PORONGURUP RURAL VILLAGE

STRUCTURE PLAN

Shire of Plantagenet

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REVISION INFORMATION

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E			
F			
G			
H			

Harley Global (HG), Shire of Plantagenet (SoP), Bio Diverse Solutions (BDS)

DISCLAIMER

Endorsement Page

This structure plan is prepared under the provisions of the Shire of Plantagenet Local Planning Scheme No. 5

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

09 November 2011

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the Planning and Development (Local Planning Schemes) Regulations 2015.

Date of Expiry: **19 October 2027**

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1 INTRODUCTION

1.1 Introduction to Structure Plan

This Structure Plan has been prepared by Harley Global Pty Ltd (Harley Global) on behalf of William and Sharon Bird, the owners of Lot 5 Porongurup Road and Lots 1 and 1664 Boxhill Road, and John and Chris Blythe, the owners of Lot 11 Porongurup Road, Porongurup. The Structure Plan area is herein referred to as the 'subject site'.

This Structure Plan has been prepared consultatively and in cooperation with the following project team consultants:

- Bio Diverse Solutions (Environmental Management Strategy);
- Opus International (Fire Management Plan); and
- Coffey Environments (Land Capability Assessment).

The Structure Plan also addresses the comments of the local community and agencies that have been received by the proponents and the Shire of Plantagenet since 2007. Main areas of community concern have been addressed by the Structure Plan where necessary.

The Structure Plan builds on work undertaken by Harley Global and the project consulting team during the development of Amendment No. 49 to Shire of Plantagenet Town Planning Scheme No. 3 (TPS 3). This Structure Plan is required prior to the finalisation of the Amendment.

The Structure Plan has been prepared with the intention of supporting the development of a sustainable rural village at Porongurup. The subject site is currently zoned *Rural* in TPS 3. The subject site and other surrounding land parcels have been identified within the 1997 Porongurup Rural Strategy and subsequently the 2007 WAPC Lower Great Southern Strategy and the 2010 Shire of Plantagenet Planning Vision (Town Planning Scheme Policy No. 18) for the development of a rural village. The Structure Plan intends to develop a village comprising the following features:

- A Village Green, a centre for community focus and a possible new location for the Porongurup Hall, which is currently located 3km to the east of the subject site;
- A central parkland located between Porongurup Road and Bolganup Creek which is located in close proximity to the Porongurup Shop and protects the vista up to Karribank Lodge;
- The establishment of Enclaves around Mayfield Homestead and Karribank Lodge. The Enclaves are to be developed with an average lot size of 2,000m^2, but are to be uniquely developed to foster a community lifestyle environment and to protect the existing character of these areas;
- A heritage and tourism precinct, focussed around the existing Karribank Lodge; and
- A range of residential (2,000m^2 - 5,000m^2) and rural-residential (5,000m^2 - 22ha) lot types to accommodate strata cluster houses, detached housing, hobby farms and rural lifestyle lots.

The benefits of the development will include:

- The provision of a limited number of residential and rural-residential lots in a range of sizes and styles to cater for a wide cross section of the general community and in a style that reflects the unique characteristics of the Porongurup locality;
- Promotion of the 'eco-village' concept with a particular emphasis on the energy and water efficiency of the development to reflect the rural nature of the area and the desire to utilise scarce resources more sustainably; and
- Demonstration of innovative development concepts in the Great Southern Region, that are focussed on providing development that suitably addresses the opportunities and constraints of a site, as well as identifies and protects the existing character of the landscape.

The Structure Plan includes and is supported by an Environmental Management Strategy that incorporates actions relating to effluent disposal, storm water management, fire management, foreshore management and land capability. The Structure Plan is also supported by a Visual Impact Assessment and a set of recommended Design Guidelines that ensure that the objectives for a sustainable and unique community are reflected in the final built form.

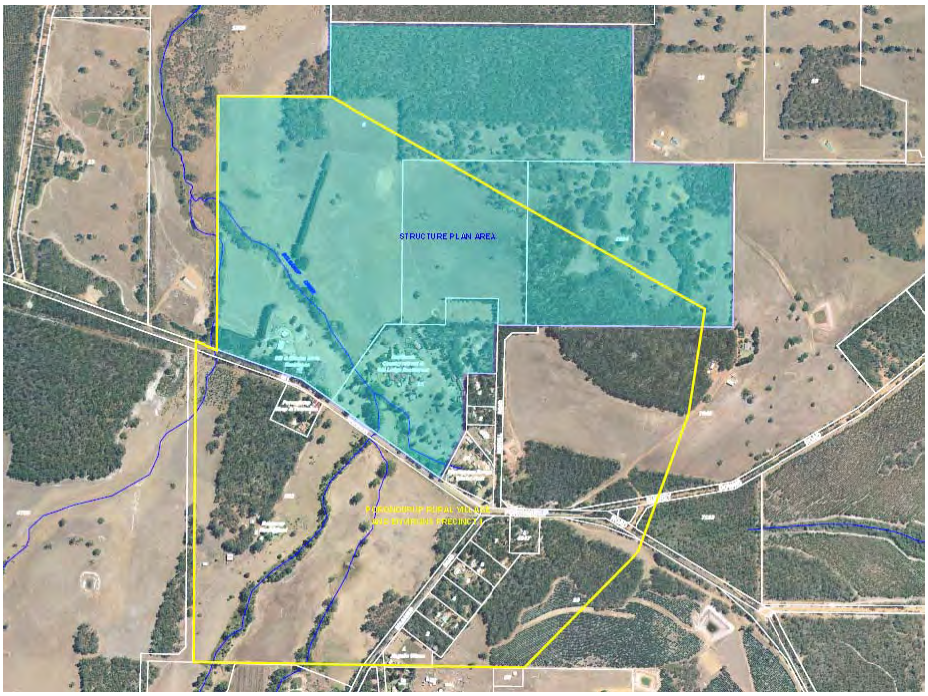
1.2 Structure Plan Area

The Structure Plan is proposed to provide for the development of the land bounded by Porongurup Road to the south, Boxhill Road to the east and agricultural land/privately owned remnant vegetation to the north.

The Structure Plan does not relate to all land contained within the area identified by the Shire of Plantagenet as the Rural Village Precinct (Precinct 1 of Appendix 4 of the Shire of Plantagenet Town Planning Scheme Policy No.18 – Planning Vision). The entire precinct is addressed separately by the Precinct Plan contained in **Appendix A** and explained in further detail in **Section 5.**

The relationship between the Structure Plan Area and Precinct 1 of the Porongurup Rural Village and Environs Strategy is shown in **Figure 1**.

Figure 1: Porongurup Rural Village Structure Plan area (blue) and Precinct 1 area (yellow).



1.3 Structure Plan Context

The Structure Plan comprises plans to illustrate the planned development of the area and this report to provide the necessary background and justification. It is based on the provisions relating to the Rural Village Zone to be included in TPS 3 by Amendment No. 49.

All future subdivision and development will be guided by this Structure Plan and its supporting documents.

1.4 Interpretation

The words and expressions used in the Structure Plan shall have the respective meanings given to them in TPS 3 and the Western Australian Model Scheme Text.

1.5 Operation Date

The Structure Plan will come into effect once adopted by the Shire of Plantagenet and endorsed by the Western Australian Planning Commission in accordance with the provisions relating to the preparation of structure plans proposed by Amendment No. 49. .

1.6 Relationship with Scheme

Amendment No. 49 to TPS 3 proposes to introduce Clause 3.10 into the Scheme. As such, the Structure Plan will have the following relationship with the Scheme:

a) The provisions, standards and requirements specified in the Structure Plan shall have the same force and effect as if they were a provision, standard or requirement of TPS 3; and

b) In the event of there being any inconsistencies or conflict between the provisions, standards or requirements of TPS 3 and the provisions of the Structure Plan, the provisions, standards or requirements of TPS 3 shall prevail.

1.7 Objectives

The objectives of this Structure Plan are based on the objectives to be incorporated into TPS 3 by Amendment No. 49. New clause 3.8 (b) of TPS 3 identifies the objectives as:

a) Allow for the development of Rural Villages in appropriate strategic locations;

b) Designate land considered to be generally suitable for Rural Village purposes and to prevent such land being used or developed in a manner that could prejudice its possible future use for planned purposes; and

c) Provide sustainable development of land in an orderly manner with appropriate levels of physical infrastructure and services.

In addition to the Zone Objectives, the Structure Plan seeks to promote a sustainable 'eco-village' type of development that reflects and enhances the unique characteristics of the Porongurup locality.

1.8 Statutory Obligations

1.8.1 Compliance

The making of a Structure Plan is governed by the provisions to be incorporated into TPS 3 by Amendment No. 49. These provisions are based on similar provisions in local planning schemes throughout the state. The provisions outline the content, advertising and approval requirements for structure plans. This

Structure Plan has been prepared and will be considered by the Shire of Plantagenet and Western Australian Planning Commission in accordance with these provisions.

Details of the provisions to be inserted into TPS 3 by Amendment No. 49 are provided in **Section 2.8**.

1.8.2 Additional Requirements

This Structure Plan does not constitute subdivision of development approval. Once approved by the Shire of Plantagenet and endorsed by the WAPC, the Structure Plan will control how the Porongurup Rural Village will be subdivided and developed.

The Structure Plan will be used to assess applications for subdivision and the supporting Environmental Management Strategy will be used to guide the conditions placed upon a subdivision approval that will affect how Porongurup Rural Village is constructed.

The WAPC will be responsible for approval of subdivision applications. It will seek the advice of the Shire of Plantagenet and state agencies as part of the approval process.

The Shire of Plantagenet will be responsible for approving planning and building applications within the Porongurup Rural Village. These approvals will be guided by the Porongurup Rural Village Design Guidelines that have been prepared as part of the Structure Plan. The Design Guidelines will be adopted by the Shire of Plantagenet as a Town Planning Policy under clause 7.6 of TPS 3.

2 BACKGROUND

Amendment No. 49 and the Porongurup Rural Village Structure Plan is guided by a wide range of local, regional and state planning policies and strategies. The main documents that relate to the Porongurup Rural Village are outlined in the sections below.

How the Structure Plan addresses the relevant requirements of these documents is also outlined.

2.1 State Planning Strategy 1996

2.1.1 Purpose

The State Planning Strategy provides the land use planning strategy for Western Australia's development up to Western Australia's bicentenary in 2029. The emphasis of the State Planning Strategy discussion paper entitled *The Regions* is:

> *Planning for the regions should be directed to accelerating growth in regional centres, promotion of major projects to encourage the growth of smaller towns and facilitating development of a reasonable level of amenity and services in the areas of limited growth.*

2.1.2 Key Principles

The State Planning Strategy identifies the five key principles which further define this primary aim and describe the considerations which influence good decision-making in land use planning and development. Planning should take account of and give effect to, these principles and related policies to ensure integrated decision-making throughout government. The five key principles are:

- Environment: To protect and enhance the key natural and cultural assets of the State and deliver to all West Australians a high quality of life which is based on environmentally sustainable principles;
- Community: To respond to social changes and facilitate the creation of vibrant, safe and self-reliant communities;
- Economy: To actively assist in the creation of regional wealth, support the development of new industries and encourage economic activity in accordance with Sustainable Development principles;
- Infrastructure: To facilitate strategic development by making provision for efficient and equitable transport and public utilities; and
- Regional Development: To assist the development of regional Western Australia by taking account of the special assets and accommodating the individual requirements of each region.

2.1.3 Regional Objectives

The State Planning Strategy presents statements for the key regions in Western Australia. Section 8.1 of the Strategy includes objectives for the Southern Regions. This includes 4 key objectives for the Great Southern:

- As an alternative residential location will accommodate growth through a range of expanded towns and range of lifestyles;
- Development of intensive agriculture production and processing, timber production and processing, tourism and niche businesses;

- Sustainable resource management and protection of coastal, forest and mountain range environments; and
- Development of stronger inter-regional air, road and rail transport links.

Section 8.1.4 of the State Planning Strategy includes a strategy to provide a sense of Community through promoting nodal settlement patterns in agricultural areas separated by agricultural green belts.

The State Planning Strategy is implemented by State Planning Policy (SPP) 1 *State Planning Framework*. This Policy is outlined in **section 2.2**.

2.2 State Planning Policy No. 1 *State Planning Framework*

The purpose of SPP 1 is to bring together the state and regional policies that apply to land use and development in Western Australia and to establish the general principles for land use planning and development in WA.

SPP1 acts as an umbrella policy to ensure a context for decision making on land use planning issues in Western Australia. It is based on the five key principles identified by the State Planning Strategy for the sustainable use and development of land (see **section 2.1.2**).

The Porongurup Rural Village concept complies with these principles in the following ways:

- It is appropriately identified in regional and local strategies as suitable for increased development as identified at **sections 2.5 -2.7**;
- It is not located in an area that will adversely affect the orderly and proper planning of the Shire of Plantagenet, particularly in relation to the protection of priority agricultural areas and tourism;
- The development will take into account the environmental constraints of the site and work towards improving the environmental attributes of the site and surrounds, particularly in relation to Bolganup Creek;
- The development will look to utilise alternatives to conventional utilities, and have energy and water efficiency built in; and
- The development will improve the viability of community facilities in Porongurup by increasing in a sustainable manner the population in this existing node.

2.3 State Planning Policy No. 2.5 *Agricultural and Rural Land Use Planning*

SPP 2.5 is intended to reinforce the long-term protection and support for the state agricultural areas. The policy is guided by the following fundamental principles:

- The State's priority agricultural land resource should be protected;
- Rural settlement opportunities should be provided if sustainable and of benefit to the community;
- The potential for land use conflict should be minimised; and
- That the State's natural resources should be carefully managed.

One of the four key policy objectives' relating to these principles is to plan and provide for rural settlement where it can:

a) benefit and support existing communities; and

b) has access to appropriate community services and infrastructure.

The Structure Plan acknowledges the important agricultural activities that exist in Porongurup. The development has been designed to provide suitable separation distances between future homes and existing intensive agricultural uses on the southern side of Porongurup Road.

2.4 SPP 3 Urban Growth and Settlement

This SPP provides overarching objectives to support the sustainable growth and development of metropolitan and regional settlements across Western Australia. The implementation of policy will be through regional and local planning strategies and may also be addressed through local planning scheme amendments, subdivision and development. Objectives of the policy include:

- To build on existing communities with local and regional economies, concentrate investment in the improvement of services and infrastructure and enhance the quality of life in these communities; and
- To promote the development of a sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community.

A key requirement for sustainable communities is proper consideration of the environment, recognising the need to restore and enhance as well as protect biodiversity and to minimise development impacts on water, energy, minerals, basic raw materials, agriculture and other natural resources that help sustain urban economics and society.

2.5 Lower Great Southern Strategy 2007

The Lower Great Southern Strategy incorporates the City of Albany and the Shire's of Denmark, Plantagenet and Cranbrook. The Strategy notes that the region comprises some of the most productive agricultural land in the State and has the potential to become the centre of sustainable timber production and natural resource management.

The purpose of the Strategy is to guide regional land use and infrastructure planning and development, especially on matters of regional significance. The strategy is designed to provide the region-wide context and consistency when local governments are setting priorities for this area through local planning strategies and schemes.

Of particular relevance to the subject proposal is that the Strategy makes general recommendations regarding sustainable settlements and community developments and importantly it identifies Porongurup as one of the sixteen rural villages in the Lower Great Southern Region.

The settlement hierarchy promoted through the Strategy includes:

- Albany as a regional centre;
- Denmark and Mt Barker as sub –regional centres; and
- Cranbrook and Frankland as district service centres.

The Rural villages in the Shire of Plantagenet are:

- Kendenup;
- Rocky Gully;

- Narrikup; and
- Porongurup

The aim of the Strategy is to encourage development around existing nodal settlement and ensure policies provide a presumption in favour of consolidating settlement. However each village growth potential is required to be established in the context of each local government's Local Planning Strategy or a separate settlement strategy.

Section 3.7 of the Lower Great Southern Strategy includes implementation actions. Two pertinent actions include to:

- Identify innovative approaches to supply country towns with water and sewerage services that enhance environmental, social and economic outcomes and performance of current traditional methods; and
- Incorporate cultural heritage into planning matters.

Figure 2: Extract of Lower Great Southern Strategy Regional Land Use Plan

2.6 Porongurups Rural Strategy (1997)

The Shire of Plantagenet commissioned the preparation of a rural strategy for the Porongurup area in 1997. The purpose of the Rural Strategy was to identify the constraints, issues and opportunities associated with subdivision occurring in the Porongurup locality.

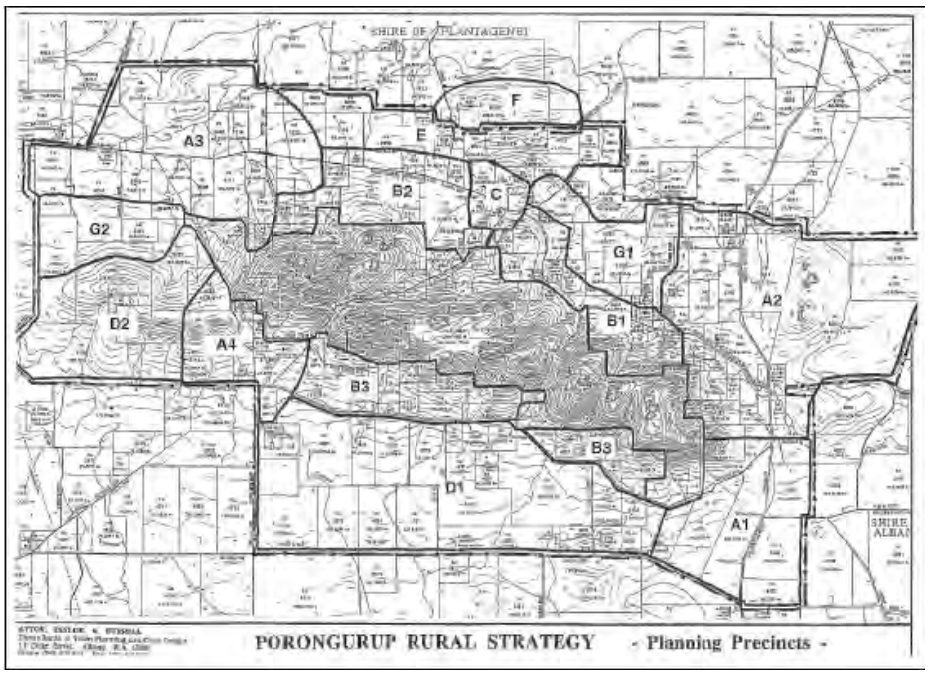
The locality was divided into a number of planning precincts (see **Figure 3**). The majority of the subject site was identified as a part of the Bolganup Precinct (C). The objectives of this precinct include the consolidation of existing residential and tourism development, the creation of an attractive centre and focal point for the Porongurup community and to ensure that further subdivision does not detrimentally impact upon the heritage values, setting and surrounding landscape quality.

The Rural Strategy recommends that rezoning of the land for rural residential, special residential and residential purposes may occur following the implementation of a Structure Plan for the precinct. This Structure Plan seeks to fulfil the requirements of the Porongurups Rural Strategy. An overall Precinct Plan for Area C has been included and described in **Section 2.7.5**.

The north eastern portion of the site was identified within Precinct E. The precinct includes the large bush area of Lot 5 and approximately half of Lot 1664. The Rural Strategy recommends this precinct remain undeveloped with remnant bush areas retained.

The requirements of the Porongurup Limited Rural Strategy have been revised and included within the Planning Vision's Appendix 4 – *Porongurup Rural Village and Surrounds*.

Figure 3: Porongurup Rural Strategy Precinct Plan



2.7 Planning Vision – TPS 3 Policy No.18 (2010)

2.7.1 Purpose of the Planning Vision

The purpose of the Planning Vision (Shire of Plantagenet Town Planning Scheme No. 3 Policy No. 18) is to identify the Strategic Initiatives for the Shire of Plantagenet. It also clarifies and strengthens a numbers of key issues for the Shire, including the Porongurup Rural Village. The planning precincts used in the 1997 Porongurup Rural Strategy were updated (see **Figure** 4).

2.7.2 Incorporation of Porongurup Rural Village

Appendix 4 of the Planning Vision relates specifically to the Porongurup Rural Village and Environs, of which the subject site forms a part. The Mayfield and Karribank properties are included in Precinct 1, and are identified as the core area of the Village. Section 9.1.4 of Appendix 4 describes that prior to the consideration of Amendment No. 49 to TPS 3, the WAPC required the completion of a Structure Plan for the precinct. The purpose of this Structure Plan is to meet the requirements of the WAPC prior to its final consideration of Amendment No. 49 and recommendation to the Minister for Planning.

2.7.3 Requirements for the Porongurup Rural Village

In relation to the Structure Plan, the Planning Vision has the following requirements:

- Porongurup Road is identified as a key tourist route. The 'Rural Vision' (Section 2.3 of Planning Vision) identifies that appropriate setbacks are required for development along this route, as well as appropriate screening that retains views;
- Porongurup is identified as a key location for a rural village (Section 3.2 of Planning Vision). The purpose of a rural village is to accommodate population growth and to support Mount Barker, the hub of the Shire of Plantagenet. The Planning Vision also specifically identifies that there is clear pressure to establish a rural village at Porongurup, to accommodate future tourism growth, as well as a demand for lifestyle and rural diversification properties. The linear expansion of rural residential and rural smallholding developments will not be supported, unless they are in proximity to identified settlements;
- A Conceptual Structure Plan must be developed for the entire village prior to Shire of Plantagenet considering any proposals for the subdivision, zoning or development of the land (Section 3.2 of Planning Vision); and
- The requirements of the Conceptual Structure Plan are outlined in Section 3.2.7 of the Planning Vision.

2.7.4 How the Structure Plan addresses the Planning Vision

The requirements of the Planning Vision are addressed by the Structure Plan and Amendment No. 49 in the following manner:

- It is recognised that Porongurup Road is a key tourism route in the Shire of Plantagenet, given it is the primary means of access to the Porongurup National Park. To support the Structure Plan, a visual impact assessment and management plan have been completed to identify and determine the significant views over the subject site and protect the landscape qualities of Porongurup;
- A Conceptual Structure Plan is included in Amendment No. 49. The Structure Plan subsequently refines this Conceptual Structure Plan based upon community consultation undertaken during the Scheme Amendment and Structure Plan processes. As a result, a Precinct Plan for Precinct 1 has been developed and is included in **Appendix C** and is discussed in **Section** Error! Reference source not found..

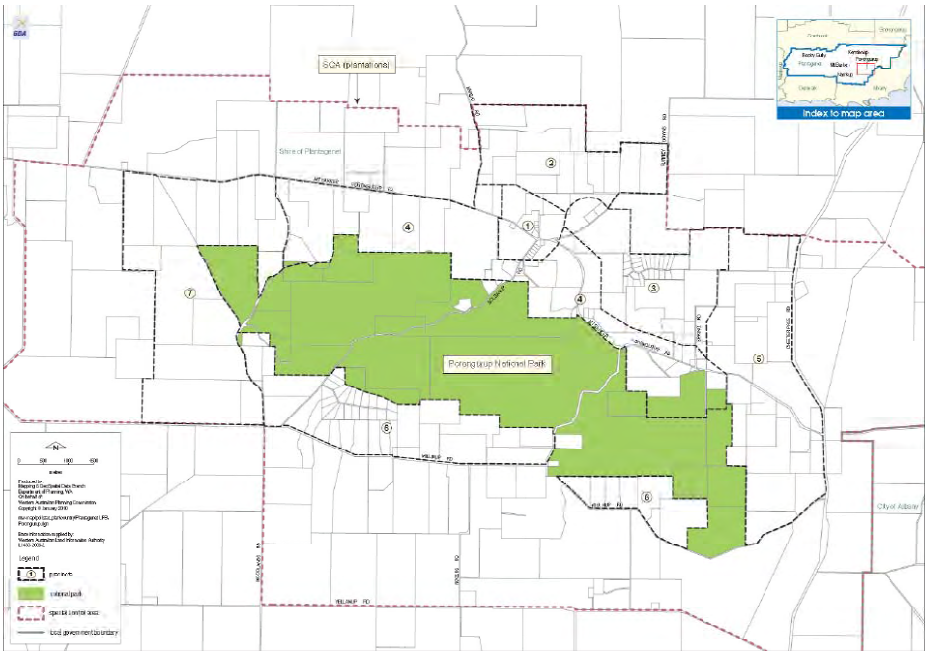
2.7.5 Planning Precincts

As previously discussed, the subject site is included in Precinct 1. A small portion of the site is located in Precinct 2. However, the context of development within the Precinct must also take account the surrounding precincts and their development potential. Precinct 1 is bordered by:

- Precinct 2 to the north;
- Precinct 3 to the east; and
- Precinct 4 to the south and west.

The extent of Precinct 1 and the surrounding Precincts is shown in **Figure 4**.

Figure 4: Current Porongurup Planning Precincts used in the Porongurup Rural Village and Environs Strategy.



A summary of the outcomes of the Planning Vision in respect to the precincts is included below:

Precinct 2:

- Further subdivision will not be supported;
- Rural residential development will not be supported; and
- Owners are encouraged to rehabilitate and revegetate the land;

Precinct 3:

This Precinct only forms a small border for Precinct 1 in the extreme east of the Precinct. This Precinct is to be developed for rural residential uses in accordance with the Precinct Plan, with a dwelling density not greater than 4ha per dwelling. Furthermore, development must identify and respond appropriately to the environmental constraints of the Precinct.

Precinct 4:

This Precinct fringes the northern boundary of the Porongurup National Park. Subdivision within this Precinct will not generally be supported, unless it can be demonstrated that tourism or horticultural uses will benefit from the exercise. Importantly, it is stressed that remnant vegetation is protected within this Precinct, especially that located adjacent to the Porongurup National Park.

Conclusions:

It is likely that the development of the surrounding land will be restricted to those precincts close to the Porongurup National Park or located to the east of the Porongurup Rural Village. It is unlikely that Shire of Plantagenet would permit the further expansion of development to the north of the Porongurup Rural Village, given that this area is identified as prime agricultural land that is be protected from development.

Although a small portion of the site is located within Precinct 2, it is contended that the characteristics of the land lend itself to inclusion within the Porongurup Rural Village, due to the following reasons:

- All land located in the north and northwest of the Mayfield property is well screened by remnant and introduced screening vegetation;
- Not including the land within the Porongurup Rural Village will lead to it being not appropriate managed as it would remain zoned rural but with very little ability to be farmed in a manner that would protect the amenity of the Village or other surrounding properties; and
- The opportunity has been taken to use this area as a transition between the Porongurup Rural Village and surrounding agricultural areas. This will more properly protect the amenity of both the Village and the surrounding rural areas when compared to unmanaged rural land.

The Structure Plan will incorporate appropriate mechanisms to ensure that the development within the Porongurup Rural Village will complement the surrounding Precincts as identified within the Planning Vision.

2.8 Amendment No. 49 to Shire of Plantagenet Town Planning Scheme No. 3

Amendment No. 49 proposes to rezone the Mayfield and Karribank properties from *Rural* to *Rural Village* to allow for the staged development of the Porongurup Rural Village. This Structure Plan forms part of Amendment No. 49 and will identify the location of areas for development and set aside areas for protection.

Aside from rezoning the subject site, Amendment No. 49 will complete the following:

- Adding the *Rural Village* zone and its respective Clauses to TPS 3;
- Adding provisions relating to the preparation of Structure Plans within TPS 3, to guide the preparation of the current Structure Plan and any other Structure Plans within the Shire of Plantagenet; and
- Creating and inserting the subject site within Schedule 15 of TPS 3, relating to *Rural Village* zones. The purpose of Schedule 15 is to outline the specific requirements to be addressed when Structure Plan documentation is presented to Shire of Plantagenet for its assessment.

Although not yet completed, Amendment No. 49 requires that Shire of Plantagenet considers the following when it considers a Structure Plan applicable to the subject site:

- On-site effluent disposal;
- Water demand and supply;
- Drainage;
- Heritage;
- Visual Impact;
- Protection of existing vegetation;
- Bush fire hazard management;
- Traffic management;
- Road design, pedestrian networks and streetscape; and
- Community infrastructure.

It also requires that the Structure Plan provide the following supporting information to support proposed future development:

- Land Capability Assessment;
- Environmental Management Strategy;
- Foreshore Management Strategy;
- Infrastructure and Servicing Report, including Storm Water Management Plan;
- Landscape and Visual Impact Study;
- Design Guidelines; and
- Fire Management Strategy.

This Structure Plan provides all of the relevant information required by TPS 3, as implemented by Amendment No. 49.

2.9 Town Planning Scheme No. 3 – Policy 6 – Porongurup External Building Materials

The purpose of this policy is to preserve the character of the Porongurups, particularly given that benefit is derived from this character through tourism. The policy applies to all land contained within the extents of the Porongurup Limited Rural Strategy and requires that:

- All external surfaces (including roofs) are constructed of materials that are considered to be non-reflective (to the satisfaction of Shire of Plantagenet); and
- Shire of Plantagenet may exempt structures such as water tanks and outbuildings required for legitimate commercial/agricultural use from this policy.

The Structure Plan will implement the Design Guidelines contained in **Appendix D** and discussed in **Section 8** as a Town Planning Scheme Policy. These Design Guidelines will add to and strengthen Policy 6, as it seeks to reduce the visual impact of development through sensible design initiatives and incorporate sustainable design and management.

3 COMMUNITY CONSULTATION

There has been a series of community consultation exercises undertaken since planning investigations commenced on the Mayfield and Karribank properties in 2006.

In addition to the consultation directly linked to the Porongurup Rural Village project and outlined below, other consultation exercises relating to the strategic direction of Porongurup and discussing the rural village concept have been undertaken by the Shire of Plantagenet in 1997 (Porongurup Rural Strategy) and 2008-9 (Shire of Plantagenet Planning Vision). In 2005-6, the WAPC undertook consultation during preparation of its Lower Great Southern Strategy, which was finalised in 2007.

This section outlines the main consultation exercises that have been undertaken that relate directly to the Porongurup Rural Village proposal. It then identifies the critical issues raised and details how these have been addressed by the Structure Plan.

3.1 Scheme Amendment Request 2007

The Scheme Amendment Request (SAR) is a non-statutory process used by the Shire of Plantagenet to ascertain whether it would be supportive of a Scheme Amendment. The SAR process also identifies strategic issues to be resolved during the formal Scheme Amendment process.

After discussions with Shire staff in September 2006, Harley Global prepared a SAR and lodged this with the Shire of Plantagenet in December 2006. In late February 2007, the Shire advertised the SAR proposal to receive public comment over a 60 day period closing on 1 May 2007.

Simultaneously with the Shire's advertising period in February 2007, Harley Global wrote to all landowners located within Precinct C (now Precinct 1) of the Porongurup Rural Strategy Area to inform them of the proposed rezoning and to invite each owner to be involved in, or have input into the planning process.

Harley Global facilitated a public meeting on the SAR proposal on 29 March 2007 at which 43 members of the public attended. This meeting included a presentation by Harley Global staff, a question and answer period of approximately 1.5 hours and input from members of the local community on their vision for the Porongurup Rural Village concept. Harley Global subsequently prepared an overview of the issues raised in the meeting and forwarded this to the Shire with comments on how each could be addressed.

The 60 day submission period undertaken by the Shire received a total of thirty-five (35) submissions, of which twenty-five (25) were supportive and ten (10) objected to the SAR proposal. Many of the concerns raised identified areas where additional information and design input would be required for the Scheme Amendment and Structure Plan stages.

3.2 Scheme Amendment No. 49 2008

The Shire of Plantagenet resolved to support the SAR at its meeting held on 24 July 2007, subject to:

> *...various matters raised in the submissions, including: policy issues, environmental, servicing, fire management plan, design requirements on subsequent development, size and number of properties to be developed, density of development and sustainable forms of development etc. being addressed.*

Amendment No. 49 to Shire of Plantagenet Town Planning Scheme No. 3 (TPS 3) was prepared during the second half of 2007 and included the following key elements:

- Land Capability for the site to identify the suitability of the soils to accommodate on-site effluent disposal systems;
- Stormwater Drainage Assessment, including consideration of techniques to avoid flow into Bolganup Creek;
- Fire Management Plan for the future development, identifying bush fire risk and management measures to be used;
- Preparation of a Precinct Plan over Precinct C (now Precinct 1) as identified in the Porongurup Rural Strategy;
- Preparation of Indicative Design Guidelines including a Sustainability Checklist to illustrate how the built form of the Porongurup Rural Village will reflect sustainability objectives and ensure an environmentally-responsible development; and
- Preparation of an Indicative Structure Plan showing how the site would be developed, which incorporated the various recommendations and the aim of creating a community built on sustainability objectives.

Amendment No. 49 was initiated by the Shire of Plantagenet on 11 March 2008 and subsequently referred to the Environmental Protection Authority for its assessment under section 48A of the *Environmental Protection Act 1986* (as amended). The EPA advised that formal assessment of the proposal was not required and provided advice relating to native vegetation, drainage management and waterways that reflected the information contained in Amendment No. 49.

A 42-day public advertising period was initiated by the Shire of Plantagenet on 12 June 2008. During this period, two public events were carried out in Porongurup at which Amendment No. 49 was discussed. The first was held on 3 June 2008 and was arranged by the Porongurup Community. The Proponents of the Porongurup Rural Village on the Mayfield and Karribank properties attended this Workshop. This forum took the form of a facilitated workshop at which participants reviewed the objectives of the Porongurup Rural Strategy and voiced concerns with the overall planning for the Porongurup locality, rather than focusing only on the Porongurup Rural Village proposal. Notwithstanding the broader scope of the Workshop, its findings provide a clear indication of the community's main concerns on the Porongurup Rural Village. These concerns have been identified and addressed in this Structure Plan.

The second public event was held in Porongurup on 30 June 2008 and was hosted by the Shire of Plantagenet. Harley Global was invited by the Shire to make a presentation on Amendment No. 49 to the assembled community members and Shire Elected Members and staff. The remainder of the evening was a question and answer forum where the Shire and Harley Global attempted to answer as many of the issues and concerns raised by the community as possible.

Subsequent to these two public forums, the submission period for Amendment No. 49 ended on 25 July 2008. A total of sixty-four (64) submissions were received during this time. Of these thirty (30) were in favour, five (5) gave conditional support and twenty-nine (29) objected to the Amendment. The Schedule of Submissions prepared by the Shire identified the relevant major issues to be addressed in the Structure Plan.

3.3 Community Issues and Concerns

The following identifies the key issues raised during the community consultation. How the Structure Plan seeks to respond to these issues is also outlined.

3.3.1 Rural Village Concept

There was general support of the concept of a rural village. The community identified the need for any development to be of a scale and character consistent with the existing locality. There was also a strong view that the development needed to be innovative and based on sound environmental principles.

3.3.2 Rural Village Size

The community views on the size of the Porongurup Rural Village varied. However, there was a strong view that the size of the village needs to remain small in relation to Mount Barker. This will ensure that the Village does not grow to a size or density that would start to reduce the natural beauty of the area or the rural characteristic of the existing settlement.

The Structure Plan seeks to scale back both the number of lots and the footprint of the residential portion of the Porongurup Rural Village from that originally envisaged in Amendment No. 49. Residential lots are located within a 500m radius of the Porongurup Shop rather than up to 900m under the previous proposal. There has also been a reduction in the number of lots within the residential area by increasing the minimum lot size from 1,000m^2 to 2,000m^2. Outside of the 500m radius, lots from 5,000m^2 upwards are proposed. The Structure Plan is based on the concept of increasing lot size as the distance increases from the centre with large lots of 2ha – 22ha on the outer edges of the site.

3.3.3 Number of Lots

Although the total number of lots had not been finalised during Amendment No. 49, the maximum that could have been supported by the original plan was approximately 170 lots. The total now envisaged is approximately 119. This total is made up of the following:

- 31 traditional residential lots with a minimum size of 2,000m^2;
- 12 large residential lots between 5,000m^2 and 1ha in size;
- 7 rural residential lots of between 1ha and 2ha in size;
- 9 bush lots of approximately 2ha – 23ha in size and containing 2,000m^2 building envelopes to protect remnant bushland and cater for bush fire management;
- 3 'enclave' lots to be developed using strata titling and incorporating the existing Mayfield homestead and Karribank Lodge. These lots will use communal effluent disposal and water supplies and incorporate extensive communal open space instead of simply subdividing the land into individual titles. Depending on the detailed planning, a total of approximately 60 home sites could be developed using strict development guidelines to protect the existing character of the Mayfield and Karribank Enclaves.

