



Bushfire Management Plan

(Scheme Amendment, Structure Plan & Subdivision)

Dardanup Park Farm
Harold Douglas Drive
Dardanup

Ref 21-036
Ver A
January 2022



LUSHFIRE & PLANNING

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Bushfire Management Plan Coversheet

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

Bushfire Management Plan and Site Details

Site Address / Plan Reference:	Lot 2 Harold Douglas Drive and Lot 185 Venn Road		
Suburb:	Dardanup West	State:	WA P/code: 6236
Local government area:	Dardanup		
Description of the planning proposal:	Rural residential Scheme Amendment and subdivision		
BMP Plan / Reference Number:	21-036	Version:	A Date of Issue: 15/01/2022
Client / Business Name:	Dardanup Park Pty Ltd		

Reason for referral to DFES

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the BPC elements)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Is the proposal any of the following special development types (see SPP 3.7 for definitions)?

Unavoidable development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Strategic planning proposal (including rezoning applications)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Minor development (in BAL-40 or BAL-FZ)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High risk land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vulnerable land-use	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

Proposed town planning scheme amendment and local structure plan.

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

BPAD Accredited Practitioner Details and Declaration

Name	Accreditation Level	Accreditation No.	Accreditation Expiry
Geoffrey Lush	Level 2	BPAD 27682	28/02/2023
Company	Contact No.		
Lush Fire & Planning	0418 954 873		

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

Signature of Practitioner



Date

15/01/2022

Dardanup Park Farm - Executive Summary

This bushfire management plan is prepared for the proposed rezoning and subdivision of Lot 2 Harold Douglas Drive and Lot 185 Venn Road, Dardanup. The site is located adjacent to the Dardanup townsite being approximately 12kms south east of the Bunbury town centre.

The bushfire management plan demonstrates that the proposed subdivision will comply with State Planning Policy SPP3.7 Planning in Bushfire Prone Areas; and the associated Guidelines for Planning in Bushfire Prone Areas (Version 1.4 December 2021).

The subject land has a total area of 83.0676 hectares and historically been used for broad acre farming primarily grazing. Lot 2 has frontages to Venn Road, Harold Douglas Drive and Killarney Road. Kennan Road also extends to its western boundary. Lot 185 has frontages to Venn Road and the Boyanup - Picton Road. There is an existing house, sheds and yards on Lot 2 which are accessed from Sheep Dip Road at the corner of Venn Road and Harold Douglas Drive.

The land to the west is progressively being subdivided and developed for rural residential purposes, while the land to the south remains as broad acre farming land. The Dardanup township is situated on the eastern boundary extending over the Boyanup - Picton Road. The land to the north is used for broad acre farming and includes the Collie River Irrigation District.

Gavin's Gully is a small perennial creek line extending through the middle of the property. The land is relatively flat except for two small ridges in the southern portions of Lot 2.

A large portion of the subject is designated as being bushfire prone land. The subject land is designated as rural residential land within the Shire's Local Planning Strategy and is subject to the Dardanup West / Crooked Brook Structure Plan.

It is proposed to rezone and develop the western portion of the site for rural small holdings. The majority of this area is comprised of Lot 2 with a small portion of Lot 185, the adjacent Lot 1 and Sheep Dip Road. The area being rezoned to the Rural Small Holding zone is now referred to in this report as the "Development Site" in order to distinguish it from the overall subject land which includes Lot 185. The bushfire assessment will focus on the proposed rural residential subdivision within the Development Site.

The proposed subdivision concept plan will create thirty - seven (37) lots ranging in size from 9,689sqm to 2.1 hectares. Keenan Road will be extended through the middle of the property connecting to Venn Road. Gavin's Gully will be created as a drainage reserve with a minimum width of 20m.

The concept plan also shows proposed building exclusion areas which reflect:

- Town Planning Scheme No 3 boundary setbacks of 20m from the front and 10m from the side;
- A 30m setback from the Gavin's Gully reserve; and
- Sufficient area for a maximum BAL-29 rating setbacks permitted under SPP3.7 Planning in Bushfire Prone Areas.

For the purpose of this report, the area outside of the building exclusion area is referred to as the building envelope as this is the area where the dwelling and outbuildings can be located.

An Environmental Assessment Report (EAR) has been prepared for the proposal. This indicates that the subject site is relatively unconstrained and is suitable for the proposed Rural small holdings development. A large portion of the site is classified as a Multiple Use wetland. The existing vegetation is considered to be 'Completely Degraded' as it has limited species diversity, absence of mid and understorey species and high degree of weed invasion. There are four trees which have been identified to contain at least one hollow considered potentially suitable for black cockatoos to use for nesting purposes.

The construction of the proposed development and subsequent dwellings will require removal of a substantial portion of the woodland type vegetation in the southern portion of the development site, but this is not intended to be wholesale clearing. In order to retain the "rural character of the area and native trees" as prescribed by the Scheme, the "cleared" areas will be modified to comply with the specifications for asset protection zones as contained in Schedule 1 of this report. This includes reducing the overall

Dardanup Park Farm - Executive Summary

tree canopy for each lot to a density of 15% with a separation between trees and a maintained grassland understorey of less than 100mm in height.

A Bushfire Hazard Level Assessment (BHL) plan has been prepared and the development site is expected to have a moderate or low bushfire hazard level when developed. Development of land with a proposed moderate hazard level complies with SPP3.7 Planning in Bushfire Prone Areas.

A Bushfire Attack Level (BAL) Assessment / BAL Contour Map has been prepared for the proposed subdivision and all building envelopes will have a BAL-29 or lower rating.

The primary bushfire hazard in the locality is from a fast moving grass fire which can still have the potential to be a destructive fire threatening life and property. The surrounding land is a mixture of rural small holdings, and broad acre rural land uses, including irrigated pasture. Bushland vegetation is scattered and often occurs in linear areas along the road reserves and drainage lines.

The subject land and the development site are situated in an existing structure plan area, which is still being developed. Strategically the development of the site will create an important local road connection from Padbury / Keenan Road connecting to Venn Road directly accessing the Dardanup townsite. This will provide enhanced bushfire protection for many existing residents living in the adjoining area.

The proposed subdivision complies with the objectives of State Planning Policy 3.7 as:

- 1. It avoids any increase in the threat of bushfire to people, property and infrastructure.**
Land is considered suitable for land use intensification as the bushfire hazard levels are moderate and low. The proposed subdivision design does not increase the bushfire threat as it provides for the management of vegetation hazards, suitable road access and appropriate separation distances with the proposed development sites having a BAL-29 rating or lower.
- 2. It reduces vulnerability to bushfire through the identification and consideration of bushfire risks in the design of the development and the decision-making process.**
The bushfire hazard and risks have been identified and assessed in this report. It documents how the hazard level will be reduced and maintained for the life of the development and defines the responsibilities of relevant stakeholders.
- 3. The design of the subdivision and the development takes into account bushfire protection requirements and includes specific bushfire protection measures.**
The proposed management/mitigation measures to be implemented in accordance with this Bushfire Management Plan demonstrate that the acceptable solutions within each element of the Bushfire Protection Criteria as contained in the Guidelines for Planning in bushfire Prone Areas (Version 1.4 December 2021) have been met.
- 4. Achieves an appropriate balance between bushfire risk management measures and biodiversity, conservation values, and environmental protection.**
The modification of remnant vegetation for the development is in accordance with the approved structure plan and the Shire's Fire Prevention Notice.

Document Control

Street No	Lot No	Plan	Street Name		
1	2 185	410287 37202	Harold Douglas Drive Venn Road		
Locality	Dardanup West		State	Postcode	6236
Local Government Area		Dardanup			
Project Description		Scheme Amendment (Small Holding zone) Local Structure Plan and subdivision			
Prepared for		Dardanup Park Pty Ltd			

Ref No	Revision	Date	Purpose
21-036	A	15 January 2022	Review

Name	Geoffrey Lush	Company	Lushfire & Planning
BPAD	Level 2 Practitioner	Accreditation No Expiry	27682 February 2023

Disclaimer

The measures contained in this report do not guarantee that a building will not be damaged in a bushfire. The ultimate level of protection will be dependent upon the design and construction of the dwelling and the level of fire preparedness and maintenance under taken by the landowner. The severity of a bushfire will depend upon the vegetation fuel loadings; the prevailing weather conditions and the implementation of appropriate fire management measures. All information and recommendations made in this report are made in good faith based on information and accepted methodology used at that time. All plans are subject to survey and are not to be used for calculations. Notwithstanding anything contained therein, Lushfire & Planning will not, except as the law may require, be liable for any loss claim, damage, loss or injury to any property and any person caused by fire or by errors or omissions in this report.



Geoffrey Lush
15 January 2022
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1.0 Proposal Details

1.1 Introduction

This bushfire management plan is prepared for the proposed rezoning and subdivision of Lot 2 Harold Douglas Drive and Lot 185 Venn Road, Dardanup.

The site is located adjacent to the Dardanup townsite being approximately 12kms south east of the Bunbury town centre as shown in Figure 1. The property details are documented in Table 1 and the cadastral information is shown in Figure 2.

The aim of this Report is to demonstrate that the proposed subdivision will comply with State Planning Policy SPP3.7 Planning in Bushfire Prone Areas; and the associated Guidelines for Planning in Bushfire Prone Areas (Version 1.4 December 2021). It documents how the hazard level will be reduced and maintained for the life of the development and defines the responsibilities of relevant stakeholders.

The assets which are highlighted for protection from bush fires are:

- Any future dwelling within the subdivision; and
- The existing development surrounding the properties.

The first priority for fire management is the preservation of life and then to reduce the impact of bushfires on property and infrastructure.

Table 1 Land Details

No	Lot	Plan	Vol	Folio	Registered Proprietor	Area(ha)
1	2	410287	2940	940	Dardanup Park Pty Ltd	58.8346
	185	37202	2561	889	Dardanup Park Pty Ltd	24.2330

1.2 Existing Conditions

The existing site conditions are shown in Figure 3.

The subject land has historically been used for broad acre farming primarily grazing. Gavin's Gully is a small perennial creek line extending through the middle of the property and this has patches of vegetation along the banks.

Lot 2 has a frontage of approximately 570m to Venn Road and secondary frontage of 145m to Harold Douglas Drive and 120m to Killarney Road. Kennan Road extends to the western boundary with a 20m frontage. Lot 185 has a frontage of approximately 63m to Venn Road and 150m to the Boyanup - Picton Road.

There is an existing house, sheds and yards on Lot 2 which are access from Sheep Dip Road at the corner of Venn Road and Harold Douglas Drive. The adjacent Lot 3 is a battle axe lot containing a heritage listed dwelling.

The land to the west is progressively being subdivided and developed for rural residential purposes, while the land to the south remains as broad acre farming land. The Dardanup township is situated on the eastern boundary extending over the Boyanup - Picton Road. The land to the north is used for broad acre farming and includes the Collie River Irrigation District.

The land is relatively flat except for two small ridges in the southern portions of Lot 2. There is scattered vegetation which is denser on these two ridges. The remnant vegetation is predominantly Peppermints which have been under pruned by grazing stock.

