

Local Structure Plan

Lot 913 Fern Valley Road, Boyup Brook

(July 2019)
 Ref: 16-21 Jon

Prepared For
 Mr R.G. Jones and Ms S.G. Curran



Prepared By



Endorsement Page

This Structure Plan is prepared under the provisions of The Shire of Boyup Brook Town Planning Scheme No.2

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

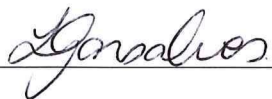
_____ 4 October 2019 _____ Date

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

_____ 4 October 2019 _____ Date

_____ 4 October 2029 _____ Date of Expiry

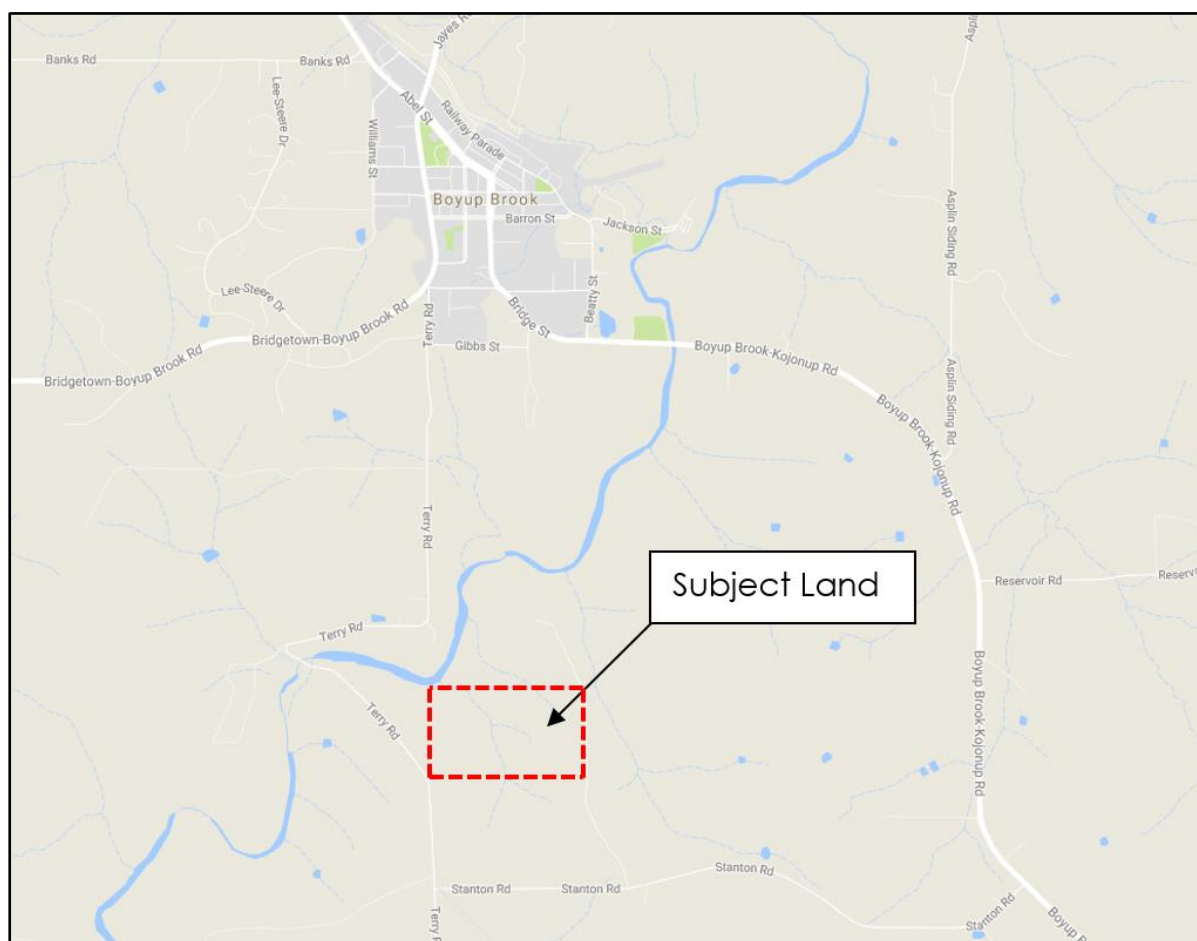
Executive Summary

The land the subject of this structure plan is described as Lot 913 Fern Valley Road, Boyup Brook.

The land measures 40.5849 hectares in area and is located approximately 7.1 kilometres (by road) from the Boyup Brook town centre via Terry and Stanton Roads. The land is approximately 3 kilometres straight line south of the town centre (refer to **Figure 1**).

The land is owned by Mr R.G. Jones and Ms S.G. Curran.

Figure 1
Location Map



Source: Google Maps - www.google.com.au/maps

Preparation of this Local Structure Plan (refer to **Attachment 1**) is in accordance with a resolution of the Western Australian Planning Commission as follows (refer to **Attachment 2**):

- "1. Require the preparation of:
 - i. a detailed structure plan in accordance with the process outlined in the Planning and Development (Local Planning Schemes) Regulations 2016; and
 - ii. a bushfire management plan to support the above detailed structure plan;"

The Commission has advised "that the previous District Structure Plan completed for the land and surrounds is not considered to provide sufficient detail to inform zoning, pursuant to r 34 (g) of the Planning and Development (Local Planning Schemes) Regulations 2015. As such a detailed structure plan is required to be prepared prior to the consideration of the

amendment. This detailed structure plan is to include a bushfire management plan, complying with State Planning Policy No. 3.7 – Planning in Bushfire Prone Areas and associated guidelines."

The local structure plan is required to facilitate the future subdivision of the subject land into two lots measuring approximately 20.24 hectares and 20.33 hectares, respectively.

The structure plan has regard to:

1. the land's inclusion within Policy Area 7 of the Boyup Brook Local Rural Strategy which, amongst other things, identifies the key objective for the Policy Area as "Rural small holdings in appropriate locations.";
 2. the land's inclusion within 'Structure Plan Area No 4' (SP4) of the Shire of Boyup Brook's Town Planning Scheme No 2; and,
 3. the inclusion of the land within the endorsed Shire of Boyup Brook Structure Plan Area No. 4; and
- is supported by a 'Bushfire Hazard Level (BHL) and Bushfire Management Plan (BMP)' prepared by *BioDiverse Solutions* (refer to **Technical Appendix 1**) and an Engineering Review prepared by Pippin Civil Engineering (**Technical Appendix 2**).

Lot 913 is bounded by rural holdings to the north, east, south and west with surrounding lots ranging in area from 5.4 hectares to 36.1 hectares. The land abuts a reserve containing the Blackwood River and foreshore area at its north-western corner.

The Lot 913 Fern Valley Road, Boyup Brook Local Structure Plan has been prepared by *McRobert Planning Pty Ltd* on behalf of the landowners and has been formulated using the *Structure Plan Framework* in response to the Planning and Development (Local Planning Schemes) Regulations 2015.

Once developed, the Structure Plan will be capable of supporting 2 dwellings.

Table 1
Structure Plan Summary Table

| Item | |
|--|--------------|
| Total area covered by the Structure Plan | 40.5849 ha |
| Area of each land use proposed: | |
| Lot 1 | 20.2438 ha |
| Lot 2 | 20.3258 ha |
| POS | 0.0 ha |
| Drainage | 0.0 ha |
| Lot Yield | 2 |
| Estimated No of Dwellings | 2 |
| Estimated Residential site density | Not relevant |
| Estimated residential site density (excluding POS) | Not relevant |
| Estimated population | 6 people |
| Estimated Number and % of Public Open Space: | Not relevant |
| Estimated area and number of parks | Not relevant |
| Neighbourhood parks | Not relevant |

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Part One

IMPLEMENTATION

1.0 Structure Plan Area

The boundaries of the structure plan area include that portion of the Local Government district of the Shire of Boyup Brook as shown on **Figure 2** – Lot 913 Fern Valley Road Local Structure Plan Area.

The subject land measures 40.5849 hectares in area and is located approximately 7.1 kilometres (by road) from the Boyup Brook town centre. The land is approximately 3 kilometres straight line south of the town centre (refer to Figure 1).

The structure plan area is bounded by rural holdings to the north, east, south and west with surrounding lots ranging in area from 5.4 hectares to 36.1 hectares. The land abuts a reserve containing the Blackwood River and foreshore area at its north-western corner.

The land has frontage to Fern Valley Road on its eastern boundary and Terry Road at its south-western corner. The structure plan area is connected to the Boyup Brook townsite via Stanton Road which connects to Terry Road to the west and to the Boyup Brook-Kojonup Road to the east.

Figure 2
Lot 913 Fern Valley Road Local Structure Plan Area



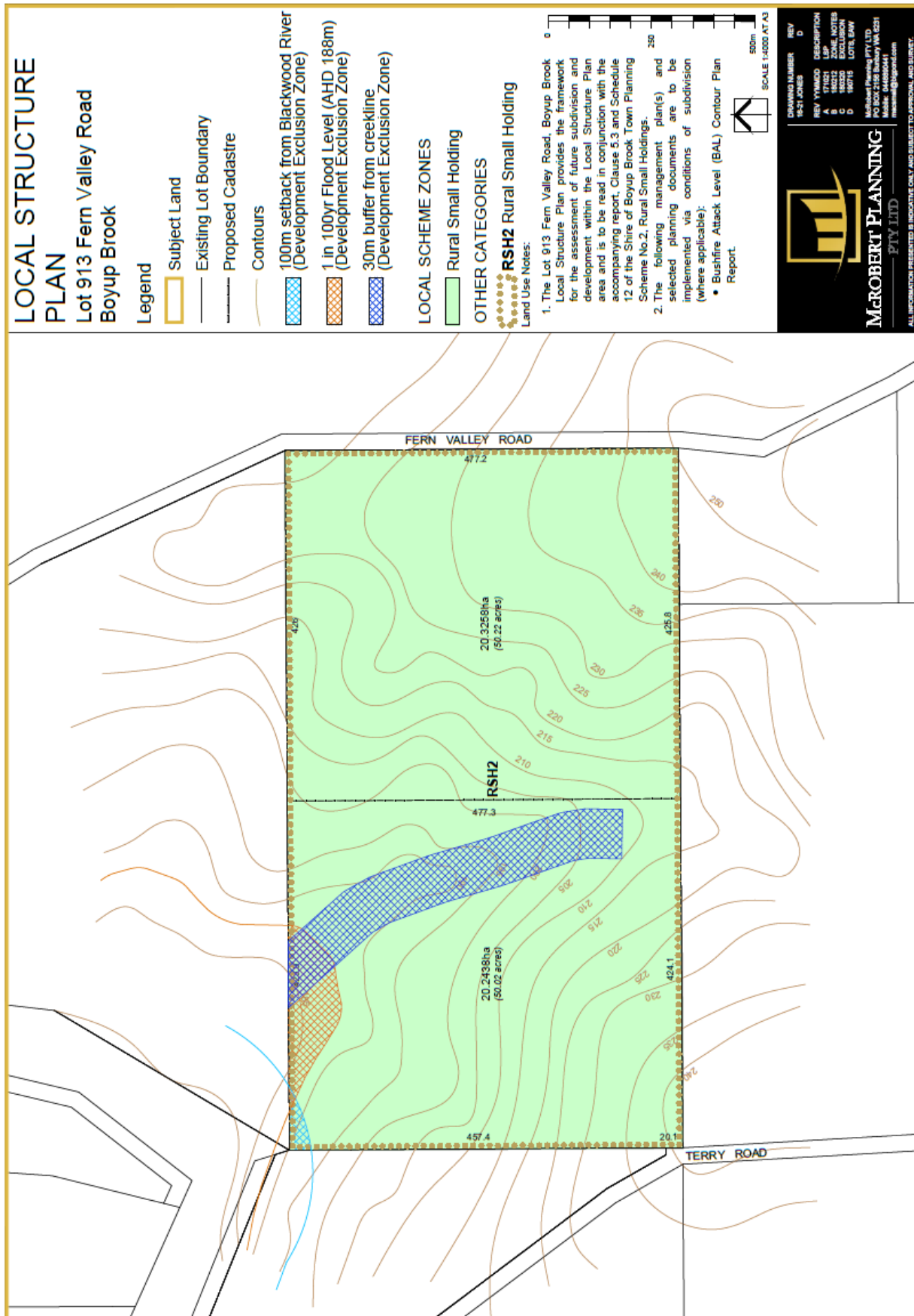
Source: Landgate Locate V4 website - <https://maps.slip.wa.gov.au/landgate/locate/>

The structure plan area is contained within the inner edge of the black line (highlighted in orange) shown on the structure plan map (refer to **Figure 3**).

The land is owned by Mr R.G. Jones and Ms S.G. Curran.

The Structure Plan (refer to Figure 3) proposes 2 rural small holding lots with areas of approximately 20.24 hectares and 20.33 hectares, respectively.

Figure 3
 Lot 913 Fern Valley Road Local Structure Plan



2.0 Operation

In accordance with the Planning and Development (Local Planning Schemes) Regulations 2015, this structure plan shall come into operation on the date it is approved by the Western Australian Planning Commission.

The Structure Plan shall be required to be approved by the Western Australian Planning Commission (WAPC) prior to the approval of any application for subdivision and/or planning approval, and such approvals shall comply with the relevant approved Structure Plan.

3.0 Staging

The proposed development is considered likely to be completed in one stage. It is anticipated that the landowners will commence with an application for subdivision approval (and implementation thereof) as soon as possible following endorsement of this Local Structure Plan and finalisation of Amendment No 17 to the Shire of Boyup Brook Town Planning Scheme No 2.

4.0 Subdivision and Development Requirements

The Lot 913 Fern Valley Road Local Structure Plan Map (refer to Figure 3 and Attachment 1) outlines the proposed 'Rural Small Holding' zone to be applied to the structure plan area as well as the relevant land use notes.

4.1 Subdivision Requirements

As a condition of subdivision, the Commission may impose the following requirements:

- A site and soil evaluation, in accordance with AS/NZS 1547, being completed prior to the commencement of subdivision works certifying the land is physically capable of accommodating on-site sewage disposal.
- A revegetation plan being prepared and implemented, to the satisfaction of the Shire, for areas adjacent to creeks and the Blackwood River.
- A notification being included on lot titles advising of the Bushfire Management Plan and the 'Bushfire Prone' status of the land.

Further subdivision to that shown on the Structure Plan is not supported, unless an amendment is undertaken, which addresses the following matters:

- The identification of road alignments to ensure the outcomes of the District Structure Plan are not compromised, particularly providing a connection between Fern Valley Road and Terry Road.
- Examining external road construction standards, upgrading and contributions, particularly in regard to the intersection of Fern Valley Road and Boyup Brook-Kojonup Road.
- A biophysical assessment to identify an accurate foreshore protection area to the Blackwood River and the implementation of a Foreshore Management Plan.

4.2 Land Use Permissibility

The Structure Plan will be used by the Shire of Boyup Brook and the Western Australian Planning Commission respectively, as a guide for the assessment of applications for planning approval under the Shire of Boyup Brook Town Planning Scheme No 2 and applications for approval to subdivide land under the provisions of Part 10 of the Planning and Development Act 2005.

The subdivision of land within the structure plan area shall require further assessment and any approvals shall be conditioned with respect to the development control of issues of local and regional importance, additional infrastructure requirements to support the scale and nature of proposed development, and more detailed local planning considerations.

The deemed provisions of the Regulations will override any operational scheme provisions that seek to give a structure plan the force and effect of a scheme.

Via Amendment No 17 to the Shire of Boyup Brook Town Planning Scheme No 2, the land is proposed to be included within the 'Rural Small Holding zone'. Accordingly, the land will be subject to the provisions of Clause 5.3 of the Scheme, the range of land uses variously permitted within the 'Rural Small Holding' zone in accordance with Table No. 1 'Zoning Table' of the Scheme Text and, the 'Permitted Uses and Conditions of Development' to be assigned to the land at Schedule 12 of the Scheme Text.

The local structure plan does not propose any internal roads. Accordingly, the interface with adjoining land will, for all intents and purposes, remain similar as to that which currently exists.

4.3 Residential Density Target

Given the limited subdivision proposed within the structure plan area together with its intended 'Rural Small Holding' use, the Structure Plan does not establish a residential site density target. A maximum of 1 dwelling is likely to be approved on the western proposed lot with 1 already existing on the proposed 20.33 hectare eastern lot.








4.4 Public Open Space

The structure plan does not propose any public open space.

