

# **‘KARRIDALE WEST’ LOCAL STRUCTURE PLAN**

**Lots 103 , 104, 2 and Pt 102 Bussell Highway,  
Karridale**



View of site from Ironmonger Road.

**Prepared for Nutan Pty Ltd  
Prepared by Melvista Park Pty Ltd**

**8 February 2016**

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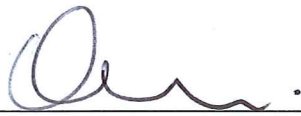
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This structure plan is prepared under the provisions of the Shire of Augusta-Margaret River Local Planning Scheme No.1

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON: 10 June 2016

Signed for and on behalf of the Western Australian Planning Commission



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



Witness

10 JUNE 2016

Date

Date of Expiry: 10 June 2026

## EXECUTIVE SUMMARY

The ‘Karridale West’ local structure plan area comprises 82 hectares of land adjoining the Karridale townsite which is located in the Shire of Augusta Margaret River, between the towns of Margaret River and Augusta. In 1998 the Western Australian Planning Commission adopted the Leeuwin Naturaliste Ridge Statement of Planning Policy (LNRSP) which recommended that Karridale be expanded as a hamlet to a population of 500 people. In May 2011 the Shire adopted the Karridale Hamlet Settlement Strategy (KHSS) as the townsite strategy for the town’s expansion.

This structure plan is informed by the KHSS, LNRSP, the Shire’s Rural Hamlet Design Guidelines and various WAPC policies and guidelines. The plan has been created by a team of consultants comprising town planners, environmental scientists, civil engineers, geotechnical engineers, hydrologists and fire prevention/management experts. All consultants assessments confirm the site is suitable for development. The structure plan provides the detailed planning framework to advance rezoning and subdivision of the site.

The structure plan provides for the development of 77 lots which will ultimately accommodate approximately 154 people. The objectives it achieves are as follows:-

- Protection of three significant stands of remnant forest in private ownership, as preferred by the Shire, with Restrictive Covenants preventing removal of vegetation.
- Determination and consolidation of links to other parts of the KHSS area.
- A permeable subdivision layout which encourages residents to walk to shops and services in the town centre safely and efficiently. The greater majority of proposed lots are within 800 metres of the crossroads shops and facilities.
- A legible and well balanced road layout with a new intersection onto Bussell Highway at a location determined by Main Roads WA.
- Creation of discrete but interconnected clusters of different residential densities.
- Provision of a range of lot sizes to satisfy the full variety of market demands.
- Provision of an efficient road design with emphasis on optimizing the natural assets of the site and its surrounds to provide visual enjoyment. In addition to the tree canopies over Bushby Road and Ironmonger Road, internal roads are punctuated by bushland vistas.
- Incorporation of landscape buffers and building setbacks to minimize intrusion on neighbouring farming activities.
- Provision of non reticulated water supply and self contained effluent waste systems, consistent with Shire and WAPC preferences.
- Introduction of water dependent ecosystems which will also serve a fauna habitat function.
- Protection and enhancement of the Bushby Road and Bussell Highway view corridors.
- Determination of development staging to reflect market demand and efficient deployment of engineering services.

# PART ONE – STATUTORY SECTION

# 1.0 Structure Plan Area

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Part One – Statutory Section applies to the Local Structure Plan for Lots 103, 104, 2 and portion of Lot 102 Bussell Highway and Bushby Road, Karridale, consisting of all land contained within the inner edge of the line denoting the Structure Plan Boundary on the Local Structure Plan Map (Plan 1).

The Structure Plan Area is bounded by Bussell Highway to the east, Bushby Road to the south and Ironmonger Road to the west, as denoted on the Local Structure Plan Map (Plan 1) shown on page 11..

The Structure Plan Area comprises the lots outlined in the table below:

**Table 1: Site Details.**

Lot Number	Plan Number	Street Address	Area
102 (Portion Only)	DP73105	121 Ironmonger Rd	9.10 Ha
103	DP73105	12394 Bussell Hwy	19.71 Ha
104	DP73105	32 Bushby Rd	51.21 Ha
2	D52333	12392 Bussell Hwy	2.03 Ha



## 2.0 Structure Plan Content

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The Local Structure Plan comprises the following:

a. Part One – Statutory section

This section contains the Local Structure Plan Map and statutory planning provisions and requirements.

b. Part Two – Non-Statutory (explanatory) section

This section is to be used as a reference guide to interpret and justify the implementation of Part One.

c. Appendices – Technical Reports and Supporting Plans and Maps.

## 3.0 Interpretation and Relationship with the Scheme

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Unless otherwise specified in this part, the words and expressions used in this Local Structure Plan shall have the respective meanings given to them in the Shire of Augusta-Margaret River Local Planning Scheme No.1 (the Scheme) including any amendments gazetted thereto.

Plan 1 - Structure Plan Map (overleaf) outlines the land use classifications applicable within the Structure Plan boundary. Due regard is to be given to these land use classifications when determining subdivision and development applications applicable to the Structure Plan.

The provisions, standards and requirements specified under Part One of this Structure Plan shall be given due regard in any planning decision making.

Part Two of this Structure Plan and all appendices are to be used as a reference only to clarify and guide interpretation and implementation of Part One.

Scheme amendments will be required at the appropriate time to zone the land to reflect the land use classifications identified on the Structure Plan.

In this Local Structure Plan, unless the context otherwise requires:

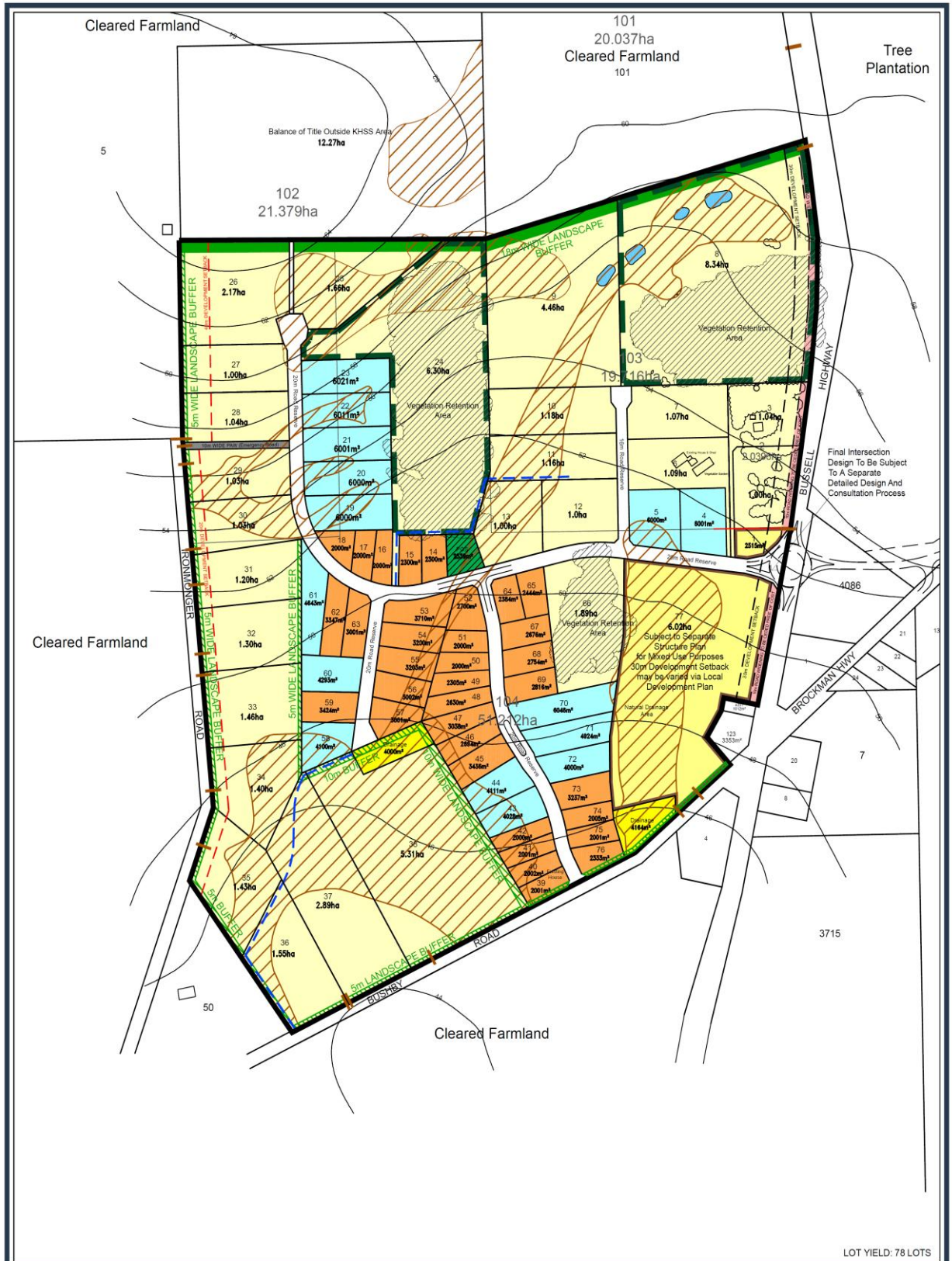
**'Scheme'** means the Shire of Augusta-Margaret River Local Planning Scheme No.1.

**'Structure Plan'** means the Local Structure Plan for portion of Lot 102 Ironmonger Road, Lots 103 and 2 Bussell Highway and Lot 104 Bushby Road, Karridale.

## 4.0 Operation

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Pursuant to Clause 6.2.9.1 of the Scheme, the Structure Plan shall come into operation on the day on which it is endorsed by the Shire of Augusta-Margaret River, following approval by the Western Australian Planning Commission.



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Compiled by: Development Cartographics  
 DATE: 9th FEBRUARY 2016  
 Cadastral and Topographic data supplied by Landgate

RESERVES		LEGEND:	
	Public Purposes (Drainage)		Structure Plan Boundary
	Public Open Space		Development Setback (Farmland)
	Leeuwin Naturaliste Ridge Conservation		30m Development Setback (Highway)
	Residential R5 (> 2000m <sup>2</sup> )		Landscape Buffer
	Residential R2.5 (> 4000m <sup>2</sup> )		Road Widening
	Rural Residential		Building Exclusion Area
	Future Development		Drainage Easements
			Proposed Crossovers

**PLAN 1  
 STRUCTURE PLAN MAP**

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 Shire of Augusta-Margaret River

LOT YIELD: 78 LOTS

## 5.0 Land Use and Subdivision

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### 5.1 Land Use Permissibility

Notwithstanding the Scheme's Zoning Table and land use definitions within Schedule 1 of the Scheme, the following variations apply to the Structure Plan Area:

- a) Art and Craft Centre is an 'A' use.
- b) Consulting Rooms is an 'A' use.

Plan 1 - Structure Plan Map outlines the land use classifications applicable within the Structure Plan boundary. Due regard is to be given to these land use classifications when determining subdivision and development applications applicable to the Structure Plan. Scheme amendments will be required at the appropriate time to zone and/or reserve the land to reflect the land use classifications identified on the Structure Plan.

### 5.2 Subdivision

1. The following matters shall be addressed prior to the issuance of any subdivision approval and the Local Government will not recommend approval to any subdivision unless these matters have been addressed to its satisfaction:

a) A 'Servicing Plan', for the Structure Plan Area, which demonstrates that each lot has a suitable minimum site area requirement for on-site effluent disposal or alternatively, that development will be serviced by an approved reticulated sewerage system. In regard to the on-site effluent disposal assessment required as part of the 'Servicing Plan', a detailed geotechnical assessment will be required for land identified in the Local Water Management Strategy as having groundwater levels within 0.5m of the ground surface.

b) The subdivider demonstrating, to the satisfaction of the Western Australian Planning Commission, that issues associated with the power transmission lines that traverse the Structure Plan Area (i.e. the proposed retention and undergrounding of these lines or alternatively their relocation) have been resolved in consultation with Western Power.

c) The preparation of a 'Shared Paths and Footpaths Plan' which addresses the requirements of 'Liveable Neighbourhoods' and is to the specifications and satisfaction of the Local Government.

2. The following matters will be addressed via recommended conditions of subdivision and the Local Government will not recommend clearance of subdivision conditions unless these matters have been addressed to its satisfaction:

- a) The preparation of a Building Envelope Plan as necessary to ensure development upon "Rural Residential" lots is located consistent with the findings of the geotechnical assessment.
- b) The implementation of the 'Shared Paths and Footpaths Plan', which addresses the requirements of 'Liveable Neighbourhoods' and is to the specifications and satisfaction of the Local Government.
- c) The finalisation of a 'Developer Contributions Plan and Implementation Plan' for community facilities consistent with the expectations of the Karridale Hamlet

- Settlement Strategy and the payment of proportional contributions required by that plan.
- d) The subdivider is to prepare and implement an 'Urban Water Management Plan (UWMP)' to the satisfaction of the Local Government and Department of Water consistent with the approved Local Water Management Strategy. To ensure drainage management is appropriately designed the urban water management plan must cover the entire structure plan area. The UWMP is to address total water cycle management, drainage reserves, road swales and bioretention areas where planting for nutrient stripping purposes is proposed. The UWMP is to include provision of details on water dependent ecosystems proposed within the subdivision to enhance degraded environments and to improve ecological function by providing fauna habitat. In particular detention basins, drainage reserves and roadside bioretention swales are to be addressed.
- e) The subdivider is to prepare and implement a 'Landscaping Management Plan'. The 'Landscaping Management Plan' is to be to the satisfaction and specifications of the Local Government and is to address the following:
- identification, protection and long term management of stands of remnant vegetation;
  - the type and extent of planting and vegetation to be protected within the Landscaping Buffer Areas identified on the Local Structure Plan Map (Plan 1);
  - proposed planting with native species that require minimal watering, fertilizer application and ongoing management;
  - the visual screening of future development from Bussell Highway and Bushby Road to mitigate visual impact and protect the function of these roads as travel route corridors;
  - management of weeds and the spread of dieback;
  - protection of remnant vegetation in the Bussell Highway reserve; and
  - the provision of a landscaping/vegetative land use buffer that minimizes the potential for land use conflict with adjacent agricultural lots to the specification of the Department of Health.
- f) The preparation and implementation of Design Guidelines, via a Local Development Plan, to address built form and integrated sustainability measures appropriate to the rural and historic context of Karridale.
- g) The subdivider implementing the requirements of the endorsed Fire Management Plan applicable to the Structure Plan.
- h) Notifications on title advising prospective purchasers that the lot is subject to a Fire Management Plan which contains ongoing owner/occupier management responsibilities and that any dwelling needs to be constructed to AS3959.
- i) Road intersections to Bussell Highway shall be designed and constructed to Main Roads WA standards.
- j) The 'Road Widening' as shown on the Structure Plan Map (Plan 1), is to be ceded free of cost by the subdivider without any payment of compensation by the Local Government or the Crown. The provision of this road widening will satisfy all the

subdividers obligations in regard to the Brockman Highway and Bussell Highway intersection.

- k) Ironmonger Road is to be upgraded to a suitable standard to cater for the anticipated low traffic demand. Upgrading should be such so as to result in the minimum of vegetation clearing.
- l) A plan detailing crossover locations to lots taking access from Bushby Road or Ironmonger Road is to be provided with the relevant application for subdivision. Crossovers are to be located so as to minimize clearing of road verge vegetation and to provide safe access and egress. 'Reciprocal use' crossovers are encouraged.
- m) Proposed Lots 3 and 4 are not to be created until such time as access is resolved either by the provision of battleaxe legs connecting with a subdivisional road or by decommissioning the existing crossover to Bussell Highway and relocating it to provide access to both lots in a location supported by Main Roads WA.
- n) Notification on Title for lots abutting Bussell Highway advising prospective purchasers of 'Quiet House Design' lots that noise attenuation measures are required for dwellings as prescribed by the Structure Plan.
- o) Road widening may be required along Bushby Road to incorporate a footpath and infrastructure services. Road widening to be ceded free of cost.

### **5.3 Residential**

#### **5.3.1 Density**

- a) The Local Structure Plan Map (Plan 1) defines the residential density applicable to specific areas within the Structure Plan Area.

#### **5.3.2 Locational Criteria**

The allocation of residential densities on the Local Structure Plan Map (Plan 1) are in accordance with the following criteria:

- a) To provide minimum lot sizes consistent with the lack of reticulated water and sewerage services to the land and the necessity to provide these services on-site;
- b) To achieve the higher density land utilisation in the areas with the greatest depth to groundwater;
- c) To provide for a central core of higher density with a transition to larger lots around the periphery of the site; and
- d) To retain a semi-rural ambience.

## 6.0 Development

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### 6.1 Design Guidelines

All development is to comply with the Design Guidelines which form part of the applicable Local Development Plan.

### 6.2 Residential Design Code Variations

Notwithstanding the applicable setback requirements of the Residential Design Codes, development is to be set back from boundaries to avoid the buffer areas as prescribed on the Local Structure Plan Map (Plan 1).

