recorded within a one kilometre radius of the subject site. Furthermore, native vegetation within the subject site is restricted to paddock trees and therefore it is considered very unlikely to contain a vegetation community of conservation significance.

2.7.3 Environmentally Sensitive Areas

Section 51B of the EP Act allows the Minister to declare an Environmentally Sensitive Area (ESA). Once declared, the exemptions to clear native vegetation under the regulations do not apply in these areas. TECs, areas within 50 m of any Declared Rare Flora and defined wetland areas constitute ESAs. However, a number of other areas of environmental significance are also listed. Current declared ESAs are listed in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*.

The subject site does not contain any mapped ESAs.

2.8 Fauna

A search of the DPaW Threatened Fauna database was undertaken to establish whether species declared as 'Rare or likely to become extinct' (Schedule 1), 'Birds protected under an international agreement' (Schedule 3) and 'Other specially protected fauna' (Schedule 4) as listed under the WC Act have been recorded in proximity to the subject site. Fourteen fauna species listed as Schedule 1 species and nine Schedule 3 species have been recorded within a 5 km radius of the subject site. Additionally, the DPaW Priority fauna database identified one Priority 3, two Priority 4 and one Priority 5 species' within this zone (refer to **Table 4**).

The EPBC Act Protected Matters Search Tool also identified several threatened and migratory species that could potentially occur within or in proximity to the subject site. This included six species classified as Vulnerable, six Endangered species and eight Migratory bird species (**Table 4**).

Table 4. Significant fauna potentially occurring within the subject site as identified by State and Commonwealth database searches.

Species	DPaW Status ¹	EPBC Act Status	Likelihood of Occurrence
<i>Austroassiminea lethra</i> (Cape Leeuwin Freshwater Snail)	S1	Endangered	Unlikely
<i>Apus pacificus</i> subsp. <i>pacificus</i> (Fork-tailed Swift)	S3	Migratory	Unlikely
<i>Ardea ibis</i> (Cattle Egret)	S3	Migratory	Unlikely
<i>Ardea modesta</i> (Eastern Great Egret)	S3	Migratory	Unlikely
<i>Ardea alba</i> (Great Egret)	S3	Migratory	Unlikely
<i>Botaurus poiciloptilus</i> (Australasian Bittern)	S1	Endangered	Unlikely
<i>Bettongia penicillata ogilbyi</i> (Woylie)	S1	Endangered	Unlikely
<i>Calyptorhynchus banksii</i> subsp. <i>naso</i> (Forest Red-tailed Black-Cockatoo)	S1	Vulnerable	Possible
<i>Calyptorhynchus baudinii</i> (Baudin's Cockatoo)	S1	Vulnerable	Possible
<i>Calyptorhynchus latirostris</i> (Carnaby's Cockatoo)	S1	Endangered	Possible
<i>Charadrius rubricollis</i> (Hooded Plover)	P4	-	Unlikely
<i>Ctenotus ora</i> (Coastal Plains Skink)	P3	-	Unlikely
<i>Dasyurus geoffroii</i> (Chuditch)	S1	Vulnerable	Unlikely
<i>Engaewa reducta</i> (Dunsborough Burrowing Crayfish)	S1	Endangered	Unlikely
<i>Falco peregrinus</i> (Peregrine Falcon)	S3	Migratory	Unlikely
<i>Falco peregrinus</i> subsp. <i>macropus</i> (Australian Peregrine Falcon)	S3	-	Unlikely
<i>Haliaeetus leucogaster</i> (White-bellied Sea Eagle)	S3	Migratory	Unlikely
<i>Hydromys chrysogaster</i> (Water-rat)	P4	-	Unlikely
<i>Isoodon obesulus</i> subsp. <i>Fusciventer</i> (Quenda)	P5	-	Unlikely
<i>Merops ornatus</i> (Rainbow Bee-eater)	S3	Migratory	Possible
<i>Morelia spilota</i> subsp. <i>imbricata</i> (Carpet Python)	S1	-	Unlikely
<i>Myrmecobius fasciatus</i> (Numbat, Walpurti)	S1	Vulnerable	Unlikely
<i>Oceanites oceanicus</i> (Wilson's Storm Petrel)	S1	-	Unlikely
<i>Pandion haliaetus</i> (Osprey)	S3	Migratory	Unlikely
<i>Phascogale tapoatafa</i> subsp. <i>tapoatafa</i> (Southern Brush-tailed Phascogale)	S1	Endangered	Possible
<i>Pseudocheirus occidentalis</i> (Western Ringtail Possum)	S1	Vulnerable	Possible
<i>Setonix brachyurus</i> (Quokka)	S1	Vulnerable	Unlikely

¹Refer to Appendix F for classification descriptions.

Of the abovementioned conservation significant species, based on preferred habitat types, six species have potential to occur within the subject site. A site specific habitat tree assessment was undertaken to determine potential impacts to the three species of Black Cockatoo, as discussed in the following section. A further assessment to determine the likelihood of the remaining three species to occur within the subject site is provided below.

***Merops ornatus* (Rainbow Bee-eater) (Migratory)**

The Rainbow Bee-eater occurs in the better watered parts of Western Australia, between the Kimberley and south-west, preferring lightly wooded, sandy country near water (Johnstone and Storr 1998). This is a widespread aerial species that does visit disturbed sites. While it may infrequently visit the subject site, the species will move away from disturbances. Furthermore, the subject site does not provide habitat critical to the survival of this species.

***Phascogale tapoatafa subsp. tapoatafa* (Southern Brush-tailed Phascogale) (Endangered)**

This species is known to occur from Perth to Albany. It occurs at low densities in the northern Jarrah forest. The highest densities occur in the Perup/Kingston area, Collie River valley, and near Margaret River and Busselton. Records are less common from wetter forests.

This subspecies has been observed in dry sclerophyll forests and open woodlands that contain hollow-bearing trees but a sparse ground cover. It is a nocturnal carnivore that relies on tree hollows as nest sites. The home range for a female Brush-tailed Phascogale is estimated at between 20 and 70 ha, whilst that for males is given as twice that of females. In addition, they tend to utilise a large number (approximately 20) of different nest sites throughout their range (Soderquist 1995).

The current status of this species in the general area is difficult to determine. Most of the subject site is unsuitable for the species due to extensive clearing, nonetheless they may persist in low numbers in denser woodland areas despite lack of native understorey.

***Pseudocheirus occidentalis* (Western Ringtail Possum) (Vulnerable)**

The Western Ringtail Possum (WRP) is endemic to the south-west of Western Australia. It was formerly patchily distributed through the near-coastal southwest from approximately 120 km southeast of Geraldton to the southern edge of the Nullarbor Plain and its range has now substantially contracted (How *et al.*, 1987; de Tores *et al.*, 2005; Jones, 2004). Extant populations now occur mostly on the coastal strip from Yalgorup (100 km south of Perth) to Waychinicup National Park (just east of Albany), with isolated inland populations in the lower Collie River valley, Harvey River Valley and at Perup (Manjimup) (de Tores *et al.*, 2005; Jones, 2004; Jones *et al.*, 2007).

With the exception of the few isolated inland populations in Eucalypt forests, the WRP generally occurs in coastal Peppermint (*Agonis flexuosa*) woodland, Peppermint/Tuart (*Eucalyptus gomphocephala*) woodland, and Peppermint/Eucalypt woodland associations, with the highest density populations occurring within the Busselton to Dunsborough coastal strip (de Tores *et al.* 2005; Jones *et al.*, 2007). This species has also been recorded in proximity to the subject site in low densities.

In consideration of the availability of coastal Peppermint trees and based on previous surveys within proximity to the subject site, the WRP may occur within the subject site at low densities.

2.8.1 Black Cockatoo Habitat Tree Assessment

In order to determine the potential impacts on habitat associated with the *Calyptorhynchus banksia naso* (Forest Red-tailed Black Cockatoo) *Calyptorhynchus latirostris* (Carnaby's Black Cockatoo) and *Calyptorhynchus baudinii* (Baudin's Black Cockatoo) (collectively termed Black Cockatoos), a habitat tree assessment was undertaken (Harewood 2016, refer to **Appendix G**).

The habitat tree assessment involved the identification of all suitable trees species within the proposed development footprint that have a Diameter at Breast Height (DBH) of equal to or over 50cm. The location of each tree identified as being over the threshold DBH was recorded with a GPS and details on tree species, number and size of hollows (if any) noted. Target tree species included marri and jarrah or any other endemic *Corymbia*/*Eucalyptus* species of a suitable size that was present.

The location of the habitat trees identified during the survey are provided within **Appendix G**. The assessment identified 66 trees within the areas surveyed with a DBH of >50cm. Only three of these trees contained apparent or obvious hollows, two of which were assessed as being unsuitable for Black Cockatoos to use for nesting purposes (due to hollows apparent small size, orientation and/or height above ground level).

One dead tree appeared to have at least one hollow potentially of a size large enough for a Black Cockatoo to use for nesting though this assessment was based on the size of the entrance into an apparent hollow only. No actual evidence of any hollows being used by Black Cockatoos for nesting (currently or previously) was seen.

2.9 Aboriginal Heritage

All Aboriginal sites in Western Australia are provided protection under the *Aboriginal Heritage Act 1972* in which it is an offence for anyone to excavate, damage, destroy, conceal or in any way alter an Aboriginal site without the Minister's permission.

An online search for relevant Aboriginal heritage information was undertaken using the Department of Aboriginal Affairs (DAA) Aboriginal Inquiry System that incorporates both the heritage site register and the heritage survey database (DAA 2014). The Aboriginal Heritage Site Register is maintained pursuant to Section 38 of the *Aboriginal Heritage Act 1972* and contains information on over 22,000 listed Aboriginal sites throughout Western Australia.

Results of the DAA database search revealed that no Aboriginal heritage sites are present within the subject site. Nonetheless, it is important to note that Aboriginal heritage sites may still exist in or adjacent to the subject site that are not yet known to DAA, or may not yet been listed on the Aboriginal Heritage Register.

3 LAND CAPABILITY ASSESSMENT

3.1 Effluent Disposal Criteria

Land capability refers to the ability of land to support a type of land use without causing damage (Austin & Cocks 1978). It considers both the specific requirements of the land use including the risks of degradation associated with the land use.

The DAF has developed a system for the assessment of land capability for various land uses including rural-residential, hobby farming and agriculture (Wells and King 1989). The system utilises existing land resource survey data such as soil type, landforms and slope and matches these qualities with the physical requirements of a particular land use. Accendo has undertaken a Land Capability Assessment (LCA) of the subject site by applying the available land resource information (including soil characteristics) designated by the DAF (Wells 2004) for the Rockingham Region (Resource Management Technical Report No.44), and undertaking site specific investigations. This information has subsequently been applied to the 'Guidelines for Land Capability Assessment for Local Rural Strategies' (State Planning Commission 1989) which has facilitated land capability mapping of the soil types identified within the subject site.

Furthermore, the Draft *country sewerage policy* (Department of Health 2003) requires the demonstration that an area of suitable land is available for long term onsite wastewater disposal. This is in consideration of the following criteria:

- The site is required to have soil characteristics capable of receiving all wastewater likely to be generated on the site without risk to public health or the environment;
- The natural land slope on which wastewater disposal is to occur shall not exceed a one in five gradient;
- The wastewater disposal site should not be subject to inundation or flooding at a probability greater than once in 10 years;
- No wastewater system shall be constructed so that effluent or liquid wastewater will be discharged into the ground at a distance less than 30 m for any well, stream or private water supplies intended for human consumption;
- No wastewater system shall be constructed so effluent or liquid waste is discharged into the ground within 6 m of any subsoil drainage system or open drainage system;
- The depth to the highest known groundwater level from the underside of a septic tank effluent drainage receptacle shall be a minimum of 1.2 m (WAPC 2003); and
- Setbacks, groundwater clearance and installation requirements of systems other than conventional septic tank systems shall comply with any particular requirement relevant to the system in accordance with the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974*.

3.2 Site Specific Investigation

In order to provide a measure of on-ground verification of the site characteristics that can in turn be used to conduct the LCA, a number of site-specific parameters were investigated during the Accendo site visit on the 3rd December 2015. These included:

- Excavating three test-pits to an approximate depth of 1.5 – 2.0 m; and
- Collection and analysis of soil samples from each of the test-pits for Phosphorus Retention Index (PRI).

Soil logs for each of the three test pits are provided within **Appendix B**.

3.3 Assessment of Land Qualities

The DAF have developed a set of criteria for the assessment of the ability of land to support septic tank systems (Wells 1989). The criteria can also be used to determine the suitability for effluent disposal from Aerobic Treatment Units (ATUs). The process of evaluation involves the detailed consideration of land qualities, land use requirement and land characteristics. The land qualities associated with 'onsite effluent disposal' include:

- Waterlogging risk;
- Microbial purification ability;
- Land instability hazard;
- Soil absorption ability;
- Ease of excavation; and
- Flood hazard.

The DAF has prepared a general land capability rating system that can be applied to all soil types (Wells and King 1989). The general description pertaining to each of the capability classes is provided in **Table 5**.

Table 5. Land use capability class and sub-class rating.

Capability Class	Description
1	Very high capability for the proposed activity or land use. Very few physical limitations present which are easily overcome. Risk of land degradation negligible
2	High capability. Some physical limitations affecting risk of land degradation. Limitations overcome by careful planning
3	Fair capability. Moderate physical limitations significantly affecting risk of land degradation. Careful planning and conservation measures required
4	Low capability. High degree of physical limitations not easily overcome by standard development techniques and/or resulting in a high risk of land degradation. Extensive conservation requirements
5	Very low capability. Severity of physical limitations is such that its use is usually prohibited in terms of either development costs or the risk of land degradation
Land Qualities	
A	Waterlogging risk;
B	Microbial purification ability
C	Land instability hazard
D	Soil absorption ability
E	Ease of excavation
F	Flood Hazard

An assessment of the land qualities based on a desktop and site specific investigation has been undertaken for the following three soil units within the subject site:

- Wilyabrup gentle slope Phase;
- Wilyabrup moderate slope Phase; and
- Cowaramup gentle slope Phase.

The Wilyabrup narrow valley floor Phase has been excluded from this assessment as building envelopes and associated infrastructure will not be contained within this soil unit in consideration of the steep topography and proximity to the Donald Creek.

3.3.1 Waterlogging

Waterlogging is excessive water in the root zone accompanied by anaerobic conditions. The excess water inhibits gas exchange with the atmosphere; biological activity consumes the available oxygen and impairs photosynthesis. Problems may arise with waterlogging for onsite effluent disposal systems when there is insufficient soil above the seasonal water table to purify effluent before leaching into the groundwater.

The DAF have categorised the risk of waterlogging for the assessed soil units as follows:

- Wilyabrup gentle slope Phase - less than 3% risk;
- Wilyabrup moderate slope Phase - 3 to 10% risk; and
- Cowaramup gentle slope Phase - 10 to 30% risk (van Gool 1990).

3.3.2 Microbial Purification Risk

Microbial purification relates to the ability of the soil (used for onsite effluent disposal) to remove micro-organisms that may be detrimental to public health. It is essentially a measure of the permeability of, and aeration within, the soil profile. This influences its ability to:

- Remove undesirable micro-organisms from onsite effluent; and
- Provide suitable conditions for the oxidation of some organic and inorganic compounds added to the soil as effluent.

Microbial purification ability is influenced by the time of travel through the soil profile, which is directly related to the size and distribution of the pore spaces and the depth to the water table or an impermeable layer. Important soil characteristics include PRI, depth, particle size and the clay and/or organic matter content. Sites which have poor drainage tend to have low microbial purification ability.

PRI quantifies the ability of a soil to bind and retain phosphate and therefore the capacity for the purification of nutrients. Soils with an increased PRI have an elevated capacity to retain phosphate and remove nutrients. During the excavation of the three test pits within the subject site, soil samples were collected from each land unit and analysed for PRI (refer to **Table 6**). These results demonstrate that the PRI of the soils within TP2 have a high capacity and soils within TP1 and TP3 have a very high capacity to bind and retain nutrients.

Table 6. PRI rating for each soil type within the subject site.

Parameter	Test Pit ID		
	TP1	TP2	TP3
Phosphorus Retention Index	>500	120	>500

Depth to the water table is a key consideration regarding microbial purification as it affects the effluent travel time available for removal of microbes and for organic matter to be oxidised prior to reaching the water table. The accepted standard depth of soil required for adequate microbe removal is 1.2 m (Wagner and Lanoix 1958).

As previously discussed, during excavation of the test pits (to a depth of 1.5 – 2.0 m), groundwater was not encountered. Anecdotal information suggests that depth to groundwater is in excess of 7 m below ground surface.

3.3.3 Land Instability Hazard

Land instability assesses the potential for rapid movement of a large volume of soil. This includes mass soil movement through slope failure, shifting sand dunes, wave erosion and subsidence in karst topography (land underlain by caves). Factors that need to be considered include the slope of land,

presence of through-flow, geological features such as attitude of bedding planes relative to slope, rock fracture and shear zones, topographic features such as proximity to cliff or scarp faces and climatic features such as the susceptibility to groundwater saturation.

The Wilyabrup gentle slope Phase and the Cowaramup gentle slope Phase land unit is assessed as having a low land instability risk which can be attributed to the gently undulating slopes. Conversely, the Wilyabrup moderate slope Phase land unit has a moderate land instability risk given its relatively steep topography.

3.3.4 Soil Absorption Ability

Soil absorption is the ability of the soil to absorb a liquid. This is an important quality to consider for the disposal of treated effluent. The ability of the soil to absorb effluent is generally a factor of the soil's permeability. Permeability is the characteristic of the soil which governs the rate at which water will move through it and depends largely on soil texture, soil structure, the presence of clay pans and the size and distribution of pores in the soil. Soils that are too permeable, such as white sands, or clays that are impermeable, are at risk.

The loamy gravel and sandy gravel soil horizons within the Wilyabrup gentle slope Phase, Wilyabrup moderate slope Phase and the Cowaramup gentle slope Phase are permeable. On this basis, the assessed soil units are considered to have a moderate to high soil absorption ability.

3.3.5 Ease of Excavation

The ease of excavation refers to the ease with which soil can be excavated for building and construction or earthworks, commonly at depths ranging from 0.3 to 1.5 m. These earthworks relate to activities such as levelling of building sites, installation of onsite effluent disposal systems and leach drains and shallow excavations for building foundations. It is an important consideration for both small and large developments, as development may be unachievable especially if the substrate is hard rock.

At approximately 1.5 m below ground surface within the Wilyabrup moderate slope Phase soil unit, laterite rocks and stiff clay profiles were encountered. On this basis, ease of excavation of this soil unit is moderate. To a lesser extent clayey sands were also identified within the Cowaramup gentle slope Phase.

3.3.6 Flood Risk

Flooding is the temporary covering of land by moving water from overflowing streams and runoff from adjacent slopes. Flood risk is a major impediment to onsite effluent disposal. Any land subject to flood risk is generally not suited to onsite effluent disposal without mitigating management measures.

The DAF have categorised the three assessed soil units as having a 3 – 10% risk of flooding. Furthermore, in consideration of the elevated topography of the subject site, the flood risk is considered very low.

3.4 Onsite Effluent Disposal

The physical and chemical characteristics of the three assessed soil units have been examined and capability classes assigned to the 'onsite effluent disposal' land use, as documented with **Table 7**.

Table 7. Land capability rating for onsite effluent disposal of the assessed soil units.

Land Qualities	Capability Class				
	1 Very High	2 High	3 Fair	4 Low	5 Very Low
Waterlogging	Very Low Wilyabrup gentle slope Phase	Low Cowaramup gentle slope Phase			

Land Qualities	Capability Class				
	1 Very High	2 High	3 Fair	4 Low	5 Very Low
	Wilyabrup moderate slope Phase				
Purification Ability	<i>Very High</i> Wilyabrup gentle slope Phase Wilyabrup moderate slope Phase	<i>High</i> Cowaramup gentle slope Phase			
Land Instability		<i>Low</i> Wilyabrup gentle slope Phase Cowaramup gentle slope Phase	<i>Moderate</i> Wilyabrup moderate slope Phase		
Absorption Ability		<i>High</i> Wilyabrup gentle slope Phase Cowaramup gentle slope Phase Wilyabrup moderate slope Phase			
Ease of Excavation		<i>High</i> Wilyabrup gentle slope Phase Cowaramup gentle slope Phase	<i>Moderate</i> Wilyabrup moderate slope Phase		
Flood Risk	<i>Very Low</i> Wilyabrup gentle slope Phase Cowaramup gentle slope Phase Wilyabrup moderate slope Phase				

The land capability ratings for onsite effluent disposal of the three assessed soil units have been determined (refer to **Table 7**). The Wilyabrup gentle slope Phase and the Cowaramup gentle slope Phase soil units have been assessed as having a High capability to support onsite effluent disposal, while the Wilyabrup moderate slope Phase has a Moderate capability. The potential constraining land qualities associated with this soil unit are 'land instability' and 'ease of excavation'. Nonetheless, with appropriate erosion control and the use of suitable earthmoving equipment (i.e. 20 tonne excavator or heavier), these minor constraints can be easily overcome.

3.5 Summary

The conventional system for onsite disposal and treatment of domestic liquid waste consists of one or more septic tank units connected to a soil absorption system such as a leach drain. Septic tank units are typically connected to two leach drains to enable the release of effluent. Successful functioning of this system relies on the soils ability to absorb and purify the effluent. Wells (1989) has listed the factors which affect the land capability for effluent disposal which include:

- The ability of the land to effectively dispose of, or absorb effluent;
- The ability to effectively purify effluent;

- The relative ease of excavation for installation of tanks and leach drains; and
- The flood hazard risk.

Based on the results of the LCA, the use of onsite effluent disposal systems is considered suitable within the three assessed soil units. It will however, be necessary to consider the use of appropriate earthmoving equipment (i.e. 20 tonne excavator or heavier) and erosion controls during construction works.

Management requirements for the use on onsite effluent disposal systems for the assessed soil units include the following:

- The surface gradient of the disposal area should be less than 10%;
- The distance between the base of the disposal system (i.e. trench bottom, bed base) and the groundwater table and impermeable layer (i.e. bedrock, clay) should not be less than 1.2 m ;
- On completion of the proposed disposal area, appropriate landscaping should be undertaken (i.e. planting of shallow rooted grasses / shrubs); and
- Connection to reticulated water for human consumption, noting that a 30 m buffer is required from private water supplies (intended for human consumption) to the effluent disposal area; and
- Provision of a 30 m setback from the Donald Creek and any soaks.

4 POTENTIAL IMPACTS AND MANAGEMENT

During the process of undertaking this investigation, a range of specific environmental and heritage issues were explored in relation to the subject site and the proposed development. These issues arise from the proposed development, the existing environment of the subject site, its surrounds and the prevailing state and federal environment policy and legislation. The implications associated with the issues in the context of the intended development of the subject site are explored in this Section.

4.1 Geomorphology, Geology and Soils

The soil units that occur within the subject site are generally characterised by the following land qualities:

- Low waterlogging potential;
- High purification ability;
- Low land instability risk;
- High soil absorption ability;
- Moderate ease of excavation; and
- No risk of flooding.

Based on these characteristics the subject site is suitable for the proposed development, including onsite effluent disposal. Soil excavation and erosion are the only potentially constraining characteristics however, this can be readily overcome with the use of appropriate machinery (i.e. 20 tonne excavator or heavier) and erosion controls.

4.2 Site Contamination

The subject site is not registered as a contaminated site with the DER and no visual evidence of contamination has been recorded. On this basis, the risk of site contamination is considered low.

The *Contaminated Sites Act 2003* and associated regulations and guidelines require a tiered assessment process, and if no evidence of contamination is found from both desktop and initial field investigations, no further action is generally required.

4.3 Hydrology

4.3.1 Groundwater

Based on a desktop assessment and visual observations during the field investigation, the DoW's recommendation of a 1.2 m separation between the maximum groundwater level and the developed site surface can be readily achieved within the assessed soil units. On this basis, the requirement for fill and/or subsoil drainage is not expected. Any additional requirements to ensure the maintenance of pre-development groundwater quality and quantity can be addressed as a component of a Local Water Management Strategy (LWMS) which will be prepared at subdivision stage.

4.3.2 Surface Water

Stormwater drainage will be an important design consideration for the subdivision. The subject site drains towards the Donald Creek and Wildwood Road. Internal drainage for the site will likely require the 1 in 1 year ARI storm event to be processed on-site. This processing would likely be through soakwells, on-site storm water pits and/or rain water tanks.

Specifications associated with drainage design and water quality management measures should be provided within the LWMS once the detailed engineering designs have been formulated.

Foreshore reserve requirements for waterways are governed by the WAPC Development Control Policy No. DC 2.3: *Public Open Space in Residential Areas*. This Policy specifies a default foreshore reserve width of 30 m for waterways but includes provisions to vary the default setback for reasons of topography, condition of banks or floodway protection. In consideration of the Structure Plan (Able Planning 2015), in excess of 200 m will be provided from the nearest building envelope to the Donald Brook. To enable further protection of the Donald Brook, it is recommended that the remnant vegetation adjacent to the waterway within the north-eastern portion of the subject site is retained and fenced.

4.4 Vegetation and Flora

The subject site contains limited remnant vegetation and it is considered highly unlikely to contain any flora or vegetation of conservation significance. Accordingly, vegetation and flora do not represent a constraint to development of the subject site.

Furthermore, the proposed Structure Plan has been specifically designed to avoid impacts to vegetation. This has been achieved by establishing 'Building Exclusion Zones' that contain remnant vegetation (refer to **Appendix A**).

4.5 Fauna

While the subject site has largely been cleared of remnant vegetation, there is potential for six species of conservation significance to occur within the subject site. In particular, potential impacts to habitat associated with WRPs and the three species of Black Cockatoo may trigger the requirement to submit a referral to the Commonwealth DotE.

In accordance with the DotE's draft referral guidelines for the three threatened Black Cockatoo species (SEWPaC 2011), the following actions are deemed to have a high risk of a significant impact on Black Cockatoos:

- Clearing of any known nesting tree;
- Clearing of any part or degradation of breeding habitat;
- Clearing of more than 1 ha of quality foraging habitat;
- Creating a gap of greater than 4 km between patches of Black Cockatoo habitat; and
- Clearing or degradation of a known roosting site.

The Structure Plan (Able Planning 2016) has been specifically designed to account for Black Cockatoo habitat and reduce impacts as far as practicable. This has resulted in the identification of a 'Building Exclusion Zone' to retain remnant vegetation and the realignment of road reserves to prevent direct impacts to potential habitat trees. Accordingly, a significant impact to Black Cockatoos is not anticipated as a result of the proposed development.

In accordance with the *Significant impact guidelines for the vulnerable Western Ringtail Possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia* (DEWHA, 2009), the following is likely to constitute a significant impact to WRPs:

- A reduction and/or fragmentation of WRP habitat due to clearing of suitable habitat;
- Breaks in habitat corridors resulting in isolated populations;
- Increased roadkills from traffic; and
- Introduced species thus increasing predation.

While the occurrence of WRPs within the subject site is unknown, as previously discussed, with the establishment of the 'Building Exclusion Zone', the majority of remnant vegetation within the subject site

will be retained. On this basis, any potential impacts to this species as a result of the proposed subdivision are expected to be minimal and are unlikely to trigger any of the abovementioned criteria.

Based on the above, to ensure that impacts to conservation significant fauna are minimised as far as practicable it is recommended that specific fauna management measures are implemented during construction works.