LOCAL STRUCTURE PLAN

Lot 913 Fern Valley Road
Boyup Brook

Legend

-  Subject Land
-  Existing Lot Boundary
-  Proposed Cadastre
-  Contours
-  100m setback from Blackwood River (Development Exclusion Zone)
-  1 in 100yr Flood Level (AHD 188m) (Development Exclusion Zone)
-  30m buffer from creekline (Development Exclusion Zone)

LOCAL SCHEME ZONES

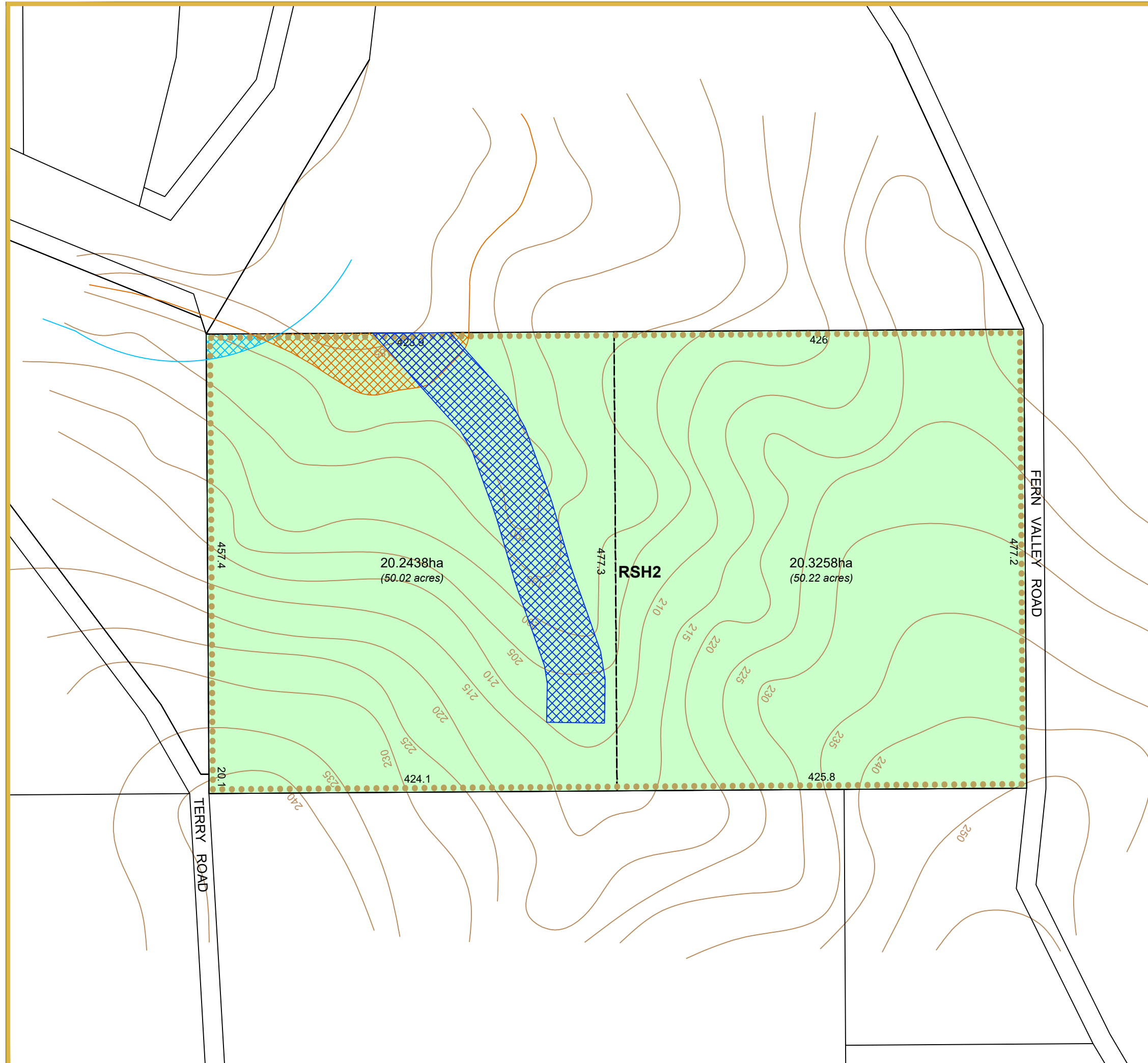
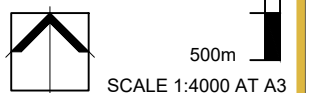
-  Rural Small Holding

OTHER CATEGORIES

-  **RSH2** Rural Small Holding

Land Use Notes:

1. The Lot 913 Fern Valley Road, Boyup Brook Local Structure Plan provides the framework for the assessment of future subdivision and development within the Local Structure Plan area and is to be read in conjunction with the accompanying report, Clause 5.3 and Schedule 12 of the Shire of Boyup Brook Town Planning Scheme No.2, Rural Small Holdings.
2. The following management plan(s) and selected planning documents are to be implemented via conditions of subdivision (where applicable):
 - Bushfire Attack Level (BAL) Contour Plan Report.



McROBERT PLANNING
PTY LTD

| REV | YYMMDD | DESCRIPTION | REV |
|-----|--------|-------------|-----|
| A | 171021 | LSP | D |
| B | 180212 | ZONE, NOTES | |
| C | 180320 | EXCLUSION | |
| D | 190715 | LOTS, EAW | |

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Part Two

EXPLANATORY SECTION

1.0 Planning Background

1.1 Introduction & Purpose

The purpose of this Structure Plan is to provide for the orderly and proper planning of portion of the Boyup Brook 'Rural Small Holding' area as well as portion of the endorsed Shire of Boyup Brook Structure Plan Area No 4 in accordance with the State Planning Framework and the Shire of Boyup Brook Local Planning Policy Framework.

The intent of this Local Structure Plan is to guide the subdivision, development and infrastructure servicing of the Lot 913 Fern Valley Road, Boyup Brook Local Structure Plan Area.

1.2 Land Description

1.2.1 Location

The land the subject of this structure plan is described as Lot 913 Fern Valley Road, Boyup Brook and is located approximately 7.1 kilometres (by road) from the Boyup Brook town centre via Stanton and Terry Roads.

The structure plan area is located within that precinct the subject of the endorsed Shire of Boyup Brook Structure Plan Area No 4 (refer to **Figure 4**).

1.2.2 Area & Land Use

The structure plan area comprises a total of 40.5849 hectares and has historically supported rural land use activities (primarily grazing).

Much of the subject land, due to its previous rural use, is cleared with some intermittent trees. **Figure 5** (Aerial Photograph) depicts the predominantly cleared nature of the land.

1.2.3 Legal Description & Ownership

The legal description and ownership details of the subject land are summarised in **Table 2** and a copy of the Certificate of Title is provided in **Attachment 3**.

Table 2
Ownership & Lot Details

| Lot Number | Ownership | Certificate of Title | Lot Area |
|-----------------------------|---|----------------------|------------|
| 913 (Deposited Plan 103309) | Robert Geoffrey Jones & Samantha Gayle Curran | 813/95 | 40.5849 ha |

Source: landgate.wa.gov.au

1.3 Planning Framework

1.3.1 Zoning

Lot 913 Fern Valley Road, Boyup Brook is currently zoned 'Rural' within the Shire of Boyup Brook Town Planning Scheme No 2 (refer to **Figure 6**).

The land is the subject of a proposed Amendment (No. 17) to Town Planning Scheme No 2. Amendment No 17 proposes to include Lot 913 within the 'Rural Small Holding' zone of the Scheme (refer to **Figure 7**) as well as to introduce a number of 'Permitted Uses and Conditions of Development' to be applied to the land at Schedule 12 of the Scheme.

Clause 5.3.1 of the Scheme outlines the 'Objectives' and other provisions of the Scheme as they relate to the 'Rural Small Holdings' zone.

The objectives for the zone are stated as:

Figure 4
Shire of Boyup Brook Structure Plan Area No 4

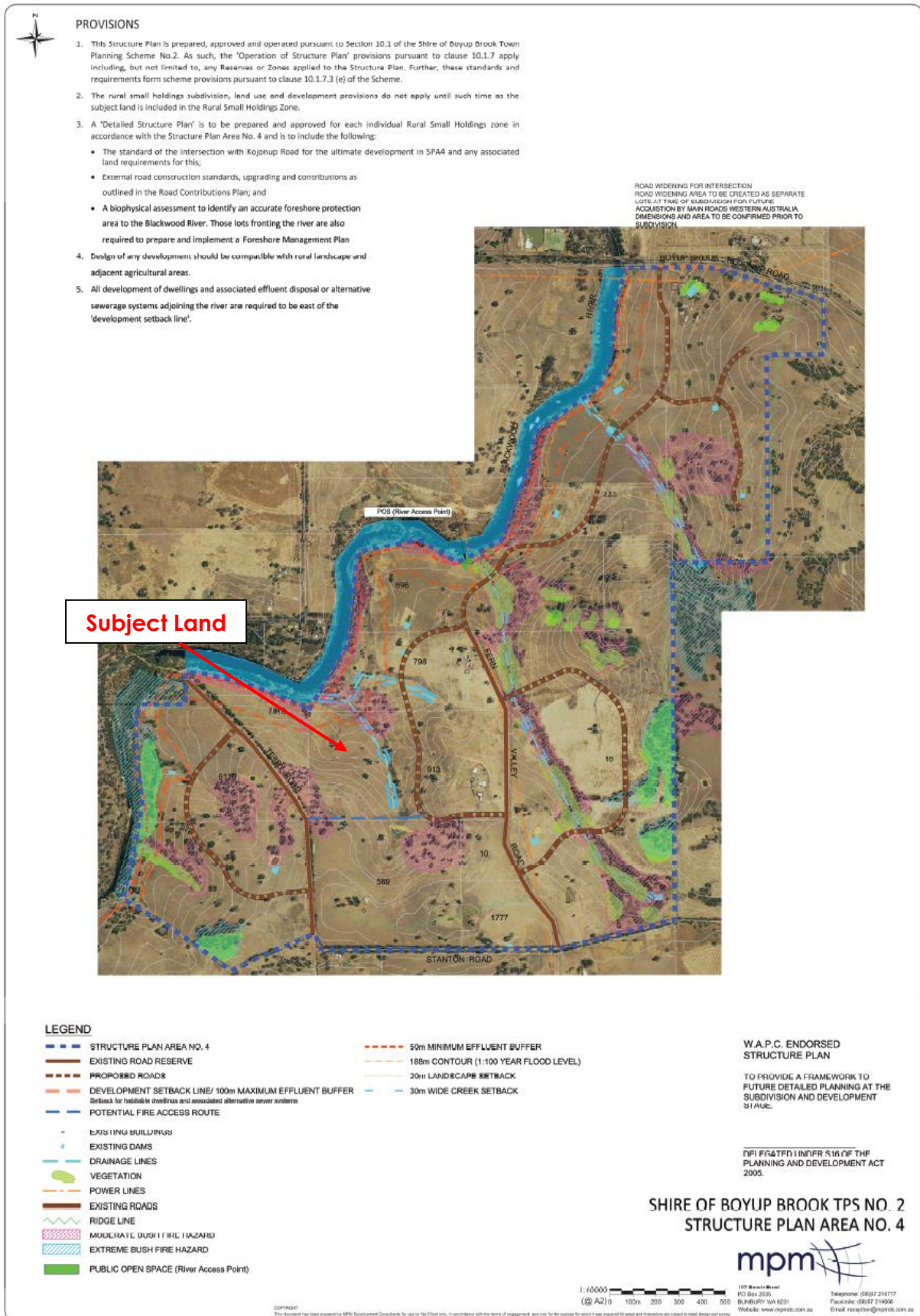
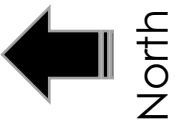
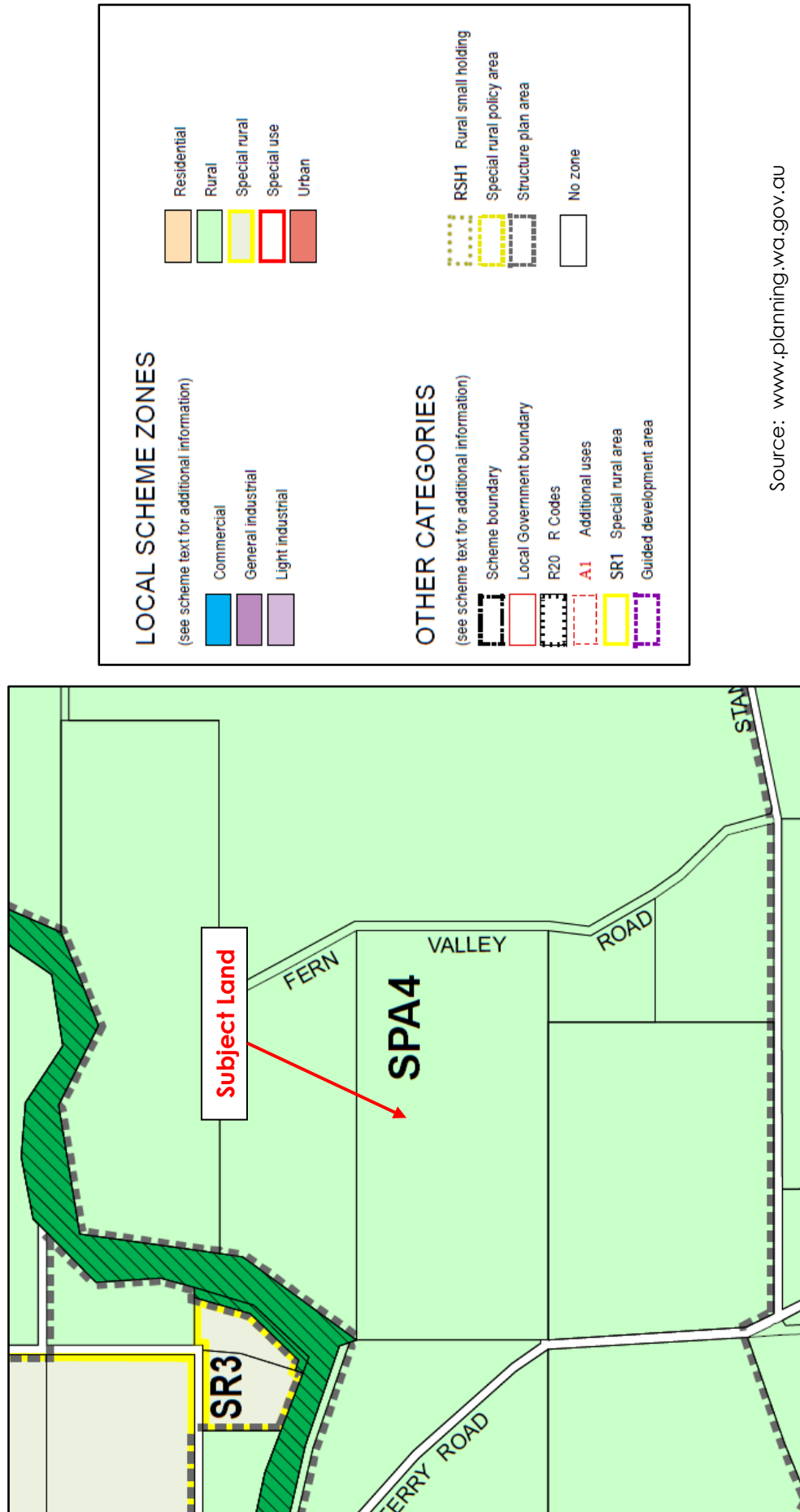


Figure 5
Aerial Photograph Lot 913 Fern Valley Road



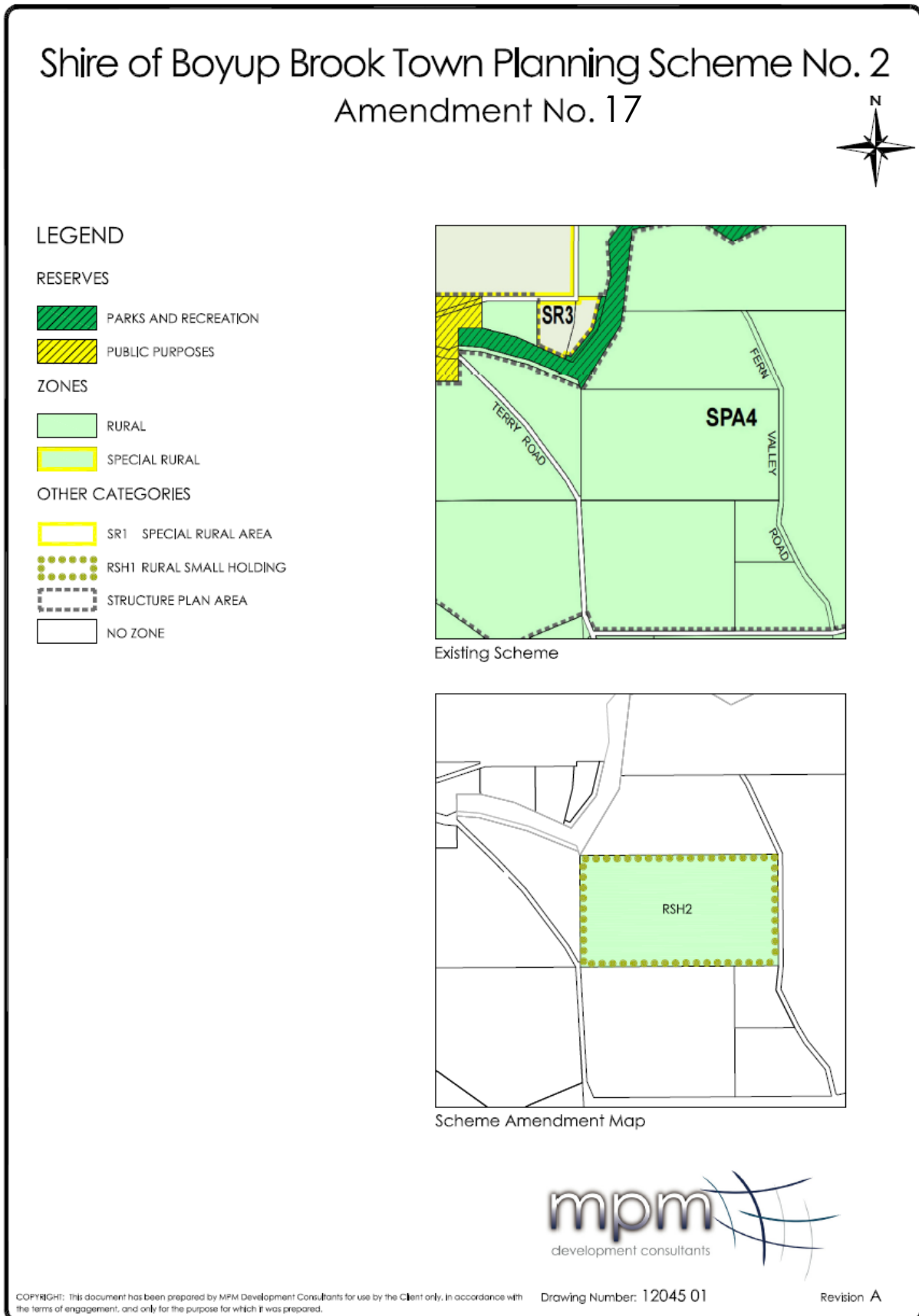
Source: Landgate Locate V4 website - <https://maps.slp.wa.gov.au/landgate/locate/>

Figure 6
Existing Zoning



Source: www.planning.wa.gov.au

Figure 7
Proposed Zoning – Amendment No 17



- *"The Rural Small Holdings zone is intended to accommodate lots generally of 4 – 40 ha where the land is used for a dwelling with minor rural pursuits, hobby farm, conservation lots or alternative residential life style purposes."* and,
- *"Council's objective is to permit the progressive rezoning for Special Rural and Rural Smallholdings zones and subdivision of land included within the Structure Plan Areas as defined in Schedule 13 of the Scheme and the associated Structure Plan Area as shown on the Scheme Map."*

Clause 5.3.2 of the Scheme requires:

- "(a) Before making provision for a Special Rural or Rural Small Holdings zone the Council will prepare or require the owner(s) of the land to prepare a structure plan in accordance with Clause 10.1."*
- "(b) All subdivision and development shall be in accordance with the endorsed Structure Plan."*

Paragraph (a) of Clause 5.3.3 of the Scheme states that *"Subdivision and Development shall comply with the provisions applicable to each relevant area as set out in Schedule 3 (Special Rural zones) and 12 (Rural Small Holdings)."*

Clauses 5.3.4 to 5.3.13 include provisions relating to:

- Consideration of planning applications;
- Setbacks, Building Envelopes and Building Exclusion Areas;
- Single Dwellings;
- Caretaker Dwelling or Ancillary Accommodation;
- Non-residential Development;
- Water Supply;
- Building Appearance;
- Fencing;
- Bush Fire Management; and,
- Stream Protection Areas.