It is noted that many in the community wished to see the total number of lots be much less than what is proposed by this Structure Plan. However, the Plan is based on using the available land in a sustainable manner rather than attempt to

maximise lot yield. The new concept has been designed to better reflect the nature of development already in Porongurup by increasing the minimum lot size from 1,000m² to 2,000m² and promote development using communal open space in a similar style to the chalets seen on several properties in the locality.

3.3.4 Development in remnant vegetation areas

The original concept called for the large bush areas on the northern and eastern parts of the site to be subdivided into rural residential lots of between 2ha and 5ha. There was a strong view from the community that the remnant vegetation areas should not be as intensively developed.

The total number of lots to contain remnant vegetation has been reduced from 16 to 5 by increasing the size of the lots and ensuring the large bushland area on the northern part of the site is contained on a single 23ha lot. Clearing of the bush areas will be prohibited under the scheme provisions proposed by Amendment No. 49 and all developed will need to be contained within a building envelope of 2,000m².

To allow for wildlife to traverse the site more easily, building fencing will not be permitted on the Bush Lots and will be controlled on the other lots.

3.3.5 Style of development

The community has stressed that any development in Porongurup needs to be consistent with the character of the locality and not use conventional subdivision methods. There is a particular concern that conventional urban development as seen in larger centres is not replicated in Porongurup.

The Structure Plan seeks to address this concern in a variety of ways. These methods include an increased lot size and the use of strata subdivision with communal open space in the enclaves around Mayfield homestead and Karribank Lodge.

The lot design will be supported by a range of measures in the Design Guidelines to ensure that housing and associated development maintains the rural feel of the area and reduces visual impact.

Roads within the Porongurup Rural Village will also seek to be less conventional. In order to manage stormwater using best practise techniques, vegetated swales will be used along the edges of roads. The roads will meander within the 20 - 30m reserves in order to give a more rural feel as well as direct stormwater to larger vegetated verge areas. Over time, these verge areas will revegetate to provide attractive streetscapes and assist in reducing the visual impact of housing. This will reflect similar streetscapes such as Boxhill Road where the road meanders through vegetated verges.

3.3.6 Commercial development

There was a strong view from the community that any new commercial development in Porongurup needs to be centred on the existing shop and tea rooms. The Structure Plan does not include any additional commercial development on the north side of Porongurup Road, instead assuming that any new development would centre on the existing shop.

The Porongurup Rural Village concept has been modified to reflect the fact that the centre of the village will be the shop and tea rooms. The opportunity has been taken to strengthen this link by locating the main access road into the new area as close as practical to the shop.

3.3.7 Recreation and Community Facilities

A new 'village green' park will be established on the area previously occupied by the par 3 golf course in front of Karribank Lodge. This is in response to the community wanting a public park within the area that provided for active open space. The design of the park will be determined by the Shire of Plantagenet in consultation with the community. However, it is envisaged that the village green would make use of the existing grassed areas and provide barbeque and picnic areas and a small children's playground. The road into the Porongurup Rural Village has been provided with sufficient width to accommodate car parking.

There has been some discussion at community workshops about the provision of additional community facilities, including a new community hall and tennis courts. The Structure Plan provides a site immediately to the east of Mayfield Homestead and directly opposite the Porongurup Shop for such as facility. This site will build on the village centre established by the shop and the Village Green. At this stage the Structure Plan seeks only to provide the land to allow for future community use. The facilities to be located on this site will be determined by the Shire of Plantagenet in consultation with the local community.

3.3.8 Protection of Bolganup Creek

The community has identified the protection and rehabilitation of Bolganup Creek as a vital element to be addressed in the Structure Plan and subsequent development. A Foreshore Management Strategy has been prepared and is included in the Environmental Management Strategy in **Appendix E**. The Structure Plan will include Bolganup Creek and at least 30m of land on each side of the creek in a reserve that is connected into the Village Green. Development and effluent disposal will be located outside of this area. Stormwater from lots and roads will be managed in a way that prevents direct release into the creek.

Further details on the strategies to be used to protect Bolganup Creek are included in the Environmental Management Strategy at **Appendix E**.

3.3.9 Eco-Village techniques

There is a general community agreement that the Porongurup Rural Village is to be as environmentally-sensitive as possible. The phrase 'eco-village' has become prevalent for residential developments that seek to minimise their environmental footprint. Porongurup Rural Village will utilise eco-village techniques wherever possible.

Key techniques to be used are the minimising of clearing and earthworks with a preference towards development using the natural contours of the land. All housing will be required by the Design Guidelines to be water and energy efficient. Development within the Mayfield and Karribank Enclaves will be further designed to accommodate communal open space and effluent disposal. This reduces the number of effluent disposal units that will be required in the Porongurup Rural Village, as well as allows for grey water reuse on open spaces. The development of the Enclaves will be in a coordinated manner with the potential for each of the three enclave lots to be developed with housing and then sold to individual purchasers. This will maximise the ability to ensure all housing is as energy and water efficient as possible, as well as ensure each home is afforded appropriate solar access and amenity.

On the areas north of Bolganup Creek where traditional lots are proposed, these have been aligned to allow for solar access. Due to the relatively large lot sizes and widths of these lots, housing on each of the sites

3.3.10 Bush Fire Management

There were a number of submissions that raised concerns with the potential fire risk faced by the Porongurup Rural Village. This is a critical issue for Porongurup given its recent bush fire history. The 2009 Victorian Bushfires have also led to a national review of bush fire risk management and this is reflected in the Structure Plan.

The Fire Management Plan that was prepared for Amendment 49 and based on the original Porongurup Rural Village concept was referred to the Fire and Emergency Services Authority (FESA) during advertising of the amendment. FESA advised that it was satisfied with the measures proposed in the Plan. The Shire of Plantagenet also considered the Fire Management Plan and was satisfied that it adequately addressed the *Planning for Bushfire Protection* Guidelines.

As a result of the redesign of the Porongurup Rural Village concept, there has been a net reduction in the number of homes to be within 100m of a bush fire hazard from a maximum of 21 to a maximum of 13, depending on where homes are located on particular lots. Under Australian Standard AS3959 *Construction of Buildings in Bush Fire Prone Areas*, houses located greater than 100m from a defined fire risk are not considered to be bush fire prone and are exempt from the Standard. When located within 100m, homes are subject to the construction requirements of AS 3959. This requirement will be reflected in the controls over development in the Porongurup Rural Village.

In addition to ensuring most homes will be located over 100m from a bush fire hazard, the overall village design has been based on the requirements of *Planning for Bush Fire Protection – Edition 2*. This was released in mid 2010 and takes into account preliminary findings of the Victorian Bushfires Royal Commission.

Overall, the Porongurup Rural Village is designed to minimise fire risk in an area prone for bush fire. It will also allow for the establishment of a formal fire escape route from the north eastern corner of the site to Porongurup Road. This will assist residents in the Surry Downs Road area in the event that this road is cut off as seen during the 2009-10 summer. **Section 7.7** provides additional information on fire measures.

3.4 Additional Consultation

This Structure Plan will be advertised for public and agency comment by the Shire of Plantagenet as part of this deliberations. This will allow the community to consider the envisaged design of the Porongurup Rural Village and provide specific comment upon it.

The Shire of Plantagenet will then consider the Structure Plan in the light of the submissions received and will consider whether modifications are required to address particular concerns. Once adopted, the Shire will refer the Structure Plan to the Western Australian Planning Commission for its endorsement.

4 CONTEXTUAL ANALYSIS

4.1 Site Description

4.1.1 Location and Description

The subject site comprises 4 lots located on the northern side of the Porongurup Road. The subject site is located approximately 22km from the Mount Barker town centre and comprises approximately 117ha of land.

Although no defined town site exists at Porongurup, the community is home to approximately 100 persons, focused on the viticulture, agricultural and tourism industries. Porongurup can best be described as an informal town site.

4.1.2 Extent of Structure Plan Area

As described in **Section 1.2**, the Structure Plan does not relate to the whole of Precinct 1 of the Planning Vision, but only the portion subject to Amendment No. 49 to TPS 3. The extent of the Structure Plan has been agreed with the WAPC and Shire of Plantagenet.

Should landowners in the remainder of Precinct 1 wish to progress the further development of their land, they would be required to undertake a similar formal Scheme Amendment and Structure Planning process as prescribed by the Shire of Plantagenet and the WAPC.

4.1.3 Land Ownership

Land ownership is described in Table 1.

Table 1: Land Ownership

Lot Description	Lot Area	Certificate of Title	Landowner Details
Lot 1 on Diagram 13305	14.646ha	1181/105	William Laurence Bird & Sharon Lucille Bird
Lot 5 on Diagram 45853	64.549ha	1384/852	William Laurence Bird & Sharon Lucille Bird
Lot 11 on Diagram 76661	12.857ha	1930/531	Jilsan Pty Ltd
Lot 1664 on DP 127337	24.375ha	1196/799	Sharon Lucille Bird

4.2 Land Use

4.2.1 Existing Land Use

The subject site is currently used for a wide variety of land uses. The predominant use of the land is for agricultural purposes, including grazing and cropping. However, there are also other associated tourism and residential uses located within the Precinct, including:

- Karribank Lodge (restaurant, accommodation);
- The Village Inn (Porongurup Shop and Tea Rooms, accommodation);
- Bolganup Homestead (accommodation);
- Porongurup Caravan Park (accommodation);
- Porongurup Chalets (accommodation); and
- Jingalla Wines (winery and cellar door sales).

The success of the subject site as a tourism precinct is due to the close location to the scenic Porongurup Range.

Figure 5: Karribank Lodge

4.2.2 Surrounding Land Use

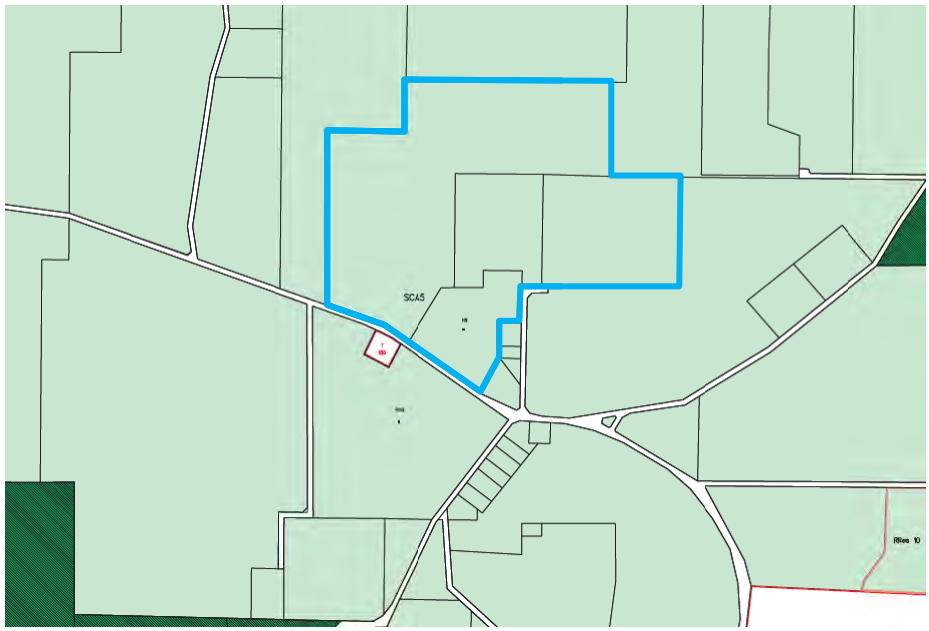
The subject site is surrounded by a mixture of tourism, rural residential, rural small-holding and agricultural uses, comprising of both broad acre, horticultural and viticultural land uses..

The subject site is located approximately 600m from the Porongurup National Park.

4.2.3 Surrounding Zones

With the exception of the Porongurup Shops and Tea Rooms (zoned *Special Sites*), all of the surrounding land is zoned *Rural* by TPS 3, as shown in **Figure 6**.

Figure 6: Extract of Shire of Plantagenet Town Planning Scheme No. 3 Zoning Plan.



4.3 Environmental Context and Issues

The Environmental Management Strategy at **Appendix B** provides full details on the environmental context to the site.

4.4 Visual Landscape

The Porongurup Rural Village Structure Plan has been evaluated in accordance with the *Visual Landscape Planning in Western Australia* guidelines. A copy of the Visual Impact Assessment is attached at **Appendix F** of this document. A summary of the findings of the Visual Impact Assessment are outlined below.

The Porongurup Rural Village has a number of visual precincts, including:

- Hill and Hillside;

- Creek Line and Flat Land;
- Karribank Enclave; and
- Vegetated/Parkland Cleared Land.

These visual precincts have a number of distinctive characteristics and qualities.

The Structure Plan area is experienced visually in a number of ways, the most important being as a view from a local tourist route and secondly, as a regional view from the Porongurup National Park. The regional view is the less significant, given that the Structure Plan area makes up a very small proportion of the view. Both views will be protected through measures to reduce visual prominence of development.

4.5 Heritage

4.5.1 Aboriginal Heritage

A review has been undertaken of Aboriginal Heritage Inquiry System (http://www.dia.wa.gov.au/AHIS/Default.aspx). There are no known or listed Aboriginal Heritage sites within the subject site.

Should any aboriginal heritage be discovered in relation to the Porongurup Rural Village, appropriate mechanisms exist under the provisions of the *Aboriginal Heritage Act 1972* requiring that such a discovery is reported and if necessary, further action taken.

4.5.2 European Heritage

A search has been undertaken of the Places Database of the Heritage Council of Western Australia. Within the Structure Plan area and Precinct 1, two listings have been identified, being the Karribank Lodge and the Bolganup Homestead. Both listings are of a local nature being contained in the Shire of Plantagenet's Municipal Inventory. There are no sites currently registered on the State Register of Heritage Places.

Bolganup Homestead is located outside of the area covered by this Structure Plan. The Karribank Lodge is included on the Municipal Inventory of the Shire of Plantagenet as Place No.16. The listing relates primarily to the Karribank Lodge and central part of the complex which is the oldest continuously operating guest house in the locality. Karribank was originally constructed in 1922, with subsequent additions and alterations being undertaken. Included below is a historic photo of the Karribank Lodge.

Figure 7: Karribank Lodge c.1950's

All heritage buildings associated with the initial construction and historic operation of Karribank Lodge are located within the central cluster of buildings surrounding the lodge. Other buildings established on the Karribank property are not considered to have significant heritage value.

This complex has been orientated toward Bolganup Creek, which was the historic focus of recreation activities undertaken on the site. This has previously included a Par 3 Golf Course, Tennis Courts and Swimming Pool, all of which have now been removed or are unused.

4.5.3 Native Title

The National Native Title Tribunal states "*Native Title is extinguished on privately owned land (including family homes or freehold farms), on residential, commercial and certain other exclusive possession leases and in areas where government has built roads or other public works*" (National Native Title Tribunal. 2000, p4).

The site is wholly owned in freehold possession; therefore Native Title has been extinguished on the site.

4.6 Fire Risk

Significant areas of remnant vegetation lie in the north of the Structure Plan area. This poses a significant risk to future development on the site. Currently, fire management on the property is undertaken through the grading of 3 metre wide fire breaks around property boundaries on a yearly basis. This has been an appropriate measure to provide adequate protection to the farming operation.

In accordance with the requirements of *Planning for Bush Fire Protection – Edition 2*, a Fire Management Strategy has been prepared and will be implemented for Porongurup Rural Village (refer to Amendment No. 49 for a full copy of this report). Fire Management measures to be implemented through this Structure Plan are outlined in **Section 7.7**.

4.7 Existing Services

4.7.1 Vehicular Access

The site fronts Porongurup Road, which connects to the Structure Plan area directly to the Mount Barker Townsite. As identified in **Section 6.3.2**, the route is identified as a tourism route and priority will be given to appropriately screen development whilst maintaining adequate sight lines and view corridors. With the exception of the school bus to Mount Barker there is no provision of public transport to the subject land at present.

Figure 8: Porongurup Road looking east toward Karribank Lodge entrance.

Boxhill Road road reserve is currently constructed for two-thirds of its length. The northern third was originally open but has since revegetated to the point where only pedestrian access is possible. It is proposed that Boxhill Road be extended by approximately 40m-50m to allow for access to Lot 11. This will be necessary in order to allow for Lot C as shown on the Karribank Enclave Plan to be created. This access will not be used for future Village lots. Once the Porongurup Rural Village is developed to the point where the residential lots on Lot C can be created, permanent access will be via the new road system. The access to Boxhill Road will then revert to a fire escape route only.

Figure 9: Boxhill Road looking south.

Figure 10: Boxhill Road road reserve vegetation.

4.7.2 Pedestrian/Cycling Facilities

There is a recently constructed footpath for pedestrian access along Porongurup Road linking the Porongurup Caravan and Porongurup Shop and Tea Rooms. New paths will be constructed along Bolganup Creek and along the village entrance road to link with the existing network.

4.7.3 Water

A potable reticulated water supply is not available to the subject site. Water supplies to the existing development are provided by rainwater tanks with non-potable supplies from the Water Corporation dam. During the advertising period for Amendment No. 49, the Water Corporation provided comments regarding the proposal and the connection of reticulated water and sewer to the subject site. In summary, the Water Corporation had the following feedback:

- It has no intention of extending or connecting the subject site to a potable reticulated water supply;
- On-site effluent disposal would be the responsibility of the developer or individual landowners, as the Water Corporation had no plans for the provision of a reticulated sewer service; and
- The existing scheme water supply provided to 19 lots in the Porongurup town site is via a special agreement, as this water is non-potable (i.e. not fit for human consumption). It would not be suitable to connect this supply to the subject site.

Water supplies for the Structure Plan area will be required to be on-site.

4.7.4 On-Site Effluent Disposal

The subject site is not connected to a reticulated sewer service. It is not likely that such a service will be developed by the Water Corporation in Porongurup, as per its submission during the advertising period of Amendment No. 49.

Currently, existing development within the Structure Plan area utilises traditional septic systems for effluent disposal. The Structure Plan area will be required to utilise on-site effluent disposal, although alternative treatment units (ATU) will be used in the form of single and communal units.

Effluent disposal will be linked to grey water treatment and reuse to reduce water consumption. A large range of suitable systems are now approved for use in Western Australia by the Health Department.

4.7.5 Electricity

A three phase power supply is connected to the Structure Plan area, with power lines being located in the southern verge of Porongurup Road.

It is assumed for the purposes of this Structure Plan that power supply within the Porongurup Rural Village is suitable to support the development of additional lots on a developer-pays basis. Further investigation will be required at the subdivision stage to determine the capacity and capability of power supplies to support the development.

4.7.6 Telecommunications

Telecommunications are connected to the Structure Plan area. Further liaison will be undertaken with the telecommunications provider at the time of subdivision and development to determine the capacity and capability of this infrastructure to support the development.

4.7.7 Gas

No reticulated gas supplies are available in the vicinity of Porongurup. Any house utilising gas appliances will be required to use bottled gas, which is available from a number of retailers in Mt Barker.

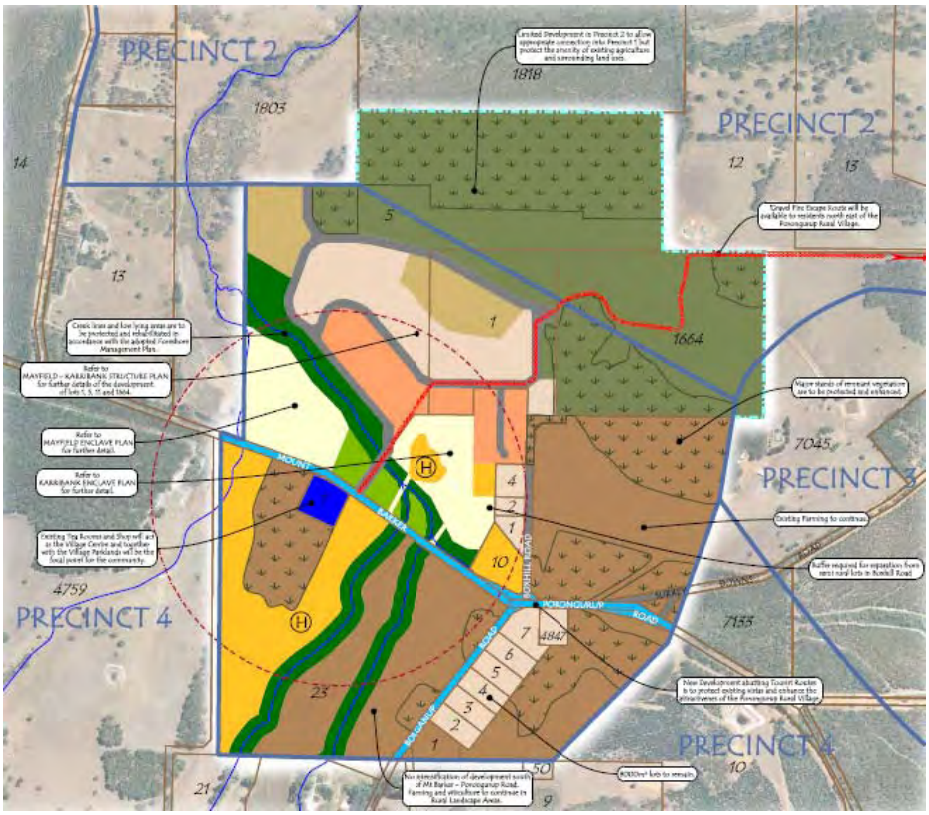
PART II – PRECINCT PLAN & STRUCTURE PLAN

5 PORONGURUP RURAL VILLAGE PRECINCT PLAN

5.1 Overview

In order to place the Porongurup Rural Village Structure Plan within its proper context within the Porongurup locality, a Precinct Structure Plan (referred to in this document as the 'Precinct Plan' to avoid confusion) has been prepared over all land within Precinct 1 of the Porongurup Rural Village and Environs (identified within Appendix 4 of the Shire of Plantagenet Planning Vision and explained in **Section 2.7**). The full Precinct Plan is shown in **Figure 11** and at **Appendix A**).

Figure 11: Porongurup Rural Village Precinct Plan (Large copy at Appendix A).



5.2 Description of Land Use Classifications

Land outside of the identified Porongurup Rural Village has been identified within five (5) land use categories, including:

- Rural Landscape (Farming and Viticulture) – To preserve the rural landscape of Porongurup, with particular regard to the vistas to the Porongurup National Park from Porongurup Road;
- Large Residential Lots (5,000m² - 1ha) – To identify and protect existing large residential lots that exist on Boxhill and Bolganup Roads. These lots are predominantly developed for residential and tourist accommodation;
- Village Centre – To identify the Porongurup Shop and Tea Rooms as the centre of the Porongurup Rural Village. Village Parklands and Future Community Facilities have been located opposite the Village Centre to support and define its role;
- Tourist Accommodation – To identify the existing Tourist Accommodation sites within Precinct 1; and

- Waterway Protection – To reserve land for the protection for Bolganup Creek and its tributaries. This land is to be appropriately rehabilitated over time.

The Precinct Plan seeks to focus development within the main Porongurup Rural Village site to the north of Porongurup Road. Areas outside of main site will remain under the existing Rural zoning and not controlled by the Scheme controls proposed for the main Village. The existing Porongurup Shop and Tea Rooms is a is identified in TPS No. 3 as a Special Site with restricted uses of shop, tea rooms and tourist accommodation. This will remain unaffected by the Porongurup Rural Village development.

The Precinct Plan is based on strong community feedback that identified a preference for no increased density of development south of Porongurup Road and east of Boxhill Road.

The Precinct Plan does not affect the ability for existing landowners to develop their properties within the constraints of the existing zoning. It simply reflects that there is no change to the existing zoning and types of uses permitted outside of the site of the Porongurup Rural Village on the northern side of Porongurup Road.

6 PORONGURUP RURAL VILLAGE STRUCTURE PLAN

6.1 Design Philosophy

The Structure Plan has sought to apply the principles of sustainable village design. Typically, the development of rural villages is centred around an existing small services centre. Porongurup Rural Village varies in this regard, not being based upon a defined townsite, but rather a rural hamlet with a single shop. The Structure Plan seeks to develop a sustainable rural village that builds on this nucleus in a way that maintains the existing character.

The Structure Plan seeks to create an additional 130 - 135 home sites. This will accommodate up to 338 people (assuming 2.5 people per household). The Structure Plan recognises the character and landscape values of the subject site, whilst balancing these objectives with the ability to create a sustainable rural village. The Structure Plan is included in **Appendix B**.

The vision for the Porongurup Rural Village is to showcase sustainable village development from initial concept through to the development of the individual lots. The development will produce a high quality community that responds in a sustainable fashion to the site's opportunities and constraints with a focus on its relationship with the surrounding environment. Houses will be required to be designed to be sympathetic to the surroundings with a series of measures established to encourage sustainable development throughout the site.

The plan brings together many competing interests and issues and finds a balance through providing a coherent, coordinated design response. Key elements of the Structure Plan include:

1. The creation of a Foreshore Protection and Rehabilitation Area for Bolganup Creek. This creek line is to be rehabilitated through revegetation, weeding and appropriate setbacks to future development and will be a key feature of the Porongurup Rural Village.
2. The establishment of a site for future development of community facilities, such as relocated community hall or tennis courts (exact use to be determined by the Shire of Plantagenet in consultation with the local community at a future date).
3. The clustering of development around the existing Karribank and Mayfield homesteads, encompassing the principles of 'Eco-Village' development.
4. The establishment of a walkable catchment of 500 metres, centred upon the existing Porongurup Shop and Tea Rooms. Within this catchment, there will be an increased density of development to encourage the use of walking as a means of transportation and access to local goods and services provided at the Porongurup Shop and Tea Rooms.
5. The creative use of on-site effluent disposal technologies to ensure that development will have minimal or negligible impact on the local ecosystem. This will be accomplished through the use of composting toilets and alternative treatment units to eliminate nutrient discharge into the ground water and surface water system whilst allowing for the opportunity for grey water reuse.
6. The use of innovative drainage solutions, including the use of road-side swales and drainage retention basins, such that rainfall events up to 1:10yr

ARI are detained and disposed of on-site and not allowed to flow into Bolganup Creek.

7. The development of the Porongurup Rural Village will respect the surrounding agricultural land uses and not inhibit the functioning of the agricultural output that is beneficial to the local and state economy.
8. Residential lots will be created that ensure passive solar design principles may be easily met (i.e. lot dimensions wide enough to enable access to northern sunlight, prevailing winds etc).
9. An environment as safe as practicable from bushfires is to be provided for the local community with the recommendations of the Fire Management Strategy being included in the Structure Plan.
10. Alternate energy sources to be encouraged for development such as wind and solar power.
11. Access to current and future telecommunications (i.e. telephone, broadband internet) for residents and business owners. This will require liaison with the appropriate service providers and government regulatory agencies.

6.2 Development Objectives

The aim of the Porongurup Rural Village is to implement a 'Triple Bottom Line' approach encompassing social, environmental and economic sustainability. The development objectives are outlined in **Table 2**, having being refined throughout the Amendment and Community Consultation processes.

Table 2: Sustainability Objectives

Sustainability Principles	Objectives
Social	Creating a place that integrates well with the existing surrounding areas Creating a place that feels welcoming and accessible, not only to local residents, but to the broader community and visitors Creating a community with unique attributes and a connection to the environment, not simply a housing estate. Creating a place with a great "feel" about it. Creating a community that is attractive to a diverse range of people.
Environmental	Respecting the topographical and landform features of the existing surrounding area. Protecting significant native vegetation. Protecting and enhancing Bolganup Creek and its tributaries. Protecting and enhancing the visual landscape. Environmentally sensitive design associated with individual houses and the overall design.
Economic	To support the tourism and agricultural industries in Porongurup. To support the role of Mount Barker in its role as a district centre in the Great Southern Region. Environmentally sensitive housing design initiatives to reduce building life cycle costs for landowners.

6.3 Opportunities and Constraints

As part of the planning process, the opportunities and constraints of the Precinct 1 have been identified.

6.3.1 Opportunities

The identified opportunities are:

- The site is located in an agricultural setting in the shadow of the Porongurup National Park;
- The Porongurup locality is well known for its tourism and natural qualities;
- The site presents the ability to plan from the ground up. There is very limited existing development;
- The site of the development allows for the inclusion of a Village Centre to act as a focal point. The existing Porongurup Shop and Tea Rooms will be the Village Centre;
- The size of the site allows for a range of housing choices and lot sizes to be provided, which will attract a wide range of resident types from young families to retirees;
- The site is located close to the Porongurup National Park; which provides recreational opportunities;
- Sufficient land is available to ensure a cost effective development can occur without the need to reduce the environmental qualities of the site and to ensure the viability of the project;
- The slope of the site can be used to its advantage;
- The soils on the site are conducive to development being free draining with groundwater sufficiently low for the majority of the site; and
- The development will be large enough to consider sustainability in a meaningful way, such as water and energy efficiency and provision of high quality POS.

6.3.2 Constraints

The constraints to development have been further clarified by the various additional studies that have been prepared through the Amendment and Structure Planning processes. The identified constraints are:

Environmental Constraints:

- Setback requirements to Bolganup Creek and its tributaries, to accommodate foreshore protection, adequate setback of on-site effluent disposal units and provide landscape amenity;
- Topography, which in some portions is relatively steep. Development including drainage, roads and future house sites will need to be designed to accommodate the slope and ensure visual management and erosion impacts are minimised;
- The need to provide adequate integration with the surrounding development to ensure that surrounding residents and land uses are not negatively impacted upon;

- Remnant vegetation located in the north of the Structure Plan area, which will need to be retained for landscape and biodiversity purposes;
- Remnant vegetation located within the Boxhill Road road reserve, which is of a good quality and requires conservation. This reduces the ability to use Boxhill Road for access;
- Fire management implications of remnant vegetation on future development; and
- Visual management implications that will limit the intensity and style of development to be accommodated in the Porongurup Rural Village.

Tenure Constraints:

- Existing large residential lots on Boxhill Road and Bolganup Road that are not incorporated in the Structure Plan. Interaction with these lots will need to be appropriately managed by the Structure Plan.

Infrastructure/Economic Constraints:

- Reticulated sewer is not available to the Structure Plan area and is not likely to be available in the future unless through substantial private investment;
- Porongurup and Bolganup Roads are main tourist routes in the Porongurup locality and need to be protected from undesirable development that would detract from the tourism experience;
- Upgrading and use of Boxhill Road as a permanent access into the Porongurup Rural Village is not supported by neighbouring landowners and needs to be avoided;
- The sloping nature of the site and the proximity of Bolganup Creek must be taken into account when considering stormwater disposal from roads and hard surfaces; and
- There are limitations on the ability to bring electricity and scheme water into the Porongurup Rural Village that need to be appropriately addressed through energy and water efficiency measures.

Social/Community Constraints:

- The Porongurup Rural Village will not be of a sufficient size to accommodate schooling or major shopping facilities. Therefore the development will need to stay at an appropriate size that does not create the need for these facilities and therefore detract from the importance of Mt Barker as the Shire's main service and community centre;
- There is a need to provide an area for possible community facilities, particularly should the community wish to replace the existing Porongurup Hall at a future date;
- There is an existing community in place that needs to be engaged in the design and development of the Porongurup Rural Village; and
- There is an existing community identity with place that needs to be appreciated and addressed in the design and function of the Village.

6.4 Sustainability Principles

The State Sustainability Strategy of Western Australia defines sustainability as "*meeting the needs of current and future generations through an integration of*

environmental protection, social advancement, and economic prosperity". Increasingly there is growing community expectation that best practice will be applied to achieve these principles. This Structure Plan seeks to implement sustainability principles through the development of the Porongurup Rural Village.

Throughout the project, there has been meaningful engagement with the community and the incorporation of community feedback, from the conception of earlier design vision to the implementation of the 'scaled back' version of the SP. The Structure Plan is supported by the Environmental Management Strategy, Fire Management Strategy, Land Capability Assessment and On-site Effluent Disposal Investigation.

The Structure Plan is a reflection of the design team's response to local knowledge, research and community and regulatory authority expectations, measured against the following sustainability principles.

6.4.1 Social

The State Sustainability Strategy states that social sustainability "*...seems frequently to fall off the sustainability agenda or to take second place to environmental and economic concerns, despite the fact that it is so critical to the lives of individuals and communities and to the overall health of our society*". The Structure Plan seeks to ensure the social sustainability through the provision of the following features:

- Interactive and well landscape public spaces and connective cycling and pedestrian design, increasing the likelihood of social encounter;
- Setting aside land close to the Village Centre for future community facilities so that these can be placed in a central location to provide maximum accessibility;
- The use of cluster development to foster a sense of communal living and shared space and enhanced social capital; and
- Support of the existing village centre of Porongurup, being the Porongurup Shop and Tea Rooms.

The proposed development has been sensitively designed to incorporate the existing residential community on the site by respecting space and privacy and providing increased social opportunities.

6.4.2 Environmental

Community meetings and submissions have highlighted the high value that respondents place on the environmental qualities of Porongurup. A number of environmental reports have been prepared to investigate the ability of the Porongurup Rural Village to be developed on the site with minimal impact on the local environment. Environmental outcomes that have been incorporated into the development have included:

- The retention of remnant native vegetation across the site;
- Appropriate setbacks and treatment of Bolganup Creek through the preparation and future implementation of a Foreshore Management Strategy;
- Appropriate investigations have been prepared outlining the capability of the Porongurup Rural Village to support on-site effluent disposal in a sustainable manner;

- On-site stormwater capture and disposal up to a 1:10yr ARI event through the implementation of innovative roadside bio-swales, drainage basins and creative engineering solutions to manage drainage. These will be further implemented through the preparation of an Integrated Urban Water Management Plan at the time of subdivision;
- Water and energy efficiency will be built into the development through the Design Guidelines. These will require housing to meet minimum requirements for water and energy efficiency, as well as promote grey water re-use to reduce the environmental footprint of effluent disposal;
- The Structure Plan and Design Guidelines have utilised creative development solutions to ensure that development will respect the topography of the site, being both a key opportunity and constraint to development; and
- This Structure Plan incorporates a Visual Impact Assessment which ensures that the visual character of Porongurup will be appropriately addressed in the Porongurup Rural Village.

6.4.3 Economic

The development is driven by a need to be economically sustainable so that it can reach its objectives of producing an innovative settlement that enhances the character and amenity of Porongurup. The development will also provide economic opportunities for local business during the construction and build out stages of the project and provide for a range of employment opportunities for the local community.

The Structure Plan identifies and reinforces the importance of the local shop and tea rooms as a major focal point for the locality. Given the ability for this service to be expanded if required in the future on its current site, the Structure Plan does not provide any further commercial land.

The Structure Plan seeks to protect and build on the existing tourism operations within and surrounding the Porongurup Rural Village. These include the historic Karribank Lodge, which will be retained to provide tourism accommodation in the same manner as is has for over 70 years. The Plan also acknowledges the need to protect the operation of the Porongurup Caravan Park immediately abutting the Porongurup Rural Village.

It is anticipated that the development of the Structure Plan area will provide cumulative benefits for the local business community. It will provide residential land supply that will in turn likely provide support for the various local tourism ventures in and around Porongurup Rural Village.

7 STRUCTURE PLAN DESIGN

7.1 Enclaves and Precincts

7.1.1 Overview

The Structure Plan has been broken into a number of precincts to produce specific outcomes for particular parts of the Porongurup Rural Village.

7.1.2 Karribank Enclave

The Karribank Enclave is a communal strata development to be developed on Lot 11 Porongurup Road, Porongurup, being the current site of the Karribank Lodge. Details of the development of the Karribank Enclave are outlined on the Karribank Enclave Plan at **Appendix C** and shown indicatively in **Figure 12**.

Figure 12: Karribank Enclave (bounded in blue with Lots A, B and C in white).