### 6.3 General Development Requirements

1. Use and development will be assessed in accordance with the provisions applicable to the relevant zone, reserve and Residential Design Code (where an R-Code applies) shown on the Local Structure Plan Map (Plan 1).
2. All dwellings are to make provision for the catchment of potable water in accordance with LPS1.
3. Notwithstanding any other provision of the Scheme, the disposal of liquid and solid waste shall be carried out by the installation of sewerage disposal systems to the satisfaction of the Local Government subject to:
  - a) Aerobic treatment units or an effluent disposal system capable of minimizing phosphorous movement from each lot shall be installed to provide treatment and disposal of effluent waste water to the satisfaction of the Local Government.
  - b) A minimum separation of 50m is to be achieved between effluent waste water disposal sites and perennial water courses.
  - c) Grey water disposal and waste water reuse systems are to be installed to the satisfaction of the Local Government and the Department of Health.
4. Where a building envelope has been prescribed by an approved 'Building Envelope Plan', all development on the relevant lot shall be contained within that designated building envelope.
5. Vegetation within the Landscaping Buffer Area identified on the Local Structure Plan is to be maintained by the lot owners and is to screen development from Bussell Highway, Bushby Road and Ironmonger Road, to the satisfaction of the Local Government.
6. Development shall comply with the endorsed Fire Management Plan.
7. Land owners are responsible for the 'owner/occupier' responsibilities as prescribed in the endorsed Fire Management Plan.
8. Dwellings are to comply with AS3959 building standards as required by the applicable Fire Management Plan.

## PART TWO – EXPLANATORY SECTION



## 1.0 INTRODUCTION

Karridale is an established rural service centre located approximately 300 km south of Perth and nestled between the towns of Margaret River and Augusta. By virtue of its strategic location at the offset intersections of Bussell Highway/Bushby Road and Bussell Highway/Brockman Highway, all traffic moving north to south and east to west in the lower South West must pass through the town. Karridale provides daily services to local residents, the broader hinterland and passing traffic, including tourists.

The compact townsite comprises only 33 houses within a 2 km radius however it provides an extensive range of services and facilities befitting a far larger town ie it has two service stations, post office, general store/tearooms, convenience store, tavern and primary school. The town is ideally positioned for population growth.

In 1998 the Western Australian Planning Commission (WAPC) adopted the Leeuwin Naturaliste Ridge Statement of Planning Policy (SPP 6.1) which recommended that Karridale should be expanded, as a hamlet with enclaves, up to a population of 500 people. This policy specifically required the Shire to prepare a townsite strategy to accommodate this growth. In May 2011 the Shire of Augusta Margaret River and the Western Australian Planning Commission (WAPC) adopted the Karridale Hamlet Settlement Strategy (KHSS) as the basis for more detailed planning for the expansion of the Karridale townsite.

This local structure plan represents the next stage of more detailed planning and its purpose is to (1) provide a comprehensive framework for intended land use to facilitate future subdivision and development; (2) coordinate the provision and planning for local infrastructure and facilities and (3) produce a statutory land use plan.

This report is supported by the following specialist consultant reports:-

- Engineering Servicing Report (January 2015) prepared by TME Consultants.
- Environmental Assessment Report (December 2014) prepared by PGV Environmental.
- Land Capability Assessment Report (December 2013) prepared by Land Assessment Pty Ltd.
- Local Water Management Strategy (October 2014) prepared by TME Consultants.
- Revised Surface Water Modelling Report (October 2014) prepared by JDA Consultant Hydrologists.
- Fire Management Plan (September 2014) prepared by RUIC Consultants.

## **2.0 LAND DESCRIPTION**

### **2.1 Location**

The subject site forms part of the Karridale townsite and is located on the north west corner of the intersection of Bussell Highway and Bushby Road. Karridale is located 300 km south of the Perth central business district, approximately 28km south of the townsite of Margaret River and 14km north of the townsite of Augusta. It is approximately 7km from the coast (Hamelin Bay). Refer to Figure 1 Regional Location, overleaf.

### **2.2 History and Population**

The original Karridale townsite was located 2 kms to the west near Bushby Road and Caves Road and was the centre of a huge timber milling industry. The mill was developed and managed by Maurice Coleman Davies who built the jetties at Hamelin Bay and Flinders Bay to export (karri) timber overseas. It was the largest town in the south west and flourished from the 1880's to 1913 when there was a downturn in demand for timber. The mill and town down-scaled over the following decades and in 1961 a bushfire completely destroyed the town which was then located on Caves Road near Bushby Road. The new town was constructed at the strategic intersection of the Bussell and Brockman Highways. The existing primary school, which opened in 1883, remains a reminder of those glory days.

The Karridale townsite has variously been ascribed a population ranging from 60 to 200 people depending on the vastness of the area covered. The townsite sits within the Australian Bureau of Statistics State Suburbs boundary which also includes Hamelin Bay, Kudardup, Deepdene, Molloy Island and Alexandra Bridge, and it is therefore difficult to accurately calculate the town's population. The 2011 Census population within this broader area is 405 persons and is not an accurate reflection of actual population. The "smaller" Karridale townsite comprises only 33 houses within a 2 km radius (say 66 people).

### **2.3 Area and Land Use**

The Structure Plan area approximates 82 Ha as defined on Figure 2. The property has been continuously used for grazing and is predominantly cleared. Surrounding land to the north, west and south is similarly cleared and used for grazing purposes. Land to the east, apart from town centre services and facilities, is used for commercial tree production. Some distance away there are small vineyards to the north and south, and a scattering of tourist pursuits including tourist accommodation.



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Compiled by: Development Cartographics  
 DATE: 16 APRIL 2014  
 New plan supplied by P27 Environmental

**LEGEND:**

Subject Land

**REGIONAL LOCATION**  
**Figure 1**

LOTS 102, 103, 104 AND 2  
 BUSSELE HIGHWAY, KARRIDALE  
 SHIRE OF AUGUSTA MARGARET RIVER





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Compiled by: Development Cartographics  
 64/71 The Arcade, Perth  
 Data missing supplied by Landgate

LEGEND:

- Subject Land..... 
- Cadastral Boundary..... 
- Topographic Contour..... 

**SITE DEFINITION AND TOPOGRAPHY**  
**Figure 2**

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 SHIRE OF AUGUSTA MARGARET RIVER

## **2.4 Legal Description**

There are four lots included in the structure plan area. The three owned by Nutan Pty Ltd are as follows:-

Lot 103 Street No. 12394 Bussell Highway CT Vol 2785 Fol 685 Area 19.71 ha.

Lot 104 Street No. 32 Bushby Road CT Vol 2785 Fol 686 Area 51.21 ha.

Pt Lot 102 Street No 121 Ironmonger Road CT Vol 2785 Fol 684 Area 9.1 ha.

The Shire has requested that the adjoining lot 2 on Bussell Highway (Street No 12392) be included in the structure plan area. This lot, which has an area of 2.04 ha, is owned by Ruth Colette Van Der Bellen and Walter Freeman Potts. CT Vol 2149 Fol 547.

The total structure plan area is 82 ha. Appendix 1 shows the location of the relevant lots

### 3.0 PLANNING FRAMEWORK

#### 3.1 Zoning / Local Planning Scheme No. 1

The Shire of Augusta-Margaret River Local Planning Scheme No. 1 (LPS1), gazetted September 24, 2010, zones the subject land "Priority Agriculture". Clause 6.2.5 of LPS1 lists the matters to be addressed in the preparation of the structure plan.

Accompanying this structure plan is a request to rezone the land to Future Development Zone. Clause 4.2.7 of LPS1 provides that the purpose of the Future Development Zone is "To provide for additional sustainable urban development within and around existing settlements within the Scheme area" and that future subdivision will be based on the endorsed structure plan.

#### 3.2 Local Planning Strategy

The Shire's LPS confirms Karridale will have a planned population of 500 people and that the Shire will undertake a strategic planning exercise to set out the form of expansion of Karridale. In 2006 the Shire commenced preparation of a townsite strategy and adopted the KHSS in early 2011. The LPS also defines most of the land west of Bussell Highway within Visual Management Zone A.

#### 3.3 Karridale Hamlet Settlement Strategy

The Shire of Augusta Margaret River adopted the KHSS in May 2011 immediately after it was endorsed by the WAPC. The KHSS sets the framework for the planned, coordinated and sustainable expansion of the Karridale townsite. The KHSS plan is attached as Figure 3 and the plan with notations is attached as Appendix 2. The plan includes the subject site as well as 8Ha of Lot 100 on the east side of Bussell Highway and 11Ha for an enclave adjoining the Karridale Primary School 2 kms to the south.

The table hereunder identifies the allocation of indicative lot yields through development investigation areas and also an enclave investigation area. This Structure Plan area addresses all of DIA 2 and DIA 3, and the greater part of DIA 1 ie all land within lots 103 and 104.

Development Area	Indicative Lot Yield	Total Area	Trigger Level for Subsequent Stage
DIA1	113	19ha	DIA2 on 50% completion of indicative lot yield in DIA1 – approximately 56 lots
DIA2	40	11.3ha	EIA1 and 2 on 50% completion of indicative lot yield DIA2 – approximately 20 lots
DIA3	12	17.1ha (including 'wet area')	In conjunction with DIA1
EIA1	25	11ha	N/A

(Extract from Section 4.3 of Karridale Hamlet Settlement Strategy).

The preceding table promotes a yield of 190 lots in accordance with the earlier draft KHSS which allocated 140 lots to the subject site; 25 lots to lot 100 and 25 lots to EIA1 near the school and hall. On 11 December 2013 Council resolved to adopt a structure plan for lot 100 which provides for 78 lots. This structure plan also provides for 78 lots yielding a total of 181 lots between the three owners/developers.

Section 6.0 of the KHSS (Monitoring and Review) also accepts that over time there may be more demand for land in Karridale and states *“A greater realized demand for development may require reconsideration of population growth distribution in the longer term”*.

The KHSS allocates the subject site for a variety of lifestyle lots whilst specifying that lot 100 to the east is envisaged for *“comparatively larger lots”* in a *“clustered fashion consistent with the principles of the Shire’s Hamlet Design Guidelines”* and EIA1 to the south has a similar future.

The KHSS identifies various issues which require attention and/or resolution both in the report and in the notations (General Precursors To Development) shown on the adopted plan.

### **3.4 Leeuwin Naturaliste Ridge Statement of Planning Policy (SPP 6.1)**

In 1995 the WA Planning Commission undertook the Leeuwin-Naturaliste Ridge Planning Review which addressed growth options in the southwest. In September 1996 the WAPC published its Leeuwin-Naturaliste Ridge Planning Review Urban Settlement Study which identified Karridale as a growth town and allocated 570 additional lots with an additional population of 1,710 people as its *“expansion potential”*.

In 1998 the WAPC adopted the Leeuwin Naturaliste Ridge Statement of Planning Policy (LNRSP) which identified Karridale as a *“hamlet with enclaves”* which should function as a rural service centre with a focus for rural living and tourist facilities. This Policy was reviewed in 2003 and no changes were made which impact upon Karridale. The LNRSP defines a hamlet as having a permanent population of less than 500 people. The overall vision of the Policy is to achieve *“Creative, vital and sustainable communities living in balance with economic development and the unique landscape and environmental values”* of the policy area. The policy area is extensive and extends over 130 kms from Cape Naturaliste in the north to Cape Leeuwin in the south, and from the coast to Bussell Highway.

Significant LNRSP issues required to be addressed in the structure plan include:-

- Providing a range of innovative settlement options to accommodate population growth and ensure a choice of accommodation types.
- Water sensitive urban design.
- Supporting the use of non-conventional servicing solutions.
- Presumption against clearing of remnant vegetation.
- Bushby Road is a Travel Route Corridor Within Rural Landscape Significance.

In regard to infrastructure, the Policy states (in Table 1 – Settlement Hierarchy) *“Innovative on-site water supplies, effluent disposal and power on an individual or cooperation basis will be considered”*. This is consistent with the Shire’s preference for non-standard engineering services.

### **3.5 South West Framework (October 2009)**

The WAPC's South West Framework (October 2009) addresses coordinated growth of the Cape to Cape area and the Chairman's Foreword advises that it has been endorsed by the WAPC "*as a regional strategy and will be listed in State Planning Policy 1 to provide a big picture view of the long term future of the region*" and that it "*provides direction for regional planning to local governments for the preparation of more detailed local planning strategies and local planning schemes*". This document identifies Karridale as a settlement with medium growth potential similar to Witchcliffe, Cowaramup and Gracetown. (Map 5: Settlements on page 20).

### **3.6 Other WAPC Policies and Guidelines**

There are numerous WAPC documents that have some relevance to the Structure Plan and the most relevant of these include (1) SPP No 1 State Planning Framework Policy which identifies the key principles which guide the way that future planning decisions are made (the South West Framework forms part of SPP No 1) and, inter alia, promotes "*housing choice and diversity to suit the needs of different households*"; (2) SPP No 3 Urban Growth and Settlement which sets out the principles and considerations which apply to planning for urban growth, including sustainability principles; (3) SPP 3.6 Development Contributions For Infrastructure which addresses how contributions to infrastructure can be determined and formalized; (4) Liveable Neighbourhoods Edition 3 which operates as a development control policy to facilitate the creation of sustainable communities, (5) State Planning Strategy 1997 which addresses management of growth into the future, and (6) Planning For Bush Fire Protection Guidelines May 2010 (which is proposed to be replaced by draft SPP3.7).

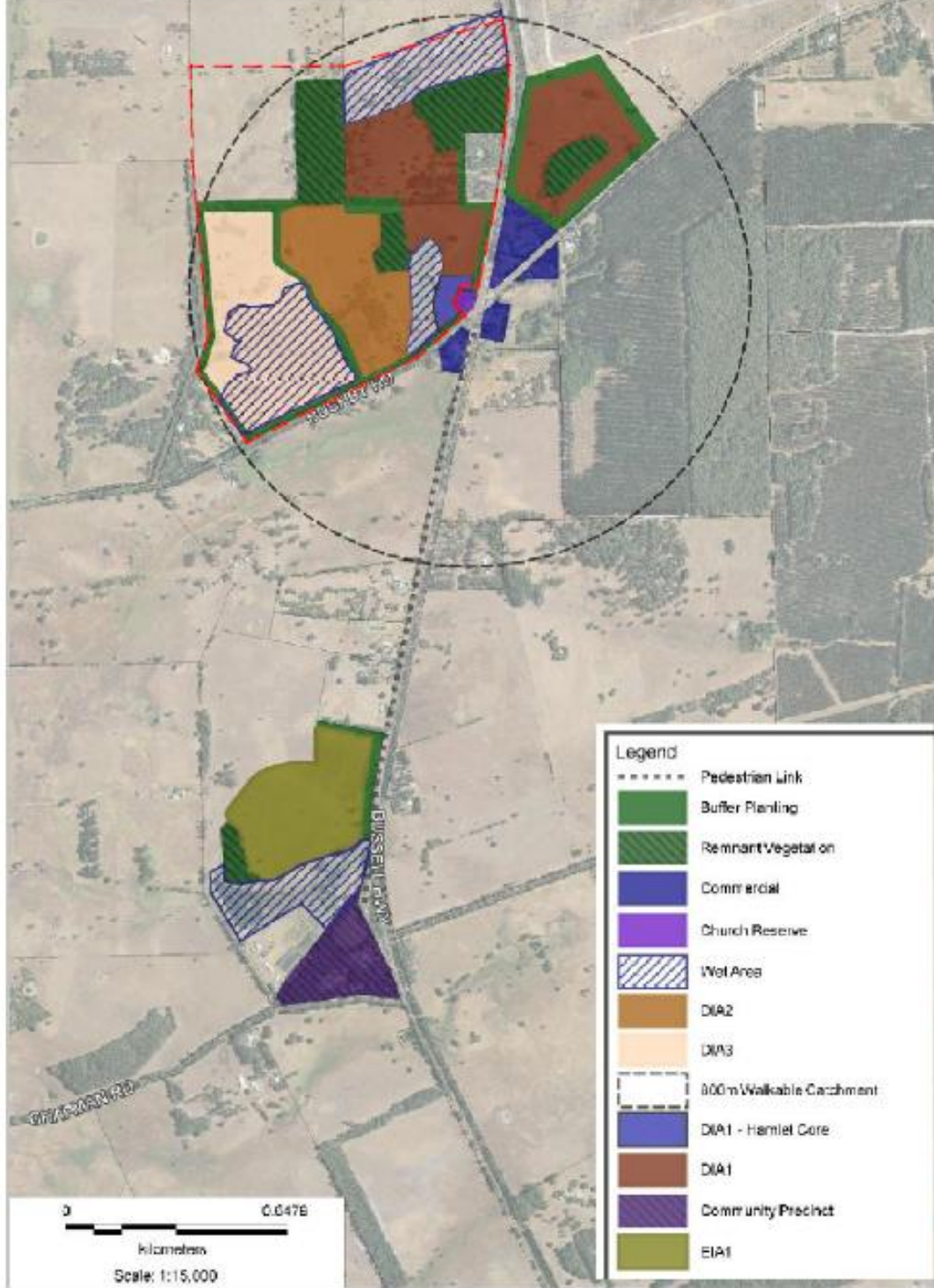


ENDORSED

Chief Executive Officer

Shire President

WA Planning Commission



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Scale 1:15,000



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 DATE: 16/07/2014  
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**LEGEND:**

Subject Land

**KARRIDALE HAMLET SETTLEMENT STRATEGY (Adopted May 2011) Figure 3**

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 Shire of Augusta-Margaret River

## **4.0 PLANNING ISSUES AND SITE ASSESSMENT**

Section 6.2.5 of LPS No 1 lists the many standard matters to be addressed and resolved in the structure plan whilst the KHSS identifies site specific planning, environmental and engineering issues requiring attention. The LNRSP identifies particular environmental and visual considerations and issues. Additionally, the Shire's Rural Hamlet Design Handbook provides objectives and checklists for achieving good planning outcomes.