4.6 Aboriginal Heritage

Based on the findings of this investigation there is not expected to be any constraint posed by Aboriginal heritage on the intended development of the subject site. However, it should be noted that although there were no sites registered with the DAA over the subject site, sites of Aboriginal significance are protected under the *Aboriginal Heritage Act 1972* whether they are known or not.

4.7 Onsite Effluent Disposal

Based on the results of the LCA, the use of onsite effluent disposal systems is considered suitable within the three assessed soil units. It will however, be necessary to consider the use of appropriate earthmoving equipment (i.e. 20 tonne excavator or heavier) and erosion controls during construction works.

Management requirements for the use of onsite effluent disposal systems for the assessed soil units include the following:

- The surface gradient of the disposal area should be less than 10%;
- The distance between the base of the disposal system (i.e. trench bottom, bed base) and the groundwater table and impermeable layer (i.e. bedrock, clay) should not be less than 1.2 m ;
- On completion of the proposed disposal area, appropriate landscaping should be undertaken (i.e. planting of shallow rooted grasses / shrubs); and
- Connection to reticulated water for human consumption, noting that a 30 m buffer is required from private water supplies (intended for human consumption) to the effluent disposal area; and
- Provision of a 30 m setback from the Donald Creek and any soaks.

5 SUMMARY

The Butterly family are seeking to subdivide and develop approximately 62.63 hectares on Lot 115 Wildwood Road, Yallingup (herein referred to as the subject site). The subject site is located within the municipality of the City of Busselton, approximately nine kilometres south of Dunsborough.

This Environment and Land Capability Assessment Report has been prepared to support the proposed subdivision of the subject site. It investigates the existing environment and the environmental opportunities and constraints associated with the development of the site, including recommended management measures to mitigate impacts.

During the assessment, the key environmental features identified within the subject site include:

- The majority of the subject site is contained within the Wilyabrup gentle slope Phase, Wilyabrup moderate slope Phase and Cowaramup gentle slope Phase soil units;
- The majority of the subject site is classified as having a *“moderate to low risk of ASS, generally occurring at a greater depth than 3 metre”*;
- No contaminated sites were identified within or in proximity to the subject site. Given the previous land use and absence of any evidence relating to contamination, the risk of site contamination is considered low;
- Anecdotal information suggest that groundwater levels are variable across the subject site with a minimum depth to groundwater of approximately 7 m;
- Surface water from the northern and western portion of the subject site drains towards the Donald Creek while surface water from the southern face drains into two soaks in proximity to Wildwood Road. The Donald Creek intersects the north-eastern corner of the subject site which is an ephemeral tributary of the Gunyulgup Brook;
- The majority of the subject site is cleared of remnant vegetation and is considered to be in a ‘Degraded’ to ‘Completely Degraded’ condition. No flora or vegetation communities of conservation significance are likely to occur given the limited number of native species and the history of anthropogenic disturbances;
- A desktop assessment identified four key fauna species of conservation significance that may occur within the subject site, including:
 - Baudin’s Black Cockatoo (*Calyptorhynchus baudinii*);
 - Carnaby’s Black Cockatoo (*Calyptorhynchus latirostris*);
 - Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*); and
 - Western Ringtail Possum (*Pseudocheirus occidentalis*).
- Results of the Department of Aboriginal Affairs database search revealed that no Aboriginal heritage sites are present within the subject site; and
- The use of onsite effluent disposal systems is considered suitable within the Wilyabrup gentle slope Phase, Wilyabrup moderate slope Phase and Cowaramup gentle slope Phase soil units within the subject site.

In consideration of the abovementioned key environmental features, the following management measures have been proposed to minimise potential impacts associated with the subdivision of the subject site:

- Strategically position building envelopes and road alignments in a manner conducive to the retention of Black Cockatoo habitat trees and remnant vegetation as far as practicable;
- Implement suitable erosion and sedimentation controls during construction works;

- Implement specific fauna management measures during construction works to minimise potential impacts to species of conservation significance as far as practicable;
- Provide a setback of 30 m from the Donald Creek to the development footprint;
- Prepare a LWMS prior to subdivision; and
- The Wilyabrup gentle slope Phase, Wilyabrup moderate slope Phase and Cowaramup gentle slope Phase soil units are suitable for onsite effluent disposal provided the following measures are implemented:
 - The surface gradient of the disposal area should be less than 10%;
 - The distance between the base of the disposal system (i.e. trench bottom, bed base) and the groundwater table and impermeable layer (i.e. bedrock, clay) should not be less than 1.2 m ;
 - On completion of the proposed disposal area, appropriate landscaping should be undertaken (i.e. planting of shallow rooted grasses / shrubs); and
 - Connection to reticulated water for human consumption, noting that a 30 m buffer is required from private water supplies (intended for human consumption) to the effluent disposal area; and
 - Provision of a 30 m setback from the Donald Creek and any soaks

Based on this assessment, Accendo considers that there are no fatal flaws or key environmental values that cannot be accommodated to enable development of the subject site for its intended purpose.

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FIGURES



PROJECT	Lot 115 Wildwood Road, Yallingup
DRAWING TITLE	Figure 1 - Regional Location of the Subject Site
CLIENT	Butterfly Family

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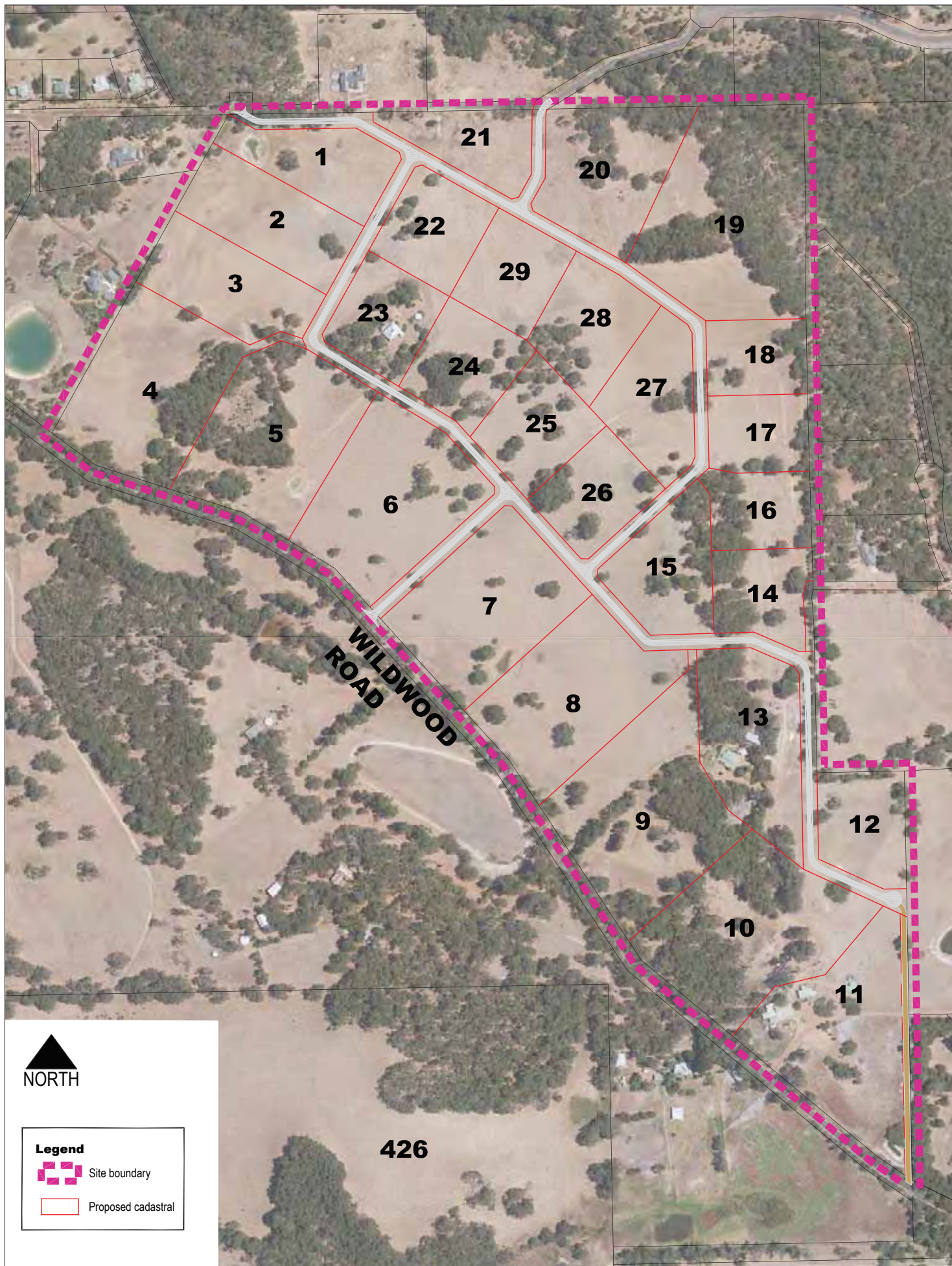
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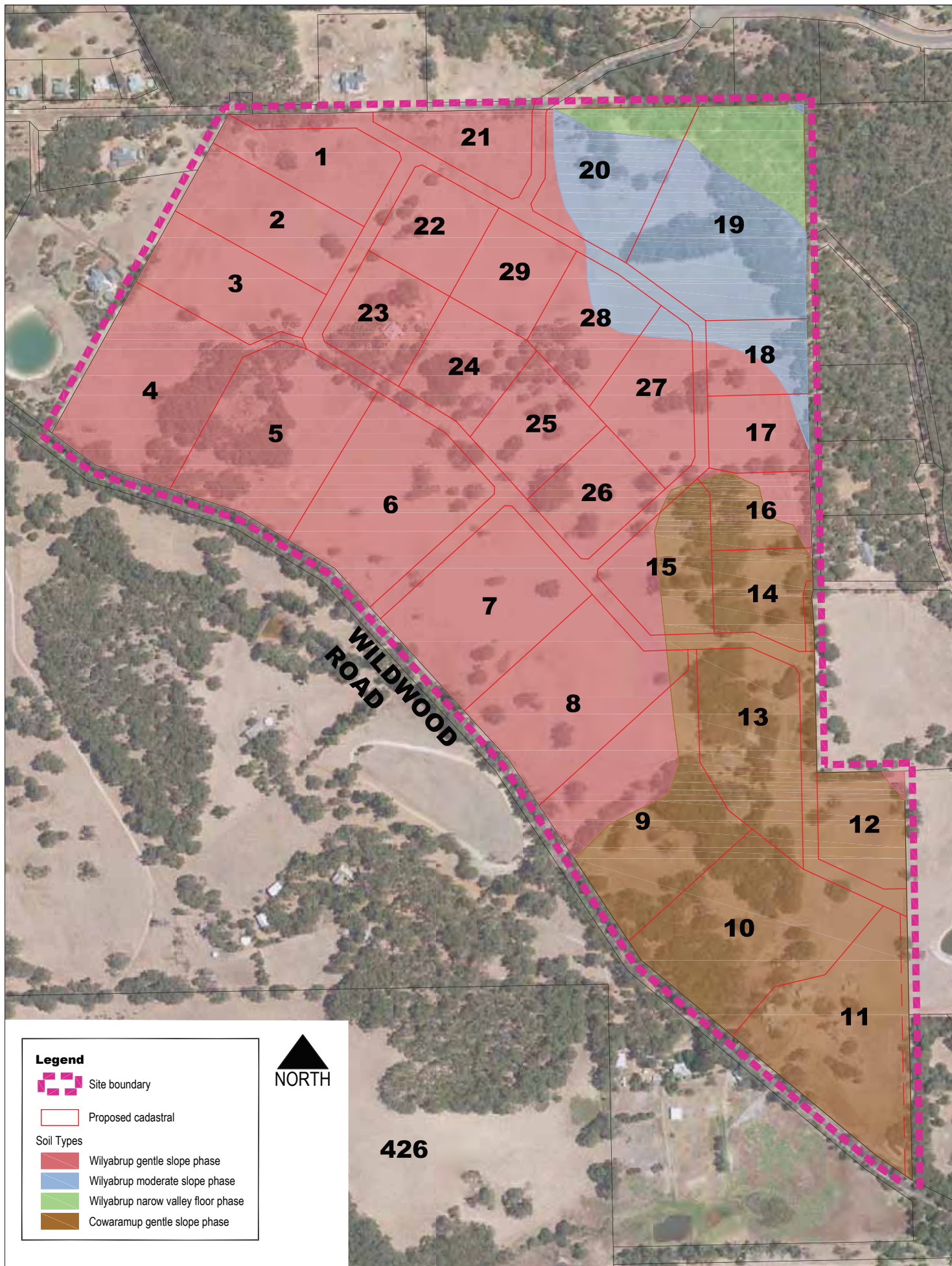


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DIAGRAMATIC

Project Number	Drawing Number	Revision	Original
1538	FIG 1	A	A3
Designed KMT	Checked	Date 17-12-15	
Drawn DTF	Approved	Sheet 1 of 1	
Local Authority City of Busselton			





Legend



Site boundary



Proposed cadastral

Soil Types



Wilyabrup gentle slope phase



Wilyabrup moderate slope phase



Wilyabrup narrow valley floor phase



Cowaramup gentle slope phase



PROJECT **Lot 115 Wildwood Road, Yallingup**

DRAWING TITLE **Figure 3 - Soil Types**

CLIENT **Butterly Family**

Scale

1:4000



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Project Number
1538

Drawing Number
FIG 3

Revision
A

Original
A3

Designed KMT

Drawn DTF

Local Authority City of Busselton

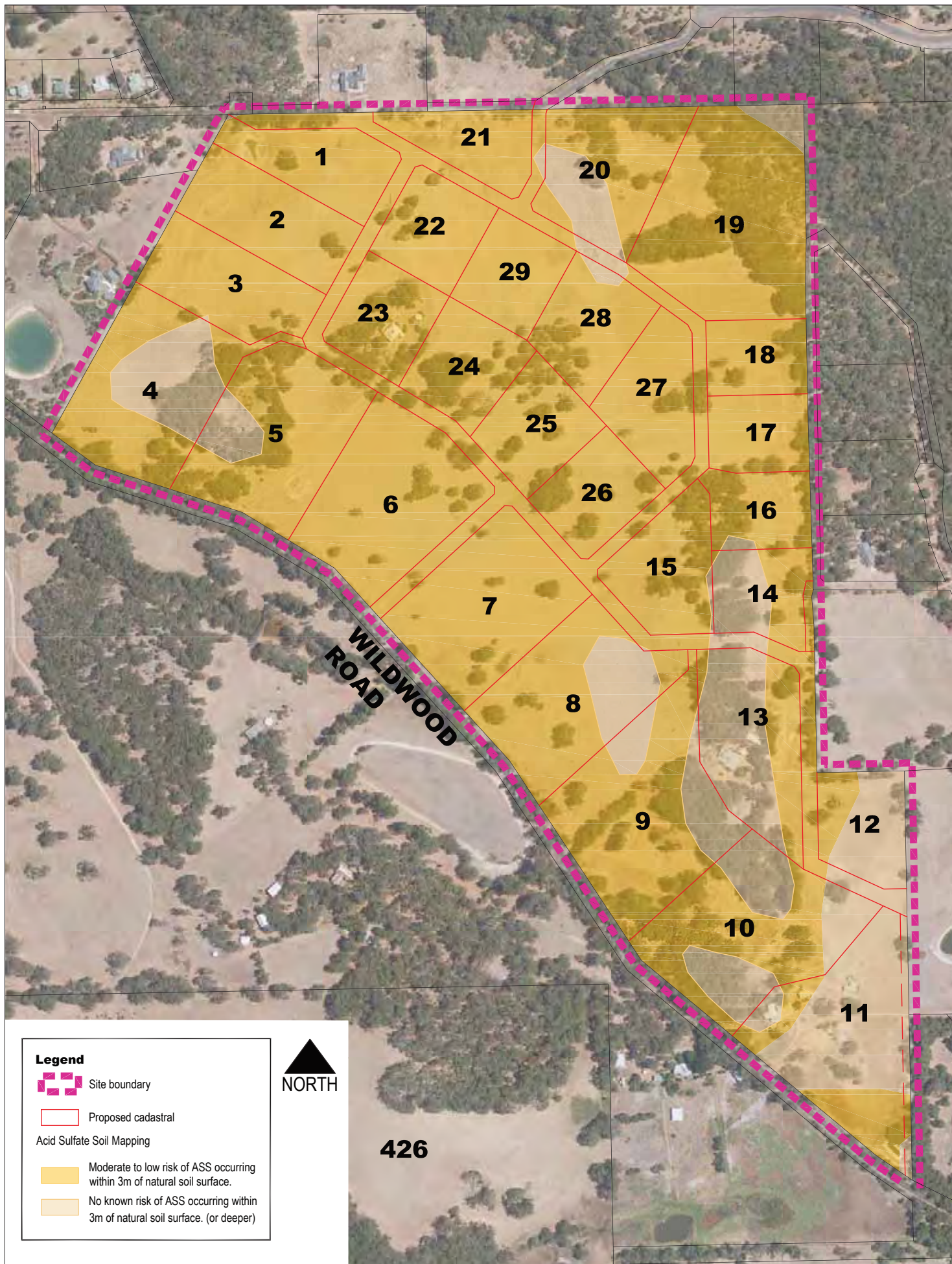
Checked

Approved

Date 17-12-15

Sheet 1 of 1

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PROJECT **Lot 115 Wildwood Road, Yallingup**

DRAWING TITLE **Figure 4 - Acid Sulfate Soils**

CLIENT **Butterfly Family**

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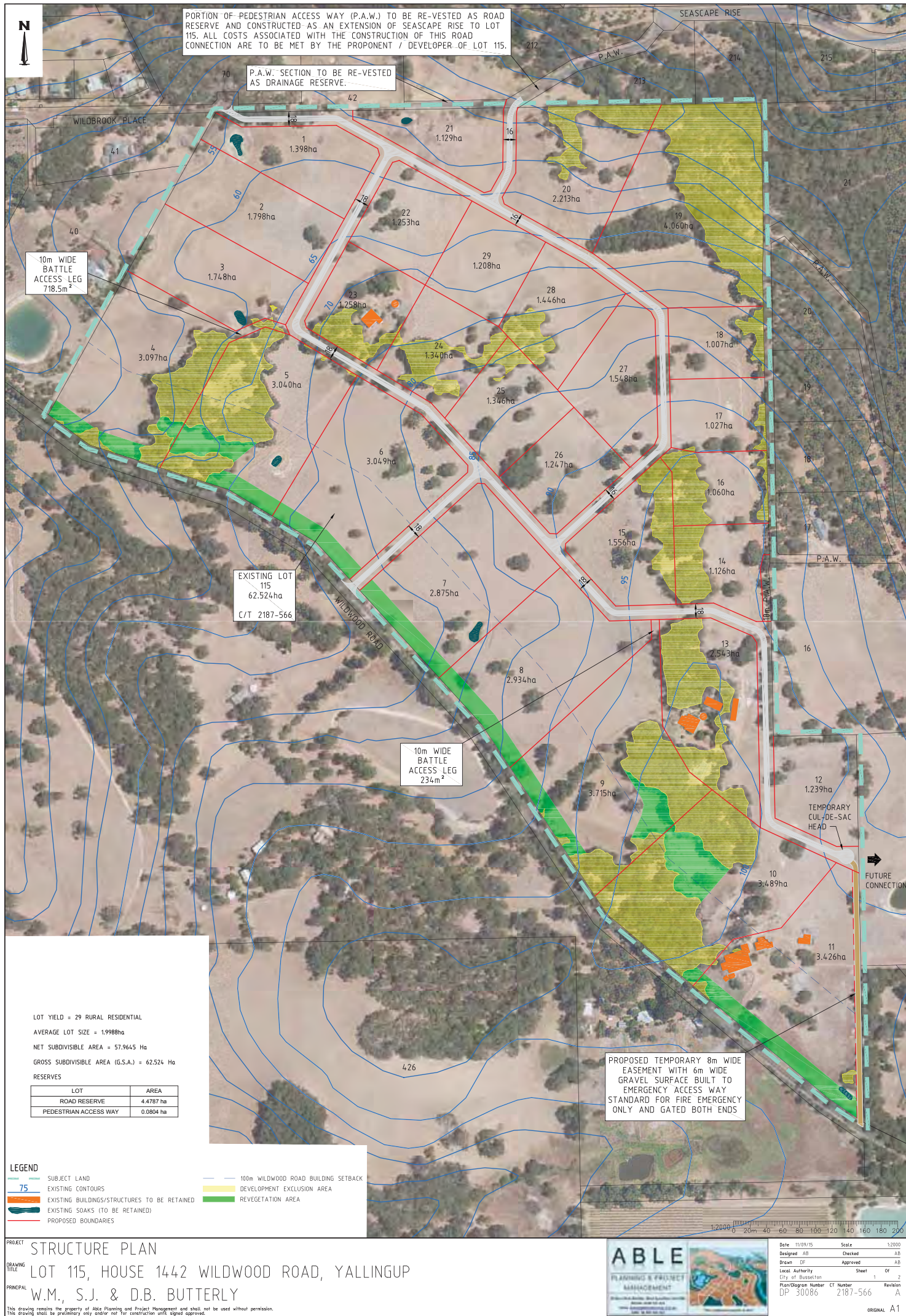
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australia

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Project Number 1538	Drawing Number FIG 4	Revision A	Original A3
Designed KMT	Checked DTF	Date 17-12-15	
Drawn DTF	Approved DTF	Sheet 1 of 1	
Local Authority City of Busseton			

APPENDIX A – STRUCTURE PLAN



PORTION OF PEDESTRIAN ACCESS WAY (P.A.W.) TO BE RE-VESTED AS ROAD RESERVE AND CONSTRUCTED AS AN EXTENSION OF SEASCAPES RISE TO LOT 115. ALL COSTS ASSOCIATED WITH THE CONSTRUCTION OF THIS ROAD CONNECTION ARE TO BE MET BY THE PROPONENT / DEVELOPER OF LOT 115.

P.A.W. SECTION TO BE RE-VESTED AS DRAINAGE RESERVE.

10m WIDE BATTLE ACCESS LEG 718.5m²

EXISTING LOT 115 62.524ha C/T 2187-566

10m WIDE BATTLE ACCESS LEG 234m²

12 1.239ha TEMPORARY CUL-DE-SAC HEAD

PROPOSED TEMPORARY 8m WIDE EASEMENT WITH 6m WIDE GRAVEL SURFACE BUILT TO EMERGENCY ACCESS WAY STANDARD FOR FIRE EMERGENCY ONLY AND GATED BOTH ENDS

LOT YIELD = 29 RURAL RESIDENTIAL
AVERAGE LOT SIZE = 1.9988ha
NET SUBDIVISIBLE AREA = 57.9645 Ha
GROSS SUBDIVISIBLE AREA (G.S.A.) = 62.524 Ha
RESERVES

LOT	AREA
ROAD RESERVE	4.4787 ha
PEDESTRIAN ACCESS WAY	0.0804 ha

- LEGEND**
- SUBJECT LAND
 - EXISTING CONTOURS
 - EXISTING BUILDINGS/STRUCTURES TO BE RETAINED
 - EXISTING SOAKS (TO BE RETAINED)
 - PROPOSED BOUNDARIES
 - 100m WILDWOOD ROAD BUILDING SETBACK
 - DEVELOPMENT EXCLUSION AREA
 - REVEGETATION AREA

PROJECT STRUCTURE PLAN
DRAWING TITLE LOT 115, HOUSE 1442 WILDWOOD ROAD, YALLINGUP
PRINCIPAL W.M., S.J. & D.B. BUTTERLY

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Date	11/09/15	Scale	1:2000
Designed	AB	Checked	AB
Drawn	DP	Approved	AB
Local Authority	City of Busselton	Sheet	1 of 2
Plan/Diagram Number	CT Number	Revision	
DP 30086	2187-566	A	

ORIGINAL A1

APPENDIX B – TEST PIT SOIL LOGS

TEST PIT SOIL LOGS



Project Number: 1538

Site Name: Lot 115 Wildwood Rd, Yallingup

Bore Name: Test Pit 1 (TP1)

Date: 03/12/2015

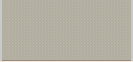


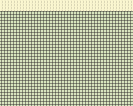
Conditions: Sunny

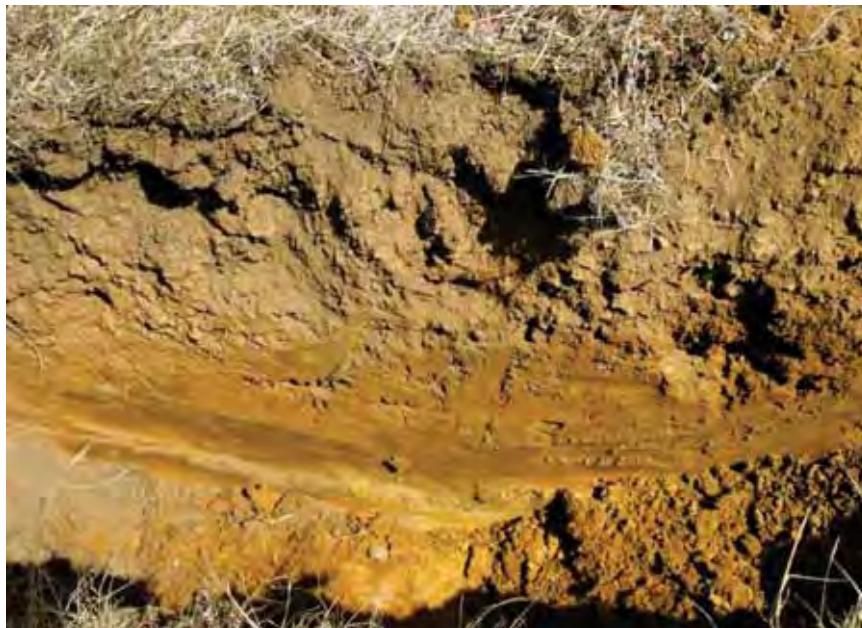
Method: Excavator

Depth to Water: >7.0m

Total Depth: 1.5m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SAND - fine to medium grained, dark brown, moderately sorted, some organic matter.
		SANDY LOAM - Light brown sandy loam with approx. 30% ironstone pea gravel.
1		SANDY CLAY - Yellow brown sandy clay loam with approx. 40% gravel and quartz grit, dry.
		CLAYEY SAND - Yellow clayey sand over sheet laterite, high plasticity, dry.



TEST PIT SOIL LOG



Project Number: 1538

Site Name: Lot 115 Wildwood Rd, Yallingup

Bore Name: Test Pit 2 (TP2)

Date: 03/12/2015

Conditions: Sunny

Method: Excavator

Depth to Water: >7.0m

Total Depth: 2.0m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SAND - fine to medium grained, dark brown, moderately sorted, some organic matter.
		SAND - grey, fine to medium grained, moderately sorted. Dry.
1		SAND - grey - white, fine to medium grained, moderately sorted, clay particles.
		SAND - pale yellow, moderate sorted, yellow intensifies with depth, coarse grained. Pea sized gravel.
2		CLAYEY SAND - fine to medium grained, orangey grey, moderately sorted, low plasticity.