The Karribank Enclave is intended to be developed on three freehold lots, two of which will be communal strata developments (A and B). Lot C will contain up to nine (9) conventional residential lots of 2,000m² and above and will be fully integrated into the remainder of the residential area shown on the Structure Plan.

The Karribank Enclave allocates up to thirty (30) 300m² to 400m² home sites for future dwelling development The Karribank Lodge will be contained within a single strata lot, as well as the chalets located on Lot B. The remainder of the land will be common property, to be landscaped, developed, managed and maintained by the Strata Management Company's.

The Karribank Lodge may include a restaurant/cafe. The eastern side of lot B is to ensure there is adequate separation from the lots fronting Boxhill Road and the Strata Management Statement needs to recognise the semi rural activities on the lots in Boxhill Road will continue.

The Enclaves within the Porongurup Rural Village have been inspired by the 'Eco-Village' concept, whereby the development of villages seeks to create a more sustainable form of living, based upon the three spheres of sustainability.

The provision of a strata development in this situation will achieve a number of outcomes, including, but not limited to the following:

- Shared provision of services, such as on-site effluent disposal, grey water reuse and non-potable water reticulation;
- Communal development and maintenance of landscaping and shared infrastructure, such as roads and drainage;
- Reduction in the maintenance responsibilities of the Shire of Plantagenet, ensuring all land within the strata development is maintained by the Strata Management Company;
- Ability to maintain the existing open character of Karribank with scattered homes emulating the existing chalets which are scattered around the site with differing orientation whilst maintaining adequate separation from lots fronting Boxhill Road.
- Improved social capital and community responsibility. The ability to live in a group development fosters the development of community spirit, as has been well documented within the 'Eco-Villages' movement.
- The prohibition of the keeping of cats and dogs in the Strata Management Statement.

In the case of the Karribank Enclave the principles of eco-village development have been applied in the following manner:

- Waste, including stormwater and waste water will be disposed of on-site through the use of communal drainage and waste-water treatment systems;
- Rainwater will be captured on-site for potable water supplies. This will be captured by rain water tanks on each home or using a communal system that feeds a number of homes;
- Open areas between home sites will be maintained by the strata management company for the benefit of all owners and will ensure the existing open grassed slope nature of Karribank can be maintained;
- Bolganup Creek and the area between it and Porongurup Road is to be set aside for a 'Village Green' public park with the enclave overlooking this main recreation and community area;
- There will be minimal clearing within the Enclave to facilitate subdivision and development. It is likely that revegetation, particularly of the foreshore area, will occur to ensure the health of the environment is maintained;
- Design Guidelines have been developed to control the built form of development. This will ensure that the development of the Karribank Enclave incorporates the latest principles of sustainable design. The Design Guidelines also ensure that the development is in keeping with the existing historic development in the Karribank Enclave; and
- There will be a requirement for an overall development plan for each strata lot to be approved by the Shire of Plantagenet. This plan will identify detailed

building envelopes and ensure there is a coordinated approach to the development.

The subdivision of the Karribank Enclave will be undertaken in a two-stage approach. First to occur will be the Green Title Subdivision, which will establish the three larger lots for future development (Lots A, B and C). After this occurs, Lots A and B will be available for strata development. Lot C will be re-subdivided to create 2,000m² residential lots once the internal roads and services from the north have been provided. In the meantime, Lot C will have a temporary access point onto Boxhill Road to meet subdivision requirements for access to a public road.

7.1.3 Mayfield Enclave

The Mayfield Enclave is intended to be developed on a single freehold lot as a communal strata development, as shown in **Figure 13** and in **Appendix C**. The Mayfield Enclave is located on the land between Porongurup Road and Bolganup Creek and includes the existing Mayfield Homestead. The development approach will be similar to that of the Karribank Enclave. 30 home sites of 400-500m² will be located on survey-strata lots within common property. The common property will be landscaped, developed, managed and maintained by the Strata Management Company.

Figure 13: Mayfield Enclave (bounded in blue).

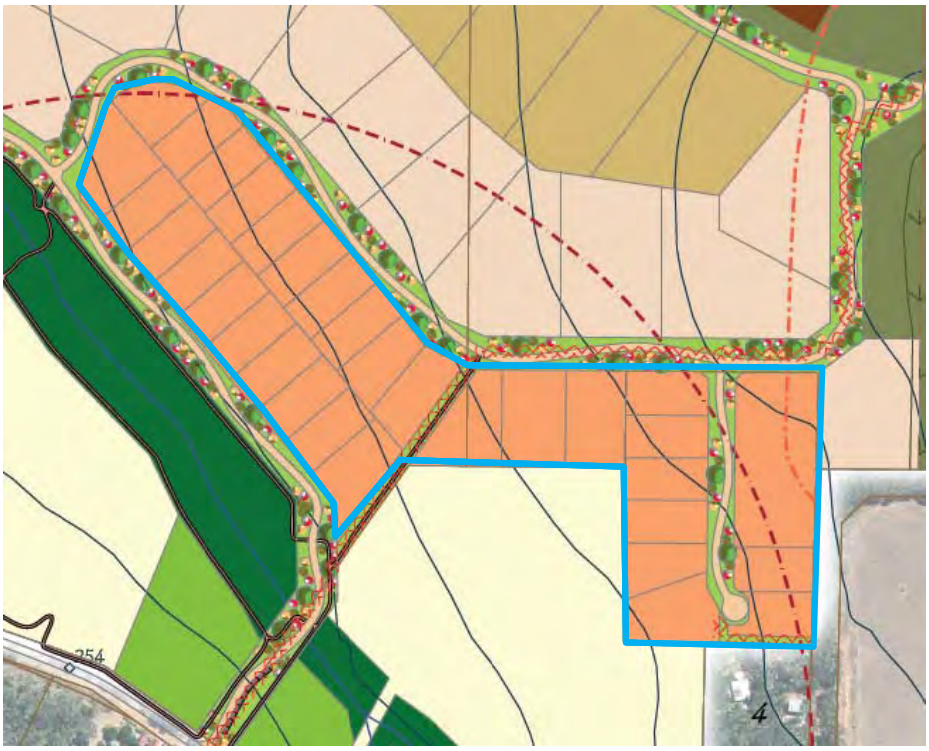
The benefits of creating a strata development in the enclave are similar to those outlined for the Karribank Enclave in **Section 7.1.2**.

The subdivision of the Mayfield Enclave will be undertaken in a two-stage approach. First to occur will be the Green Title Subdivision, which will establish the 'super lot' for future development. Secondly the Survey-Strata Subdivision will be undertaken to produce the home sites and common property.

7.1.4 Residential Precinct

The Residential Precinct of the Structure Plan is intended to be developed for lots sizes between 2,000m² - 5,000m², as shown in **Figure 14**.

Figure 14: Residential Precinct (bounded in blue).



These lots are to be developed for single detached housing in accordance with the requirements outlined in the Structure Plan and the Design Guidelines. The Residential Lots precinct seeks to achieve the following objectives:

- Provide for contained lifestyle opportunities within the Porongurup Rural Village;
- Provide for the further subdivision of the land in a manner that respects the site's characteristics, constraints and opportunities;
- Provide for development in accord with the objectives of the Porongurups Rural Strategy and Shire of Plantagenet Planning Vision; and
- Minimise the visual impact of development and further subdivision.

These lots are predominantly located within a 500 metre radius of the Porongurup Shop to promote walking. These lots also enjoy a good aspect and close proximity to the Public Open Space and Village Green in line with planning best practice.

The lot size of 2,000m² has been chosen as the minimum size where on site effluent disposal is permitted under normal circumstances. The size also reflects the local community's views on lot size.

The placement of the residential lots precinct low in the landscape performs a visual management role. The intensity of development decreases the further upslope the development is located. This reduces the perceived bulk of development and reduces visual impact.

Development on these lots will be controlled by the R5 requirements of the *Residential Design Codes of Western Australia*. These requirements will be

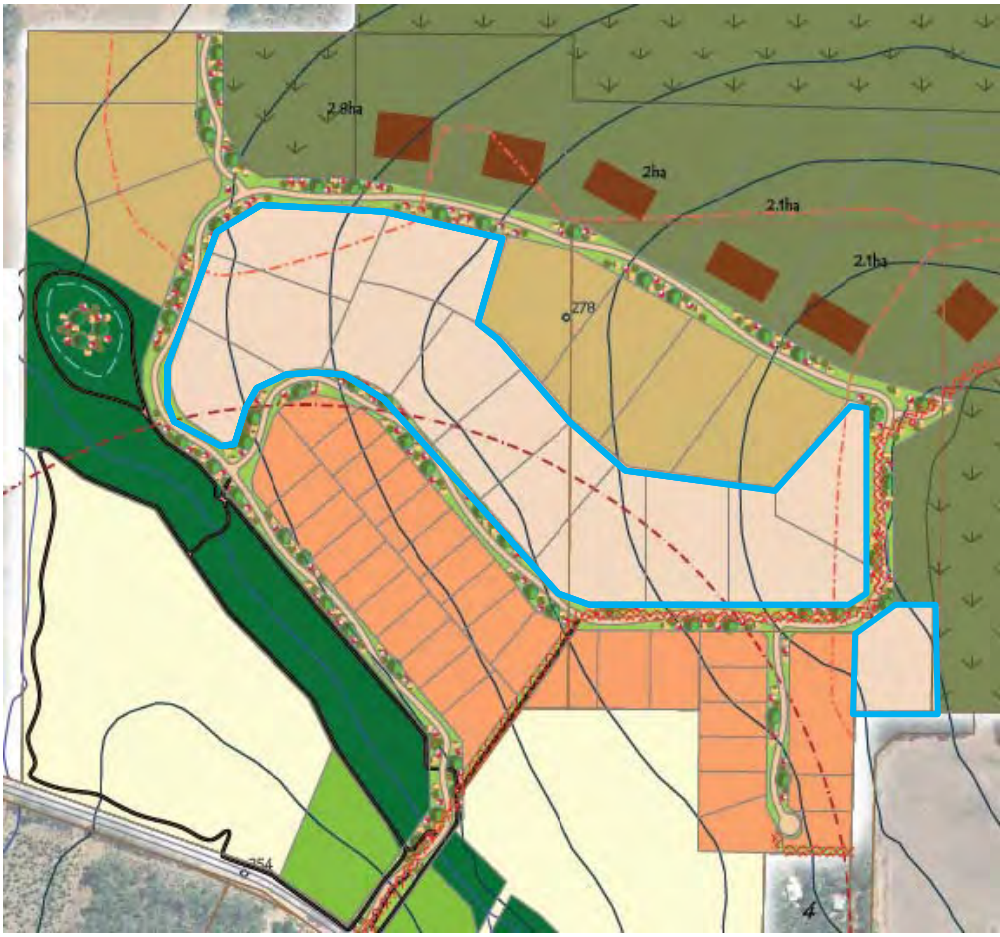
supplemented by the Design Guidelines which will be enforced by caveats on the Certificates of Title. The basic requirements for R5 areas are:

- Primary street setback of 12m
- Secondary (side) street setback of 6m
- Rear setback of 6m
- Side setbacks of 1m – 1.5m for single storey homes (greater for 2 storey homes or those with walls higher than 3.5m)
- At least 70% of the lot being kept as open space.

7.1.5 Large Residential Precinct

The Structure Plan reduces development density outwards from the Village Centre and Parklands. The development of the Large Residential Precinct will provide 5,000m² - 1ha lots for the development of single detached housing, as shown in **Figure 15**.

Figure 15: Large Residential Precinct (bounded in blue).



These lots fulfil the following role within the Porongurup Rural Village:

- Provide for lifestyle lots that are larger than a standard residential lot but not as large as a rural residential lot (i.e. in the order of 5,000m² - 1ha);
- Provide for the further subdivision of the land in a manner that respects the site's characteristics, constraints and opportunities;
- Provide for development in accord with the objectives of the Porongurups Rural Strategy and Shire of Plantagenet Planning Vision; and

- Minimise the visual impact of development and further subdivision on these more visually prominent parts of the site.

As with all precincts within the Porongurup Rural Village, Large Residential Lots will be subject to sustainable design criteria, to ensure that the development is suitable for the local environment and meet key mandatory criteria of sustainable design.

Development on these lots will be controlled by the R2 requirements of the *Residential Design Codes of Western Australia*. These requirements will be supplemented by the Design Guidelines which will be enforced by caveats on the Certificates of Title. The basic requirements for R2 areas are:

- Primary street setback of 20m
- Secondary (side) street setback of 10m
- Side and rear setbacks of 10m
- At least 80% of the lot being kept as open space.

7.1.6 Rural Residential Precinct

Rural Residential Precinct lies on the outskirts of the Porongurup Rural Village and is intermixed with the Bush Lots precinct, as shown in **Figure 16**.

Figure 16: Rural Residential Lots Precinct (bounded in blue).

The Rural Residential Precinct fulfils a similar role to that of the large residential lots, but with a lot size of 1ha and above.

The rural residential lots act as a transition between the residential parts of the Porongurup Rural Village and the surrounding rural areas.

The lots will be controlled by the Design Guidelines and the setback requirements of the R2 density included in the *Residential Design Codes.*, The Design Guidelines will be enforced by caveats on the Certificates of Title.

7.1.7 Bush Lot Precinct

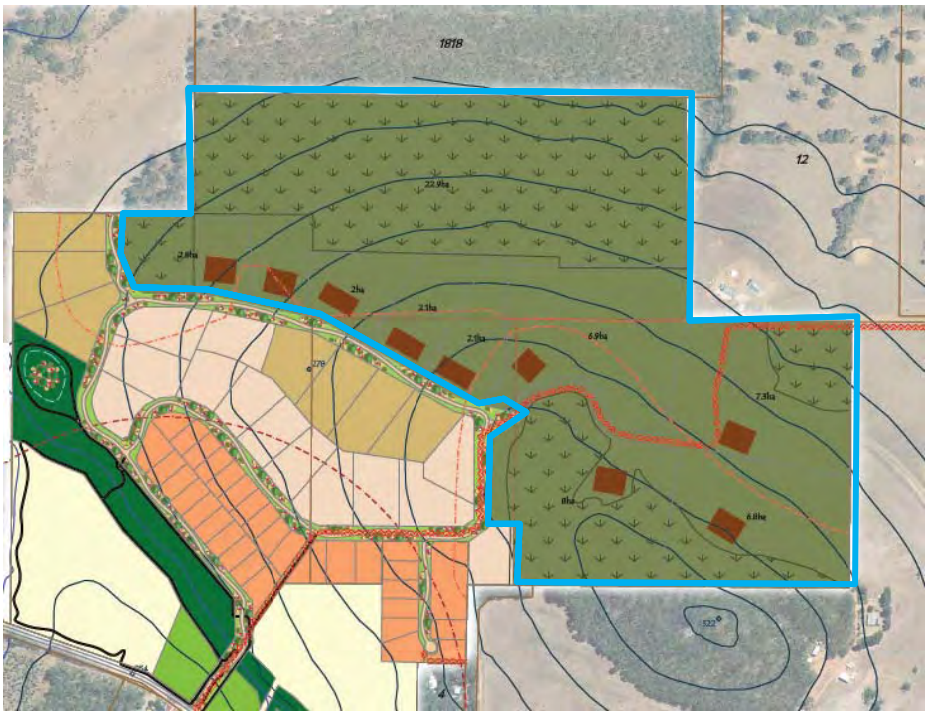
The Bush Lots Precinct has been developed primarily for the protection of remnant vegetation located on the site. This precinct will have nine lots, with the

minimum lot size being 2ha, although the lots with the main bush areas on the northern and eastern parts of the site are between 6.9ha and 22.9ha, as shown in **Figure 17**.

Building envelopes of approximately 1,500 – 2,200m² have been allocated on bush lots to contain future development. These envelopes have been located to reduce the need to remove vegetation whilst taking into account the need to ensure an appropriate level of bush fire protection is maintained. Homes constructed within 100 metres of an identified fire risk will be subject to the requirements of *Planning for Bush Fire Protection – Edition 2* and *AS 3959 Construction of Buildings in Bush Fire Prone Areas*.

At the time of subdivision, land identified for vegetation protection is to be included within conservation covenants with the Department of Environment and Conservation and/or the National Trust.

Figure 17: Bush Lots Precinct (bounded in blue).



The Design Guidelines will control development on these lots and these will be enforced by caveats on the Certificates of Title.

7.2 Public Open Space (POS)

This Structure Plan proposes to create parkland, community and waterway protection areas as public open space. These areas will be ultimately managed by the Shire of Plantagenet after development occurs in the Village. Certain facilities such as park infrastructure, paths, fencing and creek rehabilitation will be undertaken by the developer prior to hand over to the Shire. The community site located between the new entrance road and Mayfield Homestead will be set aside and transferred to the Shire for future development of community facilities.

The public open space proposed is shown in **Figure 18**.

7.2.1 Village Parklands and Community Facilities (Light Green)

The former classification is located near the Village Centre at the Porongurup Shop. This 2.3ha area will allow for the development of a 'Village Green' park with

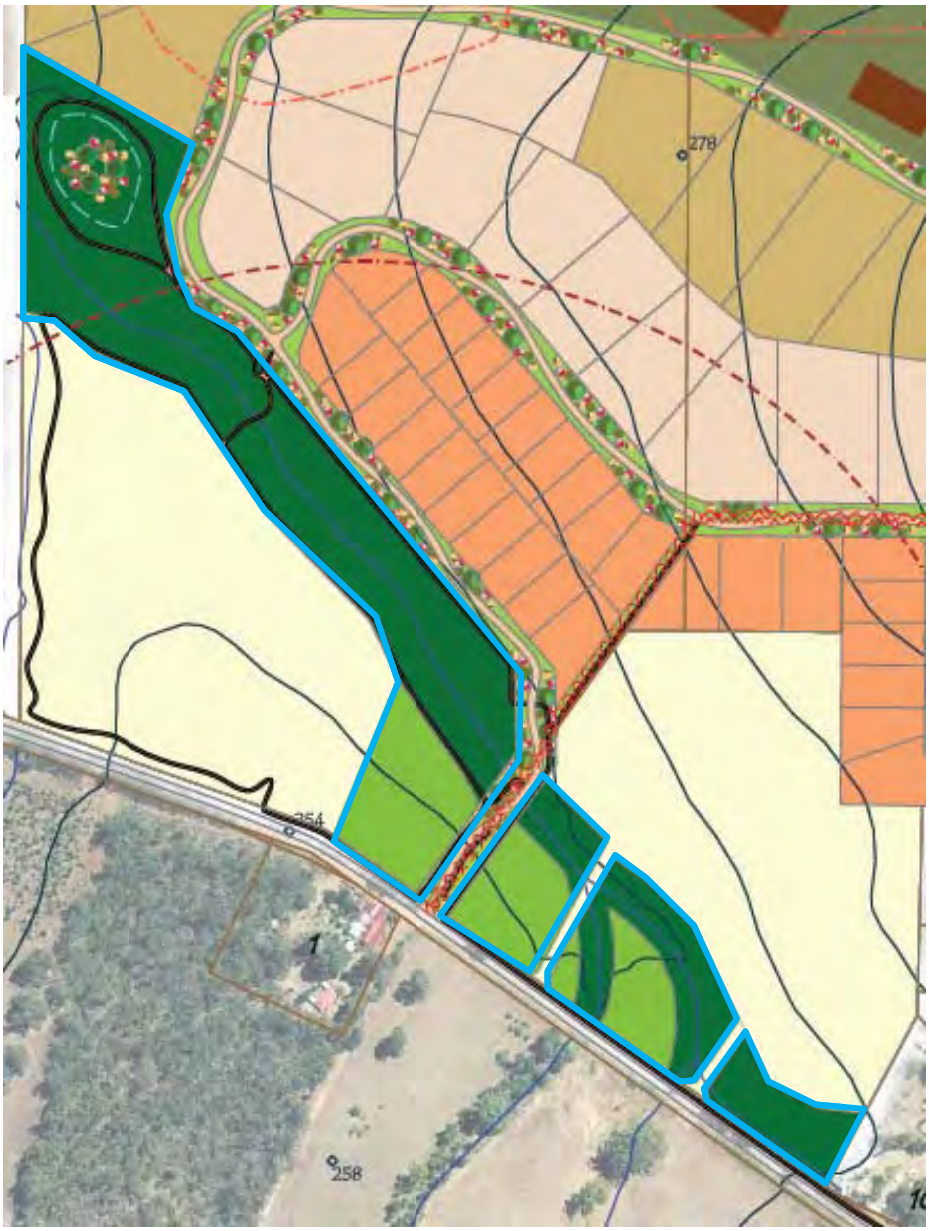
playground and picnic facilities based on the existing Karribank Gardens between Porongurup Road and Bolganup Creek.

The Village Parklands will act as the entry to the Porongurup Rural Village and will need to be constructed to a high visual quality. The location of this land in the low point of the development also ensures that it is overlooked by the surrounding land uses to provided visual surveillance.

Village Parklands will have an active use level. Consideration should be given to the provision of playground equipment and other community assets. This land will be suitably landscaped and include the provision of picnic facilities, BBQ, gazebo, seating and play equipment in consultation with the Shire of Plantagenet at the time of subdivision.

The Structure Plan does not propose to construct community buildings. This land has been provided within the development to provide a suitable location for such buildings and infrastructure, should the Shire of Plantagenet choose to implement such facilities in the future.

Figure 18: Public Open Space Areas (bounded in blue) showing Parklands and Community Facilities in light green and Waterway Protect ion in dark green.



Village Parklands and Future Community Facilities have been included within the development for a variety of purposes including, but not necessarily limited to:

- Providing for active and passive recreational opportunities within the development;
- A picnic and BBQ spot incorporating seating and a gazebo for visitors (provided by the developer at the time of subdivision);
- Providing a site for a future civic meeting place, if it is determined by the Shire and the community that relocation and replacement of the existing hall is warranted (site to be provided by the developer with infrastructure provided by the Shire and/or local community as and when required). The new facility should be a multifunction community use building including a variety of activities being managed by an Incorporated body operating under a lease from the Council. In the future the community will need to work with the Shire to plan for this site.

- Community vegetable garden or similar;
- Community sporting facilities, i.e. tennis courts, lawn bowls, etc; and
- Open meeting space, to provide a location for a local farmers market, a community fair or similar.

Further investigation into the facilities to be provided by the developer will occur in consultation with the Shire of Plantagenet at the time of subdivision. This will include a detailed landscaping plan.

7.2.1.1 Waterway Protection (Dark Green)

A 'Waterway Protection 'area of approximately 6.7ha has been created within the Porongurup Rural Village for a variety of purposes including:

- Providing mechanisms for the protection of the foreshore of Bolganup Creek;
- Ensuring the rehabilitation and re-establishment of a wildlife corridor through the development, based upon a natural waterway;
- Providing land for active and passive recreational opportunities within the development;
- Providing areas for drainage infrastructure;
- Providing for pedestrian and cycling links throughout the Porongurup Rural Village; and
- Providing a landscape setting.

Within this area it will be proposed to retain all remnant vegetation. Also, the preparation and implementation of a Foreshore Management Strategy at the time of subdivision will ensure that a suitable Weed Management Strategy is implemented and that the land is suitably rehabilitated and revegetated to ensure that Bolganup Creek is properly managed as part of the larger catchment.

7.3 Road Network

7.3.1 Internal Road Network

The internal road network for the development has been designed to align with topographical features of the site. Given the sloping nature of the land, it is inevitable that roads must be located with steep gradients. However, the location of such roads has been selected to minimize any potential environmental and landscaping impacts on the site and surrounding area.

The internal road network will be developed with sealed roads. The standard sealed roadway width within the Porongurup Rural Village will be 6 metres. Roads will be accommodated within the Porongurup Rural Village will vary from 20 – 30 metres in width, to accommodate the integration of stormwater drainage and bio-swales (examples **Figure 19** and **Figure 20**). Roads will meander within the road reserve to create visual interest and to reinforce the rural character of the Village.

The main entrance into the Porongurup Rural Village will be via an entrance road between the Village Green and community site. This road is close to the Porongurup shop and reinforces the importance of the shop as the Village Centre. The road reserve has been made sufficiently wide to accommodate parking for the Village Green and community site, as well as allow for the development of an attractive entry.

Within the enclave areas, access will be provided by common property driveways. These will not be public roads vested in the Shire of Plantagenet, but will be owned and maintained by the strata management company that is made up of the individual home site owners. These roadways are designed for significantly lower speeds than public roads and are constructed to a different standard. The minimum width for internal private driveways is to be 4-5 metres, with passing lanes to be provided at suitable intervals as determined by Shire of Plantagenet. This reduces the amount of paved area and is more consistent with the rural character of the area when compared to conventional urban roads.

Crossovers for access to the Mayfield and Karribank Enclaves are to have a minimum width of 6 metres, allowing for two-way vehicle movement. Crossovers are to be constructed to the standards of the Shire of Plantagenet.

Figure 19: Examples of roadside bio-swales using shrubs and trees (left) and grasses (right)

Figure 20: Grassed roadside bio-swale

Based upon an average vehicle movement of 10 vehicles per lot per day, it is anticipated that development outside of the respective Karribank and Mayfield Enclaves would generate 690 vehicle movements per day. These will all be directed through a single access point onto Porongurup Road. Within the Porongurup Rural Village the traffic environment will be designed to accommodate vehicle travelling at 50km/hr.

7.3.2 External Road Network

The Porongurup Rural Village will be accessed from Porongurup Road. This road is constructed of bitumen to a good standard and is maintained by the Shire of Plantagenet.

It is anticipated that the Porongurup Rural Village will generate up to an additional 1300 vehicle movements on Porongurup Road daily in the vicinity of the village. It is anticipated that slip lanes to allow for turning into the Village will be constructed on Porongurup Road by the developer.

It is anticipated that the current standard and capacity of Porongurup Road is suitable for development of the Porongurup Rural Village. In Mount Barker, the intersection of Porongurup Road/Albany Highway is treated with turning lanes and pedestrian shelters. At the intersection of Porongurup Road/Chester Pass Road, a turning bulge and left turn in lane are provided. These are suitable intersection treatments for the proposed level of traffic.

7.3.3 Pedestrian/Cycling Networks

As shown on the Structure Plan and respective Enclave Plans, it is proposed to implement a network of public and private footpaths within the Porongurup Rural Village. The primary purpose of the footpaths within the development is for access to the Village Green and along Bolganup Creek. Shared Use Paths (SUP) (Figure 21) are to be utilised in most circumstances, for the provision pedestrian and cycling access.

Figure 21: Example of Shared Use Path within vegetated parkland.

The following footpath works will occur as part of the overall development:

- All footpaths are to have a minimum width of 2 metres and are to be constructed of a material satisfactory to the Shire of Plantagenet;
- The existing footpath on Porongurup Road will be extended west to the entry of the Mayfield Enclave;
- Footpaths will be constructed on both sides of Bolganup Creek and linked to provide a loop. These footpaths will be developed at the same time as

implementation of the Foreshore Management Strategy and will be designed and located to protect the creek; and

- A footpath is to be constructed within the 10m wide Pedestrian and Emergency Access Way along the western side of Karribank Lodge. Removable bollards can be used to prevent vehicle access except when required for emergencies.

The majority of roads within the Porongurup Rural Village will have a low traffic volume and can accommodate both vehicles and pedestrians. Footpaths have been provided in locations where it would be desirable to separate vehicular and pedestrian traffic.

7.4 Water

The Porongurup Rural Village will not be connected to a reticulated potable (drinking quality) water supply. It is proposed that each dwelling will have a combination of rainwater tanks, water efficiency measures and grey water reuse in keeping with the sustainability principles that underpin the Village.

To ensure an appropriate water supply, the following measures have been incorporated within the Structure Plan and Design Guidelines to ensure that a suitable potable water supply is available for all future households:

- All houses, except those within the respective Enclaves, will be required to have suitably approved water storage of a volume no less than 92,000L, which is connected and operating, prior to the human occupation of a dwelling;
- All houses within the respective Enclaves will be required to either:
    - Be connected to a communal potable water scheme, to be operated and managed by the Strata Management Company; or
    - Contain a suitably approved water storage of a volume no less than 92,000L, which is connected and operating, prior to the human occupation of a dwelling; and
- Water for fire fighting purposes will be supplied by a 50,000 litre tank in accordance with Shire of Plantagenet requirements. This supply will be supplemented by access to household rainwater tanks. This is further explained in **Section 7.7** of this report.

Prior to the lodgement of a subdivision or development application for a strata development within the Enclaves and/or the development of lots within the Structure Plan area, it will be required that additional information is provided demonstrating that a suitable collection, storage and distribution of a potable water supply will be available to the lots or future development.

7.5 On-Site Effluent Disposal

No reticulated sewer service is available in the Porongurup locality. As such, effluent disposal will be required to be the responsibility of the landowners, either on the individual lot or through a communal system in the Enclaves. To support the use of on-site effluent disposal on the subject site, an Effluent Disposal Investigation has been prepared by Coffey Environments, (refer to Amendment No. 49 for a copy of this report). It found that:

- Soils can generally accept waste water disposal, but may require some amendment in the northwest part of the site;

- 100m separation is required for traditional effluent disposal systems from Bolganup Creek; and
- 50m separation is required for Aerobic Treatments Units (ATU's) from Bolganup Creek.

The findings of the Effluent Disposal Investigation and Environmental Management Strategy are incorporated within the Structure Plan at **Section 4.7.4** of this report.

Prior to the lodgement of a subdivision or development application for a strata development within the Enclaves and/or the development of lots within the Structure Plan area, it will be required that additional information is provided demonstrating that the sites are suitable for on-site waste disposal, through either a communal waste system for the strata development or individual on-site effluent disposal units on green titles lots.

7.6 Electricity

Western Power does not normally give advice prior to the subdivision process. However, it is noted that the power supply in the Porongurup locality was recently upgraded to a three-phase power supply. Further liaison will occur with Western Power at the time of subdivision to determine the capacity of power supplies and any necessary upgrades required.

As with water supplies, it is proposed to implement energy efficiency within the Porongurup Rural Village. This will take the form of energy efficiency requirements in the construction of housing and choice of appliances. The use of independent power generation, namely solar and wind, will also be promoted to reduce the demand on the grid.

7.7 Fire Management

Remnant vegetation will be retained within the Porongurup Rural Village within 'Remnant Vegetation Protection' areas. Within close proximity to this vegetation there will be an increase risk of a property being damaged or destroyed by bush fire. Measures to reduce this risk are implemented through this Structure Plan.

During the preparation of Amendment No. 49, a Fire Management Plan was prepared (refer to Amendment No. 49 for a copy of this report). The Fire Management Plan identified the following risks in relation to the PRV:

- The predominant fire risk to development is located in the north of the Porongurup Rural Village, where large remnant portions of vegetation are located. These are located down slope from the majority of development on moderately sloping land;
- To achieve development which has no fire risk, it is required that development is setback in excess of 100m from the source of fire risk; and
- Development that could not achieve a negligible fire risk (i.e. buildings within 100m of a bush fire hazard) would be required to construct to the requirements of *Australian Standard 3959 - Construction of Buildings in Bush Fire Prone Areas*.

The preparation of the Fire Management Plan was undertaken based on the requirements of *Planning for Bush Fire Protection*. This document has since been revised to form Edition 2, to reflect the requirements of the updated *Australian Standard 3959 – 2009 – Construction of Buildings in Bush Fire Prone Areas*,

which imposes new construction requirements. Prior to lodgement of a subdivision and/or development application, it will be required that a revised Fire Management Plan is submitted.

Figure 22: Porongurup Bush Fire Brigade

Through the preparation of the Environmental Management Strategy, a review was undertaken of the Fire Management Plan. The Environmental Management Strategy found that the following modifications would be required to the Fire Management Plan to make it current:

- All development that cannot achieve a 100m setback from identified fire risks will be required to comply with the requirements of *Planning for Bush Fire Protection – Edition 2* and *Australian Standard 3959 – Construction of Buildings within Bush Fire Prone Areas*;
- Fire management mapping is to be updated to reflect the current Structure Plan applicable to the Porongurup Rural Village;
- Restrictive covenants be placed on lots subject to a fire risk to make owners aware of their responsibilities to adhere to the Fire Management Plan; and
- The residents located in bush fire prone areas are issued with FESA's new booklet *Bushfire Preparedness – Prepare. Act. Survive*.

As shown on the Structure Plan, land within 100m of a fire risk has been identified. As per the recommendations of the Environmental Management Strategy, the following actions will be implemented by the SP:

- The Fire Management Plan has been revised, based on the requirements of *Planning for Bush Fire Protection – Edition 2* and *Australian Standard 3959 – Construction of Buildings in Bush Fire Prone Areas*;
- All buildings within the nominated 100m setback will be required to construct to the standards outlined in the above mentioned Australian

Standard, as prescribed in *Planning for Bush Fire Protection – Edition 2*; and

- A restrictive covenant will be placed on each title subject to fire risk to inform landowners that a Fire Management Plan is operational for their land and that they are bound to its requirements; and
- As can be enforced at the subdivision and sale of the lots, each prospective purchaser of the land can be provided with FESA new booklet *Bushfire Preparedness – Prepare. Act. Survive*.

This Structure Plan ensures that appropriate measures are installed to minimise risk and damage in the event of a bush fire. Furthermore, the requirement for the approval of a Fire Management Plan prior to further subdivision and development ensures these outcomes are implemented.

7.8 Environment Management

The following outlines the recommendations for environmental management outlined in the Environmental Management Strategy included in **Appendix E**.

7.8.1 Drainage

The Local Water Management Strategy incorporated within the Environmental Management Strategy has been prepared in accordance with the Department of Water's *Better Urban Water Management* policy document. It also incorporates the findings of the Opus Stormwater Concepts prepared for Amendment No. 49, as well as establishing the principles of drainage for the Porongurup Rural Village, including, but not limited to:

- Drainage to a 1:10 yr ARI is to be contained and disposed of within the Porongurup Rural Village;
- A drainage basin is to be located in the western low point of the development;
- Roadside bio-swales will be designed to treat and dispose of drainage from roads. Any excess drainage will be directed to the drainage basin for further nutrient stripping and disposal;
- Individual lots will be encouraged to utilise on-site drainage disposal (to be incorporated through the Design Guidelines); and
- The use of nutrient stripping vegetation within drainage basins to ensure that nutrient loads entering Bolganup Creek are not increased as a result of the development.

In accordance with the Environmental Management Strategy, it will be required at the time of subdivision that an Integrated Urban Water Management Plan is prepared and its recommendations are implemented as a condition of subdivision. Prior to further subdivision and/or development of the land, verification of the 1:100 year flood event levels will be required. These investigations can be undertaken independently, based upon lot ownership.

7.8.2 Foreshore Management

The development of the Porongurup Rural Village will intensify the development on land within close proximity to Bolganup Creek and its associated tributaries. To ensure that the development does not contribute to the deterioration of the creek line, a Foreshore Management Strategy has been prepared and is incorporated into the Environmental Management Strategy.

Development has been setback from the creek. The creek line and surrounding foreshore will be included within the waterway protection / public open space area and will be managed in accordance with the Foreshore Management Strategy. This area will include walkways to allow for passive use of the creek. The creek will also be rehabilitated through removal of weeds and replanting of indigenous riparian species.

For further details on the requirements of the Foreshore Management Strategy, please refer to **Appendix E**.

7.8.3 Vegetation Protection

As shown on the Structure Plan, it is proposed to include remnant vegetation within the 'Remnant Vegetation Protection' areas. No further clearing will be permitted to occur in this area, with the exception of:

- Trees that are identified as being diseased or dangerous; and
- Trees that pose an imminent danger to human health.

Remnant vegetation located in the north of the Structure Plan area is considered to be in 'Very Good' condition. As such, the following measures will be imposed:

- The large area of bushland at the northern end of the site will be included within a single lot of approximately 22.9ha with a building envelope located on existing cleared land;
- The DEC may request the WAPC to impose a condition at the time of subdivision to require a conservation covenant is established this lot;
- Any further clearing of the land within the Structure Plan area will require the approval of the relevant statutory authority, such as the Shire of Plantagenet and/or the DEC; and
- Riparian vegetation has been included within the 'Waterway Protection/Public Open Space' classification on the Structure Plan. This will be appropriately managed through the implementation of the Foreshore Management Strategy.