Some of the more significant issues requiring attention are shown on Figure 4 - Planning Issues. The Karridale townsite is located at a busy crossroads intersection but in a generally peaceful and attractive rural setting. This character, made up of pastures, tree thickets, open views, tree lined roads and a rustic spaciousness, is to be maintained and enhanced where possible in future development. The specific issues identified in the KHSS are as follows.

### **4.1 Remnant Bushland**

The subject site has been extensively cleared in the past for grazing purposes and contains four thickets of trees overlaying gravel, and scattered trees elsewhere which create a parkland cleared effect. The three largest tree thickets should be retained in one form or another and their tenure should be addressed at structure planning stage. PGV Environmental was commissioned to undertake an environmental assessment of the site which included an evaluation of these thickets.

### **4.2 Wet Areas**

The two southern areas subject to seasonal inundation are marked on Figure 4. The KHSS stipulates that the eastern area should not be developed however the western area can be developed subject to location of building envelopes outside the wet areas. Twelve bores were located on the subject site through the winters of 2010 and 2011 and no surface water was recorded at these two locations except at their very southern extremities adjoining the Bushby Road reserve. The future of these two areas will be determined following engineering/geotechnical assessment and the recommendations of the local water management strategy.

### **4.3 Land Use Interfaces**

The KHSS prescribes that rural land uses outside the structure plan area should not be restricted or curtailed by future residential development. The proposed rural residential development on the east side of Ironmonger Road requires future houses to be set back sufficiently from that road to allow the grazing activity on the west side to continue unhindered. The land to the north of the structure plan area will continue to be used for grazing and/or agricultural purposes and the KHSS recommends a boundary screen buffer be planted to minimize any potential incompatibility.

### **4.4 Screen Buffers and Visual Corridors**

It is a requirement of the KHSS that screen buffers be introduced along Bushby Road, Bussell Highway and internally to demarcate different residential densities, eg Rural Residential/Residential interface. Additionally, the LNRSP identifies Bushby Road as a

travel route corridor within rural landscape significance and care is required in determining how this character and visual appeal can be incorporated into a planned expansion of the townsite.

#### **4.5 Tourism/Employment**

The focus of future employment opportunities in the broader south west is on agriculture, wineries, food production and tourism. In earlier iterations of townsite strategies for Karridale the south eastern corner of the subject site was earmarked for tourist development. The adopted KHSS promotes tourist development where possible and for this reason the south eastern corner remains flexible in terms of future land use ie either residential or tourism or commercial.

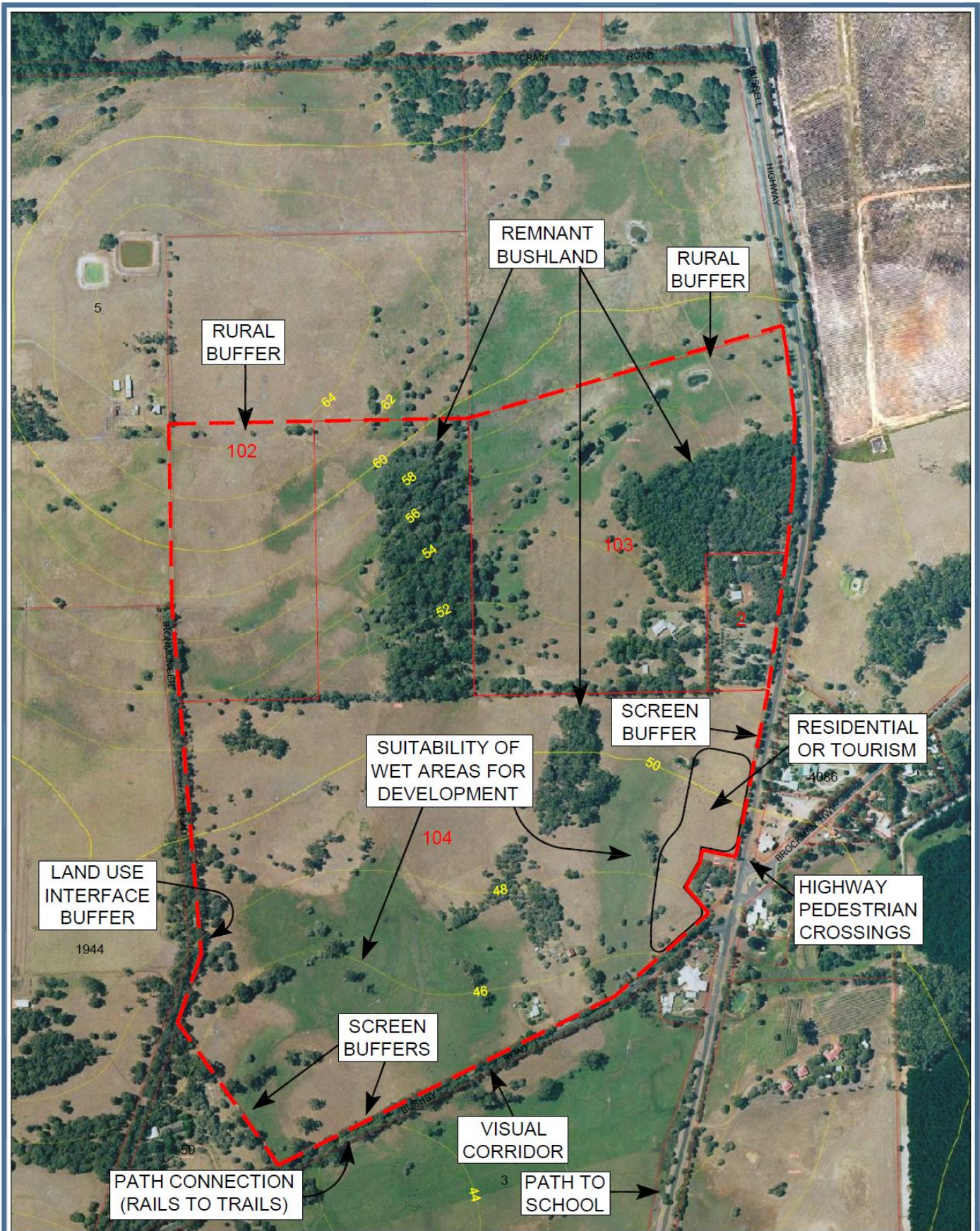
#### **4.6 Path Connections**

There is a requirement for a dual use path to be constructed between the commercial core (at the crossroads) and the community core (Primary School) near Chapman Road. The Shire also wishes to determine the viability and possible location of a dual use path connection along Bushby Road to the Rails to Trails reserve adjacent to Caves Road. The Heritage Council of WA has agreed to fund the construction of the Rails to Trails path from Margaret River to Augusta progressively.

#### **4.7 Highway Crossings**

An increase in population in Karridale will result in an increase in pedestrians crossing Bussell Highway. As such, safe pedestrian crossing points need to be determined and subsequently confirmed with Main Roads WA (MRWA) and the Shire.





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LEGEND:

- Subject Land.....
- Cadastral Boundary.....
- Topographic Contour.....

**PLANNING ISSUES**  
**Figure 4**

LOTS 102, 103, 104 AND 2  
 BUSSETT HIGHWAY, KARRIDALE  
 SHIRE OF AUGUSTA MARGARET RIVER



## **5.0 VISUAL SITE ASSESSMENT – SITE OPPORTUNITIES**

A visual assessment and sieve mapping of the site was carried out in accordance with the Shire’s Rural Hamlet Design Handbook (RHDH) to identify site features which should be protected and enhanced. It essentially identified opportunities presented by the site. This assessment addressed slope, aspect, views (in and out), hydrology/flood risks and remnant bushland. It also sought to identify special locations of particular attraction or a sense of place (referred to as ‘terroir’ in the RHDH). The findings of this assessment are considered to be relevant to the structure planning process and indeed should form the basis of that process in terms of landscape features and site character.

As the site was cleared many decades ago for grazing purposes its natural attributes are minimal and this is a significant reason for their retention in one form or another. Figure 5 – Visual Assessment highlights the following significant site features.

### **5.1 Remnant Bushland**

The four thickets of remnant bushland comprising differing combinations of karri and peppermint trees are clearly visible from Bussell Highway, Bushby Road and Ironmonger Road. Apart from being a dominant visual feature, they have the potential to provide habitat for certain species of fauna and avifauna. See photos 1 and 9 in Figure 5.

Numerous trees including karri, peppermint and poplars line Bussell Highway and are to be retained. To some extent these trees already serve a screen buffer function which can be augmented by additional strategic planting providing there is no additional fire risk.

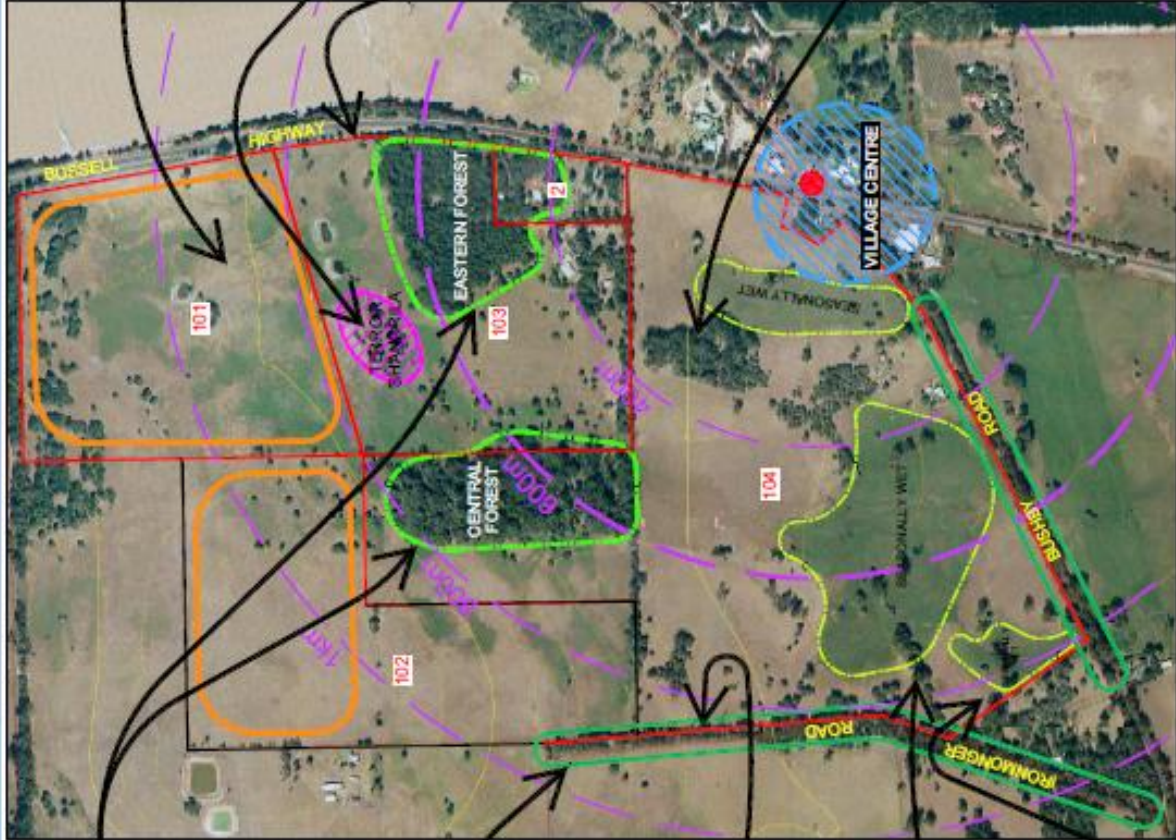
### **5.2 Tree Lined Roads**

Bushby Road and Ironmonger Road are lined with trees which arch over the road creating a cathedral effect. Such visual and experiential splendour is usually not available in new subdivisions as the effect takes 50 years or more to create. This very special feature is to be protected and where necessary enhanced by further planting of similar tree species. See photo 2 on Figure 5.

### **5.3 Sense of Arrival**

Karridale can be approached from four different directions however the most common approach is from the north where the eastern bushland thicket on the subject land announces arrival some 200m before the “Karridale” townsite sign. This sense of arrival is accentuated by the row of poplar trees within the highway reserve just north of this bushland thicket both in spring and summer by the bright green leaves and also in autumn and winter when they are not in leaf. See photo 8 Figure 5.

Arrival in Karridale from the west is a memorable experience because of the tree canopy effect in Bushby Road. The sense of arrival from the east along Brockman Highway is accentuated by a pine forest and entry from the south along Bussell Highway is generally via an open pasture visual experience.



**1. REMNANT TREES**  
To be conserved



**2. COUNTRY LANE**  
Ready made tree lined meandering road



**3. IDYLIC WESTERN VIEW**  
Across tranquil paddocks to Leeuwin Naturaliste Ridge



**4. LIFESTYLE RETREAT**  
Ideal Living Environment



**5. ENCLOSED SPACE**  
Looking south to tree lined Bushby Road



**6. PRODUCTIVE LAND**  
Accredited Organic Farm



**7. TERRAIR SHANGRILA**  
Especially beautiful shady setting



**8. POPLAR PARADE**  
Stunning visual highlight of contrasting colour and shape



**9. KARRI SPLENDOUR**

**VISUAL ASSESSMENT**  
Figure 5

**LEGEND:**

- EXISTING TREE LINED ROADS.
- EXISTING FORESTS
- PRODUCTIVE LAND

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Scale 1:10000 AS

0 50 100 200 300 400m

Consulted by Environment Consultants  
10/3, 20/10/2018 15:30:00 to 16:30:00  
Prepared and to project by the applicant for Council

LOTS 102, 103, 104 AND 2  
BUSSELL HIGHWAY, KARRIDALE  
SHIRE OF AUGUSTA MARGARET RIVER

#### **5.4 Parkland Cleared Areas**

The western part of the subject site, particularly adjacent to Ironmonger Road and Bushby Road, is gently sloping and graced with mature karris and peppermints. This part of the property has immediate appeal and attraction and as such is an ideal location for the first stages of development. The scattering of trees in the central southern portion of the site also presents an attractive location for Rural Residential development. See photos 3, 4 and 5 in Figure 5. Scattered trees will be retained as they contribute to the character and amenity of the area.

#### **5.5 Seasonally Inundated Land**

The land in the southern portion of the site subject to seasonal inundation represents a feature of spaciousness that should be retained in the ultimate subdivision and development of the site. The eastern “wet” area is required by the KHSS to remain undeveloped and therefore always retain its openness which in turn provides a view corridor to karri/peppermint remnant bushland which dominates the skyline. The western “wet” area is able to be developed however it should contain no improvements other than fences and trees to ensure spaciousness and greenery into the future.

#### **5.6 Productive Land**

The northern portions of original lots 4023 and 4024 which have been omitted from the KHSS are attractive parcels of productive land, as identified in Figure 5. These two excluded parcels are now lots 101 and part lot 102, of 20 Ha and 12 Ha respectively, and are intended to be working farms which create some employment and local activity which benefits Karridale generally. Lot 101 has organic farming accreditation and has been purchased by organic farmers.

## **6.0 GEOMORPHOLOGY AND SOILS**

### **6.1 Landform and Soils**

The subject site is very gently undulating and falls from 65m AHD at the northern boundary of Lot 102 to 43m AHD at Bushby Road. Refer to Figure 2 – Site Definition and Topography. It is composed of two main landform areas being (1) Gentle Slopes and (2) Wet Flats. The Gentle Slopes landform covers the majority of the site, with slopes ranging from 1:20 to 1:50. These slopes generally correspond with the Cowaramup Flats land capability mapping of Tille and Lantzke. The gentle nature of these slopes and the permeable soil types over much of the area result in a low run-off rate. The Wet Flats landform is concentrated in two areas that adjoin Bushby Road and another less distinct area in the north east. These areas are flatter and often have an undefined flow path traversing them. Slopes range from 1:50 to 1:100. These areas are known as Cowaramup Wet Flats.