TEST PIT SOIL LOG



Project Number: 1538

Site Name: Lot 115 Wildwood Rd, Yallingup

Bore Name: Test Pit 3 (TP3)

Date: 03/12/2015

Conditions: Sunny

Method: Excavator

Depth to Water: >7.0m

Total Depth: 1.5m

Logged By: KMT

(m)	Graphic Log	Soil Description
0		SAND - fine to medium grained, dark brown, moderately sorted, some organic matter.
		SANDY LOAM - Light brown sandy loam with approx. 60% ironstone pea gravel and larger rocks.
1		SANDY CLAY - Yellow brown sandy clay loam with approx. 70% gravel and quartz grit, dry.
		CLAYEY SAND - Yellow clayey sand over sheet laterite, high plasticity, dry.



APPENDIX C- DPdW FLORA SEARCH RESULTS

NatureMap Species Report

Created By Guest user on 14/12/2015

Kingdom Plantae

Conservation Status Conservation Taxon (T, X, IA, S, P1-P5)

Current Names Only Yes

Core Datasets Only Yes

Method 'By Circle'

Centre 115°03' 00" E, 33°41' 02" S

Buffer 5km

	Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
1.	3386	<i>Acacia inops</i>		P3	
2.	14930	<i>Acacia lateriticola</i> glabrous variant (B.R. Maslin 6765)		P3	
3.	3537	<i>Acacia semitrullata</i>		P4	
4.	3567	<i>Acacia subracemosa</i>		P3	
5.	32078	<i>Banksia sessilis</i> var. <i>cordata</i>		P4	
6.	11612	<i>Boronia capitata</i> subsp. <i>gracilis</i>		P3	
7.	13619	<i>Caladenia excelsa</i>		T	
8.	1596	<i>Caladenia huegelii</i> (Grand Spider Orchid)		T	
9.	17744	<i>Gahnia sclerioides</i>		P4	
10.	34216	<i>Galium leptogonium</i>		P3	
11.	44440	<i>Gastrolobium argyrotichum</i>		P1	
12.	16522	<i>Isopogon formosus</i> subsp. <i>dasylepis</i>		P3	
13.	1296	<i>Johnsonia inconspicua</i>		P3	
14.	12077	<i>Pimelea ciliata</i> subsp. <i>longituba</i>		P3	
15.	12590	<i>Stylidium lowrieianum</i> (Lowrie's Triggerplant)		P3	
16.	7803	<i>Stylidium striatum</i> (Fan-leaved Triggerplant)		P4	

Conservation Codes

T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

APPENDIX D – EPBC ACT SEARCH RESULTS



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/12/15 17:19:15

[Summary](#)

[Details](#)

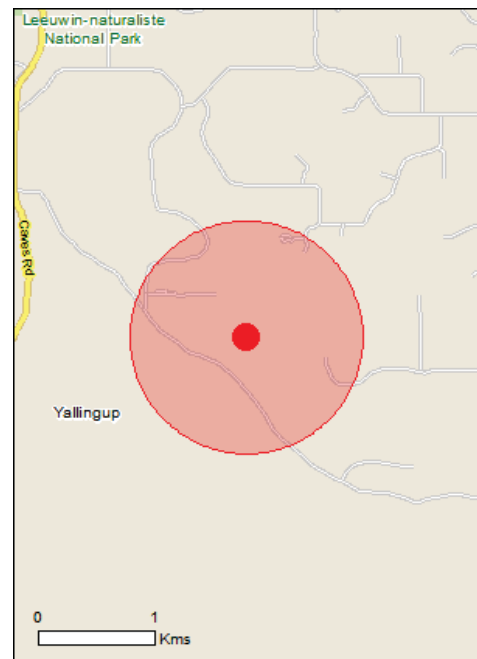
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

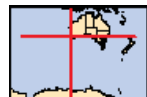
[Acknowledgements](#)



This map may contain data which are
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(Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	10
Listed Migratory Species:	6

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	7
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	21
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat may occur within area
Calyptorhynchus baudinii Baudin's Black-Cockatoo, Long-billed Black-Cockatoo [769]	Vulnerable	Breeding known to occur within area
Calyptorhynchus latirostris Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat likely to occur within area
Mammals		
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Pseudocheirus occidentalis Western Ringtail Possum, Ngwayir [25911]	Vulnerable	Species or species habitat likely to occur within area
Plants		
Caladenia huegelii King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
Drakaea micrantha Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus phylacis Meelup Mallee [56422]	Endangered	Species or species habitat may occur within area
Gastrolobium papilio Butterfly-leaved Gastrolobium [78415]	Endangered	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur

Name	Threatened	Type of Presence within area
Migratory Terrestrial Species		
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat may occur within area

Extra Information

Regional Forest Agreements

[[Resource Information](#)]

Note that all areas with completed RFAs have been included.

Name	State
South West WA RFA	Western Australia

Invasive Species

[[Resource Information](#)]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		

Name	Status	Type of Presence
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area

APPENDIX E – FLORA CLASSIFICATIONS

Conservation Codes for Western Australian Flora

T: Threatened Flora (Declared Rare Flora — Extant)

Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedule 1 of the Wildlife Conservation (Rare Flora) Notice under the Wildlife Conservation Act 1950).

Threatened Flora (Schedule 1) are further ranked by the Department according to their level of threat using IUCN Red List criteria:

- CR: Critically Endangered – considered to be facing an extremely high risk of extinction in the wild
- EN: Endangered – considered to be facing a very high risk of extinction in the wild
- VU: Vulnerable – considered to be facing a high risk of extinction in the wild.

X: Presumed Extinct Flora (Declared Rare Flora — Extinct)

Taxa which have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such (Schedule 2 of the Wildlife Conservation (Rare Flora) Notice under the Wildlife Conservation Act 1950).

Taxa that have not yet been adequately surveyed to be listed under Schedule 1 or 2 are added to the Priority Flora List under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened flora or fauna. Taxa that are adequately known, are rare but not threatened, or meet criteria for Near Threatened, or that have been recently removed from the threatened list for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Conservation Dependent species are placed in Priority 5.

1: Priority One: Poorly-known taxa

Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.

2: Priority Two: Poorly-known taxa

Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.

3: Priority Three: Poorly-known taxa

Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.

4: Priority Four: Rare, Near Threatened and other taxa in need of monitoring

1. **Rare.** Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
2. **Near Threatened.** Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
3. Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

5: Priority Five: Conservation Dependent taxa

Taxa that are not threatened but are subject to a specific conservation program, the cessation of which would result in the taxon becoming threatened within five years.

APPENDIX F - FAUNA CLASSIFICATIONS

EPBC Act (1999) Threatened Fauna Categories

Category	Code	Description
Extinct	E	There is no reasonable doubt that the last member of the species has died.
*Extinct in the wild	EW	A species (a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
*Critically endangered	CE	A species is facing an extremely high risk of extinction in the wild in the immediate future.
*Endangered	EN	A species: (a) is not critically endangered; and (b) is facing a very high risk of extinction in the wild in the near future.
*Vulnerable	VU	A species (a) is not critically endangered or endangered; and (b) is facing a high risk of extinction in the wild in the medium-term future.
Conservation dependent	CD	A species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered
*Migratory	Migratory	(a) all migratory species that are: (i) native species; and (ii) from time to time included in the appendices to the Bonn Convention; and (b) all migratory species from time to time included in annexes established under JAMBA, CAMBA and ROKAMBA; and (c) all native species from time to time identified in a list established under, or an instrument made under, an international agreement approved by the Minister.
Marine	Ma	Species in the list established under s248 of the EPBC Act

Note: Only species in those categories marked with an asterisk are matters of national environmental significance under the *EPBC Act*.

Western Australian Wildlife Conservation Act (1950) Threatened Fauna Categories

Category	Code	Description
Schedule 1	S1	<p>Fauna which is rare or likely to become extinct</p> <p>Threatened fauna (Schedule 1) are further ranked by the DEC according to their level of threat using IUCN Red List criteria:</p> <p>CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.</p> <p>EN: Endangered - considered to be facing a very high risk of extinction in the wild.</p> <p>VU: Vulnerable - considered to be facing a high risk of extinction in the wild.</p>
Schedule 2	S2	Fauna which is presumed extinct
Schedule 3	S3	Birds which are subject to an agreement between the governments of Australia and Japan (JAMBA) relating to the protection of migratory birds and birds in danger of extinction
Schedule 4	S4	Fauna that is otherwise in need of special protection

Western Australian DEC Priority Fauna Categories

Category	Code	Description
Priority 1	P1	Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes..
Priority 2	P2	Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
Priority 3	P3	Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
Priority 4	P4	<p>(a) Rare. Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.</p> <p>(b) Near Threatened. Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.</p> <p>(c) Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.</p>
Priority 5	P5	Taxa that are not threatened but are subject to a specific conservation program, the cessation of which would result in the taxa becoming threatened within five years.

IUCN Red List Threatened Species Categories

Category	Code	Description
Extinct	EX	Taxa for which there is no reasonable doubt that the last individual has died.
Extinct in the Wild	EW	Taxa which is known only to survive in cultivation, in captivity or and as a naturalised population well outside its past range and it has not been recorded in known or expected habitat despite exhaustive survey over a time frame appropriate to its life cycle and form.
Critically Endangered	CR	Taxa facing an extremely high risk of extinction in the wild.
Endangered	EN	Taxa facing a very high risk of extinction in the wild.
Vulnerable	VU	Taxa facing a high risk of extinction in the wild.
Near Threatened	NT	Taxa which has been evaluated but does not qualify for CR, EN or VU now but is close to qualifying or likely to qualify in the near future.
Least Concern	LC	Taxa which has been evaluated but does not qualify for CR, EN, VU, or NT but is likely to qualify for NT in the near future.
Data Deficient	DD	Taxa for which there is inadequate information to make a direct or indirect assessment of its risk of extinction based on its distribution and/or population status.

A full list of categories and their meanings are available at:

<http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria>

APPENDIX G – HABITAT TREE ASSESSMENT

Greg Harewood
Zoologist
PO Box 755
BUNBURY WA 6231
8 March 2016

Accendo Australia
PO Box 5178
WEST BUSSELTON WA 6280

Attention: Kirsten Muir-Thompson

Dear Kirsten

RE: Habitat Tree (DBH >50cm) Survey - Lot 115, Wildwood Road - Yallingup

This letter summarises the results of a habitat tree survey carried out at Lot 115 Wildwood Road - Yallingup, (the subject site).

1. SCOPE OF WORKS

The scope of works, as define by Accendo Australia, was to:

- Carry out a habitat tree (DBH >50cm) survey of all proposed road reserves and building envelopes (plus a ~10m buffer) as depicted on the supplied structure plan for the subject site.
- Prepare a brief letter report summarising results.

2. METHODS

The habitat tree assessment has involved the identification of all suitable trees species within the defined survey areas that have a Diameter at Breast Height (DBH) of equal to or over 50cm. The DBH of each tree was estimated using a pre-made 50 cm "calliper".

The location of each tree identified as being over the threshold DBH was recorded with a GPS and details on tree species, number and size of hollows (if any) noted. Trees observed to contain hollows (of any size/type) were marked with an "H" using spray paint.

Target tree species included marri and jarrah or any other endemic *Corymbia/Eucalyptus* species of a suitable size that was present. Non-endemic/exotic trees, peppermints, banksia, sheoak and melaleuca tree species (for example) were not be assessed as they typically do not develop hollows that are used by black cockatoos.

For the purposes of this assessment a tree containing a potential cockatoo nest hollow was defined as:

Generally any tree which is alive or dead that contains one or more visible hollows (cavities within the trunk or branches) suitable for occupation by black cockatoo for the purpose of nesting/breeding. Hollows that had an entrance greater than about 12cm in diameter and would allow the entry of a black cockatoo into a suitably orientated and sized branch/trunk, were recorded as a “potential nest hollow”.

Potential hollows were examined using binoculars for evidence of actual use by black cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches). Trees with possible nest hollows were also scratched and raked with a large stick in attempt to flush any sitting birds from hollows and calls of chicks were also listened for, though it should be noted that black cockatoos may not have necessarily been nesting at this time of year.

The location of observations was recorded using a handheld GPS. The accuracy of the GPS cannot be guaranteed above a level of about 5 to 10 metres, though it should be noted that in some circumstance the accuracy can increase or decrease beyond this range.

The survey was carried out on the 1 March 2016. All survey work was carried out by Greg Harewood (B.Sc. – Zoology).

3. RESULTS

The location of the habitat trees identified during the survey are shown in the attached figure. The assessment identified 66 trees within the areas surveyed with a DBH of >50cm. Only three of these trees contained apparent or obvious hollows, two of which were assessed as being unsuitable for black cockatoos to use for nesting purposes (due to hollows apparent small size, orientation and/or height above ground level).

One dead tree appeared to have at least one hollow potentially of a size large enough for a black cockatoo to use for nesting though this assessment was based on the size of the entrance into an apparent hollow only. No actual evidence of any hollows being used by black cockatoos for nesting (currently or previously) was seen.

Table 1: Summary of Habitat Trees (DBH >50cm) within the Areas Surveyed

Total Number of Habitat Trees	Number of Trees with No Hollows Observed	Number of Trees with Hollows Considered <u>Unsuitable</u> for Nesting Black Cockatoos	Number of Trees with Hollows Considered <u>Possibly</u> Suitable for Nesting Black Cockatoos	Tree Species	
				Marri	Jarraah
66	63	2	1	56	10

Additional details on each habitat tree recorded can be found in the attached table.

4. CONCLUSION

The results of the survey indicate that, based on the current subdivision design, some “habitat” trees will require removal for development to proceed in its current form. Not all the trees recorded will necessarily require removal given that a ~10m buffer was applied to road reserve and building envelope boundaries. In addition, the building envelopes as assessed do not necessarily represent the exact area required for a house to be built on as unknown variables exist (e.g. actual position and size of each house and associated buildings/infrastructure, fire management requirements) and it is possible that some trees within these areas could be retained.

If you have any questions or queries relating the information provided here please contact the undersigned on 0402 141 197 / gharewood@iinet.net.au

A handwritten signature in black ink, reading 'G Harewood', with a stylized, flowing script.

Greg Harewood
Zoologist

Attachments:

Figure 1: Habitat Trees (DBH >50cm).

Table 2: Habitat Trees (DBH >50cm).

Figure: 1

Habitat Trees (DBH >50cm)
Datum = GDA94

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	Number of Hollows	Hollow Type 1	Hollow Size 1 (cm)	Hollow Type 2	Hollow Size 2 (cm)	Hollow Type 3	Hollow Size 3 (cm)	Hollow Type 4	Hollow Size 4 (cm)	Hollow Type 5	Hollow Size 5 (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest	Comments
wpt001	50H	319509	6270675	Marri	20+	0											No Signs	No Signs	No	
wpt002	50H	319524	6270689	Marri	20+	0											No Signs	No Signs	No	
wpt003	50H	319526	6270693	Marri	20+	0											No Signs	No Signs	No	
wpt004	50H	319528	6270704	Marri	15-20	0											No Signs	No Signs	No	
wpt005	50H	319541	6270718	Jarrah	20+	0											No Signs	No Signs	No	
wpt006	50H	319525	6270710	Marri	15-20	0											No Signs	No Signs	No	
wpt007	50H	319552	6270727	Marri	20+	0											No Signs	No Signs	No	
wpt008	50H	319547	6270744	Marri	20+	0											No Signs	No Signs	No	
wpt009	50H	319670	6270609	Marri	15-20	0											No Signs	No Signs	No	
wpt010	50H	319570	6270875	Marri	20+	0											No Signs	No Signs	No	
wpt011	50H	319573	6270917	Jarrah	20+	1	Spout Branch	5-12									No Signs	No Signs	No	Depth of Hollows Unknown
wpt012	50H	319572	6270922	Marri	15-20	0											No Signs	No Signs	No	
wpt013	50H	319561	6270948	Marri	20+	0											No Signs	No Signs	No	
wpt014	50H	319560	6270978	Marri	20+	0											No Signs	No Signs	No	
wpt015	50H	319563	6271002	Marri	20+	0											No Signs	No Signs	No	
wpt016	50H	319541	6271042	Marri	20+	0											No Signs	No Signs	No	
wpt017	50H	319469	6271071	Marri	15-20	0											No Signs	No Signs	No	
wpt018	50H	319322	6271156	Jarrah	15-20	0											No Signs	No Signs	No	
wpt019	50H	319386	6271153	Jarrah	20+	0											No Signs	No Signs	No	
wpt020	50H	319388	6271142	Marri	20+	0											No Signs	No Signs	No	
wpt021	50H	319313	6271217	Marri	20+	0											No Signs	No Signs	No	
wpt022	50H	319298	6271222	Marri	20+	0											No Signs	No Signs	No	
wpt023	50H	319373	6271240	Marri	15-20	0											No Signs	No Signs	No	
wpt024	50H	319394	6271355	Marri	15-20	0											No Signs	No Signs	No	
wpt025	50H	319181	6271202	Jarrah	15-20	0											No Signs	No Signs	No	
wpt026	50H	319107	6271146	Jarrah	15-20	0											No Signs	No Signs	No	
wpt027	50H	319106	6271155	Jarrah	15-20	0											No Signs	No Signs	No	
wpt028	50H	319173	6271297	Marri	20+	0											No Signs	No Signs	No	
wpt029	50H	319160	6271301	Marri	15-20	0											No Signs	No Signs	No	
wpt030	50H	319158	6271298	Marri	15-20	0											No Signs	No Signs	No	
wpt031	50H	319153	6271299	Marri	15-20	0											No Signs	No Signs	No	
wpt032	50H	319134	6271319	Marri	20+	0											No Signs	No Signs	No	
wpt033	50H	319095	6271356	Jarrah	20+	2	Spout Branch	5-12									No Signs	No Signs	No	Depth of Hollows Unknown
wpt034	50H	319090	6271362	Marri	20+	0											No Signs	No Signs	No	
wpt035	50H	319048	6271391	Marri	20+	0											No Signs	No Signs	No	
wpt036	50H	319039	6271395	Marri	20+	0											No Signs	No Signs	No	
wpt037	50H	319021	6271385	Marri	15-20	0											No Signs	No Signs	No	
wpt038	50H	319014	6271398	Marri	15-20	0											No Signs	No Signs	No	
wpt039	50H	319004	6271405	Marri	15-20	0											No Signs	No Signs	No	
wpt040	50H	318957	6271423	Marri	20+	0											No Signs	No Signs	No	
wpt041	50H	318844	6271456	Marri	20+	0											No Signs	No Signs	No	
wpt042	50H	319005	6271681	Marri	20+	0											No Signs	No Signs	No	
wpt043	50H	318994	6271683	Marri	20+	0											No Signs	No Signs	No	
wpt044	50H	318994	6271676	Marri	20+	0											No Signs	No Signs	No	
wpt045	50H	318961	6271683	Marri	20+	0											No Signs	No Signs	No	
wpt046	50H	318945	6271679	Marri	20+	0											No Signs	No Signs	No	
wpt047	50H	319109	6271685	Dead Marri	15-20	5+	Branch	<5	Branch	5-12	Branch	<5	Branch	5-12	Spout Trunk	20+	No Signs	No Signs	Yes	Depth of Hollows Unknown
wpt048	50H	319131	6271401	Marri	15-20	0											No Signs	No Signs	No	
wpt049	50H	319144	6271403	Marri	15-20	0											No Signs	No Signs	No	
wpt050	50H	319147	6271405	Marri	15-20	0											No Signs	No Signs	No	
wpt051	50H	319162	6271399	Marri	20+	0											No Signs	No Signs	No	
wpt052	50H	319186	6271402	Marri	15-20	0											No Signs	No Signs	No	

Waypoint Number	Zone	mE	mN	Tree Species	Tree Height (m)	Number of Hollows	Hollow Type 1	Hollow Size 1 (cm)	Hollow Type 2	Hollow Size 2 (cm)	Hollow Type 3	Hollow Size 3 (cm)	Hollow Type 4	Hollow Size 4 (cm)	Hollow Type 5	Hollow Size 5 (cm)	Occupancy	Chew Marks	Potential Cockatoo Nest Hollow	Comments
wpt053	50H	319476	6271385	Marri	15-20	0											No Signs	No Signs	No	
wpt054	50H	319439	6271382	Marri	20+	0											No Signs	No Signs	No	
wpt055	50H	319423	6271379	Jarrah	15-20	0											No Signs	No Signs	No	
wpt056	50H	319428	6271369	Marri	15-20	0											No Signs	No Signs	No	
wpt057	50H	319431	6271364	Marri	20+	0											No Signs	No Signs	No	
wpt058	50H	319405	6271244	Jarrah	15-20	0											No Signs	No Signs	No	
wpt059	50H	319365	6271208	Marri	15-20	0											No Signs	No Signs	No	
wpt060	50H	319553	6271198	Marri	20+	0											No Signs	No Signs	No	
wpt061	50H	319545	6271161	Marri	20+	0											No Signs	No Signs	No	
wpt062	50H	319547	6271146	Marri	20+	0											No Signs	No Signs	No	
wpt063	50H	319521	6271111	Marri	20+	0											No Signs	No Signs	No	
wpt064	50H	319490	6271108	Marri	20+	0											No Signs	No Signs	No	
wpt065	50H	319382	6270860	Marri	15-20	0											No Signs	No Signs	No	
wpt066	50H	319399	6270846	Marri	15-20	0											No Signs	No Signs	No	

APPENDIX E
BUSHFIRE MANAGEMENT PLAN



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Bushfire Management Plan Structure Plan/ Subdivision Application

Lot 115 (1442) Wildwood Road, Yallingup

City of Busselton

Project Number: 15583

Assessment Date: 1 December 2015

Report Date: 27 May 2016

Plan Details

<i>BMP Template v5.7</i>		©2017 BPP Group Pty Ltd
Plan Version	Submitted to	Submitted Date
v2.4	Planner	27-May-16
Plan Version	Amendment Record	Submitted Date
v2.5	Subdivision Plan Revision	5-May-17
v2.6	Plan updates as per the DFES Comments	10-Aug-17
Compliance Statement		

This Bushfire Management Plan (the Plan) meets the requirements of both the *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas* (SPP 3.7) and the supporting *Guidelines for Planning in Bushfire Prone Areas* (WAPC v1.1 2017; the 'Guidelines').

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<i>BPP Group Pty Ltd t/a Bushfire Prone Planning ACN: 39 166 551 784</i>			
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Contents

1	EXECUTIVE SUMMARY	4
2	APPLICATION OF SPP 3.7	5
3	COMMISSIONING AND THE LAND USE PROPOSAL	6
4	THE PLANNING SUBMISSION AND THE DOCUMENTS REQUIRED	10
5	ASSESSMENT OF BUSHFIRE RISK.....	11
5.1	VEGETATION ASSESSMENT/CLASSIFICATION AND GROUND SLOPE.....	11
5.1.1	<i>Existing Vegetation</i>	11
5.1.2	<i>Vegetation Excluded from Classification.....</i>	14
5.1.3	<i>Expected On-site Vegetation Changes Due to Proposed Subdivision</i>	14
5.2	BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT – BAL CONTOUR MAP	19
5.2.1	<i>Construction of the BAL Contours - Statement of Site Data and ‘Separation Distance Range’ Applied</i>	20
5.2.2	<i>BAL’s as Indicated by the Contour Map</i>	24
5.2.3	<i>Identification of Specific Issues Arising from BAL Contour Map</i>	26
5.3	EXISTING HABITABLE BUILDINGS ON SUBJECT SITE – ASSESSED BAL’S	26
6	ENVIRONMENTAL CONSIDERATIONS.....	27
6.1	NATIVE VEGETATION AND RE-VEGETATION.....	27
7	BUSHFIRE RISK MANAGEMENT MEASURES	29
7.1	THE BUSHFIRE PROTECTION CRITERIA – ASSESSMENT OF COMPLIANCE	29
7.2	LOCATION OF BUILDINGS AND APPLICABLE BAL’S.....	37
7.3	VEGETATION MANAGEMENT	38
7.4	VEHICULAR ACCESS – ELEMENT 3 OF THE BUSHFIRE PROTECTION CRITERIA	40
7.5	FIREFIGHTING WATER SUPPLY	41
7.6	BUILDING CONSTRUCTION STANDARDS.....	41
7.6.1	<i>Future Habitable Buildings on the Subject Site</i>	41
7.6.2	<i>Existing Habitable Buildings on the Subject Site</i>	42
8	COMPLIANCE STATEMENTS - OF THE PROPOSAL AND THIS PLAN.....	44
8.1	STATE PLANNING POLICY NO. 3.7: PLANNING IN BUSHFIRE PRONE AREAS.....	44
8.2	GUIDELINES FOR PLANNING IN BUSHFIRE PRONE AREAS (WAPC v1.1 2017)	47
8.3	BUSHFIRE PROTECTION CRITERIA (WAPC v1.1 2017 ‘GUIDELINES’)	47
8.4	WA BUILDING ACT 2011.....	47
8.5	AS 3959 CONSTRUCTION OF BUILDINGS IN BUSHFIRE PRONE AREAS (2009 AS AMENDED)	48
8.6	LOCAL GOVERNMENT FIREBREAK NOTICE.....	49
8.7	OTHER APPLICABLE LOCAL GOVERNMENT DOCUMENTS.....	49
9	RESPONSIBILITIES FOR IMPLEMENTATION & MAINTENANCE.....	50
9.1	LANDOWNER / PROPONENT RESPONSIBILITIES (AND THOSE ACTING ON THEIR BEHALF).....	50
9.2	BUILDER RESPONSIBILITIES	53
9.3	LOCAL GOVERNMENT RESPONSIBILITIES.....	53
10	APPENDICES – ADVISORY INFORMATION ONLY.....	55

Appendices

APPENDIX 1.....	55
THE WA FRAMEWORK FOR BUSHFIRE RISK MANAGEMENT	55
APPENDIX 2.....	60
BUSHFIRE RISK ASSESSMENT – UNDERSTANDING THE METHODOLOGY	60
APPENDIX 3.....	63
VEGETATION CLASSIFICATION EXCLUSIONS (AS 3959-2009 s2.2.3.2)	63
APPENDIX 4.....	64
ASSET PROTECTION ZONES (APZ) - DESCRIPTION, ESTABLISHMENT, MAINTENANCE AND STANDARDS.....	64
APPENDIX 5.....	67
TECHNICAL REQUIREMENTS - BUSHFIRE PROTECTION CRITERIA (VEHICULAR ACCESS)	67
APPENDIX 6.....	73
TECHNICAL REQUIREMENTS - BUSHFIRE PROTECTION CRITERIA (WATER)	73
APPENDIX 7.....	76
CITY OF BUSSELTON FIREBREAK & FUEL HAZARD REDUCTION NOTICE	76
APPENDIX 8.....	77
LOT 2656 BUTTERLY ROAD, YALLINGUP STRUCTURE PLAN.....	77

Disclaimer

The measures contained in this Bushfire Management Plan are considered to be minimum standards and they do not guarantee that a building will not be damaged in a bushfire. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather conditions. Additionally, the achievement of and level of implementation of bushfire management measures will depend, among other things, on the actions of the landowners or occupiers over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the project are made in good faith on the basis of 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.

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1 Executive Summary

This Bushfire Management Plan (the Plan) has been prepared to accompany the structure plan for Lot 115 (1442) Wildwood Road, Yallingup within the City of Busselton. The subdivision site of approximately 62 ha (29 proposed lots) 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). 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 planned infrastructure indicates that compliance is able to be achieved against all applicable bushfire related legislation, policy, standards and guidelines, including the Bushfire Protection Criteria.