The Structure Plan ensures that the remnant vegetation of the Porongurup Rural Village is protected and will be used to characterise the development. It is also encouraged for trees and free standing shrubs to be retained in future development, resulting in a development that seeks to be harmonious in its environment.

7.8.4 Weed Management

The Environmental Management Strategy identified that there was a wide spread presence of weed species within the Porongurup Rural Village. A Weed Management Program is included within the Environmental Management Strategy. The requirements of the Weed Management Program will be implemented at the subdivision stage.

The Weed Management Program will be linked to the Foreshore Management Strategy, given this is the location in which weeds mostly prevail. The removal of weeds and revegetation of Bolganup Creek aims to reinstate the environmental integrity of the creek line.

7.9 Landscaping and Character

7.9.1 Heritage

To preserve the integrity of the heritage site, the Structure Plan will incorporate the following provisions:

- All heritage buildings within the Karribank Enclave are to be maintained on a single lot, which will have uninterrupted views of the valley and Bolganup Creek;
- Development within the Karribank Enclave will be subject to Design Guidelines, contained in **Appendix D**. These guidelines stipulate that development must be constructed in a style that is sympathetic to Karribank (for example, a red corrugated iron roof for all houses and pale wall colours);
- Major trees within the Karribank property will be retained, which characterise the development;
- All access ways will be constructed in a similar manner to the existing driveways – namely relatively narrow and winding roads with grassed verges. The existing driveway from Porongurup Road and across Bolganup Creek will be retained; and
- Existing tourist accommodation will be incorporated within the Karribank Enclave, to ensure that the historic use of the site for accommodation is maintained and promoted.

As previously identified in **Section 2.8**, development within the Karribank Lodge and surrounds are subject to the heritage requirements outlined in Clause 5.8 of TPS 3.

The Structure Plan ensures that any development surrounding or related to the Karribank Lodge heritage site will be required to be sympathetic and complimentary to these heritage values, as they are of key value to the Porongurup community.

7.9.2 Visual Management

A Visual Management Assessment has been undertaken and is included in **Appendix F**.

The visual impact of the proposed development in the Porongurup Rural Village can be mitigated using the following methods:

- Utilising existing vegetation for screening and revegetation to screen future house sites;
- Rehabilitation and revegetation of Bolganup Creek; and
- Building design to be controlled through Design Guidelines to limit the visual impact of development on the landscape.

The Structure Plan recognises that the Porongurup Rural Village is located in a visually sensitive location has implemented measures into the Structure Plan and Design Guidelines to ensure that development will not detract from the rural character of the Porongurup locality.

Figure 23: Bolganup Creek on the Mayfield property.

Figure 24: View from Mayfield property looking south.

7.10 Staging

A development the size of the Porongurup Rural Village will ultimately be staged over a number of years to ensure supply and demand are balanced. This will allow the Village to evolve over time with a reduced impact on the surrounding area.

The Porongurup Rural Village has been designed to allow for specific elements of the design to be developed independently and incrementally. Development will start from Porongurup Road and work inwards as demand requires. The length of time required to finish the complete development is unknown. However, it is not unreasonable to consider a period of at least 5-10 years from the start of the first stage will be required.

An indicative staging plan is shown in **Figure 25**.

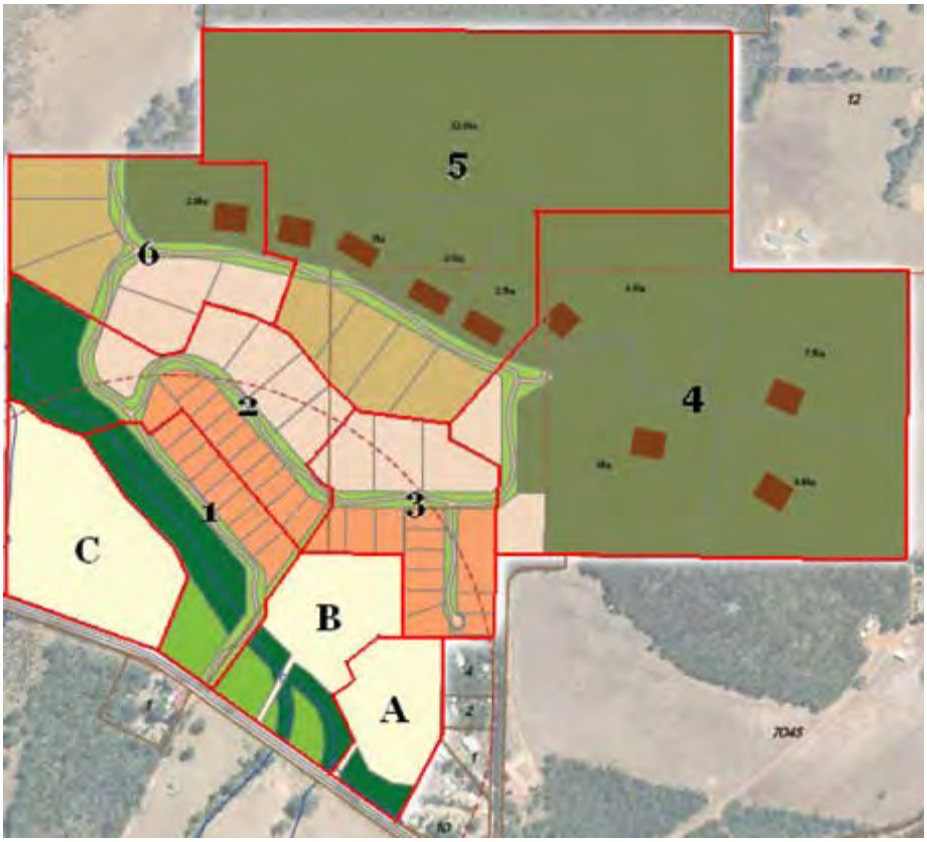
This shows a total of 6 stages to create the conventional residential, rural residential and bush lots north of Bolganup Creek. The Karribank Enclave will create two green title lots that will form the basis of the two communal developments using survey-strata subdivision. Mayfield Enclave forms a third communal development site. The Enclaves all have frontage to Porongurup Road and can therefore be developed independently of the remaining site. The timing of

development of the Enclaves will depend upon the plans of the existing owners and may occur either before or after a start is made on the rest of the Porongurup Rural Village.

It is important to note that the size and number of stages will be determined at the time when development proceeds. The prevailing market conditions will dictate the number of lots that need to be released at a time. This will affect the order and timing of the stages. Another factor is the need to extend services and roads into the site. This will be a factor on which order the staging occurs.

The development of the public open space and waterway protection areas will occur at the same time as development of the adjoining stages or Enclaves.

Figure 25: Indicative Staging Plan for the Porongurup Rural Village.



Notes:

1. *Stages 1 – 6 relate to indicative staged construction of the conventional lots and the public open space areas. After stage 1 is constructed the size, number and order of the following stages may change to meet market and construction requirements.*
2. *Stages A – C relate to the enclave areas. Provision has been made in the Karribank Enclave for two sites each containing existing tourist accommodation and a number of future home sites. These stages may occur either simultaneously or independently on one another. Stage C (Mayfield Enclave) could be developed at one time or further broken into a number of stages.*

8 DESIGN GUIDELINES

The development of land within the Structure Plan will be subject to the Design Guidelines outlined in **Appendix D**.

Design Guidelines provide further detailed controls and guidance and will be the primary tool for controlling the built form within the Porongurup Rural Village.

The Design Guidelines will perform a dual role:

- As a Town Planning Scheme Policy used to control and guide the built form; and
- Providing useful information intended to educate prospective purchasers and landowners in sustainable development.

Specifically, the Design Guidelines promote:

- Passive solar site specific architecture;
- Energy efficiency;
- Water conservation;
- Liveability;
- Safety and surveillance; and,
- Visual attractiveness and variety of design.

The aim of the Design Guidelines is to ensure that houses in the Porongurup Rural Village respect and blend harmoniously with the existing environment and enable all residents to maximise their enjoyment of the setting through appropriate design.

The Design Guidelines have been developed to:

- Improve the liveability of houses in the development;
- Set a benchmark for good design in terms of aesthetics and the characterisation or 'spirit' of the place;
- Demonstrate environmental leadership to reduce natural resource consumption, improve bio-diversity and minimise lifecycle costs; and
- Ensure best practice design for access, amenity and safety

Figure 26: Example of energy efficient housing design utilising photovoltaic panels, passive solar design and on-site water supplies.

9 CONCLUSION

The Structure Plan provides the basis for the future development of the Porongurup Rural Village with a strong focus on sustainability and ensuring the character of the Village reflects that of the surrounding locality.

Through application of the Structure Plan and its supporting documents, the Porongurup Rural Village will provide an innovative and unique community that is in harmony with the already established character of Porongurup.

The Design Guidelines will be enforceable by the Shire of Plantagenet to adequately control the built form of future homes. The subdivision design will allow for a combination of traditional green title lots and survey-strata Enclaves with home sites scattered throughout common property.

The Environmental Management Strategy forms the basis for future detailed work at the subdivision and development stages on matters including foreshore protection, vegetation protection, drainage management and bush fire management.

Where the Structure Plan or its supporting documents identify further detailed work is required, it provides a clear set of parameters that this future work will need to meet in order to ensure the overall objectives for the Porongurup Rural Village are met.

The Structure Plan paves the way for the creation of a unique rural village that will allow greater enjoyment of the natural beauty of Porongurup without detracting from what is there already.

APPENDICES

APPENDIX A

PORONGURUP RURAL VILLAGE AND ENVIRONS PRECINCT PLAN

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PORONGURUP RURAL VILLAGE AND ENVIRONS

Precinct 1 Structure Plan

KEY

- Precinct Boundaries
- Area outside of Precinct 1 included in the Structure plan due to being closely associated with the village precint
- Village Centre
- Tourist Accommodation
- Rural Landscape (Farming and Viticulture)
- Residential / Tourist Enclaves (Strata Title)
- Residential lots (2,000 - 5,000m²)
- Large Residential lots (5,000 - 10,000m²)
- Rural Residential Lots (10,000 - 20,000m²)
- Bush Lots (2ha +)
- Village Parklands and Community Facilities
- Waterway Protection
- Remnant Vegetation Protection
- Fire Escape Routes
- Tourist Route
- Other Roads
- 500m Radius of Village Centre
- (H) Heritage Site

This Plan is not a zoning plan. It illustrates the broad use of land within the Porongurup Rural Village Precinct. Appropriate controls on subdivision and development are to be incorporated into the Local Planning Scheme and Shire Policies.

Refer to Town Planning Scheme Policy No.18 Appendix 4 for details on Precincts 2, 3 and 4.

NOTE:
This plan has been prepared for planning purposes. Areas, Contours and Dimensions shown are subject to survey.

Scale @ A3 1:8000

100 50 0 50 100 200 300

DWG No 12419-16C

PRECINCT 2

1803

14

13

Limited Development in Precinct 2 to allow appropriate connection into Precinct 1 but protect the amenity of existing agriculture and surrounding land uses.

1818

PRECINCT 2

12

13

5

Gravel Fire Escape Route will be available to residents north east of the Porongurup Rural Village.

1

1664

Creek lines and low lying areas are to be protected and rehabilitated in accordance with the adopted Foreshore Management Plan.

Refer to MAYFIELD - KARRIBANK STRUCTURE PLAN for further details of the development of lots 1, 5, 11 and 1664.

Refer to MAYFIELD ENCLAVE PLAN for further detail.

Refer to KARRIBANK ENCLAVE PLAN for further detail.

Existing Tea Rooms and Shop will act as the Village Centre and together with the Village Parklands will be the focal point for the community.

Major stands of remnant vegetation are to be protected and enhanced.

7045

PRECINCT 3

MOUNT BARKER ROAD

H

11

4

2

1

10

BOXHILL ROAD

Existing Farming to continue.

Buffer required for separation from semi rural lots in Boxhill Road

SURREY DOWNS ROAD

PORONGURUP ROAD

7133

4759

PRECINCT 4

H

23

7

6

5

4

3

2

1

4847

BOLGANUP ROAD

New Development abutting Tourist Routes is to protect existing vistas and enhance the attractivenes of the Porongurup Rural Village.

8000m² lots to remain.

No intensification of development south of Mt Barker - Porongurup Road. Farming and viticulture to continue in Rural Landscape Areas.

PRECINCT 4

10

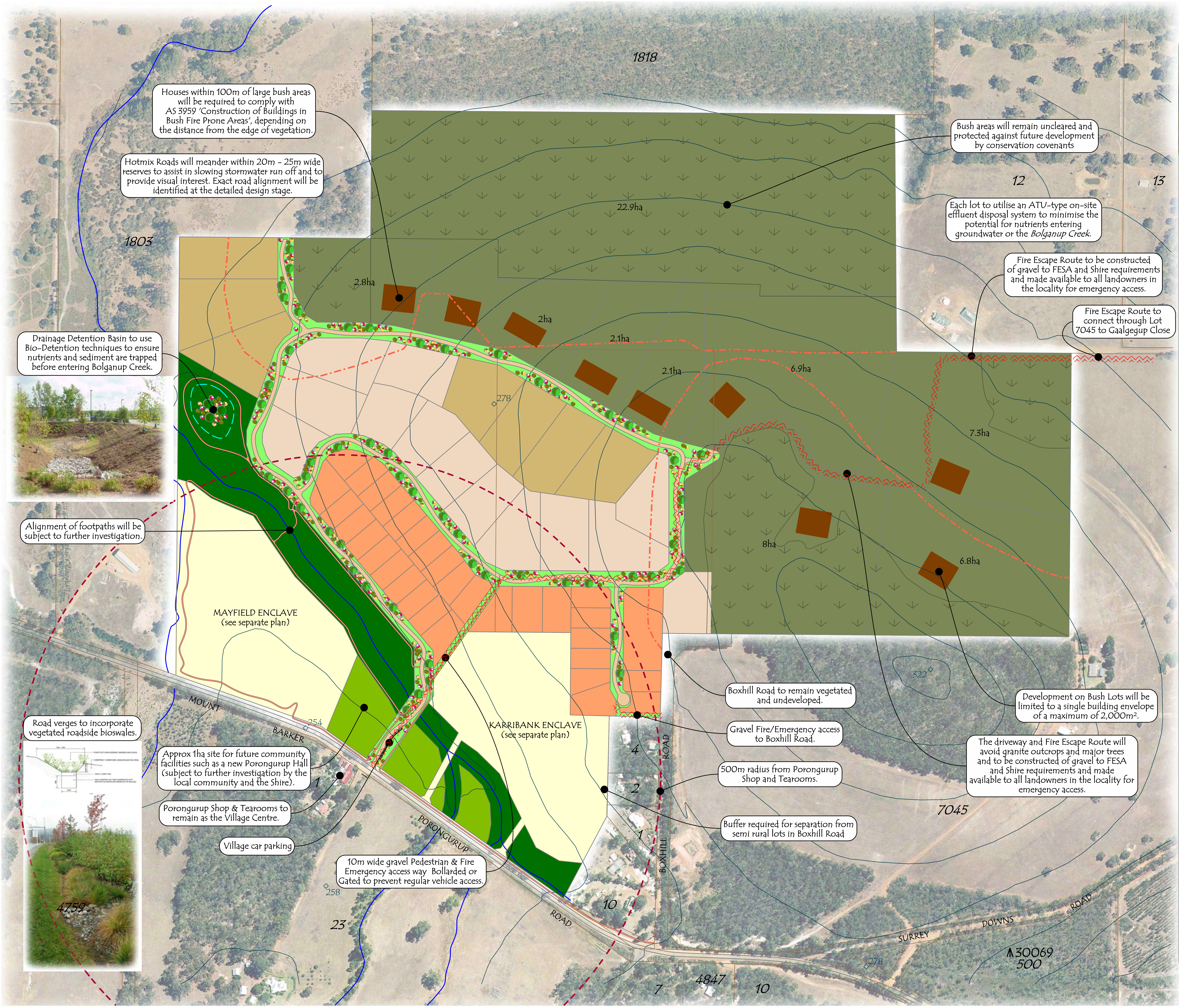
50

21

9

APPENDIX B

PORONGURUP RURAL VILLAGE STRUCTURE PLAN



1818
1803
12
13
Houses within 100m of large bush areas will be required to comply with AS 3959 'Construction of Buildings in Bush Fire Prone Areas', depending on the distance from the edge of vegetation.
Hotmix Roads will meander within 20m - 25m wide reserves to assist in slowing stormwater run off and to provide visual interest. Exact road alignment will be identified at the detailed design stage.
Bush areas will remain uncleared and protected against future development by conservation covenants
Each lot to utilise an ATU-type on-site effluent disposal system to minimise the potential for nutrients entering groundwater or the *Bolganup Creek*.
Fire Escape Route to be constructed of gravel to FESA and Shire requirements and made available to all landowners in the locality for emergency access.
Fire Escape Route to connect through Lot 7045 to Gaalgegup Close
Drainage Detention Basin to use Bio-Detention techniques to ensure nutrients and sediment are trapped before entering Bolganup Creek.
22.9ha
2.8ha
2ha
2.1ha
2.1ha
6.9ha
7.3ha
8ha
6.8ha
278
Alignment of footpaths will be subject to further investigation.
MAYFIELD ENCLAVE (see separate plan)
KARRIBANK ENCLAVE (see separate plan)
Road verges to incorporate vegetated roadside bioswales.
Approx 1ha site for future community facilities such as a new Porongurup Hall (subject to further investigation by the local community and the Shire).
Porongurup Shop & Tearooms to remain as the Village Centre.
Village car parking
10m wide gravel Pedestrian & Fire Emergency access way Bollarded or Gated to prevent regular vehicle access.
Boxhill Road to remain vegetated and undeveloped.
Gravel Fire/Emergency access to Boxhill Road.
500m radius from Porongurup Shop and Tearooms.
Buffer required for separation from semi rural lots in Boxhill Road
Development on Bush Lots will be limited to a single building envelope of a maximum of 2,000m².
The driveway and Fire Escape Route will avoid granite outcrops and major trees and to be constructed of gravel to FESA and Shire requirements and made available to all landowners in the locality for emergency access.
322
7045
MOUNT BARKER PORONGURUP ROAD
254
258
BOXHILL ROAD
SURREY DOWNS ROAD
4
2
1
1
10
23
4759
7
4847
10
30069
500

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PORONGURUP RURAL VILLAGE

Porongurup Rural Village Structure Plan

KEY

- Residential Lots (2,000m² - 5,000m²)
- Large Residential Lots (5,000m² - 10,000m²)
- Rural Residential Lots (1ha - 2ha)
- Bush Lots (2ha +)
- Building Envelopes for Bush Lots
- Village Parklands and Future Community Facilities
- Waterway Protection / Public Open Space
- Karribank and Mayfield Enclaves
- Protected Bushland
- Roadside vegetated bio-swales
- Creeklines
- Fire Escape Route
- Outer edge of 100m Fire Hazard Zone - AS 3959 to apply.
- Existing Lot boundaries
- Proposed Lot boundaries
- Contours
- 500m radius from Porongurup Shop & Tearooms
- Indicative public footpaths

Images are for illustrative purposes only.

NOTE:

This plan has been prepared for planning purposes. Areas, Contours and Dimensions shown are subject to survey.

n

Scale @ A2 1:4000

0 50 100 200 300

DWG No 12419-15B

APPENDIX C

KARRIBANK ENCLAVE PLAN
MAYFIELD ENCLAVE PLAN

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PORONGURUP RURAL VILLAGE
Karribank Enclave Plan

KEY

- Karribank Boundary
- Contours
- Internal Private Roads
- Future Home Sites 30 @ 300 - 400m²
- Future Public Parklands
- Future Green Title Boundaries
- Bolganup Creek and Tributary

Lot A to contain Karribank Lodge and 15 home sites subdivided by Strata Title with remaining open space and roadways in common property.

Lot B to contain existing chalets and 18 home sites subdivided by Strata Title with remaining open space and roadways in common property.

Lot C to be subdivided to create 12 Green Title lots (see main plan).

NOTE:
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Scale @ A3 1:2000

0 20 40 60 80 100

DWG No 12419-14C

Karribank Lodge to remain for tourist accommodation (may include restaurant/café).

Future communal Alternative Treatment Unit waste treatment system to support all development on Lot A (managed under strata title management agreement)

Future access road into the Porongurup Rural Village.

Island kept as parkland feature.

Future Parking Bays

Existing Karri-lined driveway to remain part of the property to maintain the connection to the Karribank Lodge.

Village parklands to act as a central feature for Porongurup and include picnic, BBQ and playground facilities. Area to be vested in the Shire of Plantagenet and subject to further landscape planning.

Foreshore Management Plan to be developed and implemented for Bolganup Creek.

New private access into Lot B.

Creekline weeds removed and revegetated in accordance with the Porongurup Rural Village Foreshore Management Plan.

Home sites on lots A & B are to be controlled by Design Guidelines and strata management agreements to ensure house design, materials, bulk and colours are complementary to the Karribank heritage buildings.

Fire escape route to Boxhill Road

Chalets to remain for tourist accommodation (managed under strata title management agreement).

Emergency access between Lot A and Lot B.

Buffer required for separation from semi rural lots in Boxhill Road.

Internal driveways to employ hotmix and be coloured in earth tones. Driveways to be maintained by Strata Company.

Future communal Alternative Treatment Unit waste treatment system to support all development on Lot B (managed under strata title management agreement)

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PORONGURUP RURAL VILLAGE
Mayfield Enclave Plan

Future communal Alternative Treatment Unit waste treatment system to support all home sites (managed under strata title management agreement).

Home sites to be controlled by Design Guidelines and strata management agreement to ensure house design, materials, bulk and colours are appropriately controlled and acheive sustainability objectives.

Tree line to be retained to provide a wind break and central feature.

Internal driveways to employ hotmix and be coloured in earth tones. Driveways to be maintained by Strata Company

Creekline to be protected and rehabilitated in accordance with Foreshore Management Plan.

All areas outside of home sites will be common property maintained by the Strata Company.

Plantation trees to be removed to allow for home sites.

Future community site.

KARRIBANK ENCLAVE

Existing access onto main road to be upgraded.

Mayfield Homestead to remain and incorporated into strata plan.

Future Parking Bays

PORONGURUP ROAD

255 260 253 260 255 250 254 250 255 260

KEY

- Mayfield Boundary
- Contours
- Internal Private Roads
- Footpaths (Indicative only)
- Future Homesites 30 @ 400 - 500m²
- Community Site and Public Open Space/Foreshore Protection
- Vegetative Screening
- Bolganup Creek & Tributary

NOTE:
This plan has been prepared for planning purposes. Areas, Contours and Dimensions shown are subject to survey.

Scale @ A3 1:2000

0 20 40 60 80 100

DWG No 12419-17C

APPENDIX D

PORONGURUP RURAL VILLAGE DESIGN GUIDELINES

1 INTRODUCTION

1.1 Vision

The main vision of the Design Guidelines is to maintain the rural character of the locality, whilst enabling diversity in building design and sustainability in community development in a manner that respects the natural environment.

1.2 Purpose and Structure of the Design Guidelines

The guidelines are designed to provide requirements and guidance on the form of housing to be developed within the Porongurup Rural Village.

The Porongurup Rural Village Design Guidelines apply to all of the area contained within the Structure Plan and subject to Amendment No. 49 to Shire of Plantagenet Town Planning Scheme No. 3 (TPS 3).

These guidelines have been prepared to assist landowners in designing homes that meet the sustainability objectives for the Porongurup Rural Village. The Guidelines will also assist the Shire of Plantagenet to assess planning and building applications.

The development control provisions of these guidelines will be given full regard by Council and any application that departs from these provisions will require justification and approval by the Shire of Plantagenet.

1.3 Statutory Relationship

These guidelines should be read in conjunction with TPS 3 and other relevant local policies and laws. Council will consider adoption of these guidelines as a Town Planning Scheme Policy in accordance with clause 7.6 of TPS 3.

In the case of conflict between these guidelines and other relevant controls, these guidelines shall prevail and to the satisfaction of the Shire of Plantagenet.

As required, these guidelines shall be presented to prospective purchasers of land within the Porongurup Rural Village.

2 GENERAL DESIGN GUIDELINES

The following section provides general guidelines for all dwellings within the Porongurup Rural Village. Additional guidelines for specific areas, such as the Karribank and Mayfield Enclaves are outlined in **Section 3**.

At this end of each element, there is a list of Mandatory Requirements and Recommended Actions. The Mandatory Requirements must be incorporated into each home. The Recommended Actions provide additional actions that the landowner can take to further improve the performance of the home, but are not mandatory to allow a degree of flexibility in home design.

The general design guidelines apply to all development within the Porongurup Rural Village except where otherwise stated or varied by the site-specific guidelines outlined in **Section 3**.

2.1 Sustainable House Design

The Porongurup Rural Village has the aim of incorporating sustainable design to create a sustainable rural village. This is primarily reflected in the design criteria for housing within the village through the Design Guidelines. Sustainable design not only seeks to minimise the energy inputs into operating a house, but also the impacts of the house over its lifecycle and the energy costs of the products that are utilised within the house.

2.1.1 Orientation

Orientation of housing not only affects the streetscape and local environment, but the ability of the house to utilise natural processes to ensure it is more efficient in its operation.

Solar passive design utilises northern sunlight to passively heat a house and moderate temperature. As shown in **Figure 1,** the sun path is located at a lower angle during the winter months. Therefore, the design of buildings can incorporate awnings or shading to ensure that a house has access to winter sun to assist in heating, but is shaded during summer months to assist in cooling.

Figure 1: Annual Solar Path (Image Courtesy of: Landcorp)

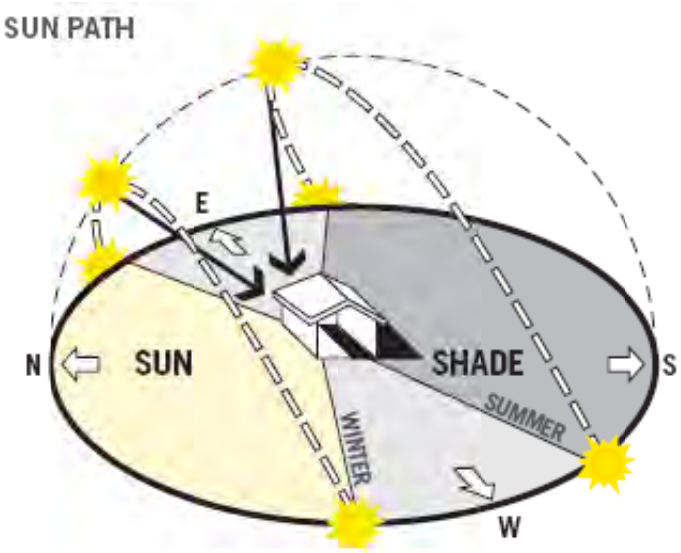
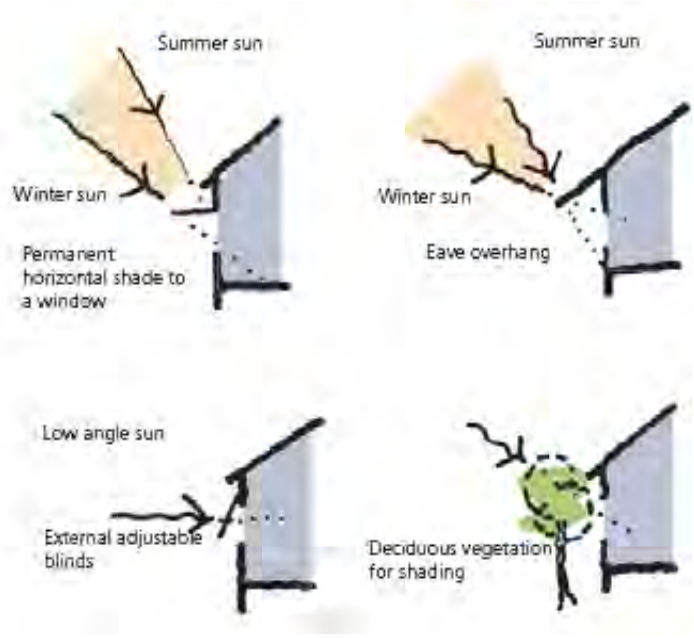


Figure 2 shows the development of features on a house that can lead to more efficient use of solar energy in a household, particularly within winter months. This includes design features such as:

- Awnings;
- Deciduous vegetation to shade the house during summer and allow access to light in winter;
- Appropriate verandah size and placement, to ensure winter sun can penetrate to warm the house; and
- Permanent shading measures on windows.

Homes within the Porongurup Rural Village will be encouraged to utilise solar passive design to develop a more sustainable house.

Figure 2: House Orientation (Image Courtesy of: City of Yarra)



Mandatory Requirements:

a) Houses are to be orientated to the north, such that living areas have solar access.

b) A living space is to be provided on the northern side of each house.

c) Openings on the western wall of the house are to be minimised. Where openings are utilised, they are to be treated to reduce impact on the sustainable operation of the dwelling.

Recommended Actions:

i) Day use areas such as kitchens and living spaces are provided to the north of the dwelling to take advantage of solar heating in winter.

ii) Utility areas such as laundries and bathrooms are located in the south and west of the house.

iii) Bedrooms and morning use areas are located on the east of the house to take advantage of the morning sun.

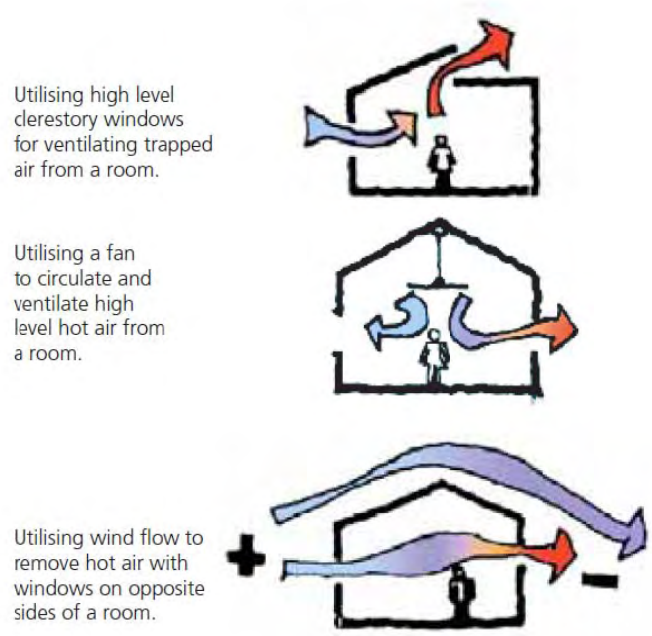
iv) Shading is utilised to protect openings from the summer sun.

v) Ceilings higher than 2.7m should be avoided to minimise heating and cooling requirements.

2.1.2 Ventilation

Ventilation promotes the use of airflow to remove hot air from a house during summer months. This is advantageous to cool the house during the night as well as allowing cooling cross-breezes during daylight hours, as shown in **Figure 3**. This makes for a more comfortable living environment without the need for air conditioning at most times.

Figure 3: Sustainable House Ventilation (Image Courtesy of: City of Yarra)



Mandatory Requirements:

a) Windows are located so that they promote crosswinds to penetrate and cool the house.

Recommended Actions:

i) Utilise landscaping to pre-cool airflow before entering the house.

2.1.3 Insulation and Thermal Mass

Insulation and Thermal Mass can effectively control the heat flows of a house throughout the year, by cooling the house in summer and warming it in winter. Insulation decreases heating and cooling requirements by stabilising temperature change throughout the day and night, whilst thermal mass stores heat and then re-radiates it to make a more comfortable living environment, with particular benefits in the winter months. If placed properly, thermal mass can store warmth from winter sunlight to moderate the house temperature during the night.

Figure 4: Roof Insulation

Mandatory Requirements:

a) Ceiling insulation minimum of R2.5, wall insulation minimum of R1.5 and suspended floor insulation minimum of R1.0.

Recommended Actions:

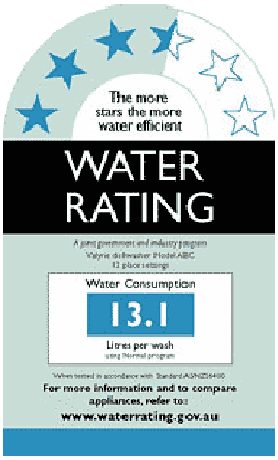
i) Draught proofing to prevent air leakage.

ii) A central mass wall earthed to the ground is encouraged, as are suspended concrete floors.

2.1.4 Water Use

Efficient water use is essential in sustainable design. Within the Porongurup Rural Village, all drinking water is to be sourced on-site from roof catchments and rainwater storage. This supply can be supplemented by non-drinking supplies, particularly the re-use of grey water. Water should be use efficiently throughout the home through the use of water efficient fittings and appliances. Landscaping should also be designed to be water efficient. The Australian government has implemented a nation-wide set of standards for plumbing and appliances that use water, known as the Water Efficiency Labelling and Standards Scheme (WELS). This scheme will assist home owners in choosing products that meet the requirements of these Design Guidelines.

Figure 5: Example of a water rating sticker used under the Water Efficiency Labelling and Standards Scheme (WELS).



Mandatory Requirements:

a) Toilets to have a minimum of a Four-Star Rating under WELS.

b) Showers to have a minimum of a Three-Star Rating under WELS and use less

than 7.5L of water per minute.

c) Taps to have a minimum of a Four-Star Rating under WELS.

d) Clothes Washing Machines and Dishwashers to have a minimum of a Four-Star Rating under WELS.

e) Reticulated Grass and lawn areas to be a maximum of 100m^2.

f) Rain water tanks are to be located in a position that is screened from view from the street and painted in a colour that is complementary to the exterior of the house.

Recommended Actions:

i) Grey water reuse systems for recycling water used within appliances and the shower are recommended for use on gardens.

ii) Select landscaping and plants that are drought tolerant and have reduced water requirements.

iii) Adopt 'Rain Garden' techniques.

iv) Install a drip irrigation system for gardens, as opposed to surface spray irrigation.

2.1.5 Energy Efficiency

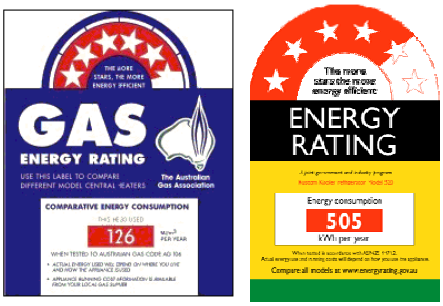
Energy efficiency is the ability of the house to produce its own energy supplies, as well as reducing the energy use of the house in general. The most practical applications in house design are the incorporation of photovoltaic cells or the use of electricity generated from renewable resources (which can be requested through the electricity supplier). Energy efficiency is also increased through the decreasing use of appliances to modify the environment of the house (air-conditioning, heating, etc), as well as using energy efficient appliances, which are rated through the Australian Government Energy Rating System.

Figure 6: Example of energy efficient housing design utilising photovoltaic panels, passive solar design and on-site water supplies.

Heating and cooling

Heating and cooling refers to the artificial heating and cooling of a house to moderate its temperature. Whilst this should generally be avoided if possible, the use of air-conditioning and heating systems can sometimes be necessary in temperature extremes.

Figure 7: Energy efficiency rating stickers used on appliances.



Lighting

Lighting refers to the two types of lighting used in house, being natural and artificial. Where possible, the use of natural light through windows and skylights should be maximised, but in a manner that reduces glare and temperature loss/gain. Where artificial lighting is to be used, it should be energy efficient, using low wattage fluorescent and triphosphor globes and tubes. It is important to note that 'low voltage' lighting is not necessarily energy efficient and attention should be given to the wattage of the globe or accessory.

Mandatory Requirements:

a) Electrical heating and cooling appliances are to have a minimum Energy Rating of Four Stars.

b) Gas heating appliances are to have a minimum Gas Energy Rating of Four Stars.

c) Hot water systems to be either solar or gas instantaneous (Gas Energy Rating of 4 Stars or above).