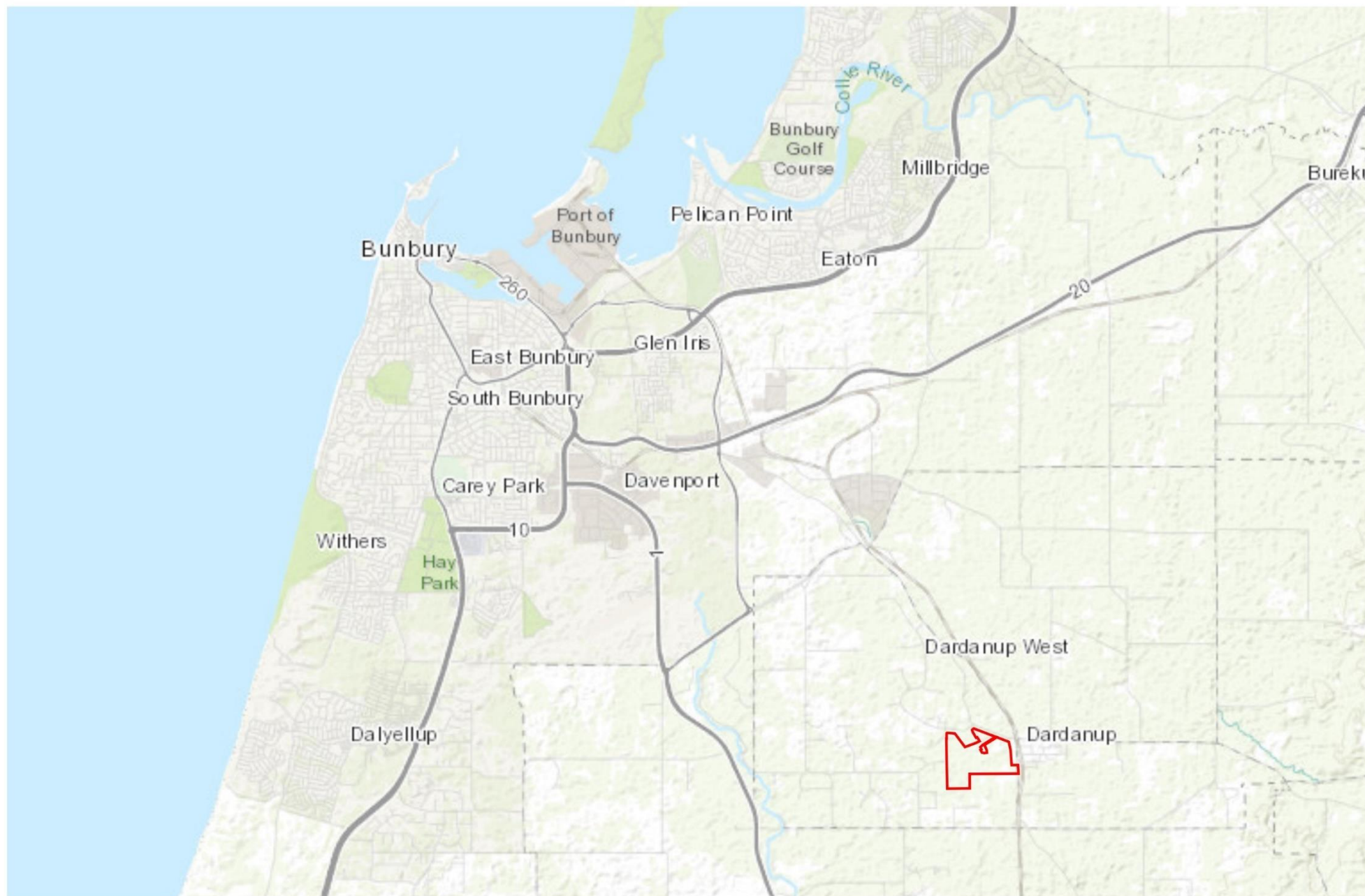


FIGURE 1
LOCATION PLAN

SUBJECT LAND 



Job No 21-036

Rev Description
A Preliminary

Date
06/10/2021



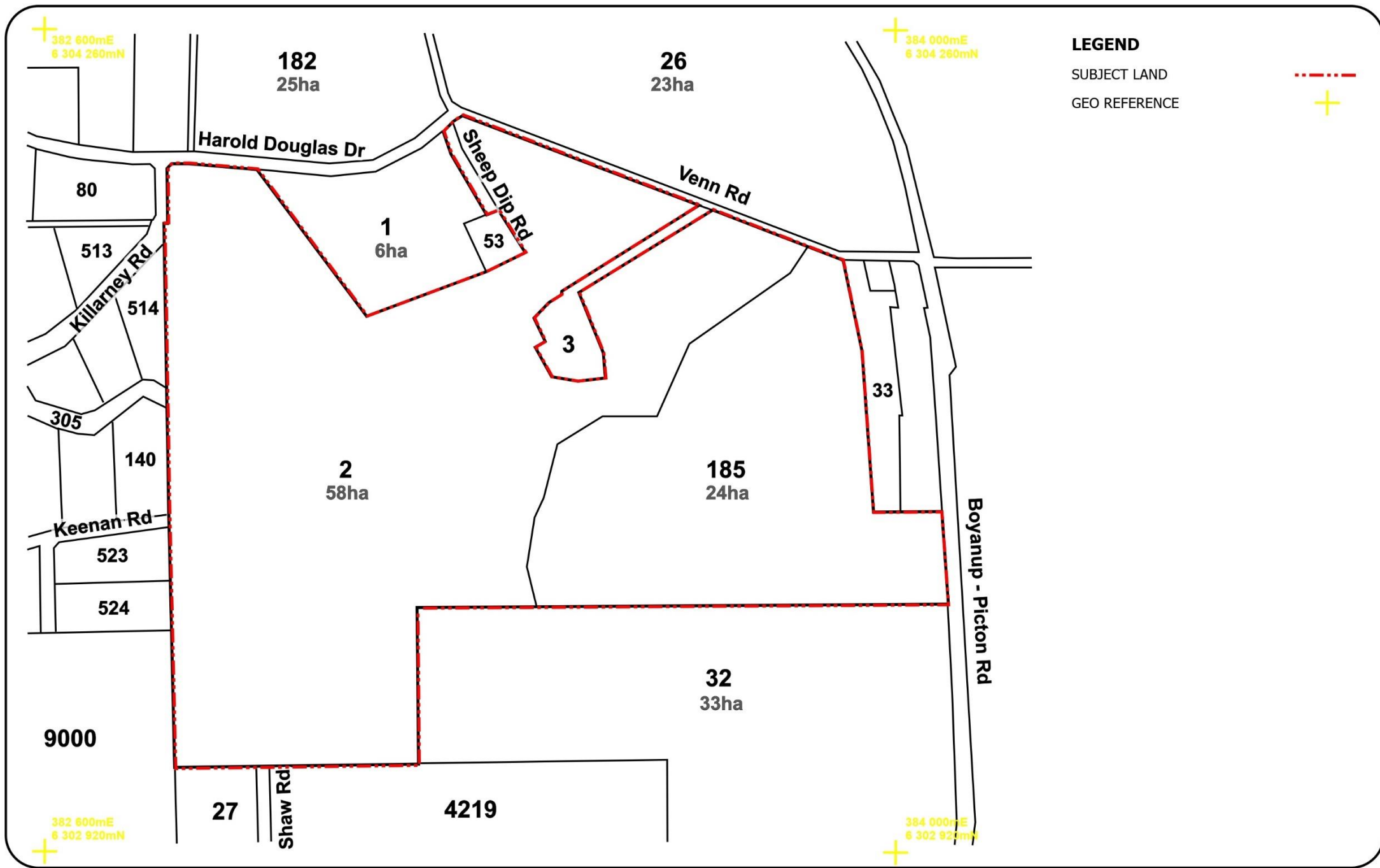
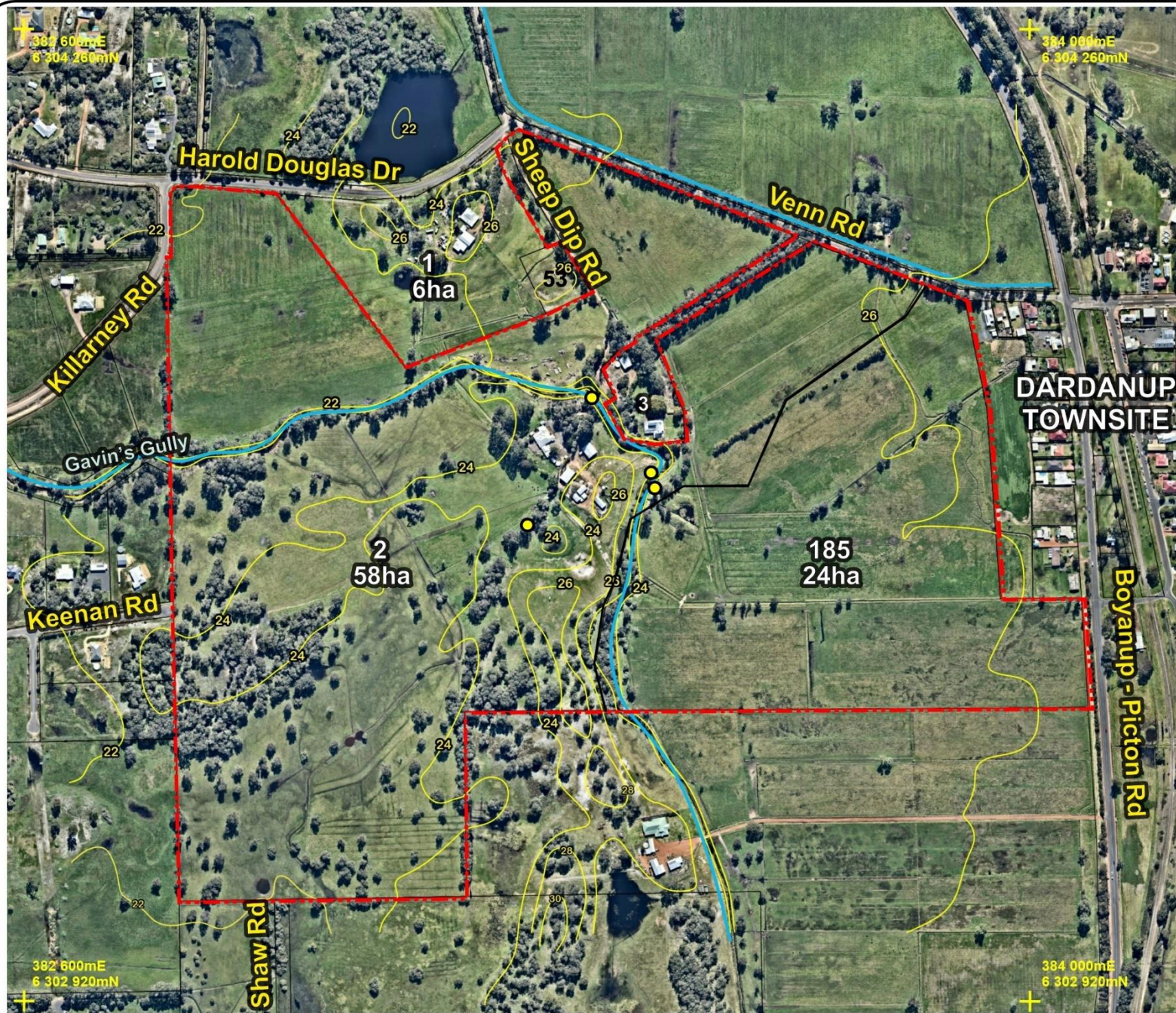


FIGURE 2
CADASTRAL PLAN



LEGEND

SUBJECT LAND



2m CONTOUR



DRAINAGE LINE



HABITAT TREES
(With hollows suitable
for Black Cockatoos)



GEO REFERENCE



0m 150m

FIGURE 3
EXISTING CONDITIONS

1.3 Bushfire Prone Land

Portions of the subject are designated as being bushfire prone land as shown in Figure 4. The designation of bushfire prone areas triggers:

- The application of Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas under the Building Code of Australia;
- The provisions of the Planning and Development (Local Planning Schemes) Regulations 2015; and
- The application of State Planning Policy SPP3.7 Planning in Bushfire Prone Areas.

State Planning Policy SPP3.7 Planning in Bushfire Prone Areas requires that any subdivision application must be accompanied by a bushfire management plan which includes:

- a) a Bushfire Attack Level (BAL) Assessment or a BAL Contour Map to show the expected BAL ratings for the developed site. The BAL Contour Map shows the proposed BAL ratings based upon any clearing or landscaping;
- b) the identification of any bushfire hazard issues arising from the BAL Contour Map or the BAL assessment; and
- c) an assessment against the bushfire protection criteria requirements contained within the Guidelines demonstrating compliance within the boundary of the development site.

1.4 Fire Prevention Order

The Shire's 2021 - 2022 Fire Prevention Order states that land within the Rural Small Holdings zone is required to have:

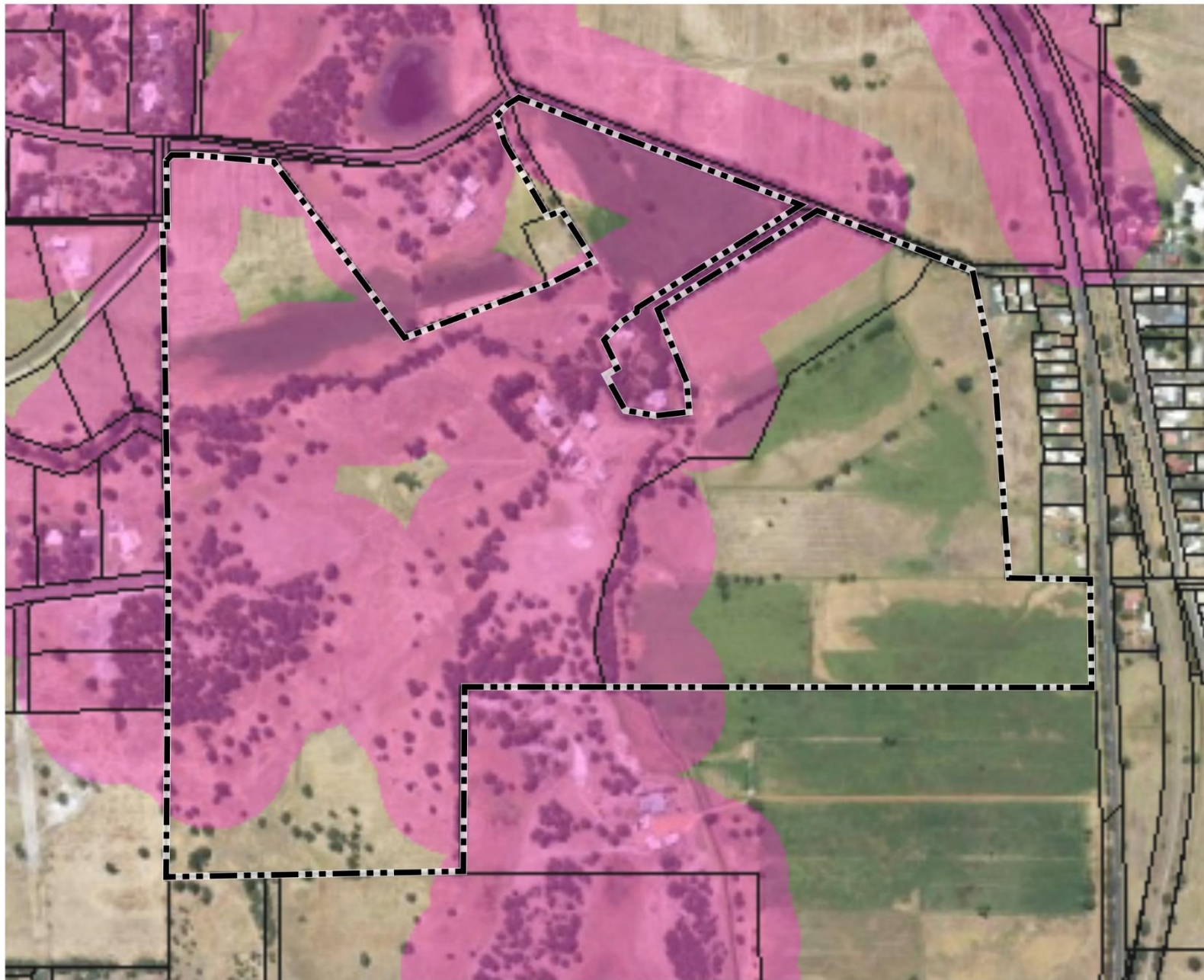
- ❖ A firebreak installed immediately inside and along all property boundaries, 2 metres in width and 4 metres in height. The firebreak may only deviate from a boundary up to 6 metres, to avoid established trees and /or other natural features that would make it impractical to be installed on the boundary.
- ❖ A 20 metre Asset Protection Zone (as defined) must be slashed to a height that does not exceed 100 millimetres surrounding dwellings, sheds and all haystacks.
- ❖ All flammable material/vegetation (dead trees and branches) must be removed from the 20 metre Asset Protection Zone.
- ❖ Where slashing is not possible, material/vegetation must be burnt back or sprayed with a suitable herbicide to prevent growth throughout the entire restricted and prohibited burning periods.
- ❖ Burn piles can be kept and are approved under the following conditions:
 - A burn pile is to be no closer than 20 metres from any structure.
 - All fire wood piles must be stored away from a dwelling during the restricted and prohibited burning periods.

Non Irrigated land in the General Farming zone is required to have:

- ❖ A vehicle access track, 4 metre in width and 4 metre in height that must include a 2 metre wide firebreak (as defined), must be installed immediately inside and along the lot boundary where it adjoins a road and/or rail reserve. The firebreak may only deviate from the boundary, up to 6 metres, to avoid established trees/or other natural features, that would make it impractical to install a firebreak at that location.

The Order also requires that where the property has an approved Bush Fire Management Plan, compliance must be achieved in accordance with the conditions stipulated in the Bush Fire Management Plan, in addition to the requirement of the Fire Prevention Order.

Fire prevention work must be completed by the 30 November annually and maintained until the close of the entire Restricted Burning Period. This is normally the 26 April annually but it maybe extended.



LEGEND

SUBJECT LAND



BUSHFIRE PRONE LAND (2021)

Includes bushfire prone vegetation and a 100m buffer.



FIGURE 4
BUSHFIRE PRONE LAND

1.5 Town Planning

1.5.1 Local Planning Strategy

The subject land is designated as rural residential land within the Shire's Local Planning Strategy. It is part of the Dardanup West / Crooked Brook Rural Living precinct which is described as:

This area is already covered by the Dardanup West / Crooked Brook Structure Plan and approximately 50% of the area is already developed. However, in order to allow for further subdivision, it is recommended that this area be identified as a 'Special Control Area' for Structure Planning.

Further subdivision of rural residential areas must consider constraints including waterlogging, bushfire threat, flooding, buffers, environmental constraints and other limiting criteria.

1.5.2 Town Planning Scheme No 3

The general provisions relating to the Small Holding zone are contained in Clause 3.14 of the Scheme noting the following:

- a) As is practicable, the rural character of the area shall be maintained and native trees shall be retained.
- d) No dwelling shall be constructed within 20 metres of the front lot boundary or 10m as an absolute minimum.
- j) If there exists a building envelope for a lot, no person shall construct a dwelling outside the building envelope.
- r) A person shall not without the prior approval of Council damage, fell or remove a tree; except
 - Dead or diseased trees;
 - For the purpose of clearing of a fire break;
 - A tree contained within a building envelope

Additional requirements and provisions are specified for each area and are contained in Appendix VIII of the Scheme.

1.5.3 Dardanup West / Crooked Brook Structure Plan

The site is located within the Dardanup West / Crooked Brook structure plan area. The structure plan map is shown in Figure 5 and this was endorsed by the Western Australian Planning Commission in 2007. It has subsequently been incorporated in the Council's Local Planning Strategy (2015).

The West / Crooked Brook Rural Living precinct has been the principal area of rural residential lot development in the Shire for approximately 30 years. The structure plan originally proposed to accommodate 300 lots within the Structure Plan area. The report promotes that consolidating rural residential development in this area is consistent with Commission policy.

Bush Fire Protection was dealt with in Section 8.6 recommending that Bushfire Management Plans be prepared for subdivisions.

In relation to the subject land, the structure plan shows an extension of Keenan Road through Lot 2 to Harold Douglas Drive, a connection south to Shaw Road and east through Lot 185 to the Boyanup - Picton Road.