The Western Australian Planning Commission's 'Structure Plan Framework' *"Constitutes the manner and form in which a structure plan and activity centre plan is to be prepared, pursuant to Section 2, Part 4, clause 16 and Section 2, Part 5, clause 32 of the Planning and Development (Local Planning Schemes) Regulations 2015."* (WAPC)

The above Framework supersedes the provisions of Town Planning Scheme No 2. Notwithstanding, the Lot 913 Fern Valley Road, Boyup Brook Local Structure Plan meets the requirements of Clause 10.1 of the Scheme insofar as it identifies:

- the area to which the Structure Plan applies;
- the key opportunities and constraints of the Structure Plan Area;
- the planning context for the Structure Plan Area including the regional and neighbourhood structure, relevant strategies, Scheme provisions and policies and where appropriate, indicating how the Proposed Structure Plan is to be integrated into the surrounding area;
- the proposed major land uses;
- the proposed indicative subdivision pattern, lot yields and lot sizes;
- estimates of future population and dwellings resulting from proposed development of the land;
- proposed infrastructure, including discussion relating to drainage, effluent disposal, water supply and other key infrastructure services;
- the proposed road network; and,
- the anticipated timeframe and staging of subdivision and development.

Proposed Amendment No 17 introduces a number of Permitted Uses and Conditions of Development that will apply to the subject land at Schedule 12 of the Scheme Text. These include:

- a) The objective of the RSH2 zone is to primarily provide for residential development in a rural setting and secondly for rural pursuits, home based business and minor tourist uses.
- b) A 'Detailed Structure Plan' is to be prepared and approved in accordance with Schedule 12 of the Scheme and the following requirements stemming from overall Structure Planning on Area No.4:
 - External road construction standards, upgrading and contribution requirements being determined;
 - A Landscape Management Plan being developed to indicate protection and enhancement measures, 30m either side of creeks;
 - A lot layout being designed considerate of a 4ha minimum lot size, a 100m effluent buffer to the Blackwood River, public access to the Blackwood River, landscape features and internal road connectivity;
 - Building and effluent exclusions areas being identified on a plan considerate of Bushfire risk, minimum building floor heights above flood levels and environmental impediments;
 - A Fire Management Plan being prepared;
 - The setback of effluent disposal systems from the river; and
 - Landscaping and stream protection.
- c) Subdivision and Development shall generally be in accordance with the endorsed (detailed) Structure Plan. The minimum lot sizes shall be 4ha. Superlot subdivision will be supported if future lot layout can be demonstrated.
- d) Water management and drainage designs should incorporate the principles of water sensitive urban design.
- e) The onsite disposal of effluent shall be approved by Council and the Health Department of WA. Effluent systems shall be designed and located to minimise nutrient export and or release into any waterway or groundwater.
- f) Prior to subdivision approval a geotechnical report to demonstrate that the areas where septic tank systems are proposed to be used are capable of disposing of effluent within each lot.

The endorsed Structure Plan for Structure Plan Area No 4 (refer to Figure 4 and Section 1.3.3.1) includes the following provision:

"2. The rural small holdings subdivision, land use and development provisions do not apply until such time as the subject land is included in the Rural Small Holding Zone."

The Structure Plan incorporates a lot layout designed in consideration of a 4 hectare minimum lot size, a 100 metre effluent buffer to the Blackwood River and landscape features. Having regard to the landowner's intentions of providing for lots larger in size than the prescribed 4.0 hectare minimum (but still within the 4 hectares to 40 hectare lot size range as specified at Clause 5.3.1 of the Scheme), the plan does not propose any internal road(s).

Given that Lot 913 does not actually "front" the Blackwood River reserve, the Structure Plan is incapable of facilitating public access to the Blackwood River.

The Lot 913 Fern Valley Road Local Structure Plan fulfils the above proposed Condition of Development requiring building and effluent exclusions areas being identified on a plan considerate of bushfire risk, minimum building floor heights above flood levels and environmental impediments.

1.3.2 Planning Strategies

1.3.2.1 Shire of Boyup Brook Local Rural Strategy

The Shire of Boyup Brook Local Rural Strategy was adopted by the Shire and endorsed by the Western Australian Planning Commission in May of 2010.

The stated purpose of the Strategy "is to act as a supporting document to the Shire's Town Planning Scheme and provide the rationale behind the policies that affect the use and management of rural land. It is set against the backdrop of regional planning and natural resource management studies and provides local expression of State wide planning strategies and policies which are binding on the Shire."

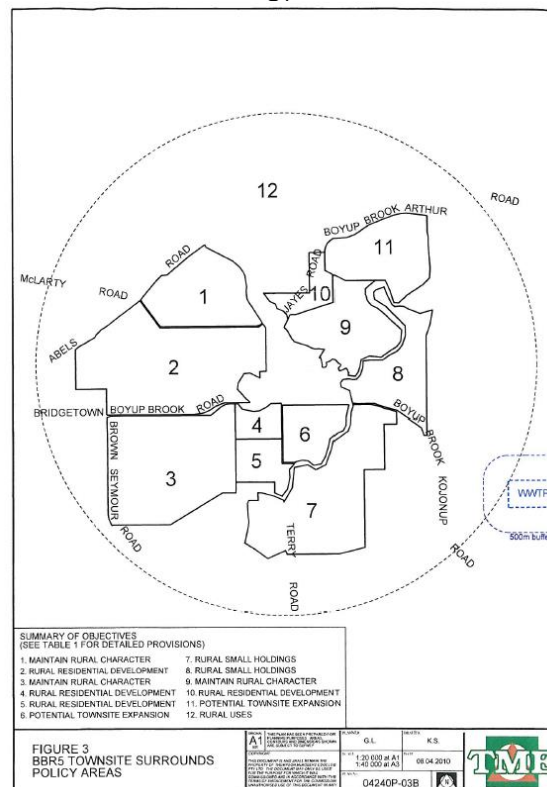
The Strategy includes the subject land within the BBR5 Townsite Surrounds Policy Area No 7 'Rural Small Holdings' of the endorsed Shire of Boyup Brook Local Rural Strategy (refer to **Figure 8**). The 'Townsite Surrounds Development Guidelines' state the 'Objective' for Area No 7 as "Rural small holdings in appropriate locations." The Guidelines include the following recommendations for Area No 7:

- Granite ridge areas are unlikely to be suitable for development, except as part of a larger lot.
- Requires an overall structure plan to identify appropriate development locations addressing:
 - Land capability;
 - Flood levels, river corridor, and public access;
 - Possible road connection from Kojonup Road to Fern Valley Road;
 - Landscape protection and viewsheds;
 - Upgrading of the river crossing at Terry Road.
- Low key tourist development.

Structure Plan Area No 4 addressed the above guideline requirements.

Figure 8

Shire of Boyup Brook Local Rural Strategy 'BBR5 Townsite Surrounds Policy Areas'



1.3.3 Other Approvals and Decisions

1.3.3.1 Shire of Boyup Brook Town Planning Scheme No 2 Structure Plan Area No 4

The endorsed 'Structure Plan Area No 4' Structure Plan (refer to Figure 4 above) includes a range of provisions relating to:

- The relationship of the Structure Plan to and its operation pursuant to the provisions of the Scheme;
- The requirements relating to detailed structure plans for each individual Rural Small Holdings Zone including:
 - The standard of the intersection with Kojonup Road and associated land requirements (assumed to relate to the northern proposed intersection);
 - External road construction standards, upgrading and contributions;
 - Biophysical assessment to identify accurate foreshore protection area to the Blackwood River with those lots fronting the river required to prepare and implement a foreshore management plan.
- The design of development to be compatible with the rural landscape and surrounding agricultural areas; and,
- All development of dwellings and associated effluent disposal or alternative sewerage systems adjoining the river are required to be east of the development setback line.'

Figure 9 is an extract from the 'Structure Plan Area No 4 Structure Plan' and highlights the following on Lot 913:

- A drainage line running north-south through the western half of the land;
- A proposed road along the eastern half of the southern boundary and linking to the north;

Figure 9
Extract From Structure Plan Area No 4 Structure Plan



- The 188 metre contour representing the 1 in 100 year flood level impacting on the north-western corner;
- 100 metre 'Development Setback Line/100m Maximum Effluent Buffer';
- Potential Fire Access Route;
- Existing Buildings (existing residence, sheds and outbuildings);
- Areas having a 'Moderate Bush Fire Hazard' traversing the northern boundary and in the south-western corner as well as two areas adjoining the southern and north-western boundaries.

The proposed Lot 913 Fern Valley Road Local Structure Plan has regard to:

- the identified bushfire hazard areas;
- the drainage line;
- the 1 in 100 year flood level; and,
- the identified 100 metre 'Development Setback Line'.

At its nearest point, the Local Structure Plan is situated 70 metres from the edge of the Blackwood River and, due to its frontage being limited to the intersection point of two cadastral boundaries, Lot 913 does not in fact front the Blackwood River reserve. It is therefore considered to be outside the 'Foreshore Protection Area' and consequently, the above requirement associated with preparation and implementation of a Foreshore Management Plan is not considered applicable to the subject land.

As noted at Section 1.0 of Part 1 and, consistent with the stated objectives of the 'Small Rural Holdings' Zone of the Shire of Boyup Brook Town Planning Scheme No 2, the Local Structure Plan proposes 2 rural small holding lots with areas of approximately 20.24 hectares and 20.33 hectares, respectively. As the eastern lot has frontage to Fern Valley Road and the western lot, frontage to Terry Road, the Local Structure Plan does not include any internal roads.

1.3.4 Pre-lodgement Consultation

Table 3 below outlines the consultation that has occurred to date with those Government Departments or agencies that are considered to have an interest in the Local Structure Plan.

Table 3
Pre-lodgement Consultation

| Agency | Date of Consultation | Method of Consultation | Summary of Outcome |
|-------------------------------------|----------------------------------|---|--|
| Local Government | Numerous May 2015 to present | Various - telephone discussions, correspondence & Email | Amendment No 17 supported subject to LSP submission |
| Dept. of Water | Numerous 2012 to present | Various - meetings, telephone discussions & Email | |
| Dept. of Planning' Lands & Heritage | Numerous January 2017 to present | Various - meetings, telephone discussions, correspondence & Email | Amendment No 17 supported subject to LSP submission |
| D.F.E.S | Numerous May 2017 to present | Various - telephone discussions, correspondence & Email | Bushfire Attack Level (BAL) Contour Plan Report submitted & awaiting approval following modification |

2.0 Site Conditions and Constraints

2.1 Landform and Soils

The slopes on the site are generally moderate. The land falls to a central drainage line that runs north-south through Lot 913.

The land adjacent to Fern Valley Road and in the north-west quadrant of Lot 913 have the lowest gradients.

The gradient of the land runs from south to north towards the Blackwood River. The natural landform contains one minor drainage line that feeds the Blackwood River and contains a small farm dam that is utilised for livestock.

In accordance with the Structure Plan Area No 4 Structure Plan report:

"The Warren Blackwood Rural Strategy Land Capability Map identifies the subject land within the Blackwood River Basin BV4 Upper Blackwood. The soils of the area are of the Newlgalup Group and comprise two sub classifications of 'moderate' Slopes and footslopes.

The broad classification and the soil conditions will be subject to local variations on the site. Generally, the majority of the site has good to fair capacity to accommodate both buildings and on site effluent disposal."

The 'Permitted Uses and Conditions of Development' to be applied to the land via proposed Amendment No 17 include a requirement for a geotechnical report to be prepared prior to subdivision to demonstrate the suitability and capability for disposing of effluent within each lot.

2.1.1 Soil Type

Soils consist of loamy gravels, deep and duplex sandy gravels and deep loamy and deep sandy duplexes.

2.1.2 Topography

The land is best described as gently undulating. The land falls from south to north along the drainage line to a low point of 185m AHD adjacent to the northern boundary (in its eastern half).

The land rises to a height of approximately 250m AHD at its south-eastern corner and approximately 240m AHD at its south-western corner.

2.1.3 Acid Sulphate Soils (ASS)

A desktop review undertaken by Pippin Civil Engineering (refer to Technical Appendices) of the locations ASS mapping indicates that the area is unmapped and not recorded on the Soil Risk Map. Based upon the location, soil type and proximity away from the Blackwood River, ASS are unlikely to be present within the development area.

It also noted by Pippin Civil Engineering, based upon the zoning of the land major earthworks and extensive servicing will not be required. Therefore, Acid Sulphate Soils would be unlikely to be uncovered even if they should exist.

2.2 Groundwater and Surface Water

A review into existing groundwater levels and surface water has not been undertaken as part of the Engineering Review, based upon the scale of development proposed.

Research undertaken by Pippin Civil Engineering indicates that the site is not located within a public drinking water source area.

2.3 Bushfire Hazard

The subject land has been identified in the mapping prepared by the Department of Fire and Emergency Services as 'Bushfire Prone Areas' (refer to **Figure 10**).

Figure 10
Bush Fire Prone Land



Source: SLIP LocateV4 Website <https://maps.slip.wa.gov.au/landgate/locate>

A 'Bushfire Hazard Level (BHL) and Bushfire Management Plan (BMP)' has been prepared for the land:

1. by an accredited Level 2 Bushfire Planning Practitioner employed by BioDiverse Solutions; and,
2. in accordance with Department of Planning (WAPC) Guidelines for Planning in Bushfire Prone Areas Version 1.3 (WAPC, 2017) Appendix 2.

A copy of the report is included as **Technical Appendix 1** to this report. The BAL report was originally prepared at the time 3 lots were proposed within the initial (and advertised) version of the local structure plan. Following consideration of the report by a DFES officer in February 2019, the report has been modified to address those comments provided.

The findings/recommendations of the above modified report/assessment include:

- the existing house and additional new lot are located within a "Moderate" BHL area.
- An APZ can be applied and maintained within the (lots) and will be required to meet BAL 29 or less. A 20m APZ area is demonstrated on the existing buildings. APZ areas associated with BAL 29 or less are deemed to be achievable in the environment and proposed lot sizes. Moderate BHL will prevail over the lots post development. APZ standards to be as per WAPC requirements.
- Access is presently from Fern Valley Road to the east and Terry Drive to the west. Both Terry Road and Fern Valley Road are formed gravel-maintained Shire roads. Fern Valley Road connects to Stanton Road which links to Boyup Brook-Kojonup Road to the east and providing access to the north and south. Stanton Road also connects to Terry Road to the west providing access to the north and south. This will give unimpeded access in alternative directions to the lots at all times.

- No public roads are proposed for this Local Structure Plan.
- No Cul-de-sacs proposed.
- No battle axes are proposed.
- Private driveways are to have a minimum trafficable surface of 4m and horizontal clearance of 6m. Private driveways may exceed 50m in length, where this applies the individual lot owner will be responsible for implementing a turnaround area at the house to ensure fire appliances have adequate room to manoeuvre. Where driveways exceed 200m passing pays will be required.
- No EAWs proposed.
- No FSA's proposed as the public road network will be utilised.
- Firebreaks are currently in place around the subject site and should remain in perpetuity as per the SoBB Fire Management Notice.
- The existing house has a domestic water supply near the house and a 10,000L standalone water supply for bushfire located at the shed area. This water tank is filled (10,000L capacity) with Storz valve couplings and adjacent to a hardstand turnaround area, with the turnaround area meeting WAPC Standards. The newly created lot will require a standalone water tank for bushfire and should be noted on plans at building approval stages.
- The Local Structure Plan is deemed compliant to relevant 'Acceptable Solutions'.

The modification to the proposed local structure plan to now incorporate only 2 lots has largely resulted from bush fire issues raised in correspondence provided by the Department of Fire and Emergency Services.

The proposed modification results in 1 eastern lot containing an existing dwelling. The existing dwelling is accessed via Fern Valley Road and the structure plan does not propose any alteration to this current situation. Accordingly, the revised local structure plan maintains the status quo in relation to the density of development fronting this existing gravel road as well as access.

The proposed western lot has access to Terry Road (also a gravel standard road) which provides alternative access to both the north and south.

Having regard to the above, the revised local structure plan no longer incorporates the previously proposed emergency access routes.

Should further subdivision of the lots be proposed in the future, the pattern of subdivision shown within the revised local structure plan will provide for alternative road and bushfire access arrangements consistent with those envisaged within the 'Structure Plan Area No 4 Structure Plan'.

2.4 Infrastructure & Servicing

Pippin Civil Engineering Pty Ltd has prepared an Engineering Servicing Report which is included as Technical Appendix 2 to this report. The servicing report has been prepared to inform the Local Structure Plan. The report provides details relating to the existing servicing infrastructure, the expected servicing infrastructure and the likely Local Authority engineering conditions required to be undertaken to achieve an anticipated Western Australian Planning Commission (WAPC) subdivision approval on Lot 913 Fern Valley Rd, Boyup Brook.

2.4.1 Movement Networks

The structure plan relies on the two roads that currently front Lot 913 on its eastern and western boundaries – Fern Valley Road and Terry Road. Both roads are existing unsealed rural standard gravel roads and currently carry, and are projected to carry, minimal local traffic.

Section 2.4.3 below provides further information in relation to required roadworks.

2.4.2 Stormwater Management

The Engineering Review prepared by Pippin Civil Engineering includes the following in relation to stormwater management:

- The stormwater drainage design philosophy for the development of Lot 913 Fern Valley Road is relatively simple in that there are no proposed additional roads to be constructed and the additional impervious area created from the future development of the proposed lots is very small compared to the proposed lot sizes.
- With no additional road construction required and both existing, fronting roads including unsealed roads with vegetated roadside drains the requirement for stormwater management of stormwater from additional impervious road surface area is not applicable to this development.
- Based upon the existing home and small farm infrastructure on Lot 913, the likely impervious area created by the additional lot plus the existing development is less than 1800m². This does not compare to the 1,000,000m² of development area, therefore the pre-development stormwater flow regime will be barely affected by the post development infrastructure and additional impervious area.
- In addition to localized stormwater management the development must consider the potential flooding of the Blackwood River. The north-west corner of the development site is located approximately 70.0m from the water line of the Blackwood River. Based upon the aerial contour information, the lowest area of the development is approximately 8.0 to 10.0m higher than the Blackwood River.
- Previous advice from the Department of Water in 2012 prescribed a minimum finished floor level for all development in proximity of the Blackwood River graduating between 188.0m AHD for Lot 8 Fern Valley Rd to 187.0m AHD for the southern boundary of lot 6116 Terry Rd. This equates to a minimum finished floor level of approximately 187.2 within the development.
- Historical information on the flood regime of the Blackwood River indicated evidence that the following flood levels were observed for a major storm event in January 1982:
 - Boyup Brook – Kojonup Road 187.55 m AHD
 - Lot 2 Brown Seymour Road 184.51 m AHD
 This flood event equates to an approximate flood level at the north-west corner of Lot 913 of approximately 186m AHD.
- Based upon the available information from the Department of Water and from historical flood records the following floodplain management strategy for the area will be required:
 - Proposed development (i.e., filling, building, etc) that is located within the floodplain for an event of similar magnitude to the January 1982 event and considered obstructive to major flows is not acceptable as it would detrimentally impact upon the existing flooding regime. This equates to no development within areas of Lot 913 below the 186m contour.
 - Proposed development (i.e., filling, building, etc) that is located outside of the floodplain would be considered acceptable with respect to major flooding, however, a minimum habitable floor level of 187.2m AHD is recommended to ensure adequate flood protection.
- It is noted as part of stormwater management, that the provisions of Town Planning Scheme No. 2 identify the requirement for stream protection.