Recommended Actions:

i) The generation of an on-site energy supply is recommended. This is encouraged through the use of roof-top photovoltaic solar systems on north facing roof slopes. Use of wind generation will only be considered on rural residential and bush lots or otherwise where the Council is satisfied that a wind turbine does not pose a noise or other nuisance to neighbouring properties.

ii) Utilise fluorescent light fittings and triphosphor tubes to provide required artificial lighting throughout the home.

iii) Use timing switches or motion sensors for lighting in living areas and wet areas to ensure lights are not left on inadvertently.

iv) Utilise natural light during the daytime. Locate windows to promote natural light and use skylights in rooms with little or no natural light.

2.1.6 Construction and Materials

The development of sustainable housing is not only based upon the use of the house following construction, but the inputs into the construction of the house. These inputs should be carefully considered based upon their respective carbon footprint, lifecycle and ability to be recycled once the house has come to the end of its sustainable life cycle.

Reuse of second hand material, such as timber and masonry is one method of reducing demand on finite resources and reducing the carbon footprint of a home.

Figure 8: Jarrah sleepers are one form of reusable building product.

Mandatory Requirements

a) No building shall be constructed of Zincalume or other similarly reflective material, unless by the special consideration of Council.

Recommended Actions:

i) The choice of materials should complement the suite of materials that are currently used in the Porongurup locality;

ii) Recycled materials are encouraged to be utilised;

iii) The use of locally produced materials is preferred to those made internationally; and

iv) Materials produced from Renewable resources are preferred.

2.2 Building Form

2.2.1 Building Area and Height

The development of land within the Porongurup Rural Village will be sensitive to the existing character of development predominating in the locality. Addressing the bulk of development, particularly for hill-side development, is an important aspect of reducing the visual impact of future development within the village. As such, the following requirements will apply.

Mandatory Requirements:

a) The following maximum gross floor areas for dwellings, including any covered outdoor areas apply:
   - Karribank Enclave (except Lot C) – 180m² ;
   - Mayfield Enclave – 200m²;
   - Residential and Large Residential Lots – 400m²; and
   - Rural Residential and Bush Lots – 500m².

b) The following maximum floor areas for outbuildings (sheds and workshops) apply:
   - Karribank Enclave (except Lot C) – 30m² ;
   - Mayfield Enclave – 30m²;
   - Residential Lots – 80m²; and
   - Large Residential, Rural Residential and Bush Lots – 150m².

c) Dwelling height is not to exceed 7.5m above natural ground level to pitch of roof. This is to be measured from the centre of the building footprint.

d) Outbuilding height to be a maximum of 3.0m for walls and 4.0m for roof ridges (except in Mayfield and Karribank Enclaves).

e) Changes in natural ground level and retaining walls are to be less than 1.0m in height and limited to the immediately around the building footprint.

f) Council, at its discretion; may consider houses and outbuildings not compliant with the above requirements, subject to the following measures being undertaken:

- Careful consideration being given to the perceived bulk and scale of development in the Porongurup landscape;
- Measures being implemented to minimise the visual and character impacts of the proposed development; and
- Advertising to surrounding landowners in accordance with the requirements of Shire of Plantagenet Town Planning Scheme No.3.

Recommended Actions:

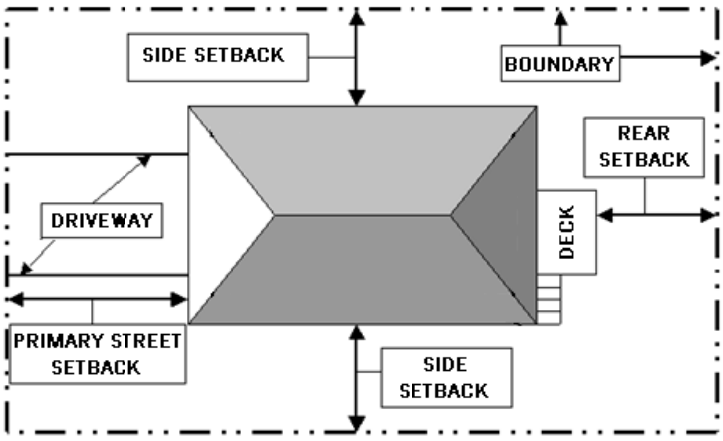
i) Split level housing is recommended for sloping areas.

ii) Minimal modification of the natural topography of a site to encourage natural processes (i.e. drainage and groundwater flows) to continue.

2.2.2 Building Setbacks

Building setbacks ensure a consistent streetscape, as well as providing for an improved visual landscape and coordination of solar access. The aim of the Porongurup Rural Village is to ensure that a high quality visual landscape is fostered by development in the village.

Figure 9: House Setback Diagram



Mandatory Requirements:

a) Residential Lots will be subject to the development setbacks for the R5 density as contained in the *Residential Design Codes*, namely:

- 12m primary street setback;
- 6m rear boundary and secondary street setbacks; and
- Side setbacks as per Tables 2a and 2b of the *Residential Design Codes*.

b) Large Residential and Rural Residential Lots will be subject to the development setbacks for the R2 density as contained in the *Residential Design Codes*, namely:

- o 20m primary street frontage setback; and
- o 10m side and rear boundary and secondary street setbacks.

c) All development on Bush Lots will be required to be contained within the building envelope designated on the Structure Plan.

d) Karribank and Mayfield Enclaves: All buildings to be contained within the particular home site.

e) Council, at its discretion; may consider houses and outbuildings not compliant with the above requirements, subject to the following measures being undertaken:

- o Careful consideration being given to the perceived bulk and scale of development in the Porongurup landscape;
- o Measures being implemented to minimise the visual and character impacts of the proposed development;
- o Consideration of fire safety issues; and
- o Advertising to surrounding landowners in accordance with the requirements of Shire of Plantagenet Town Planning Scheme No.3.

2.2.3 Outdoor Areas

Outdoor areas enable the enjoyment of the garden surrounds and open space surrounding each of the Porongurup Rural Village lots. For maximum enjoyment and utilisation, these areas should be located on the north side of a house to capture winter sunlight.

Mandatory Requirements:

a) All houses are to be provided with an outdoor living directly accessible from a Habitable Room and screened from direct view from the street.

b) Outdoor areas shall be constructed of similar materials and colours to the house.

Recommended Actions:

i) The main outdoor living area should be located on the northern side of the house where this is practicable when considering the internal layout, orientation and topography of the land.

ii) Covered areas should be designed to allow winter sun access, such as through the use of louvers which can be closed during summer.

2.2.4 Roofs

The roof of a house is not only the crowning feature of the property, but also defines the bulk of the building and overall perception within the development. Within the Porongurup Rural Village, 'traditional' pitched roof designs are generally encouraged to complement the character of the existing development and to maximise energy efficiency, as shown in **Figures 10 and 11.**

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Figure 10: Traditional 'Colorbond' custom orb roof (Image Courtesy of riseaboveroofing.com.au)

Figure 11: Historic House with Iron Roof (Image Courtesy of davidsanger.com)

Roof design also need to consider environmental qualities, given the roof space can be one of the key factors in how efficiently the temperature in a house is moderated. Roof insulation through a variety of methods, including green roof design (vegetation) can be considered to ensure the performance of the roof space in a sustainable manner.

Mandatory Requirements:

a) All houses must be provided with a north facing roof slope to allow for the installation of solar hot water or photovoltaic cells.

b) Tiled roofs are not permitted within the Porongurup Rural Village.

Recommended Actions:

i) Traditional roof pitches and designs will be encouraged to be utilised for development in the Porongurup Rural Village to complement the character of existing development.

ii) The use of green (planted) roof designs or other form of sustainable roof design will be favourably considered by the Council.

2.2.5 Carports/Garages/Sheds

Intensified development can often result in the dominance of the garage structure in the streetscape. This reduces the lot frontage available for passive surveillance of the street, but also the perception that the car dominates the lifestyle and habits of residents in the development.

Whilst the use of the car within the Porongurup Rural Village for local transport is discouraged, it will be essential that residents can utilise private vehicle transport.

The Design Guidelines seek to minimise the impact this has on the design of houses and the streetscape for the village.

Figure 12: Freestanding Carport using lightweight materials to reduce the bulk (Image Courtesy of shedexperts.com.au)

Mandatory Requirements:

a) Garages/carports are to be set behind the front line of the house.

b) Garage doors are not to take up more than 40% of the elevation of a dwelling on its primary road frontage.

c) Garage doors are to match/complement the colour palette proposed for the house.

d) Sheds are to match/complement the colour of the main dwelling.

Recommended Actions:

i) Where possible, the carport or garage should be located on the portion of the property closest to the street frontage, to minimise the need for driveway construction.

ii) Where possible, the use of a single-width garage door or carport will be supported.

iii) It is encouraged that the carport/garage is contained under the same roof as the house.

2.3 Building Colours and Materials

The choice of colours and materials is of critical importance in setting the character of an area. The rural nature of the Porongurup Rural Village dictates that materials and colours reflect rural buildings rather than contemporary urban trends. Therefore, the use of alterative materials to brick will be encouraged in the Porongurup Rural Village. Where brick is used, the colours and texture of the brick will be required to complement the rural nature of the locality. The use of roofing tiles is also not encouraged as metal roofing materials are more widely found in Porongurup.

The object of the materials and colour guidelines is to ensure that buildings a complementary to the rural landscape whilst maintaining a wide choice to the individual landowner.

The predominant landscape colours are earth tones (dark reds, browns and greys) and the bushland (dull greens and dark green-greys). It is this palette that forms the basis for buildings within the Porongurup Rural Village.

Due to the Porongurup Rural Village being easily seen from lookouts in the National Park, it is vital that reflective and colours and materials are avoided on the sides of the hill in the Residential, Large Residential and Rural Residential Precincts.

Examples of the types and colours of material encouraged to be used in the Porongurup Rural Village are demonstrated in **Figures 13, 14 and 15.**

Figure 13: Examples of Wall Materials and Colours (natural tones are encouraged). Clockwise from top left: wood panelling, rammed earth, natural coloured bricks and granite.

Figure 14: Examples of Roof Colours (natural tones are encouraged, incorporating deep reds, bush greens and dark greys).

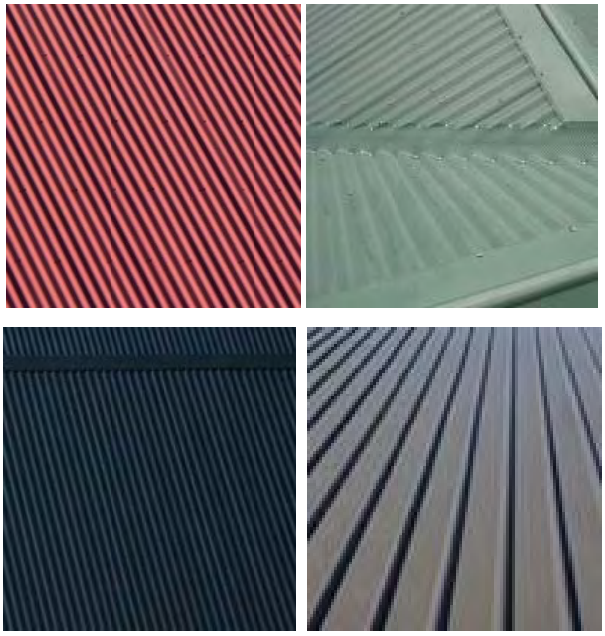
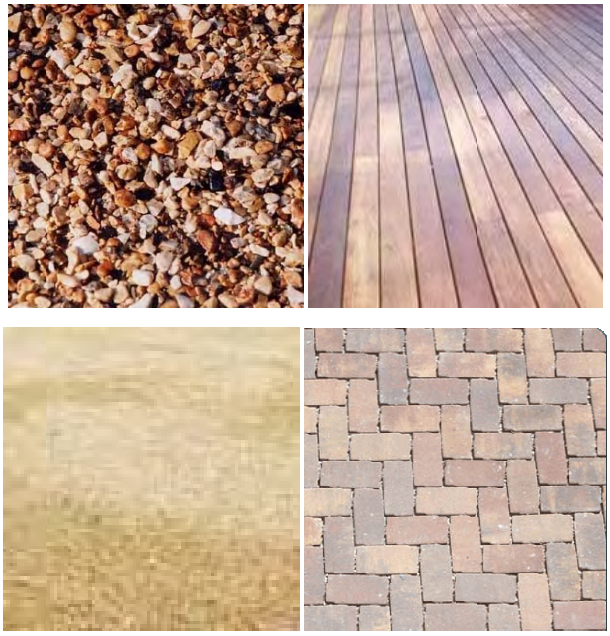


Figure 15: Examples of outdoor surfaces that reduce visual impact and allow water permeability to reduce run off, clockwise from top left: River stones, timber decking, permeable brick and concrete pavers and stabilised gravel.



Mandatory Requirements:

a) Use of reflective materials or colours is not permitted.

b) Colours and materials are to be selected on the grounds of the ability to blend into the surrounding landscape, with a preference for earth and bush tones (dark reds, browns, greys and greens).

c) The use of roofing tiles (clay or cement) is not permitted unless approved by Council and only after the comments of surrounding landowners has been sought and taken into account by Council.

d) Council is to approve of the materials and colours to be used on any building or groups of buildings prior to construction to ensure these are appropriate.

e) Outbuildings (sheds and workshops) and rainwater tanks are to match/complement the colour of the main dwelling.

f) Hard surfaces, such as paving and driveways to utilise permeable surfaces with natural colours, such as stabilised gravel, permeable pavers or timber decking.

Recommended Actions:

i) The use of local materials, such as stone, timber and gravel, is encouraged.

ii) Alternative cladding materials to face brick are encouraged.

2.4 Streetscape and Landscaping

2.4.1 Streetscape

Streetscape and the enjoyment of the public realm are largely dependent upon the development that surrounds the public realm. With the exception of street lighting, road pavement, infrastructure and landscaping, the street environment is a void space which is framed by the development on overlooking lots. The quality of this development and the achievement of certain objectives on adjacent housing can vastly improve the streetscape experience.

One of the key issues with streetscape is the perception of safety. This can encourage or discourage residents to utilise the street space. Passive surveillance of the public realm adds to the perception and feeling of safety in the community, encouraging residents to use the street proactively, gaining social and health benefits and adding to the sense of community and security. Development that encourages the passive surveillance of the public realm will be encouraged in the Porongurup Rural Village.

Figure 16: Streetscape example where houses are consistently setback and all dwellings overlook streetscape (Image Courtesy of WAPC)

Mandatory Requirements:

- Houses are to be orientated to provide visual surveillance of the public realm.
- At least one habitable room window is to be located overlooking the street.

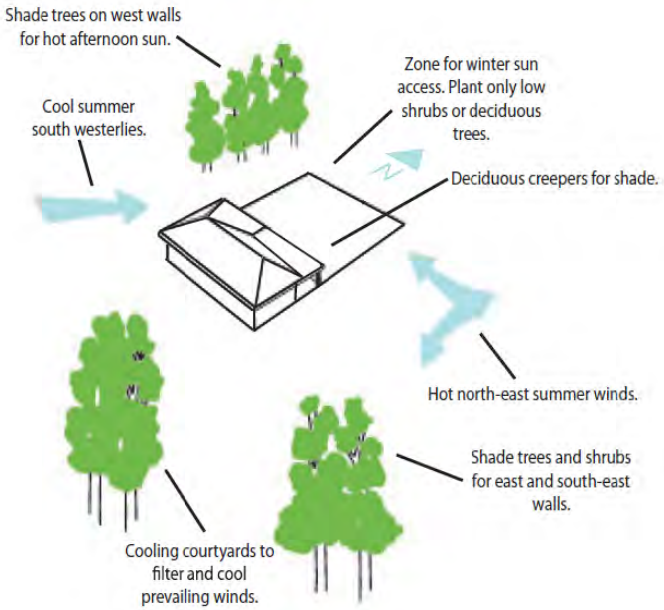
2.4.2 Landscaping and House Surrounds

Landscaping and house surrounds refers to the garden and landscaping elements of the property that characterise the development. The development of the Porongurup Rural Village aims to ensure that some revegetation, particularly of pastured areas, result from future development.

As shown in **Figure 17**, landscaping can also have benefits in the moderation of the house climate. The use of deciduous plants and trees, to absorb summer heat, as well as the placement of trees to cool breeze, can reduce the need for artificial cooling or remove the need altogether. In winter, the placement of deciduous trees can allow sunlight penetration to warm thermal mass in the house.

The development of large irrigated lawn areas will be generally discouraged due to the associated use of water and requirement for additional soil enhancement.

Figure 17: Landscaping benefits to house climate moderation (Image Courtesy of City of Cockburn)



Mandatory Requirements:

a) Maximum of 100m² of reticulated lawn or grass area per house.

b) Only local species to be planted on Bush Lots outside the building envelope area.

c) Revegetation of former pasture areas with local tree species at a minimum rate of 1 tree for every 500m² of lot area, or part thereof. Trees to be located so as not to increase the bush fire risk of the house or neighbouring houses.

d) No driveway shall be wider than 5m, unless where entering a carport or garage (not inclusive of any truncations used onto roadways).

e) Boundary fencing (except for Bush Lots) to be open fencing types, such as:
   - Post and wire;
   - Open timber picket; and
   - Post and rail.

Recommended Actions:

i) Drip irrigation and sub-surface reticulation is recommended. The use of surface sprinklers is not encouraged.

ii) Use of deciduous trees surrounding the northern side of the house is recommended to provide additional shade during summer months.

iii) Gardens using non-local plants should be limited to the immediate surrounds of the house.

3 SITE-SPECIFIC DESIGN GUIDELINES

In addition to the General Design Guidelines, there are a number that affect certain parts of the Porongurup Rural Village. This has been done so that particular areas can reflect the nature of the immediate surrounds.

The site-specific guidelines are intended to supplement the general guidelines outlined in **Section 2**. Where a site-specific guideline conflicts with a standard guideline, the site-specific guideline will prevail.

3.1 Karribank Enclave Design Guidelines

The development of the Karribank Enclave is focused on the principles of protecting the heritage integrity of the site. Development will be required to be consistent with the style of development that has already occurred within the enclave, particularly Karribank Lodge and its surrounding buildings.

Additional Requirements:

a) These additional requirements do not apply to the 2,000m² residential lots to be created over 'Lot C' as shown on the Karribank Enclave Plan.

b) All new buildings within the Karribank Enclave are to be located within the defined home sites.

c) Gross floor area of each dwelling is to be no greater than 180m², inclusive of any covered outdoor living area.

d) All roofs are to be red 'Colorbond' of the same or similar colour used on the Karribank Lodge buildings.

e) External walls are to use light colours to complement the Karribank Lodge buildings. Buildings can use a wide variety of wall materials as used in the existing buildings.

f) Verandahs and patios are to be of lightweight construction using a simple skillion roof design.

g) Use of face brick (i.e. bricks that have not been rendered and painted) is not permitted.

h) Carports are to be single width only with double carports only permitted in tandem form) and constructed in lightweight materials.

i) Garages are not permitted.

j) Sheds are to be a maximum of 30m² and have a wall height of no more than 2.1m.

k) Privacy fencing is to be limited to a private open space area of no more than 50m².

l) Demarcation of home site boundaries is to be by landscaping.

m) Driveways are to be of the same material as the common property driveways and no wider than 3m.

n) Rainwater tanks to be located behind the house and coloured to complement the house.

o) The use of vegetation to screen sheds, water tanks and utility areas is recommended.

p) Common property areas are to be maintained in an open grassed state to maintain the current visual cues of the site.

Figure 18: Historical view of Karribank showing the use of simple building designs and differing orientations.

Figure 19: Current day view of Karribank Lodge showing the use of red tin roofing and pale wall colours.

Figure 20: Example of a small Karribank cottage using painted masonry walls and red tin roof with a simple cantilevered verandah.

3.1.1 Mayfield Enclave Design Guidelines

The Mayfield Enclave is well screened from Porongurup Road by the existing plantation and is located low in the landscape. This allows for the development guidelines to be less rigorous than the Karribank Enclave. However, there is a need to address the particular characteristics of the Enclave with the following specific design guidelines:

Additional Requirements:

a) All new buildings within the Mayfield Enclave are to be located within the defined home sites.

b) Gross floor area of each dwelling is to be no greater than 200m², inclusive of covered outdoor areas.

c) Carports are to be single width only with double carports only permitted in tandem form) and constructed in lightweight materials.

d) Garages are not permitted.

e) Sheds are to be a maximum of 30m² and have a wall height of no more than 2.1m.

f) Privacy fencing is to be limited to a private open space area of no more than 50m².

g) Demarcation of home site boundaries is to be by landscaping.

h) Driveways are to be of the same material as the common property driveways and no wider than 3m.

i) Rainwater tanks to be located behind the house and coloured to complement the house.

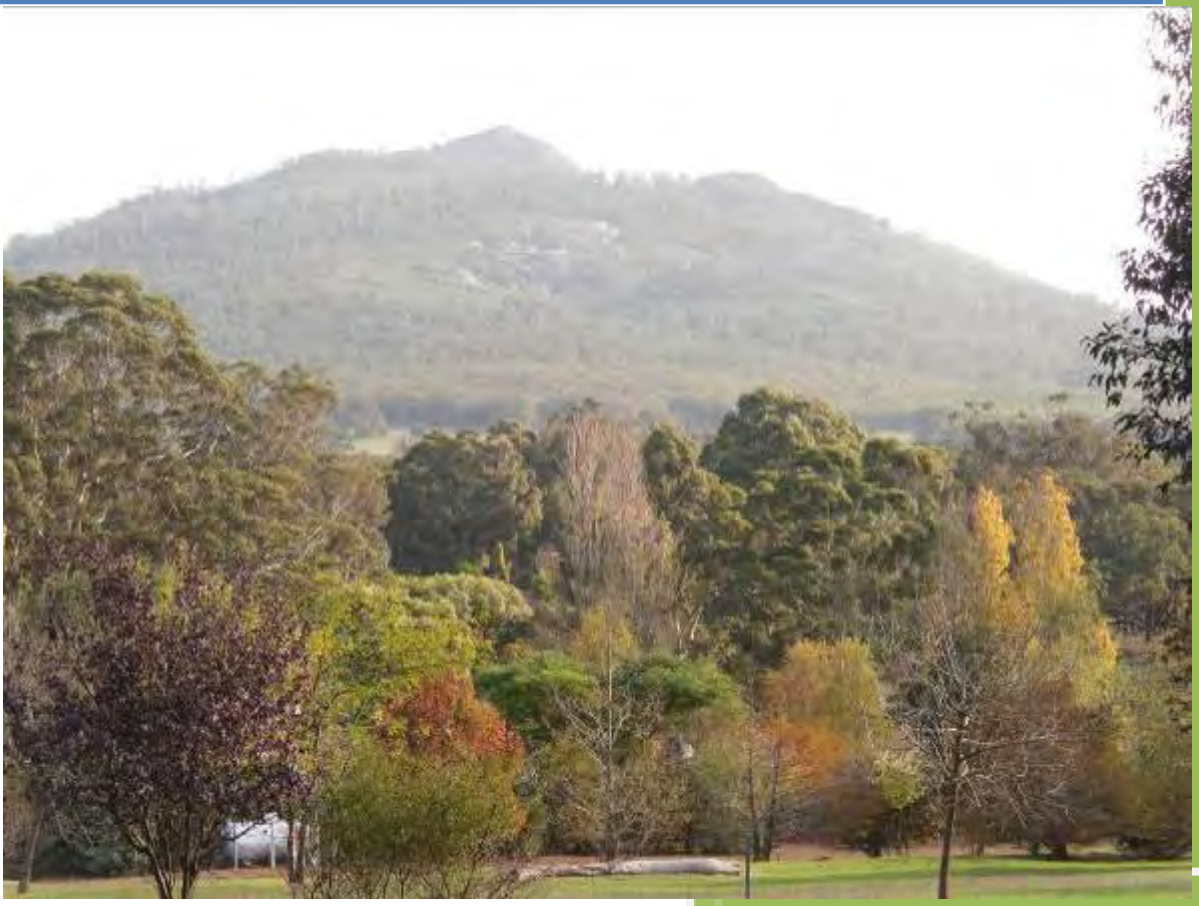
j) The use of vegetation to screen sheds, water tanks and utility areas is recommended.

APPENDIX E

PORONGURUP RURAL VILLAGE
ENVIRONMENTAL MANAGEMENT STRATEGY

Porongurup Rural Village Porongurup WA

Environmental Management Strategy



Kathryn Kinnear

Bio Diverse Solutions

17/8/2011

CONTENTS

APPENDICES

1. Executive Summary

This Environmental Management Strategy has been prepared to support the Porongurup Rural Village Structure Plan and Scheme Amendment No. 49 to Shire of Plantagenet Town Planning Scheme No. 3. Amendment No.49 proposes to rezone Lots 1, and 1664 Boxhill Road and Lots 5 and 11 Mount Barker – Porongurup Road, Porongurup from Rural to a zoning that will allow for the staged development of the Porongurup Rural Village. The Structure Plan forms part of the Amendment No. 49 and will identify the location of areas for residential, rural residential and tourist accommodation development as well as set aside areas for public open space, foreshore protection and community facilities.

The Environmental Management Strategy outlines possible areas of concern and management actions specifically in regards to:

- Effluent Disposal;
- Storm Water Management;
- Fire Management;
- Foreshore Management, and
- Land Capability.

Recommendations for sustainable management have been addressed within this document which updates previous investigations and reporting undertaken by Opus Consultants and Coffey Environments in 2007. Recommendations, Stakeholders and Planning Considerations are summarised in Table 7 Page 37 of this document.

The development of the Porongurup Precinct area can be undertaken in a means which meets ecological sustainability, water balance, fire management, foreshore and land capability acceptable performance criteria as outlined by government agency guidelines and policies. Detailed documentation should be compiled prior to construction in regards to Stormwater Management (Integrated Urban Water Management Plan), revegetation strategies within the foreshore area and an Environmental Management Plan (pre, during and post construction activities/responsibilities). This detailed documentation should reflect the specific management actions required to undertake construction activities in an environmentally sustainable manner. The Fire Management Plan prepared by Opus in 2007 requires minor updating prior to lodgement with prospective land owners.

Government agencies comments regarding previous plans has been incorporated into this strategy to satisfy any concerns regarding the development of the Porongurup Precinct area. Detailed engineering designs are yet to be developed and shall be submitted to the government agencies for approval with accompanying information (i.e. stormwater calculations and rational, revegetation planting in foreshore).

This strategy confirms that the performance criteria contained in the various government agency documents and guidelines:

1. Will be satisfied in development of the Porongurup Village (Amendment No. 49); and
2. Are capable of being met with further detailed planning and design of any future proposed rural living type subdivision development within the proposed Porongurup Rural Village Precinct Area.

2. Introduction

Bio Diverse Solutions (Environmental Consultant) was commissioned to prepare an Environmental Management Strategy (EMS) of a proposed development at Porongurup Rural Village Precinct, Porongurup WA. The EMS describes the pre-development landscape and gives recommendations of strategies to be implemented for any future subdivision development of the area. This document outlines current best practise, aligns to government agency policy and legislation, outlining environmental management strategies in regards to:

- Effluent Disposal (Section 4);
- Local Water Management (Section 7);
- Fire Management (Section 8);
- Foreshore Management (Section 9), and
- Land Capability (Section 10).

This plan includes references to previous studies undertaken by other consultants and these reports should be read in conjunction with this strategy.

2.1. Statutory conditions

This Environmental Management Strategy has been prepared to support the Porongurup Rural Village Structure Plan and Scheme Amendment No. 49 to Shire of Plantagenet Town Planning Scheme No. 3. Amendment No.49 proposes to rezone Lots 1, and 1664 Boxhill Road and Lots 5 and 11 Mount Barker – Porongurup Road, Porongurup from Rural to a zoning that will allow for the staged development of the Porongurup Rural Village. The Structure Plan forms part of the Amendment No. 49 and will identify the location of areas for residential, rural residential and tourist accommodation development as well as set aside areas for public open space, foreshore protection and community facilities.

Once Amendment No.49 and the Structure Plan are finalised, the future development will be controlled by a range of statutory mechanisms, including the Town Planning Scheme, Development Guidelines and relevant state government planning, environmental and servicing requirements.

Although this EMS relates primarily to the area subject to Amendment No. 49, it provides environmental management principles that can be used for other areas in the Porongurup Rural Village Precinct.

2.2. Objectives

The objectives of this EMS are to:

- Align activities to concerns as outlined by the local community, Department of Planning (DoP) and the Shire of Plantagenet;
- Document techniques to manage the construction of the Porongurup Rural Village to meet ecologically sustainable targets pre, during and post construction;
- Implement environmental indicators to monitor outcomes from the development process;
- Identify roles and obligations of stakeholders and responsibilities;
- Ensure all activities are aligned to current best practice, legislation and guidelines;

- Document management procedures for the implementation of development activities; and
- Update information from previous investigations and reports in 2007.

2.3. Alignment to Legislation, Policy and Guidelines

In assessing the subject area, Bio Diverse Solutions has prepared this report aligned to the following legislation:

- State Planning Commission, Land Capability Assessment for Local Rural Strategies (1989)
- *Aboriginal Heritage Act* (1972)
- *Health Act (1911)* and draft *Health Act (2008)*
- *Agriculture and Related Resources Protection Act* 1976
- *Environmental Protection Act* 1986
- *Environmental Protection and Biodiversity Conservation Act 1999*
- Environmental Protection Authority (EPA) (2005) *Environmental Guidance for Planning and Development* Draft Guidance Statement No 33 June 2005
- *Environmental Protection (Clearing Native Vegetation) Regulations*
- Environmental Weeds Strategy for Western Australia 1999
- *Wildlife Conservation Act* 1950
- *CALM Act 1980*
- Country Sewerage Policy (Draft) 2003
- *Country Areas Water Supply Act 1947*
- AS1547-2000 On-site Effluent Disposal
- Planning for Bushfire Protection Guidelines Part 2 (2010)
- Shire of Plantagenet Fire Control Information
- AS 3959-2009 Construction of Buildings in Bushfire Prone Areas
- Department of Water Stormwater Management Manual (2007)
- Department of Water Guidance on developing Local Water Management Strategies

2.4. Relation to other plans and documents

Other plans which have been prepared for implementation during the planning subdivision approval process for the proposed development include:

- Stormwater Concept Plan (Opus 2007);
- Fire Management Plan (Opus 2007);

- Effluent Disposal Investigation (Coffey Environments 2007);
- Shire of Plantagenet Town Planning Scheme No. 3 Amendment No. 49 (Harley Global 2008); and
- Porongurup Rural Village Structure Plan (Harley Global 2010).

Components of this EMS make specific referral to these documents; it is therefore recommended that these documents are referred to during the implementation of this EMS.

2.5. Development of Porongurup Village

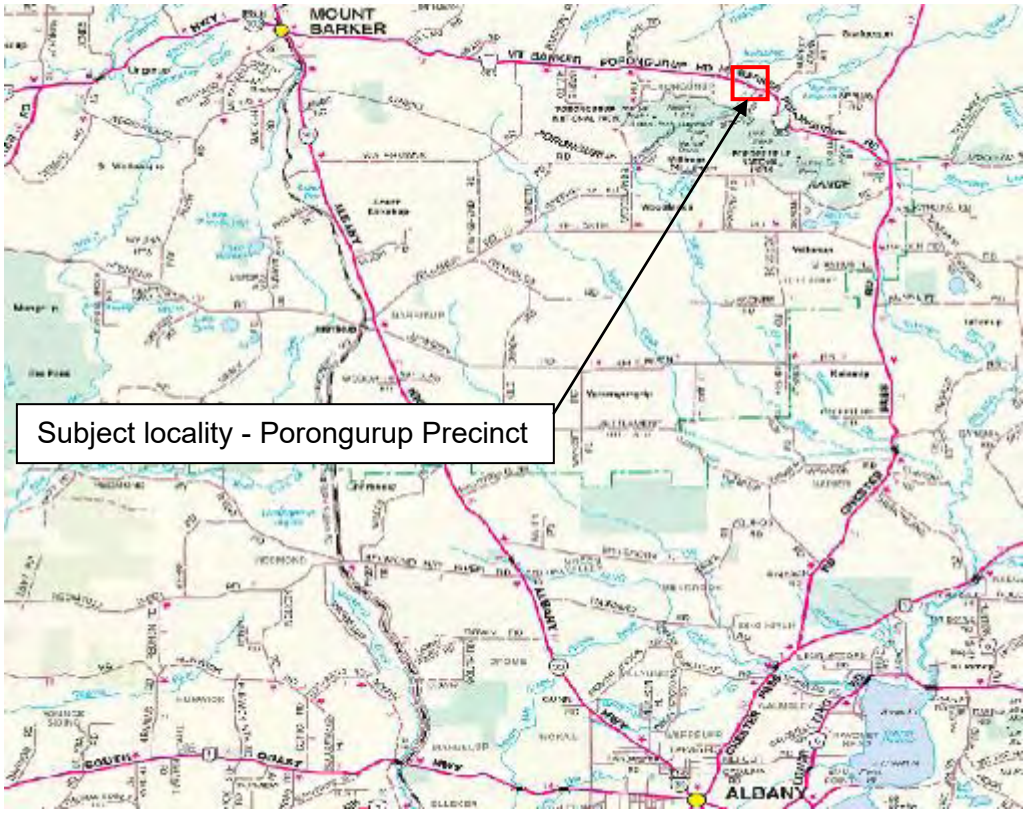
The Porongurup Precinct area aims to provide consolidation of a Village Centre and to provide for residential and rural residential development in the immediate surrounds while ensuring the cultural heritage, landscape values and environmental values of the locality are respected. The Porongurup Precinct area is outlined in Appendix A.

It is proposed to develop the site into a Village Centre with residential area, Public Open Spaces and community facilities. The development of this area will require Environmental Management Strategies to be employed to ensure sustainable use of the site. A brief Land Capability has been compiled from the background investigations undertaken from Opus Consultants (2007), Coffey Environments (2007) and Bio Diverse Solutions (2010).

3. Pre-development Site Details

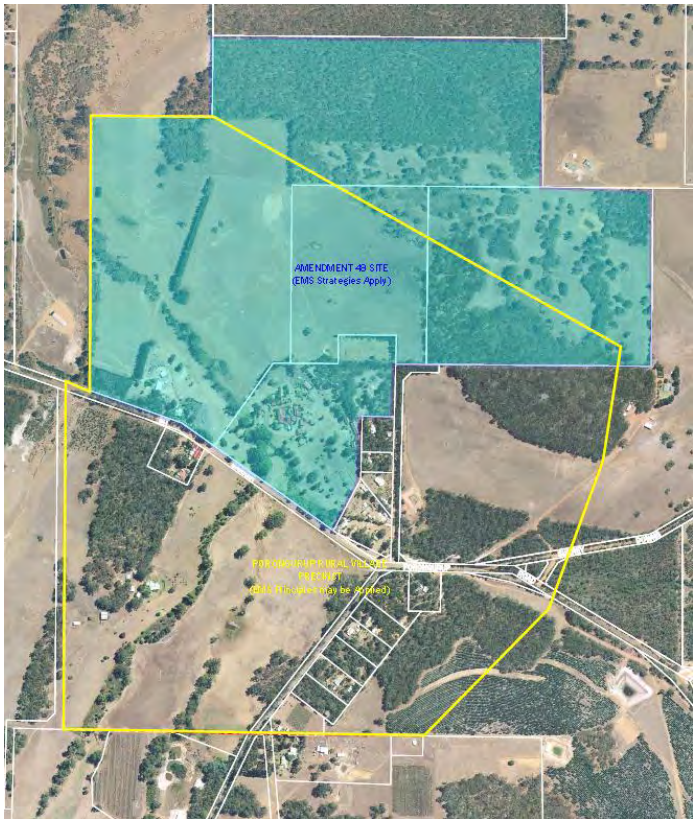
The subject site is located 42 km north of Albany and 22km east of Mount Barker in the Porongurup Locality in the municipality of the Shire of Plantagenet. The Porongurup Rural Village is approximately 213ha in total and is situated in a rural landscape. The area subject to Amendment No 49 is approximately 116ha. Please refer to Figure 1 below and Site Aerial (Figure 2) over the page.