There are no defined water courses on the subject land. The Department of Water's Hydrology Dataset identifies two seasonal natural drainage lines outside the subject land which receive flows from the subject land, mostly to the waterway to the south of Bushby Road.

The gentle slopes formations are characterized by loamy gravels, duplex sandy gravels, semi-wet soils and grey deep sandy duplexes that typically support marri jarrah forest and woodland. They have also been described as gravelly duplex (Forrest Grove) and pale grey mottled (Mungite) soils. The soil types in the Cowaramup Wet Flats areas are generally grey deep sandy duplexes and pale sandy earths, sometimes referred to as poorly drained flats with pale grey mottled (Mungite) soils.

### **6.2 Geotechnical Information**

The Tille and Lantzke mapping of Cowaramup soils describes them as overlaying granitic rock. In August 2006 TME supervised the excavation of 9 test holes to a depth of 1.3m or at refusal. The soil testing analysed Particle Distribution, Consistency Limits and Phosphorus Retention. The soil testing revealed a range of soil types including wet sands, gravelly sands, clayey sands, fine grey sands, brown sands and yellow sands near the surface. White clay was evident near the south east and south west corners while coffee rock was encountered in the eastern part of lot 104.

The presence of coffee rock suggests that there is a possibility of Acid Sulphate Soils (ASS) on the site, although there are no visible effects. The KHSS report refers to ASS representing a moderate to low risk within 3m of the surface. More detailed investigations will be undertaken if significant excavation is proposed. At this early stage only minor excavation ( 0.5m to 1m) is proposed for road construction and drainage lines, and therefore ASS is unlikely to be a concern.



## **7.0 ENVIRONMENTAL ASSESSMENT**

The Structure Plan Environmental Assessment carried out by PGV Environmental “*has identified no environmental factors that restrict or deny development of the site as proposed in the structure plan. The environmental condition of these lots is degraded with most of the area cleared for grazing and remnant bushland generally parkland cleared with no intact native understorey*”. The assessment identified possible constraints and through the course of the investigation the structure plan was modified to protect sites as recommended and to preclude or minimize any possible negative impacts. PGV’s report is submitted with this structure plan.

### **7.1 Vegetation and Vegetation Condition**

Most of the vegetation has been cleared for grazing purposes with the exception of four remnant bushland thickets and various scattered trees. These thickets are shown on Figure 6 (Vegetation Condition) and are located as follows - (i) 4 ha eastern clump on Bussell Highway above lot 2, (ii) 6 ha western clump, (iii) 1.5 ha central clump and (iv) 1 ha southern dispersed clump. PGV Environmental examined the remnant vegetation and confirmed that the predominant species were peppermint trees (*Agonis flexuosa*), karri (*Eucalyptus diversicolor*) with some occasional melaleuca trees. The condition of these tree thickets was rated according to the condition scale of Keighery (1994) with the conclusion that as the vegetation has very little understorey it is in a Completely Degraded to Degraded condition. Refer to Figure 6.

There is a recommendation that three larger bushland thickets be retained and protected, and this is accommodated in the structure plan. The fourth thicket is considered to be suitable for incorporation into the subdivision because the trees are less dense, dispersed and smaller in height. PGV Environmental also assessed the two remnant bushland sites on lot 100 to the east and EIA1 to the south. This assessment is addressed in Sections 2.6.1 and 3.4 of the PGV Environmental report.

### **7.2 Flora**

The PGV Environmental assessment identified that there were potentially three species of Declared Rare Flora (DRF) or Priority Flora being present on site. These priority species are not protected by the Wildlife Conservation Act 1950, or the Commonwealth Environment Protection and Biodiversity Act 1999, however there is a general presumption that they should be protected where possible. The report concludes that these three species (*Acacia subracemosa*, *Bossiaea disticha* and *Eucalyptus calcicola* sub species *calcicola*) are unlikely to be present on the site because of the absence of associated soil types and the absence of understorey due to continuous grazing by livestock.

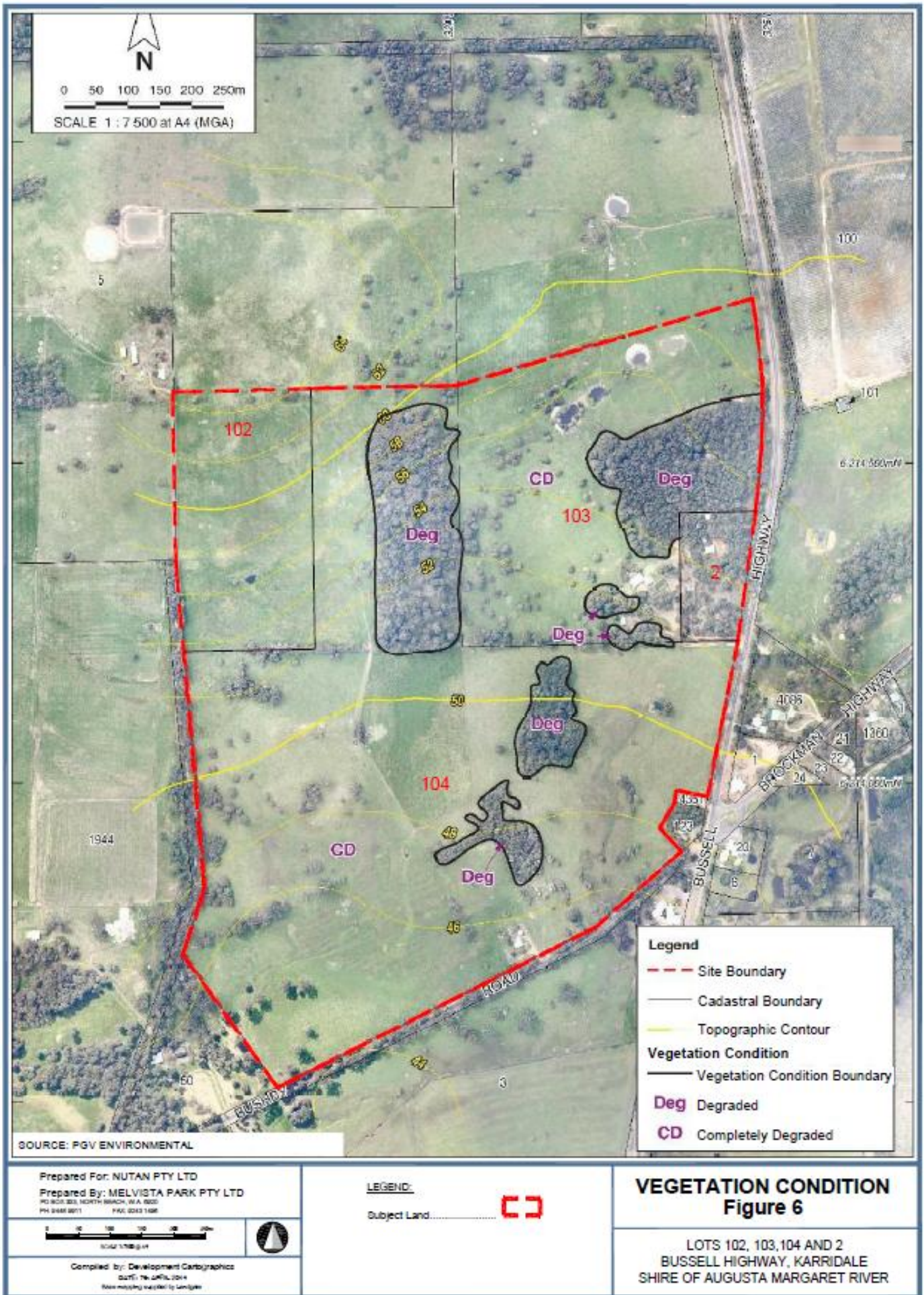
### **7.3 Fauna**

The extensive clearing and grazing on the site has degraded its habitat value through the removal of understorey species. The remnant bushland is fragmented by pasture and cropping areas and also by surrounding roads. The two larger areas of remnant bushland, although degraded, are of sufficient size to provide habitat for some fauna species.

The environmental assessment addresses fauna in section 2.7 and identifies that there are six significant species which might possibly occur in the Karridale region, ie Chuditch, Southern Brush-tailed Phascogale, Forest Red-tailed Black Cockatoo, Balston's Pygmy Perch, White-bellied Frog and Crested Shrike-tit. The assessment concludes that five of these species are unlikely to be found on the site because of the absence of suitable habitat and food. The only species which might possibly be on site or in the locality is the Forest Red-tailed Black Cockatoo which is found from Gingin in the north to Albany in the south. It feeds on various species of eucalypt and nests in hollows with depths of 1 m to 5 m. The assessment concludes that the cockatoo may forage on the site but is *"not likely to nest on the site because of the lack of suitable hollows"*.

#### **7.4 Heritage**

A search of the Department of Indigenous Affairs Aboriginal Heritage Inquiry System showed no sites have been identified within the subject land or the extended search area. Over the past 10 years there have been five surveys conducted within the vicinity of the subject land and no sites have been identified. Searches of the Heritage Council of WA's State Register of Heritage Places and the SEWPaC Heritage Database (SEWPaC 2011) did not show any sites located on the subject land.



SOURCE: PGV ENVIRONMENTAL

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 DATE: 16 APRIL 2014  
 Base mapping supplied by Landgate

**LEGEND:**

Subject Land..... 

**VEGETATION CONDITION  
 Figure 6**

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 SHIRE OF AUGUSTA MARGARET RIVER

## **8.0 WATER MANAGEMENT**

### **8.1 Surface Water Analysis**

Analysis of the surface water was undertaken by JDA Hydrologists through mid to late 2011 and presented as a report entitled Karridale Surface Water Modelling (2011). This was revised in October 2014 to address the revised structure plan and a copy of the new report (Revised Surface Water Management October 2014) informs the Local Water Management Strategy (October 2014) prepared by TME Engineers which accompanies this structure plan. The subject land is within the Turner Brook catchment with all flows being directed southward to a minor waterway on the south side of Bushby Road. Five catchments were investigated by JDA Hydrologists and three of these have an internal and external component; one is completely outside the subject land and flows northward, ie away from the land, and the other catchment is completely contained within the subject land.

### **8.2 Groundwater Analysis**

Groundwater levels and quality were monitored by TME Engineers from September 2010 to September 2012 on a monthly basis. All 12 bores are within the superficial aquifer with bores being drilled to 3m or refusal at solid rock. Based on the available data, the groundwater descends from approximately 63m AHD at the northern boundary of Lot 102 to approximately 44m AHD in the south west corner, representing a fall of 19m. The highest groundwater levels were in September 2011 following consistent rains through winter and early spring.

The separation distance of the water table from the natural surface varies across the site with bores recording separations from 930mm to surface ponding. Groundwater at the surface enters the surface water system which discharges under Bushby Road, via culverts, in the same general direction as the groundwater flow. In the summer and autumn period of 2010/11 most bores dried out.

The subject land is within the Blackwood Groundwater Area and Cape to Cape South sub area. There are two recognized aquifers under the subject land, ie the Leeuwin Surficial and the Leeuwin Fractured Rock.

### **8.3 Wetlands**

The Department of Water (Hydrology Dataset) confirms there are no waterways on the subject land. The areas of Cowaramup Wet Flats formation are susceptible to seasonal inundation. Through the winter and spring of 2011 and 2012 the wet flats areas exhibited no surface water except in small isolated locations alongside culverts in Bushby Road. The rainfall in 2014 was greater than the general average and visible surface water was minimal - again at the southern extremities along Bushby Road. The KHSS identifies that the south eastern wet flats area is not to be developed for residential purposes however other wet flats areas are capable of development providing building envelopes are not located on this formation.

### **8.4 Local Water Management Strategy**

The KHSS identified that a LWMS was to be prepared and form part of the Structure Plan Report. JDA Hydrologists undertook surface water modeling and TME Engineers

prepared the LWMS which is submitted as a separately bound report. The objective of the LWMS is to identify the best management practices approach to water management issues that relate to the development of the subject site. This includes managing, protecting and conserving the total water cycle of both the local environment and the broader catchment.

In particular, the LWMS addresses and recommends:-

- stormwater management that incorporates the latest water sensitive urban design practices,
- opportunities for stormwater and greywater harvesting and reuse,
- groundwater resource management,
- protection of water dependent ecosystems from development and
- sustainable water servicing.

The Shire is considering funding a District Water Management Strategy and the information collected in this LWMS is able to be directly transferred to a DWMS. TME Engineers have also prepared a LWMS for Kudardup which will also inform a future DWMS.

A major function of the LWMS is to provide a drainage framework that ensures post development flows match pre development flows. This is achieved via flows being directed down drainage reserves and road swales to detention basins as shown in Figure 7 – Post Development Surface Water Management Catchments, Flow Paths and Drainage Widths (overleaf).

## **8.5 Water Dependent Ecosystem Management**

There are no water dependent ecosystems on the subject site however there will be a series of basins and reserves introduced to manage flows from rain events, and these will be developed as water dependent ecosystems, with tolerance for dry periods. The Local Water Management Strategy recommends the following, as shown in Figure 8 overleaf:-

- Planting of portion of the seasonally inundated land identified on the structure plan as 'Natural Drainage Area' as a living stream.
- Construction of drainage detention basins at different depths and planting native wetland sedges and rushes.
- Roadside swales to be planted with native riparian species to assist water cleansing.
- Drainage reserves will comprise retention basins and swales which will be similarly planted. Where appropriate, swales will meander to follow natural flow.

The overall environment is degraded as a result of long term farming use and water flow areas will be enhanced to facilitate ecological functioning and introduce habitats for smaller fauna.





Figure 11 - Post Development Surface Water Management Catchments, Flow Paths and Drainage Widths

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 DATE: 12th JANUARY 2015  
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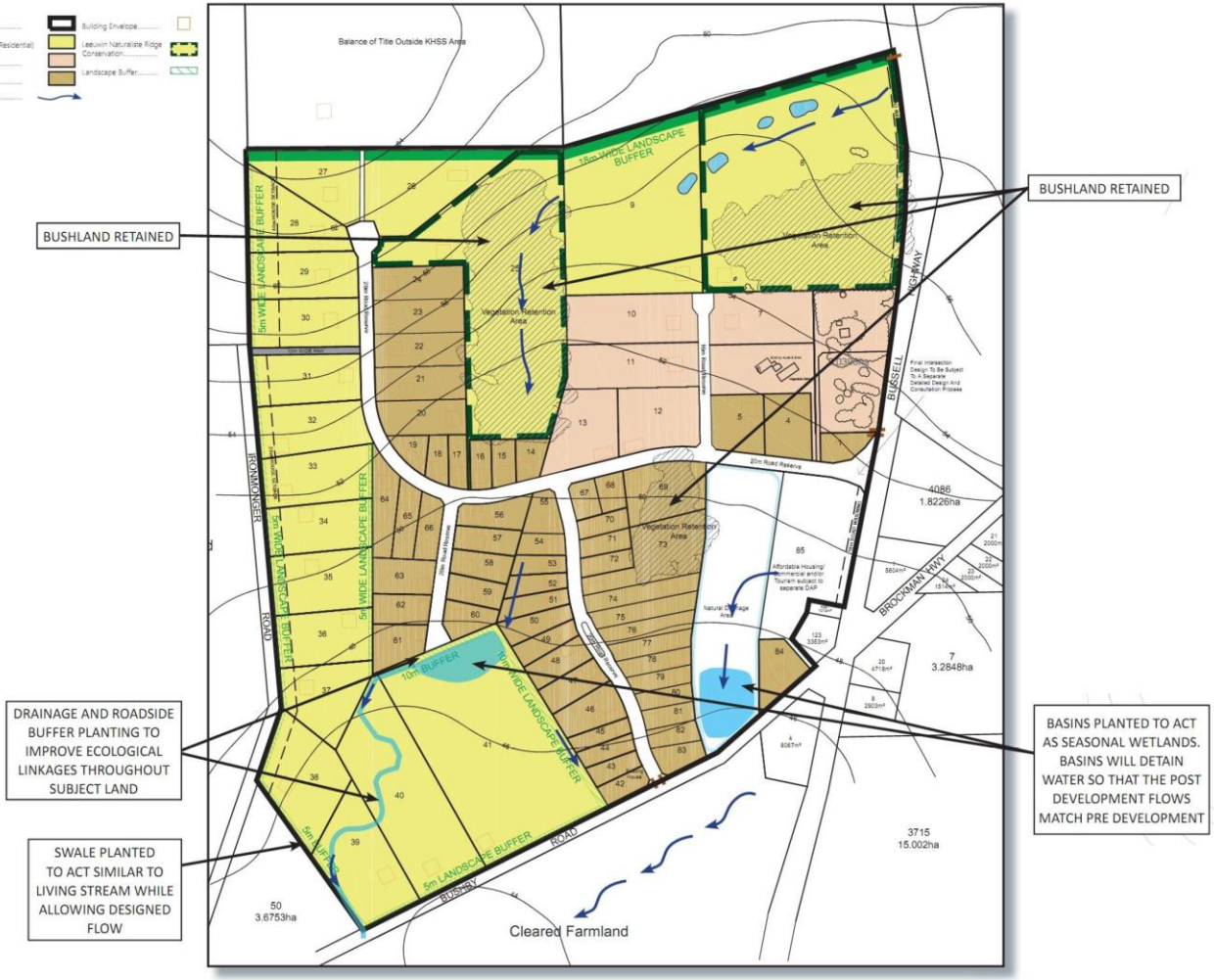
LEGEND:

Subject Land.....