The Lot 913 Fern Valley Road Local Structure Plan incorporates the following Development Exclusion Areas in order to address the various constraints identified above:

1. 100 metre setback from Blackwood River;
2. 1 in 100 year Flood Level (AHD 188 metres); and,
3. 30 metre buffer from creekline.

Consistent with the Scheme provisions, it is anticipated that a Landscape Management Plan will be required as a condition of subdivision approval.

2.4.3 Roadworks

The Engineering Review prepared by Pippin Civil Engineering includes the following in relation to required roadworks:

- The Shire of Boyup Brook will be the ultimate approval authority for any proposed road network. The proposed development will not result in any additional or new road reserve/s in order to facilitate a road connection for each of the proposed lots. Each of the lots proposed under the Local Structure Plan are currently fronted with a rural style road connection to a Shire controlled road reserve.
- The Shire of Boyup Brook does not presently have their road construction requirements for new developments listed or contained within their website. However, based upon anticipated additional traffic due to development, with only the traffic generation from a single lot being added to the existing road network on Terry and Fern Valley Road, the extent of any road upgrade due to development will be minimal.
- Terry Road is an existing unsealed rural style gravel road. It appears that recent upgrading works including re-sheeting, grading and clearing has been undertaken with the road being in good condition for a rural standard.
- Fern Valley Road is also an existing unsealed rural style gravel road. The road is in poor to good condition with functioning, vegetated swale drains and a 4.0 to 5.0m gravel surface.
- It is understood that previous discussion with the Shire's Director of Works and Services has been undertaken over the proposed driveway and entry to the western, 20.2 hectare lot. Verbal advice was received at this discussion that the access from Terry Road was acceptable. Further review of the location on the 19th October, 2017 confirmed the adequacy of the entry location based upon available sight distance. Similarly, the existing driveway for the 20.33 hectare lot from Fern Valley Road would also have sufficient sight distance given the relative straight section of road fronting the proposed lot and the lack of vegetation within the existing road reserve.

2.4.4 Power

The Engineering Review Report notes:

- *"the development lot contains only an existing high voltage overhead power line and associated poles, based upon information obtained through Dial Before you Dig requests, the Water Corporations asset management website EsiNet and servicing information available from data.wa.gov.au. The existing home is serviced via a private underground power cable that is connected to the existing Western Power overhead lines that traverse the eastern side of the property."*
- Western Power has provided indicative mapping of its existing underground and overhead electrical assets within the vicinity of Lot 913 Fern Valley Road. This information is shown below as **Figure 11** with the blue line indicating the location of the overhead cables and blue dots the existing poles.
- The existing overhead power supply mapping indicates the location of the overhead high voltage distribution line that is located just within the eastern property boundary of Lot 913. This existing overhead line supplies the existing residence (on the proposed eastern lot) via an underground cable from the pole.
- Clarification has been sought from Western Power as to how it would prefer to service the proposed 20.22 hectare lot. There is presently no overhead or underground power supply located within Terry Road that fronts the lot with the nearest point of potential supply being located close to the Terry Road/Stanton Road intersection, approximately 570 metres away. The other connection point is the existing overhead power infrastructure along the eastern boundary of Lot 913, with this being approximately

340m away but requiring an overhead power extension through private land, which would necessitate an easement on the title, if approved by Western Power.

Figure 11
Existing Overhead Power



- An alternate option would be the provision of a renewable energy source under the recently (December 2016) revised State Planning Policy 2.5 – Rural Planning Guidelines wherein the WAPC may permit a renewable energy source in clause 5.4, as follows:
“5.4 Renewable energy sources

The use of renewable energy sources to power residential properties has become increasingly attractive to homeowners in rural areas due to the expense and challenges of connecting to a reticulated supply. SPP 2.5 allows for the use of renewable energy sources where a network connection is not available or an infrastructure upgrade is not commensurate with the scale of a proposal. An 'off-grid' system, also known as a 'stand-alone power' system, could be utilised to service rural lots. The main components of a stand-alone power system are:

- renewable energy generation equipment, such as photovoltaic modules (solar panels), wind turbines, or 'hybrid' combinations of these;*
- control and regulation equipment for battery charging and back-up power operation;*
- energy storage such as batteries;*
- inverters which convert electrical current so that common household appliances can be used; and*
- a back-up electricity supply from either storage batteries and/or generators.*

Any stand-alone power supply system must demonstrate that the energy generated through the renewable energy source/s is sufficient for the intended land use. The use of diesel generators to power residential properties is not considered a renewable energy source as defined in SPP 2.5.” Reference: SPP 2.5 Rural Planning Guidelines Version 3 December 2016 Western Australian Planning Commission

2.4.5 Water Supply

The subject land falls within an area where connection to the Water Corporation water reticulation network is not available. The intended zoning does not necessitate connection to a reticulated water supply.

Town Planning Scheme No 2 contains the following statement regarding the supply of water to development within the Small Rural Holding zone:

“5.3.9 Water Supply Except where a reticulated water supply is provided, a person shall not construct a dwelling unless a roof water storage tank of minimum capacity of 92,000 litres or other type of domestic water supply approved by the Council is incorporated in the approved plans and constructed at the same time as the dwelling. No dwelling shall be considered fit for human habitation unless a tank has been installed and is operating.”

2.4.6 Sewerage/Effluent Management

The Engineering Review Report notes:

- Lot 913 and the surrounding rural land holdings are not currently serviced with reticulated sewerage collection, transfer and treatment. The Water Corporation have also confirmed that there is presently no proposal by Government to fund infill sewerage in this area of Boyup Brook. Under the intended zoning and lot sizes as proposed within the Local Structure Plan, there would be no requirement to provide each newly developed lot with reticulated sewerage.
- It will therefore be a requirement for each proposed lot, at building stage, to install a suitable on-site effluent treatment and disposal system. The implementation of the on-site effluent disposal systems will not be a requirement of subdivision.
- Town Planning Scheme No. 2 sets out the requirement for the implementation of the on-site disposal of effluent system in the following way and highlights the need to undertake a geotechnical assessment of the suitability of the land for effluent disposal as part of the subdivision application process.
“The onsite disposal of effluent shall be approved by Council and the Health Department of WA. Effluent systems shall be designed and located to minimise nutrient export and/or release into any waterway or groundwater. Any subdivision application shall be accompanied by a geotechnical report to demonstrate that the areas where septic tank systems are proposed to be used are capable of disposing of effluent within each lot.”
- The requirements for utilising on-site effluent disposal are covered, in detail within the Government Sewerage Policy: November 2016. In brief, a development would be required to determine the suitability of the existing soils for effluent treatment and disposal. This investigation shall be carried out in accordance with AS/NZ1547. Prior to subdivision, supporting information shall be included within the relevant water management strategy that addresses section 2(c) of the Government Sewerage Policy.
- The Blackwood River is considered a sensitive water resource and an appropriate buffer would need to be implemented for areas of effluent disposal. The Government Sewerage Policy states that on site effluent disposal systems shall not be located within 100m of a waterway. The north-west corner of lot 913 is already approximately 70m from the edge of the Blackwood River, therefore a potential 100m effluent disposal buffer would have minimal effect on the proposed lot.

2.4.7 Communications

The Engineering Review Report notes:

- Telstra has provided indicative mapping of its existing telecommunications infrastructure in Terry Road and Fern Valley Road. No other communications companies, in particular NBN Co have record of any telecommunications infrastructure in the area.

- Telstra advises that it has a buried cable located west of the Terry Road reserve, however this cable contains no connection pits. Telstra further advise that they do not have any infrastructure within Fern Valley Road where it fronts Lot 913.
- The cost of design, approvals, supply and installation of the telecommunications network, either under NBN or Telstra standards by a new development is borne solely by the Developer, inclusive of any service extensions beyond the development site and an additional cabling fee payable for each lot developed. However, the provision of a telecommunications service to newly created lots will not be a condition of subdivision, therefore it is at the Developers discretion if a service is provided.

2.4.8 Gas

There is no existing underground gas supply in the Boyup Brook townsite or available for the subject site, therefore it is not proposed to service the development with a reticulated gas supply.

2.4.9 Siteworks

There will be no siteworks/earthworks within the development site, associated with the creation of the lots.

Future lot purchasers may choose to undertake earthworks to create their homes and infrastructure upon creation of the lots, however this will be subject to the Shire of Boyup Brook's Building approvals process.

2.5 Context and Other Land Use Constraints and Opportunities

The structure plan area is located approximately 7.1 kilometres (by road) south of the Boyup Brook townsite resulting in a range of community facilities and employment opportunities being within close proximity to the subject site including:

- The town centre which hosts a variety of retail stores and services;
- The shire offices;
- Boyup Brook High School;
- St Mary's Catholic School;
- Various industrial premises and farm supplies.

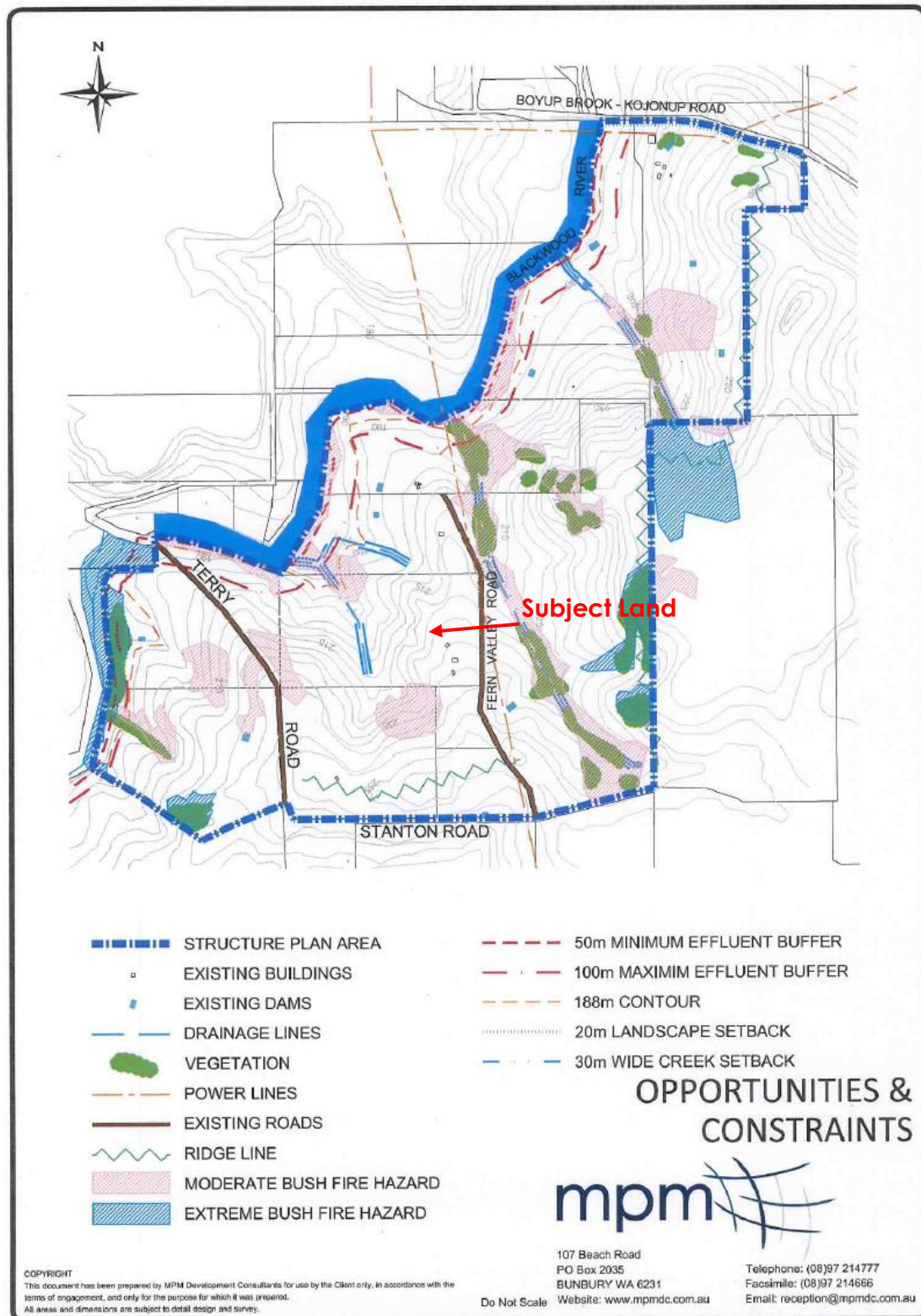
The Structure Plan site provides for ease of access to the town centre via either the Boyup Brook-Kojonup Road or Terry Road.

Within the structure plan area there are currently no existing internal roads, pedestrian or cycle networks. None are proposed within the Local Structure Plan.

There are no existing public transport facilities within the structure plan area.

Figure 12 provides a context and site analysis identifying the key opportunities and constraints related to the structure plan area. The figure, extracted from the Structure Plan Area No 4 report, is considered to accurately identify the various physical and other opportunities and constraints associated with the structure plan area. The proposed Local Structure Plan has due regard to these.

Figure 12
Opportunities and Constraints Map



Attachments








Attachment 1

Local Structure Plan

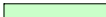
LOCAL STRUCTURE PLAN

Lot 913 Fern Valley Road
Boyup Brook

Legend

-  Subject Land
-  Existing Lot Boundary
-  Proposed Cadastre
-  Contours
-  100m setback from Blackwood River (Development Exclusion Zone)
-  1 in 100yr Flood Level (AHD 188m) (Development Exclusion Zone)
-  30m buffer from creekline (Development Exclusion Zone)

LOCAL SCHEME ZONES

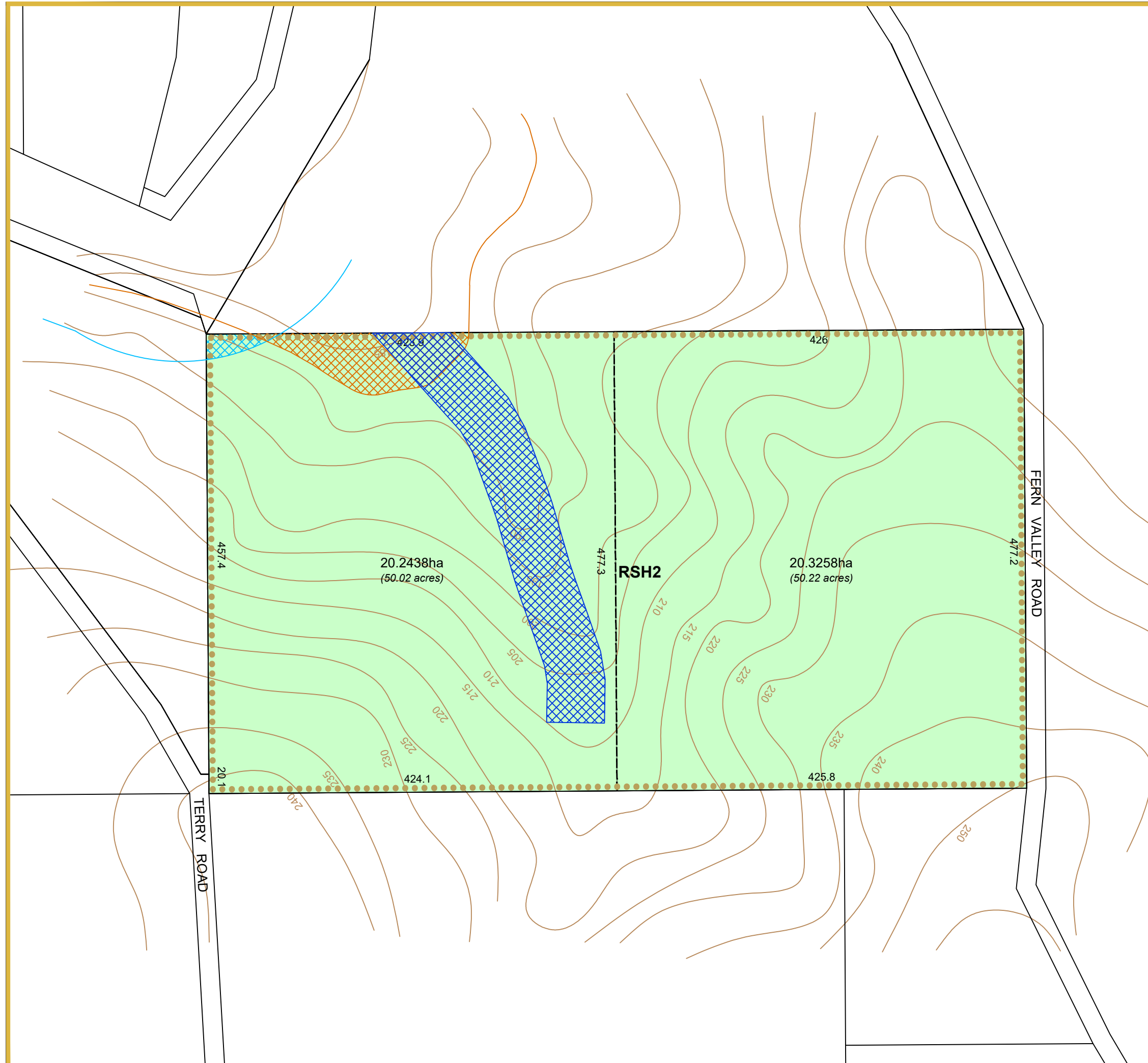
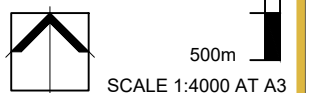
-  Rural Small Holding

OTHER CATEGORIES

-  **RSH2** Rural Small Holding

Land Use Notes:

1. The Lot 913 Fern Valley Road, Boyup Brook Local Structure Plan provides the framework for the assessment of future subdivision and development within the Local Structure Plan area and is to be read in conjunction with the accompanying report, Clause 5.3 and Schedule 12 of the Shire of Boyup Brook Town Planning Scheme No.2, Rural Small Holdings.
2. The following management plan(s) and selected planning documents are to be implemented via conditions of subdivision (where applicable):
 - Bushfire Attack Level (BAL) Contour Plan Report.



McROBERT PLANNING
PTY LTD

| REV | YYMMDD | DESCRIPTION | REV |
|-----|--------|-------------|-----|
| A | 171021 | LSP | D |
| B | 180212 | ZONE, NOTES | |
| C | 180320 | EXCLUSION | |
| D | 190715 | LOTS, EAW | |

McRobert Planning PTY LTD
PO BOX 2156 Bunbury WA 6231
Mobile: 0448890441
macsmail@bigpond.com

ALL INFORMATION PRESENTED IS INDICATIVE ONLY AND SUBJECT TO APPROVAL AND SURVEY.