Indicative envelopes (20*30 metres) have been used to demonstrate that BAL ratings of BAL-29 or less can be achieved on all lots but will require the modification or removal of some classified vegetation (primarily Grassland) within the development area to achieve the minimum separation distances from future buildings. The City of Busselton issues a firebreak notice each year with its rates notices (see Appendix 7). All rural residential lots (category 6, 7 and 8) require: "Parkland clearing must be carried out in all open paddocks and along the boundary of the property. Clearing means that all dead vegetation and dry grasses (excluding approved crops, pasture areas and living trees/shrubs) including piles of timber and disused materials must be maintained to a height of no greater than 10 centimetres." On this basis, the BAL contour map produced for this Plan will exclude the area of Class G Grassland, the displayed BAL contours will exist for all classified vegetation types except Grassland.

A cul-de-sac is proposed on the eastern boundary of the subdivision. Access from this cul-de-sac will be onto Wildwood Road via an emergency access at the southern end of Proposed Lot 12 at a distance of approximately 300 metres. The outcome is that the level of personal safety risk that exists from cul-de-sac as part of the proposed access/egress route to two different destinations, is low and therefore acceptable and able to meet the intent of this element. The long-term intent will be to establish a through road to the east into a neighbouring subdivision (eliminating the requirement for the cul-de-sac and temporary EAW). The adjoining owner of Lot 2656 Butterly Road has prepared a draft structure plan and bushfire management plan (see appendix 8) following early consultation with the City of Busselton. This structure plan is due to be submitted formally for approval and shows a through road connection through to the subject land (Lot 115) in the position as generally shown on the structure plan.

For the existing buildings, there is a recommendation to increase the separation distance to the classified vegetation to meet a minimum BAL 29 Rating standard (APZ). Future buildings within 100 metres of classified vegetation will be constructed to standards which correspond to the determined BALs, as required by *AS 3959-2009 Construction of buildings in bushfire prone areas*. As this proposal does not identify the actual location of building works within each lot, there will be a requirement to determine the BAL for individual building works once the actual building site has been identified. A proposed location of the 50,000-litre strategic water tank is shown in Figure 3.2

2 Application of SPP 3.7

The *State Planning Policy No. 3.7: Planning in Bushfire Prone Areas* (SPP 3.7) provides the foundation for land use planning to address bushfire risk in Western Australia.

This Proposal must consider SPP 3.7 and, if required, comply with its policy measures. The determination of this requirement is presented below.

Application of SPP 3.7 Policy Measures – Primary Triggers

The subject Proposal is a higher order strategic planning document, a strategic planning proposal or a subdivision or development application:

✓

The project site is in a designated bushfire prone area on the WA Map of Bushfire Prone Areas:

✓

The project site is not located in a designated bushfire prone area on the WA Map of Bushfire Prone Areas but the existing vegetation type and condition dictate that it should be:

The project site is in an area not yet designated as bushfire prone but is proposed to be developed in a way that introduces a bushfire hazard (*Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017 s3.2.2*):

Application of SPP 3.7 Policy Measures – Secondary Trigger/s

The Proposal is a strategic planning proposal, subdivision or development application relating to land that has or will have a Bushfire Hazard Level above low and/or where a Bushfire Attack Level rating above BAL-LOW applies (SPP 3.7 s6.2):

✓

The subject Proposal is a development application for the construction or/and use of a single house or ancillary dwelling on a lot or lots greater than 1100m² and subject to BAL-40 or BAL-FZ (LPS Amendment Regulations 2015):

The subject Proposal is a development application for the construction or/and use of a habitable building (other than a single house or ancillary dwelling), or a specified building on any lot size and subject to a BAL rating above BAL-LOW (LPS Amendment Regulations 2015):

3 Commissioning and the Land Use Proposal

Bushfire Prone Planning (BPP Group Pty Ltd) has been commissioned to carry out the assessments and prepare the required bushfire planning documentation to accompany the proponent's planning submission associated with their proposed land use project.

Commissioning Record

Landowner / Proponent: Butterly Family

BPP Commissioned by: Able Planning & Project Management

Purpose: To submit as part of a subdivision application

Project Location

Subject Site and Address: Lot No. 115 (1442) Wildwood Road

Local Government: City of Busselton

Zoning and R-Code: Rural Residential

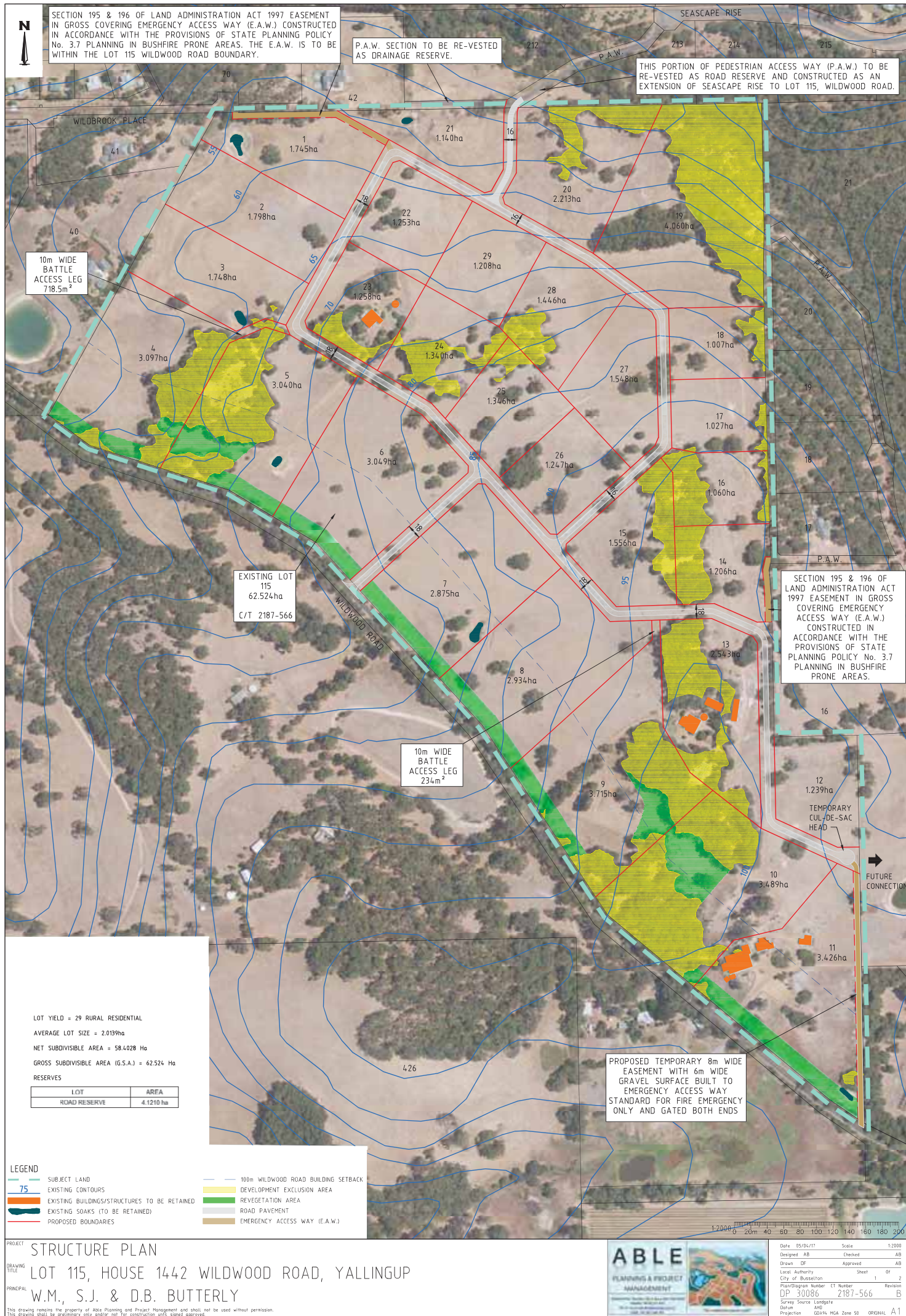
Project Description

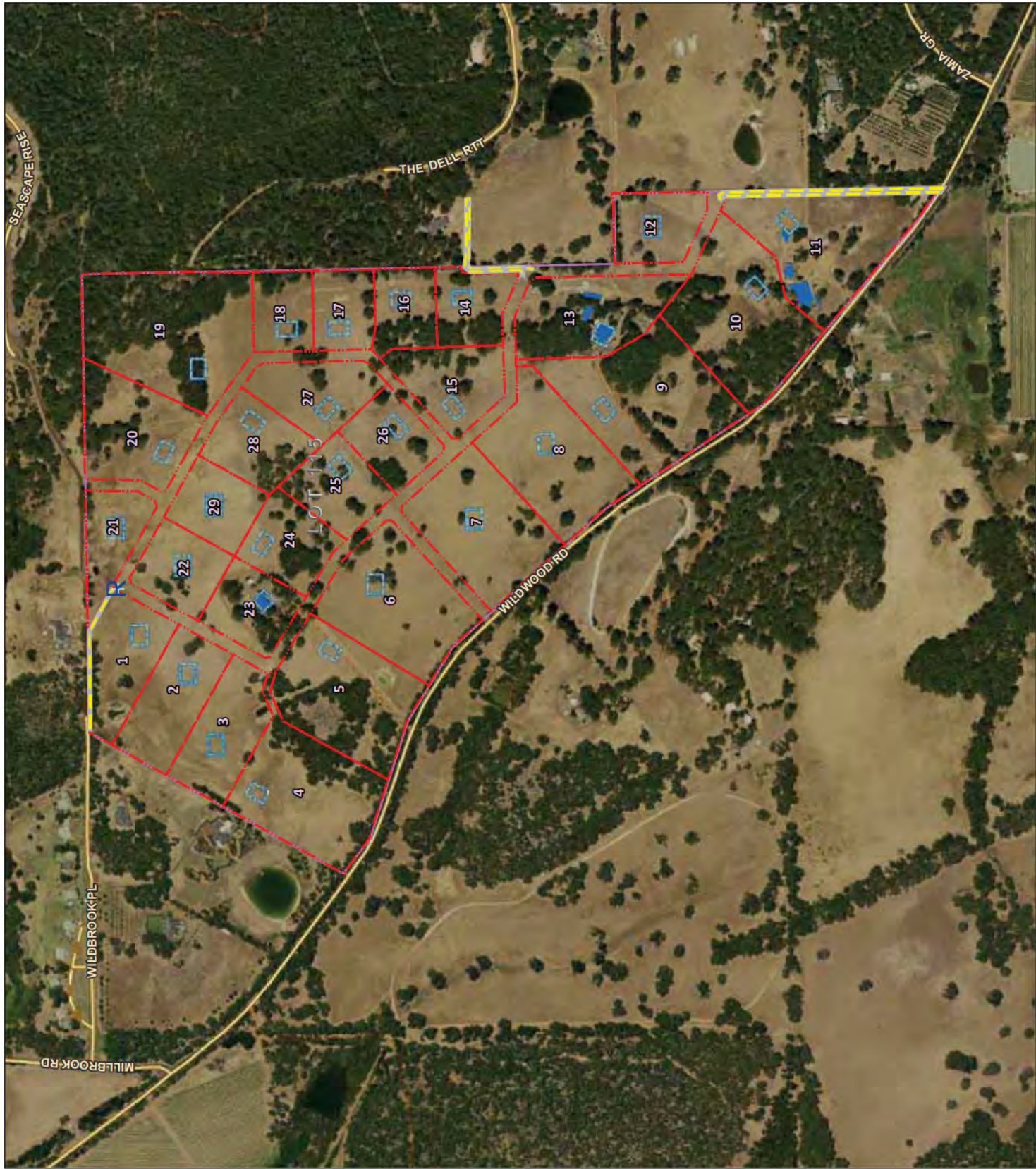
Description: Subdivision Application

Lot Areas: Refer to Table 3.1

Table 3.1: Proposed subdivision lots

Current Lot			
Lot No	115	Area (ha)	62.52
Subdivision - Proposed Lots			
Lot No	Area (ha)	Lot No	Area (ha)
1	1.74	16	1.06
2	1.79	17	1.02
3	1.74	18	1.0
4	3.09	19	4.06
5	3.04	20	2.2
6	3.04	21	1.14
7	2.87	22	1.25
8	2.93	23	1.25
9	3.71	24	1.34
10	3.48	25	1.34
11	3.42	26	1.24
12	1.23	27	1.54
13	2.54	28	1.44
14	1.20	29	1.20
15	1.22		





4 The Planning Submission and the Documents Required

Policy measures in *SPP 3.7* (and further instruction in the associated document *Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017*) set out the bushfire planning information (including bushfire risk assessments) that are to accompany a planning submission. It is dependent on the type of proposal and stage of the development process. In most circumstances this information is to be presented in the form of a Bushfire Management Plan (BMP).

The Planning Submission – Stage and Specific Land Use or Development	
Planning Stage:	Subdivision application (Structure Plan)
For Submission to:	WA Planning Commission (WAPC)
Project Type:	Subdivision - one lot into a large number of lots
‘Vulnerable’ Land Use:	N/A
‘High Risk’ Land Use:	N/A
‘Minor’ Development:	N/A
‘Unavoidable’ Development:	N/A

This Bushfire Management Plan will include the information indicated by the check mark. If an item is checked it is required by either: SPP 3.7 or by a local government variation. It may also have been prepared at an earlier planning stage and therefore re-included or included by the assessor as it improves the information presented in this Bushfire Management Plan.

Bushfire Hazard Level Assessment	Bushfire Attack Level Contour Map	Bushfire Attack Level Assessment	Identify any issues arising from the BAL contour map or BAL assessment	Identify and specifically address the list of issues related to strategic level planning and defined in the <i>Guidelines</i> s5.2	Demonstrate compliance with the Bushfire Protection Criteria can be achieved in subsequent planning stages	Demonstrate compliance with the Bushfire Protection Criteria
	✓		✓		✓	

5 Assessment of Bushfire Risk

5.1 Vegetation Assessment/Classification and Ground Slope

5.1.1 Existing Vegetation

All vegetation within 100 metres of the subject site has been identified and classified or excluded and presented in Table 5.1.1. This has been done with accordance with AS 3959-2009 and reference to the *Visual Guide for Bushfire Risk Assessment in WA* (WAPC February 2016).

The vegetation has been assessed as it will be in its mature state and where deemed appropriate, in its unmanaged state. The areas of classified vegetation that will determine bushfire risk are defined on the topography and vegetation map Figure 5.1. Representative photos of each vegetation area is presented after the table.

Table 5.1.1: Vegetation types identified, the applied classification and effective slope

All Vegetation Within 100 metres of Subject Site		
Vegetation Area	Identified Types (AS3959) or Description if 'Excluded'	Applied Classification
1	Open Forest A-03	Class A Forest
2	Open Woodland B-06	Class B Woodland
3	Grassland (G-26) Sown Pasture (<100mm high)	Class G Grassland
4	Excluded – Cultivated Gardens (APZ Area)	Excluded AS 3959-2009 2.2.3.2 (f)
5	Planned Revegetation Area (Open Forest A-03)	Class A Forest
6	Planned Revegetation Area (Open Woodland B-06)	Class B Woodland

Note: When more than one vegetation type is present each type is classified separately with the worst-case scenario being applied. The predominant vegetation is not necessarily the worst-case scenario.

Vegetation Area 1

Classification Applied: Class A Forest

Assessment Comment: Open Eucalypt Forest



Photo ID: 1a



Photo ID: 1b

Vegetation Area 2

Classification Applied: Class B Woodland

Assessment Comment: Open Eucalypt Woodland



Photo ID: 2a



Photo ID: 2b

Vegetation Area 3

Classification Applied: Class G Grassland (excluded from classification)

Assessment Comment: Pasture/ Paddock

***Pasture/ Paddock is Managed in accordance with City of Busselton Firebreak Notice – Appendix 7 and will meet the Definition of Excluded AS 3959-2009 2.2.3.2 (f) – Excluded from BAL Contour mapping*



Photo ID: 3a



Photo ID: 3b

Vegetation Area 4

Classification Applied: Excluded AS3959-2009 2.2.3.2 (f)

Assessment Comment: Managed Gardens/ Cleared Areas around existing dwellings



Photo ID: 4a



Photo ID: 4b

5.1.2 Vegetation Excluded from Classification

Certain areas and vegetation within 100m of the subject site may be assessed as 'low threat or non-vegetated'. These are to be excluded from classification and are therefore rated BAL-LOW. They must be managed to maintain the specifications set out in AS3959-2009 s2.2.3.2 in perpetuity (refer to Appendix 3 'Vegetation Classification Exclusions').

For this assessment, Vegetation Area 4 has been excluded from classification as presenting a low bushfire threat. This has been done on the basis that managed gardens surrounding private property have been excluded from classification as presenting a low bushfire threat as per AS 3959-2009s2.2.3.2 (f). This area surrounding the existing dwellings will be managed in accordance BAL-29 Asset Protection Zone requirements.

The City of Busselton issues a firebreak notice each year with its rates notices (see Appendix 7). All rural residential lots (category 6, 7 and 8) require: "Parkland clearing must be carried out in all open paddocks and along the boundary of the property. Clearing means that all dead vegetation and dry grasses (excluding approved crops, pasture areas and living trees/shrubs) including piles of timber and disused materials must be maintained to a height of no greater than 10 centimetres." On this basis, the BAL contour map produced for this Plan will exclude the Vegetation Area 3 - Class G Grassland, the displayed BAL contours will exist for all classified vegetation types except Grassland.

5.1.3 Expected On-site Vegetation Changes Due to Proposed Subdivision

In assessing vegetation for bushfire threat, consideration must be given to possible future vegetation changes likely on the site that is being assessed, particularly those that would have the potential to increase the bushfire risk.

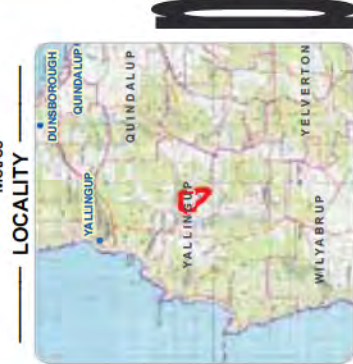
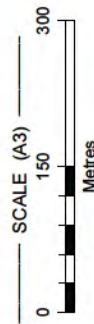
This may be due to growth of existing vegetation or growth of planned landscape plantings, including future roadside or water course re-vegetation. There must be careful consideration of the creation of vegetation corridors where they join offsite vegetation and may provide a route for fire to enter an area of future development.

For this Proposal, the subdivision site currently retains its native vegetation and as such there is no separation from the classified vegetation and the future building work. The intention is to remove and/or modify the required vegetation from and around future building sites to the extent required such that they will be subject to a BAL rating no greater than BAL-29.

For this Bushfire Management Plan, the future vegetation within the lot has been considered. The majority of existing onsite vegetation is sown pasture and is classified Grassland (Excluded as it is managed as per the COB Firebreak notice – Appendix 7). It is expected that in the future areas of grassland surrounding the buildings will be maintained as low threat vegetation. It will meet AS

3959-2009 s2.2.3.2 requirements (refer Appendix 3 'Vegetation Classification Exclusions'). Figures 5.1 and 5.2 have taken into consideration the vegetation within the "Development Exclusion Areas" and the nominated "Revegetation Areas".

For this subdivision proposal, there is a revegetation plan for the South-Western Boundary (Wildwood Road). This revegetation plan includes a vegetation buffer adjacent to Wildwood road. The future vegetation classification has been factored into Figure 5.1 Topography and Classified vegetation mapping and Figure 5.2 BAL Contour Mapping. The outcome is that the planned revegetation of these areas will not impact on the each of the affected lots ability to provide for a suitably sized BAL 29 compliant building envelope.



Aerial Image: Landgate 2013

An aerial photograph of a residential area with several annotations. A central lot is outlined in blue and labeled 'LOT 115'. To its left, another area is labeled '13'. A yellow line with a '100 m' label runs along the left side of the central lot. A red line with a '95 m' label runs along the top left. Another red line with a '95 m' label runs along the bottom left. A small blue circle with the number '4' is located near the bottom center. A red line runs diagonally across the right side. The map shows green trees, brown dirt areas, and some buildings.

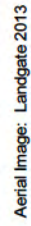


Figure 5.1.2
Topography &
Classified Vegetation
Lot 115 Wildwood Road
Yallingup



5.2 Bushfire Attack Level (BAL) Assessment – BAL Contour Map

Bushfire Prone Planning's BAL Contour Map Guide

Description and Purpose of the BAL Contour Map ('Guidelines')

A Bushfire Attack Level (BAL) Contour Map identifies land suitable and unsuitable for development and guides the location of building envelopes within a development site. The BAL Contour Map is a scale map of a development site (which can include proposed or an existing lot layout), which identifies indicative BAL ratings across the development site and within the immediate surrounding area. The map illustrates potential bushfire attack levels and radiant heat impacts in relation to any classified vegetation that will remain within 100 metres of the assessment area once development is constructed i.e. when the land has been cleared and all the subdivision works have been undertaken. It needs to take into account any vegetation that will remain or will be introduced when the works are complete (source: WAPC Factsheet "BAL Contour Maps" Version 2 January 2016).

BAL Contour Map Interpretation

The contour map will present different coloured contour intervals constructed around the classified bushfire prone vegetation. These represent the different Bushfire Attack Levels (BAL's) that exist as the distance increases away from the classified vegetation. Each BAL represents a set range of radiant heat flux (refer to Appendix 2) that can be generated by the bushfire in that vegetation. The width of each shaded contour interval (i.e. the applicable vegetation separation distances corresponding to a BAL rating) will vary and is determined by calculations involving vegetation type, fuel structure, ground slope, and climatic conditions (i.e. the expected fire behaviour). They are unique to a site and can vary across a site.

The Primary Use of BAL Contour Mapping - Planning

BAL contour mapping is primarily a planning tool that can give an overview as to the suitability of a site for development with respect to the extent to which bushfire is a potential threat to future buildings and persons on the subject land. The mapping considers the development site (i.e. all existing or proposed lots) and does not consider the bushfire risk at an individual lot level or over different development time frames. Rather it is assessing the situation that will exist when the entire development has been completed, including any vegetation management that would reasonably be expected to take place as part of establishing buildings on the lots. On this basis, it helps decision makers determine the suitability of the proposed development for planning approval.

As a result, there will be situations where, for the purposes of planning, classifiable vegetation is not contoured (e.g. e.g. Grassland or when the assumption is made that all onsite vegetation can be removed and/or modified). However, at a specific point in time (prior to full completion of a development) this vegetation may impact on a proposed buildings BAL rating.

5.2.1 Construction of the BAL Contours - Statement of Site Data and 'Separation Distance Range' Applied

For the subject site, the vegetation separation distance range that corresponds to each Bushfire Attack Level (and represented by Figure 5.2, the BAL Contour Map), has been derived from:

1. An AS3959-2009 Method 1 assessment and sourced from AS3959-2009 Table 2.4.3;

Table 5.2.1: Construction of the BAL contours

Statement of Site Data and 'Separation Distance Range' Applied			
Vegetation Area	BAL Assessment Method Used	Site Data Applied in the BAL Assessment	Separation Distance Range Applied/Determined
1	AS3959-2009 Method 1	10 ⁰	33
2	AS3959-2009 Method 1	5 ⁰	17
3	AS3959-2009 Method 1	-	-
4	AS3959-2009 Method 1	-	-
5	AS3959-2009 Method 1	0 ⁰	21
6	AS3959-2009 Method 1	5 ⁰	17

When more than one vegetation type is present each type is classified separately with the worst-case scenario being applied. The predominant vegetation is not necessarily the worst-case scenario. For the purposes of generating a BAL Contour Map the slope has been calculated as a worst-case scenario.

BAL Contour Maps and 'Class G Grassland'

Grassland vegetation types may have been identified and classified on the subject site (refer to the Vegetation and Topography Map in Figure 5.1). Where this is the situation for the subject Proposal, and it is considered appropriate by the assessor, the BAL contour map produced for this Plan will exclude the area of Class G Grassland. Therefore, the displayed BAL contours will exist for all classified vegetation types except Grassland.

The rationale for this approach is to be able to derive meaningful information from the contour map. If Grassland was to be contoured the entire mapped area could potentially be BAL-FZ and therefore be presented as a sole colour – providing no useful information. Grassland is commonly not native vegetation. From a practical perspective, it can be easily managed to a low bushfire threat state and generally will not require approval for its removal. Section 7.3 of this Plan details the management measure required to reduce any classified Grassland to a BAL rating of BAL-LOW.