**POST DEVELOPMENT SURFACE WATER MANAGEMENT CATCHMENTS, FLOW PATHS & DRAINAGE WIDTHS**  
**Figure 7**

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 SHIRE OF AUGUSTA MARGARET RIVER

LEGEND:  
 Subject Land  
 Farmland Interface Lots (Rural Residential)  
 Rural Residential  
 Special Residential  
 Seasonal Flow Line  
 Building Envelope  
 Levee/Natural Ridge Conservation  
 Landscape Buffer  
 Balance of Title Outside KHSS Area



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LEGEND:

Subject Land.....



## WATER DEPENDENT ECOSYSTEM MANAGEMENT

### Figure 8

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 SHIRE OF AUGUSTA MARGARET RIVER

## **9.0 BUSHFIRE PREVENTION AND MANAGEMENT**

The subject site is predominantly cleared and used for grazing purposes. However it also contains four thickets of trees of different areas and densities which generally overlay gravel. See Figure 2. The northern two copses are approximately 6 ha and 4 ha each in area and contain mature and semi-mature eucalypts and peppermint trees. The central copse of approximately 1.5 ha contains mature karri and peppermint trees in a less dense arrangement than the two larger copses. The small copse to the south contains mostly stunted semi mature trees over a gravel layer but also in a less dense and dispersed arrangement.

### **9.1 Fire Risk**

Rural Urban Interface Consultancy (RUIC) was commissioned to assess the site and its surrounds and prepare a suitable fire management plan (FMP) which accompanies this report. RUIC identified the two major fire threats were (1) four disconnected copses of trees on the site and (2) proposed aesthetic landscape buffers.

The four disconnected tree copses on site contain degraded mature and semi-mature trees but negligible understorey due to long term grazing. Their level of risk varies according to their size and density, and would be exacerbated if they were linked. The FMP acknowledges the two larger copses are to be set aside as private conservation lots (with a Leeuwin Naturaliste Ridge Conservation reservation); the middle copse of approximately 1.5 ha will be retained on private land with a Restrictive Covenant preventing removal of vegetation and the southern copse of 1 ha will be included within residential subdivision again with a Restrictive Covenant preventing removal of vegetation.

RUIC undertook a detailed site assessment of the vegetation structure and arrangement of fuel loads that would contribute to bushfire behavior. In terms of bushfire related risk Figure 2C of the FMP identifies the two larger copses as extreme; the smaller copses as moderate and the pastures as low threat. Overall the site is subject to low to moderate bushfire hazard suitable for the development proposed.

All building envelopes are located to ensure Bushfire Attack Level ratings do not exceed BAL-29. The fire management plan shows building envelopes for each proposed lot.

Council at its Meeting on 11 December 2013 required various modifications to the previously advertised structure plan and in particular required a reduction in traffic being generated onto Ironmonger Road. Shire officers then recommended an internal road layout which removed a road connection into Ironmonger Road and resulted in a long cul de sac. The revised structure plan complies with this directive and introduced a pedestrian access way (PAW) between the proposed subdivision and Ironmonger Road to ensure pedestrian/cyclist permeability and community connection. The FMP recommends this PAW, which is less than 200 m from the head of the cul de sac, doubles as an emergency access. This ensures dual access and egress for emergency vehicles in the event of a fire and confirms the acceptability of the cul de sac.

### **9.2 Vegetation Buffers**

The proposed vegetation buffers promoted in the KHSS to demarcate different residential densities and other aesthetic considerations, were addressed in detail in the April 2012 version of the FMP which related to the structure plan presented to the Shire dated 12 April



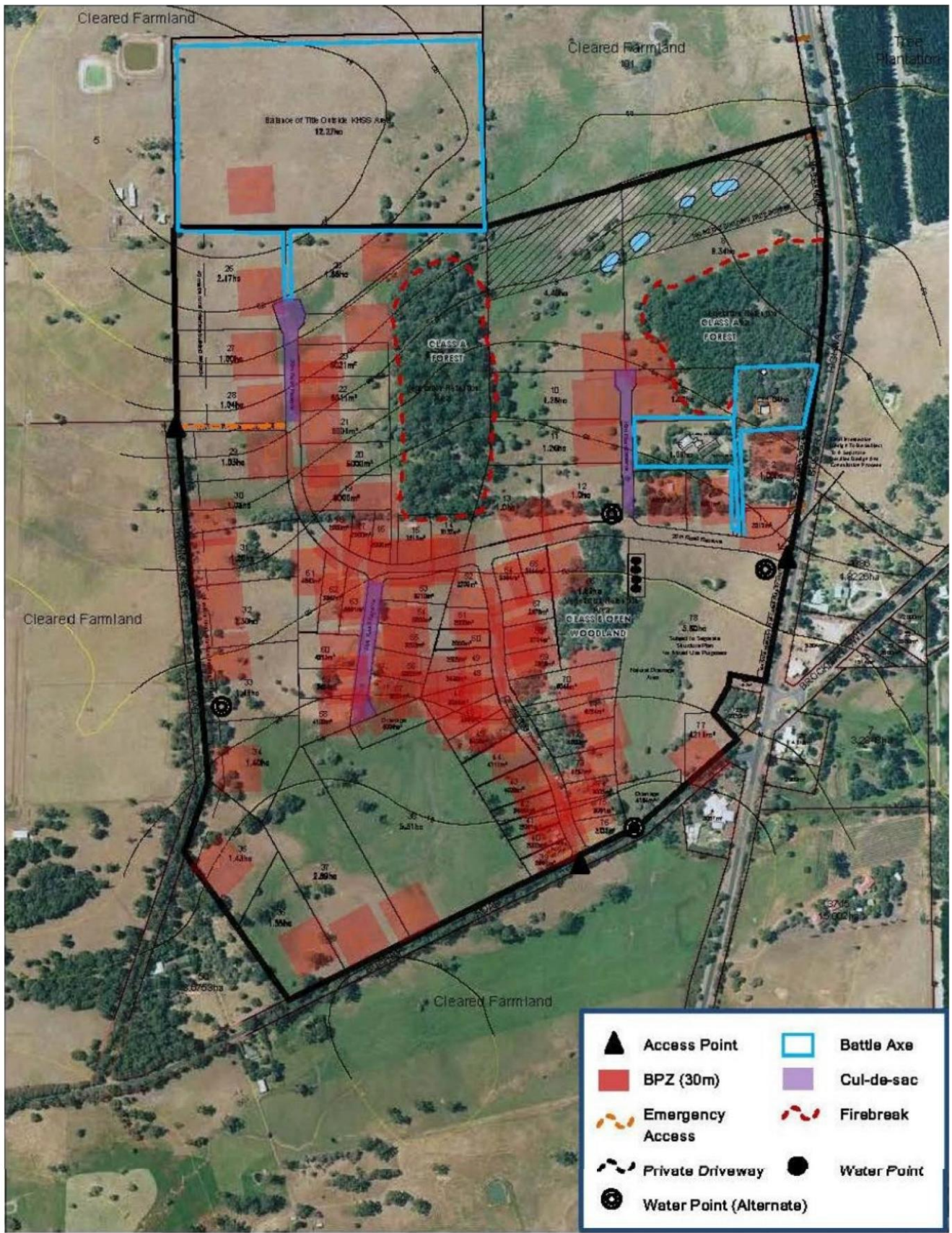
2012. Section 2.4.2 of that FMP stated *“Continuous vegetation buffers consisting of significant understorey and canopy in accordance with the KHSS present a significant increase in bushfire risk due to the potential for direct flame spread through vegetation between previously separated areas of extreme risk”*. That FMP also stated *“Continuous and excessive vegetation buffers introduce a foreseeable and additional extreme bushfire threat to life, property and the environment within the proposed development”*.

The buffers have been revised and are shown on the submitted structure plan and FMP. All buffers are less than 20 m in width and are located at least 20 m from each building envelope constituting low threat vegetation in accordance with AS 3959:2009.

### **9.3 Water Tanks**

The FMP identifies that in the absence of a reticulated water supply, one 50 kl water tank will be provided for firefighting purposes for every 25 lots created. As the lot yield will be in the order of 78 lots, there will be a maximum of four such tanks and all must be located on dedicated land or Crown reserves. Each tank has a standpipe and will be filled prior to the fire season and refilled after each use by the Shire. Additional water could be available from four dams in the north of lot 103 and from private rainwater tanks with firefighting compatible couplinks, in the event of an emergency.

The FMP shows the location of the four proposed water tanks in two alternative ie dispersed individual sites or a combined site, or combinations of both. These locations can be firmed up following Western Australian Planning Commission input. All tank locations are able to be modified with Shire approval.



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### FIRE MANAGEMENT PLAN Figure 9

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 Shire of Augusta-Margaret River

## **10.0 PUBLIC OPEN SPACE , RECREATION AND COMMUNITY NEEDS**

The Karridale Hamlet Settlement Strategy, adopted by the Shire in May 2010, requires the preparation of a POS strategy which addresses the distribution, management and tenure of open space to meet the needs of the community and where necessary provide for mitigation of the visual impact of development. In the meantime, the Shire has adopted the structure plan over the neighbouring lot 100 Bussell Highway (to the east) which includes a 2 ha public open space reserve and the South West Region Planning Committee requires a small POS reserve on the subject site for local residents. Notwithstanding these recent events, remnant vegetation areas and other site features have been assessed to determine appropriate tenure and management.

### **10.1 Remnant Vegetation**

In accordance with a KHSS requirement to examine all remnant bushland and promote suitable measures for tenure and ongoing management, PGV Environmental carried out an assessment of remnant bushland parcels within the structure plan area and concluded that the three northernmost tree thickets to be significant for retention and the southernmost thicket to be less significant and suitable for incorporation into the proposed residential subdivision. Public access to the three larger tree thickets should be restricted because of their size and ability to provide fauna habitat, and also their location on the edge of proposed development. As a consequence these sites are considered unsuitable for reservation as POS and private management is considered more effective and responsive than Shire management.

### **10.2 Existing Facilities**

The Karridale Hall near Chapman Road is an old but large hall which is available for community meetings, classes and recreation. It has abundant seating and tables, a supper room/kitchen and toilet block. The adjoining primary school contains numerous recreation facilities which are available to the public outside school hours and these include two tennis courts; volleyball court; basketball/netball court and small oval. The hall and school form the community core and all educational and formal recreational activities are to remain in this area. The recent subdivision works on lot 100 Bussell Highway have created the first formal POS in Karridale ie a 2 ha reserve for tree conservation and passive recreation.

### **10.3 Community Needs and Community Purpose Site**

There are three components to addressing community needs and provision of facilities. The first is the determination and justification of the needs. The second is securing adequate land to accommodate these needs. The third is the delivery of those facilities on designated land.

In order to determine community needs the following actions were undertaken – (1) examination of present POS provision, (2) examination of Shire documents, (3) discussion with Shire officers, (4) discussions with local residents, (5) meeting with the Secretary of the Karridale Progress Association and (6) compilation of a community needs survey.

The community hall is located on a reserve off Chapman Road which also accommodates the bushfire brigade. The small playing field adjacent to the hall is the school oval which is available after hours to the community. A new POS reserve is being created on lot 100 Bussell Highway. These facilities are 2 km apart and there is no public footpath linking them.

The various community-based documents produced by the Shire do not articulate Karridale's needs or requirements. These documents include "Community Facilities Plan (April 2008)", "Thriving Communities – Our Strategic Plan For The Future 2009/10 – 2019/20", "Community Development Plan 2008 – 2013" and "Age Friendly Communities Study (September 2009)".

The Outcomes Report of the Karridale Enquiry By Design workshop conducted by the Shire on 19 February 2009 records community participants "Community Facilities" preferences as botanic garden, golf course, medical clinic, public open space, multi purpose sports, bowls, tennis, oval, park, traffic calming measures and horse racing.

Discussions with Shire officers confirm that by virtue of Karridale's existing small size, and its limited growth to a maximum population of 500 people, most community facilities will need to be accessed from nearby towns. It is generally acknowledged that Karridale is over-provided with services and facilities relative to its small population. As facilities associated with community needs surveys generally commence from a base population of 1,000 people it was agreed that it would be inappropriate to undertake a formal community needs workshop as expectations will heighten and 'wish lists' will not be able to be delivered.

A meeting with the secretary of the Karridale Progress Association (KPA) on 1 July 2011 to determine community needs relative to the community hall resulted in a request to fund an architect to prepare staged expansion plans for the hall to include tea rooms, an industrial kitchen and more use of the hall. The KPA intends to seek Government grants to fund construction works.

A meeting in Karridale with young families on 21 January 2012 confirmed the need for public open space, safe pedestrian crossings over the highway, better toilets at the Karridale Hall, retention of primary school and the various facilities it provides. The most pressing request was for improved communications systems ie radio, television and internet, especially in emergency situations.

An analysis of these various inputs and wish lists indicates that only a few are realistic and achievable because of Karridale's small population and because these facilities exist in nearby towns where they are sometimes underutilized. The Community Needs Plan prepared in association with this structure plan confirms this position and that what is achievable is (1) the creation of one or two POS reserves, with one reserve being provided with play equipment and seating (ie lot 100), (2) the provision of a dual use path between the town centre and primary school and (3) the focus for additional community facilities being the community purposes site accommodating the community hall which requires early upgrading of toilet facilities. Additionally, the Community Needs Plan recommends the Shire and Education Department liaise to discuss shared facilities to ensure adequate and efficient provision, maintenance and use.



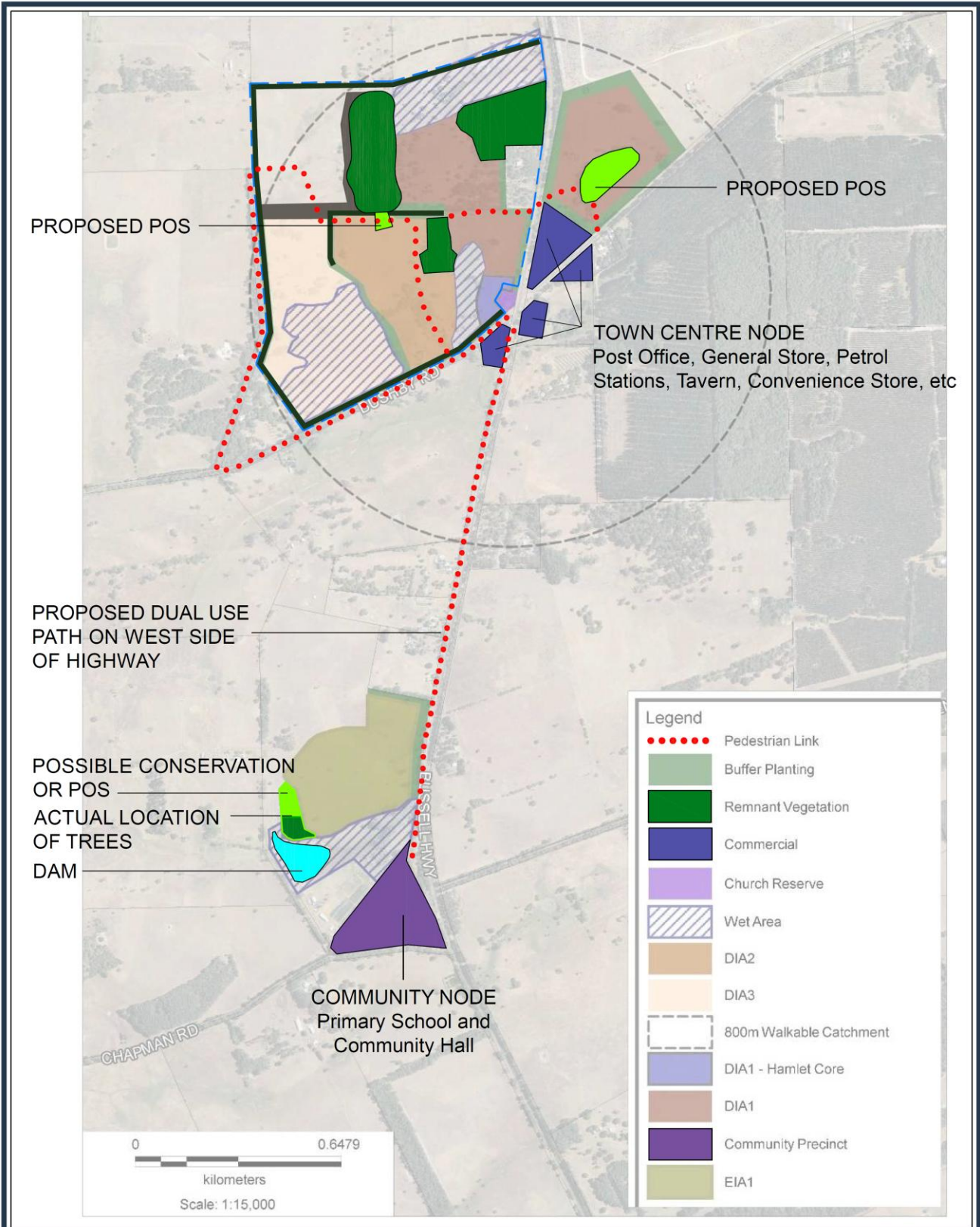
#### 10.4 Recommended POS Provision

There are two POS reserves proposed for Karridale. The 2 ha reserve on lot 100 (to the east) will be the primary park for passive recreation. The 2,500m<sup>2</sup> POS in a central location on the subject site is a secondary passive recreation reserve.