Attachment 2

WAPC Correspondence



Your Ref: LM/42/001
 Our Ref: TPS/1946 - 853/6/19/2/17
 Enquiries: Scott Penfold

| | |
|----------------------|----------|
| Shire of Boyup Brook | |
| RECEIVED | |
| Date: | 12/12/16 |
| File: | |
| Doc ID: | |
| CEO | |
| MCS | |
| MWS | |
| SFO | |
| CDO | |
| BUILDING | |
| HEALTH | |
| PLANNING | ✓ |
| EA | |
| RANGER | |

Chief Executive Officer
 Shire of Boyup Brook
 PO Box 2
 BOYUP BROOK WA 6244

Attn: Adrian Nicoll

Dear Sir

RE: AMENDMENT NO.17 - LOT 913 FERN VALLEY ROAD, BOYUP BROOK

Further to your letter dated 10 October 2016 (received 31 October 2016), preliminary assessment of the amendment has been undertaken. In relation to this matter, the Commission has resolved to:

- 1) *require the preparation of:*
 - i. *a detailed structure plan in accordance with the process outlined in the Planning and Development (Local Planning Schemes) Regulations 2016; and*
 - ii. *a bushfire management plan to support the above detailed structure plan;*
- 2) *require the local government to advertise and process the amendment as a 'standard' amendment, and for advertising to occur in conjunction with the advertising of the detailed structure plan and bushfire management plan."*

The Commission advises that the previous District Structure Plan completed for the land and surrounds is not considered to provide sufficient detail to inform zoning, pursuant to r 34 (g) of the *Planning and Development (Local Planning Schemes) Regulations 2015*. As such, a detailed structure plan is required to be prepared prior to the consideration of the amendment. This detailed structure plan is to include a bushfire management plan, complying with *State Planning Policy No.3.7 - Planning in Bushfire Prone Areas* and associated guidelines.

Should you have any queries, please do not hesitate to contact the Bunbury office.

Yours sincerely

Kerrine Blenkinsop
 Secretary
 Western Australian Planning Commission
 6 December 2016

Attachment 3

Certificate of Title

WESTERN



AUSTRALIA

| | |
|--|---|
| REGISTER NUMBER 913/DP103309 | |
| DUPLICATE EDITION 2 | DATE DUPLICATE ISSUED 10/8/2006 |

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

VOLUME
813

FOLIO
95

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

REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 913 ON DEPOSITED PLAN 103309

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ROBERT GEOFFREY JONES
SAMANTHA GAYLE CURRAN
BOTH OF 37 CURRIE STREET, WARNBRO
AS JOINT TENANTS

(T J838720) REGISTERED 19 JULY 2006

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

1. J838721 MORTGAGE TO SUNCORP-METWAY LTD REGISTERED 19.7.2006.

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: 813-95 (913/DP103309).
PREVIOUS TITLE: This Title.
PROPERTY STREET ADDRESS: 63 FERN VALLEY RD, BOYUP BROOK.
LOCAL GOVERNMENT AREA: SHIRE OF BOYUP BROOK.

NOTE 1: A000001A LAND PARCEL IDENTIFIER OF NELSON LOCATION 913 (OR THE PART THEREOF) ON SUPERSEDED PAPER CERTIFICATE OF TITLE CHANGED TO LOT 913 ON DEPOSITED PLAN 103309 ON 01-JUN-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.
NOTE 2: THE ABOVE NOTE MAY NOT BE SHOWN ON THE SUPERSEDED PAPER CERTIFICATE OF TITLE OR ON THE CURRENT EDITION OF DUPLICATE CERTIFICATE OF TITLE.

Technical Appendices

Technical Appendices Index

| Appendix No | Document Title | Nature of Document | Referral/approval agency | Summary of doc modifications |
|--------------------|--|---------------------------|------------------------------------|-------------------------------------|
| 1 | Bushfire Hazard Level (BHL) and Bushfire Management Plan (BMP) | Bushfire Management | Dept. of Fire & Emergency Services | |
| 2 | Engineering Review | Engineering | Shire of Boyup Brook | |

AS 3959 Bushfire Hazard Level (BHL) and Bushfire Management Plan (BMP)

| Site Details | | | |
|---------------------------------------|--------------------------|---------------|------|
| Address: | Lot 913 Fern Valley Road | | |
| Suburb: | Boyup Brook | State: | W.A. |
| Local Government Area: | Shire of Boyup Brook | | |
| Description of Building Works: | Structure Plan | | |
| Stage of WAPC Planning | WAPC Application | | |

| BAL Contour Plan Details | | | |
|-----------------------------|-----------------|--------------------------|---------------|
| Report / Job Number: | MSC0150 | Report Version: | FINAL vers. 3 |
| Assessment Date: | 21/6/2017 | Report Date: | 12/9/2019 |
| Practitioner | Kathryn Kinnear | Accreditation No. | BPAD 30794 |



SECTION 1: Proposal Details

This Bushfire Hazard Level (BHL) and Bushfire Management Plan (BMP) has been prepared to support the Western Australian Planning Commission (WAPC) Local Structure Plan application for Lot 913 Fern Valley Road Boyup Brook. The LSP contemplates the creation of one additional lot, two lots 20.2438ha and 20.3258ha in size. The proposed LSP is shown in Figure 1.

The subject site is located approximately 9km south of the Boyup Brook Townsite in the locality of Boyup Brook and is approximately 40.5ha. The Subject Site is predominately cleared land used for agricultural purposes. The location of the Subject Site is shown on Figure 2.

This Bushfire Hazard Assessment has been prepared to assess the subject site to the current and endorsed Guidelines for Planning in Bushfire Prone Areas Vers 1.3 (WAPC, 2017) and State Planning Policy 3.7 (WAPC, 2015).

Such planning takes into consideration standards and requirements specified in various documents such as Australian Standard (AS) 3959-2018, Western Australian Planning Commission (WAPC) Guidelines for Planning in Bushfire Prone Areas Vers 1.3 (WAPC, 2017) and State Planning Policy 3.7 (WAPC, 2015). These policies, plans and guidelines have been developed by WAPC to ensure uniformity to planning in designated “Bushfire Prone Areas” and consideration of the relevant bushfire hazards when identifying or investigating land for future development.

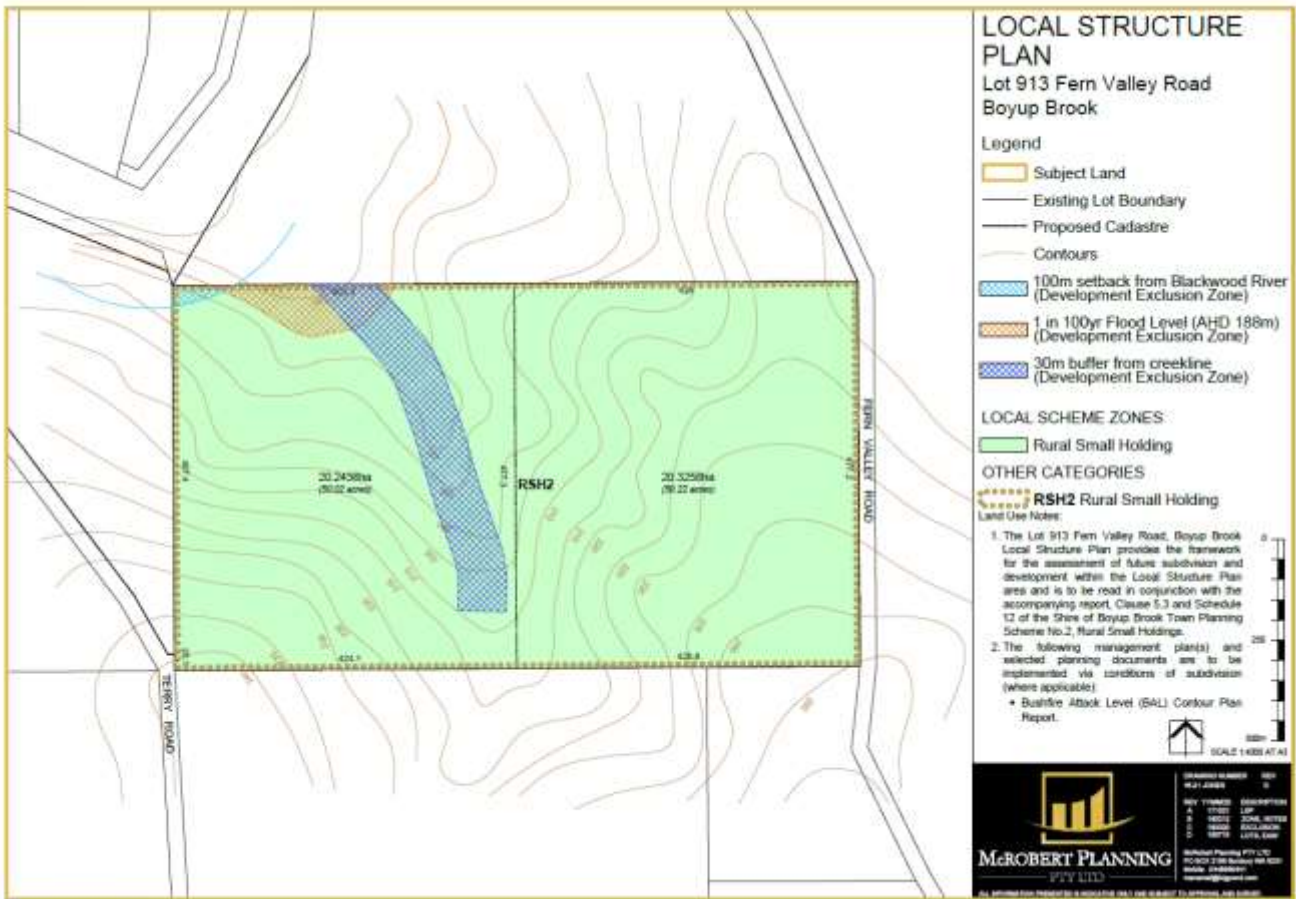


Figure 1: Local Structure Plan

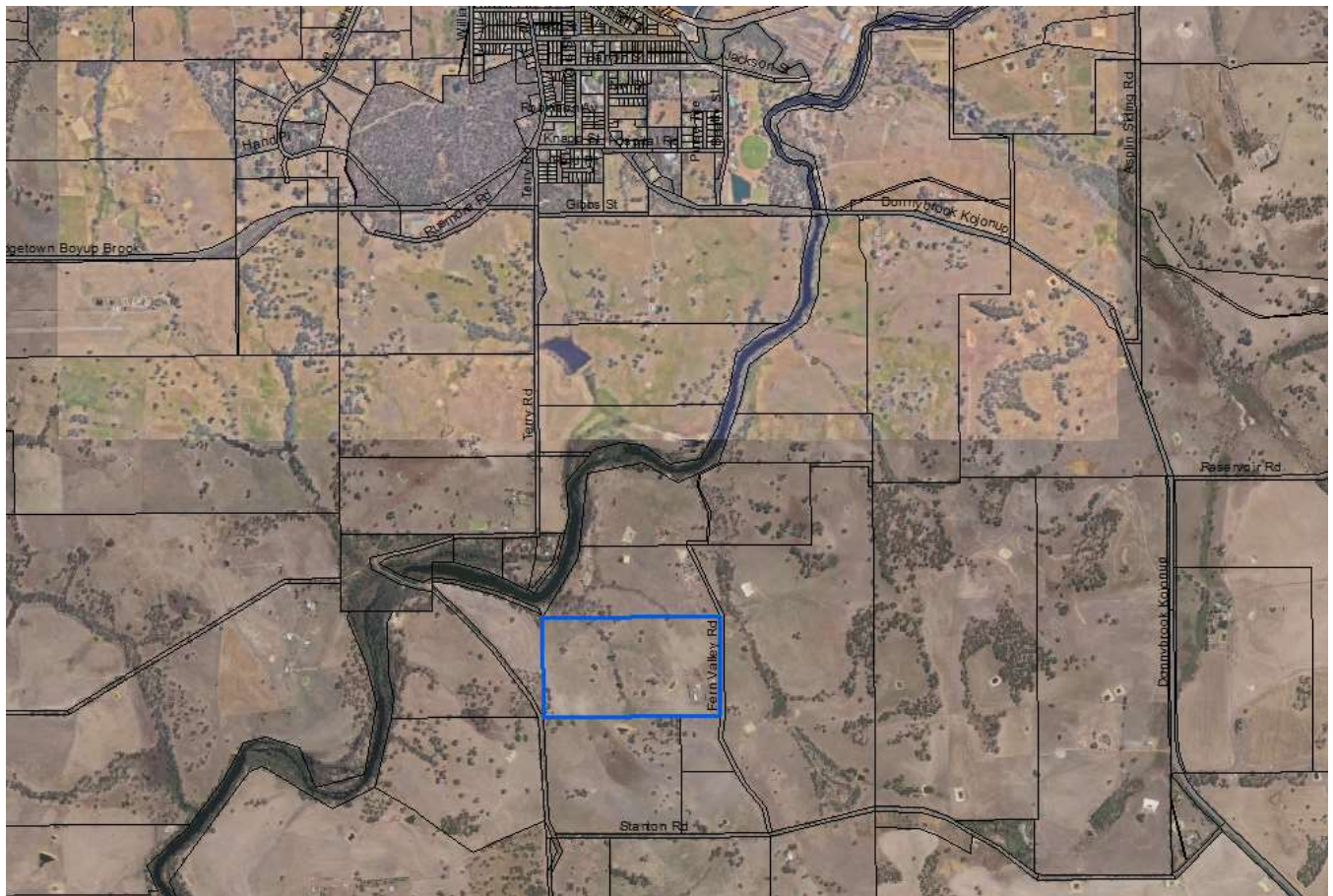


Figure 2: Location Plan



Figure 3: State Bushfire Prone Area Mapping (SLIP 2019)

SECTION 2: Environmental Considerations

Vegetation modification proposed:

No vegetation modification proposed.

Re-vegetation/landscape plans:

No revegetation or landscaping plans are proposed.

SECTION 3: Bushfire Assessment Results

SECTION 3.1 – Assessment Inputs

Bushfire Assessment inputs for the site has been calculated using the Method 1 procedure as outlined in AS3959. This incorporates the following factors:

- WA adopted Fire Danger Index (FDI), being FDI 80;
- Vegetation Classes;
- Slope under classified vegetation; and
- Distance between proposed development site and classified vegetation.

Vegetation Classification (Bushfire Fuels)

All vegetation within 150m of the site / proposed development was classified in accordance with Table 2.3 and Exclusion clauses 2.2.3.2 of AS 3959. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified in the following pages and shown on the Vegetation Classes Map (Figure 4) Page 5.

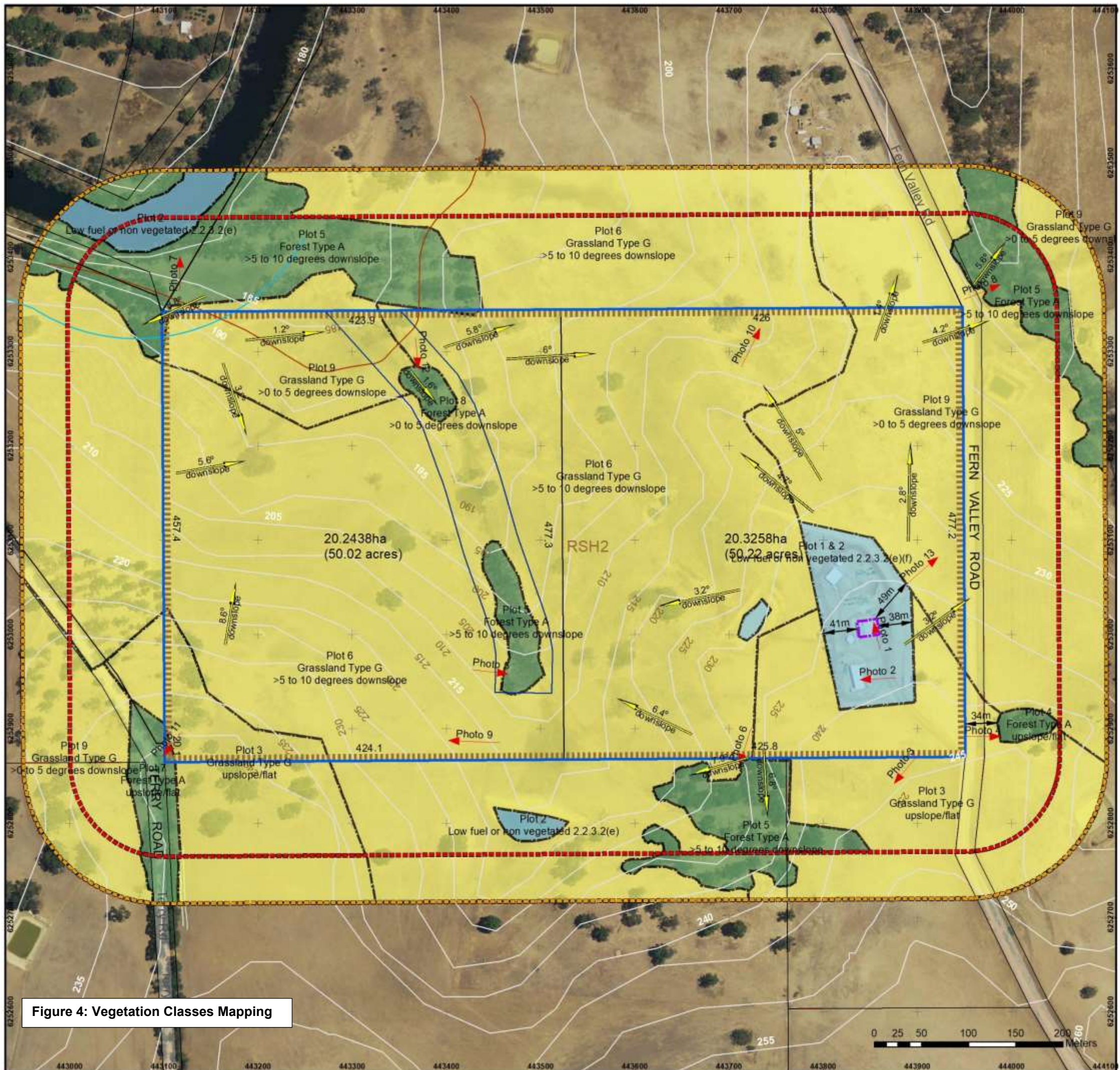


Figure 4: Vegetation Classes Mapping

This BAL Plan was prepared by:
 Kathryn Kinnear, Bio Diverse Solutions
 Accreditation No: BPA030794
 Jurisdiction: Level 2 - WA

BPAD
 Bushfire Planning & Design
 Accredited Practitioner
 Level 2

BIO DIVERSE SOLUTIONS

29 Hercules Crescent
 Albany, WA 6330
 Australia
 Tel: 08 9842 1575
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Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Existing House
- Cadastre
- 5m Contours
- Slope Degrees
- Separation Distance
- Photos
- Vegetation Boundary