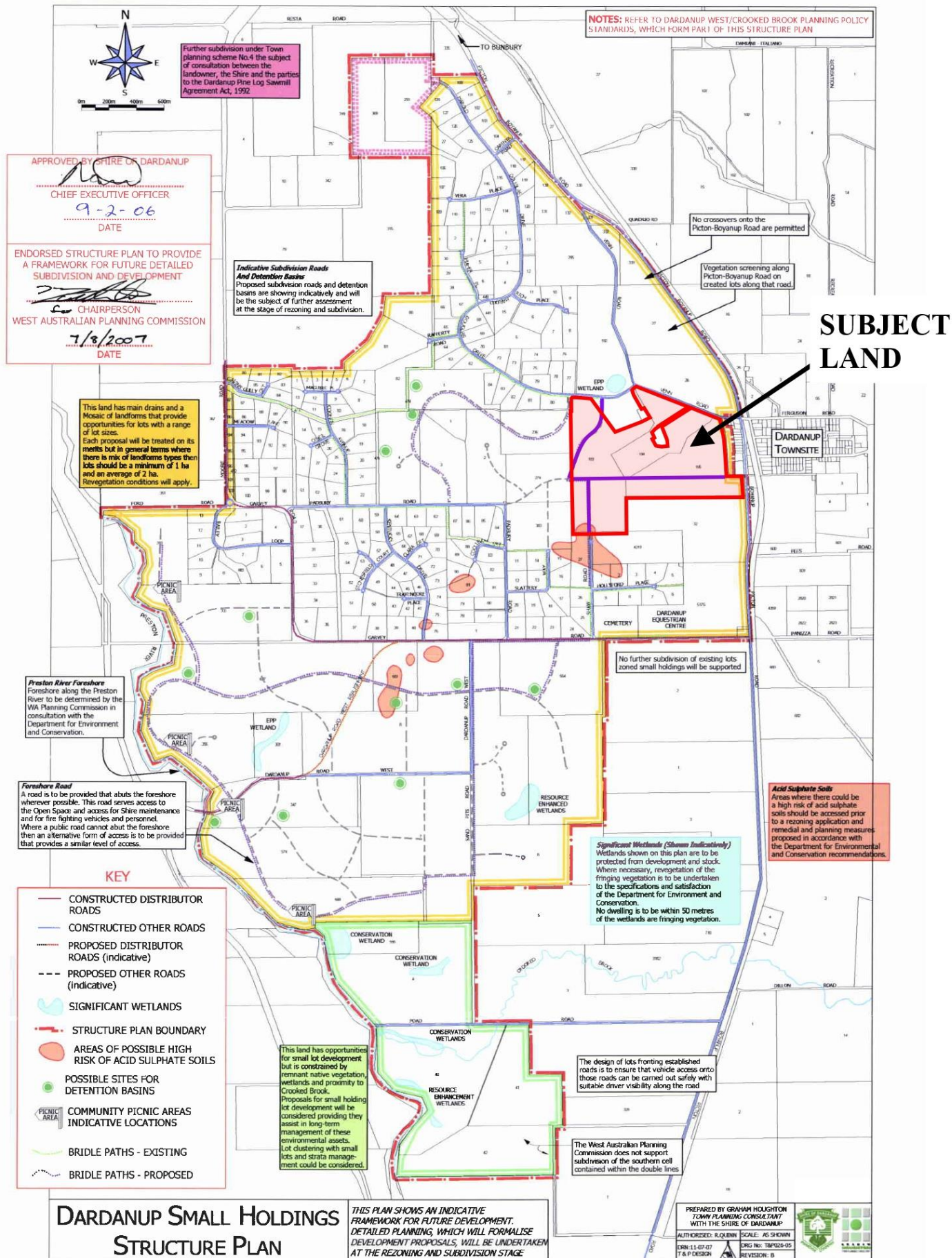


FIGURE 5
 DARDANUP WEST / CROOKED BROOK
 STRUCTURE PLAN



Job No 21-036

Rev A Description Preliminary

Date 15/12/2021

1.6 Proposed Development

It is proposed to rezone and develop the western portion of the site as shown in Figure 6. The majority of this area is comprised of Lot 2 with a small portion of Lot 185, the adjacent Lot 1 and Sheep Dip Road. The portion of Lot 2 on the south eastern side of the access to Lot 3, will be amalgamated with the balance of Lot 185 and retained for farming purposes.

The area being rezoned to the Rural Small Holding zone is now referred to in this report as the "Development Site" in order to distinguish it from the overall subject land which includes Lot 185. The bushfire assessment will focus on the proposed rural residential subdivision within the Development Site.

The proposed subdivision concept plan is shown in Figure 7 and this has thirty - seven (37) lots ranging in size from 9,689sqm to 2.1 hectares. Gavin's Gully will be created as a drainage reserve with a minimum width of 20m. Three other local drainage basins will be provided.

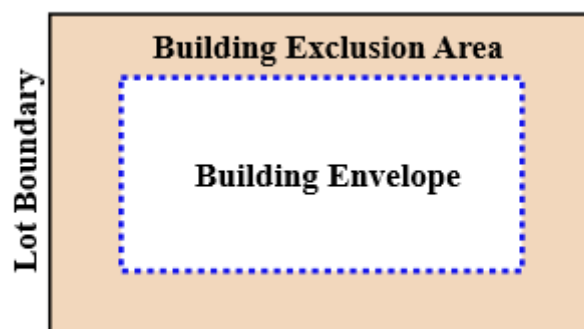
The internal subdivision roads all have 20m wide road reserves with:

- Road A being a cul-de-sac extending for 110m, servicing five (5) lots;
- Road B connecting from Keenan Road to Venn Road is approximately 1km in length;
- Road C is a loop road approximately 870m,
- Road D is a temporary cul-de-sac extending 120m from Road C and servicing one (1) additional lot. It will ultimately connect into Shaw Road to the south, extending through to Garvey Road.
- Road E is cul-de-sac extending for 260m to Gavin's Gully, servicing one (1) additional lot. It will ultimately extend across Gavin's Gully, through the balance lot connecting to the Boyanup - Picton Road.

The concept plan also shows proposed building exclusion areas which reflect:

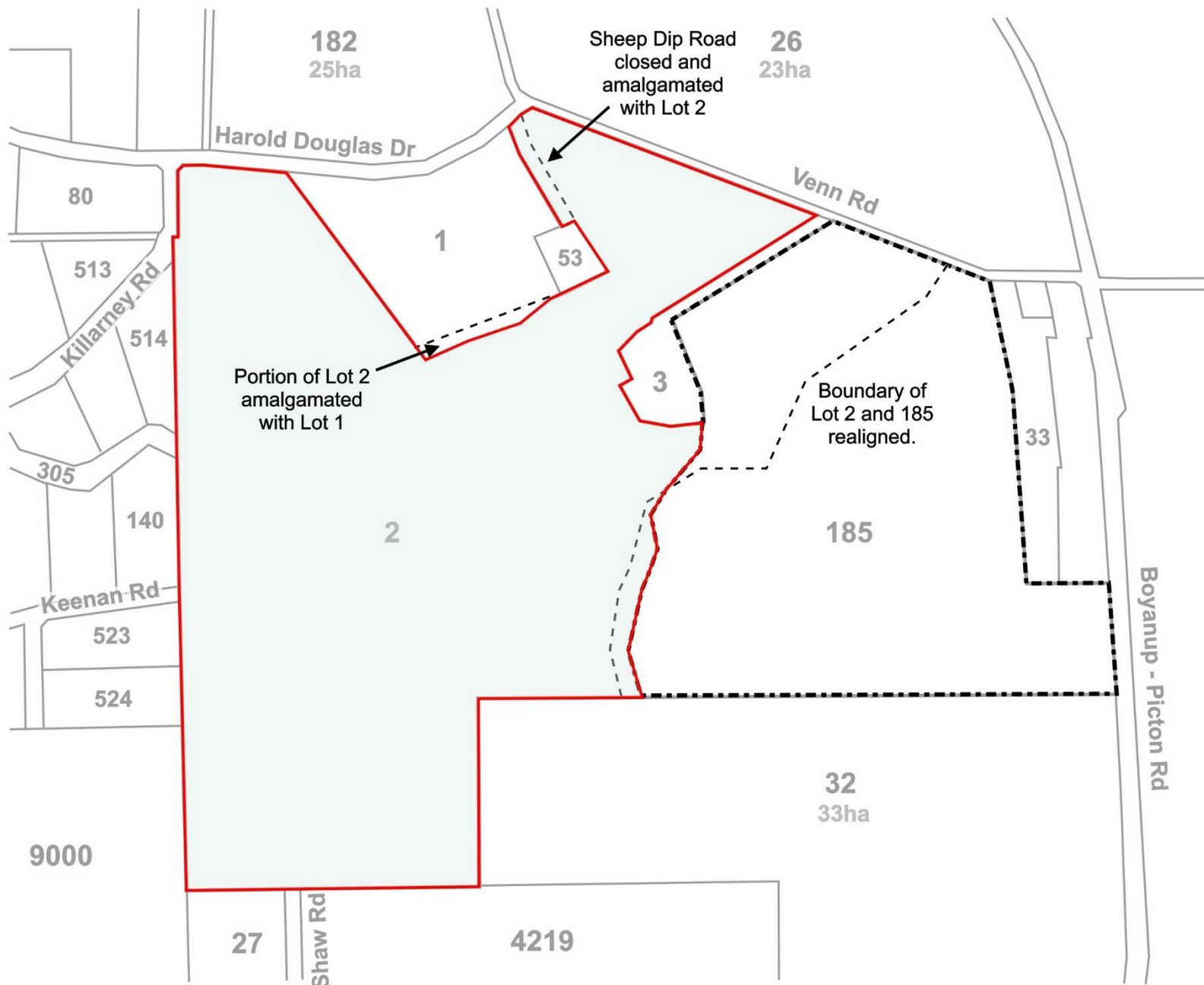
- The Scheme boundary setbacks of 20m from the front and 10m from the side;
- A 30m setback from the Gavin's Gully reserve; and
- Sufficient area for a maximum BAL-29 rating.

For the purpose of this report, the area outside of the building exclusion area is referred to as the building envelope as this is the area where the dwelling and outbuildings can be located.



The proposed additional zoning provisions are contained in Table 2.

The potential clearing and revegetation associated with the proposal are documented in Section 2.2 and shown in Figure 9.



LEGEND

DEVELOPMENT SITE
(To be included in the Rural
Small Holdings Zone)



BALANCE LOT
(Retained as General Farming)



MODIFIED LOT BOUNDARY



GEO REFERENCE



0m 150m

FIGURE 6
DEVELOPMENT SITE



Job No 21-036

Rev Description
A Preliminary

Date
06/10/2021



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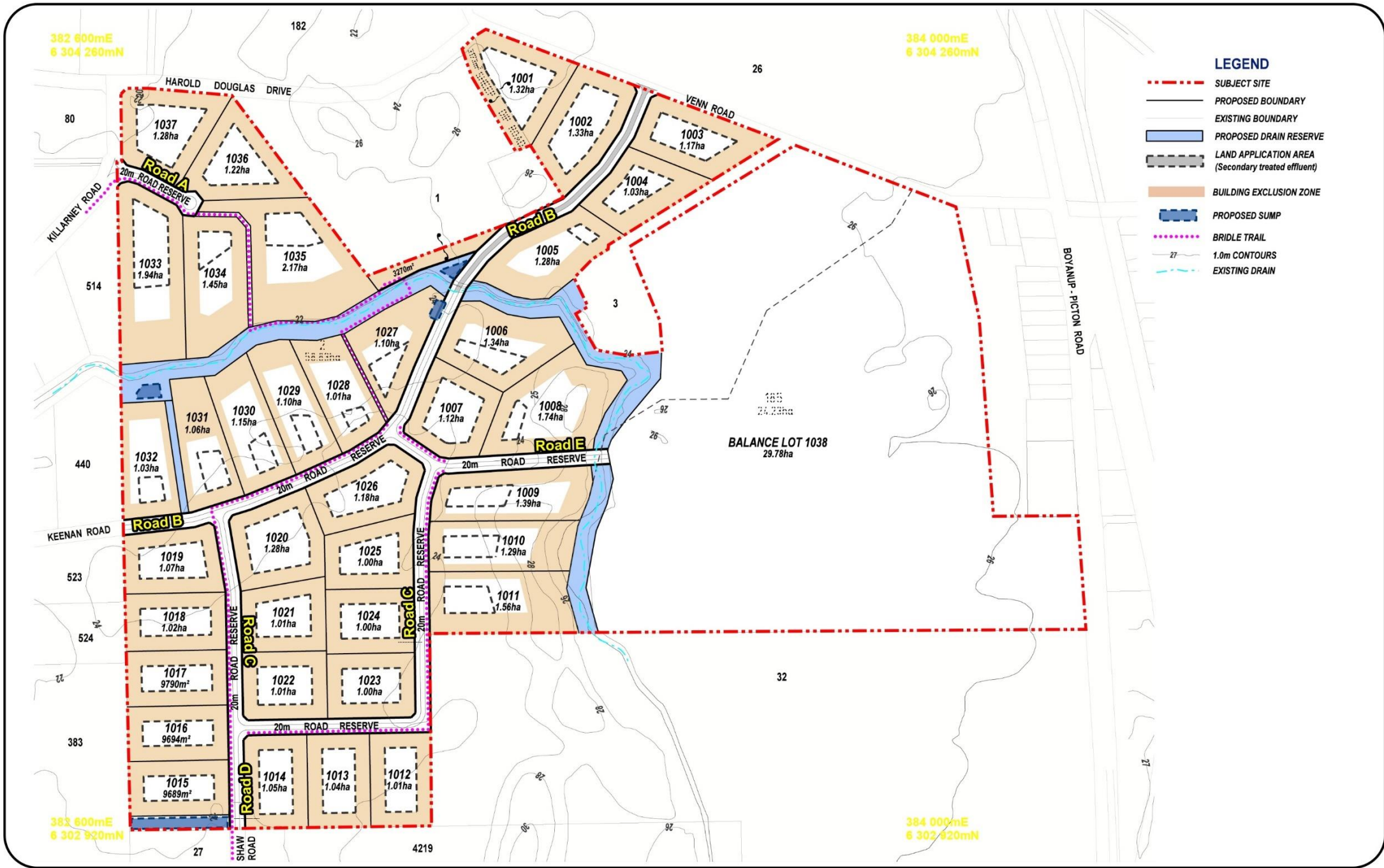


FIGURE 7
SUBDIVISION CONCEPT PLAN

Table 2 Proposed Zoning Provisions

AREA	ADDITIONAL REQUIREMENTS AND MODIFICATIONS TO THE PROVISIONS OF THE SCHEME TEXT
<p>AREA 18 – DARDANUP PARK</p> <p>Lot 2 Harold Douglas Drive and portion Lot 185 Venn Road Dardanup West shown on the Scheme maps.</p>	<p>1. Subdivision and Development Criteria</p> <ul style="list-style-type: none"> a) Subdivision to be generally in accordance with the Concept Plan adopted by Council as part of this amendment. b) The Council may support departures from the Concept Plan design if it considers the proposed subdivision or development to be of a similar or superior standard. c) The minimum lot size is 1ha. d) No dwelling or other building shall be constructed in the Building Exclusion Zone shown in the Concept Plan. e) Notwithstanding provision (b) of Sub-Clause 3.14.1, an Aged or Dependent Person's Dwelling shall be permitted providing it is attached to the principal dwelling. f) Notwithstanding provision (e) of Sub-Clause 3.14.1, reflective Zinalume sheeting is not permitted on dwelling roofs or outbuildings. g) In addition to provision (l) of Sub-Clause 3.14.1, all vehicles (including cars, motorcycles, boats, caravans and trailers) housed on a lot are to be garaged in a dwelling garage or a fully enclosed outbuilding. h) Notwithstanding provision (r) of Sub-Clause 3.14.1, no landowner shall cut, remove or otherwise destroy any tree unless written consent is obtained from Council for approved bush fire management and development works, except that no tree or shrub within 30 metres of the edge of the proposed drain reserve (Gavin's Gully) shall be removed. i) Notwithstanding provision (m) of Sub-Clause 3.14.1, boundary fencing shall be timber rail, rural standard post and (minimum) four-strand wire or ringlock or similar approved by Council and be 1.0 to 1.3. metres high. Boundary fences are to be maintained in good working order and to a high standard. j) All lots shall be serviced by an approved secondary treated effluent system. k) Land application areas for infiltration of secondary treated effluent shall be a minimum 100m from the waterway (Gavin's Gully) with the exception of the land application areas for the existing dwelling on proposed Lot 1006 and proposed Lot 1027 which shall be a minimum 50m from the waterway. l) Any fencing around a building curtilage shall be visually permeable, unobtrusive and sensitive to the objective of maintaining the rural character and visual amenity of the locality. Solid fencing such as super six or iron sheeting shall not be permitted. m) Driveways are to be sealed or paved and have a minimum 4m-wide trafficable surface. Driveways longer than 50m are to include the provision of a 17.5m diameter turning circle adjacent to the dwelling for fire-fighting purposes. n) Any access gates on driveways are to be a minimum width of 3.6m.