Figure 10 – POS and Pathway Network identifies the town centre and the community core 2 km to the south, and locates the two POS reserves. The proposed pedestrian pathways shown in red on the plan identify how the POS will be easily accessible by future residents. It also shows the community node to the south which incorporates the primary school and its various play facilities which are available to the public outside school hours.

In Rural Residential and Special Residential (R 5 and R2.5) subdivisions there is no specific requirement for public open space provision except where there are special natural features worthy of protection in a Crown reserve. The need for open space for recreation diminishes as lot sizes become larger. Lots ranging from 2,000m<sup>2</sup> to 1 ha have abundant open areas for play and recreation. The special features of the subject site are the tree copses and the Shire has determined that the primary objective is that they should be retained and that the most appropriate tenure is private ownership with Restrictive Covenants. If these copses were to become POS reserves they would be open to public use and enjoyment, and appropriate management would be more difficult. Private ownership minimises access and intrusion, and allocates management responsibilities to a single party.

The tree thicket in EIA1 adjoins a dam and appears to flank future development. The trees must be retained however the tenure of the land should be resolved at structure plan stage when relevant design issues can be addressed. These issues include the tenure of the dam; location of trees relative to proposed development; whether larger lot sizes and separation from the town centre warrant further POS, and ability for future residents to access the adjoining school oval outside school hours.



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0 100 200 300 400 500 600m  
 SCALE 1:16 000 @ A4

Compiled by: Development Cartographics  
 DATE: 11th FEBRUARY 2016  
 Base mapping supplied by Shire of Augusta-Margaret River

LEGEND:  
 Subject Land.....

**PUBLIC OPEN SPACE AND  
 PATHWAY NETWORK**  
**Figure 10**

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 SHIRE OF AUGUSTA MARGARET RIVER

## 11.0 STRUCTURE PLAN

### 11.1 Vision for the Land

The subject land was purchased eight years ago because of its immediate proximity to the Karridale townsite and its physical appeal, underscored by its development potential. The various commercial services and facilities available in the townsite are far in excess of its negligible population and the objective was to grow the town to match the size of its services. Virtually all the land in the structure plan area is within 800 m of the general store, post office, convenience store, service stations, tea rooms and tavern. The primary school and community hall are 2 km to the south.

Extensive market research through 2007 to 2012, via real estate agents and local residents, confirmed that the market preference was for large lots ranging from 2000m<sup>2</sup> to 5 ha, with the greatest demand being 4,000m<sup>2</sup> to 2 ha. At the Enquiry By Design workshop held on 19 February 2009 the overwhelming majority of local residents supported large lots which maintained the rural character of Karridale, with 2,000m<sup>2</sup> generally being considered the minimum lot size.

The owners vision is to create a range of lifestyle lots to satisfy the local market in a well planned and spacious setting. The natural attributes which give the site its character and appeal ie free standing forests, tree lined roads and parkland cleared areas will be enhanced by additional tree buffers which double as fauna and avifauna corridors, and rehabilitation of water dependent ecosystems. The overall development will be permeable and will provide for safe and efficient pedestrian and cyclist movement. Its sustainability outcomes will include ecological rehabilitation, innovative servicing, focus on home based employment, minimisation of internal car trips, protection of remnant bushland, introduction of fauna corridors and habitats, and landscape enhancement.

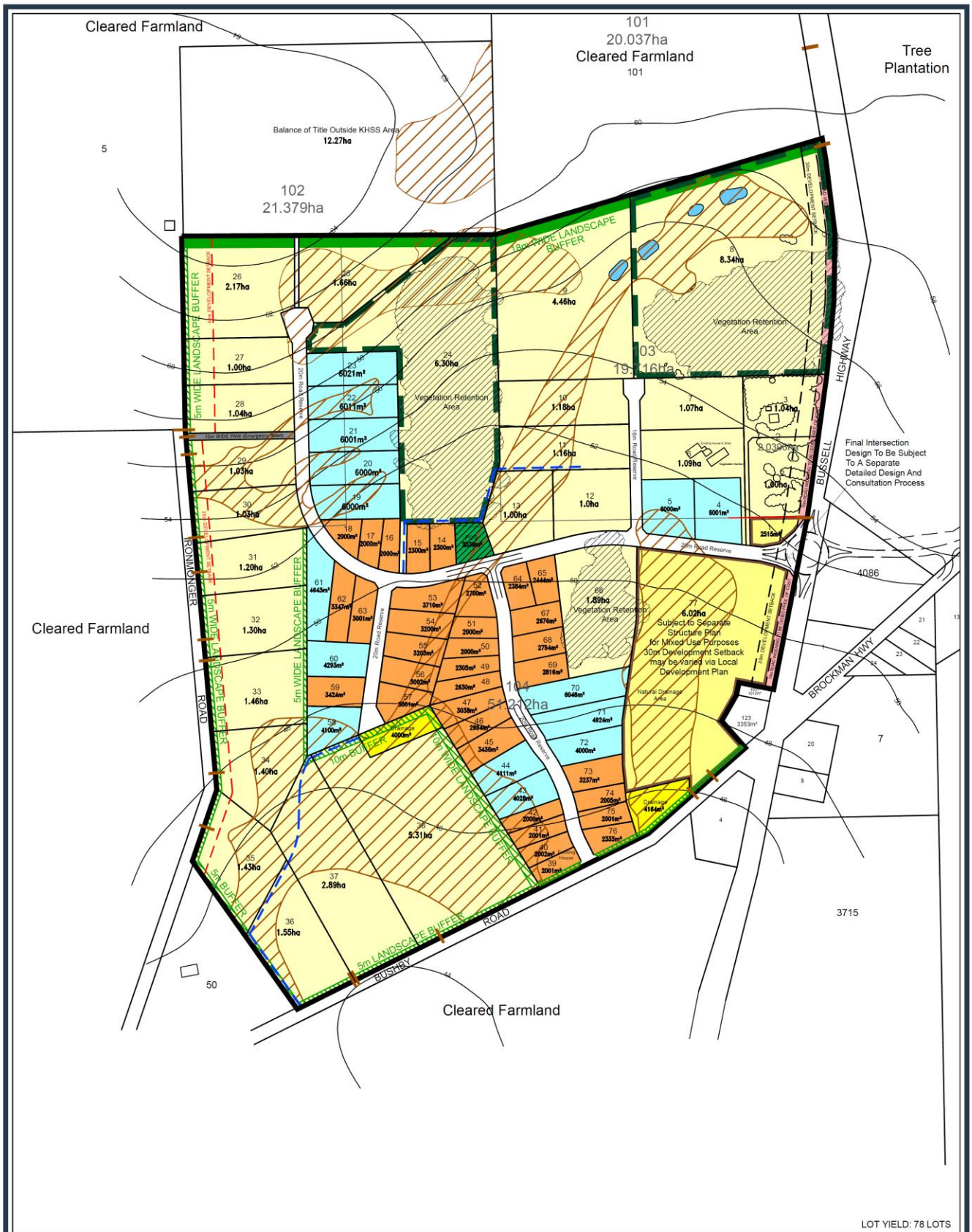
This vision is consistent with the vision expressed in the LNRSP which is to achieve *“Creative, vital and sustainable communities living in balance with economic development and the unique landscape and environmental values of the Leeuwin-Naturaliste Ridge policy area”*.

### 11.2 Overall Layout

The KHSS essentially defined the basic framework of the structure plan by the allocation of DIA's and associated development densities; retention of eastern wet area and retention of remnant bushland. Importantly, it consolidated the townsite expansion area by defining that *“Development can be reasonably located within a walkable catchment of commercial facilities, which is considered to be 800 metres in an isolated area where the commercial facilities serve the function of the Town Centre”*. Its other more specific requirements further shaped the plan as explained in detail below. The structure plan, which is presented as Figure 11 overleaf, better defines the KHSS distribution of intended land uses following detailed assessments.

The layout is also influenced by the Shire's Rural Hamlet Design Handbook (RHDH), particularly by the adoption of numerous principles and objectives, and compliance with various relevant checklists. In particular, the final plan ideally responds to the





LOT YIELD: 78 LOTS

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RESERVES	LEGEND:
Public Purposes (Drainage)	Structure Plan Boundary
Public Open Space	Structure Setback (Farmland)
Leeuwin Naturalist Ridge Conservation	30m Development Setback (Highway)
Residential R5 (> 2000m²)	Landscaping Buffer
Residential R2.5 (> 4000m²)	Road Widening
Rural Residential	Building Exclusion Area
Future Development	Drainage Easements
	Proposed Crossovers

## STRUCTURE PLAN Figure 11

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 Shire of Augusta-Margaret River

site; accommodates opportunities and resolves constraints; provides a scale of development that maintains the rural amenity of the area and locates experiential roads and vistas which highlight site features and make arrival and departure more attractive and memorable. By way of example, both proposed intersections enter the property at attractive tree-lined locations with vistas towards more trees which dominate the skyline. The experience of leaving the estate via these intersections is similar ie driving into T junctions punctuated by a backdrop of remnant trees.

The structure plan satisfies the following objective on page 33 of the RHDH *“There is a need to develop a low impact, low consumption, low movement society and urban pattern of living in order to achieve a more sustainable urban form”*. It also satisfies the LNRSP which has an overall objective of providing *“a range of settlement options located to enhance the economic, social and environmental functions, while promoting quality and innovation in urban design and built form”*.

### **11.3 Remnant Bushland**

The preceding chapter addressing a POS strategy referred to the recommendations of PGV Environmental. The structure plan duly shows the three larger tree copses as being vegetation retention areas to be protected by Leeuwin Naturaliste Ridge Conservation zoning. To ensure there is no removal of vegetation these three lots will have Restrictive Covenants placed on their Certificates of Title pursuant to Section 129BA of the Transfer Of Land Act (1893 (WA) (as amended), preventing the removal of any native remnant vegetation except as required for fire management purposes. Additionally, both lots have allocations of cleared land to accommodate accessways, building envelopes and outbuildings and any proposed hobby farm activity as a means of minimizing unnecessary vegetation removal.

Trees within parkland cleared areas will be retained both for their conservation value and their contribution to the appeal of the development. There may however be some minor tree removal associated with road and drain construction.

### **11.4 Public Open Space**

The POS strategy addressed in the preceding chapter confirms the location of the primary POS reserve on lot 100 and a secondary reserve on the subject site. The proposed reserve on lot 100 protects approximately 1.5 ha of remnant bushland and provides approximately 5,000m<sup>2</sup> of open recreations ideally suited for play equipment and park benches to attract visitors of all ages. Figure 10 (Public Open Space and Pathway Network) shows the location of both reserves and indicative pathways to them.

The POS reserve on the subject site is centrally located and immediately accessible from all parts of the site via both pedestrian accessway and new subdivision roads. Reference to Figure 12 – Pedestrian Movement shows proposed pathways to and from the POS providing easy access to town centre. The pedestrian crossings over Bussell Highway have been approved by MRWA subject to detailed design.

The POS hierarchy and active recreation structure is as follows. Active recreation is to be consolidated in the community core ie hall and school. The POS on lot 100 is to be the principal passive reserve and is to be provided with play equipment, park seating and dual use paths. Pathway links should be provided to the reserve generally as shown in Figures 10 and 12. The POS reserve on the subject site is provided essentially for passive use by local residents within walking distance. The remnant bushland at EIA1 near the primary school might be protected as a conservation lot or as the third formal passive POS reserve, depending on detailed assessment and ultimate subdivision layout. (Refer to Section 10.4 and Figure 10).

#### **11.4.1 POS Calculation**

In view of the recreation structure identified in Section 11.4 above there is no need for POS calculations. In the event however that the mixed use site (lot 77) is developed for residential purposes in excess of R5 there will be a cash in lieu POS requirement.

#### **11.5 Road Network**

Section 6 (Roadworks and Traffic) of TME's Engineering Servicing report, accompanying this structure plan, addresses the road network in detail. The most efficient and permeable road network necessitates access to and from Bussell Highway, Bushby Road and Ironmonger Road. The previously advertised structure plan achieved this. On 11 December 2013, in response to submissions from local residents, Council resolved that the plan should be modified by "*minimising direct vehicular access onto Bushby Road and Ironmonger Road*". This modification has been made and is explained in detail later in this section.

Main Roads has promoted a new roundabout intersection for Brockman/Bussell Highway some 250m north of its present location, coinciding with the entry road to the subject site. This proposed intersection is shown on the structure plan and is subject to a separate consultation process and fine tuning of detail. Main Roads has indicated that the exact location and design is subject to change and construction is probably 10 to 15 years away. This uncertainty impacts significantly upon staging of development and it would be prudent to delay releasing lots in this location until the road design is finalised..

Extensive liaison with Main Roads has resulted in their agreement to the following:-

- 1) The dual use path connecting the town centre to the community core (school and hall) is best located on the west side of the Bussell Highway reservation away from the carriageway ie alongside existing private properties.
- 2) Pedestrian crossing locations via central medians for the overall Karridale townsite. The exact number and location of these pedestrian crossings should be determined at subdivision stage in consultation with MRWA and the Shire.

The proposed intersection at Bushby Road is located to enable central entry to the overall development in a safe location. This proposed north south road has been realigned to maximise tree retention in the small copse and the carriageway will be split to accommodate trees in a median island where appropriate. Detailed tree surveys and carriageway design will take place at subdivision stage. The intersection originally proposed at Ironmonger Road has been removed in accordance with Council's requirement to minimize vehicular access onto Ironmonger Road. The

previous plan showed 8 lots fronting Ironmonger Road however this has now been reduced to 7 rural interface lots with a minimum size of 1 ha.

In the original structure plan submitted to the Shire to gain advertising there were 11 lots with access from Bushby Road. Shire officers requested this be reduced and the plan was changed to show 6 lots accessing Bushby Road and was advertised in 2013. The Shire has required a further reduction to 5 lots.

#### 11.5.1 Traffic Generation

Bussell Highway traffic counts for 2004-2007 indicate a seasonal variation of 1200 to 2000vpd, which is exceptionally low for a highway. According to the TME report, if the whole KHSS area was fully developed to its 190 lot target, approximately 700vpd would access Bussell Highway and can be readily and safely accommodated. It must be qualified that ultimate full traffic flows will take in the order of 10-15 years to develop and that the structure plan proposes 78 lots in the overall KHSS target of 190 lots ie total of 624 vpd vs KHSS total of 1520vpd.

Assuming all proposed 78 lots are created in the structure plan area, the total traffic generation will be in the order of 624 vpd, ie at 8 vehicle trips per day per lot (assuming all lots are built on). Five lots directly front Bushby Road and will generate 40 vpd and seven lots fronting Ironmonger Road will generate 56 vpd leaving the balance of internal generation at 528 vpd. TME estimates this traffic will be equally spread between the two intersections onto Bussell Highway and Bushby Road ie 264 vpd each. These flows are ultimate fully developed traffic flows and may take 10 to 15 years to fully develop. Since the existing traffic numbers on both roads are small this additional traffic can be readily and safely accommodated.