Vegetation

- Forest Type A
- Grassland Type G
- Low fuel or non vegetated 2.2.3.2

Scale
 1:4,000 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2017
 Cadastre, Relief Contours and Roads: Landgate 2017
 IRIS Road Network: Main Roads Western Australia 2017
 Overview Map: World Topographic map service, ESRI 2012

CLIENT
 Robert Jones
 Lot 913 Fern Valley Road
 Boyup Brook, WA 6244

Vegetation Classes

| | | |
|--------------|----------|------------|
| BAL Assessor | QA Check | Drawn by |
| KK | BT | BT |
| STATUS | FILE | DATE |
| FINAL | MSC0150 | 12/09/2019 |


| Plot | 1 | Classification or Exclusion Clause | Low fuel and non-vegetated areas Exclusion 2.2.3.2 (f) |
|---|---|------------------------------------|---|
|  | | | <p>Location: Located adjacent to the house in existing APZ area. Maintained lawns and gardens in a low fuel state. As per Exclusion 2.2.3.2 (f) of AS3959-2018</p> <p>Separation distance: N/A.</p> <p>Dominant species & description: N/A.</p> <p>Average vegetation height: N/A.</p> <p>Vegetation Coverage: N/A.</p> <p>Available fuel loading: 2t/ha.</p> <p>Effective slope: N/A.</p> |

Photo Id 1: View of Existing house and APZ area, view from the south to the north

| Plot | 2 | Classification or Exclusion Clause | Low fuel and non-vegetated areas Exclusion 2.2.3.2 (e) |
|---|---|------------------------------------|--|
|  | | | <p>Location: Buildings, roads, dams and other bare areas associated with Exclusion clause 2.2.3.2 (e) of AS3959-2018.</p> <p>Separation distance: N/A</p> <p>Dominant species & description: N/A</p> <p>Average vegetation height: N/A</p> <p>Vegetation Coverage: N/A</p> <p>Available fuel loading: 2t/ha</p> <p>Effective slope: N/A</p> |

Photo Id 2: View of sheds to the south of the house.


| Plot | 3 | Classification or Exclusion Clause | Grassland Type G |
|---|---|------------------------------------|---|
|  | | | <p>Location: Located in the south east of the subject site on top of hill. Paddock areas grazed by stock.</p> <p>Separation distance: 41m (existing house).</p> <p>Dominant species & description: Short grasses, kikuyu, cape weed and clovers.</p> <p>Average vegetation height: 50mm-100mm.</p> <p>Vegetation Coverage: <10% trees.</p> <p>Available fuel loading: 4.5t/ha.</p> <p>Effective slope: Upslope.</p> |

Photo Id 3: View to the south west of paddock to the south of the subject site.


| Plot | 4 | Classification or Exclusion Clause | Forest Type A |
|---|---|------------------------------------|--|
|  | | | <p>Location: Small isolated plot of Woodland in paddock areas for shelter for stock to the south east in adjacent private property. Remnant trees with a grassy understorey, rocky ground.</p> <p>Separation distance: 34m.</p> <p>Dominant species & description: Wandoo eucalypts with paddock grasses understorey. Grazed by stock, little vegetation structure no multilayering.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 10-30% foliage cover.</p> <p>Available fuel loading: 15t/ha.</p> <p>Effective slope: Upslope.</p> |

Photo Id 4: View from Fern Valley Road to the east of isolated patch of Woodland


| Plot | 5 | Classification or Exclusion Clause | Forest Type A |
|---|---|------------------------------------|---|
|  | | | <p>Location: Small isolated plots of forest in paddock areas for shelter for stock located central (internal) along creek line. Remnant trees with a grassy understorey.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: Flooded gum eucalypts in highly disturbed state with paddock grasses understorey. Grazed by stock, no vegetation structure, no multilayering.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 10-30% foliage cover.</p> <p>Available fuel loading: 15t/ha.</p> <p>Effective slope: Downslope >5 to 10 degrees.</p> |

Photo 1d 5: View of central forest area along creek line, view from south west to north east.


| Plot | 5 | Classification or Exclusion Clause | Forest Type A |
|---|---|------------------------------------|---|
|  | | | <p>Location: Small isolated plots of forest in paddock areas for shelter for stock located external to the site in the south, north west and north east. Remnant trees with a grassy understorey.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: Wandoo and marri eucalypts with paddock grasses understorey. Grazed by stock, little vegetation structure no multilayering.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 30-70% foliage cover.</p> <p>Available fuel loading: 25-35t/ha.</p> <p>Effective slope: Downslope >5 to 10 degrees.</p> |

Photo 1d 6: View to the south west of adjacent private property, small belt of trees in gully (south of subject site).


| Plot | 5 | Classification or Exclusion Clause | Forest Type A |
|---|---|------------------------------------|--|
|  | | | <p>Location: To the north west adjacent to the river in foreshore area.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: Flooded gum and marri eucalypts with grassy and small sedges understorey. Previously grazed and disturbed areas adjacent to the river. Little vegetation structure no multilayering.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 30-70% foliage cover.</p> <p>Available fuel loading: 25-35t/ha.</p> <p>Effective slope: Downslope >5 to 10 degrees.</p> |

Photo Id 7: View to the north near river in foreshore area.


| Plot | 5 | Classification or Exclusion Clause | Forest Type A |
|---|---|------------------------------------|--|
|  | | | <p>Location: Small isolated plots of vegetation in paddock areas for shelter for stock located near creek in north east in adjacent private property.</p> <p>Separation distance: 0m</p> <p>Dominant species & description: Wandoo eucalypts with grassy understorey. Previously grazed and disturbed areas adjacent to the creek line. Little vegetation structure no multilayering.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 30-70% foliage cover.</p> <p>Available fuel loading: 25-35t/ha.</p> <p>Effective slope: Downslope >5 to 10 degrees.</p> |

Photo Id 8: View to the north east of adjacent private property, small belt of trees in creek line.


| Plot | 6 | Classification or Exclusion Clause | Grassland Type G |
|---|---|------------------------------------|--|
|  | | | <p>Location: Internal to the site in paddock areas grazed by stock.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: short grasses, kikuyu, cape weed and clovers.</p> <p>Average vegetation height: 50mm-100mm.</p> <p>Vegetation Coverage: <10% trees.</p> <p>Available fuel loading: 4.5t/ha.</p> <p>Effective slope: Downslope >5-10 degrees.</p> |

Photo Id 9: View to the west of internal grazed paddocks.


| Plot | 6 | Classification or Exclusion Clause | Grassland Type G |
|---|---|------------------------------------|---|
|  | | | <p>Location: External and internal to the site in paddock areas grazed by stock.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: short grasses, kikuyu, cape weed and clovers.</p> <p>Average vegetation height: 50mm-100mm.</p> <p>Vegetation Coverage: <10% trees.</p> <p>Available fuel loading: 4.5t/ha.</p> <p>Effective slope: Downslope >5-10 degrees.</p> |

Photo Id 10: View to the north of paddock areas grazed by stock. Subject site in foreground, adjacent property in background.


| Plot | 7 | Classification or Exclusion Clause | Forest Type A |
|--|---|------------------------------------|--|
|  | | | <p>Location: Located to the south west, small section inside the subject site but predominantly associated with Terry Road public road reserve to the west of the site.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: Jarrah and Marri low open forest. Eucalyptus trees with tea tree, acacia, hibbertia, sedges and grasses. Multilayered.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 30-70% foliage cover.</p> <p>Available fuel loading: 25-35t/ha.</p> <p>Effective slope: Upslope.</p> |

Photo Id 11: View to the south west of Forest Type A in road reserve.



| Plot | 8 | Classification or Exclusion Clause | Forest Type A |
|---|---|------------------------------------|--|
|  | | | <p>Location: Internal to the north in paddock areas, shelter for stock located along creek line. Remnant trees (degraded) with a grassy understorey.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: Flooded gum eucalypts in highly disturbed state with paddock grasses understorey. Grazed by stock, little vegetation structure no multilayering.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 30-70% foliage cover.</p> <p>Available fuel loading: 25-35t/ha.</p> <p>Effective slope: Downslope >0 to 5 degrees.</p> |

Photo Id 12: View to the south along creek line, degraded remnant trees.

| Plot | 9 | Classification or Exclusion Clause | Grassland Type G |
|---|---|--|------------------|
|  | | <p>Location: External and internal to the site in the north-east paddock areas grazed by stock.</p> <p>Separation distance: 49m from existing house.</p> <p>Dominant species & description: Short cropped grasses, kikuyu, cape weed and clovers.</p> <p>Average vegetation height: 50mm-100mm.</p> <p>Vegetation Coverage: <10% trees.</p> <p>Available fuel loading: 4.5t/ha.</p> <p>Effective slope: Downslope >0-5 degrees.</p> | |
| <p><i>Photo Id 13: View to the north east of paddock areas grazed by stock.</i></p> | | | |

COMMENTS ON VEGETATION CLASSIFICATIONS:

- Distances from vegetation were made based on surface fuels to edge of lot (subject site) boundary;
- Effective slopes were measured in the field using a Nikon Forestry Pro and represented on the respective plots;
- Method 1 (AS3959-2018) Simplified procedure was used for vegetation classification and;
- All vegetation was classified within the subject site and within 150m of the lot boundaries to AS3959 Table 2.3 and exclusions 2.2.3.2; and
- The perimeter of the vegetation was measured using field GPS and notations on field GIS maps.

SECTION 4: Bushfire Outputs

The BHL process provides an indication of the likely impact of a bushfire event as it interacts with the bushfire hazards within and adjacent to the site. The BHL is a measure of the likely intensity of a bushfire and the likely level of bushfire attack on a site by categorizing the hazard (WAPC, 2017). The allocation of category of the bushfire hazard is determined as per Table 3 of the Guidelines for Planning in Bushfire Prone Areas (WAPC, 2017). Refer to Figure 5 below.

Table 3: BHL and classified vegetation (as per AS-3959)

| HAZARD LEVEL | CHARACTERISTICS |
|-----------------|---|
| Extreme | <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 | <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 classified as a moderate or extreme hazard, is to adopt a moderate hazard level. |
| Low | <ul style="list-style-type: none"> Low threat vegetation may include areas of maintained lawns, golf courses, public recreation reserves and parklands, vineyards, orchards, cultivated gardens, commercial nurseries, nature strips and windbreaks. Managed grassland in a minimal fuel condition (insufficient fuel is available to significantly increase the severity of the bushfire attack). For example, shortcropped grass to a nominal height of 100 millimetres. Non-vegetated areas including waterways, roads, footpaths, buildings and rock outcrops. |

Figure 5: BHL Assessment allocation of category (WAPC, 2017)

Potential Bushfire Impacts

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below and shown on the Bushfire Hazard Assessment Mapping Figure 6, Page 15.

Table 1: Potential Bushfire impacts to AS3959

| Plot number | Vegetation Type (Table 2.3) | Slope (Table 2.4.3) | Bushfire Hazard Level |
|-------------|--|----------------------------|-----------------------|
| 1 | Low fuel and non-vegetated areas Exclusion 2.2.3.2 (f) | N/A | Moderate |
| 2 | Low fuel and non-vegetated areas Exclusion 2.2.3.2 (e) | N/A | Moderate |
| 3 | Grassland Type G | Upslope/flat | Moderate |
| 4 | Forest Type A | Upslope/flat | Extreme |
| 5 | Forest Type A | Upslope/flat | Extreme |
| 6 | Grassland Type G | Downslope >5-10 degrees | Moderate |
| 7 | Forest Type A | Upslope/flat | Extreme |
| 8 | Forest Type A | Downslope >0 to 5 degrees. | Extreme |
| 9 | Grassland Type G | Downslope >0-5 degrees | Moderate |

NOTES ON BHL ASSESSMENT

- The BHL assessment was prepared by an Accredited Level 2 Bushfire Planning Practitioner (BPAD30794);
- The BHL Assessment and BHL Map has been prepared in accordance with Department of Planning (WAPC) Guidelines for Planning in Bushfire Prone Areas Version 1.3 (WAPC, 2017) Appendix 2;
- Planning proposal based on plan as supplied by McRobert Planning Pty Ltd, (Figure 1); and
- Subject site is partially located in a Bushfire Prone Area, see Figure 3 (SLIP, 2019).

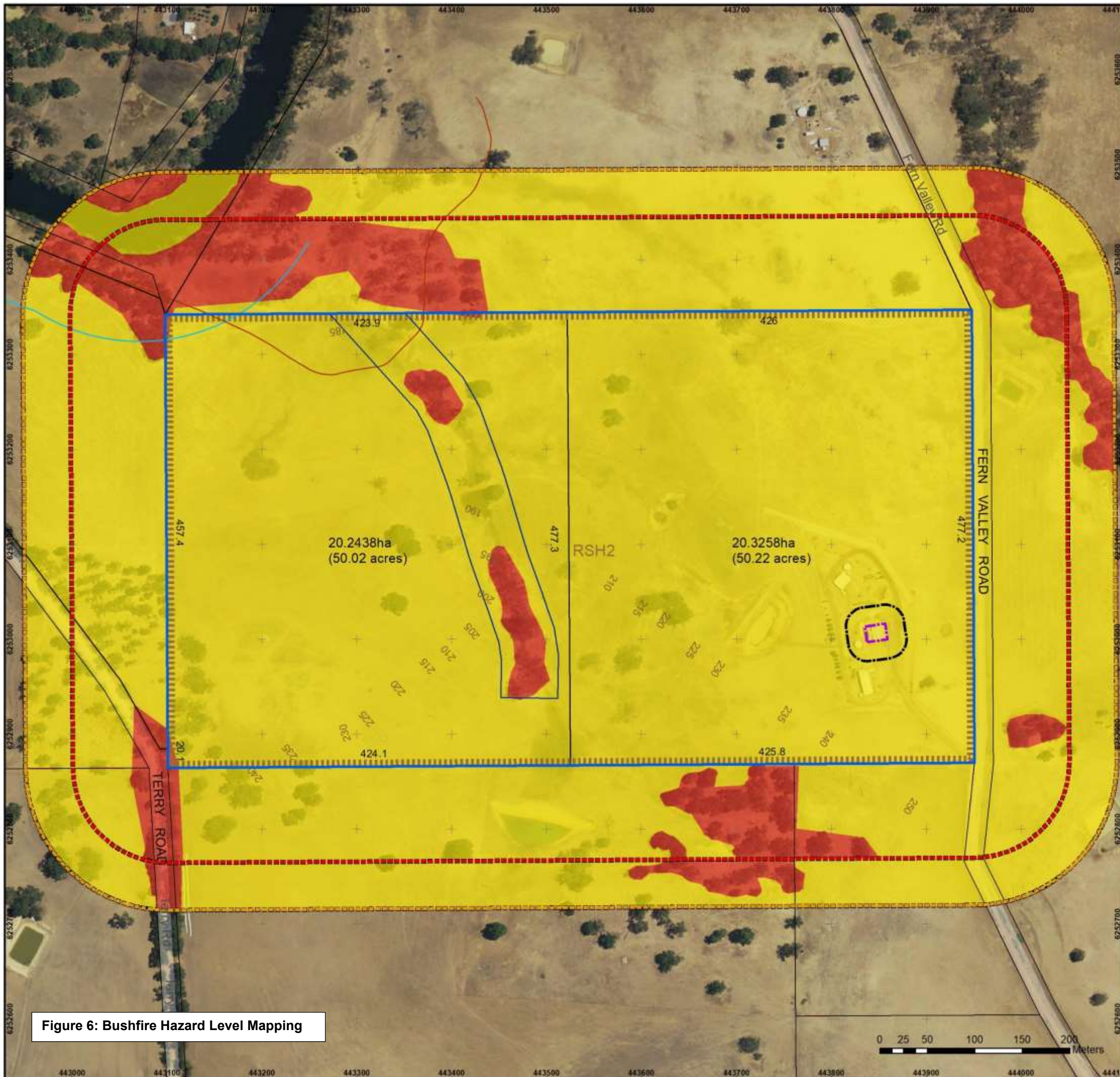


Figure 6: Bushfire Hazard Level Mapping

This BAL Plan was prepared by:
 Kathryn Kinnear, Bio Diverse Solutions
 Accreditation No: BPAD30794
 Jurisdiction: Level 2 - WA

BPAD
 Bushfire
 Planning & Design
 Accredited Practitioner
 Level 2

BIO DIVERSE SOLUTIONS

29 Hercules Crescent
 Albany, WA 6330
 Australia
 Tel: 08 9842 1575
 Fax: 08 9842 1575

Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Existing House
- APZ
- Cadastre

Bushfire Hazard Level

- Extreme
- Moderate
- Low

Scale
 1:4,000 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: SLIP Virtual Mosaic WMS Service, Landgate 2017
 Cadastre, Relief Contours and Roads: Landgate 2017
 IRIS Road Network: Main Roads Western Australia 2017
 Overview Map: World Topographic map service, ESRI 2012

CLIENT
 Robert Jones
 Lot 913 Fern Valley Road
 Boyup Brook, WA 6244

Bushfire Hazard Level Mapping

| | | |
|---------------------------|------------------------|---------------------------|
| BAL Assessor KK | QA Check BT | Drawn by BT |
| STATUS FINAL | FILE MSC0150 | DATE 12/09/2019 |

SECTION 5: Assessment Against Bushfire Protection Criteria

SECTION 5.1. Compliance Table

The Guidelines for Planning in Bushfire Prone Areas (WAPC, 2017) outlines bushfire protection criteria which subdivision and development proposals are assessed for compliance. The bushfire protection criteria (Appendix 4, WAPC, 2017) are performance-based criteria utilised to assess bushfire risk management measures and they outline four elements, being:

- Element 1: Location
- Element 2: Siting and Design of Development;
- Element 3: Vehicle Access; and
- Element 4: Water.

(WAPC, 2017)

The proposal is required to meet the “Acceptable Solutions” of each element of the bushfire mitigation measures (WAPC, 2017). The proposal will be assessed against the bushfire protection criteria Acceptable Solutions for Elements A1, A2, A3 and A4. A summary of the assessment is provided below in Table 2. The Subject Site was assessed against the bushfire protection criteria Acceptable Solutions for Elements A1, A2, A3 and A4. Please refer to the summary table over the page, Table 2.