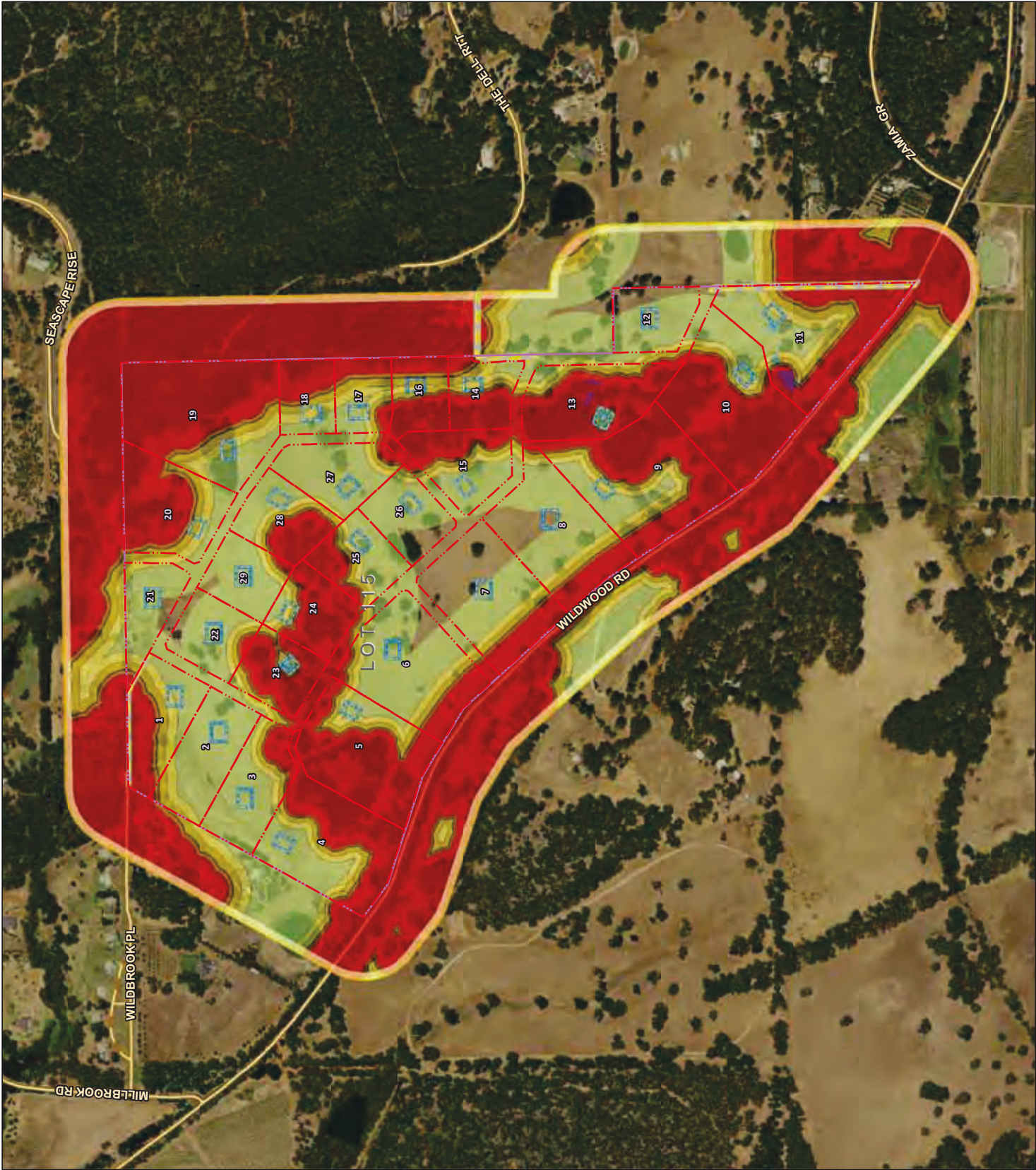


Figure 5.2
BAL Contour Map

Lot 115 Wildwood Road
Yallingup

LEGEND

Lot 115

Indicative Envelope

Structure

Existing Residence

Proposed Emergency Access

Area of Interest - 100m extent

Bushfire Attack Levels (Method 1)

BAL FZ (Indicative only)

BAL 40 (Indicative only)

BAL 29 (Indicative only)

BAL 19 (Indicative only)

BAL 12.5 (Indicative only)



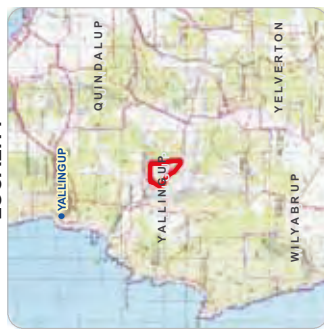
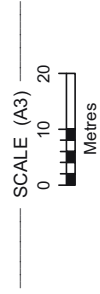
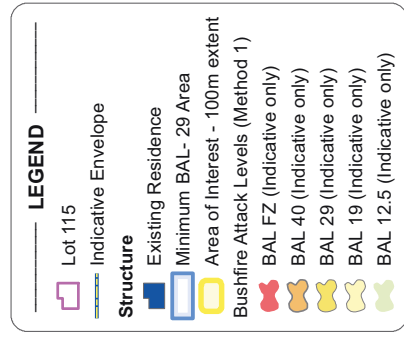
Aerial Image: Landgate 2013



Coordinate System: GDA 1984 MGA Zone 50
Projection: Universal Transverse Mercator
Map created on: 10/08/2017
Map compiled by: Mick Whiteley

BAL Contour Map

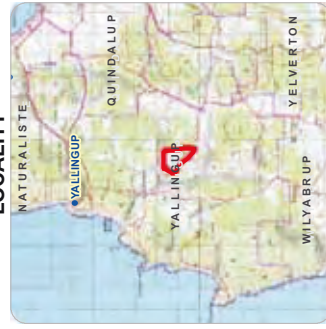
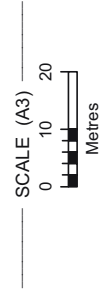
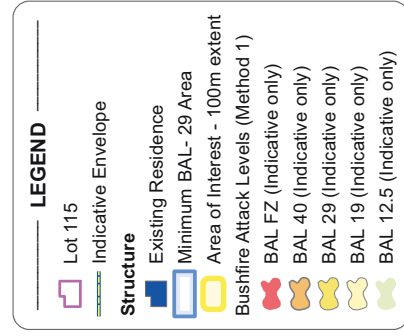
Lot 115 Wildwood Road
Yallingup



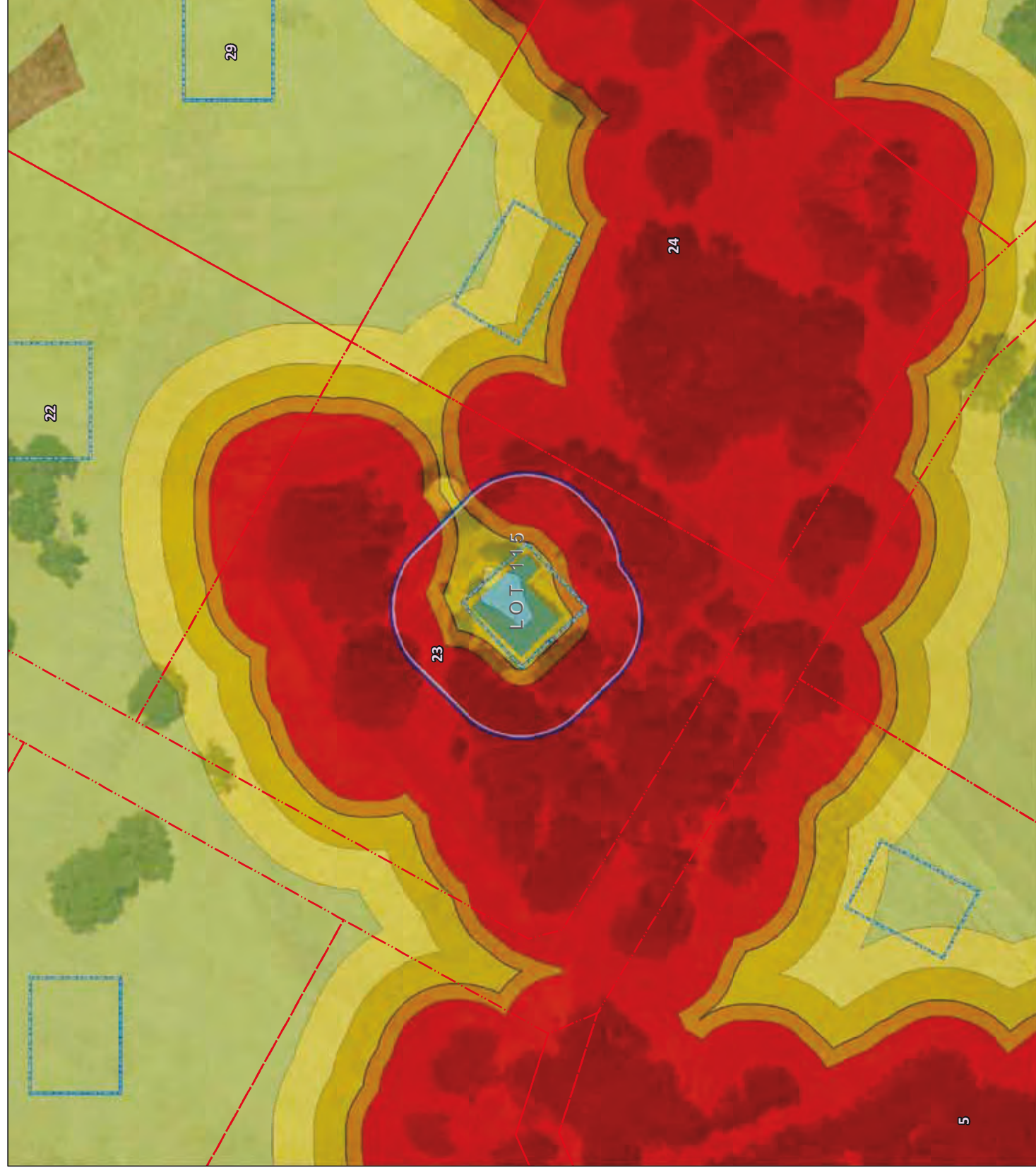
Aerial Image: Landgate 2013

BAL Contour Map

Lot 115 Wildwood Road
Yallingup



Aerial Image: Landgate 2013



5.2.2 BAL's as Indicated by the Contour Map

Bushfire Prone Planning's Interpretation of Deriving BAL Ratings from the BAL Contour Map

Indicative BAL Ratings

If the assessed BAL for a lot or building envelope (the 'area') is stated as being 'indicative', it is because that 'area' is impacted by more than one BAL contour interval and/or classifiable vegetation remains on the lot, or on adjacent lots, that can influence a future building's BAL rating (and this vegetation may have been omitted from being contoured for planning purposes e.g. Grassland or when the assumption is made that all onsite vegetation can be removed and/or modified). In this report the indicative BAL is presented as either the highest BAL impacting the 'area' or as a range of achievable BAL's within the 'area' – whichever is the most appropriate.

The BAL rating that will apply to any future building within that 'area' will be dependent on:

1. vegetation management onsite; and/or
2. vegetation remaining on adjacent lots; and/or
3. the actual location of the future building within that 'area'.

A BAL Certificate cannot be provided for future buildings within an 'area' with an indicative BAL until the location of any future building has been determined. It usually requires an onsite visit and a BAL assessment report to be produced before the certificate can be issued.

As there are no identified building envelopes or actual building locations being presented as part of this proposal, the Bushfire Attack Levels (BAL's) presented in Table 5.2.1 can only be indicative. They are derived from the contour map by estimating where a typical sized building envelope (20*30 metres) could be located and stating the BAL it would be exposed to. Once actual building locations are determined at a later planning stage, the BAL ratings for specific buildings or building envelopes will need to be determined by an onsite visit with the actual vegetation separation distances being measured.

Table 5.2.1: Indicative BAL's for Proposed Lots

Indicative Bushfire Attack Levels for the Proposed Lots	
BAL Determination Method	Method 1 as per AS 3959-2009 s2.2.6 and Table 2.4.3. Refer to Appendix 2 this Plan
Proposed Lots (29)	Indicative BAL
Proposed Lot (Number)	
1-4 6-8 12 15 21 22 25-27 29	BAL-12.5
5 10-11 17 19 28	BAL-19
9 14 16 18 20 24	BAL-29
Lots 13,23 (Existing dwellings)	BAL - 29

5.2.3 Identification of Specific Issues Arising from BAL Contour Map

Onsite Vegetation

Vegetation onsite is within the control of the subject site's landowner and therefore can potentially be removed or modified to lower the bushfire risk, subject to any approval being required by a local government. The majority of existing onsite vegetation is sown pasture and is classified Grassland. It is expected that in the future this vegetation type surrounding buildings will be maintained as low threat vegetation. It will meet AS 3959-2009 s2.2.3.2 requirements (refer Appendix 3 'Vegetation Classification Exclusions'). Figures 5.1 and 5.2 have taken into consideration the vegetation within the "Development Exclusion Areas" and the nominated "Revegetation Areas".

Offsite Vegetation

Vegetation offsite is not within the control of the subject site's landowner and therefore the vegetation cannot be removed or modified by the landowner and as a result the assessed BAL's determined by this vegetation are unable to be reduced.

5.3 Existing Habitable Buildings on Subject Site – Assessed BAL's

For existing habitable buildings on the subject site, table 5.3.1 states the Indicative Bushfire Attack Level for each specified building.

The recommended bushfire risk management measures to apply to each building are detailed in Section 7 of this Plan.

Table 5.3.1: Indicative BAL's of existing habitable buildings

Indicative BAL's of Existing Habitable Buildings	
Relevant Fire Danger Index (AS3959-2009 Table 2.1)	80
BAL Determination Method	Method 1 as per AS 3959-2009 s2.2.6 and Table 2.4.3. Refer to Appendix 2 this Plan
Existing Habitable Buildings	BAL Rating determined from the BAL Contour Map (the highest BAL impacting the building)
Lot 13 (Residential Dwelling)	BAL-29
Lot 23 (Residential Dwelling)	BAL-29

6 Environmental Considerations

“Many bushfire prone areas also have high biodiversity values. SPP 3.7 Policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values” (‘Guidelines’ s2.3). “Clearing of native vegetation in Western Australia requires a clearing permit under Part V, Division 2 of the Environmental Protection Act 1986 unless clearing is for an exempt purpose. Exemptions from requiring a clearing permit are contained in Schedule 6 of the Act or are prescribed in the Environmental Protection Regulations” (‘Guidelines’ s2.3).

Existing conservation areas that are potentially affected by the development proposal are required to be identified. This may result in vegetation removal/modification prohibition or limitations. These areas include:

- National Parks;
- Nature Reserves; and
- Bush Forever sites.

Further, the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), administered by the Australian Government Department of Environment, provides a national scheme of environment and heritage protection and biodiversity conservation. The objectives of the of the EPBC Act include the protection of the environment with respect to matters of national environmental significance and conservation of Australian biodiversity. Nationally threatened species and ecological communities are a specific matter of significance. Areas of vegetation can be classified as a Threatened Ecological Community (TEC) under the EPBC Act and consequently have removal restrictions imposed.

6.1 Native Vegetation and Re-vegetation

Protection of Native Vegetation

For the proposed development site, have any existing conservation areas been identified?	Yes
Type of existing conservation classification:	Development Exclusion Areas
Other identified conservation issue to be considered:	Habitat Trees
For the proposed development site, have any areas of native vegetation been identified as species that might result in the classification of the area as a Threatened Ecological Community (TEC)?	N/A
Potential TEC species identified:	N/A

Recommendation: It is advised that the proponent seek further advice from an Environmental Consultant or the WA Department of Parks and Wildlife for further information on the condition and species contained within the proposed development area.

Minimising Removal of Native Vegetation

Establishing development in bushfire prone areas can adversely affect the retention of native vegetation through clearing associated with the creation of an Asset Protection Zone. Where loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, it will be necessary to consider available options to minimise the removal of native vegetation.

Options to Minimise Removal of Native Vegetation	Considered and Implemented in this Proposal
Reduce lot yield	Considered and development location has been modified. See comments below.
Cluster development	Considered and development location has been modified. See comments below.
Construct building to a higher standard as per BCA and AS 3959-2009	N/A
Modify the development location	Considered and development location has been modified. See comments below.

Comment: The intention of providing indicative building envelopes will be to both achieve minimal removal of native vegetation and maintain the maximum ratings at BAL-29 or lower.

Impact on Adjoining Land

Does this planning proposal satisfy bushfire protection requirements within the boundaries of the land being developed so as not to impact on the bushfire and environmental management of neighbouring reserves, properties or conservation covenants?	Yes
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7 Bushfire Risk Management Measures

7.1 The Bushfire Protection Criteria – Assessment of Compliance

State Planning Policy 3.7 Planning in Bushfire Prone Areas (DoP 2015) requires an assessment against the bushfire protection criteria requirements contained in the Guidelines for Planning in Bushfire Prone Areas (DoP/DFES v1.1 2017) Section 4.5 and Appendix 4.

This assessment is to accompany any strategic planning proposal, subdivision application or development application.

Strategic planning proposals need to demonstrate that compliance can be achieved in subsequent planning stages. Subdivision and development applications must demonstrate compliance within the boundary of the subject site or provide justification for those criteria that are not able to be fully met.

The bushfire protection criteria are divided into four elements location, siting and design, vehicular access and water.

For each element, there is:

1. An intent stating the required outcome (overall aim);
2. A performance principle that is a general statement of how best to achieve the intent; and
3. One or more specific criteria to be addressed and for which an acceptable solution is provided as an example of one way of meeting the criteria (and therefore the elements intent).

A proposals compliance with each element is determined by either one or a combination of the following:

1. For each relevant criterion, fully meeting the requirements of the acceptable solution (which automatically achieves the intent for that criteria); and/or
2. For one or more relevant criteria, not fully meeting the requirements of the acceptable solution but achieving the requirements of the performance principle by employing a relatively minor variation on the acceptable solution; and/or
3. For one or more relevant criteria, developing an alternative solution that will achieve the performance principle.

Bushfire Prone Planning presents the required assessment against all the bushfire protection criteria as a separate table for each element and includes the intent, the performance principle and acceptable solution examples, for convenient reference.

Summarised Outcome of the Assessment Against the Bushfire Protection Criteria						
Element each element consists of one or more applicable 'acceptable solutions'	Complies With All Applicable 'Acceptable Solutions' or will comply	Achieves the Intent of the Element for All Applicable 'Acceptable Solutions' or will achieve	Required Basis of the Planning Assessment			Notes
			Acceptable Solutions	Performance Principle	As Minor or Unavoidable Development	
	Achieves the Intent of the Element (or will achieve)	For one or more applicable 'acceptable solutions' the solution is not fully met. A <u>variation</u> of the solution is provided and justified.	An Alternative Solution is Developed and Presented			
	Complies With All Applicable 'Acceptable Solutions' or will comply					
Location	Yes	Yes	✓			
Siting and Design of Development	Yes	Yes	✓			
Vehicular Access	Yes	Yes	✓			
Water	Yes	Yes	✓			

Bushfire Protection Criteria - Element 1- Location

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.

Performance Principle P1 (to be complied with to meet the intent and used to develop alternative solutions): The intent may be achieved where the strategic planning proposal, subdivision or development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low **OR** a BAL-29 or below applies **AND** the risk can be managed. For unavoidable development in areas where BAL-40 or BAL-FZ applies, demonstrating that the risk can be managed to the satisfaction of DFES and the decision-maker.

Acceptable Solution	Further Explanation	Compliance	Assessment Statements
A1.1 Development Location The strategic planning proposal, subdivision and development application is located in an area where the bushfire hazard assessment is or will, on completion, be moderate or low; OR Be subject to BAL-29 or below; AND the risk can be managed.	Land is most suitable for land use intensification where hazard levels are low. Where there is an extreme bushfire hazard level or requirements for use of BAL-40 or BAL-FZ construction standards, the land is not considered suitable for development unless it meets the definition of minor or unavoidable development. Minor development requires local government planning approval. Unavoidable development requires demonstrating that risk can be managed to the satisfaction of DFES, WAPC and local government.	Fully Complies with the Acceptable Solution	The proposed subdivision is located within a designated bushfire prone area. By implementing the positioning and vegetation management measures identified in this Plan the proposed subdivision can meet the acceptable solution of being subject to BAL-29 or below and result in the bushfire risk being able to be managed. It does not require the use of BAL-40 or BAL-FZ construction standards.

Bushfire Protection Criteria - Element 2 - Siting and Design of Development

Intent: To ensure that the siting and design of development minimises the level of bushfire impact (*note: not related to construction standards to apply*).

Performance Principle P2 (to be complied with to meet the intent and used to develop alternative solutions): The intent may be achieved where the siting and design of the strategic planning proposal, subdivision or development application, including roads, paths and landscaping, is appropriate to the level of bushfire risk that applies to the site. That it incorporates a defensible space and significantly reduces the heat intensities at the building surface thereby minimising the bushfire risk to people, property and infrastructure, including compliance with AS3959 if appropriate.

Acceptable Solution	Further Explanation	Compliance	Assessment Statements
<p>A2.1 Asset Protection Zone (APZ)</p> <p>Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:</p> <p>Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29 kW/m² (BAL-29) in all circumstances.</p> <p>Location: The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot/s will be managed in a low-fuel state on an ongoing basis, in perpetuity.</p> <p>Management: The APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones' ('Guidelines' Appendix 4, Element 2 Schedule 1). Also, refer to Appendix 3 and 4 of this Plan/Report.</p>	<p>The APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level by reducing fuel loads (predominantly combustible vegetation).</p> <p>The required width of the APZ varies with the vegetation impacting the site and ground slopes.</p> <p>The APZ is to include a defensible space (minimum 3m width) – an area adjoining the asset in which vegetation is kept to an absolute minimum and free from combustible items and obstructions – to facilitate fire fighting operations.</p> <p>Where the loss of vegetation is not acceptable or causes conflict with landscape and environmental objectives, then the development may need to be modified.</p>	<p>Fully Complies with the Acceptable Solution</p>	<p>The proposed subdivision meets the acceptable solution by:</p> <ul style="list-style-type: none"> • Being able to establish an APZ of the required dimensions (as determined by the classified vegetation impacting the Site and the relevant ground slopes) within the lot/s boundary. • The landowner/s having the responsibility of implementing the requirements of the 'Standards for APZ's' and continuing to manage the APZ to the required specifications, maintaining it in a low fuel state.

Bushfire Protection Criteria - Element 3 - Vehicular Access

Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Performance Principle P3 (to be complied with to meet the intent and used to develop alternative solutions): The intent may be achieved where the internal layout, design and construction of public and private vehicular access and egress in the subdivision /development allow emergency and other vehicles to move through it easily and safely at all times.

Acceptable Solution	Further Explanation	Compliance	Assessment Statements
<p>A3.1 Two access routes</p> <p>Two different access routes are provided, both of which connect to the public road network, provide safe access and egress to two different destinations and are available to all residents and the public at all times and under all weather conditions.</p>	<p>This is to apply to access routes leading into a subdivision as well as those within a subdivision. All access should accommodate type 3.4 fire appliances (4WD 7t chassis). Two-way access should be provided as a public road, however, where a public road cannot be provided (and this will need to be demonstrated by the proponent providing justification), an emergency access way may be considered.</p>	<p>Fully Complies with the Acceptable Solution</p>	<p>Wildwood Road and Seascape Rise will provide the subdivision with 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 development of an internal road network constructed to the minimum standards will provide all lots with suitable vehicle access/ egress to the public road network.</p> <p>Access to Wildwood Road will also be provided by a temporary emergency access way at the southern end of Proposed Lot 12 at a distance of approximately 300 metres and it is considered that this route has an associated low bushfire risk. The intent will be to establish a through road to the east into a neighbouring subdivision. The adjoining owner of Lot 2656 Butterly Road has prepared a draft structure plan and bushfire management plan (see appendix 8) following early consultation with the City of Busselton. This structure plan is due to be submitted formally for approval and shows a through road connection through to the subject land (Lot 115) in the position as generally shown on the structure plan. The precise position of this connection will be ratified between the owners at the subdivision plan stage, but for now (at this higher-level planning stage), it is demonstrated that the road connection is planned and will be built in the near future.</p> <p>Access to Wildwood Road will also be provided by an emergency access way at the northern end of Proposed Lot 1 onto Wildbrook Place at a distance of approximately 130 metres. Access to Wildwood Road via Dell Retreat & Butterly Road will also be provided by an emergency access way at the eastern end of Proposed Lot 14.</p>

Bushfire Protection Criteria - Element 3 - Vehicular Access (continued)

Intent: To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.

Performance Principle P3 (to be complied with to meet the intent and used to develop alternative solutions): The intent may be achieved where the internal layout, design and construction of public and private vehicular access and egress in the subdivision /development allow emergency and other vehicles to move through it easily and safely at all times.

Acceptable Solution	Further Explanation	Compliance	Assessment Statements
A3.2 Public Road Minimum trafficable surface of 6m. Constructed to meet the technical requirements stated in Appendix 5.	In special circumstances, where ≤8 lots serviced, a minimum 4m trafficable surface for a maximum of 90 might be approved.	Will Fully Comply with the Acceptable Solution	The development of an internal road network constructed to the minimum standards will provide all lots with suitable vehicle access/ egress to the public road network.
A3.3 Cul-de-sacs - (includes dead-end roads). A maximum length of 200m with a 17.5m turnaround. 600m length if cul-de-sacs services ≤8 lots and is joined to another cul-de-sac by an emergency access way of <600m). Constructed to meet the technical requirements stated in Appendix 5.	Should be avoided in bushfire prone areas as they do not provide access/egress in different directions. Where no alternative exists this will need to be demonstrated by the proponent including if the lot layout already exists. Cul-de-sac is to connect to a public road.	Will Fully Comply with the Acceptable Solution	A cul-de-sac is proposed on the eastern boundary of the subdivision. Access from this cul-de-sac will be onto Wildwood Road via an emergency access at the southern end of Proposed Lot 12 at a distance of approximately 300 metres. The long-term intent will be to establish a through road to the east into a neighbouring subdivision (eliminating the requirement for the cul-de-sac and temporary EAW). The adjoining owner of Lot 2656 has prepared a draft structure plan and bushfire management plan (see appendix 8) following early consultation with the City of Busselton. This structure plan is due to be submitted formally for approval and shows a through road connection through to the subject land (Lot 115) in the position as generally shown on the structure plan.
A3.4 Battle-axe Maximum length 600m, minimum width 6m, passing bays @ 200m, turnaround area @ 500m and at house site. Constructed to a minimum of private driveway standards. Constructed to meet the technical requirements stated in Appendix 5.	Should be avoided in bushfire prone areas If no alternative exists this will need to be demonstrated by the proponent.	Will Fully Comply with the Acceptable Solution	The proposal includes 2 battle axe blocks that will meet the technical requirements.

Bushfire Protection Criteria - Element 3 - Vehicular Access (continued)

Acceptable Solutions	Further Explanation	Compliance	Assessment Statements
A3.5 Private Driveways Are required where a house is >50m from a public road. Passing bays @ 200m, turnaround area @ 500m and within 50m of house. Bridges/culverts to support 15t. All weather surface. Constructed to meet the technical requirements stated in Appendix 5.		Will Fully Comply with the Acceptable Solution	This is the landowner's responsibility. The technical requirements will be met.
A3.6 Emergency Access Way Provided as a right of way or public access easement in gross (maximum length of 600m) to ensure accessibility to the public and fire services in emergencies. It should comply with minimum standards for a public road and be signposted. Constructed to meet the technical requirements stated in Appendix 5.	An access way that does not provide through access to a public road is to be avoided in bushfire prone areas. Where no alternative exists this will need to be demonstrated by the proponent. It is to be provided as an alternative link to a public road during emergencies.	Will Fully Comply with the Acceptable Solution	Access to Wildwood Road will also be provided by an emergency access at the southern end of Lot 12, northern end of Lot 1 & eastern end of lot 14. The EAW's will be constructed to the standards detailed in appendix 5.
A3.7 Fire Service Access Routes - (perimeter roads) Provided as rights of way or public access easements in gross; all weather surface and allow for two-way traffic; dead-end roads not permitted; turnarounds every 500m; less than 600m to a public road and be signposted. Constructed to meet the technical requirements stated in Appendix 5.	Fire service access routes should be established to separate bushfire prone areas from developed areas and to provide access within and around the edge of the subdivisions and related development. To be used during bushfire suppression operations and prevention work.	N/A	
A3.8 Firebreak Width Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three metres or to the level prescribed in the local firebreak notice issued by the local government.		Will Fully Comply with the Acceptable Solution	The proposed lots will comply with the requirements of the local government annual firebreak notice issued under s33 of the Bush Fires Act 1954. (minimum 3-metre-wide firebreak)

Bushfire Protection Criteria - Element 4 – Water

Intent: To ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.

Performance Principal P4 (to be complied with to meet the intent and used to develop alternative solutions): The intent may be achieved where the subdivision, development or land use is provided with a permanent and secure supply that is sufficient for firefighting purposes.

Acceptable Solution	Further Explanation	Compliance	Assessment Statements
A4.1 Reticulated Areas The subdivision, development or land use is provided with a reticulated water supply, in accordance with the specifications of the relevant water supply authority and DFES. Constructed to meet the technical requirements stated in Appendix 6.	The Water Corporations 'No 63 Water Reticulation Standard' is deemed to be the baseline criterion for developments and should be applied unless local water supply authorities' conditions apply. Additionally, any local government variation must be met (s8.4).	N/A	
A4.2 Non-Reticulated Areas Water tanks for firefighting purposes with a hydrant or standpipe are provided. Minimum of 50,000l/tank; minimum 1 tank/25 lots (or part thereof); house ≤2km from a tank; 20min turnaround time for 2.4 appliance; hardstand area suitable for 3.4 appliance within 3m of tank Must meet the technical requirements stated in Appendix 6. Any local government variation must also be met (s8.4).	The specification of the requirements for the proposal being assessed will be set by the water supply authority and DFES. A procedure must be in place to ensure that water tanks are maintained at or above the designated capacity at all times, including home tanks on single lots. This could be in the form of an agreement with the local government and the fire service. Water tanks and associated facilities are vested in the relevant local government	Will Fully Comply with the Acceptable Solution	50,000 litre water tanks for firefighting purposes will be provided for every 25 lots and comply with the technical requirements. A proposed location of the 50,000-litre strategic water tank is shown in Figure 3.2 The proposed lots will each have installed a minimum of 10,000 litres of stored water for firefighting purposes and meet the technical requirements.
A4.3 Non-reticulated Areas (Individual Lots) Single lots above 500 m ² need a dedicated static water supply on the lot that has the effective capacity of 10,000 litres. Must meet the technical requirements stated in Appendix 6.	A4.3 is only for use if creating one additional lot and cannot be applied cumulatively.	N/A	

7.2 Location of Buildings and Applicable BAL's

Future buildings on the proposed lots are to be located in areas where an appropriate Bushfire Attack Level rating can be achieved and where minimal removal of valuable existing native vegetation is required to achieve this rating. The intent is to have the subject land of this Proposal located in an area where the bushfire hazard level is, or will on completion, be moderate or low or be subject to a maximum Bushfire Attack Level of BAL-29.