Figure 1 – Subject site locality



This EMS relates primarily to the Amendment No. 49 area as shown in blue on Figure 2 (over the page) and more generally to the remainder of the Porongurup Rural Village Precinct (shown in yellow on Figure 2). Where reference is made to the „subject site", this refers to the Amendment No. 49 area.

Figure 2: Site Map showing the relationship between the Porongurup Rural Village Precinct and the Amendment No. 49 site which forms the focus of this EMS.



3.1. Current site land use

The subject site is currently rural land holdings with adjacent Shop/café, heritage precinct and Caravan Park. Approximately three quarters of the subject site is cleared paddocks used for grazing of sheep and cattle.

Rural land Use

The subject area has been grazed for some time (pers Comm.B.Bird 2010), predominantly with sheep, although other agricultural land uses have occurred historically including pasture, potato farming (on northern side of ridge north east of subject area), cropping and cattle/sheep grazing. The rural landscape was predominantly cleared in the 30"s (pers Comms B.Bird 2010), with families settling to the area for agricultural pursuits. Please refer to Photograph 1 and 2 below.

Photograph 1 – View of rural landscape

Photograph 2 – View of area on top of dominant hill (north east of subject site)

Heritage Precinct

The heritage in the subject site revolves around the Porongurup tearooms, the historic Karribank Lodge and Bolganup Farm and Homestead. Karribank Lodge was established in the early 1900"s as a dairy farm until the mid 1930"s when it became a guest house. The guest house provided accommodation, tennis courts, swimming pool, golf course and other site recreation activites. Some of the original buildings are listed with the Heritage Council of WA as heritage buildings, and now continue to be used for accomodation for visitors to the area. The swimming pool has been filled in and the tennis courts no longer exist within the curent site. Please refer to photographs 3 and 4 below.

Photograph 3 – View of heritage building within Karribank Lodge Accommodation area

Photograph 4 – View of one of the accommodation quarters.

3.2. Adjacent Land Uses

The Porongurup National Park is located approximately 2.5km to the south of the subject area, the park is vested in the Conservation Commission of Western Australia and managed by the Department of Environment and Conservation. The Porongurup and Stirling Range National Parks together contain the most significant mountain ranges in southern Western Australia and are registered on the National Estate as important elements in the landscape over a large area. Porongurup National Park is predominantly native forest within which current recreation and conservation activities are supported. (DoW 2007). The Bolganup Dam lies within the Porongurup National Park and supplies water to the Porongurup Settlement.

Adjacent private properties are rural landuse with industries such as grazing, dairy, sheep and crop farming. Perrenial Horticulture is also prominent in the area with the Porongurups known for its wineries and vineyards. Tourism is highest during the summer months with annual visitation to the Porongurup National Park peaking in School Holiday periods. Within the subject area there is a Café, caravan park and Lodge accomodation which service the tourism industry.

3.3. Climate

Mount Barker (22km away) has a Mediterranean-type climate with warm, dry summers and cool, wet winters. It is subject to wide variations in the weather, from hot summer days when northerly winds arrive from the interior of the state, to cold, wet winter days with southerly winds from the Southern Ocean.

A major factor influencing Mount Barker‟s climate is the Southern Ocean 40km to the south. The ocean imparts a moderating influence via sea breezes in the warmer months and more generally through the effects of a relatively mild and moist airmass at any time of the year. Another significant factor is the position of a band of high pressure known as the sub-tropical ridge, and seasonal variations are mainly due to the north-south movement of this ridge.

An easterly broadscale flow prevails in summer when the ridge is south of the State, however the movement of high pressure cells from west to east along this ridge brings a commonly repeated pattern of wind changes to south Shire of Plantagenetst locations. Mount Barker‟s southern aspect means that the progression of winds from east through north, west, south and returning to east over periods of several days to a week or more during summer can bring a large variation in weather from fine and mild, to hot with thundery showers, to cool and cloudy. When the ridge moves north in the cooler months, the moisture-laden westerly winds south of the ridge deliver much of Mount Barker‟s annual rainfall. Atmospheric disturbances embedded in the westerlies are common in the winter months with sometimes several cold fronts passing through southwest WA in a week.

Rainfall

The average rainfall for Mount Barker is approximately 734mm with the majority of this occuring during the winter months between June to August. Please refer to Bureau of Meteorology (BOM) Climate rainfall Graphs Figure 3 below and Figure 4 over the page.

Figure 3 Annual Rainfall Mount Barker (BoM 2010)

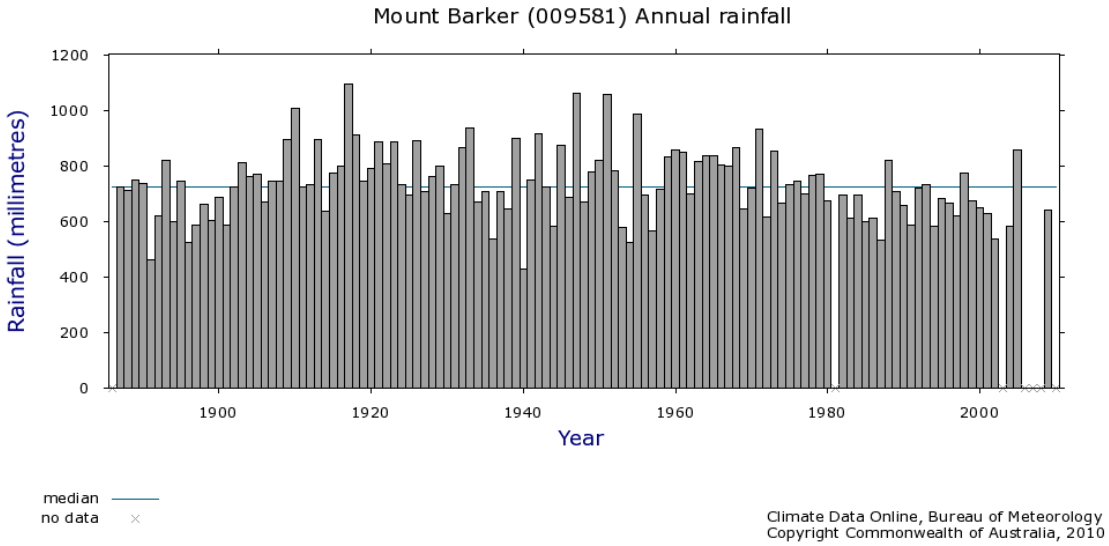
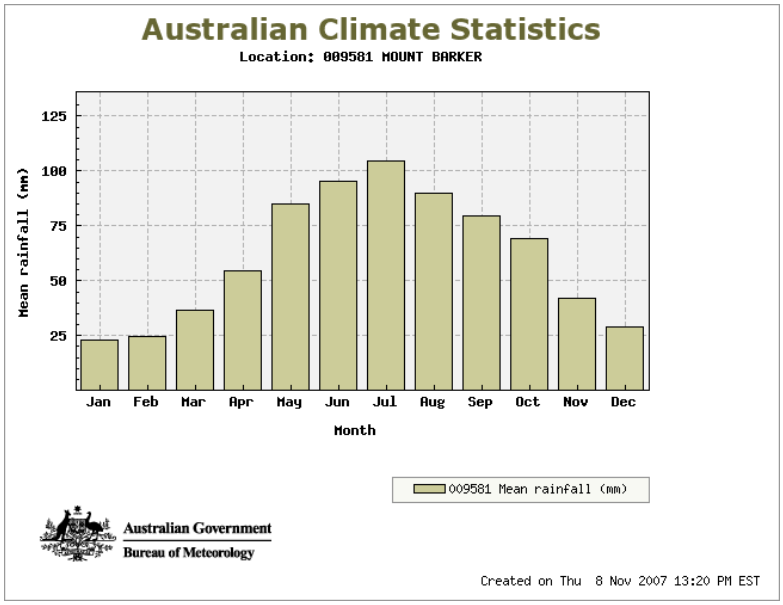


Figure 4 – Mean Rainfall Mount Barker

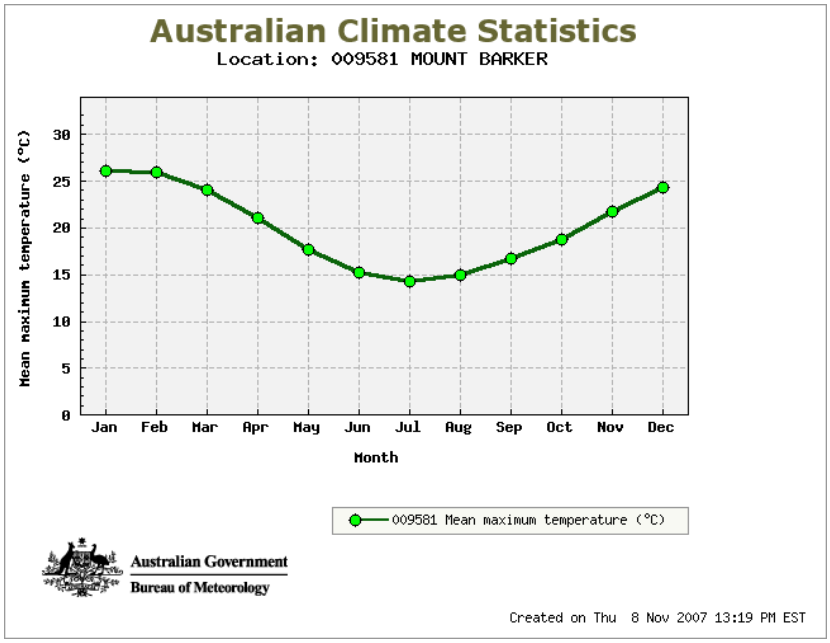


Temperatures

January and February maximum temperatures average 26°C, although temperatures above 35°C sometimes occur when hot, dry northerly winds arrive from the interior of WA. Overnight minima also peak in January and February at a mild 15°C, on average.

Winter daily maximum temperatures average approximately 16°C, while the average minimum is approximately 8°C in July and August. Daily minimum temperatures below 5°C can be expected about once or twice a month in winter. Please refer to Temperature data from BoM Figure 5.

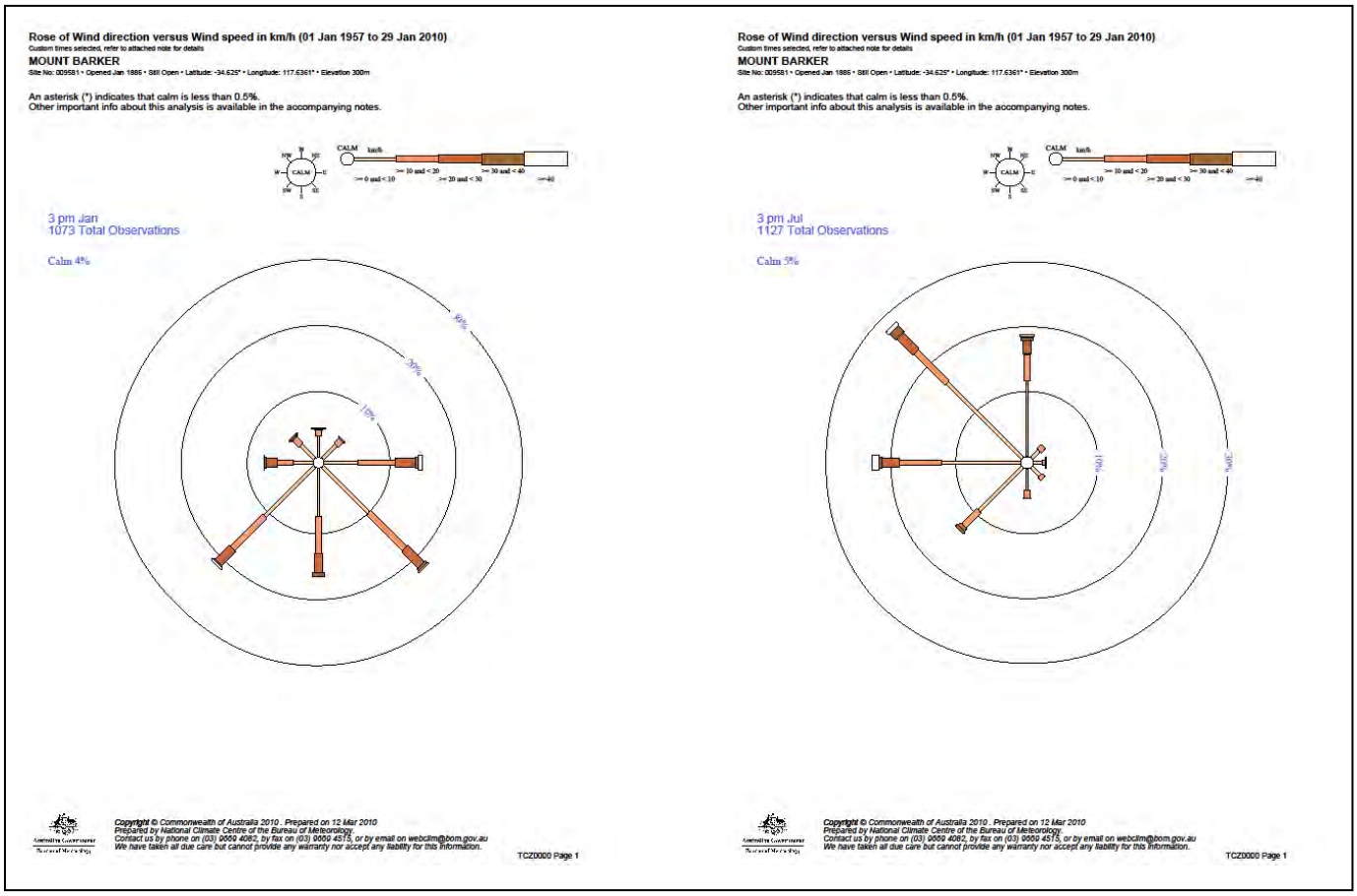
Figure 5 – Average Temperatures Mount Barker



Winds

Mount Barker experiences quite a varied wind climate with a bias toward an easterly wind component in summer and a westerly component in winter. On average, the windiest part of the day during winter is the morning and in summer is the afternoon. Spring and summer afternoon sea breezes are regularly experienced from directions from the southwest through to the east, however sea breezes from the southeast or east are most common. Summer sea breezes are frequently quite fresh and sometimes reach 25 knots (46 km/h) or more. Late autumn, winter and early spring see regular northwesterly morning winds due to a combination of the sub-tropical ridge being located to the north of Mount Barker, with a high centre over the continent, and a land-breeze effect. Cold fronts with winter westerlies are regular during this period, and bring strong to gale force winds at times. Please refer to BOM Wind rose below for Summer and Winter, Figure 6.

Figure 6 – BOM Wind Rose, Predominant Winds Summer and Winter Mount Barker



3.4. Topography and Slope

The subject area has a prominent hill in the north east of the subject area with a south/west facing hillside with the average slope for the site calculated to be between 5% along the top of ridge and valley floors to steeper slopes being between 8 - 12% along the eastern facing mid slope. Please refer to Soil Landscape Mapping Appendix B. The southern portion of the site is relatively flat calculated to be <5º. The highest point of the subject site is 322m (AHD) grading down to relatively flat valley floor where a creek (Bolganup Creek) meanders through exiting to the west of the property at 255m AHD.

3.5. Geology Site Soils and on-site effluent disposal

Australian Geoscience Mapping indicates the site is from the Cainozoic Period – Laterite, massive and pisolitic includes both insitu and clastic types interbedded with sandstone; and along the Bolganup

Creek area Clay silt, sand and gravel in watercourses. The dominant granite hill within the north eastern area of the site forms part of the Stirling Range formation from the Protereozoic Period – porphytic, biotite, granite and adamelellite. Site soil testing was undertaken by Coffey Environments in 2007 (Coffey 2007) on the area subject to Amendment No.49. This soil testing confirmed the site to be 4 broad categories:

- Sandy loam over clay over granite rock
- Sand over clay
- Sand over gravel over clay
- Sandy Silt over sand over clay with water table present

Assessment of the soil testing undertaken by Coffey Environments (2007), site investigations (vegetation assessment) undertaken by Bio Diverse Solutions and Australian Geological Mapping has lead to these four soil units overlaid across the whole precinct area. Please refer to Appendix B – Soil Landscape Mapping.

Sandy loam over clay over granite rock

This soil unit was generally encountered along the top of the ridge at the highest point of the subject site. Areas of exposed granite rock occur above the soil testing locations and these areas generally support Yate woodlands and low scrub/heath on exposed granite areas. Excavation of these areas would be limited in bare rock areas, with a general site classification (subject to further investigations from Structural Engineers) an *A-Class Site* (*Building Code of Australia 1996 – Volume Two)*.

Onsite effluent disposal will generally be poor in shallow rock areas, however some deep sand/loams are known to occur within this unit as historical farming has included potato growing (Pers comms B.Bird 2010). Yate (*E.Cornuta*) Woodland is dominant in this soil unit suggesting there is areas of soil over rock areas, with the bedrock varying in depths.

Sand over clay

This soil unit generally occurs between the 285 contour and the 265 contour of the precinct. Within this belt there is seepage areas known to the owners of lot 1 and lot 11, and are indicated on the soil mapping (Appendix B). This was not detected in the 2007 soil testing, however there are indications of seepage conditions within the vicinity of the 275m contour with 6 dams located along this contour from surface dam catchments and soaks located around the hill. Consideration of setbacks from housing or septic"s should be given in these areas. Excavation of these areas would be uncomplicated, with a general site classification (subject to further investigations from Structural Engineers) a M-class Site (*Building Code of Australia 1996 – Volume Two)*.

Onsite effluent disposal in this soil type is poor to imperfectly draining, with recommendations for loading rates as per Coffey (2007) report. Consideration should be given to Alternative Treatment Units (ATU"S) with irrigated disposal fields within the lots onto irrigated areas such as orchards or gardens as sands and sandy clays tend to occur within 200-1200mm BGL which can assist with fixing Nitrogen (N) and Phosphorous (P).

Sand over gravel over clay

This soil unit generally occurs within the 265m contour to 250m contour with the gravel layer (200-1100mm) varying in content of sand and clay. This soil type supports the majority of the existing Jarrah/Marri Woodland dominated areas, and is well draining to approximately 1000mm where below this level clays are imperfectly draining. Ease of excavation is high in this area, with a general site classification (subject to further investigations from Structural Engineers) a S to M-class Site (*Building Code of Australia 1996 – Volume Two)* depending on location and depth to clay.

Onsite effluent disposal is well to imperfectly draining, with recommendations for loading rates as per Coffey (2007) report. Consideration should be given to Alternative Treatment Units (ATU"S) with irrigated disposal fields within the lots onto irrigated areas such as orchids or gardens as sands, sandy

gravels and gravelly clays tend to occur within 200-500mm BGL which can assist with fixing Nitrogen (N) and Phosphorous (P).

Sand over Clay with water table present

This soil unit generally occurs along the creekline areas, (consistent with Australian Geological Mapping) with sands from 100mm BGL to 2200mm BGL over clay with water table reached between 1800mm BGL to 2500mm BGL. Water table would be reflective of general drainage to the creekline from groundwater seepage off adjacent slopes. Vegetation reflective of this soil type is Karri/Marri/melaleuca mix depending on depths to water table and clay. Ease of excavation is high in this area, with a general site classification (subject to further investigations from Structural Engineers) a S to M-class Site (*Building Code of Australia 1996 – Volume Two)* depending on location and depth to clay.

Development setbacks apply to the creekline for on-site effluent disposal and due to the well draining nature of these soils. Permeability testing was not undertaken by Coffey in this soil type, generally sands are well draining (AS1547:2000), with the clay layer (underlying) poorly drained.

3.6. Vegetation Assessment

A brief vegetation assessment of remnant bushland was undertaken by Kathryn Kinnear (Bio Diverse Solutions) in May 2010. The subject site supports vegetation types reflective of the underlying soil types, this being Jarrah Marri Woodland along mid slopes, Yate (*E.Cornuta*) Woodland at top of ridge, Karri/Marri/melaleuca mix along creekline and sown pasture.

A full vegetation survey was not undertaken, for the purpose of this EMS the vegetation types have been allocated Four broad categories - Cleared paddock (60%) Yate Woodlands (15%) and Jarrah/marri woodlands (20%) and Karri/marri/melaleuca mix along the creeklines (5%). Please refer to Vegetation Mapping Appendix C.

3.6.1. Cleared Paddock

This forms 60% of the subject site, where the land has been cleared for grazing of domestic animals. Some remnant scattered trees occur through the vegetation type of Jarrah and Marri along slopes and Melaleuca adjacent to creek areas, however is predominantly paddock associated grasses, please refer to Photographs 5 and 6 below and Vegetation and Hydrology Mapping Appendix C.

Photo 5- View of paddock to the south west from remnant vegetation in north of subject site

Photo 6 – View of bare paddock areas, adjacent to the creekline.

This vegetation type is considered to be in a “Completely Degraded” condition: “*The structure of the vegetation is no longer intact and the area is completely or almost completely without native species*” (Keighery, 1994).

3.6.2. Yate Woodlands

This vegetation type forms approximately 15% of the subject site, and is present along the granite ridge in the north east of the subject site (dominant hill). This vegetation type is relatively sparse in understorey and midstorey due to years of grazing. Intermittently within this vegetation type are areas of bare granite rock supporting low shrublands dominated by *Thryptomene* spp. and grassland paddock areas. This vegetation type has been extensively grazed and are considered to be in a *"Degraded"* Condition: *Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management*(Keighery, 1994). Please refer to photograph 7 and 8 below and Vegetation and Hydrology Mapping Appendix C.

Photo 7- View of Yate woodlands on top of ridge in subject area.

Photo 8 - View of Yate woodlands on top of ridge interspersed with *Thryptomene* dominated Shrublands and paddock areas

3.6.3. Karri/Marri/Melaeuca Woodlands

This vegetation type is found in adjacent to the low lying creek area (Bolganup Creek) to the south (central) of the subject site. This vegetation type is predominantly Karri (*E. Diversicolour*), Marri (*Corymbia calophylla*), Paperbarks (*Melaleuca rhaphiophylla), with midstorey species of Callystachis Lanceolata, Taxandria parviceps* understorey species of Bracken *(Pteridium esculentum)*, Periwinkle, Blackberry, Deadly nightshade and *Gahnia trifida.*

This vegetation type has been extensively grazed and are considered to be in a *"Degraded": Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management* (Keighery, 1994). Please refer to Photographs 9 and 10 below and Vegetation and Hydrology Mapping Appendix C.

Photo 9 – View of Karri and weed infested creekline in southern (central) area of site.

Photo 10 – View of creekline western side (eastern side of subject area)

3.6.4. Jarrah/marri Woodlands

This vegetation type generally has overstorey species of Jarrah *(E.Marginata)* and Marri *(C.Calophylla)* mid storey/understorey species of *Xanthorrea preissii, Leucopogon verticillatus, Kunzea recurva, Kennedia coccinea, Dryndra formosa, Hovea elliptica, Hypocalymma robustom*, and *Patersonia occidentalis.* (Photograph 11 and 12 below). The vegetation which has not been recently grazed but possibly logged at some time (pers observations K.Kinnear 2010), and is located in the northern area of subject site. This vegetation type is considered to be *Very Good Condition - Vegetation structure altered, obvious signs of disturbance;* (Keighery, 1994). This vegetation has not been recently grazed and has the ability to provide high levels of biodiversity to the local area.

Remnant vegetation in the paddocks has undergone severe disturbance from grazing with little to no undertstorey or midstorey species, and is classified as *"Completely Degraded*" *Condition:* "*The structure of the vegetation is no longer intact and the area is completely or almost completely without native species*" (Keighery, 1994). Please refer to Photographs 11 and 12 below and Vegetation Mapping Appendix C.

Photograph 11 – View of degraded Jarrah/Marri Woodland, these areas has been grazed.

Photograph 12 – View of ungrazed Jarrah marri Woodlands to the north of the subject site.

3.7. Wildlife Corridors

The vegetation in the north of the subject site (Jarrah/marri woodlands) forms a wider wildlife corridor which could assist with meeting strategies for macro corridor networks as identified in the Western Australian South Coast Macro Corridor Network (DEC, 2007). The containment of this area into conservation covenant or a conservation lot is highly recommended. Revegetation strategies should be aligned along the creek (riparian) areas to assist development of micro ecological corridors linking southern remnant vegetation areas.

3.8. Hydrology and wetlands

The Bolganup Creek enters the subject site from the south and exits along the western boundary of the subject area. The Bolganup Creek is currently dammed (upstream of subject site) as a water supply for the Porongurup area. The Bolganup Creek Catchment Area was proclaimed in 1959 under the *Country Areas Water Supply Act 1947* to ensure protection of the water source for public water supply purposes.

Bolganup Creek Catchment Area lies mostly within the Porongurup National Park; with the subject area outside of the Drinking Water Source Protection Area. The damming of the Bolganup Creek has resulted lower flood events since the advent of the dam with flooding minimal along the banks of the creek during the wettest years (Pers Comms B.Bird).

The Bolganup Creek forms the upper catchment of the Kalgan River, with ecological values associated with riparian vegetation and wildlife regionally important to the community and management of the Kalgan River Catchment.

Surface water flows are from the prominent ridge in the north east to the south west of the subject site these are indicated on the Vegetation and Hydrology Mapping Appendix D.

Groundwater was encountered in test pits adjacent to the creekline in winter conditions, indicating that water drainage at depth is through subsoil movement towards the creekline over time. Riparian vegetation (paperbarks) is prominent along the creek indicating that there is water table at depth for most of the year in shallow sands and clays. Personal communication with the current owner Bill Bird (2010) indicated that there is groundwater seepage under winter conditions mid slope of the dominant hill which should be excluded from any housing development. Please refer to Vegetation and Hydrology Mapping Appendix D.

3.9. Infrastructure

The subject area is serviced by a well formed Shire road from Mount Barker (Porongurup-Mount Barker Road), which along with the road into the Porongurup National Park is bitumen, with minor roads off Porongurup Mount Barker Road with formed gravel roads.

Water is presently available from on-site sources (rainwater) scheme water may be made available from the Bolganup Dam for fire fighting purposes. Further investigations will be required to confirm this.

3.10. Contaminated sites

A Contaminated sites assessment aligned to DEC Guidelines was not undertaken for the purpose of this report. Site assessment revealed there is no underground storage of fuel, minimal use of fertilisers, chemicals etc. associated with the farming practices and therefore a contaminated sites investigation is not warranted.

4. On site effluent disposal

The Draft Country Sewerage Policy (Amended 2003) states the following specific requirements for on-site wastewater disposal.

- *Irrespective of the type of on-site wastewater disposal system proposed, there should be at least 0.5 metres separation between the natural ground surface and the highest known groundwater level;*
- *The site is required to have soil characteristics capable of receiving all wastewater likely to be generated on the site without risk to public health or the environment; and*
- *The natural land slope on which wastewater disposal is to occur shall not exceed a one in five gradient.*

Wastewater System Installation Requirements:

- *The wastewater disposal site should not be subject to inundation or flooding at a probability greater than once in 10 years;*
- *No wastewater system shall be constructed so that effluent or liquid wastes will be discharged into the ground at a distance less than 30 metres from any well, stream or private supplies intended for consumption by humans;*
- *The depth to highest groundwater level from the underside of a septic tank effluent drainage receptacle shall be a minimum of 1.2metres. (For existing developed areas or infill areas a depth to highest known groundwater level may be a minimum of 1.2metres from ground level);*
- *Setbacks, groundwater clearance and installation requirements of systems other than conventional septic tank systems shall comply with any particular treatment relevant to the particular system. These are as required under the Health (Treatment of Sewerage and Disposal of Effluent and Liquid Waste) Regulations 1974, or conditions set by the Executive Director, Public Health.*

Soil testing and Land Capability Assessment was undertaken by Coffey Environments in 2007. Their findings deemed the site suitable for on-site effluent disposal and the use of Alternative Treatment Units (ATU"s). The Amendment 49 area meets the minimum requirements for the Country Sewerage Policy, with probable areas within the wider precinct area capable of on-site effluent disposal subject to further detailed site soil investigations.

Creek areas should be devoid of infrastructure or development with a 30m setbacks (development exclusion zones) and foreshore area to apply. The site soil conditions are such that it is highly recommended that ATU"s should be implemented for individual lots and for group dwellings (i.e. Strata Title using Commercial ATU"s) to be installed with drip irrigation to disposal fields (i.e. orchard buffer plantings). The reasoning for ATU"s at the site is due to clay subsoil"s (i.e. poorly to moderate draining) and risks to groundwater interception at depths over 1.8 m as the proximity decreases to the creekline. The use of ATU"s will substantially reduce any risk to groundwater interception, with site soils conducive to Phosphorous retention (Coffey 2007). Alternative Treatment Units (See Figure 7 page 22) should be installed and maintained as per manufacturer"s directions.

5. Constructability

This report does not include any engineering assessment. The site is generally viewed to have site soils which are conducive to ease of excavation, on-site drainage and foundation stability. The sands would most likely be classified as an *A Class Site* - Most sand and rock sites with little or no ground movement from moisture changes; or an M Class Site - Moderately reactive clay or silt sites which can experience moderate ground movement from moisture changes. Prior to any residential construction, site conditions and structural ratings would need to be confirmed by a suitably qualified structural engineer.

There are areas of sand and gravels which are suitable to be reused as fill where required. Sands should be compacted and free of loose materials and debris through screening prior to compaction.

It is noted that the engineering designs will need to account for the majority of the site topsoil"s being loose sands over slope and that these soil types are susceptible to wind (prevailing south westerly"s) and water erosion and thus will require stabilisation, especially over slopes. It is recommended that that best practice is carried out if the site is developed through use of sediment traps being installed during development, and any cleared areas are stabilised post construction stages. Techniques and management strategies should be documented into a detailed Environmental Management Plan (EMP) prior to commencement of constriction activities.

6. Access and infrastructure

The subject site is proposed to be connected to mains power via the mains located off Porongurup Mount Barker Road. The subject site is accessed via vehicle from Porongurup Mount Barker Road, which connects to Mount Barker in the west and Chesterpass Road south into Albany. These roads are well formed all weather bitumen roads. Access to any potential residential lots is recommended via a 6m surface and 30m road reserves for storm water treatment.

Waterwise initiatives will be implemented at residences. It is proposed that rain water will be sourced for drinking water with scheme water to assist with fire fighting. Landowners should be encouraged to minimise water and fertiliser use on lawns and gardens as per the recommendations of the Water Corporation"s “Waterwise” website:
http://www.watercorporation.com.au/w/waterwise_index.cfm

Rainwater for consumption requires treatment and residents should be referred to the Department of Health Water Quality Guidelines. Untreated rainwater use is supported for non-potable uses such as garden watering, flushing toilets, washing machines and car washing. Water should be captured and re-used where possible for any activities on the residential areas.

Scheme water shall be supplied to augment water supply during drier summer months, and shall be distributed through a reticulated system for fire hydrants to be used for fire management across the subject site.

7. Local Water Management Strategy

The recommended DoW Local Water Management Strategy Guidelines (2010) have been used to compile this section. As per the guideline, for the requirements of "Introduction, Proposed Development and Predevelopment environment" sections please refer to Sections 2 and 3 of this document and the Opus Stormwater Concept Plan (2007). This section updates any new information regarding the site since the stormwater concept plan was developed in 2007.

The Dow have supported the stormwater approach proposed by Opus in 2007, with the following comment:

"The Dow supports this approach [nutrient stripping and sediment retention] and the recommendation that an Urban Water Management Plan is prepared at the subdivision stage in accordance with the principles outlined in the DoW Stormwater Management Manual for WA."

The areas within the precinct plan to the south of Porongurup Mount Barker Road are presently not planned to be developed into rural residential areas by the current owners. Should this situation change then this Local Water Management Strategy would need to be updated to reflect these changes.

7.1. Water Sustainability Initiatives

Please refer to Section 3 of the 2007 Opus Report – Water Sources and Water requirements. The subdivision layout on lots 5 and lot 11 Porongurup Roads are large to incorporate water harvest and reuse on site (min 1500m^2). Households will be required to collect all rainwater for consumption and use through covenanted titles. Federal Government incentives and rebates make the implementation of these strategies more viable in new housing estate than recent times.

The objectives for water quality management include:

- Maintain surface water and ground water quality through the implementation of stormwater treatments on individual lots (rainwater collection and infiltration) and impervious areas (i.e. roads) to be treated through vegetation and buffer areas.
- To ensure that runoff from the 1:1 and 1:10 is contained within the drainage infrastructure network (swales and buffer areas) and treated prior to entering the Bolganup Creek system and the associated foreshore area.
- Discharge of stormwater does not affect the ecological qualities within the site.
- Water should be re-used, conserved or harvested throughout any development of the site.
- Maintain sufficient buffers from development or on-site effluent disposal to sensitive receptors such as the Bolganup Creek.
- Revegetation of Creek areas to assist in future water balance of the site and ecological corridor to adjacent areas.

Table 1 over the page outlines the water sustainability initiative for this development.

Table 1 – Water Sustainability and Efficiency Initiatives

Initiative	Specifications	Recommendations
Mains Potable Water	Not available, only for fire fighting use.	• Implement grey water recycling and rainwater use to be mandatory.
Rain water	An estimated 40% (min) of water usage per household for grey water use and garden use. Some households may have access to dams which could irrigate to garden areas. Use for consumption – to be treated as per Dept of Health guidelines.	• Caveat on households to install rainwater tank and be plumbed into grey water household use and garden use.
On site infiltration and stormwater discharge	Use of rain gardens from stormwater overflow from rainwater tanks, excess stormwater to be directed into below ground infiltration soakwells. Excess from houses to be directed into roadside swales and bio-retention areas in the roadside reserve.	• Households encouraged through subdivision guide plan to install soakwells; • Rain gardens to capture excess roof runoff from impervious areas.
On-site Effluent Disposal	Residents are encouraged to install Alternative Treatment Units (some will be required through caveats) the treated water should be irrigated to orchards, lawns or garden areas for re-use.	• ATU"s recommended for water re-use onto garden areas. • Caveats will be required in lower areas to enforce the installation of ATU.
Water wise gardens and outside usage	Water wise gardens should be able to maintain themselves from natural rainfall. Top up to occur from excess from roof catchment, grey water re-use and ATU irrigation areas.	• Grey water re-use for gardens. • Water wise gardens. • Rain gardens installed for water thirsty areas (excess rainwater used).
Grey Water Use	Not mandated but recommended for less scheme water use per household for garden areas. If well managed could provide for excess water requirements in garden areas.	• Grey water re-use for gardens; not mandated but recommended through guide plan.
Landscaping	POS Landscaping as per Foreshore MP. Low water demand, no reticulation proposed. Revegetation strategies will be applied to foreshore areas and low lying areas for stormwater treatment in bio-retention areas.	• Landscaping plan and a revegetation plan will be required in foreshore area. • Waterwise landscaping on private lots recommended.

7.2. Waste water Management

Waste water from dark water (toilets) will be managed on each residential site through use of ATU"s and septic systems (refer to Coffey Land Capability Assessment for site suitability). It is recommended grey water and treated ATU effluent be irrigated onto garden areas/orchards. As the development is a rural landscape (i.e. the lots are >2000m^2) and site soils are favourable, the site is conducive to all waste water being treated within the boundaries of the lots. The use of grey water re-use will encourage less scheme water use per household.

An example of the use of waste water by an approved Health department ATU system is shown below in Figure 7.

Figure 7 – Aqua-nova Health Dept WA Approved ATU system

The installation of ATU"s and Septic Systems should be to approved Health Department WA Standards and approved by the Shire of Plantagenet prior to installation.

7.3. Stormwater Management Strategy

To enable implementation of Water Sensitive Urban Design principles, planning consideration has been given at Concept design stage to effectively manage road drainage across the site. Please refer to Opus Report (2007). Although the subdivision layout has changed the level of intensity of development (i.e. larger lots proposed in 2010 Structure Plan) has occurred and the amount of impervious areas (i.e. houses and roads) has decreased.