Table 2: Bushfire protection criteria applicable to the site

| Element | Acceptable Solution | Applicable or not Yes/No | Meets Acceptable Solution |
|-------------------------------|----------------------------|--------------------------|---|
| Element 1 – Location | A1.1 Development Location | Yes | Compliant. As per SPP.3.7 and the Guidelines for Panning in Bushfire Prone Areas, the Local Structure Plan (LSP) and subsequent subdivision development will not be subject to a higher BHL than moderate. The existing house and additional new lot are located within a “Moderate” BHL area. Local Structure Plan compliant to Acceptable Solution A1.1. |
| Element 2 – Siting and Design | A2.1 Asset Protection Zone | Yes | Compliant. An APZ can be applied and maintained within the (lots) and will be required to meet BAL 29 or less. A 20m APZ area is demonstrated on the existing buildings Figure 6. APZ areas associated with BAL 29 or less are deemed to be achievable in the environment and proposed lot sizes. Moderate BHL will prevail over the lots post development. APZ standards to be as per WAPC requirements, see Appendix 1. LSP is deemed compliant to Acceptable Solution A2.1. |
| Element 3 – Vehicular Access | A3.1 Two Access Routes | Yes | Compliant. Access is presently from Fern Valley Road to the east and Terry Drive to the west. Both Terry Road and Fern Valley Road are formed gravel-maintained Shire roads. Fern Valley Road connects to Stanton Road which links to Boyup Brook-Kojonup Road to the east and providing access to the north and south. Stanton Road also connects to Terry Road to the west providing access to the north and south. This will give unimpeded access in alternative directions to the lots at all times, see further information below. The LSP is deemed compliant to Acceptable Solution A3.1. |
| | A3.2 Public Road | No | No public roads are proposed for this Local Structure Plan. Not assessed to A3.2. |
| | A3.3 Cul-de-sacs | No | No Cul-de-sacs proposed. Not assessed to A3.3. |
| | A3.4 Battle axes | No | No battle axes are proposed. Not assessed to A3.4. |
| | A3.5 Private driveways | Yes | Compliant. Private driveways are to have a minimum trafficable surface of 4m and horizontal clearance of 6m. see Table 3, column 1. Private driveways may exceed 50m in length, where this applies the individual lot owner will be responsible for implementing a turnaround area at the house to ensure fire appliances have adequate room to manoeuvre. Where driveways exceed 200m passing pays will be required. Refer to Figure 7 below indicating standards to apply. LSP is deemed compliant to Acceptable Solution A3.5. |

Table 2 cont.

| Element | Acceptable Solution | Applicable or not Yes/No | Meets Acceptable Solution |
|------------------------------------|---|--------------------------|--|
| Element 3 – Vehicular Access cont. | A3.6 Emergency Access Ways | No | No EAWs proposed. Not assessed to A3.6 |
| | A3.7 Fire Service Access Ways | No | No FSA's proposed as the public road network will be utilised. Not assessed to A3.7. |
| | A3.8 Firebreaks | Yes | <p>Compliant.</p> <p>Firebreaks are currently in place around the subject site and should remain in perpetuity as per the SoBB Fire Management Notice. The SoBB Fire Management Notice states <i>“On all land zoned Special Rural under the Scheme, you must (a) clear a 2.5m wide bare earth firebreak immediately inside all external boundaries of the land by removing all inflammable matter and vegetation within the 2.5m wide firebreak between the ground and 4m above the ground; and (b) clear a 10m wide bare earth firebreak around all buildings and fuel storage areas by removing all inflammable matter and vegetation within the 10-metre-wide firebreak between the ground and 4m above the ground.”</i></p> <p>This notice is updated annually and should be sought from individual land owners from the website or Shire office. Until lots are sold the developer is to be responsible for firebreaks on the perimeter of any unsold lots.</p> <p>LSP is deemed compliant to Acceptable Solution A3.8.</p> |
| Element 4 – Water | A4.1 Reticulated areas | No | Not assessed to A4.1. |
| | A4.2 Non-reticulated areas | No | Not assessed to A4.2. |
| | A4.3 Individual lots in non-reticulated areas | Yes | <p>Compliant.</p> <p>The existing house has a domestic water supply near the house and a 10,000L standalone water supply for bushfire located at the shed area. This water tank is filled (10,000L capacity) with Storz valve couplings and adjacent to a hardstand turnaround area, with the turnaround area meeting WAPC Standards (Figure 7). The newly created lot will require a standalone water tank for bushfire and should be noted on plans at building approval stages.</p> <p>LSP is deemed compliant to Acceptable Solution A4.3.</p> |

Table 3: Vehicular Access Technical Requirements (adapted from Table 6 WAPC, 2017)

| Technical requirements | Private Driveways & Battle Axes |
|---------------------------------|---------------------------------|
| Minimum trafficable surface (m) | 4 |
| Horizontal clearance (m) | 6 |
| Vertical clearance (m) | 4.5 |
| Maximum grades | 1 in 10 |
| Minimum weight capacity (t) | 15 |
| Maximum crossfall | 1 in 33 |
| Curves minimum inner radius (m) | 8.5 |
| Maximum Length | 50m |

*Denotes the width can include a 4m wide paving with one metre wide constructed road shoulders.

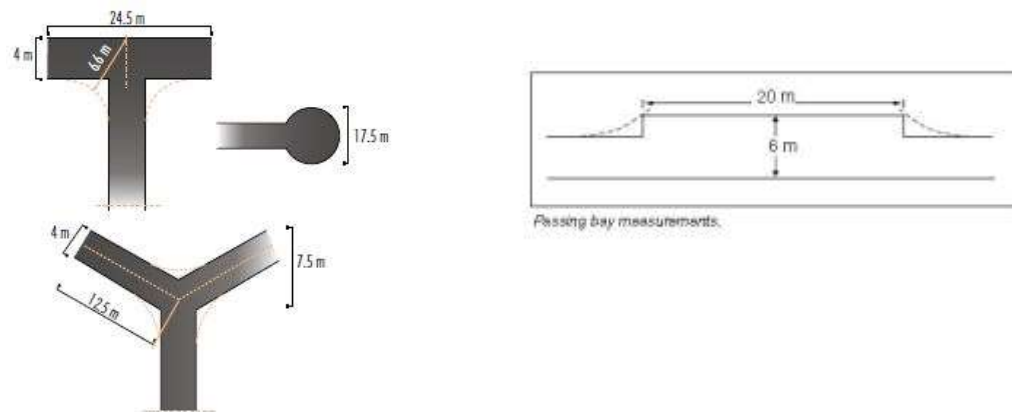


Figure 7: Turnaround areas and passing bay standards to apply

SECTION 6: DISCLAIMER


The recommendations and measures contained in this assessment report are based on the requirements of the Australian Standards 3959-2009 – Building in Bushfire Prone Areas, WAPC State Planning Policy 3.7 (WAPC, 2015), WAPC Guidelines for Planning in Bushfire Prone Areas (WAPC, 2015), and CSIRO’s research into Bushfire behaviour. These are considered the minimum standards required to balance the protection of the proposed dwelling and occupants with the aesthetic and environmental conditions required by local, state and federal government authorities. They DO NOT guarantee that a building will not be destroyed or damaged by a bushfire. All surveys and forecasts, projections and recommendations made in this assessment report and associated with this proposed dwelling are made in good faith on the basis of the information available to the fire protection consultant at the time of assessment. The achievement of the level of implementation of fire precautions will depend amongst other things on actions of the landowner or occupiers of the land, over which the fire protection consultant has no control. Notwithstanding anything contained within, the fire consultant/s or local government authority will not, except as the law may require, be liable for any loss or other consequences (whether or not due to negligence of the fire consultant/s and the local government authority, their servants or agents) arising out of the services rendered by the fire consultant/s or local government authority.

AS3959-2018 disclaimer: It should be borne in mind that the measures contained within this Standard (AS3959-2018) cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather condition. (AS3959, 2018)

Building to AS3959-2018 is a standard primarily concerned with improving the ability of buildings in designated bushfire prone areas to better withstand attack from bushfire thus giving a measure of protection to the building occupants (until the fire front passes) as well as to the building itself.

SECTION 5: Certification

I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS3959-2018 (Incorporating Amendment Nos 1, 2 and 3) and the Guidelines for Planning in Bushfire Prone Areas Ver 1.3 (WAPC, 2017).

SIGNED, ASSESSOR: ...  DATE:

Kathryn Kinnear, Bio Diverse Solutions
Accredited Level 2 Bushfire Practitioner (Accreditation No: BPAD30794)



References

Shire of Boyup Brook Fire Break notice, retrieved from:

<https://www.boyupbrook.wa.gov.au/services/emergency-services/bushfire-control.aspx>

Western Australian Planning Commission (WAPC) (2017) Guidelines for Planning in Bushfire Prone Areas Version 1.3. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

Western Australian Planning Commission (WAPC) (2015) State Planning Policy 3.2 Planning in Bushfire Prone Areas. Department of Planning WA and Western Australian Planning Commission.

State Land Information Portal (SLIP) (2019) Map of Bushfire Prone Areas. Office of Bushfire Risk management (OBRM) data retrieved from: <https://maps.slip.wa.gov.au/landgate/bushfireprone/>

Appendix 1

Standards for an Asset Protection Zone (APZ) (WAPC, 2017)

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.

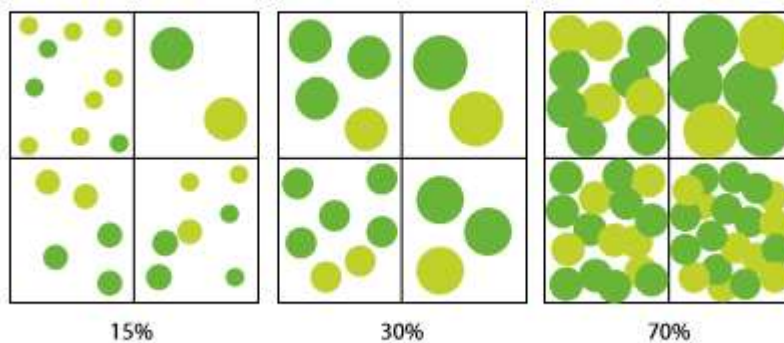
Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.

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. See Figure 2 (WAPC Figure 16, Appendix 4) below.

Figure 2 – Tree Canopy Cover

Figure 16: Tree canopy cover – ranging from 15 to 70 per cent at maturity



(WAPC, 2017)

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 millimetres 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 millimetres or less.



27 February 2018

ENGINEERING REVIEW

LOT 913 FERN VALLEY ROAD, BOYUP BROOK



PIPPIN
CIVIL ENGINEERING

Submitted by
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ENGINEERING SERVICING REPORT

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ENGINEERING SERVICING REPORT

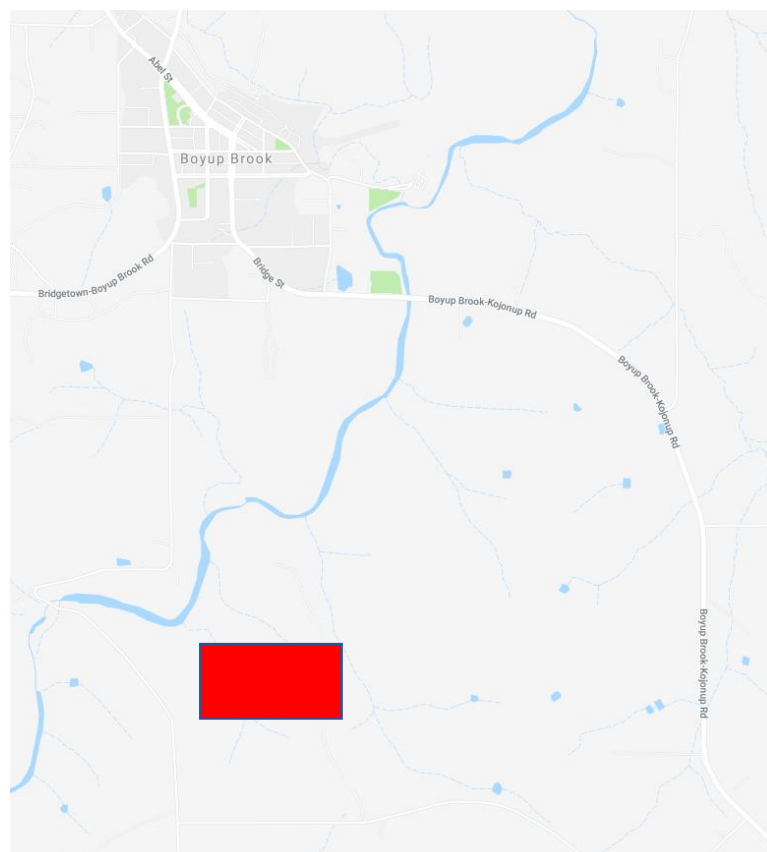
1.0 INTRODUCTION

Pippin Civil Engineering Pty Ltd (PCE) has been engaged by Rob Jones to undertake a review into civil engineering related matters and infrastructure servicing opportunities and/or constraints for a potential rural small holdings development of Lot 913 Fern Valley Rd, Boyup Brook.

PCE has prepared this report into the existing servicing infrastructure, the expected servicing infrastructure and the likely Local Authority engineering conditions required to be undertaken to achieve an anticipated Western Australian Planning Commission (WAPC) subdivision approval on Lot 913 Fern Valley Rd, Boyup Brook.

The information contained herein has been provided to assist in the understanding of the potential engineering issues and constraints involved in the development of Lot 913 in accordance with current rural subdivision requirements. It is noted that the advice contained herein is general in nature, as PCE has not undertaken detailed engineering, environmental, geotechnical or other design work as part of this report. PCE has not undertaken detailed discussions with the local authority or any of the servicing agencies (unless otherwise specifically noted within where an issue was deemed to require additional clarification due to a significant effect on the potential for development).

The development site is located 3.0 kilometres directly south of the Boyup Brook townsite. The site is bounded by rural landholdings to all boundaries. Figure 1.1, below, indicates the location of the subject land relative to the Boyup Brook townsite and Figure 1.2 is an aerial photograph of the locality with the site bounded by a red line.



Source : Imagery 2017 Google, Map Data

Figure 1.1 – Location of the Subject Land



Source : Imagery 2017 Google, Map

Data

Figure 1.2 – Aerial photograph of the site

2.0 SITE CONDITIONS

2.1 Geology

Lot 913 Fern Valley Road is shown on the 1 : 500 000 scale Collie sheet of the Regional Geology series maps as included on the Data.wa.gov.au website, indicates that the site is within the South West Terrane Greenstones Unit, which is described as gneiss, undivided; protolith unknown.

The Warren Blackwood Rural Strategy Land capability map identifies the subject land within the Blackwood River Basin BV4 Upper Blackwood (part of the BR 3 Tweed Planning Unit). Soils consist of loamy gravels, deep and duplex sandy gravels and deep loamy and deep sandy duplexes.

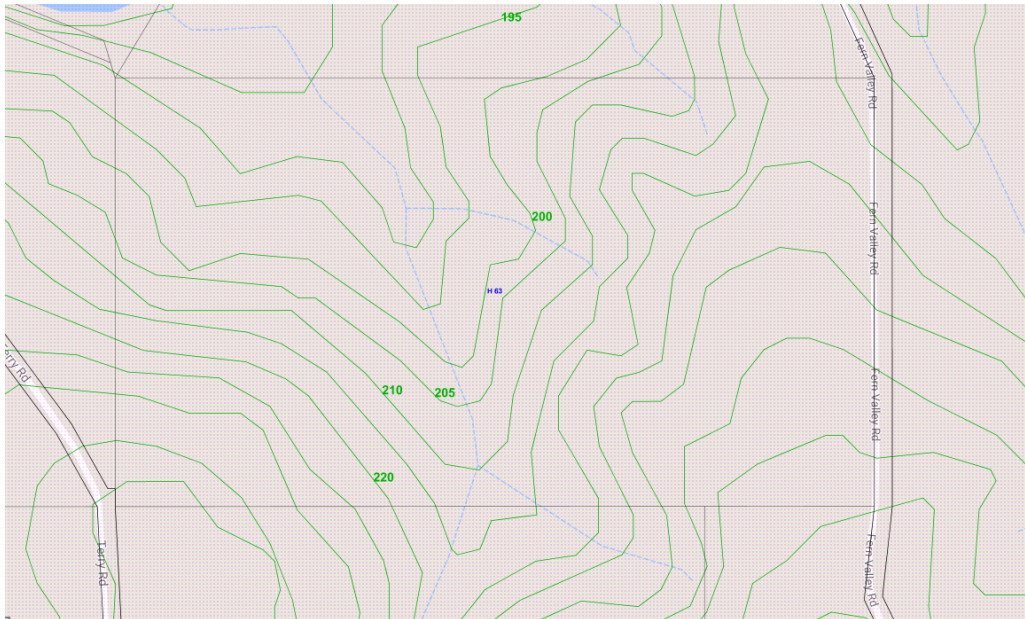
2.2 Topography

A detailed feature survey has not been undertaken across the lot given the size of the land parcels and proposed 3 lot development.

Based upon aerial contour information Lot 913 varies in height from RL 240m AHD in the south-eastern and south western corners to RL185m AHD in the north western corner. The development site is characterized by the central, natural valley that is highlighted by the two ridges running approximately parallel to the western and eastern boundaries.

The land slope varies from gently sloping to relatively steep in isolated areas dropping into the natural valley line, with slope gradients of upto approximately 20% in some areas.

The aerial contour information courtesy of the Water Corporations EsiNet mapping is shown below as figure 2.2.



Source : EsiNet Water Corporation WA 2017

Figure 2.2 – Topography

The topography of the land does not prevent development in accordance with the proposed 3 lot rural small holding zoning and with the minimum lot size of 8.1 hectares. Each proposed lot is shown to be provided with sufficient suitable land for the development of a residential home and associated small farm infrastructure. The large size of the proposed lots would indicate that no earthworks would be required to the proposed lots in order to achieve an anticipated subdivision approval.

2.3 Vegetation

Lot 913 does contain existing vegetation, however the vegetation is sparsely located and typical of a rural property that has been farmed for many years. The vegetation consists of isolated paddock trees with little to no under storey, which is indicative of long term grazing.

The aerial imagery, as included above as Figure 1.2 highlights the limited extent of existing vegetation, including that which exists along the existing natural valley.

2.4 Acid Sulfate Soil (ASS)

A desktop review of the locations ASS mapping indicates that the area is unmapped and not recorded on the Soil Risk Map. Based upon the location, soil type and proximity away from the river ASS are unlikely to be present within the development area.

It is also noted that based upon the zoning of the land major earthworks and extensive servicing will not be required, therefore ASS would be unlikely to be uncovered even if it should exist.

2.5 Existing Building Infrastructure

The development lot contains a single residential home and associated small farm infrastructure. It is noted that the existing building infrastructure is to remain and the subdivision proposed by the Local Structure Plan has taken into consideration the separation of the existing buildings from proposed boundaries.

2.6 Existing Servicing Infrastructure

The existing service infrastructure is described later in this report, however the development lot contains only an existing high voltage overhead power line and associated poles, based upon information obtained through Dial Before you Dig requests, the Water Corporations asset management website EsiNet and servicing information available from data.wa.gov.au.

The existing home is serviced via a private underground power cable that is connected to the existing Western Power overhead lines that traverse the eastern side of the property.

2.7 Illegal Dumping and Contamination

Visual inspection of the site does not indicate any areas of potential illegal dumping or areas potentially contaminated with unwanted waste, materials etc. Research of the contaminated site database on data.wa.gov.au, as at the 5th December 2017 does not indicate any form of contamination on the site or that the site has been remediated in the past.