The proposed subdivision is unlikely to be approved if the indicative BAL rating for future buildings on any proposed lots is either BAL-40 or BAL-FZ as it is unacceptable on planning grounds. The exception will be if it meets the definition of unavoidable development ('Guidelines' s5.4 and s5.7). If this applies the appropriate additional assessment and input from the relevant authorities, if required, is included in this Plan.

The proposed subdivision will result in future buildings being subject to a BAL rating of BAL 29 or less. As such the development has been designed appropriately but the required separation distances from future buildings to the classified vegetation will need to be maintained. These distances are stated in the next section of this Plan, Section 7.3 'Vegetation Management'.

7.3 Vegetation Management

Ongoing Maintenance of Assessed Vegetation

1. Where any existing or planned, re-vegetation has been assessed as “low threat” (meeting AS 3959-2009 Section 2.2.3.2 requirements) and excluded from classification then this area will be managed to continue to meet those requirements (refer to Appendix 3) and enable the buildings to retain their determined BAL ratings;
2. Any classified vegetation onsite (i.e. within a subject lot) that has directly contributed to the determined BAL rating for a given building, will be managed such as to not change that vegetation to a higher risk classification; and
3. Where a local government issues an annual firebreak notice under s33 of the Bush Fires Act 1954, this will be complied with.

Bushfire Protection Zones

The *Guidelines for Planning in Bushfire Prone Areas (WAPC v1.1 2017)* set out the requirements to create an Asset Protection Zone (APZ) and a Hazard Separation Zone (HSZ). The aim of these bushfire protection zones is to have a fire of diminishing intensity and flame length as it approaches development. These reduced fuel loads will reduce the intensity of radiant heat onto the buildings, thereby increasing their survivability. This will also be important for firefighter and occupant’s safety during fire suppression activities.

Asset Protection Zone (APZ) – This is to be established, within a subject lot’s boundary such that a building will not be subject to a BAL rating greater than BAL-29. On a lot size where it is possible to achieve, it is to be a minimum width of 20 metres and increased when directed to the width required such that a building will not be subject to a BAL rating greater than BAL-29.

The APZ must be maintained as either a non-vegetated area or as low threat vegetation managed in a minimal fuel condition as per AS 3959-2009 s2.2.3.2 (e) and (f). A minimal fuel condition is stated in the standard as meaning “there is insufficient fuel available to significantly increase the severity of the bushfire attack” and being “recognisable as short cropped grass for example to a nominal height of 100mm.”

Refer to Appendix 3 and Appendix 4 for specific technical requirements.

Establishing the APZ

An Asset Protection Zone (APZ) creating a low fuel area will be required to be incorporated into the landscaping surrounding current and any future buildings on the proposed lots.

During the subdivision construction groundworks, vegetation will be removed from the development site. If any area of existing vegetation is retained, it must be modified to the extent that it can be

excluded from classification and maintained in a minimal fuel condition (refer to Appendix 3) and meet the specifications of an Asset Protection Zone (APZ).

If certain areas of existing vegetation, within the required separation distance, are to be retained, then the vegetation must be modified to the extent that it can be excluded from classification (refer to Appendix 3) and meet the specifications of an Asset Protection Zone (APZ) which are set out in Appendix 4.

Minimum Vegetation Separation Distances

To retain the stated BAL rating of BAL-29 or lower the separation distances from the classified vegetation to the indicative envelopes will need to be maintained to at least the minimum distances shown in Table 7.3.1.

This minimum separation distance from any classified vegetation, that corresponds to the indicative envelopes assessed BAL will be maintained as either a non-vegetated area or as low threat vegetation managed in a minimal fuel condition as per AS 3959-2009 s2.2.3.2 (e) and (f). A minimal fuel condition is stated in the standard as meaning “there is insufficient fuel available to significantly increase the severity of the bushfire attack” and being “recognisable as short cropped grass for example to a nominal height of 100mm.” Refer to Appendix 3 of this Plan for further detail.

It is also recognised that the local government issues an annual firebreak notice under s33 of the Bush Fires Act 1954 and this will be complied with.

Table 7.3.1: Ongoing maintenance of the separation area from any future building works to the classified vegetation (refer to Figure 5.1 for vegetation area details)

The Minimum Separation Distance Required to Retain the Indicative BAL Rating						
Vegetation	1	2	3	4	5	6
Proposed Lots with Indicative BAL of BAL-29 or Lower						
Minimum Separation	33	17	8	-	21	17

Note that the classified vegetation associated with the BAL ratings indicated in Table 7.3.1, is primarily vegetation that is offsite (i.e. outside a subject lot). This offsite vegetation has been assessed as it would exist in its mature and unmanaged state. It is a bushfire threat that the owner of the subject land (of this Proposal) has no control over but the level of bushfire threat will not increase above that assessed in this Plan.

7.4 Vehicular Access – Element 3 of the Bushfire Protection Criteria

The intent of the ‘Vehicular Access’ element of the bushfire protection criteria is “to ensure that the vehicular access/egress servicing a subdivision/development is available and safe during a bushfire event”. The performance principle to be met is that “The internal layout, design and construction of public and private roads must allow emergency and other vehicles to move through the subdivision/development easily and safely at all times”.

The required outcome is that in the event of a bushfire, personal safety must be able to be maintained when travelling on the access/egress route.

How this Proposal complies with the acceptable solutions for the vehicular access criterion and is stated in Section 7.1 ‘The Bushfire Protection Criteria – Assess and Demonstrate Compliance’. If additional information is required to further demonstrate compliance and/or present alternative solutions, this is presented below in this Section 7.4 ‘Vehicular Access’.

Vehicular Access - Acceptable Solution A3.1 - Two Access Routes

Wildwood Road and Seascape Rise will provide the subdivision with 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 development of an internal road network constructed to the minimum standards will provide all lots with suitable vehicle access/ egress to the public road network. Access to Wildwood Road will also be provided by multiple emergency access ways. An emergency access at northern end of Proposed Lot 1 provides access to Wildbrook place. Access to Wildwood Road via Dell Retreat & Butterfly Road will also be provided by an emergency access way at the eastern end of Proposed Lot 14.

Access to Wildwood Road will also be provided by a temporary emergency access way at the southern end of Proposed Lot 12 at a distance of approximately 300 metres and it is considered that this route has an associated low bushfire risk. The long-term intent will be to establish a through road to the east into a neighbouring subdivision (eliminating the requirement for the cul-de-sac and temporary EAW). The adjoining owner of Lot 2656 has prepared a draft structure plan and bushfire management plan (see appendix 8) following early consultation with the City of Busselton. This structure plan is due to be submitted formally for approval and shows a through road connection through to the subject land (Lot 115) in the position as generally shown on the structure plan. The precise position of this connection will be ratified between the owners at the subdivision plan stage, but for now (at this higher-level planning stage), it is demonstrated that the road connection is planned and will be built in the near future.

7.5 Firefighting Water Supply

The intent is to ensure water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire. This intent may be achieved where the subdivision, development or land use is provided with a permanent and secure supply that is sufficient for firefighting purposes.

A reticulated water supply is not currently available to the site. 50,000 litre water tanks for firefighting purposes will be provided for every 25 lots and comply with the technical requirements. A proposed location of the 50,000-litre strategic water tank is shown in Figure 3.2. Proposed Lots 1-29 as a minimum will require 10,000 litres of storage water per Lot, fitted with standard couplings for firefighting purposes and will be readily accessible and provide adequate water supply to fire services. A hardstand and turn around area suitable for a 3.4 fire appliance is required at the tank.

The required water tanks, couplings and access will be installed as per the technical requirements detailed in Appendix 6.

7.6 Building Construction Standards

7.6.1 Future Habitable Buildings on the Subject Site

Building Classes 1, 2, 3 and 10a

The Building Code of Australia (BCA) contains bushfire construction requirements that are applied to residential buildings of Class 1, 2 or 3 and associated Class 10a buildings and decks. These are required by the BCA to be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the potential for ignition caused by burning embers, radiant heat or flame generated by a bushfire, and the intensity of the bushfire attack on the building - as quantified by the BAL rating for the development site.

The BCA references *AS3959-2009 Construction of buildings in bushfire prone areas* or the *(NASH) Standard – Steel Framed Construction in Bushfire Prone Areas* (for Class 1a and 1b buildings only)

as deemed to satisfy solutions that provide one way of complying with the Building Code's bushfire performance requirements.

Bushfire Prone Planning Recommendation - When the subject site is in a designated bushfire prone area and the determined BAL is BAL-LOW, AS3959-2009 does not provide any specific construction requirements. However, Bushfire Prone Planning considers a building in this situation to still be at some risk of an ember attack. To improve the protection for occupants as well as the building itself, we recommend that consideration be given to constructing the proposed building works to the standard corresponding to BAL-12.5.

This Plan has provided achievable (or indicative) BAL's rather than determined BAL's because any future building works actual location is unknown. Once actual building locations have been determined confirmation or reassessment of the BAL may be required prior to the construction of any buildings.

7.6.2 Existing Habitable Buildings on the Subject Site

Building Classes 1, 2, 3 and 10a

Class 1, 2 and 3 buildings and Class 10a associated buildings and decks, constructed prior to the requirement to comply with bushfire performance requirements, do not need to meet these requirements. The *Guidelines for Planning in Bushfire Prone Areas (WAPC v1.1 2017)* state, "The policy measures of SPP 3.7 and these Guidelines are not to be applied retrospectively"

Bushfire Prone Planning Recommendation - As the existing buildings exist in a bushfire prone area and may be subject to a bushfire attack, Bushfire Prone Planning recommends that some degree of upgrading be considered to improve the protection for occupants and the building's survivability. At a minimum protection from ember attack should be considered (i.e. constructed to the standard required for BAL-12.5).

Certain existing buildings were identified in Section 5.2.1 'Existing Buildings on Subject Site – BAL Ratings' as having indicative BAL ratings of BAL-29. To lower the potential exposure of these buildings to the effects of flames, radiant heat and embers, the separation distance between the existing building works and the relevant classified vegetation can be increased. This can be achieved with the appropriate amount of onsite vegetation removal (if possible). The recommended BAL is BAL-29 as this is achievable and appropriate. The required separation distances of building from classified vegetation are set out in Table 7.6.2. Note that local government approval is likely to be required prior to removal of any significant native vegetation.

Table 7.6.2: Existing buildings on site – minimum separation distance to achieve the stated BAL rating.

All Existing Buildings	Classified Vegetation Area					
	1	2	3	4	5	6
Recommended BAL	BAL-29					
Minimum required separation distance (m)	33	17	8	-	21	17

Important:

1. A conditional BAL lower than BAL-29 will not be given if it requires the removal of native vegetation which would require the approval of the local government.
2. The area of land representing the above minimum separation distance must be maintained as either a non-vegetated area or as low threat vegetation managed to a minimal fuel condition (i.e. insufficient fuel available to significantly increase the severity of the bushfire attack e.g. short cropped grass to nominal height of 100mm) as per AS 3959-2009 s2.2.3.2. Refer to Appendix 3.

It is the responsibility of the landowner to maintain the bushfire protection measures on their property. This includes the vegetation separation distance, the asset protection zone and hazard separation zone (for specifications refer to Appendix 4) and compliance with the local government's annual firebreak notice issued under s33 of the Bush Fires Act 1954.

8 Compliance Statements - of the Proposal and this Plan

This section of the Plan makes statements with respect to the Proposal's compliance against the components of the WA framework for bushfire risk management. It also states how the content of this BMP satisfies the requirements of SPP 3.7.

The key components of the WA framework for bushfire risk management are summarised in Appendix 1.

8.1 State Planning Policy No. 3.7: Planning in Bushfire Prone Areas

SPP 3.7 Policy Objectives - Proposal Compliance Statement		The Proposal Meets Objectives
s5.1	Avoid any increase in the threat of bushfire to people property and infrastructure	Yes
Implementation of the bushfire risk management measures as set out in this Plan, including meeting the requirements of the bushfire protection criteria; will avoid any increase in the threat of bushfire.		
s5.2	Identify and consider bushfire risks in decision-making at all stages of the planning and development process (to reduce vulnerability to bushfire).	Yes
The bushfire risks have been identified and assessed, as relevant for the stage of this planning submission, using the tools prescribed in <i>SPP 3.7</i> (and the associated document <i>Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017</i>). Refer to Section 5 'Assessment of Bushfire Risk'.		
s5.3	Ensure that all stages of planning submissions take into account bushfire protection requirements and include specified bushfire protection methods.	Yes
The bushfire protection requirements and any specified protection methods, relevant for the stage of this planning submission, have been taken into account and presented in Section 7 'Bushfire Risk Management Measures'.		
s5.4	Achieve an appropriate balance between bushfire risk management measures; biodiversity conservation values; environmental protection and biodiversity management; and landscape amenity, with consideration of climate change.	Yes
The components of this objective have been considered along with the requirements set out in the 'Guidelines' s2.3. Identifying and addressing issues relevant for the stage of this planning submission is presented in this Plan in Section 6 'Environmental Considerations'.		

SPP 3.7 Policy Measures – BMP Compliance Statement		This BMP is Compliant
s6.1	Higher order strategic planning documents in bushfire prone areas	Yes
The requirements stated in SPP 3.7 s6.3 include provision of high level consideration of relevant bushfire hazards when identifying or investigating land for future development.		
s6.2	Strategic planning proposals, subdivision and development applications	Yes
Plans relating to land that has or will have a BHL above low and/or where a BAL rating above BAL-Low apply, are to comply with these policy measures. If the proposal has or will on completion have a moderate BHL and/or where BAL-12.5 to BAL-29 applies, it may be considered for approval when the required information is provided and it can be undertaken in accordance with policy measures 6.3, 6.4 or 6.5.		
s6.3	Information to accompany strategic planning proposals	N/A
s6.4	Information to accompany subdivision applications	Yes
The requirements stated in SPP 3.7 s6.4 include provision of a BAL contour map; (or a BAL assessment if appropriate); identify issues arising from the contour map (or BAL assessment) and an assessment against the bushfire protection criteria. Refer to Section 5 of this Plan.		
s6.5	Information to accompany development applications	N/A
s6.6	Vulnerable or high risk land uses (subdivision and development applications).	N/A

SPP 3.7 Policy Measures – BMP Compliance Statement		This BMP is Compliant
s6.7	Strategic planning proposals, subdivision or development applications in areas where an extreme BHL and/or BAL-40 or BAL-FZ applies	N/A
s6.8	Advice of State/relevant authority/s for emergency services to be sought	N/A
s6.9	Advice of State/relevant agencies/authorities for environmental protection to be sought	Yes

SPP 3.7 Policy Measures – BMP Compliance Statement		This BMP is Compliant
<p>For all stages of planning proposals, advice from relevant authorities has been sought, considered and is referenced in Section 7 of this Plan where:</p> <ul style="list-style-type: none"> • The clearing of vegetation within protected environmentally sensitive areas is proposed • Substantial clearing of native vegetation is proposed • Development abuts land managed by a State or Federal authority 		
s6.10	Bushfire conditions may be imposed by the decision maker (detailed requirements including modifications and/or conditions)	Yes
<p>WAPC and/or the local government may, as a condition of approval, require that a notification be placed on certificates of title and notice of the notification on the deposited plan advising that the lots are in a designated bushfire prone area and subject to a Bushfire Management Plan. This is noted in Section 9 'Responsibilities for Implementation and Maintenance'.</p>		

8.2 Guidelines for Planning in Bushfire Prone Areas (WAPC v1.1 2017)

The 'Guidelines' are designed to assist in the interpretation of SPP3.7's objectives and policy measures. As such they have been referenced and complied with in compiling this Bushfire Management Plan which is to accompany the planning submission. This Plan contains, as a minimum, the information required as per the 'Guidelines' checklist.

8.3 Bushfire Protection Criteria (WAPC v1.1 2017 'Guidelines')

The proposed land use has been assessed against the bushfire protection criteria. The assessment of the bushfire risk management measures (i.e. those relevant to each element) and the demonstration of how the proposal meets the criteria are presented in Section 7.1 of this Plan - 'Bushfire Protection Criteria - Assess and Demonstrate Compliance'.

Where the proposal has not been able to fully meet an acceptable solution for a given element or an alternative solution is proposed, then the appropriate sub section of Section 7 'Bushfire Risk Management Measures', demonstrates how the Proposal will comply with the performance principle and the intent of that element. Any required advice and recommendations from DFES and other referral authorities will be included.

8.4 WA Building Act 2011

Relevant regulations associated with the Act are the *Building Regulations 2012* and the *Building Amendment Regulations (No 3) 2015*. The legislation adopts the Building Code of Australia as the minimum technical requirement for the design and construction of buildings and certain other structures in WA and prescribes applicable building standards for certain classes of buildings located in areas designated by the Fire and Emergency Services Commissioner as bushfire prone areas (identified on the Map of Bushfire Prone Areas).

Is this land use proposal at a planning stage at which lot layout is known and construction of buildings (any class) is being proposed?	No
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If the response is 'No', then this Proposal is at a planning stage where specific compliance with the Building Act 2011 is not required – rather it will apply at future planning stages. However, if a BAL Contour Map and/or BAL assessment has been provided as part of this Plan, they can apply and may be able to be used for any future planning application (at the applicable planning stage involving construction of buildings).

If the response is 'Yes', then one of the situations below will apply to this proposal.

The Nature of this Land Use Proposal	Applicable
A proposal for a single house or ancillary dwelling (Class 1); or a specified building located in a bushfire prone area on a lot less than 1100m ² or on a lot equal to or greater than 1100m ² but subject to a BAL of BAL-29 or less, does not need to lodge a development application (but will require a building permit application). However, the relevant local government can additionally require that a development application is submitted for planning approval. Bushfire construction requirements will apply in both cases.	N/A
A proposal for a single house or ancillary dwelling (i.e. Class 1); or a specified building located in a bushfire prone area on a lot equal to or greater than 1100m ² but subject to BAL-40 or BAL-FZ must lodge a development application and bushfire construction requirements will apply.	N/A
A proposal, regardless of lot size, for a habitable building other than a single house or ancillary dwelling (i.e. Class 2 or 3 residential or accommodation buildings); or a specified building, located in a bushfire prone area, must lodge a development application and bushfire construction requirements will apply.	N/A
A proposal, regardless of lot size, for mixed use, commercial, industrial buildings or public facilities (i.e. Class 4-9 buildings), located in a bushfire prone area, and must lodge a development application. Bushfire construction requirements will not apply (unless the local government additionally requires them to apply).	N/A

This Proposal is for a planning stage that does not yet require compliance with the *WA Building Act 2011*. However, the obligation for future buildings to be constructed to the standard corresponding to the determined bushfire attack levels is noted in Section 9 of this Plan 'Responsibilities for Implementation and Maintenance'.

8.5 AS 3959 Construction of Buildings in Bushfire Prone Areas (2009 as amended)

This Proposal complies with the methodology set out in AS 3959 to classify vegetation that is a bushfire threat and to calculate the bushfire attack levels presented as a BAL Contour Map and/or a BAL assessment in Section 5 of this Plan 'Assessment of Bushfire Risk'.

For the construction of any Class 1, 2, 3 buildings and associated Class 10a buildings and decks, this land use proposal will comply with the construction requirements, set out in AS 3959, that correspond to the determined bushfire attack level/s for the subject site. This obligation is stated in Section 9 of this Plan 'Responsibilities for Implementation and Maintenance'.

8.6 Local Government Firebreak Notice

This Proposal complies with the requirements of the relevant local government notice by stating the landowner's obligations in Section 9 of this Plan 'Responsibilities for Implementation and Maintenance.' Additionally, the obligation is noted in Section 7.3 'Vegetation Management'.

8.7 Other Applicable Local Government Documents

This Plan provides the required information such that this Proposal can comply with the requirements of:

- The Local Planning Scheme provisions with respect to bushfire risk management
- Local planning strategy provisions
- Applicable structure plans
- Special control area provisions
- Previous planning approvals
- Any existing Bushfire Management Plan, Bushfire Hazard Level assessment or BAL assessment prepared over the site
- Relevant landscaping plans applicable to the subject site
- Environmental reports / constraints

9 Responsibilities for Implementation & Maintenance

This section sets out the responsibilities of landowners/proponents (including future landowners), builders and local government in relation to the implementation and maintenance of the requirements of SPP 3.7 and the 'Guidelines'.

9.1 Landowner / Proponent Responsibilities (and those acting on their behalf)

Implementation

- Ensure anyone listed as having responsibility under the Plan has endorsed it and is provided with a copy for their information. This includes the landowners/proponents, local government and any other authorities or referral agencies ('Guidelines' s4.6.3).
- To confirm the indicative BAL ratings identified on the BAL Contour Map are still accurate after subdivision works have been completed, a compliance certificate or report will be required to be submitted before titles can be issued ('Guidelines' s5.3.2).
- Construction of public roads and cul-de-sacs must comply with the standards (Appendix 5 'Vehicular Access').
- Construction of emergency access ways, associated signs and gates must comply with the standards (Appendix 5 'Vehicular Access').
- Construction of private driveways and battle axes must comply with the standards (Appendix 5 'Vehicular Access').
- For a non-reticulated water supply, ensure that the emergency water supply structure for firefighting purposes (tanks, couplings and access) is constructed to comply with the standards (s7.5 'Fire Fighting Water Supply' and Appendix 6 'Water') or to the standard set out by the relevant local government.
- A procedure must be in place to ensure that the emergency water supply tanks are maintained at or above designated capacity, including home tanks on single lots, at all times ('Guidelines Appendix 4 'Bushfire Protection Criteria').
- Implement the low fuel Asset Protection Zone (APZ) as per s7.3 'Vegetation Management' and Appendix 4 'APZ'.

- Before any of the subject lots are sold, each individual lot is to be compliant with the local government's annual firebreak notice (referenced in this Plan s7.3 'Vegetation Management' and Appendix 4 'APZ')
- Ensure all future buildings the landowner/proponent has responsibility for, are designed and constructed in full compliance with the requirements of the WA Building Act 2011 and the referenced Building Code of Australia (BCA), and with any identified additional requirements of the relevant local government. This should include due consideration of constructing any Class 4-9 buildings to the standard corresponding to their determined BAL even though not required by the BCA.

For any Class 1, 2, or 3 buildings and associated Class 10a buildings or decks this will include compliance with AS 3959-2009 *Construction of Buildings in Bushfire Prone Areas* (2009 as amended) and/or the National Association of Steel Housing – (NASH) *Standard – Steel Framed Construction in Bushfire Prone Areas*, whereby construction standards corresponding to the assessed BAL will be applied (Appendix 2 'Bushfire Risk Assessment – Methodology Explained').

Deposited Plan and Certificate of Title – Potential Obligation

The WAPC may condition a subdivision application approval with a requirement for the landowner / proponent to place a notification onto the certificate(s) of title and a notice of the notification onto the diagram or plan of survey (deposited plan). This will be done pursuant to Section 165 of the Planning and Development Act 2005 ('Hazard etc. affecting land, notating titles as to:') and applies to lots with a determined BAL rating of BAL-12.5 or above.

The notification will be required to state: 'This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land'.

This condition ensures that:

1. Landowners/proponents are aware their lot is in a designated bushfire prone area and of their obligations to apply the stated bushfire risk management measures; and
2. Ensures that potential purchasers are alerted to the Bushfire Management Plan so that future landowners/proponents can continue to apply the bushfire risk management measures that have been established in the Plan.

Maintaining Compliance

- Current and future landowners/proponents must continue to apply the bushfire management measures set out in this Plan. They must inform any builders (of future structures on a Lot) of the existence of the Plan and the responsibilities it contains.
- The landowner/proponent is responsible for the ongoing review and implementation of the Bushfire Management Plan to ensure that the bushfire risk management measures remain effective. Bushfire plans do not expire and should be seen as a 'living document'. They may require updating in certain circumstances, including (but not limited to) if site conditions change, if further details are required at subsequent stages of the planning process or to reflect new technologies or methodologies in best practice bushfire risk management ('Guidelines' s4.6.4 and s4.6.5).
- Respond to and comply with fire protection or hazard management notices issued by the local government. This includes compliance with the City of Busselton Firebreak Notice (the current requirements can be found on the City of Busselton website), issued under s33 of the Bush Fires Act 1954 as directed by the 'Guidelines' s6.1 and referenced in this Plan s7.3 'Vegetation Management', s10.7 'Local Government Firebreak Notice' and Appendix 4 'APZ'.
- Maintain the low fuel Asset Protection Zone (APZ) within the Lot boundary as per s7.2 'Vegetation Management' and Appendix 4 'APZ'
- The stated minimum separation distance from any classified vegetation, that corresponds to a particular lot's assessed BAL, must be maintained as either a non-vegetated area or as low threat vegetation managed in a minimal fuel condition as per AS 3959-2009 s2.2.3.2 (e) and (f). A minimal fuel condition is stated in the standard as meaning "there is insufficient fuel available to significantly increase the severity of the bushfire attack" and being "recognisable as short cropped grass for example to a nominal height of 100mm." Refer to Appendix 3 of this Plan for further detail.
- Where any existing or planned re-vegetation has been assessed as "low threat" (meeting AS 3959-2009 Section 2.2.3.2 requirements) and excluded from classification then this area will be managed to continue to meet those requirements and enable the buildings to retain their determined BAL ratings.
- Any classified vegetation that has directly contributed to the determined BAL rating for a given Lot or building, must be managed such as to not change that vegetation to a higher risk classification.
- The landowner/occupier has responsibility for the emergency water supply tank on a single lot for the purposes of firefighting. They must ensure that the tank is maintained in good condition and has the specified couplings. A procedure must be in place to ensure that water tanks are maintained at or above designated capacity at all times (refer to s7.5 'Fire Fighting Water Supplies' and Appendix 6 'Water')

- For the emergency water supply tank/s that have been installed to service multiple lots, be aware of the arrangement that is in place regarding who has the responsibility for maintaining the emergency water supply tank at or above designated capacity at all times. This could be in the form of an agreement with the local government and the fire service. Check that this is being complied with (refer to s7.5 'Fire Fighting Water Supplies' and Appendix 6 'Water').

9.2 Builder Responsibilities

The builder (generally named on the building permit) is responsible for ensuring that the building or incidental structure to which a building permit applies is, on completion, compliant with the Building Code of Australia (BCA).

For Classes 1a, 1b, 2, 3 and associated 10a buildings or decks located in a designated bushfire prone area, compliance with the BCA requires that these buildings are constructed to the requirements corresponding to their bushfire attack level rating.

The construction standards for Class 1a and 1b buildings are contained in:

- *AS 3959 - 2009 Construction of buildings in bushfire prone areas; or*
- *National Association of Steel Housing – (NASH) Standard – Steel Framed Construction in Bushfire Prone Areas.*

The construction standards for Classes 2, 3 and associated 10a buildings or decks are contained in:

- *AS 3959 - 2009 Construction of buildings in bushfire prone areas.*

The building/s must also comply with any additional local government requirements.