	<ul style="list-style-type: none"> o) Lot owners are responsible for ongoing management of Managed Low Threat Vegetation on their properties in accordance with the approved Bushfire Management Plan. p) Each dwelling is to be provided with a domestic rain water catchment tank with a minimum capacity of 120,000 litres for supply of potable water, with a minimum roof catchment area of 200 square metres, inclusive of any outbuildings connected to the domestic water storage tank. q) Water tanks should be non-reflective (preferably grey, green or brown in colour) and located at the rear of dwellings, whenever practical. r) At the subdivision stage, the local government may request a contribution towards strategic water tanks for fire-fighting purposes in the Dardanup Small Holding Area. s) The local government may request that the WAPC impose a condition of subdivision requiring the provision and construction of a bridle path(s). t) Land use and development is to comply with the approved Bushfire management Plan (including the "landowner's responsibilities") and compliance with Bushfire Notices issued annually by the local government. <p>2. Land Use Controls</p> <ul style="list-style-type: none"> a) Dog kennels shall not be permitted and stables will only be permitted where the horses are for private hobby purposes. b) Stocking rates should conform to relevant guidelines provided by the Department of Primary Industries and Regional Development. c) Notwithstanding provision (i) of Sub-Clause 3.14.1, where any lot is to be used for the keeping of a horse or horses, then that use shall be limited to the keeping of horses for the personal use and enjoyment of the lot owner. d) Dead trees or shrubs, along with garden waste, are to be removed from lots in a timely manner.
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2.0 Environmental Considerations

2.1 General

State Planning Policy 3.7 (SPP3.7) policy objective 5.4 recognises the need to consider bushfire risk management measures alongside environmental, biodiversity and conservation values. Typically, these environmental factors may include:

- Bush Forever sites;
- Threatened ecological communities;
- Declared rare flora;
- Environmentally sensitive areas;
- Classified wetlands and associated buffers;
- Conservation covenants; and
- Significant areas identified in a local planning or biodiversity strategy.

Accendo Australia Pty Ltd has prepared an Environmental Assessment Report (EAR) for the proposal to ensure that environmental values and potential impacts associated with the proposed development can be managed in accordance with legislative and policy requirements. The EAR demonstrates that the subject site is relatively unconstrained and is suitable for the proposed Rural small holdings development, based on the assessment of existing environmental factors and values.

The key environmental issues associated with the proposed development include:

- Acid Sulphate Soils;
- Site contamination;
- Wetlands;
- Hydrology;
- Wastewater;
- Flora and vegetation; and
- Fauna.

The subject site contains Multiple Use wetlands as depicted on Figure 8.

The vegetation on the site is largely comprised of open grassland and a mosaic of scattered trees. Native vegetation consists of the following species:

- Marri (*Corymbia calophylla*);
- Jarrah (*Eucalyptus marginata*);
- Peppermint (*Agonis flexuosa*);
- Flooded gum (*Eucalyptus rudis*); and
- Paperbark (*Melaleuca spp.*).

Given the limited species diversity, absence of mid and understorey species and high degree of weed invasion, the subject site is in a 'Completely Degraded' condition.

There are four trees which have been identified to contain at least one hollow considered potentially suitable for black cockatoos to use for nesting purposes.

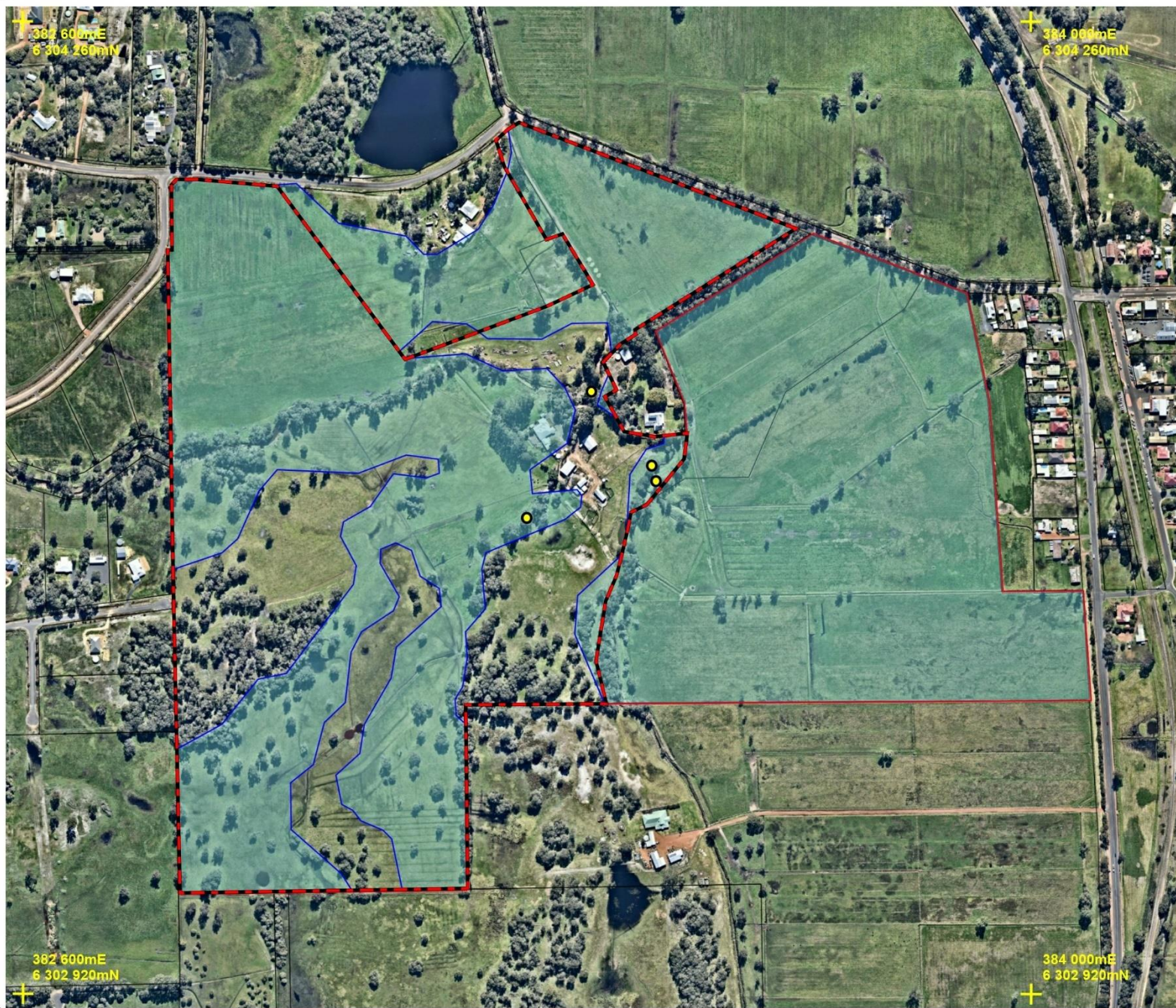
2.2 Vegetation Clearing / Revegetation

The construction of the proposed development and subsequent dwellings will require removal of a substantial portion of the woodland type vegetation in the southern portion of the development site as shown in Figure 9.

This is not intended to be wholesale clearing. In order to retain the “rural character of the area and native trees” as prescribed by the Scheme, the areas shown in Figure 9 will be cleared in accordance with the specifications for asset protection zones as contained in Schedule 1 of this report. This includes reducing the overall tree canopy for each lot to a density of 15% with a separation between trees and a maintained grassland understorey of less than 100mm in height.

Vegetation located along the watercourse will be retained within a drainage reserve (refer to Figure 2). The remnant vegetation proposed to be retained will be protected and enhanced as part of future development, to improve the biodiversity values of the area (which is largely trees over paddock grasses) and improve ecological linkages across the landscape.

The primary lots affected by this are Lots 1009 - 1011, 1013, 1014, 1017 - 1020. Given a lot size of 1 hectare, 15% of the area is then 1,500sqm. Assuming that a tree might have a 10m diameter canopy, then the canopy will have an area of 78sqm. This would potentially allow up to nineteen trees to be retained on the lot.



LEGEND

SUBJECT LAND



DEVELOPMENT SITE



MULTIPLE USE WETLAND



HABITAT TREES
(With hollows suitable
for Black Cockatoos)

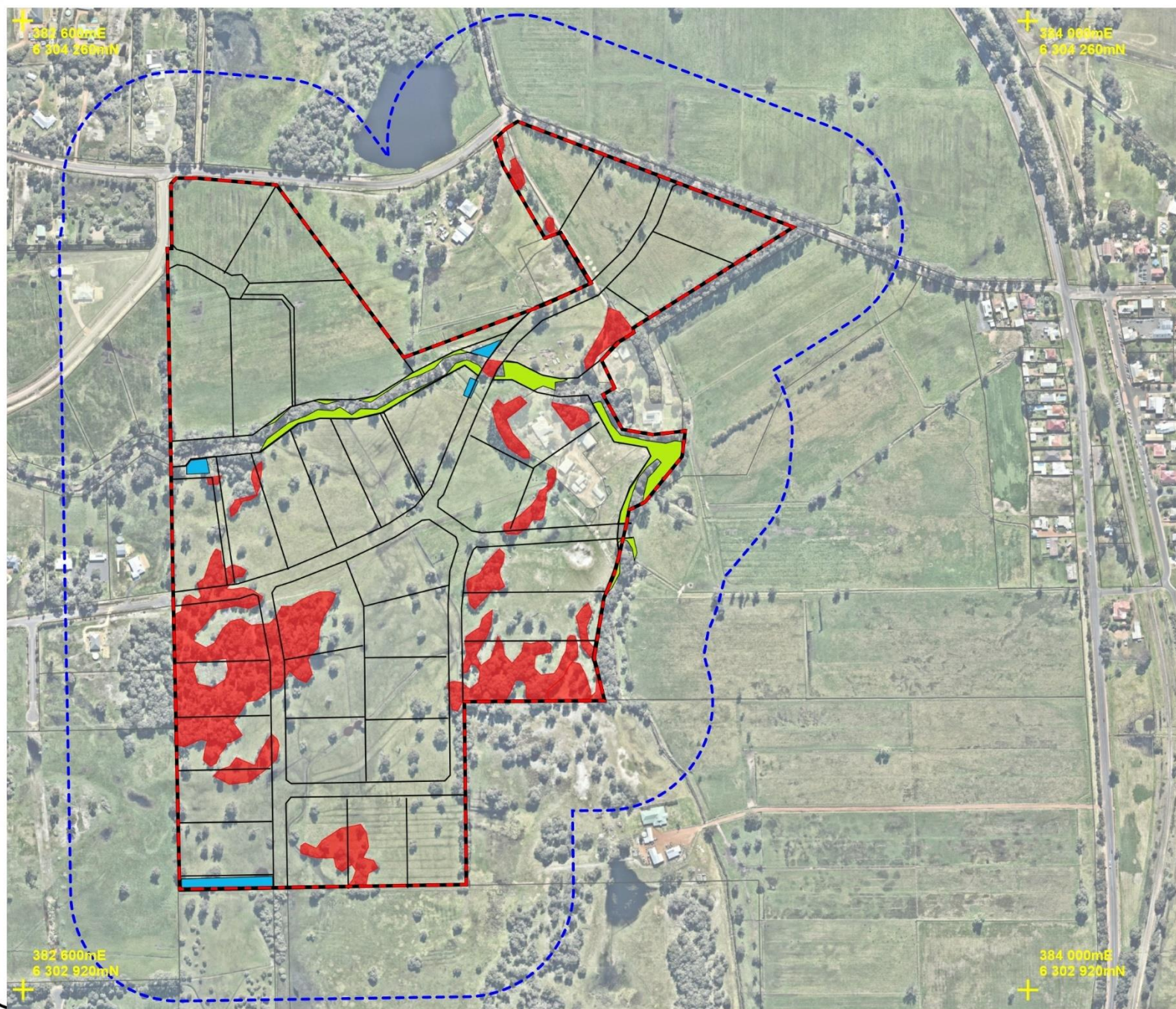


GEO REFERENCE



0m 150m

FIGURE 8
ENVIRONMENTAL FEATURES



LEGEND

DEVELOPMENT SITE



VEGETATION ASSESSMENT
AREA



(150m from the external
boundary of the subject land)



PROPOSED LOT BOUNDARIES

VEGETATION TO BE MODIFIED
AS LOW THREAT VEGETATION.
This is thinning of trees to have
a canopy cover of 15% with
canopies 5m apart and lower
branches removed to 2m above
ground level over managed
grassland less than 100m in
height.
(REFER TO SPECIFICATIONS IN
APPENDIX 1)



POTENTIAL REVEGETATION
AREAS



PROPOSED DRAINAGE BASINS



GEO REFERENCE



0m 150m

FIGURE 9
CLEARING AND REVEGETATION

3.0 Bushfire Assessment Results

3.1 Assessment Inputs - Vegetation Classification

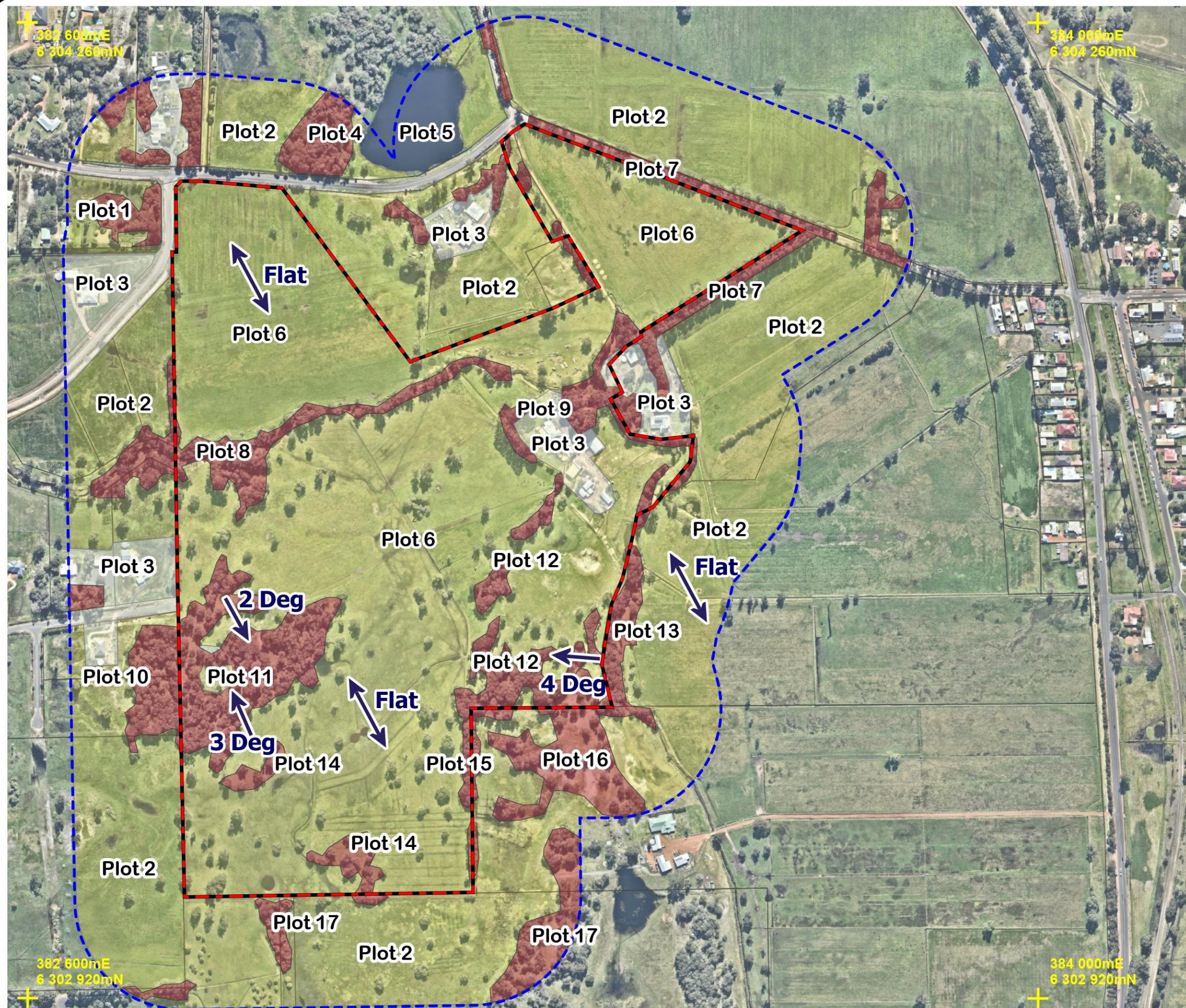
All vegetation within 150m of the proposed development site has been classified in accordance with:

- Clause 2.2.3 of Australian Standard AS3959 Construction of Buildings in Bushfire Prone Areas;
- The Visual Guide for Bushfire Risk Assessment in Western Australia; and
- Applicable Fire Protection Australia BPAD Practice Notes.