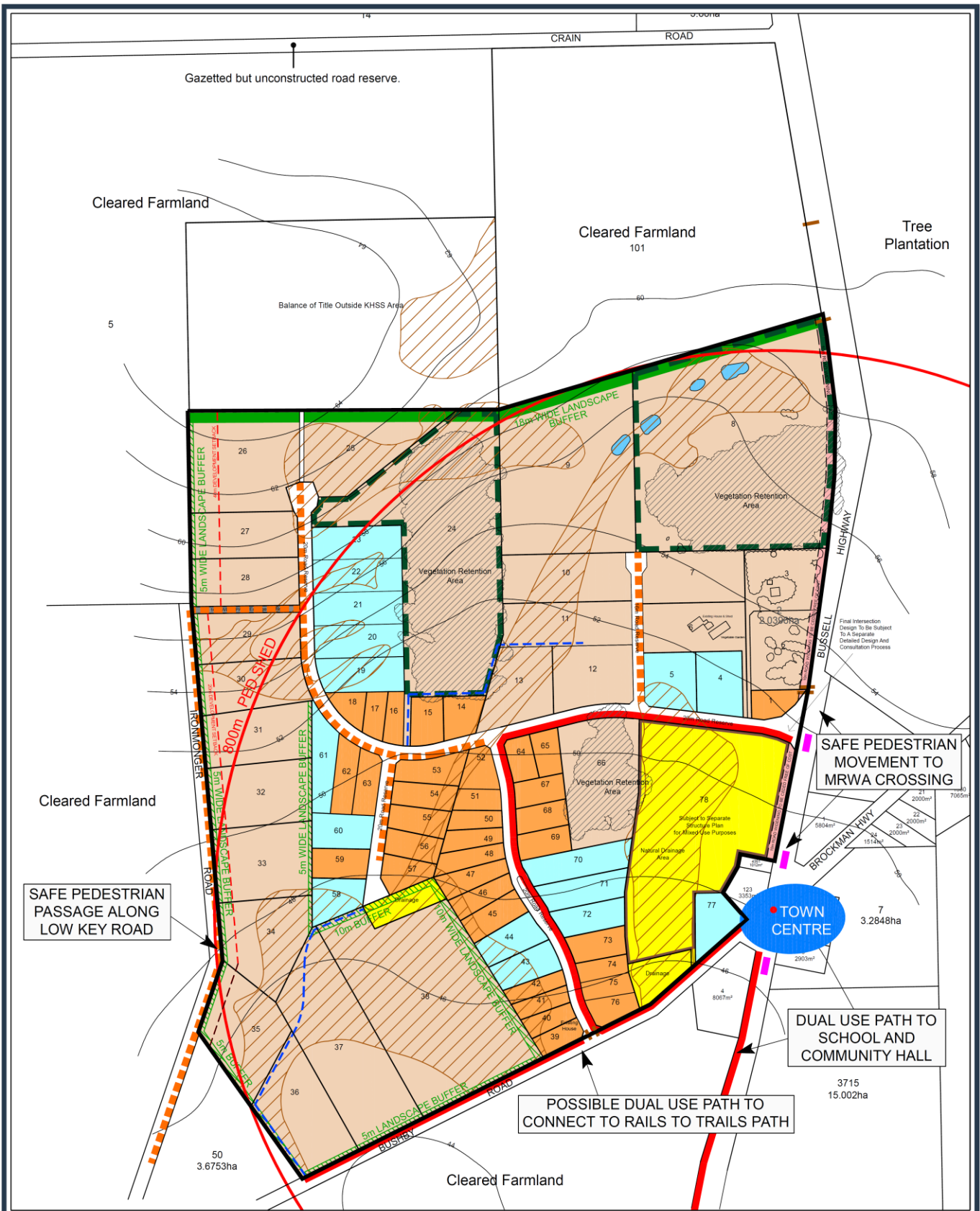
The last Shire traffic count on Bushby Road in 2009 accounted for 160vpd which is exceptionally low for a road which connects Bussell Highway to Caves Road and Hamelin Bay. The structure plan proposes an additional 360 vpd, which can be readily accommodated as such a road can carry well in excess of 1000vpd. The 360 vpd comprises an estimated 264 vpd internally, 56 vpd from Ironmonger Road and 40 vpd via Bushby Road frontage lots.

The TME report concludes *“given these low traffic flows, the internal road network is also considered adequate and suitable for efficient and safe distribution of the projected traffic generation.”*

#### 11.5.2 Road Construction Standards

Any proposed modification associated with Bussell Highway will be designed to MRWA standards. Bushby Road and Ironmonger Road will be designed and constructed to Shire standards. Liveable Neighbourhoods (Edition 3) defines internal roads under 3000vpd as Access Streets. Roadway widths will vary from 5.5m to 7.2m with road speeds of 50kph and possibly less. Internal roads are proposed to be sealed and kerbed, with flush kerbs being used adjacent to swales and bioretention areas where possible.





Final Intersection Design To Be Subject To A Separate Detailed Design And Consultation Process

SAFE PEDESTRIAN MOVEMENT TO MRWA CROSSING

TOWN CENTRE

DUAL USE PATH TO SCHOOL AND COMMUNITY HALL

POSSIBLE DUAL USE PATH TO CONNECT TO RAILS TO TRAILS PATH

SAFE PEDESTRIAN PASSAGE ALONG LOW KEY ROAD

### PEDESTRIAN MOVEMENT Figure 12

LOTS 102, 103, 104 AND 2  
BUSSELL HIGHWAY, KARRIDALE  
SHIRE OF AUGUSTA MARGARET RIVER

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DATE: 12th JANUARY 2015  
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- LEGEND:**
- Subject Land..... [hatched pattern]
  - Possible Dual Use Path..... [red line]
  - Pedestrian Crossing (MRWA) [magenta line]
  - Safe Roadway Passage..... [orange dashed line]



### 11.5.3 Permeability/Walkability

In its Movement and Transportation Framework objectives, the RHDH promotes a permeable road and pedestrian system which minimises the use of vehicles and therefore their impact. The structure plan has an efficient and permeable road network which incorporates safe pedestrian and cyclist movement which in turn interconnects with a dedicated pathway system. The KHSS consciously confined future development to an 800 m pedestrian catchment (ped shed) to encourage walkability which is generally consistent with the objectives of the RHDH.

### 11.5.4 Travel Route Corridor

Bushby Road is a view corridor under the LNRSP and the new intersection onto Bushby Road is being located to minimize visual disruption. In view of the density of trees along Bushby Road, there will be some minor tree removal required to construct the intersection and provide appropriate sight lines. This is to be expected in the expansion of a townsite. The proposed intersection aligns with a small copse to create an open vista punctuated by a backdrop of remnant bushland, enriching the visual experience for passersby and local residents.

This tree lined view corridor is achieved within 6 metre wide verges and additional trees will be planted inside proposed lots adjoining Bushby Road to reinforce this feature and visual experience. Any proposed crossovers to Bushby Road, which carries minimal traffic, will be located at subdivision stage to minimize tree removal ie all crossover locations will be surveyed to optimize tree retention. Any loss of vegetation through crossover construction will be more than replenished by 5 m wide landscape buffers. Care must be taken to also protect the open pasture view that forms part of the view corridor.

Ironmonger Road will generate minimal traffic under the revised plan ie with no subdivision road connection, and the current intersection location is considered adequate however at the construction stage, some selective vegetation removal will be required to improve sight lines. (This safety improvement is overdue, even with the minimal traffic being generated at present).

### 11.5.5 Public Transport

There are three bus services available in Karridale and the Crossroads (BP) service station acts as the bus stop. Transperth runs two buses per day between Perth and Augusta and South West Coachlines runs one bus per day on the same route. Transperth also provides a daily east west bus which runs to Nannup and Manjimup. School buses operate morning and afternoon between Karridale and Margaret River and a local school bus collects and delivers children to and from the Karridale primary school. The nearest taxi service is in Augusta 14 kms to the south.

## 11.6 Pedestrian and Cyclist Movement

The POS strategy and pathway network identified in Figure 10 relate to the overall townsite which includes all the land identified in the KHSS, ie town centre node and community node. A dual use path is shown on the west side of Bussell Highway connecting both nodes. Liaison with the Principal of Karridale Primary School confirms that if a path is required, it should be located on the west side of the highway. MRWA confirms in its 9 December 2011 letter, attached as Appendix 3, that a dual use path is

suitable in this location as the verge is generally between 12m-14m wide. MRWA prefers the path to be constructed immediately adjoining private properties to ensure separation from the highway carriageway for safety reasons. This would also improve surveillance of the path from those properties. The site levels are mostly conducive to in situ construction however there are some low-lying and possibly wet areas at the northern end, particularly the section adjoining the tavern.

Figure 12 identifies proposed pedestrian and cyclist movement through the structure plan area. The Shire has confirmed the location of the highway dual use path alignment and encourages the investigation of a connecting path to the proposed Rails to Trails path. The highway path alignment is shown in Figure 12 together with a possible option for a link to the Rails to Trails system. Bushby Road verges contain relatively dense remnant bushland for the full 2 km length from Bussell Highway to Caves Road and the construction of any path within the verge will result in substantial and visually-destructive tree removal. It would be prudent for the Shire to undertake an assessment of this 2 km strip of road to determine if a suitable alignment for such a pathway link can be accommodated.

There are two levels of pedestrian/cyclist movement proposed in the development ie in situ dual use paths and safe road reserve passage along quiet roads. Reference to Figures 10 and 12 shows an internal dual use path system is proposed along the major east/west and north/south subdivision roads, and Bushby Road, allowing for safe and efficient connections to the town centre and the proposed development to the east. at controlled crossing points.

In view of the low key nature and permeability of the internal road system, safe pedestrian and cyclist movement is afforded by the proposed road carriageways as shown in broken orange lines on Figure 12. Pedestrians and cyclists can therefore move from one part of the development to any other part efficiently and safely. The MRWA approved pedestrian crossing points facilitate safe movement from the development to various facilities and services within the town centre, and also the community node.

The objectives of the Shire's RHDH in regard to pedestrian networks are accommodated in the structure plan by the creation of a walkable environment which directly links key nodes and provides good surveillance and integrated connectivity. The efficient and permeable network of paths and low key road reserves encourages walking and cycling over driving, and therefore physical exercise.

### **11.7 Residential**

Figure 11 – Structure Plan, shows the layout and distribution of residential clusters which were defined by the KHSS. The predominant residential types are Rural Residential (1ha min) and Residential R2.5 and R5 (where lots range in size from 2000m<sup>2</sup> to 4000m<sup>2</sup> and larger). A site for affordable housing is proposed near the crossroads. A description of these residential types follows.

As required by KHSS, Rural Residential lots are provided along the western and northern boundaries of the subject site as a transitional use compatible with adjacent farming land. These lots are to have a minimum area of 1ha and houses will be required to be set back at least 20m from the rural use. The wet area in the south

west corner which is subject to seasonal inundation, is able to be utilized for lifestyle lot purposes providing building envelopes are confined to dry land. This wet area is visible on Figures 2 and 5 where it is clearly identifiable that substantial dry land exists alongside Bushby Road for building envelopes. The ideal land use in this location is considered to be Rural Residential where parts of some lots will be on land that is subject to seasonal inundation.

The bulk of the land is set aside for Special Residential development in the KHSS with a minimum lot size of 2000m<sup>2</sup>. This is consistent with the findings of the Shire-managed Karridale Enquiry By Design workshop held on 19 February 2009 and also the introduction of WAPC Policy DC 2.5 which states *“In order to accommodate the various lifestyle requirements of all sections of the community, the Commission is committed to the provision of a wide range of lot sizes”*.

Generally, the 2000m<sup>2</sup> to 4,000m<sup>2</sup> lots are allocated to the higher dry areas and larger lots are proposed in areas of seasonal inundation where building envelopes will be defined on dry land. Two vegetation retention lots of approximately 6ha and 8ha are proposed in the north and east of the site in order to protect and conserve the remnant bushland. Both lots contain open areas to preclude removal of bushland whilst allowing for house construction and hobby farm type activities.

The 5.6 ha mixed use site in the south eastern corner has the flexibility to be developed for affordable housing and/or tourist development and/or commercial development. This flexibility would allow a strata titled residential development for retirees, or others. In all instances, further market research is required to determine the best use for this site which may not be available in the early stages of development because of the uncertainty of the proposed roundabout and the unavailability of a suitable package waste treatment plant..

The various residential precincts are presented on the structure plan as distinct but integrated clusters, defined by proposed planting buffers where the Fire Management Plan permits. The rural residential cluster performs a transitional role separating development from farmland.

The locations of land set aside for Special Residential development are generally central and within walking distance of the town centre. The shape and size of these lots is determined by various considerations including existing vegetation and depth to groundwater. Neighbouring lots may consequently be of differing size. It is recommended that the R 2.5 (4,000m<sup>2</sup> min) and R 5 (2,000m<sup>2</sup> min) codes be applied to particular lots to prevent subsequent subdivision.

A key design feature of the structure plan, predicated to some extent by site constraints, is the provision of larger lots on the periphery which assists in creating spaciousness and maintaining the rural character of Karridale.

### 11.7.1 Lot Analysis

The structure plan attached as Figure 11 includes an indicative lot layout which creates 78 residential lots. The distribution of lot sizes is shown on the table overleaf.

<i>Lot Description</i>	<i>Yield</i>
Residential R5 (2000m <sup>2</sup> plus)	34
Residential R2.5 (4000m <sup>2</sup> plus)	15
Rural Residential (1ha plus)	23
Vegetation Retention	3
Future Development	2
<b>TOTAL</b>	<b>77</b>

### 11.8 View Considerations, Buffers and Land Use Interfaces

The rural landscape aspect and the Bushby Road cathedral tree canopy effect experienced by motorists and cyclists are protected in the structure plan. The subject land is designated for townsite expansion and most land is within 800 metres of the crossroads however the low density development along Bushby Road will allow vistas into the openness of the seasonally wet area and all three remnant bushland sites. Additionally, all perimeter fencing is to be of an “invisible” rural nature eg post and wire. There are only 5 proposed lots in the 800 m Bushby Road frontage of the site (the two corner lots of the proposed subdivision road will gain access from the new road). The tree canopy will be enhanced by additional planting of similar tree species within the road reserve and as part of a planting screen inside the property depending on fire protection considerations, existing tree cover and ensuring open views into pastureland in accordance with view corridor considerations.

The dominant visual feature from Bussell Highway is the eastern remnant bushland which screens much of the development area, and this will be augmented by a further 10 m wide landscape screen along the highway to preclude views of proposed development and assist with highway noise attenuation if the mixed use site is deployed for residential use. If this site is deployed for tourism and/or commercial uses which require exposure to the highway then a landscape screen will not be required. A development of this nature will be subject to a Detailed Area Plan which will address this and other considerations.

The dominant view from Bushby Road is of rural spaciousness framed by verge trees in the road reserve and three stands of remnant trees in the background. In all view situations the dominant skyline feature is trees and this will remain unchanged. The aspect and visual impact considerations of the RHDH have been addressed by ensuring trees dominate the skyline; open vistas to remnant trees are created; highway development is screened and the Leeuwin Naturaliste Ridge and Boranup Sand Patch view from highway vantage points will be maintained, except for sections of Ironmonger Road where existing trees provide a screen buffer.

Buffers will be planted or supplemented with suitable vegetation as shown on the structure plan (Figure 11). These buffers are required as visual screens and land use demarcations. In earlier iterations of the structure plan the buffers were more numerous and substantial however, in view of the recommendations of the Fire

Management Plan they have been removed or modified. The proposed buffers are as follows:-

- A 10m wide landscape screen on the eastern boundary alongside Bussell Highway to obscure the view of the highway from new housing. This strip contains numerous existing trees which will be supplemented by similar suitable species to create an effective visual screen. The only exception to this is if the ultimate use of the mixed use site in the south east is for tourist and/or commercial development which generates significant employment and provides additional services to local residents but requires exposure to the highway. This site is the subject of a Detailed Area Plan
- Bushby Road already contains thick tree cover which can be supplemented by a 5m planting strip parallel to the road reserve for the extent of proposed Rural Residential development. Tree species proposed for this 5 m strip should allow open views towards the remnant trees consistent with the LNRSPPP visual requirements for Bushby Road.
- Ironmonger Road contains medium tree cover within the road reserve which already serves a screening function however this will be supplemented by an additional buffer of 5m.
- A substantial tree screen already exists along the northern boundary of the proposed east west road off Bussell Highway.. This screen is considered adequate, as it is, for residential density demarcation purposes and any further planting will unnecessarily increase fire risk.
- The structure plan identifies the location of various planting buffers between the rural residential cluster and the central cluster. These land use demarcation screens and fauna and avifauna corridors range from 10m in width near Bushby Road to 5m further northwards.
- An 18m wide landscape screen along the northern boundary of the structure plan area, to visually separate Rural Residential development from adjoining rural land will also act as a windbreak.

### **11.9 Fauna Corridors**

The various buffers shown on the structure plan serve a fauna and avifauna corridor function which is enhanced by linkages to other vegetated areas. The bioretention gardens and living streams proposed in drainage swales and reserves will create additional linkages which have a negligible fire threat. The protection of existing tree copses in private ownership will result in habitat restoration and therefore more small fauna. This initiative is consistent with a LNRSPPP Nature Conservation policy *“Local environmental corridors will be supported along roads, streams and wetlands, and where they link existing blocks of remnant vegetation”*. The ultimate design of these links will necessarily be subject to fire prevention and management considerations.