9.3 Local Government Responsibilities

Implementation

- Provide advice where the clearing of locally significant vegetation is proposed.
- Register this Bushfire Management Plan and keep a record of the sites referred to for the purpose of identify servicing and infrastructure gaps. ('Guidelines' s4.6.4).
- Refer proposals that have significant environmental implications to the Environmental Protection Authority; and proposals abutting Department of Parks and Wildlife (DPAW) managed land to DPAW; and proposals abutting waterways or which have other water resource implications to the Department of Water.

Maintaining Compliance

- Develop and maintain district bushfire fighting services and facilities.
- Monitor landowner compliance with the annual firebreak notice issued under s33 of the Bush Fires Act 1954.
- For firefighting water tanks and associated facilities vested in the relevant local government a procedure must be in place to ensure that water tanks are maintained in good operational condition and at or above designated capacity at all times. This could be in the form of an agreement with the fire service ('Guidelines' Appendix 4, this Plan s7.5 'Fire Fighting Water Supply').

On land vested in their control, the local government must give due consideration to future actions, that have the potential of changing the BAL ratings an existing habitable building (or existing BAL assessed development site) will be subject to. These actions include:

- 1. Any planned revegetation of an area; and/or*
- 2. The reduction of any vegetation management over an area that has in the past and is currently, actively managed to a minimal fuel condition and it would be a most reasonable expectation that it would continue to be managed this way.*

Specifically, the local government should:

- 1. In revegetating an area/s, give due consideration to how it would be assessed from a bushfire perspective (as per AS 3959-2009). The intent must be to not increase the current BAL rating of an existing neighbouring habitable building (or assessed development site). Important considerations include awareness of existing classifiable vegetation in the area, the new plant species proposed to be used and the landscaping design.*
- 2. Continue to manage vegetation areas to a minimum fuel condition if, in aa existing Bushfire Attack Level assessment, they have been assessed as low threat vegetation. But only if:*
 - a. The vegetation area has been correctly excluded from classification as per AS 3959-2009 s2.2.3.2 (f); and*
 - b. If the vegetation area was to be no longer managed, this would result in the neighbouring existing habitable building (or assessed development site) being subject to a higher BAL rating.*

10 Appendices – Advisory Information Only

Appendix 1

The WA Framework for Bushfire Risk Management

This section of the Bushfire Management Plan sets out the applicable legislation, regulations, policies, guidelines, documents, and associated bushfire risk assessments that a Bushfire Management Plan will need to reference and where applicable, comply with. Statements of compliance against these requirements, as required by the 'Guidelines', are presented in Section 8 of this Plan.

The state government of WA has committed to addressing bushfire through the implementation of a risk-based system of land-use planning and development that aims to reduce the risk of bushfire. The legislative means of facilitating this is through the **Planning and Development Act 2005** and its interaction with the **Fire and Emergency Services Act 1998** and the **Building Act 2011**.

Planning and Development (Local Planning Schemes) Amendment Regulations 2015

These regulations are given effect under the **Planning and Development Act 2005**. The *Planning and Development (Local Planning Schemes) Regulations 2015* are amended to introduce 'Schedule 2 Part 10A 'Bushfire Risk Management' which establishes the *deemed provisions relating to bushfire risk management*.

"The deemed provisions relating to bushfire risk management work with the State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7) and Guidelines for Planning in Bushfire Prone Areas (Guidelines); Map of Bushfire Prone Areas; Building Regulations 2012 and Building Code of Australia to guide planning and development proposals in bushfire prone areas to ensure bushfire risk is properly managed.

The deemed provisions provide a mechanism to require a development approval, and through this the application of SPP 3.7 and the Guidelines, to development on sites where BAL-40 or BAL-Flame Zone (FZ) applies. SPP 3.7 sets out the planning hierarchy and the information required at each stage of the planning process whilst the Guidelines provide information on how SPP 3.7 should be implemented" (source: WAPC Planning Bulletin 111/2015 Planning in Bushfire Prone Areas).

The **deemed bushfire provisions**:

- Only apply to development that is proposed on a site in a designated bushfire prone area.
- Override any existing local planning scheme provisions relating to bushfire, including any inconsistent provisions, apart from special control areas.
- Are in addition to any provisions relating to development in a bushfire prone area that apply to a special control area.
- Can be supplemented by a local planning scheme (by implementing a special control area) but not varied or exempted.

- Are applied and work through the following legislation, regulations, policies, guidelines, and documents – each of which this Bushfire Management Plan will address.

Map of Bushfire Prone Areas

The Map of Bushfire Prone Areas identifies land that has been designated as being bushfire prone by the Fire and Emergency Services Commissioner under the *Fire and Emergency Services (Bushfire Prone Areas) Order 2015* as part of the ***Fire and Emergency Services Act 1998***.

Designation as a bushfire prone area (highlighted as pink on the map) reflects the potential of bushfire to affect that site. It acts as a mechanism for initiating further assessment in the planning and building process. This can involve bushfire risk assessment and management measures being required in planning submissions and activation of the bushfire construction requirements of the Building Code of Australia.

State Planning Policy No. 3.7: Planning in Bushfire Prone Areas (SPP 3.7)

This policy is made under the ***Planning and Development Act 2005*** and provides the foundation for land use planning to address bushfire risk management in Western Australia.

SPP 3.7 applies to every stage of the planning process (i.e. all higher order strategic planning documents; strategic planning proposals; subdivision and development applications) in designated bushfire prone areas. It also applies to an area not yet designated as bushfire prone but is proposed to be developed in a way that introduces a bushfire hazard (*Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017 s3.2.2*).

The objectives of this policy are to:

- Ensure that all stages of land use planning (higher order strategic planning documents; strategic planning proposals; subdivision and development applications) identify and consider bushfire risk and apply specified bushfire protection measures; and
- To have an outcome that will avoid any increase in the threat of bushfire to people, property and infrastructure, preserve life and achieve an appropriate balance between bushfire risk management measures and all environmental conservation aspects.

Policy measures to achieve the objectives are defined and:

- They vary according to the type and scale of the planning proposal and stage of the development process;
- They set out the information to be prepared for each type of proposal; and
- They refer to the *Guidelines for Planning in Bushfire Prone Areas (WAPC v1.1 2017)* as supporting this policy and providing the procedural detail for assessment and presentation of the required information.

Guidelines for Planning in Bushfire Prone Areas (WAPC v1.1 2017)

These Guidelines are designed to supplement and assist in the interpretation of SPP3.7's objectives and policy measures. They provide advice on how bushfire risk is to be addressed when planning, designing or assessing a planning proposal.

As an endorsed standard (by the Office of Bushfire Risk Management), these Guidelines, in conjunction with SPP 3.7, are the predominant documents in the State for use by decision making authorities and referral agencies, during the consideration of strategic planning proposals, subdivisions and development applications.

The Guidelines set out the interrelationships between, and requirements for, various assessment tools used to assess risk in the planning context, as prescribed by SPP 3.7. These include:

- A Bushfire Hazard Level assessment;
- A Bushfire Attack Level (BAL) Contour Map;
- A Bushfire Attack Level (BAL) assessment;
- The Bushfire Protection Criteria; and
- A Bushfire Management Plan

The 'Guidelines' reference the Bushfire Attack Level descriptions and assessment methodologies that are defined in AS 3959.

Bushfire Protection Criteria

The bushfire protection criteria (set out in the 'Guidelines Appendix 4) are a performance based system of assessing bushfire risk management measures. An assessment against the criteria is to be undertaken for any strategic planning proposal, subdivision and development application for a site that has or will on completion, have a bushfire hazard level above 'Low or a BAL rating above BAL-LOW.

The protection criteria consist of four elements: Location; Siting and Design of Development; Vehicular Access; and Water.

Each element has three components: Intent; Acceptable Solutions; and a Performance Principle. How to apply the Criteria is set out in the 'Guidelines' s4.5.2.

Local Variations to Bushfire Protection Criteria

Local governments may seek to add or to modify the acceptable solutions to recognise special local or regional circumstances (e.g. topography / vegetation / climate which reinforce the intent of a particular bushfire protection element and apply across a defined locality.

These endorsed (by WAPC and DFES) variations will be in the form of a local planning scheme amendment /provision or special control area. Currently they may be in the form of a local planning policy.

WA Building Regulations 2012

These regulations exist under the **WA Building Act 2011** and adopt the **Building Code of Australia** as the minimum technical requirements for the design and construction of buildings and certain other structures in WA.

Most development in WA requires a building permit before construction can commence. This process typically occurs after the planning process.

The Regulations include the **Building Amendment Regulations (No.3) 2015** that prescribe applicable building standards for buildings located in areas designated by the Fire and Emergency Services Commissioner as bushfire prone areas (identified on the Map of Bushfire Prone Areas).

Building Code of Australia (BCA)

The BCA provides minimum technical requirements for the construction of buildings. These are presented as Volumes One and Two of the National Construction Code series.

The BCA requires an assessment of the potential intensity of bushfire attack for specific classes of residential buildings located in designated bushfire prone areas (Classes 1a, 1b, 2, 3 and associated 10a buildings or decks).

The BCA requires that these buildings are constructed to the requirements corresponding to their bushfire attack level rating.

Compliance with BCA bushfire requirements for Class 1a and 1b buildings in designated bushfire prone areas can be demonstrated by compliance with:

- a. Australian Standard *AS 3959 Construction of buildings in bushfire prone areas*; or
- b. National Association of Steel Housing – (NASH) *Standard – Steel Framed Construction in Bushfire Prone Areas*.

Compliance with BCA bushfire requirements for Classes 2, 3 and associated 10a buildings or decks in designated bushfire prone areas can be demonstrated by compliance with:

- a. Australian Standard *AS 3959 Construction of buildings in bushfire prone areas*.

AS 3959 Construction of Buildings in Bushfire Prone Areas (2009 as amended)

The objective of this Standard is to prescribe construction details for buildings to reduce the risk of ignition from a bushfire, appropriate to the:

- a) Potential for ignition caused by embers, radiant heat or flame generated by a bushfire; and
- b) Intensity of the bushfire attack on the building.

To achieve this, the Standard defines six categories of Bushfire Attack Level (BAL), details their assessment methodology and specifies constructions standards corresponding to each.

Western Australia Bush Fires Act 1954 (as amended)

‘An Act to make better provision for diminishing the dangers resulting from bush fires, for the prevention, control and extinguishment of bush fires’. Matters addressed in the Act include prohibited burning times, total fire bans, bushfire control and extinguishment

The Act sets out the authority given to local government which enables them to:

- Control and extinguish bushfires
- Establish and maintain Bushfire Brigades
- Require landowners and/or occupiers to install and maintain firebreaks to their required specifications
- Require landowners and/or occupiers manage bushfire fuel loads upon the land to their required specifications

The applicable document is the annually issued **Firebreak Notice** published by the relevant local government that sets out the obligations for landowners and/or occupiers.

Other Applicable Local Government Documents

These may include:

- Local planning scheme provisions.
- Local planning strategy references to bushfire risk management.
- Local planning strategy references to environment.
- Applicable structure plans
- Special control area provisions
- Previous planning approvals

Other Documents

These may include:

- Any existing Bushfire Management Plan, Bushfire Hazard Level assessment or BAL assessment prepared over the site.
- Relevant landscaping plans applicable to the subject site.

Appendix 2

Bushfire Risk Assessment – Understanding the Methodology

In SPP 3.7 ‘bushfire risk’ is defined as “the chance of a bushfire igniting, spreading and causing damage to people, property and infrastructure.”

“Before a strategic planning proposal, subdivision or development application can be considered, it is necessary to understand the extent of the bushfire hazard and its potential to affect people, property and infrastructure. An assessment of bushfire risk is a key component of deciding whether a strategic planning proposal, subdivision or development application should be approved in an area with a potential bushfire threat (from the ‘Guidelines’).”

Policy measures in *SPP 3.7* (and the associated document *Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017*) prescribe the various assessment tools to be used to assess bushfire risk in the planning context. These are:

- Bushfire Hazard Level assessment;
- Bushfire Attack Level (BAL) Contour Map;
- Bushfire Attack Level (BAL) assessment;
- Bushfire protection criteria; and
- Bushfire Management Plan

The intent of this Appendix ‘Bushfire Risk Assessment – Understanding the Methodology’ is to provide an overview of the methodology used in assessing the Bushfire Hazard Level and the Bushfire Attack Level.

Bushfire Hazard Level Assessment Methodology

Used at a strategic planning level, this methodology rates bushfire hazards into three potential categories of low, moderate and extreme by considering the following characteristics:

- Vegetation types and areas
- Effective ground slope under the vegetation threat
- Existing land use on and around the area being assessed
- Prevailing climatic conditions when appropriate

These results are presented as a Bushfire Hazard Level Map.

Bushfire Attack Level Assessment Methodology

The Australian Standard AS 3959-2009 *Construction of Buildings in Bushfire Prone Areas* defines a Bushfire Attack Level (BAL) as:

“A means of measuring the severity of a building’s potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, and is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire.”

AS 3959-2009 defines six categories of Bushfire Attack Level (BAL) (AS 3959 Appendix G); provides the assessment methodology (AS 3959 s2 and Appendix B); and specifies constructions standards corresponding to each BAL (AS 3959 s3 Table 3.1). The BAL’s and corresponding descriptions of the predicted levels of exposure and heat flux exposure thresholds are contained in the table on the following page.

AS 3959-2009 provides two methods to calculate Bushfire Attack Levels:

1. Method 1 - a simplified procedure that involves five procedural steps to determine the BAL. It is subject to some limitations of the circumstances in which it can be used.
2. Method 2 - a detailed procedure using calculations to determine BALs where a more specific result is sought or site conditions are outside the scope of Method 1. In particular, the use of Method 2 is to apply if the effective slope under the classified vegetation is greater than 20° down slope (and no more than 30° down slope) and the slope of the land between the site and the classified vegetation is no more than 20° regardless of slope type.

Method 1 – Summarised Procedure

- Determination of the area to be assessed
- Determine predominant vegetation type(s) within 100 metres of the site and classify
- Determination of distance of the site, building or building envelop from the classified vegetation type(s)
- Determination of the effective slope under the classified vegetation type(s)
- Determination of BAL’s - Forest Fire Danger Index (FFDI) of 80 is used for WA

Separation Distance: *The distance from a subject site (or building) to a specific area of classified vegetation (i.e. the bushfire threat) is labelled in the tables of this Plan as a separation distance. This distance is measured to a point in the vegetation area represented by the “edge of the vegetation” as per AS 3959 -2009 s2.2.4 and the “base of the bushfire prone vegetation (not the canopy)” as per the BAL Assessment [Basic] Factsheet Version 1 December 2015 WAPC. The exact point of measurement is then decided by the assessor on the basis of the fuel structure and expected fire behaviour. If a precautionary approach is considered appropriate to a given situation the measurement will be taken at the canopy line.*

Bushfire Attack Level Definitions and Corresponding Sections Specifying Construction Requirements (Source: AS 3959-2009, Appendix G and Table 3.1)

Bushfire Attack Level (BAL)	Description of Predicted Bushfire Attack and Levels of Heat Flux Exposure	Construction Section of AS 3959
BAL - LOW	There is insufficient risk to warrant specific construction requirements but there is still some risk. There is risk of ember attack.	4
BAL - 12.5	The construction elements are expected to be exposed to a heat flux not greater than 12.5 kW/m ²	3 and 5
BAL - 19	There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 19 kW/m ²	3 and 6
BAL - 29	There is an increased risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to an increased level of radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 29 kW/m ²	3 and 7
BAL - 40	There is a much increased risk of ember attack and burning debris ignited by wind borne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux not greater than 40 kW/m ²	3 and 8
BAL - FZ	There is an extremely high risk of ember attack and burning debris ignited by wind borne embers, a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux greater than 40 kW/m ²	3 and 9



Appendix 3

Vegetation Classification Exclusions (AS 3959-2009 s2.2.3.2)

Certain vegetation can be excluded from being classified in which case the Bushfire Attack Level shall be rated as BAL-LOW and no bushfire specific construction requirements apply. Such vegetation is one or a combination of the following:

- a) Vegetation of any type that is more than 100m from the site.
- b) Single areas of vegetation less than 1ha in area and not within 100m of other areas of vegetation being classified.
- c) Multiple areas of vegetation less than 0.25ha in area and not within 20m of the site or each other.
- d) Strips of vegetation less than 20m in width regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified.
- e) Non-vegetated areas, including waterways, roads, footpaths, buildings, and rocky outcrops.
- f) Low threat vegetation, including grassland managed in a **minimal fuel condition** (i.e. insufficient fuel available to significantly increase the severity of a bushfire attack – recognisable as short cropped grass to a nominal height of 100mm for example), maintained lawns, golf courses, maintained public reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks.

Appendix 4

Asset Protection Zones (APZ) - Description, Establishment, Maintenance and Standards

Source: Guidelines for Planning in Bushfire Prone Areas (DoP/DFES v1.1 2017) Appendix 4 Element 2

Description: An APZ is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (by reducing fuel loads). The width of the required APZ varies with slope and vegetation. The APZ should at a minimum be of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29). It should be lot specific.

(For subdivision planning, hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot).

Defendable Space: The APZ includes a defendable space which is an area adjoining the asset within which firefighting operations can be undertaken to defend the structure. Vegetation within the defendable space should be kept at an absolute minimum and the area should be free from combustible items and obstructions. The width of the defendable space is dependent on the space which is available on the property, but as a minimum should be 3 metres.

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

Native Vegetation: APZ's can adversely affect the retention of native vegetation. Where the loss of vegetation is not acceptable or causes conflict with landscape or environmental objectives, such as waterway foreshore areas and wetland buffers, reducing lot yield may be necessary to minimise the removal and modification of remnant vegetation.

Responsibility: It is the responsibility of the landowner/proponent to maintain their APZ in accordance with Schedule 1 'Standards for Asset Protection Zones'. It is likely that this requirement is also contained in the firebreak notice issued by local government under s33 of the Bushfire Act 1954.

Regardless of whether an Asset Protection Zone exists in accordance with the acceptable solutions and is appropriately maintained, it should be noted that fire fighters are not obliged to protect an asset if they think the separation distance between the dwelling and vegetation is unsafe.

Standards for Asset Protection Zones

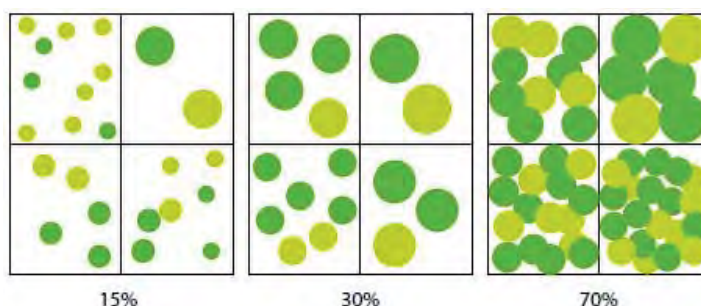
Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel Load: combustible dead vegetation matter less than 6 mm in thickness reduced to and maintained at an average of two tonnes per hectare. The visual guide below shows a fuel load that equates to approximately 2t/ha (source: Shire of Augusta Margaret River's Firebreak and Fuel Reduction Hazard Notice).



Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. Diagram below represents tree canopy cover at maturity.



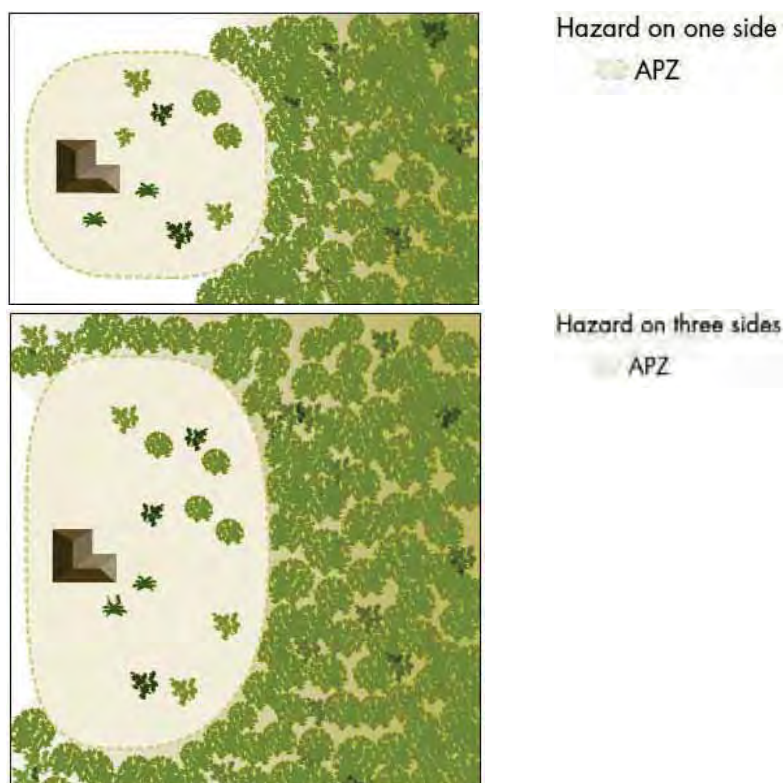
Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 mm in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: should be managed to maintain a height of 100 mm or less.

Note that individual local governments may increase the APZ standard compared to the standard stated above. These would be additional requirements and will be contained in their annual firebreak notice issued under s33 of the Bushfires Act 1954 and are to be complied with.

The example diagrams below illustrate how the required dimensions of the APZ will be determined by the type and location of the vegetation



Additional DFES Guidance

- a) Store firewood at least 20 metres away from the building.
- b) Keep gutters free of leaves and other combustible material.
- c) Roof mounted evaporative coolers to be fitted with ember screens.
- d) Gas cylinders to vent away from a building and be tethered to prevent falling over.
- e) Driveways and access ways must allow for safe passage of a fire appliance to all buildings on the land.
- f) Land owners/occupiers must maintain compliance with the local government's annual firebreak notice issued under s33 of the Bush Fires Act 1954.

Appendix 5

Technical Requirements - Bushfire Protection Criteria (Vehicular Access)

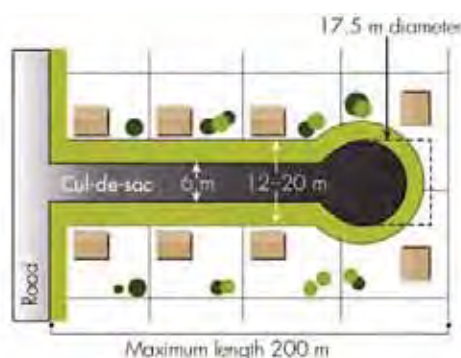
Vehicular Access – Technical Requirements of Acceptable Solutions - Part 1

Source: *Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017*

Acceptable Solution 3.3 Cul-de-sacs (including a dead-end road)

Their use in bushfire prone areas should be avoided. Where no alternative exists then the following requirements are to be achieved:

- Maximum length is 200m. If public emergency access is provided between cul-de-sac heads (as a right of way or public access easement in gross), the maximum length can be increased to 600m provided no more than 8 lots are serviced and the emergency access way is less than 600m in length;
- Turnaround area requirements, including a minimum 17.5m diameter head to allow type 3.4 fire appliances to turn around safely;
- The cul-de-sac connects to a public road that allows for travel in two directions; and
- Meet the additional design requirements set out in Part 2 of this appendix.



Acceptable Solution 3.4 Battle-axe

Their use in bushfire prone areas should be avoided. Where no alternative exists then the following requirements are to be achieved:

- Maximum length 600m and minimum width 6m; and
- Comply with minimum standards for private driveways.



Acceptable Solution 3.5 Private Driveways

The following requirements are to be achieved:

- The design requirements set out in Part 2 of this appendix; and

Where the house site is more than 50 metres from a public road:

- Passing bays every 200 metres with a minimum length of 20 metres and a minimum width of two metres (ie combined width of the passing bay and constructed private driveway to be a minimum six metres);
- Turn-around areas every 500 metres and within 50 metres of a house, designed to accommodate type 3.4 fire appliances to turn around safely (ie kerb to kerb 17.5 metres);
- Any bridges or culverts are able to support a minimum weight capacity of 15 tonnes; and
- All weather surface (i.e. compacted gravel, limestone or sealed).

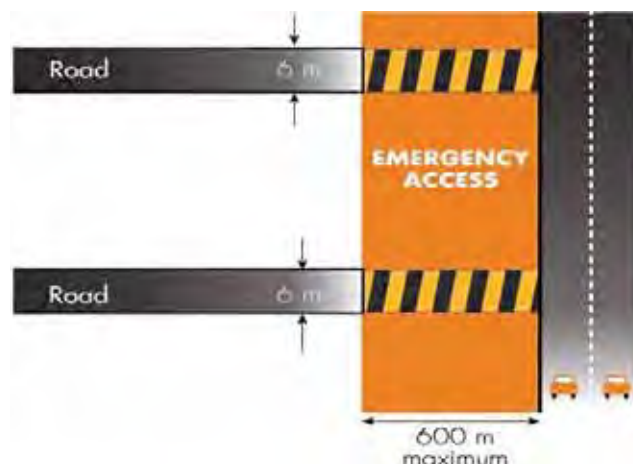


Acceptable Solution 3.6 Emergency Access Way

An access way that does not provide through access to a public road is to be avoided bushfire prone areas.

Where no alternative exists, an emergency access way is to be provided as an alternative link to a public road during emergencies. The following requirements are to be achieved:

- No further than 600 metres from a public road;
- Must be signposted including where they ajoin public roads;
- Provided as a right of way or public access easement in gross;
- Where gates are used they must not be locked and they must be a minimum width of 3.6 metres with design and construction approved by local government (refer to the example in this appendix); and
- Meet the additional design requirements set out in Part 2 of this appendix.



Acceptable Solution 3.7 Fire Service Access Routes (Perimeter Roads)

Are to be established to provide access within and around the edge of subdivision and related development and to provide direct access to bushfire prone areas for firefighters and link between public road networks for firefighting purposes. Fire service access is used during bushfire suppression activities but can also be used for fire prevention work. The following requirements are to be achieved:

- No further than 600 metres from a public road (driveways may be used as part of the designated fire service access;
- Dead end roads not permitted;
- Allow for two-way traffic (i.e. two 3.4 fire appliances);
- Provide turn-around areas designed to accommodate 3.4 fire appliances and to enable them to turn around safely every 500m (i.e. kerb to kerb 17.5 metres);
- All weather surface (i.e. compacted gravel, limestone or sealed) and have erosion control measures in place;
- Must be adequately sign posted;
- Where gates are used they must be a minimum width of 3.6 metres with design and construction approved by local government (refer to the example in this appendix) and may be locked (use a common key system);
- Meet the additional design requirements set out in Part 2 of this appendix;
- Provided as right of ways or public access easements in gross; and
- Management and access arrangements to be documented and in place.

A3.8 Firebreak Width

Lots greater than 0.5 hectares must have an internal perimeter firebreak of a minimum width of three meters or to the level as prescribed in the local firebreak notice issued by the local government.

Vehicular Access - Technical Requirements of Acceptable Solutions - Part 2

Source: *Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017*

Technical Component	Vehicular Access Types				
	Public Roads	Cul-de-sacs	Private Driveways	Emergency Access Ways	Fire Service Access Routes
Minimum trafficable surface (m)	6*	6	4	6*	6*
Horizontal clearance (m)	6	6	6	6	6
Vertical clearance (m)	4.5	4.5	4.5	4.5	4.5
Maximum grade <50 metres	1 in 10	1 in 10	1 in 10	1 in 10	1 in 10
Minimum weight capacity (t)	15	15	15	15	15
Maximum cross-fall	1 in 33	1 in 33	1 in 33	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5	8.5	8.5	8.5

* A six metre trafficable surface does not necessarily mean paving width. It could, for example, include four metres of paving and one metre of constructed road shoulders. In special circumstances, where 8 lots or less are being serviced, a public road with a minimum trafficable surface of four metres for a maximum distance of ninety metres may be provided subject to the approval of both the local government and DFES.