The vegetation plots are shown in Figure 10 and described in Table 3. The location of the vegetation photos is shown in Figure 11.

Table 3 Vegetation Summary

Plot	Vegetation Class	Description
1	Class A - Forest	Tall scrub and mixed trees on adjacent rural residential lots.
2	Class G Grassland	Broad acre grassland / pasture on adjoining farming properties.
3	Excludable – Clause 2.2.3.2(f)	Managed land on adjacent rural residential lots and subject land.
4	Class A - Forest	Dense grove of Peppermints.
5	Excludable – Clause 2.2.3.2(e)	Wetland
6	Class G Grassland	Improved pasture within the subject land.
7	Class A - Forest	Roadside vegetation generally 20m wide.
8	Class A - Forest	Mixed vegetation along the drainage line.
9	Class A - Forest	Exotic plantings and non-local gums around the house.
10	Class A - Forest	Dense Peppermints with some Marri on adjacent rural residential lots.
11	Class A - Forest	Peppermints and Marri within the subject land.
12	Class A - Forest	Peppermints and Marri within the subject land.
13	Class A - Forest	Mixed vegetation along the drainage line.
14	Class A - Forest	Small groups of trees within the subject land being more than 2,500sqm with more than 30% canopy coverage.
15	Class A - Forest	Dense linear group of trees along the property boundary, not being a windbreak.
16	Class A - Forest	Peppermints on adjacent land.
17	Class A - Forest	Copse of Melaleuca around wetland approximately 2,800sqm.



LEGEND

DEVELOPMENT SITE

VEGETATION ASSESSMENT AREA
(150m from the external boundary
of the subject land)

VEGETATION PLOTS

UPSLOPE

GEO REFERENCE

VEGETATION CLASS

A FOREST

G GRASSLAND

EXCLUDED CI 2.2.3.2

(e) NON VEGETATED Wetland

(f) MANAGED

Location Details: Lot 2 Harold Douglas Dv
Dardanup West

Assessment Date: 30/09/2021

Prepared by: G Lush

Accreditation Level: Level 2

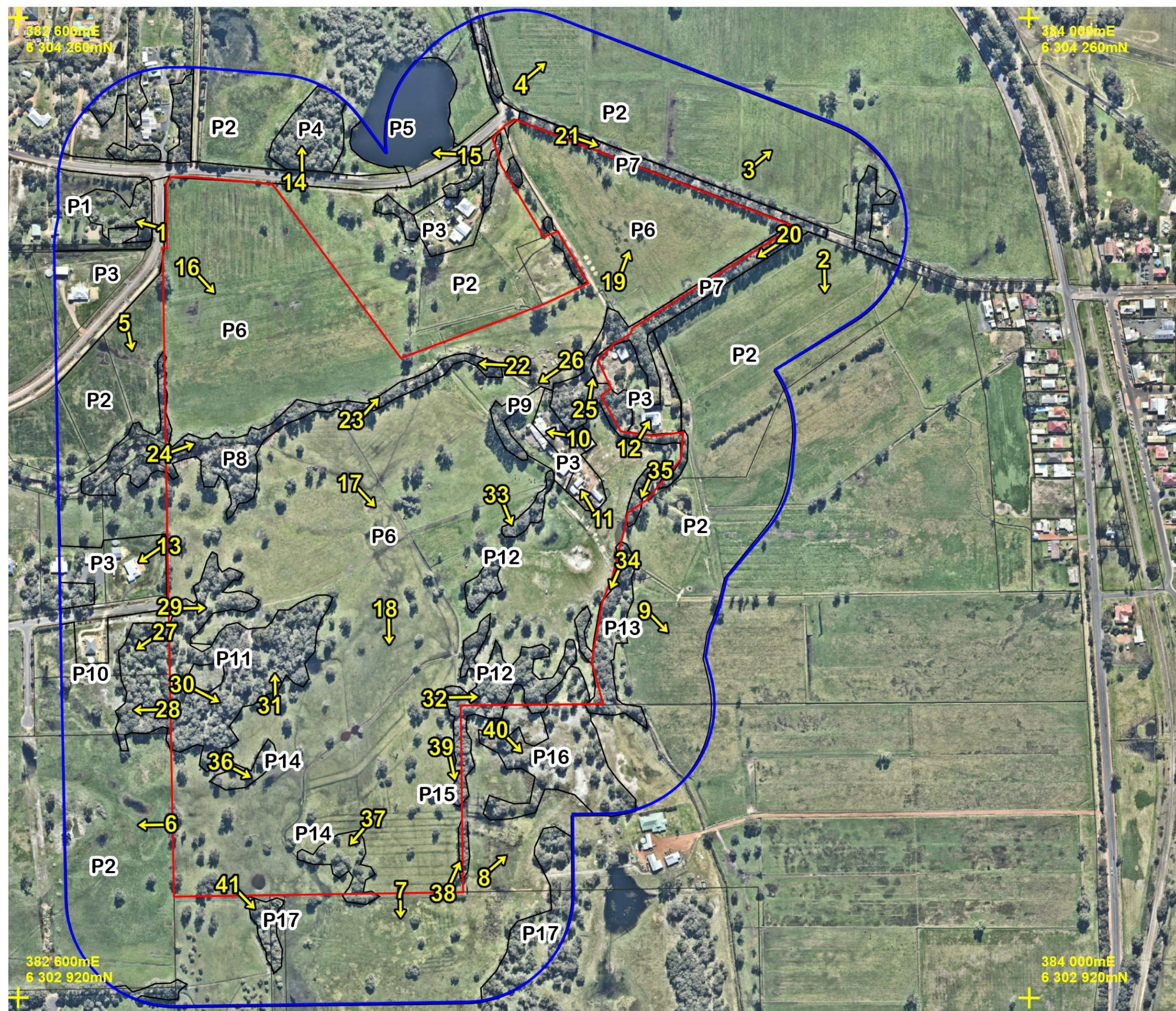
Accreditation Number: BPAD 27682

Accreditation Expiry Date: February 2022

Date of Aerial Photo: August 2021

0m 150m

FIGURE 10
VEGETATION CLASSIFICATION



LEGEND

DEVELOPMENT SITE



VEGETATION



ASSESSMENT AREA

(150m from the external
boundary of the subject land)

VEGETATION PLOT



PLOT NUMBER

P2

PHOTO LOCATIONS



GEO REFERENCE



0m 150m

FIGURE 11
PHOTOGRAPH LOCATIONS

Dardanup Park Farm

Photo No 1 Plot No 1

Vegetation Classification

Class A Forest - Open forest A-03

Description

Tall scrub and mixed trees on adjacent rural residential lots greater than 6m with variable foliage coverage and understorey.



Photo No 2 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Photo No 3 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Dardanup Park Farm

Photo No 4 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture
G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Photo No 5 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture
G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Photo No 6 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture
G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Dardanup Park Farm

Photo No 7 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture
G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Photo No 8 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture
G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Photo No 9 Plot No 2

Vegetation Classification

Class G Grassland – Sown pasture
G-26

Description

Broad acre grassland / pasture on adjoining farming properties.



Photo No 10 Plot No 3

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Managed land on adjacent rural residential lots and the subject land in compliance with the Shire's Fire Prevention Order



Photo No 11 Plot No 3

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Managed land on adjacent rural residential lots and the subject land in compliance with the Shire's Fire Prevention Order



Photo No 12 Plot No 3

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Managed land on adjacent rural residential lots and the subject land in compliance with the Shire's Fire Prevention Order



Dardanup Park Farm

Photo No 13 Plot No 3

Vegetation Classification

Excludable - 2.2.3.2(f) Low Threat Vegetation

Description

Managed land on adjacent rural residential lots and the subject land in compliance with the Shire's Fire Prevention Order



Photo No 14 Plot No 4

Vegetation Classification

Class A Forest - Open forest A-03

Description

Dense grove of Peppermints to 15m with more than 40% canopy coverage over grassland.



Photo No 15 Plot No 5

Vegetation Classification

Excludable - 2.2.3.2(e) Non Vegetated Areas

Description

Wetland with no vegetation.



Photo No 16 Plot No 6

Vegetation Classification

Class G Grassland – Dense sown pasture G-25

Description

Improved pasture within the subject land with some very scattered isolated trees..



Photo No 17 Plot No 6

Vegetation Classification

Class G Grassland – Dense sown pasture G-25

Description

Improved pasture within the subject land with some very scattered isolated trees..



Photo No 18 Plot No 6

Vegetation Classification

Class G Grassland – Dense sown pasture G-25

Description

Improved pasture within the subject land with some very scattered isolated trees..



Dardanup Park Farm

Photo No 19 Plot No 6

Vegetation Classification

Class G Grassland – Dense sown pasture G-25

Description

Improved pasture within the subject land with some very scattered isolated trees..



Photo No 20 Plot No 7

Vegetation Classification

Class A Forest - Open forest A-03

Description

Roadside vegetation generally 20m wide overall. Mixture of remnant and planted trees between 20 - 30m height with more than 30% canopy coverage.



Photo No 20 Plot No 7

Vegetation Classification

Class A Forest - Open forest A-03

Description

Roadside vegetation generally 20m wide overall. Mixture of remnant and planted trees between 20 - 30m height with more than 30% canopy coverage. Some lower branches within 2m of the ground.



Photo No 22 Plot No 8

Vegetation Classification

Class A Forest - Open forest A-03

Description

Mixed vegetation along the drainage line with some degraded open grass areas. Trees to 20m with more than 30% canopy coverage. Some lower branches within 2m of the ground and fallen timber.



Photo No 23 Plot No 8

Vegetation Classification

Class A Forest - Open forest A-03

Description

Mixed vegetation along the drainage line with some degraded open grass areas. Trees to 20m with more than 30% canopy coverage. Some lower branches within 2m of the ground and fallen timber.



Photo No 24 Plot No 8

Vegetation Classification

Class A Forest - Open forest A-03

Description

Mixed vegetation along the drainage line with some degraded open grass areas. Trees to 20m with more than 30% canopy coverage. Some lower branches within 2m of the ground and fallen timber.



Photo No 25 Plot No 9

Vegetation Classification

Class A Forest - Open forest A-03

Description

Exotic plantings and non-local gums around the house, but not considered as a wind break.



Photo No 26 Plot No 9

Vegetation Classification

Class A Forest - Open forest A-03

Description

Exotic plantings and non-local gums around the house, but not considered as a wind break.



Photo No 27 Plot No 10

Vegetation Classification

Class A Forest - Open forest A-03

Description

Dense Peppermints with some Marri to 25m height on adjacent rural residential lots. Canopy coverage up to 50% over grassland, with some lower branches and fallen timber.



Dardanup Park Farm

Photo No 28 Plot No 10

Vegetation Classification

Class A Forest - Open forest A-03

Description

Dense Peppermints with some Marri to 25m height on adjacent rural residential lots. Canopy coverage up to 50% over grassland, with some lower branches and fallen timber.



Photo No 29 Plot No 11

Vegetation Classification

Class A Forest - Open forest A-03

Description

Peppermints and Marri within the subject land. Variable canopy coverage to 50 % over grassland with lower branches removed from grazing. Some portions could be classified as Woodland.



Photo No 30 Plot No 11

Vegetation Classification

Class A Forest - Open forest A-03

Description

Peppermints and Marri within the subject land. Variable canopy coverage to 50 % over grassland with lower branches removed from grazing. Some portions could be classified as Woodland.



Photo No 31 Plot No 11

Vegetation Classification

Class A Forest - Open forest A-03

Description

Peppermints and Marri within the subject land. Variable canopy coverage to 50 % over grassland with lower branches removed from grazing. Some portions could be classified as Woodland.



Photo No 32 Plot No 12

Vegetation Classification

Class A Forest - Open forest A-03

Description

Peppermints and Marri within the subject land. Variable canopy coverage to 50 % over grassland with lower branches removed from grazing.



Photo No 33 Plot No 12

Vegetation Classification

Class A Forest - Open forest A-03

Description

Peppermints and Marri within the subject land. Variable canopy coverage to 50 % over grassland with lower branches removed from grazing.



Photo No 34 Plot No 13

Vegetation Classification

Class A Forest - Open forest A-03

Description

Mixed vegetation along the drainage line with some degraded open grass areas. Trees to 20m with more than 30% canopy coverage. Some lower branches within 2m of the ground and fallen timber.



Photo No 35 Plot No 13

Vegetation Classification

Class A Forest - Open forest A-03

Description

Mixed vegetation along the drainage line with some degraded open grass areas. Trees to 20m with more than 30% canopy coverage. Some lower branches within 2m of the ground and fallen timber.



Photo No 36 Plot No 14

Vegetation Classification

Class A Forest - Open forest A-03

Description

Small groups of trees within the subject land being more than 2,500sqm with more than 30% canopy coverage.



Photo No 37 Plot No 14

Vegetation Classification

Class A Forest - Open forest A-03

Description

Small groups of trees within the subject land being more than 2,500sqm with more than 30% canopy coverage.



Photo No 38 Plot No 15

Vegetation Classification

Class A Forest - Open forest A-03

Description

Dense linear group of trees along the property boundary, not being a windbreak as it has more than one row. Dense canopy coverage greater than 50% with no understorey.



Photo No 39 Plot No 15

Vegetation Classification

Class A Forest - Open forest A-03

Description

Dense linear group of trees along the property boundary, not being a windbreak as it has more than one row. Dense canopy coverage greater than 50% with no understorey.



Dardanup Park Farm

Photo No 40 Plot No 16

Vegetation Classification

Class A Forest - Low open forest A-04

Description

Peppermints on adjacent land.



Photo No 41 Plot No 17

Vegetation Classification

Class A Forest - Low open forest A-04

Description

Copse of Melaleuca around wetland to 10m height with 50% canopy coverage. Approximately 2,800sqm in size.



3.2 Assessment Outputs

3.2.1 Vegetation Modification

The revised classification of the vegetation recognising the clearing and revegetation referenced in Section 2.2 is shown in Figure 12 and the modifications to the vegetation plots is documented in Table 4 below.