The Stormwater design Concepts (Opus 2007) incorporate:

- Vegetated swales incorporated into the final engineering designs to hold the 1:1 and the 1:10 storm events and reduce the speed of run-off into adjacent areas.
- The individual lots encouraged to undertake on-site infiltration through the use of soak wells where appropriate;
- Use of native endemic plants for road reserve areas and uptake of excess nutrients and slowing sedimentation prior to entering any wetlands;
- Residents are required to install rainwater tanks to utilise rainwater for grey water use and consumption (note when used for consumption then refer to Department of Health Water Quality Guidelines).

In 2010 the following additions for stormwater management are proposed further to the Opus report:

- Buffer areas to the Bolganup Creek system which give areas for stormwater to be dispersed over large areas and treated prior to entering the creek system (Refer to Land Capability Mapping Appendix D).
- Recreation of denuded areas of the Bolganup Creek as living streams with the implementation of revegetation strategies.
- Setbacks from the creek area of a minimum of 30m.
- Larger lots to enable on-site infiltration and stormwater harvesting.
- Where intensity is proposed (i.e. group dwellings), communal infrastructure is implemented for effluent disposal and stormwater management (raingardens etc).
- Roads to follow contours where possible to reduce drainage over slopes.

The Opus report recommendations indicated that predevelopment flows could be managed across the site at the level of intensity proposed at that time (160+lots). The level of intensity of housing (impervious areas) is substantially reduced (120 lots) in 2010 and therefore it is probable that the post development containment of stormwater continues to be viable at the site. Detailed calculations and stormwater management rationale should be compiled when engineering designs are complete and should be approved by the DoW and Shire of Plantagenet at Subdivision Stages.

7.4. Groundwater Management Strategy

Ground water is not proposed to be affected in this development. Further to the 2007 Coffey report, personal communication with the current owner B.Bird (2010) indicated there is a seepage area mid slope of the dominant hill. This area has been shown on the Limitations Mapping Appendix D. This area should not be used for housing development rather detailed engineering designs should incorporate site drainage techniques (i.e. sub soil drainage) if this intercepts any road infrastructure.

Groundwater management will include the following strategies:

- Adequate separation from groundwater resources from the implementation of ATU"s, encouraging re-use of water over orchards, lawn areas etc.
- Not developing areas which are low lying and using winter wet areas as buffers to the creek.
- All stormwater structures are located outside of foreshore areas where ground water is the highest (1.8m).
- No dewatering strategies will be required during development.

7.5. The next Stage - Subdivision and Urban Water Management Plans

Prior to commencing construction the appointed engineer will need to provide to the DoW and Shire of Plantagenet an Integrated Urban Water Management Plan which details storm water designs, calculations and rationale, implementation of the storm water strategies and be aligned to the DoW Stormwater Management Manual for WA. Further site soil investigations may be required along roads to understand any ground water seepage areas (refer to Limitations Mapping Appendix D), a full geotechnical investigation is recommended.

The following should be incorporated into the next stage (Subdivision):

- Subject to approval of the scheme guide plan it will be a requirement of this development to prepare an Integrated Urban Water Management Plan (IUWMP). This will include detailed engineering design on the proposed roads, this will determine the profile of the proposed roadside swales. The exact location of roads should be determined after a sufficient feature survey is undertaken. The roads should be aligned with the contours in order to minimise the disturbance caused by their construction and to minimise the length of road subject to steep gradient.
- The IUWMP and engineering design should consider how the development is to be staged to ensure that adequate stormwater infrastructure and treatment mechanisms are installed within each stage of development.
- The IUWMP should consider for this site recommending an Erosion and Sediment Control plan be undertaken for each stage of construction, to determine how the actual construction activities can be undertaken to minimise potential erosion problems within the site and prevent sediment laden stormwater from entering the existing water bodies, including dams and exiting the site.
- The IUWMP should very carefully consider the volume and velocity of stormwater in all sections of the proposed roadside swales to ensure that adequate protection is provided to prevent scouring from occurring. There exists many engineered options for scour protection that work in varied gradients.
- The protection of the bio-retention gardens needs to be considered at IUWMP stage. These systems need to be protected not only during subdivision construction but during building construction.
- Development of a Foreshore Management Plan and revegetation plan for the protection and enhancement of the creekline, this should include revegetation strategies and be prepared in conjunction with the development of the IUWMP.
- Caveats are issued on the titles for installation of Rainwater tanks at each residence.
- Native endemic plant species are planted in depression areas and along the creekline/foreshore area.

7.6. Monitoring

Predevelopment monitoring is recommended to ensure that any development activity does not impact the water quality of the Bolganup Creek. The site sampling strategy proposed includes collection of the following parameters from the creek and two groundwater monitoring sites this will give an of indication on groundwater conditions:

- Physical Parameters: Including water table depth (ground water sites only), salinity, temperature, Dissolved Oxygen and redox.
- Nutrients – Total N, NH4-N, NO3+NO2-N, Total P, FRP.
- Heavy Metals – Barium, Cadmium, Chromium, Iron, Lead, Molybdenium, Silver, Zinc, Arsenic, Sleenium, and Mercury.
- Faecal coliform – Measured over a 5 day period Coliforms/100ml

Pre-development monitoring should occur in conjunction with the DOW for a two year pre development phase with sampling quarterly. During development, sampling should occur every month or as any incidents occur. Post development monitoring should be reviewed at the completion of the construction phases.

An environmental Officer should be appointed by the developer to ensure all environmental protocols are undertaken. Section 14 outlines the procedure which should be undertaken in the event of any Environmental incidents from the construction phases of subdivision development.

In addition to the activities outlined in the previous section the following table summarises environmental monitoring activities required for sound environmental management of the site during construction, these should be combined into subdivision contractual obligations.

Table 2: Environmental monitoring activities during subdivision

After rain	Inspect all sediment control structures
	Check all drains are free from debris or chemicals (i.e. hydrocarbons)
	Stormwater structures are checked and/or are cleaned out
	Check for erosion after wet periods and winter months
	Ensure drainage structures are working as per design
Monthly	Ensure sediment controls are working appropriately
	Ensure Bio-retention areas are healthy
	Ensure and erosion/mulched areas are maintained
	Ensure public access utilities are in safe working order
	Monitor any revegetation for weeds and species loss
Six monthly	Slashing of environmental weeds and weed works as per the Foreshore Management Plan methodologies.
Quarterly	Stormwater structures are checked and/or cleaned out
	Remove overhanging or unsafe branches (roads, paths)
	Check vehicle access remains to designated roads (especially if staged)
	Check for stagnant water and mosquito infestations
	Check for any degraded areas/erosion
Yearly	Check working condition of roads and access
	Stormwater structures are checked and/or are cleaned out prior to wet seasons
	Check working condition of rock pitching (if any)
	Check working condition of drainage systems and structures

7.7. Implementation

Please refer to Section 11.0 of this document - Implementation and Planning Considerations.

8. Fire Management Strategy

A Fire Management Plan in consultation with Fire and Emergency Services (FESA) has been prepared as part of the Scheme Amendment by Opus Consultants in 2007.

This plan was endorsed by FESA:
"The Fire and Emergency Service Authority of WA commends the content of the fire management Plan included in Appendix D of the Scheme Amendment Management Plan. In addition to those matters already included in the Fire Management Plan, there may be a need to address the inclusion of cul-de-sacs within the development because they do not provide two way access and egress to residents."

Since preparation of this plan, WAPC and FESA have released a 2nd edition of Planning for Bushfire Protection in 2010. This document sets out Performance Criteria and acceptable solutions within subdivision developments, specifically:

- Location
- Vehicular access
- Water
- Siting of development
- Design of development

The fire risk for the subject area has been rated at **Moderate** due to the risk from adjacent areas of fire and ember attack (external risks), the steep slopes of the site and access in fire emergency events. The FMP prepared by Opus in 2007 addresses the Performance Criteria and Acceptable solutions as outlined above, however there are changes to the proposed subdivision layout over the land subject to Amendment 49. An updated Strategic Fire Management Map would need to be prepared to update the Fire Management Plan. If any future subdivision was proposed for other areas withihn the Porongurup Rural Village Precinct then a detailed Fire Management Plan will need to be prepared for these sites.

The revised Structure Plan for the area subject to Amendment 49 allows for:

- 2 way emergency access/egress from Porongurup Mount Barker Road in the south and via a emergency fire access in the north;
- Cul-de-sacs for two way access to residents;
- >100m setback from any bushfire hazard (see Limitations Mapping Appendix D) reducing any requirement to build to AS3959-2009 to a relatively small number of lots;
- As per Planning for Bushfire Protection Edition 2, (WAPC 2010) hydrants every 200m will be implemented as part of the constuction over subject area.

It is therefore recommended:

- A restrictive covenant is placed on each title if a house is located in a fire prone area (ie within 100m of vegetation) indicating to the land owner of their responsibilities under the approved Fire Management Plan;
- Updated information such as AS3959:2009 and Planning for Bushfire Protection 2010 be referred to for Fire Management of the site;
- The Fire Management Mapping in the current Fire Management Plan be updated to reflect the new Structure Plan;
- Where >100m setback from the vegetation cannot be achieved in any future subdivision then a Bushfire Attack Levels (BAL) will apply as per standards outlined in Planning for Bushfire Protection (2010)/AS3959;and

- That residents are provided with the new FESA “Bushfire Preparedness – Prepare. Act. Survive.” booklet. A hard copy of the A4 book “Prepare. Act. Survive” can be found at local Shire Offices or FESA offices, or downloaded off the above web address: http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=430

9. Foreshore Management

A Foreshore Management Plan has been prepared to address planning issues identified within the development of the foreshore area lots 5 and 11 Porongurup Mount Barker Road. Areas to the south of Porongurup Mount Barker Road are not proposed to be developed and thus will remain Status Quo.

9.1. Public Open Space boundary

Public Open Space (POS) is proposed in the foreshore area shown Appendix E. This area has traditionally been used for recreation (golf, swimming pool), with the creekline substantially modified (i.e. water diverted and vegetation cleared) to accommodate recreation activities. This area is proposed to be a mowed parkland which will be used for picnicking, playground area, bird watching and other active open space activities. Please refer to Landscaping and POS concept Plan Appendix E.

9.2. 1:100 year ARI

Detailed design has not been undertaken at this stage. Indication of flood levels from site investigations shown that this site is not subject to severe flooding from the catchment as the main tributary (Bolganup Creek) is dammed.

9.3. Conservation/Resource Enhancement Category wetland values

There are no conservation/Resource Enhancement Category wetlands within the subject area.

9.4. ASS - management of works within foreshore area

The subject site is not in an Acid Sulphate Soil (ASS) Risk area and therefore ASS management is not considered necessary within the scope of this project.

9.5. Identify restoration, revegetation works - species and planting densities.

The Bolganup Creek is proposed to have a “node” of POS and the remainder for the creek foreshore area will be revegetated to restore mid storey and understory species. As there is adequate remnant tree species, it is proposed to restore only the midstorey and understorey species. A program and methodology is proposed below:

9.5.1. Objectives

- To re-instate vegetation to protect the foreshore area along Bolganup Creek within lot 5 and 11 Porongurup Mount Barker Road and ;
- Assist naturally revegetating adjacent areas to return to pre-disturbed state;
- To establish an additional 3.0 hectares of vegetation from direct seeding and brushing which reflects local bushland species with similar composition of understorey and midstorey and (refer to mapping attached);
- To reduce weed invasions and competition of weeds with native species; and
- To assist with on the ground implementation of the revegetation.

9.5.2. Strategies

The following strategies to reach successful revegetation of the creekline/foreshore area will be employed:

1. Remove existing weeds and weed seed bed from the site to ensure there is minimal competition and re-establishment.
2. Spread seed to give mixed and random understory similar to adjacent bushland (seed and species to be defined at a later date by revegetation specialist).
3. Trim adjacent tree/shrub species in seed and lay over revegetation area to give stabilisation and midstorey seed to the site.
4. Maintain site free of stock and monitor weed establishment 6 months and 18 months to ensure colonisation of weeds does not occur.

9.5.3. Methodology

The revegetation methodology is proposed to be undertaken using the following steps:

1. Spray and remove any weeds amongst the creek vegetation.
2. Remove any woody weeds and prepare soil with small machine.
3. Furrow/mound the soil along contours to assist with water harvesting for establishing seeds.
4. Spread seed mix across area.
5. Collect brush from adjacent tree and understorey species lay randomly over the revegetation area in a mixed fashion to stabilise the site and provide seed establishment.
6. Inspect site after first large rainfall event, re-lay any brush where required.
7. Inspect site after 6 months to determine success rate of native seed and any weed establishment. Remove weeds either through selective spraying or hand removal.
8. Inspect site after 18 months to determine success rate of native seed and any weed establishment. Remove weeds either through selective spraying or hand removal.

Please note exact success rate of these species is dependent on environmental factors and degree of animal grazing (feral and native animals i.e. rabbits and kangaroos). It is estimated there will be a 60% success rate of the seed establishment, there may be requirements in 18 months to spread further seed collected from adjacent bushland. This plan and the results on the ground will be reviewed at this time.

It is estimated there will be an 80% success rate of the seed establishment from midstorey species from brushing, there may be requirements in 18 months to spread further brush from adjacent bushland. This plan and the results on the ground will be reviewed at this time.

9.6. Weed types and management program

The following program for weed management should be implemented when the subdivision occurs through provisions in the contractor"s agreement of works.

Table 3 – Weed Management Program

Species		Treatment	Responsibility
Grasses			
Kikuyu	*Pennisetum calndestinum*	Control with herbicides whilst growing.	Spray/ Civil Contractor as required
Pampas grass	*Cortaderis selloana*	remove large plants with backhoe, burn or cover >1m	Civil Contractor as required
Blowfly grass	*Briza maxima*	Hand weed or spraying. Cool burn in late winter to spring before flowering.	Spray/Civil Contractor as required
Flat weed	*Hypochaeris spp*	Hand weeding with weed fork – remove taproot from soil. Mowing ineffective	Spray contractor and Civil contractor
Hare's-tail Grass	*Lagurus ovatus*	Prevent seed set for 2-3 years by the removal of the topsoil through civil works	Spray and Civil
Woody Weeds			
Taylorina	*Psoralea pinnata*	Spray large trees in spring to early summer or fell, slash or doze. Treat seeds in early summer with spraying. Treat new seedlings prompt	Spray and bobcat
Golden wattle	*Acacia longifolia*	Fire not favourable at this site. Spraying (diesel) to lower trunk and/or injection on mature trees. Spraying or wiping on seedlings and juvenile trees.	Contractor, spray contractor, bobcat
Ink weed	*Phytolacca octandra*	Uproot heavy infestations and cut remaining plants 5cm below ground. Spraying is effective.	Spray and civil contractor
Acacia Species	10 Different Eastern States Species	Spray/inject large trees in spring to early summer or fell, slash or doze. Treat seeds in early summer with spraying. Treat new seedlings prompt	Spray and bobcat
Victorian Teatree	*Leptospermum laevigatum*	Slash, feel or bulldoze thickets, burn when dry. Spray regrowth, seedlings can be hand removed	Spray and bobcat
Sweet pittosporum	*Pittosporum undulatum*	Recommended control hand pull seedlings where possible, Spraying (diesel) to lower trunk and/or injection on mature trees. Foliar spray recommended	Spray and civil contractor
Tagasaste	*Chamaecytisus palmensis*	Slash, feel or bulldoze thickets Recommended control hand pull seedlings where possible. Spraying (diesel) to lower trunk and/or injection on mature trees, foliar spray recommended.	Spray and civil contractor
Montpellier Broom	*Genista monspessulana*	Uproot heavy infestations and cut remaining plants 5cm below ground. Spraying is effective.	Spray and bobcat
Myrtle leafed Milkwort	*Polygala myrtifolia*	Spray/inject large trees in spring to early summer or fell, slash or doze. Treat seeds in early summer with spraying. Treat new seedlings prompt.	Spray and bobcat

Species		Treatment	Responsibility
Herbs			
Geranium species		Broad spray	Spray contractor
Bridal creeper	*Asparagus asparagoides*	Hand spray or mist during winter. When stems emerge after spraying retreat or trim these stems and burn the tubers and root system.	Spray Contractor
Watsonia	*Watsonia spp*	Remove by hand and broad spray	Spray contractor/civil works
Arum lily	*Zantedeschia aethiopica*	Spray (effective) plants in late winter until just wet before flowering. Mechanical removal only effective when root matter is completely removed.	Spray Contractor
Night shade	*Solanum nigrum*	Prevent seed set for several years. Hand remove plants before flowering and/or spray during the plant is growing in summer.	Spray contractor
Fleabane	*Conyza species*	Spray in late spring. Hand removal-remove taproot. Introduction of native species which provide shade.	Spray Contractor/Civil works
Agapanthus	*Agapanthus praecox*	Remove by hand, machine and broad spray	Spray contractor/civil works
Cotoneaster	Cotoneaster pannosus	Spray in late spring. Hand removal/mechanical - remove taproot.	Spray Contractor/Civil works
Blackberry and Dog Rose	*Rubus Species*	Three annual summer spray applications when plant is actively growing, repeat as new growth appears	Spray contractor
Dolichos pea	*Dipogon lignosus*	Manual removal not effective, spray infestations in August	Spray contractor
South African Gladiola	*Gladiolus undulatus*	Remove by hand and broad spray	Spray contractor/civil works
Lantana	*Lantana camara*	Spray (effective) plants in late winter until just wet before flowering. Mechanical removal only effective when root matter is completely removed.	Spray Contractor
Periwinkle	*Vinca major*	Mow or cut the vines early to late spring, spray regrowth several times 3months apart, spot spray localised infestations	Spray contractor/civil works

9.7. Bank stability works/erosion control

The predominant soil type in the creekline is sands over clay. Loose sands during revegetation works can be subject to prevailing winds and water erosion. Stabilisation techniques will need to be applied in the subdivision during and post construction of residences (i.e. sediment traps). Mulching of verges or geo-fabrics should be used wherever possible to ensure there is minimal erosion to the site. The creek area should not receive untreated water from surface water run-off, all water will need to be

treated prior to entering into the creek. Mounding of the revegetation areas will assist with the runoff from the revegetated areas and brushing will reduce the affects of wind erosion.

It is recommended as the site is predominantly sandy (topsoil) in nature, best practise is carried out if the site is developed and sediment traps are installed during development activities with and any bare ground areas stabilised (i.e. mulching).

9.8. Fencing/retaining walls

Detailed design is yet to be undertaken, at this stage there is no retaining proposed for the foreshore area. Fencing is proposed to protect the revegetation areas along the creekline. This fencing will ensure there is no encroachment of stock into the area from adjacent properties.

9.9. Parking

A public parking area is proposed to be adjacent the proposed Village Park , please refer to Structure Development Plan Appendix A. The exact nature and amount of parking is yet to be defined and should be included in detailed engineering design drawings as this area is developed.

9.10. Crossovers and Pedestrian access

Crossovers along the creekline are shown in the Foreshore Mapping Appendix E. The crossovers on the creekline are a mixture of footpaths and road access. The design of the footpaths and crossovers is yet to be defined and shall be included in detailed engineering design drawings. The foreshore area has the potential for a bush trail along the creek area for recreational purposes, this trail can link the residences with the village park and local café.

9.11. Community recreational nodes/infrastructure

Passive and active recreation nodes will be provided for and maintained by the Shire of Plantagenet. Please refer to Landscaping and POS Concept Plan Appendix E.

Three recreational nodes are proposed within the Bolganup Foreshore area and will be accessible by vehicles, pedestrians and the walk path. They are intended to be low key facilities mainly catering for residents within the local area and occasional visitors. The proposed Active POS areas may also incorporate barbeque facilities and children"s play facilities. No existing trees will need to be removed and only sufficient area for the facilities and existing lawn area will be maintained. The developer will provide these facilities at the subdivision stage with detailed designs being prepared to Council"s satisfaction. Ongoing maintenance will be the responsibility of Council and/or a local community/program association.

9.12. Identify sites of cultural, archaeological or religious significance.

Please refer to Section 3.1 Heritage of this document.

9.13. Stormwater management (no infrastructure to be located within Reserve)

Please refer to Local Water Management Strategy Section 7.0 of this document.

9.14. Commitments regarding future reserve maintenance

The following commitments have been made regarding future maintenance of the foreshore area:

Table 4 – Foreshore Reserve Maintenance

Responsibility	Tasks
Current Land Owners	Continue to reduce weed infestations of the foreshore area, limit spread and further infestations occurring.
Future Land Owners (developers)	Implement Revegetation Plan (Section 9.5) and Weed Management (Section 9.6). Ongoing maintenance of POS areas during defects liability stages
Shire of Plantagenet	At the completion of Defects Liability stages implement maintenance procedures as per Shire policy.

9.15. Fire protection measures

Please refer to Fire Management Strategy Section 9.0 of this document.

9.16. Program of Works

As the project is still in Structure Planning stages, detailed works at subdivision approval stages (i.e. revegetation species, fencing details, crossovers and footpaths) should be submitted to the DoW for approval prior to commencement of site works. A summary of management actions required to successfully implement this Foreshore Plan is provided below.

9.16.1. Rationalise the Foreshore Boundaries

- Review existing foreshore reserve along the Bolganup Creek and extend to 30m minimum by bio physical assessment of the waterway. (Proponents in consultation with Shire and DoW).
- Provide for the protection of the creek lines by reservation of Bolganup Creek and the establishment of foreshore areas.

9.16.2. Provide for Recreation and Public Access

- Construct a footpath to Council"s specification adjacent to the Bolganup foreshore reserve (Proponent).
- Provide pedestrian and vehicular access to three recreational nodes within the Bolganup Creek foreshore reserve (Proponent).

- Recreational nodes will provide relatively low key facilities such as car parking, community hall, barbecues, picnic tables/seats and possible play equipment.

- Detailed design of the recreational nodes to be provided at the subdivision stage in consultation with the Shire and DoW (Proponent).

9.16.3. Minimise Nutrient Export into Waterways & Control Erosion

- Protect existing remnant vegetation within foreshore reserve and Landscaping zone (Shire and Landowners).
- Protect remnant vegetation within the Study Area, particularly adjacent to water bodies (Proponent and Shire).
- Revegetate Foreshore areas adjacent to water body (Proponent in consultation with Shire and DoW).

- All effluent disposal systems to be set back a minimum of 30 metres from creek lines. (Proponent and Shire).

- All Stormwater drainage to be directed to landscaped nutrient stripping basins outside foreshore reserve (Proponent).

- Remnant vegetation and revegetation to be protected from stock by suitable fencing (Proponent).

9.16.4. Exclude Buildings & Structures from the Floodway & Ensure Stormwater is Appropriately Managed

- All buildings and structures to be excluded from the 1 in 100 year floodplain (Proponent and Shire).
- All effluent disposal systems to be excluded from the 1 in 100 floodplain (Proponent and Shire).
- All stormwater run off to be directed to landscaped nutrient stripping basins located outside the Landscape Protection zone (Proponent and Shire).

- Within the creek/foreshore zone, property boundaries shall be identified by placement of posts at appropriate intervals within the zone. Fencing of property boundaries to occur to ensure stock or pedestrians do not enter revegetation areas. (Proponent and Shire).

9.16.5. Provide for Effective Control of Feral Animals & Domestic Pets

- Investigate and implement appropriate methods of controlling feral animals such as feral cats and foxes (Shire in Consultation with Landowners and AgWA).
- Appropriate educational signs to be erected in the foreshore reserves to promote the values of local wildlife, the keeping of dogs on leashes, etc. (Shire)

9.16.6. Ensure Stock are Excluded from Foreshore and Landscape Protection Areas

- Fence the Bolganup Creek foreshore reserve (Proponent).
- Fencing to be standard rural fencing such as post and strand (Proponent).

9.16.7. To Minimise Visual Impact of Development

- Require all development to be set back at least 30 metres from the creek area (Proponent and Shire).
- Provide for landscaping of development adjacent to foreshore reserve to help minimise visual impact from the foreshore footpath (Proponent and Shire).

10. Land Capability

The Land Capability Assessment involves a number of inter-related stages including:

- **Land Use Requirements** – Specifies and defines the proposed land use, list the land qualities and characteristics to determine each land quality.
- **Land Resource Survey** – Divides the study are into mapping units which have measureable differences and may influence the land attributes and land capabilities.
- **Land Capability Analysis** – for each mapping unit rate each individual land quality and determine overall capability to sustain the land use.

The Land Capability Assessment compares the physical requirements for a particular land use with the qualities of the land. This analysis determines the ability of the land to sustain a particular land use without resulting in significant environmental degradation. The land use that has been considered for this study area is Rural Residential with on-site effluent disposal.

Based on the soil aspects of the subject site and development proposals outlined in Section 4.1 to 4.8 the following Land Capability Assessment Summary has been made for the proposal, please refer to Table 5 below. Please also refer to Limitations Mapping Appendix D.

Table 5

Landscape Qualities Rural Residential	Sand over rock (ridge areas)	Sand over Clay	Sand over gravel over clay	Sand over Clay WT (creek
Ease of excavation, x	Low	Moderate	Low	Low
Foundation stability, b	Very high	Moderate	Moderate	Moderate
Water logging hazard, i	Low	Low	Low	Moderate
Water erosion hazard, e	Moderate	Moderate	Moderate	Low
Wind erosion hazard, w	Moderate	Moderate	Moderate	Low
Wave erosion hazard,u	n/a	n/a	n/a	n/a
Soil absorption ability, a	High	High	High	High
Flood hazard, f	Low	Low	Low	Low
Water pollution hazard,s	Low	Low	Moderate	High
Bushfire hazard, z	Moderate	Low	Low	Low
Soil Salinity, y	Low	Low	Low	Low
Overall capability rating	**II**	**II**	**II**	**IV**

Table 6 Land Capability Classes

CAPABILITY CLASS	DEGREE OF LIMITATION	GENERAL DESCRIPTION
I	Very low	Areas with a very high capability for the proposed activity or use. Very few physical limitations to the specified use are present or else they are easily overcome. Risk of land degradation under the proposed use is negligible.
II	Low	Areas with a high capability for the proposed activity or use. Some physical limitations to the use do occur affecting either its productive use or the hazard of land degradation. These limitations can however, be overcome through careful planning.
III	Moderate	Areas with a fair capability for the proposed activity or use. Moderate physical limitations to the land use do occur which will significantly affect its productive use or result in moderate risk of land degradation unless careful planning and conservation measures are undertaken.
IV	High	Areas with a low capability for the proposed activity or use. There is a high degree of physical limitations which are either not easily overcome by standard development techniques or which result in a high risk of land degradation without extensive conservation requirements.
V	Very High	Areas with a very poor capability for the proposed activity or use and the severity of physical imitations is such that its use is usually prohibitive in terms of either development costs or the associated risk of land degradation.

10.1. Planning Considerations

The majority of the subject area has a Capability Class of II – Areas of High capability for the proposed activity or use. These areas are suitable for residential and rural residential development, with some planning considerations. The creek areas with water table and deep sands have a Capability Class of IV – Areas with a poor capability for the proposed activity or use. These areas should be contained into buffer areas or foreshore reserve areas vested with either private property owners or the Shire of Plantagenet for active POS areas.

The planning and management considerations for the subject area from the Land Capability Assessment and previous sections of this EMS are combined into Table 7 over the page.

11. Planning and Management Considerations

The developer following Table 7 summarises the planning and management considerations required from the analysis undertaken in this EMS and further documentation which is required to satisfy government agency approvals in the proceeding stages.

Table 7–Management and Planning Considerations

Management Objective(s)	*Management Aims*	*Management Action(s)*	*Long term management*	*Documentation required*	*Stakeholders/Approving Agency*
On site effluent disposal	Ensure 30,setbacks are applied in subdivision plans ATU"S be used across the site	On-site effluent disposal 30m from Bolganup Creek Approved Health Department ATU"S to be installed Maintained as per manufacturers requirements.	Monitoring of Bolganup Creek and groundwater pre and post construction Maintenance form owners as per manufacturer"s directions	ATU type and detail prior to installation	Health Dept Shire of Plantagenet Future owners
Water Quality, Nutrient and Stormwater Management	Treat water on site, reduce nutrients and hydrocarbons; Improve & maintain adjacent creek water quality parameters; Ensure stormwater is carried through stormwater controls to avoid impacting natural environment; Reduce the transportation of nutrients generated onsite into waterways and drains; and Develop and maintain a buffer of fringing native vegetation around Bolganup Creek.	WSUD principles applied to site design (i.e. runoff, nutrient stripping, recycling, water harvesting) and design implement at construction phases; Ensure water quality controls and structures are in place and in correct working order; and Point source infiltration through construction of swales, rain gardens and detention basins.	Wetland vegetation in POS healthy/diverse; Only stormwater from >1:10 events flow off site; Infiltration basins, swales and stream condition including water condition (appearance), vegetation condition and flow condition.	IUWMP required prior to subdivision construction commencement EMP required documenting Env Management during construction	DoW, Shire of Plantagenet Developer/ Contractor Appointed Engineers
Rehabilitation of degraded areas from any construction activities.	Rehabilitate degraded areas from construction activities such as trench construction or clearing of native vegetation areas.	Revegetate degraded areas with native plant species; Remove invasive weed species to prevent further degradation; and Prevent erosion through established vegetation and/or erosion control methods.	The area (m^2) of degraded vegetation is reduced (percent weed establishment); Increase of native vegetation condition of degraded areas; and Erosion does not occur after heavy rains or high winds during dry periods.	EMP required documenting Env Management during construction Monitoring of any degraded areas during construction Revegetation details in foreshore area to the DoW for approval	Developer/Contractor DoW, DEC Appointed revegetation specialist Environmental Officer
Fire Management	Prevent Fire Hazards within subdivision.	Ensure fuel loads in adjacent uncleared areas are managed; Ensure water source is not disrupted; Fire hazards such as petrol and gasses are managed; and Access to hydrants is unrestricted, regular checks undertaken by developer (due diligence period) and FESA (post due diligence period).	On assessment, fuel loads are minimal in neighbouring areas and do not pose risk to subdivision; Fire occurrence is minimal or none; and All hydrant structures are in good working order from regular checks.	Update of FMP over Amendment 49 area. New subdivisions require preparation of FMP aligned to WAPC/FESA Guidelines and AS3959-2009	Contractor/ Developer, Neighbours FESA
Constructability	Structural assessments required prior to building Geotechnical assessment for road and pavement design	Ensure site is suitable for housing structures Ensure site soil conditions conducive for drainage and road construction.	Certifications from suitably qualified personnel	Detailed Engineering designs Geotechnical Report for pavement designs and structural designs	Structural Engineer Civil Engineer Shire of Plantagenet

				EMP required documenting Env Management during construction	

Management Objective(s)	*Management Aims*	*Management Action(s)*	*Long term management*	*Documentation required*	*Stakeholders/Approving Agency*
Foreshore Management	Public Access is maintained and access to sensitive areas restricted. To protect and enhance/maintain the ecological values and functions of Bolganup Creek.	Public vehicle access will be via the newly formed access road off Prongurup Mount Barker Road. If construction is staged, temporary road controls to be erected; and Define access through standard signing and erecting of hazard boards.	Access is by road only and not through the remnant vegetation in foreshore areas Implementation of revegetation and weed management at subdivision stages	Yes revegetation details in foreshore and structural controls i.e. crossovers, footpaths, fencing etc. EMP required documenting Env Management during construction	Shire of Plantagenet Contractor Developer Environmental Officer
Generate and maintain Community involvement	To be informative to neighbours regarding the construction of the subdivision; and To involve the local community to enjoy the POS and natural environment.	Ensure neighbours are notified of the milestones of the construction period; and Develop passive and active POS for the community to enjoy and have sense of ownership.	Complaints from adjacent residents; and Use of POS areas.	Accurate records of public meetings or complaints	Developer, Shire of Plantagenet, Community liaison officer.
Monitoring	POS and Landscaping health is monitored.	12 Month POS Maintenance Program is abided.	Minimise claims from the contractor or variation of contract during the defects period. Ensure water quality health monitoring is undertake of the Bolganup Creek	12 Month POS Maintenance Program	Developer, Contractor Environmental Officer
Recreation Potential	Recreational potential is upheld.	POS kept free from refuse; Gassed areas regularly maintained and healthy; Garden beds regularly maintained and healthy; and POS maintained to prevent the formation of, or to help manage, high risk factors including over hanging tree branches, slippery areas or visibility issues for traffic moving about the development and for security reasons; POS and utilities are maintained to attract people into POS; and POS recreational utilities are maintained and kept safe.	The POS is being used for recreational activities; and No adverse social impacts (i.e. graffiti, theft).	POS landscaping Plan submitted to Shire of Plantagenet EMP required documenting Env Management during construction	Developer, Contractor As per Shire of Plantagenet maintenance program, after defects liability stages.
Mosquito and Pest Insect Management	The potential for mosquito and pest insects to become a health hazard is reduced.	Stagnant water bodies are reduced; The time water sits stagnant is reduced; Nutrients released into waterways are reduced; Vegetation surrounding stagnant water bodies is sufficient enough to act as a buffer and not act as a vector for insect movement; and Identify and indicate areas of high risk.	Quantity of mosquito & midges observed in POS and residential areas.	Register of comments made by residents and POS users. EMP required documenting Env Management during construction	Developer, Contractor

12. Consultation Process

To ensure that all aspects of the EMS encompass current best practise, legislative requirements and guidelines, the following consultation plan should be implemented.

Consultation should occur with government agencies:

- At completion of the EMS document and prior to implementation, for feedback and comment regarding the EMP;
- A start-up meeting with government agency representatives prior to construction activities occurring;
- During construction activities, especially if there are changes in design or management procedures not outlined in this EMP;
- If environmental incidents occur (e.g. pollution, spills etc);
- Post construction for a period of 12 months to keep informed of the site management/maintenance activities; and
- During the review of the EMP at the completion of the project.

Recommended government agencies to consult are:

- Department of Water – regarding all storm water, foreshore management and water quality issues;
- Department of Environment and Conservation – regarding weed, disease, flora and fauna issues; and
- Shire of Plantagenet – regarding site construction activities, areas of environmental concern, public open space areas and control measures implemented. The Shire of Plantagenet should also be involved at the completion of the project to verify the review process.

Regular consultation should occur with other stakeholders such as:

- Neighbours;
- Community groups; and
- Interest groups.

Regular meetings should be held with the project group to ensure that information is being disseminated throughout the project. The project team includes the Planning Officer, Environmental Officer, Engineer, Project Manager, Construction Manager and Proponent (s). Minutes of meetings and action items should be documented for reference and action.

At completion of the project, it is recommended that this Strategy is reviewed and recommendations from this review process combined into any future development in the area. This plan can be reviewed prior to this and at any time during the project if there is an environmental incident, through consultation with government departments or changes in practise, policy or guidelines.

13. Control of Environmental Incidents

An important aspect in the environmental program is management of non-conformance or incidents. An environmental incident is an event which could result in pollution to the local environment. The planning of site works and methodology should be outlined in a detailed Environmental Management Plan to limit the risk and harm of construction works impacting on-site or off-site.

If an incident or event occurs during construction, it should be emphasised to all personnel working on site that all incidents are documented. Investigations should be conducted and action plans established in order to ensure the event does not happen again.

13.1. Corrective and Preventative Actions

An Environmental Investigation should include the following basic elements:

- Identify the cause of the incident;
- Identifying and implementing the necessary corrective action;
- Identifying the personnel responsible for carrying out corrective action;
- Implementing or modifying controls necessary to avoid repetition; and
- Recording changes in written procedures required.

13.2. Contingency Procedures

Contingency measures are included within this strategy. These protocols are designed to reduce adverse environmental impacts and provide an early detection of non-conformance and subsequent corrective action. Any modifications to the outlined strategies and methodologies to meet unexpected conditions shall be agreed to by the Environmental Officer. Monitoring shall be used to confirm the effectiveness of any changes.

Should it be identified by any personnel involved in the project there is a non-conformance to acceptable methodology or there is reason to cause environmental harm, in consultation with the Site manager and Project manager, activities should cease during resolution of the required change in methodology.

The Environmental Officer should be notified of any environmental non-conformances and undertake site investigation.