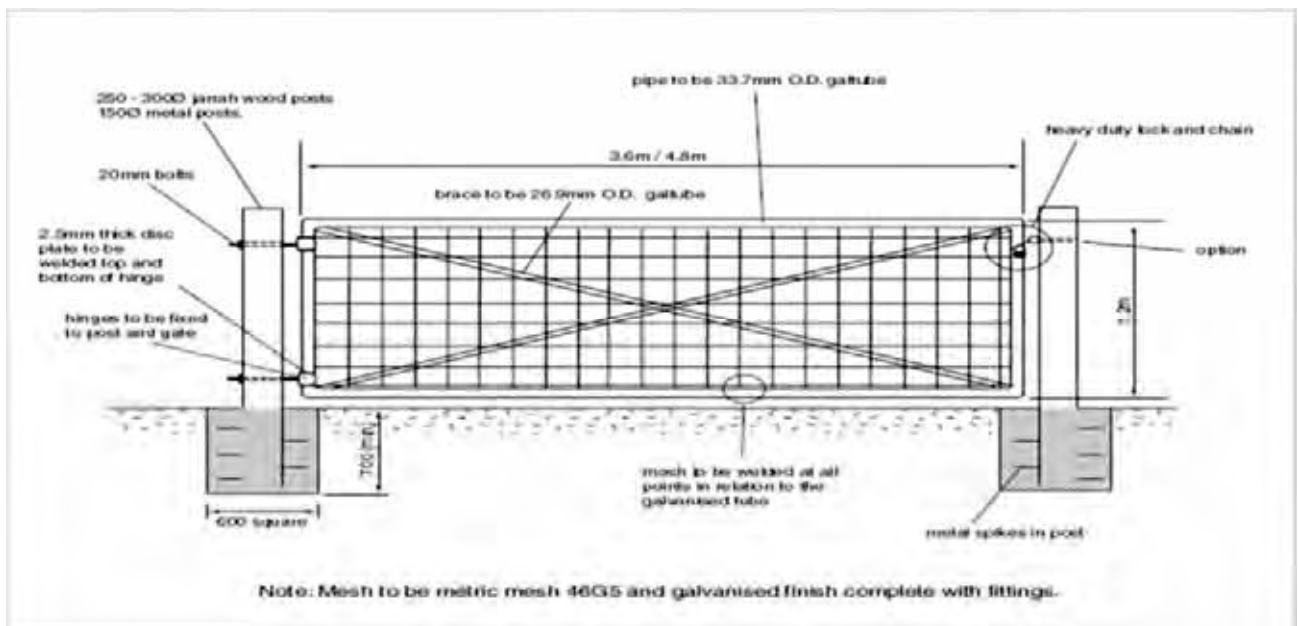
Vehicular Access - Technical Requirements of Acceptable Solutions

Gates and Signs

(example requirements – check with local government)

Gates (Bollards)

- Minimum width 3.6m
- Design and construction to be approved by relevant local government.
- Emergency access way gates must not be locked.
- Fire service access route gates may be locked but only with a common key that is available to local fire service personnel.
- Bollards will be to the relevant local government specifications



Signs

- Minimum height above ground of 0.9m.
- Lettering height to be 100mm.
- To display the words (as appropriate) “Emergency Access Only” or “Fire Service Access – No Public Access”.
- Design and construction to be approved by the relevant local government.
- Size 600mm x 400mm.
- Sign colour red, base (white) area is reflective background.
- Rounded corners, radius 20mm.
- White key-line 3mm wide, 3mm from outside edge.
- Suggested mounting hole six 6mm diameter.



Appendix 6

Technical Requirements - Bushfire Protection Criteria (Water)

Source: *Guidelines for Planning in Bushfire Prone Areas WAPC v1.1 2017* and DFES website

Acceptable Solution 4.1 Reticulated Areas

The requirement is to supply a reticulated water supply, together with fire hydrants, in accordance with the specifications set by DFES and the relevant water supply authority (WA Water Corporation or Aqwest - Bunbury or Busselton Water). The Water Corporation's 'No 63 Water Reticulation Standard' is deemed to be the baseline criteria for developments and should be applied unless local water supply authority's conditions apply. Key specifications in the most recent version/revision of the design standard include:

- **Residential Standard** – hydrants are to be located so that the maximum distance between the hydrants shall be no more than 200 metres.
- **Commercial Standard** – hydrants are to be located with a maximum of 100 metre spacing in Industrial and Commercial areas.
- **Rural Residential Standard** – where minimum site areas per dwelling is 10,000 m² (1ha), hydrants are to be located with a maximum 400m spacing. If the area is further subdivided to land parcels less than 1ha, then the residential standard (200m) is to be applied.

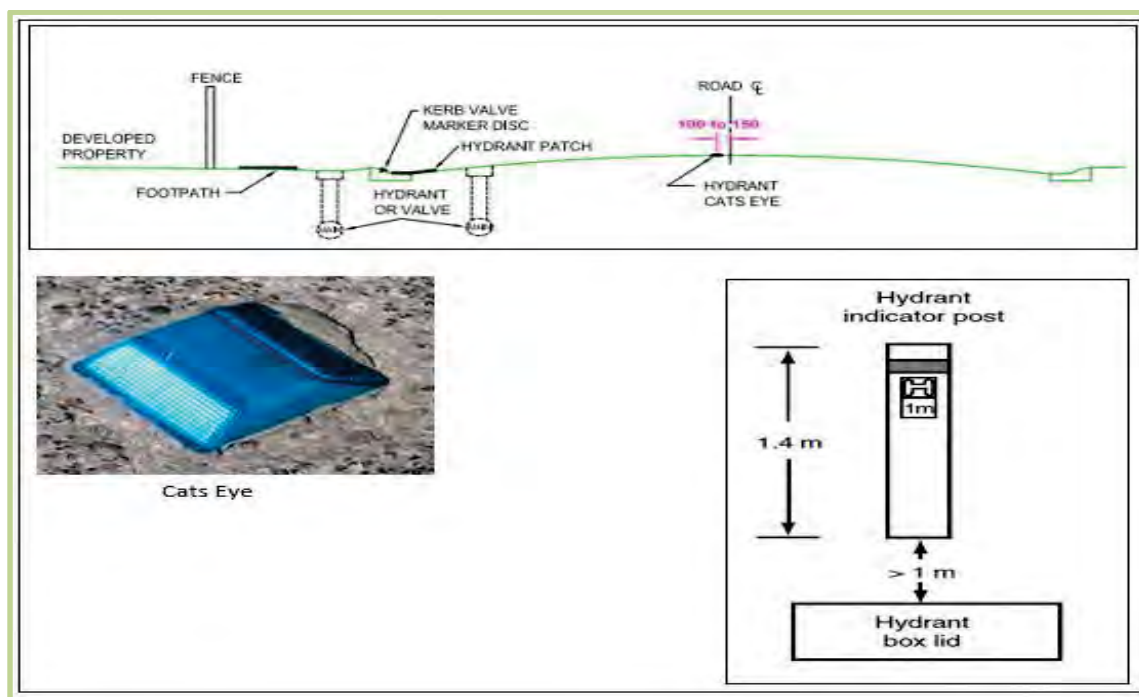




Figure A4.1: Hydrant Location and Identification Specifications

Acceptable Solution 4.2 Non-Reticulated Areas

Static water supplies are used by firefighters in areas where there is no reticulated water supply. Water tanks are the only acceptable static water source acceptable to meet Element 4 (Water) of the Bushfire Protection Criteria as per the *Guidelines for Planning in Bushfire Prone Areas (WAPC 2015 v1.1 2017) Appendix 4*.

The requirements for the development being assessed can be increased by the relevant local government. If a variation applies it will be noted in s7.1 and s7.5.

Volume:	50,000 litres per tank
Ratio of tanks to lots:	1 tank per 25 lots (or part thereof)
Location:	No more than two kilometres to the furthestmost house site within the residential development to allow a 2.4 fire appliance to achieve a 20-minute turnaround time at legal road speeds.
Tank Construction:	Above ground tanks constructed using concrete or metal. Stands of raised tanks are constructed using non-combustible materials and heat shielding where applicable (required for metal stands).
Pipe Construction:	Galvanised or copper (PVC if buried 300mm below ground).
Access:	Hardstand and turnaround areas suitable for a 3.4 appliance (i.e. kerb to kerb 17.5metres) are provided within three metres of each tank.
Couplings:	Tanks are to be fitted with a full flow gate (not ball) valve and a 100mm cam-lock coupling of metal/alloy construction (source: DFES). Examples below:
<div style="display: flex; justify-content: space-around;">   </div>	
Ownership and Responsibility:	Water tanks and associated facilities are vested in the relevant local government. A procedure must be in place to ensure that water tanks are maintained at or above designated capacity at all times.

Acceptable Solution 4.3 Non-Reticulated Areas - Individual Lots

This solution is only for use if creating one additional lot and cannot be applied cumulatively (*Guidelines for Planning in Bushfire Prone Areas WAPC 2015 v1.1 2017 Appendix 4*).

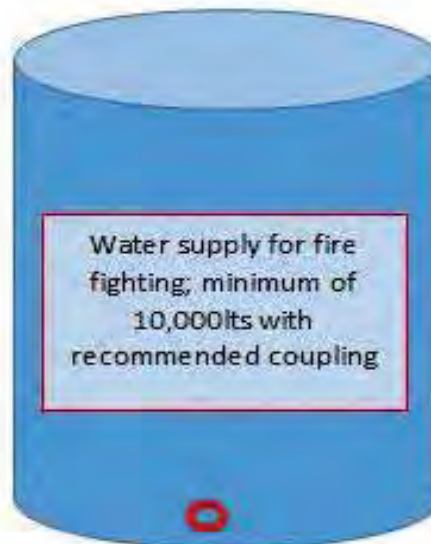
Single lots above 500 m² need a dedicated static water supply on the lot that has an effective capacity of 10,000 litres (*Guidelines for Planning in Bushfire Prone Areas WAPC 2015 v1.1 2017*).

An Example Local Government Requirement:

Volume:	Minimum 10,000 litres (effective) per tank dedicated to firefighting purposes. The storage tank must not facilitate sharing the water for domestic use (danger of contamination).
Tank Construction:	Above ground tanks constructed using concrete or metal.
Pipe Construction:	Galvanised or copper (PVC if buried 300mm below ground).
Access:	Hardstand and turnaround area suitable for a 3.4 appliance (i.e. kerb to kerb 17.5metres) is provided at the tank.
Couplings:	Tanks are to be fitted with a full flow gate (not ball) valve and a 50mm or 100mm cam-lock coupling of metal/alloy construction. Examples below:
Responsibility:	A procedure must be in place to ensure that water tanks are maintained at or above designated capacity at all times.





Recommended coupling
50mm




BUSH FIRES ACT 1954

PROPERTY COMPLIANCE REQUIREMENTS



Compliance inspections of land will be carried out from 16 November 2016, to assess landowner(s) or occupier(s) of land compliance with the City of Busselton Firebreak and Fuel Hazard Reduction Notice.

-  **Rural Residential, Urban and Industrial Land requirements must be compliant by 16 November 2016**
-  **Rural Land requirements must be compliant by 15 December 2016**

Local Government may serve a notice pursuant to Section 33 of the Bush Fire Act 1954, requiring the property owner to undertake any extra work to reduce the impact of a fire









-  **Rural Residential, Urban and Rural Land requirements must be maintained in accordance with the table overleaf until 12 May 2017** or a later date if the compliance period is extended, in which case a notice will be placed in the local newspaper

FIRE PERMITS

-  Permits to burn are required for the whole of the restricted periods and can only be obtained from the Fire Control Officer for your area
-  Permits are to be obtained before burning commences (the permit holder must be in possession of the permit during the burn)


FIRE PERMIT APPLICATION


Before you call a Fire Control Officer ensure you have the following information

-  Who will be the three able bodied persons in attendance at all times whilst the fire is alight including contact phone number?
-  What is the address of the property for which the permit applies?
-  What fire fighting equipment and resources will you have at the fire front and is it in good working order?
-  What is the size of burn to take place?
-  Are there firebreaks installed and can a fire unit get access to the area?
-  What material are you burning? Is it dry? Are there any plastics, tyres, treated posts or woods in the piles or area to be burnt? If so, remove them to a safe place.
-  Ensure you give 72 hours notice to the Fire Control Officer first; and
-  Ensure you notify neighbours 72 hours prior to commencing your burn


For further advice, contact your local Fire Control Officer, as advertised in the City of Busselton's Community Directory or on the City of Busselton website www.busselton.wa.gov.au


GENERAL REQUIREMENTS

 **Garden Refuse Urban Areas (Town sites):** No garden refuse is permitted to be burnt on the ground, in the open air or in an outdoor incinerator within the urban areas of Busselton and Dunsborough town sites at any time of the year

 **Garden Refuse Rural Residential Areas (not Town sites):** The burning of garden refuse is prohibited from 14 December to 28 February. During the restricted burning period, 2 November to 14 December and 1 March to 12 May each year, permits are required to be obtained from the Fire Control Officer in your area for the burning of any garden refuse


 **Burning of toxic materials and rubbish** is prohibited at all times


 **Camp fires** are prohibited within the City during the restricted and prohibited burning period


 **Wood and coal fuelled barbecues**, including wood fired pizza ovens and chimineas are banned during a total fire ban or in any period when the fire danger forecast is 'Very High' or above

 **Wood fired pizza ovens** must have a spark arrestor fitted

 **Warning:** The use of electric fences during periods of 'Very High' or above may cause fire

 **Owners of tractors** with down swept exhaust systems are encouraged to have an approved spark arrestor fitted as indicated in the *Bush Fires Regulations 1954*.

 **Welding, Cutting and Grinding Equipment:** A person shall not operate this equipment during the restricted/prohibited burning times on land which is under crop, pasture, stubble and bush unless one working fire extinguisher is provided, work area is clear of flammable materials and there is compliance with any other controls required by a Fire Control Officer.

 **Welding, cutting and grinding equipment is not permitted** to be used anywhere within the City of Busselton when the fire index is 'extreme' or above

FIRE DANGER RATING

For the current fire danger rating visit Department of Fire & Emergency Services (DFES) website www.dfes.wa.gov.au or Bureau of Meteorology (BOM) website www.bom.gov.au

CONTRACTORS

Please be advised, if you engage a contractor to gain compliance with this notice it is the property owner, **not the contractor**, who is responsible for the standard and quality of the fire prevention work undertaken and required to be compliant by 16 November (or 15 December if Rural Land) each year and maintained as per this notice throughout whole the fire season.

CONTACT US

For further fire safety information visit the City of Busselton website www.busselton.wa.gov.au or Department of Fire & Emergency Services (DFES) website www.dfes.wa.gov.au

IMPORTANT DATES

The Burning Restricted and Prohibited dates below may change due to seasonal fire conditions in which case details will be published in the local newspaper.


BURNING RESTRICTED

BURNING PERMITS ARE REQUIRED FROM
2 November 2016 to 14 December 2016 inclusive
and
1 March 2017 to 12 May 2017 inclusive

BURNING PROHIBITED

15 December 2016 to 28 February 2017 inclusive
(ALL FIRES PROHIBITED)

COMPLIANCE PERIOD

 Firebreaks/fuel hazard reduction on all rural residential, urban and industrial land is to be completed by 16 November 2016 and must be maintained compliant with this notice until 12 May 2017

 Firebreaks/fuel hazard reduction on all rural land is to be completed by 15 December 2016 and must be maintained compliant with this notice until 12 May 2017

 Burning on Sundays and public holidays during the restricted fire season is prohibited

Applications for a variation of this the Firebreak and Fuel Hazard Reduction Notice, where ground considerations or environmental concerns prevent compliance with the requirements of this Notice, must be lodged in writing together with a Firebreak and Fuel Hazard Reduction Notice Variation form, prior to 31 October 2016.

The hardest aspect of fire prevention is explaining to your family why you didn't undertake any!



Actions speak louder than words and actions save lives

Should you require further clarification of the information contained in this notice please do not hesitate to contact the City's Ranger and Emergency Services Department on (08) 9781 0444.



FIREBREAK AND FUEL HAZARD REDUCTION NOTICE



2016/2017 BUSH FIRE SEASON FIRST AND FINAL NOTICE

Bush Fires Act 1954

Take notice that pursuant to Part 3 Division 6 Section 33 of the Bush Fires Act 1954, landowner(s) or occupier(s) of land shall construct firebreaks and carry out fire prevention work and maintain the land in accordance with the City of Busselton Firebreak and Fuel Hazard Reduction Notice for the duration of the compliance period.

Penalties may apply for failure to comply with this notice

Fire Prevention Starts with You!



RING 000 FOR ALL FIRES

CATEGORY	FIREBREAK CATEGORY CODE AND SUMMARY OF REQUIREMENTS			
	A	B	C	D
<p>CATEGORY</p> <p><i>It is the land owner's responsibility to identify the category that relates to their property and to ensure the necessary fire prevention works are completed on time. Please contact the City if you are unsure of your category.</i></p>				
<p>CATEGORY 1</p> <p>RURAL</p> <p>Except plantations and vineyards (For tourist chalets, refer to Estate Fire Management Plan or Individual Fire Management Plan)</p> <p>Sections A, C and D apply to this category.</p>	✓		✓	✓
<p>CATEGORY 2</p> <p>URBAN RESIDENTIAL & INDUSTRIAL - COMMERCIAL</p> <p>Sections A, B, D and E1 Trees, apply to this category. Refer to section E - Interpretation and Additional Requirements (E1 Trees).</p>	✓			✓
<p>CATEGORY 3 & 4</p> <p>PLANTATIONS</p> <p>Fire Management Plan applies</p>	✓		✓	✓
<p>CATEGORY 5</p> <p>PROTEA PLANTATIONS / VINEYARDS</p> <p>(For tourist chalets, refer to Estate Fire Management Plan or Individual Fire Management Plan)</p> <p>Sections A, B, C and D apply to this category.</p>	✓		✓	✓
<p>CATEGORY 6</p> <p>RURAL RESIDENTIAL - LOTS WITH INDIVIDUAL (MINERAL EARTH) BOUNDARY BREAKS</p> <p>Sections A, B, C and D apply to this category unless the property is subject to Estate Fire Management Plan or Individual Fire Management Plan</p>	✓		✓	✓
<p>CATEGORY 7</p> <p>RURAL RESIDENTIAL - LOTS WITH A STRATEGIC FIREBREAK ON ONE OR MORE BOUNDARIES</p> <p>Sections A, B, C and D apply to this category unless the property is subject to Estate Fire Management Plan or Individual Fire Management Plan</p>	✓		✓	✓
<p>CATEGORY 8</p> <p>RURAL RESIDENTIAL - LOTS WITHIN A STRATEGIC FIREBREAK AREA WITH NO STRATEGIC FIREBREAKS ON THE LOT BOUNDARIES</p> <p>Sections B, C and D apply to this category unless the property is subject to Estate Fire Management Plan or Individual Fire Management Plan</p>	✓		✓	✓
<p>Take notice that pursuant to Part 3 Division 6 Section 33 of the Bush Fires Act 1954, landowner(s) and or occupier(s) of land shall construct firebreaks and carry out fire prevention work and maintain the land in accordance with this City of Busselton Firebreak and Fuel Hazard Reduction Notice for the duration of the compliance period.</p> <p>PENALTIES MAY APPLY FOR FAILURE TO COMPLY WITH THIS NOTICE</p> <p>PLEASE BE ADVISED THAT YOUR PROPERTY MUST COMPLY WITH CATEGORY REQUIREMENTS AS NOTED BY A TICK IN COLUMN A, B, C OR D</p>				
<p>A – Firebreak – The term firebreak includes a mineral earth firebreak. A mineral earth firebreak means a 3 metre wide area of the owner(s)/occupier(s) land, cleared and maintained totally clear of all vegetation material (living or dead) so there is only mineral earth left. Any overhanging trees and other vegetation must be pruned to a height of 5 metres above the ground level of a mineral earth firebreak.</p> <p>Category 1 – Rural: A mineral earth FIREBREAK shall be constructed 3 metres wide, except in pasture or crop areas where a FIREBREAK shall be 2 metres wide. FIREBREAKS shall be located adjacent to all external boundaries of the land. Where the land area exceeds 120 hectares, an additional FIREBREAK must divide the land into areas of not more than 120 hectares with each part completely surrounded by a FIREBREAK.</p> <p>Category 2 – Urban Residential and Industrial-Commercial: Where the area of land exceeds 2024m² (½ acre) a mineral earth FIREBREAK shall be constructed and maintained at least 3 metres wide and within 6 metres of the inside of all external boundaries of the land. Where the area of land is 2024m² (½ acre) or less, hazardous material must be removed in accordance with section B - Fuel Reduction (refer to B1).</p> <p>Category 5 - Protea Plantations/Vineyards: A mineral earth FIREBREAK shall be 3 metres wide. A low fuel area is to be maintained in accordance with section B - Fuel Reduction (refer to B2).</p> <p>Category 6 and 7 - Rural Residential: A mineral earth FIREBREAK shall be constructed 3 metres wide. On Category 6 Rural Residential land with pasture or crop, a FIREBREAK shall be 2 metres wide and located within 6 metres of all external boundaries of the land. For Category 7 Rural Residential land, free access along a Strategic FIREBREAK is to be maintained at all times and including across the boundary of a lot, by means of a 3.5 metres wide field gate in the adjoining lot boundary fence.</p> <p>B – Fuel Reduction</p> <p>1) Category 2 - Urban Residential and Industrial-Commercial: Where the area of land is 2024m² (½ acre) or less, ALL HAZARDOUS MATERIAL must be removed from the whole of the land except living trees. In the area remaining, vegetation is to be maintained to a height of no greater than 10 centimetres; this includes piles of timber, branches and other vegetation. Trees shall be pruned in accordance with section E – Interpretation and Additional Requirements (refer to E1).</p> <p>2) Category 5 - Protea Plantations/Vineyards: A 5 metre low fuel area is to be maintained between the 3 metre FIREBREAK and the plantation/vineyard area. In this area, vegetation is to be maintained to a height of no greater than 10 centimetres; this includes piles of timber, branches and other vegetation.</p> <p>3) Category 6, 7 and 8 - Rural Residential: Parkland Clearing must be carried out in all open paddocks and along the boundary of the property. Clearing means that all dead vegetation and dry grasses (excluding approved crops, pasture areas and living trees/shrubs) including piles of timber and disused materials must be maintained to a height of no greater than 10 centimetres.</p> <p>C – Building Protection Zones (BPZ). – This is a modified area of reduced fuel immediately surrounding a building BPZ's starve the fire by reducing the fuel levels around your house. These requirements are designed to reduce the fire's intensity and minimise the likelihood of flame contact with buildings. The BPZ gives more protection to families should a fire threaten suddenly and they cannot leave. It also provides extra protection for fire fighters and property owners who may decide to stay with their property.</p> <p>A BPZ shall be provided for buildings in bush fire prone areas. The surroundings of buildings must comply with the following requirements:</p> <ol style="list-style-type: none"> 1) The BPZ for existing buildings must be at least 20 metres from any external wall of the building unless varied under an approved Fire Management Plan (FMP) in accordance with section E - Interpretation and Additional Requirements (refer to E4). 2) The minimum BPZ for buildings constructed after 1 November 2011, in all cases shall be 25 metres. 3) The BPZ must be located within the boundary of the lot that the building is situated on. 4) Hazardous/flamable materials must not exceed the maximum fuel load specified in Point 5 below with grass areas not exceeding a height greater than 10 cm. 5) Fuel loads must be reduced and maintained at 2 tonne per hectare. 6) Isolated trees and shrubs may be retained, however, the first 5 metres around all buildings is to be clear of all hazardous/flamable materials. 7) Reticulated gardens in the BPZ shall be maintained to a height of no greater than 500 millimetres. 8) Wood piles must be at least 10 metres away from habitable dwellings. 9) Trees in the BPZ must comply with section E - Interpretation and Additional Requirements (refer to E1). 10) Where the land has an approved FMP, compliance must be achieved in accordance with the FMP. The FMP may vary the above BPZ requirements. 11) A Hazard Separation Zone (HSZ) is also recommended in the absence of a Fire Management Plan. Section E - Interpretation and Additional Requirements (refer to E3). <p>D – Fuel Storage & Haystack Protection Zones</p> <p>A 3 metre mineral earth FIREBREAK shall be located within 6 metres of fuel storage tanks, sheds, gas cylinders and haystacks. The mineral earth firebreak shall be maintained so that it is totally clear of all material (living or dead).</p> <p>E – Interpretation and Additional Requirements</p> <ol style="list-style-type: none"> 1) Trees On Urban, Industrial, Rural, and Rural Residential land, all tree branches must be removed or pruned to ensure a clear separation of at least 3 metres back from the eaves of all buildings and 5 metres above the top of the roof. Branches that may fall on the house must also be removed. In the BPZ the following is 'recommended': the spacing of individual or groups of trees should be 15 metres apart to provide for a 5 metres separation between tree crowns. There is also a requirement of 2.5 metres between trees and power lines so they do not come into contact and start a fire or bring down a power line. 2) Hazardous and Flammable Materials means the accumulation of fuel (living or dead) such as leaf litter, twigs, trash, bush, dead trees and scrub capable of carrying a running fire, but excludes standing living trees and isolated shrubs. NOTE: All remaining vegetation, piles of timber, branches and other living vegetation must be maintained to a height of no greater than 10 centimetres. To measure and determine fuel loads use DFES's Visual Fuel Load Guide at http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/publications/publications.aspx#45 and select Visual Fuel Load Guide Swan Coastal (Part 1 & 2). Surface bush fire fuels should be kept low to the ground. 3) Hazard Separation Zones (HSZ) A HSZ is a modified area of reduced fuel load outside of the BPZ and is recommended to assist in reducing the fire's intensity when flames are approaching buildings. Both the BPZ and the HSZ are essential strategies for the protection of buildings. A HSZ covers the area 75 metres outside the BPZ. The HSZ should be modified to have a maximum fuel load of 6-8 tonne per hectare. This can be implemented by fuel reduction methods such as burning, mowing and slashing to remove the hazard. This should not require the removal of living trees or shrubs. REMEMBER: reduce the fuel level of the fire to lower the intensity of the blaze. Further information on fuel loading can be found in the Visual Fuel Load Guide available by calling DFES or via their website at www.dfes.wa.gov.au 4) Fire Management Plan (FMP) A FMP is a comprehensive plan for the prevention and control of bushfires which may apply to individual land holdings. A notification, pursuant to the Transfer of Land Act 1893 (as amended) may be placed on the Certificate(s) of Title of the land for medium to long term fire management to reduce the occurrence and minimise the impact of uncontrolled bush fires, thereby reducing the threat to life, property and the environment. The land owner must comply with the FMP. Building in bush fire prone areas, new dwellings and other forms of accommodation, as well as additions to existing buildings are to be constructed in accordance with Australian Standard 3959:2009. In designated bush fire prone areas, the minimum BPZ in all cases shall be 25 metres. Further information on this and other information relating to fire safety issues can be found on the City's website www.busselton.wa.gov.au 				