2.8 Groundwater

A review into existing groundwater levels has not been undertaken as part of this review, based upon the scale of development proposed.

Research on data.wa.gov.au indicates that the site is **not** located within a public drinking water source area.

3.0 DEVELOPMENT SITWORKS

There will be no siteworks/earthworks within the development site, associated with the creation of the lots.

Future lot purchasers may choose to undertake earthworks to create their homes and infrastructure upon creation of the lots, however this will be subject to the Shire of Boyup Brook's Building approvals process.

4.0 DEVELOPMENT INFRASTRUCTURE

4.1 Roadwork's

The Shire of Boyup Brook will be the ultimate approval authority for any proposed road network. However, this development will not be creating any additional or new road reserve/s in order to facilitate a road connection for each of the proposed lots. Each of the lots proposed under the Local Structure Plan are currently fronted with a rural style road connection to a Shire controlled road reserve.

The Shire of Boyup Brook do not presently have their road construction requirements for new developments listed or contained within their website. However, based upon anticipated additional traffic due to development, with only the traffic generation from a single lot being added to the existing road network on Terry and Fern Valley Road, the extent of any road upgrade due to development will be minimal.

Terry Road is an existing unsealed rural style gravel road. It appears that recent upgrading works including re-sheetting, grading and clearing has been undertaken with the road being in good condition for a rural standard.

Fern Valley Road is also an existing unsealed rural standard gravel road. The road is in poor to good condition with functioning, vegetated swale drains and a varied 4.0 to 5.0m gravel surface width.

It is understood that previous discussion with the Shire's Director of Works and Services has been undertaken over the proposed driveway and entry to the western, 20.2 ha lot. Verbal advice was received at this discussion that the access from Terry Rd was acceptable. Further review of the location on the 19th October confirmed the adequacy of the entry location based upon available sight distance. Images 4.1.1 and 4.1.2 below indicate the extent of sight distance available.



Image 4.1.1 - South from Terry Rd Driveway Location



Image 4.1.2 – North from Terry Rd Driveway

Similarly, the existing driveway and any new driveways for the 8.1 and 12.2 ha lots from Fern Valley Rd would also have sufficient sight distance given the relatively straight section of road fronting each of the proposed lots and the lack of vegetation within the existing road reserve. Refer images 4.1.3 and 4.1.4 below.



Image 4.1.3 - South from NE corner of lot

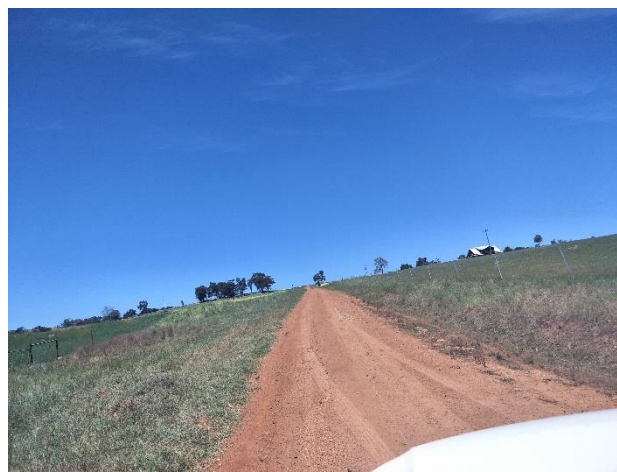


Image 4.1.4 – North from NE corner of lot.

4.2 Stormwater Management

The stormwater drainage design philosophy for the development of Lot 913 Fern Valley Rd is relatively simple in that there are no proposed additional roads to be constructed and the additional impervious area created from the future development of two additional lots is very small compared to the proposed 8 to 20 ha lot sizes.

Based upon the existing home and small farm infrastructure on Lot 913, the likely impervious area created by the additional two lots plus the existing development is approximately 1800m². This doesn't even compare to the 405,000m² of development area, therefore the pre-development stormwater flow regime will be barely affected by the post development infrastructure and additional impervious area.

Future home and farm buildings will be required to install rainwater tanks to capture rainwater for a drinking water source, this combined with standard building practices for rain/stormwater management will be sufficient for the new development.

With no additional road construction required and both existing, fronting roads including unsealed roads with vegetated roadside drains the requirement for stormwater management of stormwater from additional impervious road surface area is not applicable to this development.

In addition to localized stormwater management the development must consider the potential flooding of the Blackwood River. The North West corner of the development site is located approximately 70.0m from the water line of the Blackwood River. Based upon the aerial contour information, as described above in section 2.2 the lowest area of the development is approximately 8.0 to 10.0m higher than the Blackwood River.

Previous advice from the Department of Water in 2012 prescribed a minimum finished floor level for all development in proximity of the Blackwood River graduating between 188.0m AHD for Lot 8 Fern Valley Rd to 187.0m AHD for the southern boundary of Lot 6116 Terry Rd. This equates to a minimum finished floor level of approximately 187.2 within the development.

Further, historical information on the flood regime of the Blackwood River indicated evidence that the following flood levels were observed for a major storm event in January 1982.

| | |
|----------------------------|--------------|
| Boyup Brook – Kojonup Road | 187.55 m AHD |
| Lot 2 Brown Seymour Road | 184.51 m AHD |

This flood event equates to an approximate flood level at the north west corner of Lot 913 of approximately 186m AHD.

Based upon the available information from the Department of Water and from historical flood records the following floodplain management strategy for the area will be required;

- Proposed development (i.e., filling, building, etc) that is located within the floodplain for an event of similar magnitude to the January 1982 event and considered obstructive to major flows is not acceptable as it would detrimentally impact upon the existing flooding regime. This equates to no development within areas of Lot 913 below the 186m contour.
- Proposed development (i.e. filling, building, etc) that is located outside of the floodplain would be considered acceptable with respect to major flooding, however, a minimum habitable floor level of 187.2m AHD is recommended to ensure adequate flood protection.

An alternate to placing a minimum floor level on the area affected by flood, may be to restrict development in the affected area with a building envelope. The indicative area affected by flooding of the Blackwood River is shown below as Figure 4.2. It should be noted that the area could be refined further with detailed survey of the area.

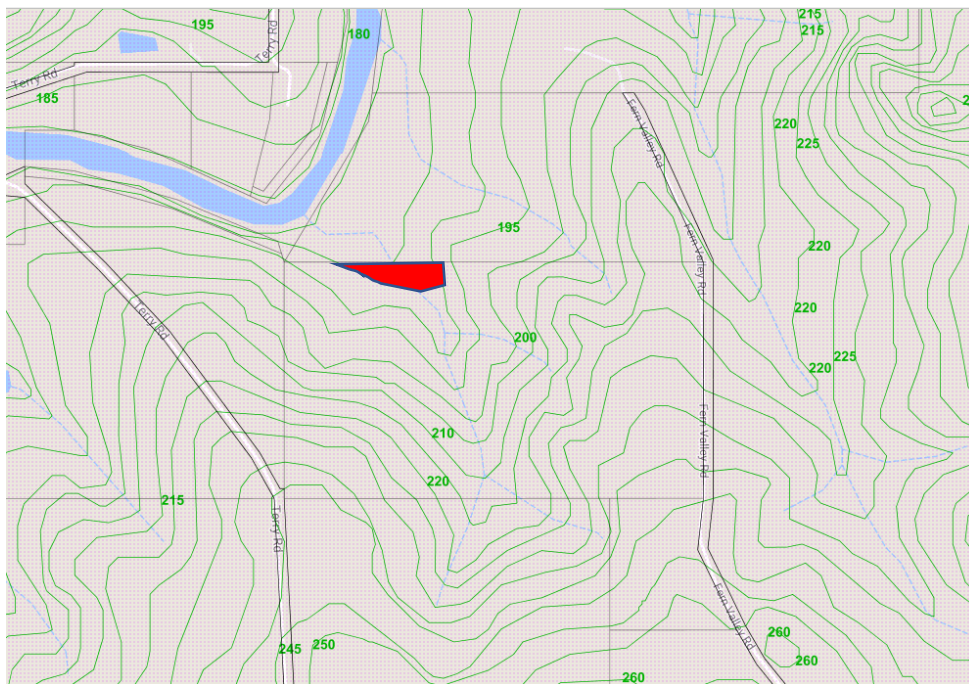


Figure 4.2 – Area potentially affected by Flooding

4.3 Electrical Reticulation

Western Power have kindly provided indicative mapping of their existing underground and overhead electrical assets within the vicinity of Lot 913 Fern Valley Road. This information is shown below as Figure 4.3 with the blue line indicating the location of the overhead cables and blue dots the existing poles.

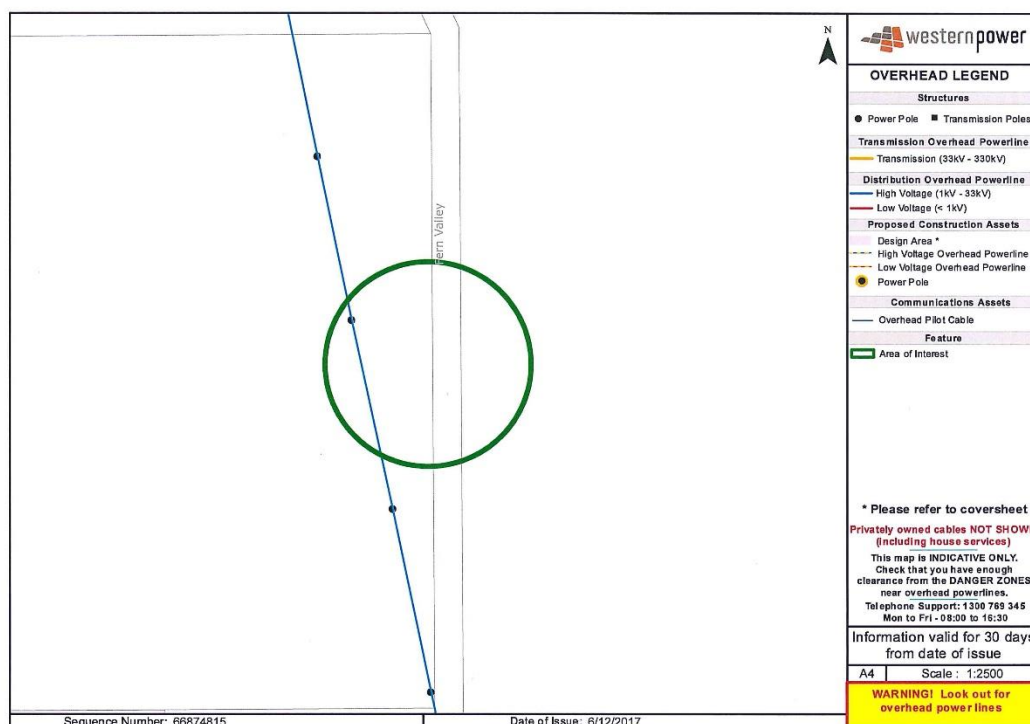


Figure 4.3 – Existing Overhead Power

The existing overhead power supply mapping indicates the location of the overhead high voltage distribution line that is located just within the eastern property boundary of Lot 913. This existing overhead line supplies the existing residence (on the proposed 12.2 ha lot) via an underground cable from the pole.

This overhead supply would also be a point of connection for the newly proposed (northern) 8.1 ha lot as it also contains the overhead infrastructure and an existing pole.

Based upon State Planning policy 2.5 Rural Planning Guidelines Version 3 December 2016 by the Western Australian Planning Commission (WAPC), it appears that rural properties can be serviced with electrical infrastructure via existing overhead power lines and do not have to underground these electrical assets as would be required in an urban residential subdivision.

It has been extremely difficult to get an answer from Western Power as to how they would prefer to service the proposed 20.2 ha lot. There is presently no overhead or underground power supply located within Terry Road that fronts the lot. With the nearest point of potential supply being located close to the Terry Road Stanton Road intersection, approximately 570m away. The other connection point is the existing overhead power infrastructure along the eastern boundary of Lot 913, with this being approximately 340m away but requiring an overhead power extension through private land, which would necessitate an easement on the title, if it could be approved by Western Power.

An alternate option would be the provision of a renewable energy source, under the recently (December 2016) revised State Planning Policy 2.5 – Rural Planning Guidelines the WAPC permit a renewable energy in clause 5.4, as per below;

“5.4 Renewable energy sources

The use of renewable energy sources to power residential properties has become increasingly attractive to homeowners in rural areas due to the expense and challenges of connecting to a reticulated supply. SPP 2.5 allows for the use of renewable energy sources where a network connection is not available or an infrastructure upgrade is not commensurate with the scale of

a proposal. An 'off-grid' system, also known as a 'stand-alone power' system, could be utilised to service rural lots. The main components of a stand-alone power system are:

- renewable energy generation equipment, such as photovoltaic modules (solar panels), wind turbines, or 'hybrid' combinations of these;
 - control and regulation equipment for battery charging and back-up power operation;
 - energy storage such as batteries;
 - inverters which convert electrical current so that common household appliances can be used;
- and
- a back-up electricity supply from either storage batteries and/or generators.

Any stand-alone power supply system must demonstrate that the energy generated through the renewable energy source/s is sufficient for the intended land use. The use of diesel generators to power residential properties is not considered a renewable energy source as defined in SPP 2.5.

Reference : SPP 2.5 Rural Planning Guidelines Version 3 December 2016 Western Australian Planning Commission

Western Power offer to undertake feasibility assessment for the provision of power supplies to new developments, however they charge for the service. Feasibility requests can be lodged online for \$150, after which western power will provide a quotation for the feasibility assessment, that is likely to vary between \$750 and \$1,500 depending upon the complexity.

However, the final power connection and reticulation requirements can only be confirmed when a Design Information Package request has been requested and received by Western Power. This generally occurs upon approval of subdivision by the WAPC.

4.4 Water Supply

The subject land falls within an area where connection to the Water Corporation water reticulation network is not available. In addition, a development of this zoning will not be required to connect to reticulated water.

TPS No. 2 does make a statement regarding the supply of water to development within the small rural holding zone as follows:

"5.3.9 Water Supply Except where a reticulated water supply is provided, a person shall not construct a dwelling unless a roof water storage tank of minimum capacity of 92,000 litres or other type of domestic water supply approved by the Council is incorporated in the approved plans and constructed at the same time as the dwelling. No dwelling shall be considered fit for human habitation unless a tank has been installed and is operating."

The implementation of the rainwater tanks will be a requirement at the building stage, to be implemented by the lot purchaser. It will not be a requirement at subdivision stage.

With no water reticulation requirement, water headwork's that are normally paid to the Water Corporation would not be applicable.

4.5 Sewerage Effluent Management

Lot 913 or the surrounding rural land holdings are not currently serviced with reticulated sewerage collection, transfer and treatment. The Water Corporation have also confirmed that there is presently no proposal by Government to fund infill sewerage in this area of Boyup Brook. In addition, based upon the Rural Small Holding zoning of the land within the area under TPS No. 2 and the associated lot size under this zoning there would be no requirement to provide each newly developed lot with reticulated sewerage.

It will therefore be a requirement for each proposed lot, at building stage, to install a suitable on-site effluent treatment and disposal system. The implementation of the on-site effluent disposal systems will not be a requirement of subdivision.

TPS No. 2 sets out the requirement for the implementation of the on-site disposal of effluent system in the following way and highlights the need to undertake a geotechnical assessment of the suitability of the land for effluent disposal as part of the subdivision application process.

"The onsite disposal of effluent shall be approved by Council and the Health Department of WA. Effluent systems shall be designed and located to minimise nutrient export and/or release into any waterway or groundwater. Any subdivision application shall be accompanied by a geotechnical report to demonstrate that the areas where septic tank systems are proposed to be used are capable of disposing of effluent within each lot."

The requirements for utilising on-site effluent disposal are covered, in detail within the Government Sewerage Policy: November 2016. In brief, a development would be required to determine the suitability of the existing soils for effluent treatment and disposal. This investigation shall be carried out in accordance with AS/NZ1547. Prior to subdivision, supporting information shall be included within the relevant water management strategy that addresses section 2(c) of the Government Sewerage Policy.

The Government Sewerage Policy can be viewed at;
https://www.planning.wa.gov.au/dop_pub_pdf/Draft_Government_Sewerage_Policy_2016.pdf

AS/NZS 1547:2012 sets out the requirements for on-site domestic wastewater management and the land capability investigation that would be required. The land capability assessment will determine the potential use on the site for effluent disposal and will take into consideration characteristics like the soil profile to a depth of at least 2m, the soil permeability, the nutrient retention capabilities of the soil, the relative depth to the groundwater and the site topography and other features such as rock outcrops and water courses. It is noted that the land capability is required prior to the application for subdivision.

The location of effluent disposal systems must also take into consideration the Blackwood River and the requirements of the Department Water and Environmental Regulation (DoWER), as described in Water Quality Protection Note 70 – Wastewater Treatment and disposal – domestic systems (WQPN 70) and referenced to the Government Sewerage Policy.

The Blackwood River, in the case of this development, would be considered a sensitive water resource and an appropriate buffer would need to be implemented for areas of effluent disposal. The Government Sewerage Policy states that on site effluent disposal systems shall not be located within 100m of a waterway. The north-west corner of lot 913 is already approximately 70m from the edge of the Blackwood River, therefore a potential 100m effluent disposal buffer would have minimal effect on the proposed lot.

It is therefore recommended that a land capability assessment be undertaken as part of the subdivision application and that an effluent disposal buffer of 100 m be applied to the Blackwood River.

Where a development such as a residential development on Lot 913 is unable to connect to reticulated sewer, sewer headworks normally payable to the Water Corporation would not be applicable.

4.6 Communications

Telstra have kindly provided indicative mapping of their existing telecommunications infrastructure in Terry Rd and Fern Valley Rd. No other communications companies, in particular NBN Co have record of any telecommunications infrastructure in the area.

Telstra advise they have a buried cable located west of the Terry Rd road reserve, however this cable contains no connection pits. Telstra further advise that they do not have any infrastructure within Fern Valley Rd, where it fronts lot 913.

The cost of design, approvals, supply and installation of the telecommunications network, either under NBN or Telstra standards by a new development is borne solely by the Developer, inclusive of any service extensions beyond the development site and an additional cabling fee payable for each lot developed. However, the provision of a telecommunications service to newly created lots will not be a WAPC condition of subdivision, therefore it is at the Developers discretion if a service is provided.

Options currently exist where new developments, remote from existing infrastructure, particularly broadband infrastructure, can make application for wireless service for broadband services. This does not require any infrastructure installation at subdivision stage, but does require the future home owner to install an additional antenna to their roof.

4.7 Gas

There is no existing underground gas supply in the Boyup Brook townsite or available for the subject site, therefore it is not proposed to service the development with a reticulated gas supply. The provision of reticulated gas to a new development will not be a WAPC condition of subdivision.