14. Conclusions

This Environmental Management Strategy has been prepared to support the Porongurup Rural Village Structure Plan and Scheme Amendment No. 49 to Shire of Plantagenet Town Planning Scheme No. 3. Amendment No.49 proposes to rezone Lots 1, and 1664 Boxhill Road and Lots 5 and 11 Mount Barker – Porongurup Road, Porongurup from Rural to a zoning that will allow for the staged development of the Porongurup Rural Village. The Structure Plan forms part of the Amendment No. 49 and will identify the location of areas for residential, rural residential and tourist accommodation development as well as set aside areas for public open space, foreshore protection and community facilities.

The Environmental Management Strategy outlines possible areas of concern and management actions specifically in regards to:

- Effluent Disposal;
- Storm Water Management;
- Fire Management;
- Foreshore Management, and
- Land Capability.

Recommendations for sustainable management have been addressed within this document which updates previous investigations and reporting undertaken by Opus Consultants and Coffey Environments in 2007. Recommendations, Stakeholders and Planning Considerations are summarised in Table 7 Page 37 of this document.

The development of the Porongurup Precinct area can be undertaken which meets ecological sustainability, water balance, fire management, foreshore and land capability acceptable performance criteria as outlined by government agency guidelines and policies. Detailed documentation should be compiled prior to construction in regards to Stormwater Management (Integrated Urban Water Management Plan), revegetation strategies within the foreshore area and an Environmental Management Plan (pre, during and post construction activities/responsibilities). This detailed documentation should reflect the specific management actions required to undertake construction activities in an environmentally sustainable manner. The Fire Management Plan prepared by Opus in 2007 requires minor updating prior to lodgement with prospective land owners.

Government agencies comments regarding previous plans has been incorporated into this strategy to satisfy any concerns regarding the development of the Porongurup Precinct area. Detailed engineering designs are yet to be developed and shall be submitted to the government agencies for approval with accompanying information (i.e. stormwater calculations and rational, revegetation planting in foreshore).

This strategy confirms that the performance criteria contained in the various government agency documents and guidelines:

1. Will be satisfied in development of the Porongurup Village (Amendment No. 49); and
2. Are capable of being met with further planning and design of any future proposed rural living type subdivision development within the proposed Porongurup Rural Village Precinct Area.

15. References

AS 1547-2000 Australian Standard, On Site Domestic Waste Water Management, Primary Referenced Standard, Australian Building Codes Board and Standards Australia.

AS3959-2009 Australian Standard Building in Bushfire prone areas. Primary Referenced Standard, Australian Building Codes Board and Standards Australia.

Beard's Vegetation Classification dataset, 1:3,000,000 digital representation of Beard's vegetation map of the state of Western Australia.

Department of Health WA "Movement of Nutrients from on-site waste water systems in soils" 2001.

Department of Water (2007) Bolganup Dam Catchment Plan, Department of Water, Government of Western Australia

Department of Water 1:250 000 Hydrogeology Map Series (2001) Mapping dataset, Government of Western Australia

Department of Water Public Drinking Water Supply Act (2001) Mapping dataset, Government of Western Australia.

Department of Meteorology Climate Statistics Mount Barker Station database accessed June 2010.

Hearn, R., Williams, K. Comer, S. and Beecham, B. (2002) A Biodiversity Audit of Western Australia"s 53 Biogeographical Subregions in 2002, *Jarrah Forest 2 (JF2 – Southern Jarrah Forest subregion),* Department of Conservation and Land Management, January 2002.

Keighery, B. (1994) Bushland Plant Survey, A Guide to Community Survey for the Community, Wildflower Society of WA.

Land Capability Assessment for Local Rural Strategies, 1989, State Planning Commission Western Australia.

Moore, G. (1998) *Soilguide. A handbook for understanding and managing agricultural soils'. Department of Agriculture, Western Australia*. Bulletin No. 4343.

Personal communication from Bill Bird 24/2/10 with K.Kinnear, May 2010.

Wilkins, P., Gilfillan S., Watson, J. and Sanders A. (2006) *The West Australian South Coast Macro Corridor Network- a bioregional strategy for nature conservation,* Department of Environment and Conservation and South Coast Natural Resource Management, Albany, Western Australia, January 2006.

Appendices

Appendix A – Structure Plan

Appendix B – Soil and Landscape Mapping

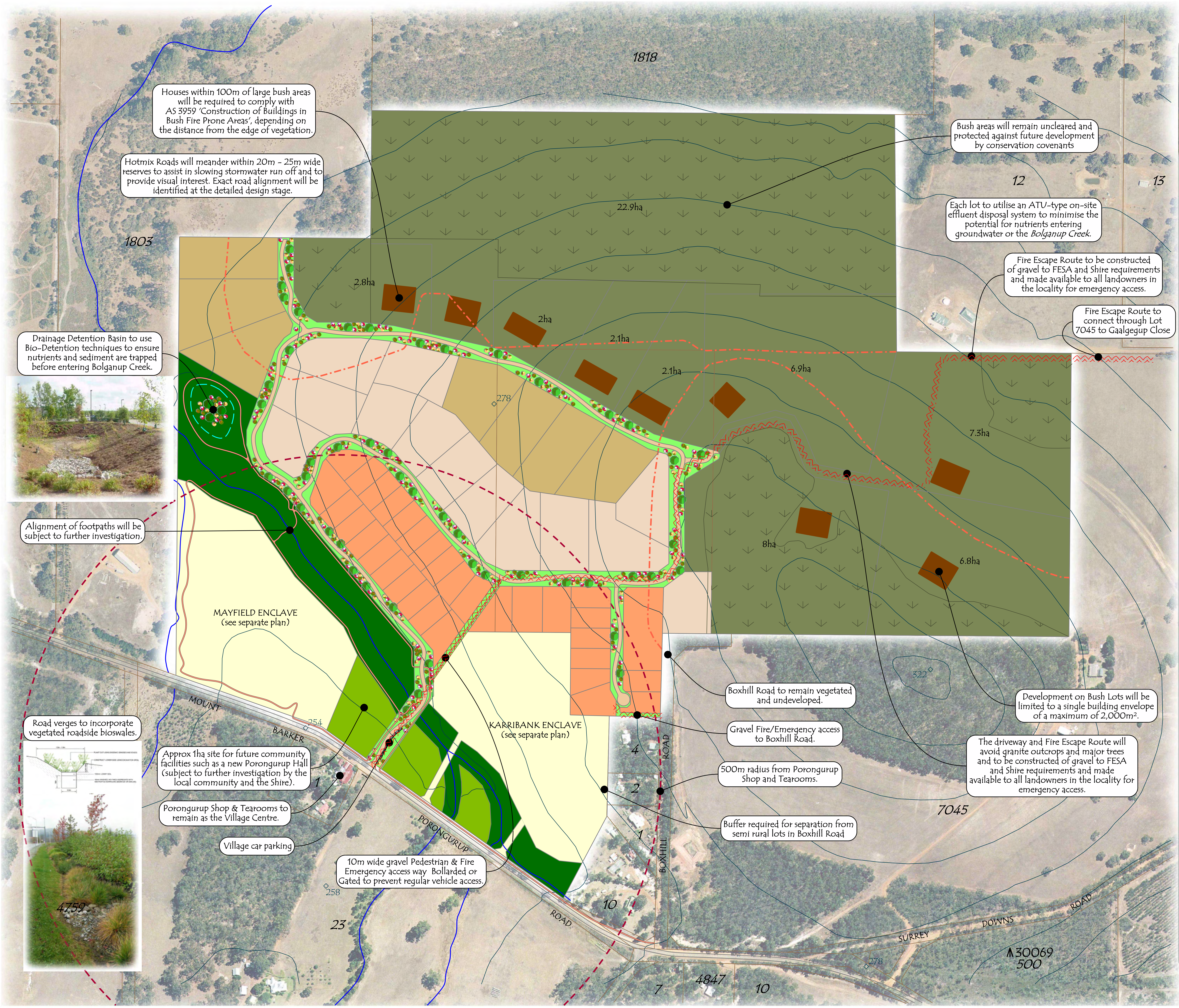
Appendix C – Vegetation and Hydrology Mapping

Appendix D – Limitations Mapping

Appendix E – POS and Landscaping Plan

Appendix A

Structure Plan


1818
1803
12
13
22.9ha
2.8ha
2ha
2.1ha
2.1ha
6.9ha
7.3ha
8ha
6.8ha
278
322
254
258
278
Houses within 100m of large bush areas will be required to comply with AS 3959 'Construction of Buildings in Bush Fire Prone Areas', depending on the distance from the edge of vegetation.
Hotmix Roads will meander within 20m - 25m wide reserves to assist in slowing stormwater run off and to provide visual interest. Exact road alignment will be identified at the detailed design stage.
Drainage Detention Basin to use Bio-Detention techniques to ensure nutrients and sediment are trapped before entering Bolganup Creek.
Alignment of footpaths will be subject to further investigation.
Road verges to incorporate vegetated roadside bioswales.
Approx 1ha site for future community facilities such as a new Porongurup Hall (subject to further investigation by the local community and the Shire).
Porongurup Shop & Tearooms to remain as the Village Centre.
Village car parking
10m wide gravel Pedestrian & Fire Emergency access way Bollarded or Gated to prevent regular vehicle access.
Bush areas will remain uncleared and protected against future development by conservation covenants
Each lot to utilise an ATU-type on-site effluent disposal system to minimise the potential for nutrients entering groundwater or the Bolganup Creek.
Fire Escape Route to be constructed of gravel to FESA and Shire requirements and made available to all landowners in the locality for emergency access.
Fire Escape Route to connect through Lot 7045 to Gaalgegup Close
Boxhill Road to remain vegetated and undeveloped.
Gravel Fire/Emergency access to Boxhill Road.
500m radius from Porongurup Shop and Tearooms.
Buffer required for separation from semi rural lots in Boxhill Road
Development on Bush Lots will be limited to a single building envelope of a maximum of 2,000m².
The driveway and Fire Escape Route will avoid granite outcrops and major trees and to be constructed of gravel to FESA and Shire requirements and made available to all landowners in the locality for emergency access.
MAYFIELD ENCLAVE
(see separate plan)
KARRIBANK ENCLAVE
(see separate plan)
MOUNT BARKER PORONGURUP ROAD
BOXHILL ROAD
SURREY DOWNS ROAD
1
2
4
1
10
7045
4759
23
7
4847
10
30069
500

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PORONGURUP RURAL VILLAGE

Porongurup Rural Village Structure Plan

KEY

- Residential Lots (2,000m² - 5,000m²)
- Large Residential Lots (5,000m² - 10,000m²)
- Rural Residential Lots (1ha - 2ha)
- Bush Lots (2ha +)
- Building Envelopes for Bush Lots
- Village Parklands and Future Community Facilities
- Waterway Protection / Public Open Space
- Karribank and Mayfield Enclaves
- Protected Bushland
- Roadside vegetated bio-swales
- Creeklines
- Fire Escape Route
- Outer edge of 100m Fire Hazard Zone - AS 3959 to apply.
- Existing Lot boundaries
- Proposed Lot boundaries
- Contours
- 500m radius from Porongurup Shop & Tearooms
- Indicative public footpaths

Images are for illustrative purposes only.

NOTE:

This plan has been prepared for planning purposes. Areas, Contours and Dimensions shown are subject to survey.

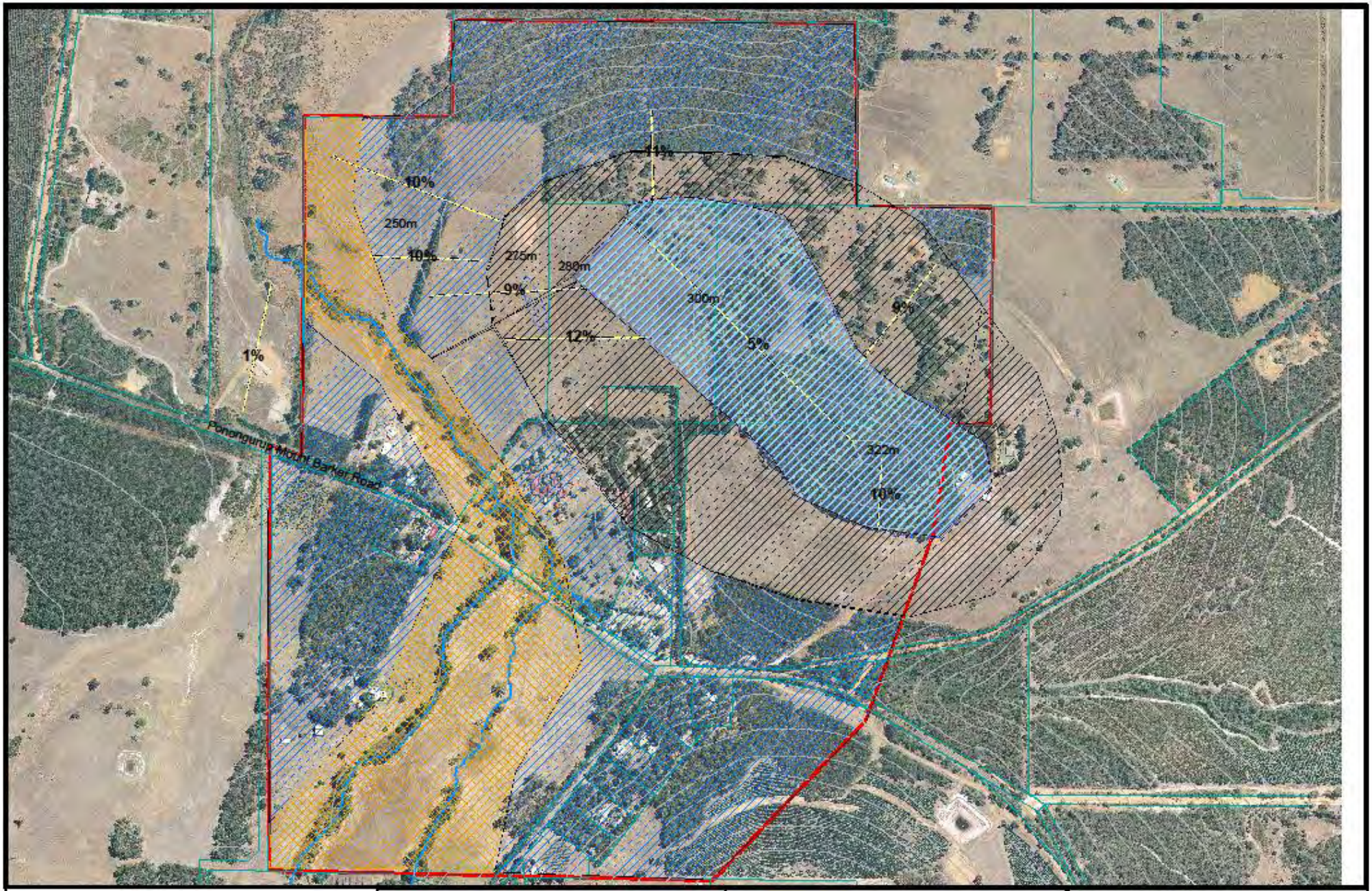
Scale @ A2 1:4000

0 50 100 200 300

DWG No 12419-15B

Appendix B

Soil and Landscape Mapping



Legend

- Seepage 275m Contour
- SC Sand Clay
- SC WT Sand Clay WT
- SCG - Sand Clay Granite
- SGC Sand Gravel Clay
- 12419-cadastre
- 12419-contours
- Creekline

SCALE
1:7500 @ A3

0 62.5125 250 375 500 Meters

BIO DIVERSE SOLUTIONS
55 Peppermint Drive
Albany, WA 6330
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Tel: 08 9841 3936
Fax: 08 9841 3936
Mob: 0447 555 616

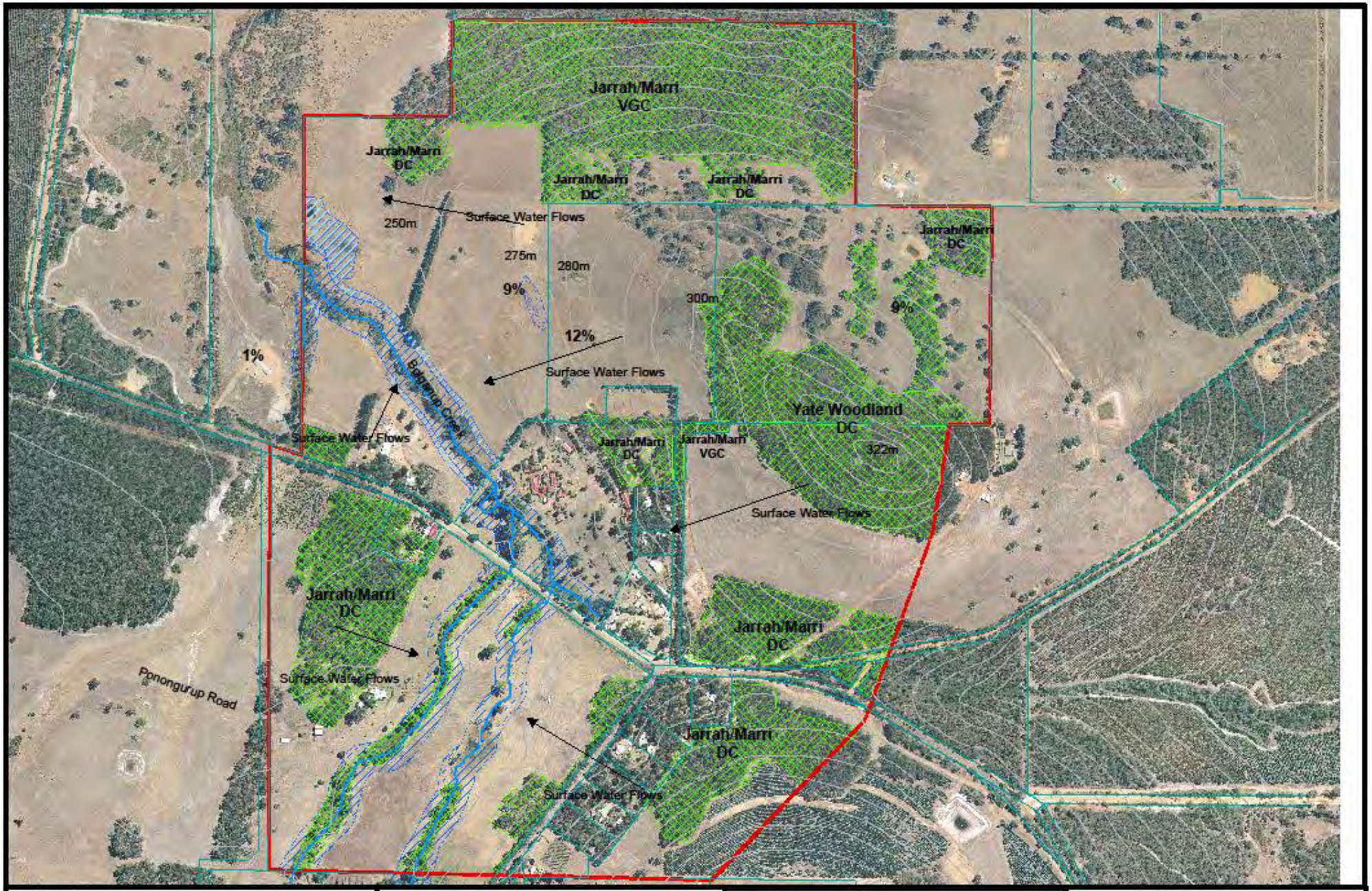
CLIENT: J Blythe & B. Bird
Porongurup Rural Village
Porongurup WA

Soil and Landscape Mapping

STATUS	FILE	DATE
FINAL	HSG002	20/4/2010

Appendix C

Vegetation and Hydrology Mapping



Legend

- Seepage 275m Contour
- 12419-cadastre
- 12419-contours
- Creekline
- Subject area
- Stormwater treatment area
- Vegetation
- Creek setback

SCALE
1:7500 @ A3

0 62.5125 250 375 500 Meters

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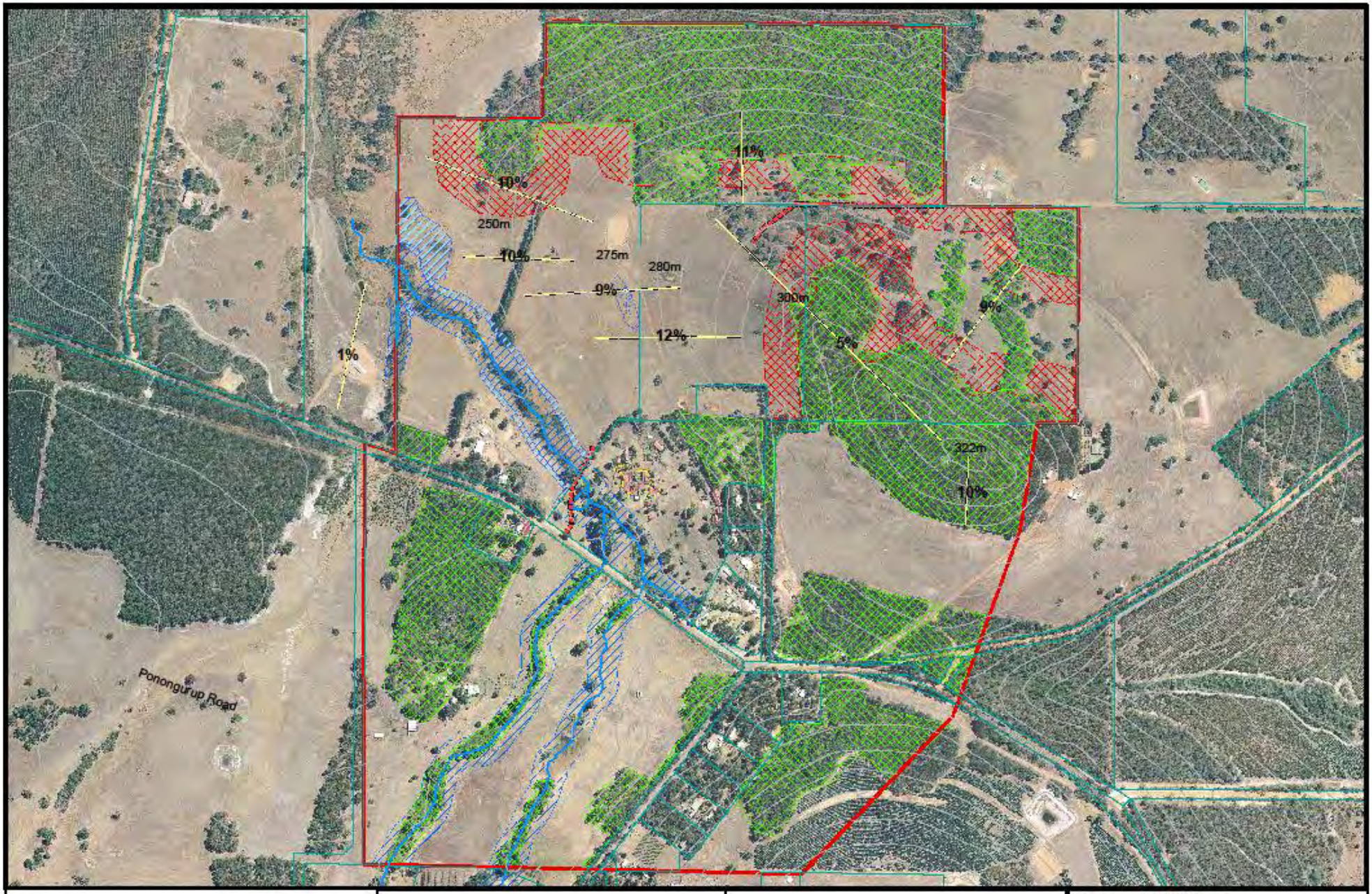
Porongurup WA

Vegetation and Hydrology Mapping

STATUS	FILE	DATE
FINAL	HSG002	20/4/2010

Appendix D

Limitations Mapping



Legend

- Seepage 275m Contour
- 12419-cadastre
- 12419-contours
- Slope gradient
- Emergency Fire Access
- Creekline
- Subject area
- Stormwater treatment area
- Vegetation
- Heritage site
- Creek setback
- Fire setback

SCALE
1:7500 @ A3

0 62.5125 250 375 500 Meters

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Porongurup WA

Limitations Mapping

STATUS	FILE	DATE
FINAL	HSG002	20/4/2010

Appendix E

POS and Landscaping Concept Plan

Legend

- New roads
- Walk trail
- Fencing
- Revegetation
- Creekline
- Stormwater treatment area
- Heritage site

SCALE

1:2000 @ A3

0 15 30 60 90 120 Meters

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Mob: 0447 555 616

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Porongurup Rural Village
Porongurup WA

POS and Landscaping Concept Plan

STATUS	FILE	DATE
FINAL	HSG002	20/4/2010

APPENDIX F

PORONGURUP RURAL VILLAGE
VISUAL IMPACT ASSESSMENT

1 DEFINING THE SCOPE OF EVALUATION AND CONTEXT

This Visual Impact Assessment is required as the Porongurup Rural Village is located in a visually prominent location and is bordered by a major tourist route and the Porongurup National Park. The objective of this report is to outline:

- The Landscape Character Units of the Porongurup Rural Village;
- The Viewing Experience and Values of the Porongurup Rural Village; and
- The Strategies required to mitigate visual impact of subdivision and development on the Porongurup locality.

This information is to be used by the Shire of Plantagenet and Western Australian Planning Commission when assessing the Porongurup Rural Village Structure Plan. The scale of this application is defined as *Local* as it seeks to outline and mitigate the visual constraints of development of the Porongurup Rural Village.

This assessment of visual landscape has been undertaken in accordance with the *Visual Landscape Planning in Western Australia* Manual, produced by the WAPC.

2 VISUAL LANDSCAPE CHARACTER UNITS

The Porongurup Rural Village can be described as lying within an undulating rural landscape. The following descriptions identify the visual landscape character of the Porongurup Rural Village:

- Open;
- Rolling;
- Smooth; and
- Regular.

The main visual features of the site are:

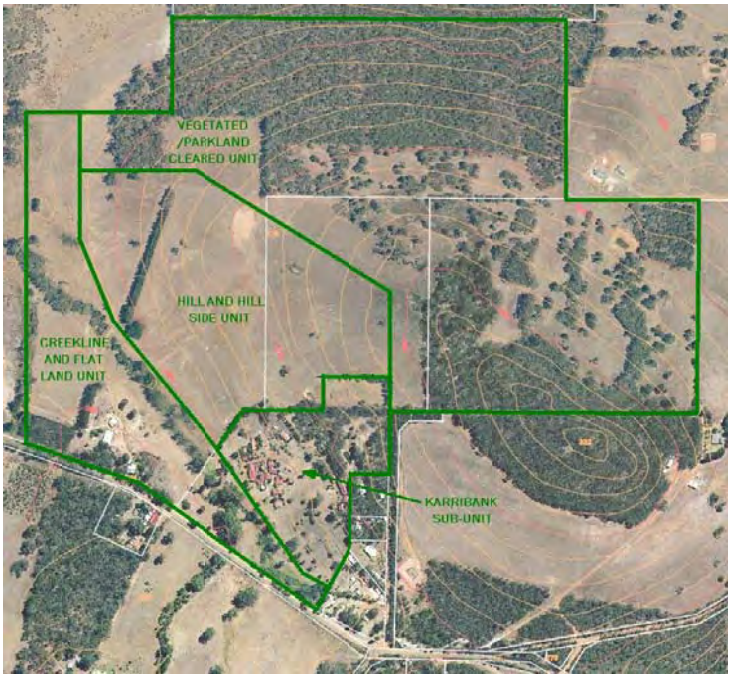
- The hill and slopes leading upwards from Bolganup Creek;
- Pockets of vegetation:
  - Located around Karribank Lodge;
  - Located to the north of the Structure Plan area;
  - Plantation timber and windbreaks on the site;
  - Riparian vegetation along Bolganup Creek;
  - Bushland located on adjacent properties, which frames and defines the Porongurup Rural Village;
- The flatter land located on the southern side of Bolganup Creek; and
- Existing development (i.e. houses, sheds, fence lines, etc).

Similarly, the Structure Plan area can be divided into the following Visual Landscape Character Units:

- Hill and Hillside;
- Creek Line and Flat Land;
- Karribank Enclave; and
- Vegetated/Parkland Cleared Land.

These units are indicated in **Figure 1.**

Figure 1: Plan showing the location of the Landscape Character Units on the Structure Plan site.



Hill and Hillside

The predominant Landscape Character Unit in the Porongurup Rural Village is the Hill and Hillside. This unit is characterised by a large hill which slopes steeply from Bolganup Creek at 250m AHD to the high point at the end of Boxhill Road at 320m AHD. The higher portions of this hill are vegetated in the east of the Porongurup Rural Village. This area is not proposed to be modified by future development (i.e. this land is included within the Vegetated/Parkland Cleared Landscape Character Unit). This unit has views over all other units on the land as well as having broader views across the rural and national park landscape of Porongurup.

This landscape unit is characterised by flowing smooth lines, generally fringed by vegetation lines, both straight and erratic. The use of the unit for grazing and other associated agricultural uses has meant that most vegetation has been removed. This landscape varies in colours from a rich green during winter months to a dry yellow during summer, as pasture dries in low rainfall periods.

This landscape character unit has the potential to be the most highly visible of the Porongurup Rural Village, given its steeply sloping nature and height in the context of the surrounding landscape. However, although some broken views are available from Porongurup Road, it should be noted that views of the Hill and Hillside Landscape Character Unit are very limited from Porongurup Road. This is due to the presence of introduced and riparian vegetation that is located in the structure plan area.

See **Figures 2, 3 and 4** below for pictures of the Hill and Hillside Landscape Character Unit of the Porongurup Rural Village.

Figure 2: View of the Porongurup Rural Village from Porongurup Road, adjacent to the proposed Village Parklands and Future Community Facilities. Note that the Hillside is only viewable in the distant left of the picture due to vegetation screening the view.

Figure 3: Fringing vegetation on Porongurup Road concealing the Porongurup Rural Village from extended views. This vegetation will be retained within the landscape to reduce the visual impact of development.

Figure 4: View from the Hillside looking south within the Porongurup Rural Village. Although the Hill and Hillside Landscape Character Unit are predominantly cleared, remnant vegetation provides screening from most major local view points.

Creek Line and Flat Land

This Landscape Character Unit comprises the land surrounding the Bolganup Creek and adjacent to the southern boundary of the Porongurup Rural Village. This land is flat to gently sloping and overlooked from both Porongurup Road and the other landscape units. This landscape is characterised by textured vegetation and lines and smaller enclosed cleared areas.

The implementation of the Environmental Management Strategy and future Foreshore Management Plan will require some revegetation works to occur within the creek line area. This will include the removal of weeds, as well as significant plantings to ensure appropriate treatment of stormwater before infiltration into groundwater and the Bolganup Creek. Therefore, it is anticipated by this Visual Impact Assessment that vegetation in this area will be improved upon, strengthening the role of the unit as a screening device for the Hill and Hillside and Karribank Enclave Landscape Character Units.

See **Figures 5 and 6** for views of the Creek line and Flat Land in the Porongurup Rural Village.

Figure 5: View of the Creek Line and Flat Land Landscape Character Unit (Mayfield).

Figure 6: View of the Creek Line and Flat Land Landscape Character Unit (Karribank).

Karribank Enclave

The Karribank Enclave is a sub-unit of the much larger Hill and Hillside Landscape Character Unit. The predominant difference of this sub-unit is the scattered vegetation. Although it is located on sloping land, the landscape is broken by remnant trees and the riparian vegetation of the Bolganup Creek, which reduce the ability for extended views through the sub-unit. The future development of the Karribank Enclave should seek to retain as many remnant trees as possible to characterise development, reduce the scale of future buildings and reduce overlooking of the sub-unit.

See **Figures 7 and 8** for views of the Karribank Enclave sub-unit from Porongurup Road.

Figure 7: View of the Karribank Enclave sub-unit from Porongurup Road.

Figure 8: View across the future Village Parklands towards Karribank Lodge. It is important that future development around Karribank Lodge maintain this vista.

Vegetated/Parkland Cleared Land

The Vegetated/Parkland Cleared Land Landscape Character Unit is predominantly located in the north and east of the Porongurup Rural Village. Due to the associated fire risk and the need to protect remnant vegetation, this unit is only

proposed to be development for rural residential land uses (1ha+ lots). As the name suggests, this unit is characterised by remnant vegetation, which reduces view sheds over future development. It should also be noted that the development of this unit will not be readily viewable from locations surrounding the Porongurup Rural Village, due to the following factors:

- The presence of remnant vegetation and the location of future buildings envelopes within the unit; and
- The unit is located on the northern slope of the hill, which means it is not viewable from the south, as is the remainder of the Porongurup Rural Village.

See **Figures 9 and 10** for a view of the Vegetated/Parkland Cleared Landscape Character Unit.

The close proximity to remnant vegetation and concealed location of the unit will ensure that there is minimal visual impact from future development of the Porongurup Rural Village on the Vegetated/Parkland Cleared Land Landscape Character Unit.

Figure 9: View of the Semi-Rural Land Visual Landscape Unit from Chester Pass Road.

Figure 10: View of the Semi-Rural Land Visual Landscape Unit from Chester Pass Road.

3 HOW IS THE LANDSCAPE VIEWED, EXPERIENCED AND VALUED

The Porongurup Rural Village is proposed to be developed on one of the foot hills of the Porongurup Range. The Porongurup locality is reliant on the tourism industry, with activities based in the Porongurup National Park, as well as associated wineries and boutique agricultural land uses in the surrounding area. The most important view in the locality is arguably that from Porongurup Road. As discussed in the Porongurup Rural Village Structure Plan document, this road is considered to be a primary tourist route for the region. This view is considered to be local. As previously identified, the Porongurup Rural Village will be well screened from Porongurup Road by riparian, verge and remnant vegetation.

The Porongurup Rural Village could be described as the first significant high point in the landscape to the north of the Porongurup Ranges. It also has a valuable role in adding to the undulating rural nature of the Porongurup locality. The landscape is accessed and experienced from the surrounding road reserves where local views are obtained. However, the Porongurup Rural Village will also be part of a regional view, being that experienced from the Nancy's Peak Walk Trail within the Porongurup National Park. A view of the Porongurup Rural Village from the Nancy Peak Walk Trail is shown in **Figure 11**.

Figure 11: View of the Porongurup Rural Village area (outlined in red) from Nancy's Peak Walk Trail in Porongurup National Park.

Although the development will be viewable in a regional context, the proposed development takes this into account. More intensive development will be located lower in the landscape of the Porongurup Rural Village, with less intensive development being located toward the top of the hill most exposed in the regional view. Measures to ensure the regional landscape is not impacted are outlined below.

Although the Porongurup Rural Village could be described as visually significant, it should be considered that the sensitive development of the land could ensure that the landscape character of the Porongurup locality is not adversely impacted.

4 HOW THE PORONGURUP RURAL VILLAGE STRUCTURE PLAN WILL ADDRESS VISUAL LANDSCAPE

The Structure Plan recognises the importance of the visual landscape and maintaining the rural character of the Porongurup locality. As such, it is proposed through the Porongurup Rural Village Structure Plan to implement the following controls to mitigate visual impact:

- Revegetation to screen future house sites (Design Guidelines and Structure Plan);
- Retention of existing vegetation to characterise the Porongurup Rural Village and provide mature vegetation (Structure Plan – Remnant Vegetation Protection Areas);
- Rehabilitation and revegetation of Bolganup Creek (Foreshore Management Plan); and
- Building design has to address the visual prominence and scale of housing in relation to the surrounding rural landscape. Sympathetic colours and textures will be required to be used to ensure that subsequent development in the Porongurup Rural Village complements its rural context and in a visual sense, does not become urban-style development (Design Guidelines).

The Porongurup Rural Village Structure Plan seeks to minimise the impact of development on the Porongurup locality. It is believed that the provisions applicable to subdivision and development contained within the Structure Plan and Design Guidelines will be able to mitigate the visual impact of the development on the Porongurup locality.

5 CONCLUSION

This Structure Plan appropriately addresses the visual character of the Porongurup locality and the impact that will occur as a result of the development of the Porongurup Rural Village. Both the Shire of Plantagenet and Western Australian Planning Commission have power to implement suitable conditions relating to the development of the land to ensure that the visual character of the locality is not compromised by the proposed development of the Porongurup Rural Village.