Table 4 Revised Vegetation Classification

Plot	Modification	Vegetation Class
1	Unchanged	Class A - Forest
2	Unchanged	Class G Grassland
2A	Proposed drainage basins	Class G Grassland
3	Unchanged	Excludable – Clause 2.2.3.2(f)
4	Unchanged	Class A - Forest
5	Unchanged	Excludable – Clause 2.2.3.2(e)
6	Modified to low threat state	Excludable – Clause 2.2.3.2(f)
7	Small portion cleared	Class A - Forest
8	Includes additional revegetation areas	Class A - Forest
9	Modified to low threat state	Excludable – Clause 2.2.3.2(e)
10	Unchanged	Class A - Forest
11	Modified to low threat state	Excludable – Clause 2.2.3.2(f)
12	Modified to low threat state	Excludable – Clause 2.2.3.2(f)
13	Includes additional revegetation areas	Class A - Forest
14	Modified to low threat state	Excludable – Clause 2.2.3.2(f)
15	Unchanged	Class A - Forest
16	Unchanged	Class A - Forest
17	Unchanged	Class A - Forest

3.2.2 Bushfire Hazard Level Assessment

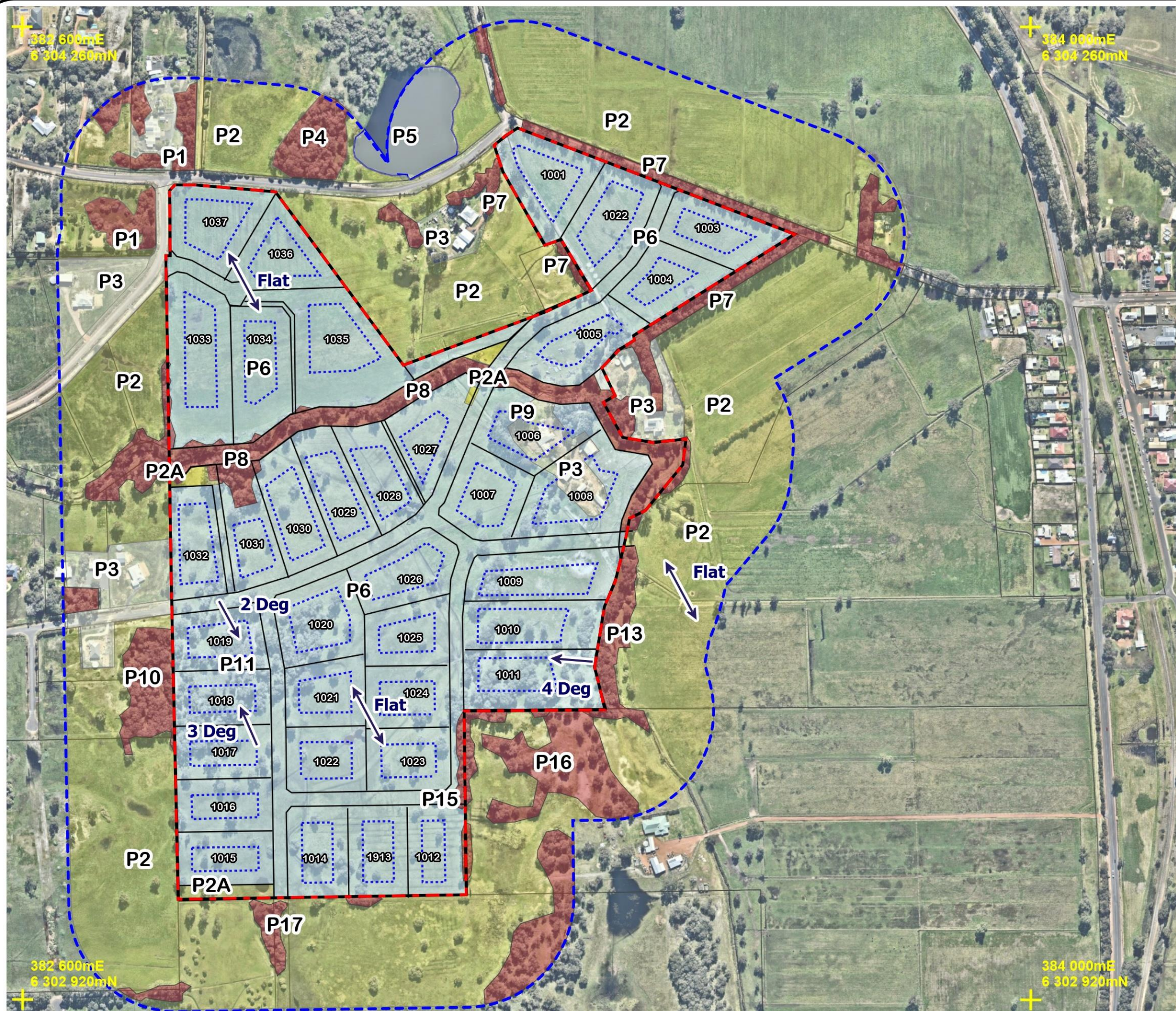
The bushfire hazard primarily relates to the vegetation on the site, the type and extent (area) of vegetation and its characteristics. The methodology for determining the bushfire hazard level is contained in the Guidelines for Planning in Bushfire Prone Areas (Section 4.1 and Appendix 2).

The classifications are as follows:

Extreme Hazard	<ul style="list-style-type: none">• Class A Forest• Class B Woodland (05)• Class D Scrub• Any classified vegetation with a greater than 10 degree slope
Moderate Hazard	<ul style="list-style-type: none">• Class B Open Woodland (06), Low Woodland (07) Low Open Woodland (08) Open Shrubland (09) *• Class C Shrubland• Class E Mallee/Mulga• Class G Grassland including sown pasture and crops• Vegetation that has a low hazard level but is within 100 metres of vegetation of vegetation classified as a moderate or extreme hazard.
Low Hazard	<ul style="list-style-type: none">• Low threat vegetation, may include the following: areas of maintained lawns, golf courses, public recreation reserves and parklands, vineyards, orchards; cultivated gardens, commercial nurseries, nature strips and windbreaks.• Managed grassland in a minimal fuel condition meaning that there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example short cropped grass to a nominal height of 100mm.• Non vegetated areas including waterways; roads; footpaths; buildings or rock outcrops.

The bushfire hazard assessment levels for the completed development are shown in Figure 13. This is based upon the assumptions in Section 2.2 regarding clearing and revegetation

The development site is expected to have a moderate or low bushfire hazard level when developed. Development of land with a proposed moderate hazard level complies with objectives and provisions of SPP3.7 Planning in Bushfire Prone Areas.



LEGEND

DEVELOPMENT SITE



VEGETATION
ASSESSMENT AREA
(150m from the
external boundary
of the subject land)



PROPOSED CADASTRE



BUILDING ENVELOPES



VEGETATION PLOTS



UPSLOPE



GEO REFERENCE



VEGETATION CLASS

A FOREST



G GRASSLAND



AREAS TO BE MODIFIED
TO LOW THREAT STATE



MANAGED LAND

EXCLUDED VEGETATION
2.2.3.2(f)



Location Details: Lot 2 Harold Douglas Dv
Dardanup West

Assessment Date: 30/09/2021

Prepared by: G Lush

Accreditation Level: Level 2

Accreditation
Number: BPAD 27682

Accreditation
Expiry Date: February 2022

Date of Aerial
Photo: August 2021

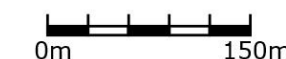
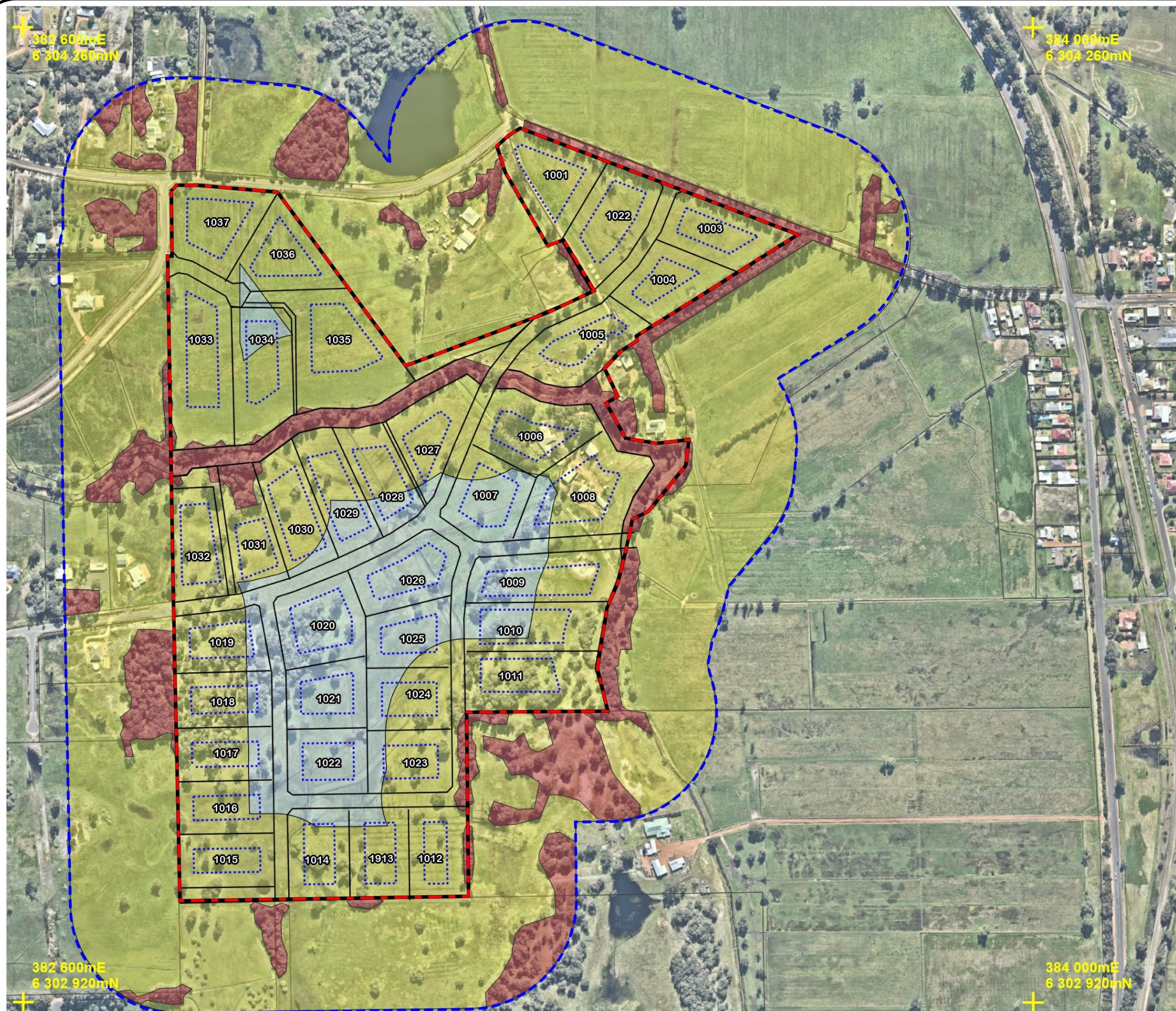


FIGURE 12
MODIFIED VEGETATION CLASSIFICATION



LEGEND

- DEVELOPMENT SITE ---
- ASSESSMENT AREA
(150m from the external
boundary of the subject site) ---
- PROPOSED CADASTRE ---
- BUILDING EXCLUSION
AREA/BUILDING ENVELOPE ---
- BUSHFIRE HAZARD LEVEL
 - EXTREME ■
 - MODERATE ■
 - LOW ■

NOTE: Moderate hazard level includes land within land with either a moderate or extreme hazard level.

FIGURE 13
BUSHFIRE HAZARD LEVEL ASSESSMENT
COMPLETED DEVELOPMENT

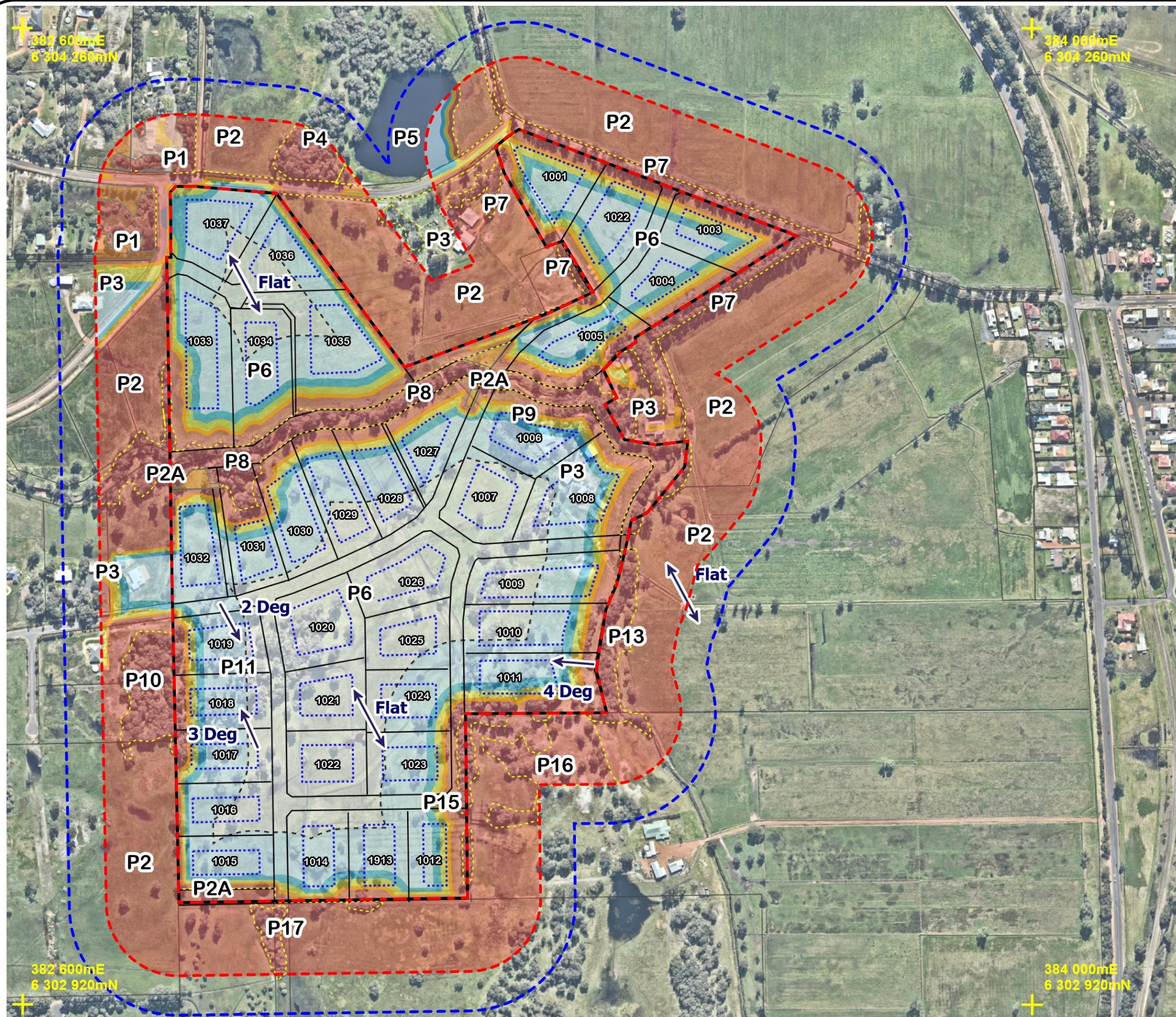
3.2.3 BAL Contour Map

A BAL Contour Map is a plan of the subject lot/s illustrating the potential radiant heat impacts and associated indicative BAL ratings in reference to any classified vegetation remaining within 100 metres of the assessment area after the development is completed. They may be subject to change arising from alterations to site conditions, amendments to AS3959, practice notes, or methodology. Individual BAL Assessments may vary depending upon the characteristics of the vegetation when the BAL Assessment is undertaken.

The BAL Contour Map is shown in Figure 14 and the setbacks to the lots are documented in Table 5 noting that:

- The selected vegetation plot is the plot with the highest BAL rating.
- The separation distance is measured to the nearest point on the defined building envelope.
- The distance from the classified vegetation is measured on the horizontal plane. In accordance with AS3959 Figure 2.1 and 2.2 this must have regard to the unmanaged understorey rather than the canopy drip line or any truck of trees. The vegetation plots on the BAL Contour Map often reflect the extend of the tree canopy. This setback might be reduced where the understorey is then managed vegetation and the BAL setback is measured from the tree trunk.
- The assigned BAL rating is the highest rating for the building envelope. This may be reduced depending upon where the dwelling is located within the envelope.
- The 'Predominant BAL Rating for the Building Envelope' is the rating that occupies the greatest percentage of the building envelope.
- The following vegetation is referenced in AS3959 Clause 2.2.3.2 as being excluded from the BAL Assessment:
 - (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 vegetation.
 - (c) Multiple areas of vegetation less than 0.25ha in area and not within 20m of the site, or each other, or other areas of vegetation being classified vegetation.
 - (d) Strips of vegetation less than 20m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20m of the site or each other, or other areas of vegetation being classified vegetation.
 - (e) Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.
 - (f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grasslands managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

All of the proposed building envelopes / development footprints will have a rating of BAL-29 or less.



LEGEND

DEVELOPMENT AREA	
VEGETATION ASSESSMENT AREA (150m from the external boundary of the subject land)	
BAL CONTOUR ASSESSMENT AREA (100m from the external boundary of the subject land)	
VEGETATION PLOTS	
BUILDING ENVELOPES / EXCLUSION AREAS	
UPSLOPE	
INDICATIVE BUSHFIRE ATTACK LEVELS	
BAL - FZ	
BAL - 40	
BAL - 29	
BAL - 19	
BAL - 12.5	
BAL - Low	

Location Details: Lot 2 Harold Douglas Dv
Dardanup West

Assessment Date: 30/09/2021

Prepared by: G Lush

Accreditation Level: Level 2

Accreditation Number: BPAD 27682

Accreditation Expiry Date: February 2022

Date of Aerial Photo: August 2021

0m 150m

FIGURE 14
BAL CONTOUR MAP

The BAL Contours shown on this plan are indicative and reflect the anticipated ratings for the completed development, based upon the assumptions referenced in the report. BAL Assessments for individual lots may vary and maybe subject to change arising from alterations to the site conditions, AS3959, the Bushfire Guidelines, practice notes, or methodology.



Job No 21-036

Rev Description
A Preliminary

Date
06/10/2021



geoffrey@lushfire.com.au
0418 954873

Dardanup Park Farm

Table 5 BAL Setbacks

Lot	Veg Plot	Vegetation Classification	Slope	Setback to Building Envelope	Assigned BAL Rating	Predominant BAL rating for Building Envelope
1001	7	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1002	7	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1003	7	Class A - Forest	Flat	21m	BAL – 29	BAL – 19
1004	7	Class A - Forest	Flat	28m	BAL – 29	BAL – 12.5
1005	7	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1006	9	Class A - Forest	Flat	31m	BAL – 19	BAL – 12.5
1007	9	Class A - Forest	Flat	106m	BAL – LOW	BAL – LOW
1008	9	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1009	13	Class A - Forest	>0-5	27m	BAL – 29	BAL – 12.5
1010	13	Class A - Forest	>0-5	50m	BAL – 12.5	BAL – 12.5
1011	16	Class A - Forest	>0-5	27m	BAL – 29	BAL – 12.5
1012	15	Class A - Forest	Flat	21m	BAL – 29	BAL – 19
1013	17	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1014	17	Class A - Forest	Flat	28m	BAL – 29	BAL – 12.5
1015	2A	Class G Grassland	Flat	20m	BAL – 12.5	BAL – 12.5
1016	2	Class G Grassland	Flat	20m	BAL – 12.5	BAL – 12.5
1017	10	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1018	10	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1019	10	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1020	10	Class A - Forest	Flat	164m	BAL – LOW	BAL – LOW
1021	10	Class A - Forest	Flat	175m	BAL – LOW	BAL – LOW
1022	10	Class A - Forest	Flat	175m	BAL – LOW	BAL – LOW
1023	15	Class A - Forest	Flat	25m	BAL – 29	BAL – 12.5
1024	15	Class A - Forest	Flat	32m	BAL – 19	BAL – 12.5
1025	15	Class A - Forest	Flat	92m	BAL – 12.5	BAL – LOW
1026	15	Class A - Forest	Flat	180m	BAL – LOW	BAL – LOW
1027	8	Class A - Forest	Flat	30m	BAL – 29	BAL – 12.5
1028	8	Class A - Forest	Flat	30m	BAL – 29	BAL – 12.5
1029	8	Class A - Forest	Flat	30m	BAL – 29	BAL – 12.5
1030	8	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5

Lot	Veg Plot	Vegetation Classification	Slope	Setback to Building Envelope	Assigned BAL Rating	Predominant BAL rating for Building Envelope
1031	8	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1032	8	Class A - Forest	Flat	30m	BAL – 29	BAL – 12.5
1033	8	Class A - Forest	Flat	21m	BAL – 29	BAL – 12.5
1034	8	Class A - Forest	Flat	42m	BAL – 12.5	BAL – 12.5
1035	2	Class G Grassland	Flat	17m	BAL – 12.5	BAL – 12.5
1036	2	Class G Grassland	Flat	17m	BAL – 12.5	BAL – 12.5
1037	1	Class A - Forest	Flat	37m	BAL – 19	BAL – 12.5

4.0 Identification of Bushfire Hazard Issues

The proposed development is introducing substantial values (property and people) which must be protected from the risk posed by the potential bushfire hazard. The context of the subject land to the surrounding area is shown in Figure 10.

The surrounding land is a mixture of rural residential, and broad acre rural land uses, including irrigated pasture. Hazard vegetation is scattered and often occurs in linear areas along the road reserves and drainage lines.

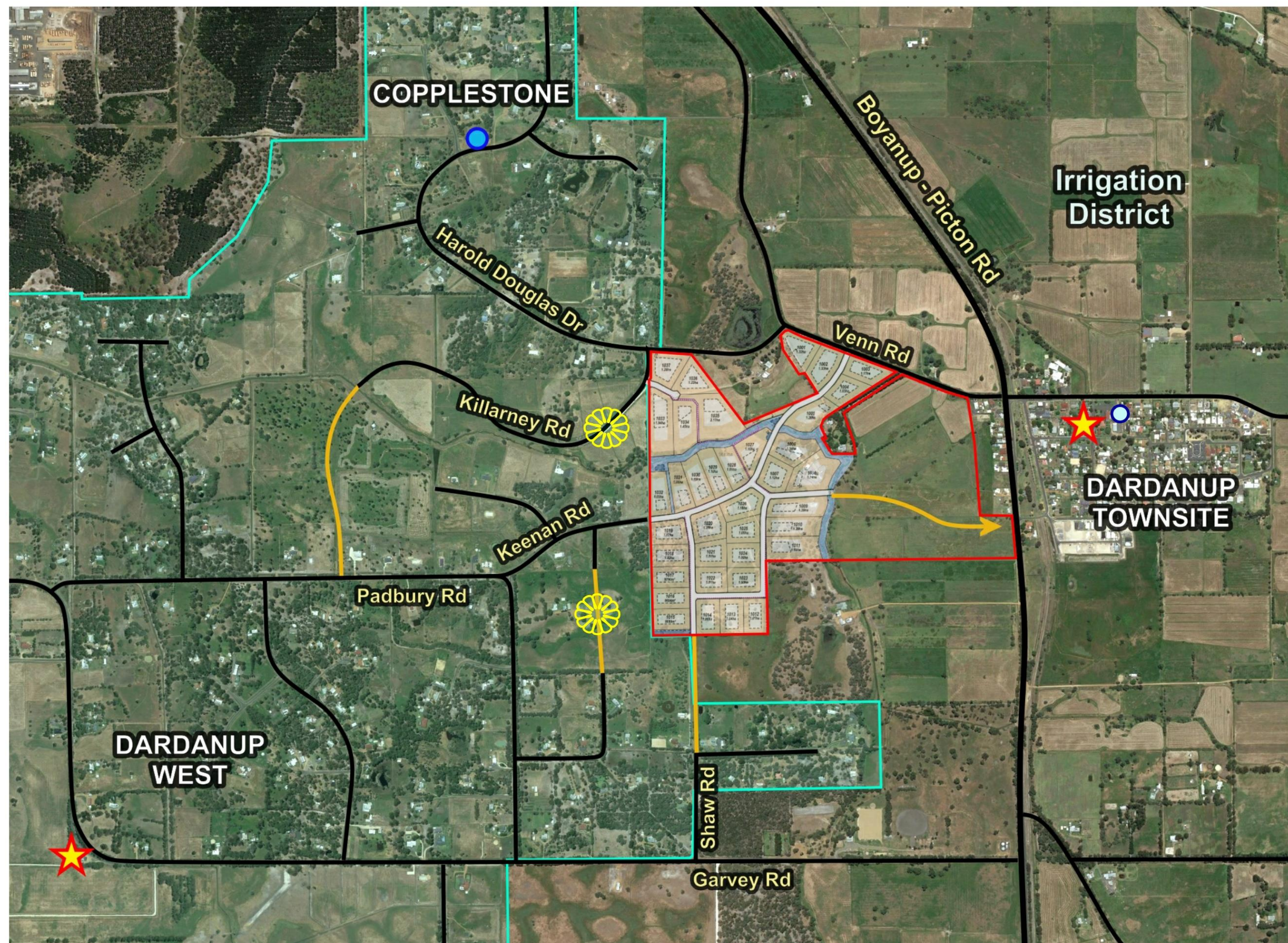
The primary bushfire hazard is from a fast moving grass fire which can still have the potential to be a destructive fire threatening life and property. The likelihood of this occurring increases when there is a high chance of ignition due to the amount of fuel, the extent of vegetation curing (drying out) the temperature; relative humidity and wind speed.

The subject land and the development site are situated in an existing structure plan area, which is still being developed. Strategically the development of the site will create an important local road connection from Padbury / Keenan Road connecting to Venn Road directly accessing the Dardanup townsite. This will provide enhanced bushfire protection for many existing residents living in the adjoining area.

The townsite includes local safer places, the town hall and the Dardanup Central Volunteer Bush Fire Brigade.

The key bushfire management issues for the proposed development are:

- Provision of appropriate separation distances from permanent bushfire hazards surrounding the site to ensure a BAL rating of BAL-29 or less can be achieved;
- Ensuring that vegetation within hazard separation distance is maintained as low threat vegetation;
- Provision of appropriate vehicular access to ensure that the development of the site, including any staging, has egress in two different directions;
- Provision of appropriate water supply and associated infrastructure; and
- Construction of dwellings in accordance with AS3959 construction standards.



LEGEND

- SUBJECT LAND
- EXISTING RURAL SMALL HOLDING ZONES
- APPROVED LOCAL STRUCTURE PLAN / SUBDIVISION APPROVAL
- PROPOSED ROAD
- BUSHFIRE BRIGADE
- STRATEGIC BUSHFIRE WATER TANK
- PROPOSED WATER TANK LOCATION

FIGURE 15
LOCAL CONTEXT

5.0 Assessment Against the Bushfire Protection Criteria

5.1 BPC Elements

The requirements of the Bushfire Protection Criteria as contained in Version 1.4 (Dec 2021) of the Guidelines for Planning in Bushfire Prone Areas are referenced in the following sections.

5.1.1 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.

Acceptable Solution	Compliance
<p><u>A1.1 Development location</u></p> <p>The strategic planning proposal, subdivision and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.</p>	<p>The majority of the development site will have a moderate bushfire hazard level. All of the designated building envelopes will have a rating of BAL-29 or less.</p>

5.1.2 Element 2 Siting and Design of Development

Intent: To ensure that the siting and design of development minimises the level of bushfire impact.

Acceptable Solution	Compliance
<p><u>A2.1 Asset Protection Zone</u></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> <ul style="list-style-type: none">• 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 29kW/m² (BAL-29) in all circumstances.• 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 or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity.• Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones'.	<p>The proposed lots are large enough to fully contain the asset protection zone within the lot boundaries. While these are to be the minimum distance required to achieve a BAL-29 rating, the Shire's Fire Prevention Order requires a 20m APZ for each dwelling.</p> <p>The proposed building exclusion areas, generally have a 20m setback from the lot boundaries. There are however a number of lots where this setback is only 10m typically being a side boundary. In this situation the APZ might extend over the lot boundary, but it is proposed that the whole of lots will be developed and maintained in accordance with the APZ specifications.</p>

5.1.3 Element 3 Vehicular Access

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

Acceptable Solution	Compliance
<p><u>A3.1 Public road</u></p> <p>The minimum requirements under this acceptable solution are applicable to all proposed and existing public roads.</p> <p>Public roads are to meet the minimum technical requirements in Table 6, Column 1.</p> <p>The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area.</p> <p><u>A3.2a Multiple access routes</u></p> <p>Public road access is to be provided in two different directions to at least two different suitable destinations with an all-weather surface (two-way access).</p> <p>If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the road access is to be a maximum of 200 metres from the subject lot(s) boundary to an intersection where two-way access is provided.</p> <p>The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met:</p> <ul style="list-style-type: none"> the no-through road travels towards a suitable destination; and the balance of the no-through road, that is greater than 200 metres from the subject site, is wholly within BAL-LOW, or is within a residential built-out area. <p><u>A3.2b Emergency access way</u></p> <p>Where it is demonstrated that A3.2a cannot be achieved due to site constraints, or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution.</p>	<p>The vehicular access technical requirements (BPC Table 6) are shown in Table 4 at the end of this section.</p> <p>The proposed subdivision roads are to be designed in accordance with Institute of Public Works Engineering Australia WA Division Inc. (2009) Local Government Subdivisional Guidelines. This includes a minimum trafficable surface of 6m.</p> <p>The development site has access in multiple directions being:</p> <ul style="list-style-type: none"> Venn Road to the east connecting to the Boyanup - Picton Road; Venn Road and Harold Douglas Drive to the north; and Keenan Road to the west. <p>There are no proposed emergency access ways.</p>

Acceptable Solution	Compliance
<p><u>A3.3 Through-roads</u></p> <p>All public roads should be through-roads. No-through roads should be avoided and should only be considered as an acceptable solution where:</p> <ul style="list-style-type: none"> • it is demonstrated that no alternative road layout exists due to site constraints; and • the no-through road is a maximum length of 200 metres to an intersection providing two-way access, unless it satisfies the exemption provisions in A3.2a of this table. <p>A no-through road is to meet all the following requirements:</p> <ul style="list-style-type: none"> • requirements of a public road (Table 6, Column 1); and • turn-around area as shown in Figure 24 (18 metre diameter head). <p><u>A3.4a Perimeter roads</u></p> <p>A perimeter road is a public road and should be provided for greenfield or infill development where 10 or more lots are being proposed (including as part of a staged subdivision) with the aim of:</p> <ul style="list-style-type: none"> • separating areas of classified vegetation under AS3959, which adjoin the subject site, from the proposed lot(s); and • removing the need for battle-axe lots that back onto areas of classified vegetation. <p>A perimeter road is to meet the requirements contained in Table 6, Column 1.</p> <p>A perimeter road may not be required where:</p> <ul style="list-style-type: none"> • the adjoining classified vegetation is Class G Grassland; • lots are zoned for rural living or equivalent; • it is demonstrated that it cannot be provided due to site constraints; or • all lots have frontage to an existing public road. <p><u>A3.4b Fire service access route</u></p> <p>Where proposed lots adjoin classified vegetation under AS3959, and a perimeter road is not required in accordance with A3.4a, a fire service access route can be considered as an acceptable solution to provide firefighter access, where access is not available, to the classified vegetation.</p>	<p>Figure 6 Roads A, D and E are all no through roads noting that Roads D and E are located in accordance with the Dardanup West structure plan so as to provide a future connection through adjoining land.</p> <p>Both Roads D and E only provide access to a single lot and the constructed length will be shortened to a maximum of 200m with an associated turn around area.</p> <p>Road A being a cul-de-sac extending from Killarney Road for 110m, servicing five (5) lots. There is no design alternative for this road given the proximity of the intersection of Killarney Road and Harold Douglas Drive.</p> <p>No perimeter roads have been provided as:</p> <ul style="list-style-type: none"> • The adjoining vegetation, with the exception of Gavin's Gully is predominantly grassland; • The proposed lots are for rural living purposes; and • Provision of a perimeter road along Gavin's Gully is not practical given the need to comply with the road layout on the approved structure plan. <p>Not applicable as no fire access route is being provided.</p>

Acceptable Solution	Compliance
<p>A3.5 Battle-axe access legs</p> <p>Where it is demonstrated that a battle-axe cannot be avoided due to site constraints, it can be considered as an acceptable solution.</p> <p>There are no battle-axe technical requirements where the point the battle-axe access leg joins the effective area of the lot, is less than 50 metres from a public road in a reticulated area.</p> <p>In circumstances where the above condition is not met, or the battle-axe is in a non-reticulated water area, the battle-axe is to meet all the following requirements:</p> <ul style="list-style-type: none"> • requirements in Table 6, Column 4; and • passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres). 	<p>There is one proposed battle axe being Lot 1035. This is unavoidable given the site and access constraints in the north western corner of the development site.</p> <p>The battle axe leg is 50m in length and 15m wide.</p>
<p>A3.6 Private driveway</p> <p>There are no private driveway technical requirements where the private driveway is:</p> <ul style="list-style-type: none"> • within a lot serviced by reticulated water; • no greater than 70 metres in length between the most distant external part of the development site and the public road measured as a hose lay; and • accessed by a public road where the road speed limit is not greater than 70 km/h. • within a lot serviced by reticulated water. <p>In circumstances where all of the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following:</p> <ul style="list-style-type: none"> • requirements in Table 6, Column 4; • passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and • 18m diameter turn-around area as shown in Figure 28 and within 30 metres of the habitable building. 	<p>This provision relates to development applications rather than the Amendment or subdivision. As the site does not have a reticulated water supply, all driveways are to comply with the provisions including having an 18m diameter turning area adjacent to the dwelling. These measures are also reflected in the Special Development provisions in the Scheme Amendment.</p>

5.1.4 Element 4 Water

Intent: To ensure that water is available to the subdivision, development or land use to enable people, property and infrastructure to be defended from bushfire.	
Acceptable Solution	Compliance
<p>A4.1 Identification of future water supply</p> <p>Evidence that a reticulated or sufficient non-reticulated water supply for bushfire fighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2.</p> <p>Where the provision of a strategic water tank(s) is required a suitable area within a road reserve or a dedicated lot the location should be identified, should be identified on the structure plan, to the satisfaction of the local government.</p>	<p>This will be provided at the Dardanup Central Volunteer Bush Fire Brigade in the Dardanup Townsite which has a reticulated water supply.</p>
<p>A4.2 Provision of water for firefighting purposes</p> <p>Where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority.</p> <p>Where these specifications cannot be met, then the following applies:</p> <ul style="list-style-type: none"> • The provision of a water tank(s), in accordance with the requirements of Schedule 2 being 50,000L per 25 lots or part thereof or 10,000L tank per lot. • Where the provision of a strategic water tank(s) is applicable, then the following requirements apply: <ul style="list-style-type: none"> – land to be ceded free of cost to the local government for the placement of the tank(s); – the lot or road reserve where the tank is to be located is identified on the plan of subdivision; – tank capacity, construction, and fittings, provided in accordance with the requirements of Schedule 2; and – a strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds). 	<p>The site is not connected to the reticulated water supply.</p> <p>The subject land is not connected to a reticulated water supply and it is proposed to provide two (2) 50,000L water tanks as approved by the Shire at the either:</p> <ul style="list-style-type: none"> • Lot 34 Ferguson Road, being the Dardanup Central Volunteer Bush Fire Brigade in the Dardanup Townsite. This is located approximately 2kms from the furthest lot in the subdivision being Lot 1015. • Lot 449 Harold Douglas Drive (R43955) which has existing strategic water supply for the subdivision in Killarney Road. This is located approximately 1.4kms from the nearest lot in the subdivision and 3.4 kms from the furthest lot being Lot 1015.
<p>Where a subdivision includes an existing habitable building(s) that is to be retained, a water supply should be provided to this existing habitable building(s), in accordance with the requirements listed above.</p>	<p>The existing dwelling is located on Lot 1006 and included in the above calculations.</p>

5.2 Additional Management Strategies

5.2.1 Individual Water Supply

The provision of and maintenance of reliable water supplies is essential in fire control and a suitable water supply must be readily available and accessible to Fire Appliances at all times. While there will be a strategic water tank for fire fighting, the fire protection of lots will be improved by having an additional water supply for each dwelling.

It is important to note, that a combined tank of drinking water and water for firefighting purposes is not recommended. This requirement is necessary, as stagnant water may alter the quality of the drinking water and the emergency services, by law, may not be able to take water from the water supply to suppress a bushfire.

The available water supply should be a minimum of 10,000L with a non electric pump and appropriate fittings as follows:

- a) A 50mm male camlock couplings with full flow valves;
- b) The fittings positioned at the base of the tank so that the total tank capacity is available for firefighting purposes at any time;
- c) An adequate hard standing access must also be provided adjacent to such connection/s and must be readily identifiable; and
- d) A nonelectric firefighting pump (normally 5.5hp) with sufficient hose to protect the dwelling and the surrounding low fuel zone.

5.2.2 Purchaser Advice

All prospective purchasers must be made aware of the fire management issues, measures and responsibilities associated with the development and subdivision. This can be a notification placed upon the Certificate of Title of all lots advising landowners of this Bushfire Management Plan and BAL requirements.

5.2.3 Staging

The development of the estate may have staged construction. In the event that the subdivision is staged then it is necessary to ensure that appropriate interim measures are provided. These may include:

- Interim access or emergency access ways;
- Creation of additional low fuel zones to ensure that the intended BAL ratings can be applied; or
- The provision of boundary firebreaks especially on any balance lot.

For any proposed stage of the subdivision a statement and plan of the proposed interim fire management measures will be submitted and approved by the local government.

5.2.4 Bushfire Survival Plan

Before the start of the fire season landowners need to decide what to do in the event of a bushfire including:

- Property preparation and maintenance;
- Knowing the bushfire warning levels and triggers for when to leave;
- Knowing where to go; and
- Knowing which way to go.

This can be accomplished by the preparation of a Bushfire Survival Plan and Preparedness-Toolkit is available online at <https://mybushfireplan.wa.gov.au/>

6.0 Responsibilities for Implementation and Management of the Bushfire Measures

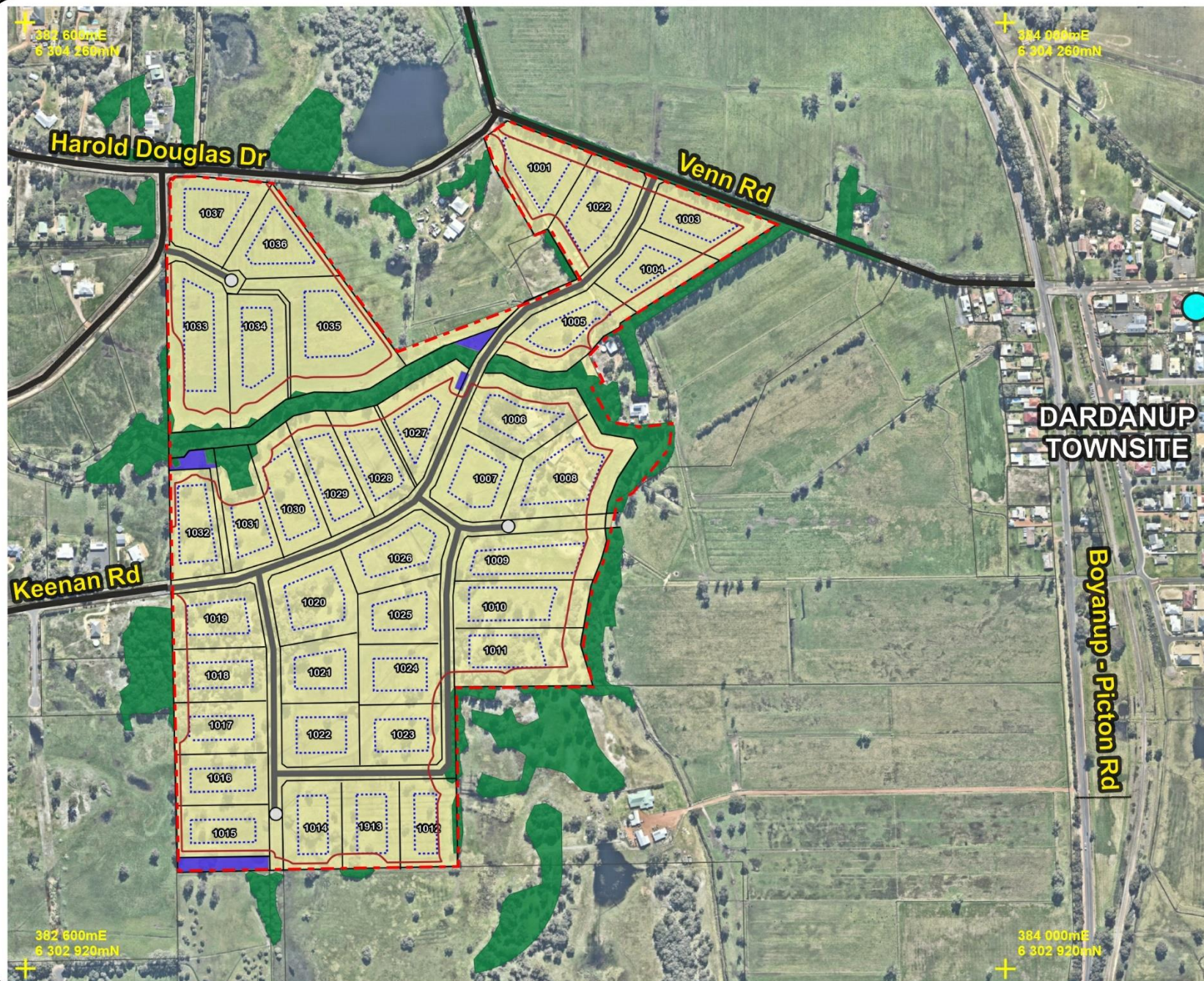
The management of the risk posed by bushfires is a shared responsibility between landowners, government and industry. These responsibilities are documented in Table 6.

The management measures listed below should not be construed to assure total bushfire protection and do not guarantee that a building will not be damaged in a bushfire. The severity of a bushfire will depend upon the vegetation fuel loadings; the prevailing weather conditions and the implementation of appropriate fire management measures.

Table 6 Implementation

No	MANAGEMENT ACTION
1.0 Developer Prior to Issue of Titles (Subdivision)	
1.1	Compliance with the applicable measures in this Bushfire Management Plan relating to the subdivision construction including those outlined in Section 5.0 and Figure 16 Spatial Measures and any vegetation modifications required to achieve the proposed BAL ratings.
1.2	Construction of the subdivision roads to standards outlined in the BMP to ensure safe access and egress.
1.3	Construction of the battle axe legs to the standards outlined in the BMP/subdivision approval.
1.4	Provision of two 50,000L water tanks to the requirements and satisfaction of the Shire of Dardanup at either: <ul style="list-style-type: none">• Lot 34 Ferguson Road being the Dardanup Central Volunteer Bush Fire Brigade site; or• Lot 449 Harold Douglas Drive (R43955) being an existing water tank site.
1.5	Clearing the existing vegetation within the development area as shown in Figures 9 and 16 and maintaining this as an Asset Protection Zone in accordance with the specifications in Schedule 1 (attached).
1.6	Preparing a notification be included on the certificate of titles for lots having a BAL-12.5 rating or higher advising that the land is bushfire prone and subject to a Bushfire Management Plan.
1.7	Implementing any temporary measures required for staging of the subdivision to ensure that the proposed BAL ratings do not alter. In the event of any staging of the subdivision a plan and statement of the proposed interim fire management measures will be submitted and approved by the Shire as an adjunct to Figure 16.
2.0 Developer Prior to Sale of Lots (Purchase)	
2.1	Providing prospective purchasers with a summary of this BMP
3.0 Landowner Prior to Occupancy (Development)	
3.1	Siting of dwellings so as to have a maximum BAL-29 rating.
3.2	Ensuring that any application for a building permit for a dwelling (on land designated as being bushfire prone) is to include an individual BAL assessment to confirm that sufficient land has been cleared to provide for BAL-29 setbacks.
3.3	That any driveway longer than 50m are to be designed and constructed in accordance with the following specifications: <ul style="list-style-type: none">• A minimum 4m trafficable surface (0.5m shoulders);• Minimum 6m horizontal clearance to vegetation;• Minimum 4.5m vertical clearance to vegetation;• Have an all-weather surface (i.e. compacted gravel, limestone or sealed); and• Provide a 18m diameter turning circle adjacent to the dwelling

No	MANAGEMENT ACTION
3.4	Consider the voluntary provision of a 10,000L static water supply tank for firefighting with: a) A 50mm male camlock couplings with full flow valves; b) The fittings positioned at the base of the tank so that the total tank capacity is available for firefighting purposes at any time; c) An adequate hard standing access must also be provided adjacent to such connection/s and must be readily identifiable; and d) A nonelectric firefighting pump (normally 5.5hp) with sufficient hose to protect the dwelling and the surrounding low fuel zone.
4.0 Landowner (Ongoing)	
4.1	Undertaking regular maintenance of their property in preparation for the annual fire season.
4.2	Ensuring that all fire mitigation measures shall be completed by the date prescribed in Shire's Fire Prevention Order.
5.0 Local Government Management (Ongoing)	
5.1	Ensuring Building Permit Applications and Development Applications are compliant with the building and land use planning provisions.
5.2	Enforce compliance with its annual Fire Prevention Order



LEGEND

DEVELOPMENT SITE	
BUILDING ENVELOPE	
BUSHLAND HAZARD	
DRAINAGE BASIN	
LOW THREAT VEGETATION / ASSET PROTECTION ZONE (See Schedule 1 Attached)	
BAL - 29 SETBACK	
EXTERNAL ROAD	
SUBDIVISION ROAD	
18m DIAMETER TURNING CIRCLE	
STRATEGIC FIRE WATER SUPPLY (Two 50,000L tanks)	
GEO REFERENCE	

REFER TO TABLE 6
FOR DETAILED
REQUIREMENTS

FIGURE 16
SPATIAL MEASURES

SCHEDULE 1 - STANDARDS FOR ASSET PROTECTION ZONES (APZ)	
Object	Requirement
Fences	Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	Should be managed and removed on a regular basis to maintain a low threat state. Should be maintained at <2 tonnes per hectare (on average). Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees (>6 m in height)	Trunks at maturity should be a minimum distance of six metres from all elevations of the building. Branches at maturity should not touch or overhang a building or powerline. Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. Canopy cover within the APZ should be <15 per cent of the total APZ area. Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ.
Shrub and scrub (0.5 m to 6m in height). Shrub and scrub >6m in height are to be treated as trees.	Should not be located under trees or within three metres of buildings. Should not be planted in clumps >5 square metres in area. Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground covers (<0.5 m in height. Ground covers >0.5m in height are to be treated as shrubs)	Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
Grass	Grass should be maintained at a height of 100 millimetres or less, at all times. Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
Defendable space	Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. The pressure relief valve should point away from the house. No flammable material within six metres from the front of the valve. Must sit on a firm, level and non-combustible base and be secured to a solid structure.