The RHDH emphasises the importance of ecological corridors and natural networks on page 55, and in response the structure plan facilitates the rehabilitation of ecological systems, and provides new planted buffers and corridors within the confines of fire prevention/management requirements. These local corridors will be further supplemented, at subdivision stage, with rehabilitated water dependent ecosystems and planted drainage swales and detention basins.



## 11.10 Engineering Services and Water Management

The Engineering Services Report prepared by TME confirms Karridale is remote from water supply and sewerage networks and *“it is proposed to utilize a water and sewer servicing system that is sustainable for the site and its unique attributes”*. The recommendations of the TME report are consistent with the Shire’s promotion of alternative servicing arrangements.

A system where lot owners supply their own water and treat their own waste water is recommended in the LWMS as being the most efficient, sustainable and cost effective. This recommendation is consistent with the infrastructure considerations of the LNRSP and KHSS.

### 11.10.1 Water Supply

The average annual rainfall in Karridale exceeds 1,000mm and water supply via rainwater tanks is appropriate and reliable. Indeed, it is the only means of water supply for existing residents. The rainfall for 2011, 2012, 2013 and 2014 was 1,072 mm, 1087 mm, 1334mm and 1002mm respectively. with an average of 174 wet days and 191 dry days.

Modelling of rainwater tank sizes was undertaken by JDA Hydrologists as part of the LWMS. The State Water Plan of 2007 sets a target for water usage of 100 kilolitres per person per annum (pppa) which approximates 270 litres/day. JDA consider a lesser rate of 200 litres per person per day is achievable and this local target is consistent with a proposed sustainability outcome ie reduced water consumption. The rainwater tank calculation for a family of 4 permanent occupants with 400 m<sup>2</sup> of roof area (house and outbuildings) is 122 kl capacity.

According to JDA Hydrologists a 140 kl tank will require a roof catchment area of 400m<sup>2</sup> for 4 people and 300m<sup>2</sup> for 2 people. By contrast, the Shire requires a standard tank size of 120 kl for potable water via Clause 5.22.1 of LPS No 1, and where water is required for fire fighting purposes the tank size increases to 135kl. Additionally, the Shire approves lesser roof areas than calculated by JDA. The preferred 140kl tanks are generally 9 m in diameter and cover 60 m<sup>2</sup> of land and can readily be located on all proposed lots.

### 11.10.2 Effluent Disposal

TME confirmed from the Water Corporation that any extension of existing sewer infrastructure from Augusta is unviable. All lots over 2,000m<sup>2</sup> can be serviced by on site effluent disposal systems and it is only the mixed use development site of 5.6 ha that might require a local waste water treatment plant. Both the LWMS and Engineering Services report recommend this land be developed last to allow for consolidation of the balance of the estate, advances in technology and confirmation of Bussell/Brockman Highway roundabout land requirement and design. The waste water package plant investigated for Witchcliffe required 150 houses to be fully occupied and generating flows to enable the plant to operate. This standard is unattainable in Karridale. (A mains non-potable water system is not viable without a significant volume of treated wastewater).

provide suitable soils for on site disposal. To ensure there are no adverse impacts the proposed effluent treatment systems will need to produce water to a suitable quality. At subdivision stage the project civil engineers will determine appropriate disposal systems for individual lots based on their separation from the water table. The treated water represents a great opportunity to irrigate gardens and satisfy another sustainability outcome by minimizing use of potable water or domestic bores.

As approximately 30% of water in a domestic situation is discharged as greywater, separate greywater systems can be introduced to facilitate watering of gardens. These systems need to be 500mm above maximum groundwater level. In the case of high water table locations, these systems need to be water-proof below-ground storage tanks set back at least 1.2m from any structure or boundary. All greywater systems must be approved by the Western Australian Department of Health.

#### 11.10.3 Waterwise Gardens

The Water Corporation provides a number of publications on waterwise gardens which will be provided to lot buyers at the time of purchase. In Karridale the regular rainfall coupled with on site effluent and greywater irrigation drip systems will be generally adequate for waterwise gardens however some allowance should be made for supplementing this during drier periods. In the target allocation of 73 kl per person per day there is an allocation for 10 kl per person per annum for garden and other watering, which will only be used if necessary.

Groundwater bores for domestic and garden use, accessing the Surficial and Fractured Rock aquifers, do not require licences but they do require registration with the Department of Water. As these aquifers are generally confined to pockets of recharged water the supply of water can be inconsistent and unreliable. Bores can be utilized for water supply or supplementary supply but are not necessary given the adequacy of rainfall and proposed reuse of effluent water and greywater.

#### 11.10.4 Stormwater Management.

The structure plan has been adjusted to accommodate the findings and recommendations of the LWMS. The drainage system, as shown in Figures 7 and 11 of this report, incorporates the following.

- Two detention basins which limit the peak outflow from the development to comparable pre-development flows.
- Bioretention swales within road reserves to attenuate, treat and infiltrate 1:1 storm events.
- Combination of piped drainage and swale conveyance systems.
- In lower lying lots there will be piped stormwater systems connecting to the overall drainage system.
- 100 year flow paths are routed along road reserves and to detention basins.

#### 11.10.5 Groundwater Management

The objective of groundwater management is to maintain groundwater as near as possible to existing levels while retaining adequate separation from infrastructure. A vertical separation between infrastructure and average annual maximum groundwater level (AAMGL), or controlled groundwater level (CGL) and finished surface level, will be implemented by (i) use of porous clean sand fill along roads and under houses where necessary and (ii) sub-soil pipes along roads and some lot boundaries. Water will permeate through these sands into the soil below and also laterally into a

perforated piped drainage system which directs excess water into swales. The water is cleansed before it recharges.

Other key elements of the groundwater management strategy include

- a. Use of soil amelioration products to treat water infiltrating through bioretention systems.
- b. Post development monitoring of groundwater levels to determine any detrimental impacts on the resource.
- c. Maintenance of groundwater discharge regimes to preclude negative impacts downstream.

Most of the subject site achieves adequate separation from groundwater however in higher groundwater locations houses will require lifting through porous fill. Section 5.3 of TME's Engineering Services report addresses guidelines TME prepared for the Department of Water, and others, to show how water tables can be controlled to allow development to take place in locations with high water tables. The guidelines relate to application of either or both porous fill and a system of subsoil drains which can control groundwater rises. TME recommends that *"rather than have these wet areas sterilized for development it would be recommended that they be incorporated as additional land into the larger 1 ha lots where they have an area suitable for development. These wet areas are only wet in some winters but through the balance of the year could be useable areas at the rear of residential lots and also allow management by the lot owners rather than being a responsibility on Council for management"*.

The structure plan incorporates a lot layout for the south west portion of the subject site which allows adequate dry land for a residence, outbuildings, garden etc and includes part of the wet area as the back yard. This wet area has exhibited no surface water over the past three winters apart from isolated small patches near the culverts on Bushby Road. Rainfall over the past four years has exceeded 1,000mm however there was only incidental surface water.

#### 11.10.6 Power

The site is serviced by 22kV overhead lines as shown in Section 9 of the TME report. Through the subdivision process power supply would be undergrounded and each new lot would be provided with a green dome. Necessarily, transformers will be located throughout the development.

A great opportunity exists for the investigation of green power alternatives prior to subdivision stage. Lot purchasers can be encouraged to incorporate green options into their supply contracts and install photo voltaic cells on their buildings. The larger lot sizes facilitate north-south or east-west house orientation and efficient solar collection.

#### 11.10.7 Communications

Telephonic communication is readily available in Karridale and mobile phone coverage and communication is very good. Internet is available via dial up or wireless. The fixed wireless facility is fast and efficient, and attenuation devices are now available to prevent occasional fadeout or disconnection in strong winds. The area is proposed to be serviced by the National Broadband Network in the near future at which time it may be connected to a cable link.

### **11.11 Integration With Other Development**

The subject site and the other two development parcels included in the KHSS are independent in location, aspect and road access. Lot 100 to the east is proposed to contain 78 lots generally surrounding the parcel of remnant bushland, and it will necessarily have access from Brockman Highway. The structure plan proposes a direct and safe pedestrian link to lot 100 as shown in Figure 10 – Public Open Space and Pathway Network. The crossing point will be via approved MRWA median island. Similarly, Figure 10 shows the path linking the town centre to the community node and future development at EIA1.

### **11.12 Commercial Development**

The KHSS confirms Karridale has adequately zoned land for future growth in retail floor space. There is 2.47 ha of land within the “Village Centre Zone” and some of this is underutilized. There is a possibility of commercial development on the mixed used lot of 5.6 ha. In accordance with the objectives of the KHSS, there is flexibility for some level of tourist or mixed use development to add vibrancy and create employment.

### **11.13 Education Facilities**

It is highly unusual for a small town such as Karridale to have a primary school. The school opened in 1883 when Karridale was the largest town in the southwest with (karri) timber felling and milling as the dominant industry. Total student numbers at the school vary from 60 to 100 per year with an average of 70 per year, and great capacity therefore exists for accommodating further students. Other primary schools are available in Augusta, Forrest Grove and Margaret River. The nearest High School is in Margaret River 28 km to the north (via school bus).

The primary school has three classrooms, a library/technology centre, a visual arts/music room, early childhood room, canteen/hall, administration building and internet in all classrooms. It also has a small oval, two tennis courts, a basketball/netball court and a volleyball court which are available for community use outside school hours. The facilities and grounds are maintained in excellent condition.

### **11.14 Employment**

The basis of all planning for growth in the south west region, and indeed the creation of the KHSS, is the recognition that demand for land and housing is overwhelming and must be managed. This population growth will predominantly be driven by a natural increase in local residents, city people seeking to relocate or retire to the south west and others looking for second or holiday homes. The sea change and forest change phenomena are burgeoning, as is the dual residence phenomenon where people alternate between their city and country homes.

Section 2.3 (Population Growth and Demand) of the KHSS addresses increased employment opportunities and states that *“sectors of the economy that are likely to create this demand are found to a degree in Karridale, in the potential for development of tourism, agriculture and recreation industries in the locality”*.

Local real estate agents advise that most of the demand for land will come from local residents seeking to upgrade housing stock or down scale from farm life. This local demand is supplemented by the young adult children of local residents looking to secure their first property in their home town. Most of these buyers will be permanent residents. The demand for holiday homes will be far less than for coastal towns and well developed inland towns such as Margaret River and Cowaramup, but nevertheless significant. This information assists employment calculations.

The Australian Bureau of Statistics 2011 Census Community Profile for Karridale relates to a broader area which also includes Hamelin Bay, Kudardup, Deepdene, Molloy Island and Alexandra Bridge. As such, precise data for the Karridale townsite and surrounds is not available however the broader area data is reflective of the Karridale profile. The local workforce is typically employed in agriculture, construction or tourism/beverage manufacturing in the broader district.

Of the 405 people in the Karridale community profile area ('State Suburbs') 224 were in the workforce -of these 115 or 53% were full time (cf WA 60.7%) and 85 or 37.9% were part time (cf WA 28.1%). Occupations by employment type and percentage are as follows, with the WA comparison in brackets:- Managers 28.8% (12.2%); Labourers 17.7% (9.7%); Technicians/Tradespeople 14.0% (16.7%); Community and Personal Services 9.8% (9.4%); Clerical and Administration 8.8% (14.4%); Sales Workers 7.0% (8.6%); Professional 6.5% (19.9%) and Machinery Operators and Drivers 4.7% (7.6%). The higher level of 'managers' in Karridale relates to farm, winery, vineyard etc managers as well as other manager positions.

The KHSS advises the average rate of growth in the economy in the south west sub-region is estimated at 4% which is well in excess of forecasts for Perth and Western Australia. While employment will be strong in the traditional occupations, growth in demand in the construction, health care and social assistance sectors is anticipated. This increase in employment opportunities will be assisted by the continuing retirements of baby boomers from the workforce.

Those local residents who choose to relocate to this new development are likely to be employed already, especially as banks will require proof of income as part of their security. Retirees and holiday makers, who might look to settle in Karridale, are generally not looking for employment. The greater proportion of possible buyers, as described by local real estate agents, are likely to either have jobs or not be looking for any form of employment.

There are others however who might look to live in Karridale if employment was available. In terms of employment self sufficiency the "smaller" Karridale townsite extending 2 km from the crossroads, has a high ratio of jobs per local worker because of its various commercial activities and primary school. Most of the tavern/convenience store workers live in or near Karridale. Most of the teachers at the primary school live out of Karridale. As more new residents arrive in Karridale, with different skills and qualifications, it is anticipated that local jobs will progressively go to local residents. It is in the interests of Karridale and its future residents that further employment opportunities are pursued and the following strategies will be promoted:-

- (i)The greatest opportunity for full time and part time job opportunities is home based employment. In order to encourage home businesses and home



occupations (maximum 60m<sup>2</sup>) the structure plan carries a notation that such uses, and arts and crafts pursuits, are 'A' uses within the structure plan area.

(ii) Lots 101 and part 102 are sold as working farms. Lot 101 has been sold to organic farmers with accreditation. Pt lot 102, outside the structure plan area, is intended to be excised and sold to a neighbouring farmer.

(iii) Purchasers of rural residential lots will be encouraged to pursue low key rural enterprises which might generate some self-employment and income.

(iv) The 5.6 ha mixed use site on the south eastern corner of the subject land can be developed for residential and/or tourism and/or commercial purposes. If it is developed for tourism or commercial purposes, or a retirement village, there will be associated employment opportunities.

(v) The larger lifestyle lots allow tradesmen to have a home office and a shed for machinery and materials, without causing nuisance to neighbours. Those providing professional or support services for a living can also work from home and be connected through standard telephone and internet links.

(vi) The existing artist and artisan base will be used as a platform to encourage arts and crafts activities of a commercial nature.

(vii) Monthly markets and stalls at a suitable location not only to encourage local residents to produce food, jams, etc but also to exhibit and sell arts and crafts to reinforce and expand Karridale's arts base.

(viii) Fly in fly out (FIFO) workers will also be targeted in sales campaigns. There are existing FIFO families in Karridale and Hamelin Bay who are not seeking employment.

### **11.15 Developer Contributions**

A Development Contribution Scheme has been prepared and submitted to the Shire. The KHSS identifies three items for funding by the developers. These items are (1) upgrading the community hall, (2) constructing a dual use path between the town centre and community node, and (3) investigating the feasibility (and possible location) of a path link to the Rails to Trails reserve near Caves Road.

## 12.0 STAGING

In Section 4.3 Development investigation Area 1, the KHSS indicates that the highest density of development should be in the first stage near the crossroads and acknowledges that *“Density is however influenced by other factors including a possible requirement for on-site effluent treatment pending establishment of development sufficient to make a reticulated network operational”*. It also states that development of DIA1 and DIA3 can be undertaken at the same time. There are however numerous factors which influence the staging of development and these include market demand; ease of (initial) servicing; utilization of existing roads before gazetting and constructing new roads and selection of the most attractive setting for early stages to guarantee sales and establishment of a high development standard. Additionally, the KHSS did not envisage the site constraints which have resulted in larger lots than initially proposed. Consequently, the Planning Policy Statement on the structure plan relating to subdivision makes the qualification that staging of subdivision is to be guided by the recommendations of the KHSS rather than followed verbatim..

Main Roads WA proposed new Bussell Highway / Brockman Highway intersection is yet to go through a consultation process and the exact location and alignment is subject to change. According to MRWA the intersection is likely to be constructed in 10 to 15 years time. The proposed intersection is required to be shown on the structure plan however it is clear that until firm decisions are made on location, alignment, land requirement and construction time adjacent land is unlikely to be adequately defined. Land in this vicinity should therefore be developed in later stages.

### 12.1 Market Research

Market research confirms that the overwhelming demand is for larger lifestyle lots and Rural Residential lots. This research was verified at the Shire-managed Enquiry By Design workshop held on 19 February 2009. The strongest demand was for lots of 4,000m<sup>2</sup> to 2 ha, with a minimum size of 2,000m<sup>2</sup>. The same research suggests purchasers of larger lots are more likely to be local residents who wish to build houses for permanent occupation. It is imperative that the first few stages of development are located on the most attractive land and match the target market. Development of owner-occupied dwellings will ensure a high level of presentation and maintenance, which in turn assists in attracting others to the area.

### 12.2 Engineering Services

TME’s engineering services report addresses staging of subdivision in terms of servicing efficiency and advises as follows.

*“In terms of staging of this development it would be most logical to commence with the release of the five Bushby Road lots and the 1 hectare lots in DIA 3 along Ironmonger Road. A second and subsequent stage could then be released comprising lots from the new link to Bushby Road and the 2,000 to 4,000m<sup>2</sup> lots in DIA 2 and then finally the link to Bussell Highway and the lots in DIA 1. It would be prudent to delay the creation of lots near this proposed roundabout until Main Roads is in a position to confirm final design and land requirements.”*

*“A development front from the west and then from the south also allows logical development of the drainage strategy that has been developed for the site with the detention basins able to be constructed in early stages of development as lots are released”..*

### 12.3 Recommended Staging

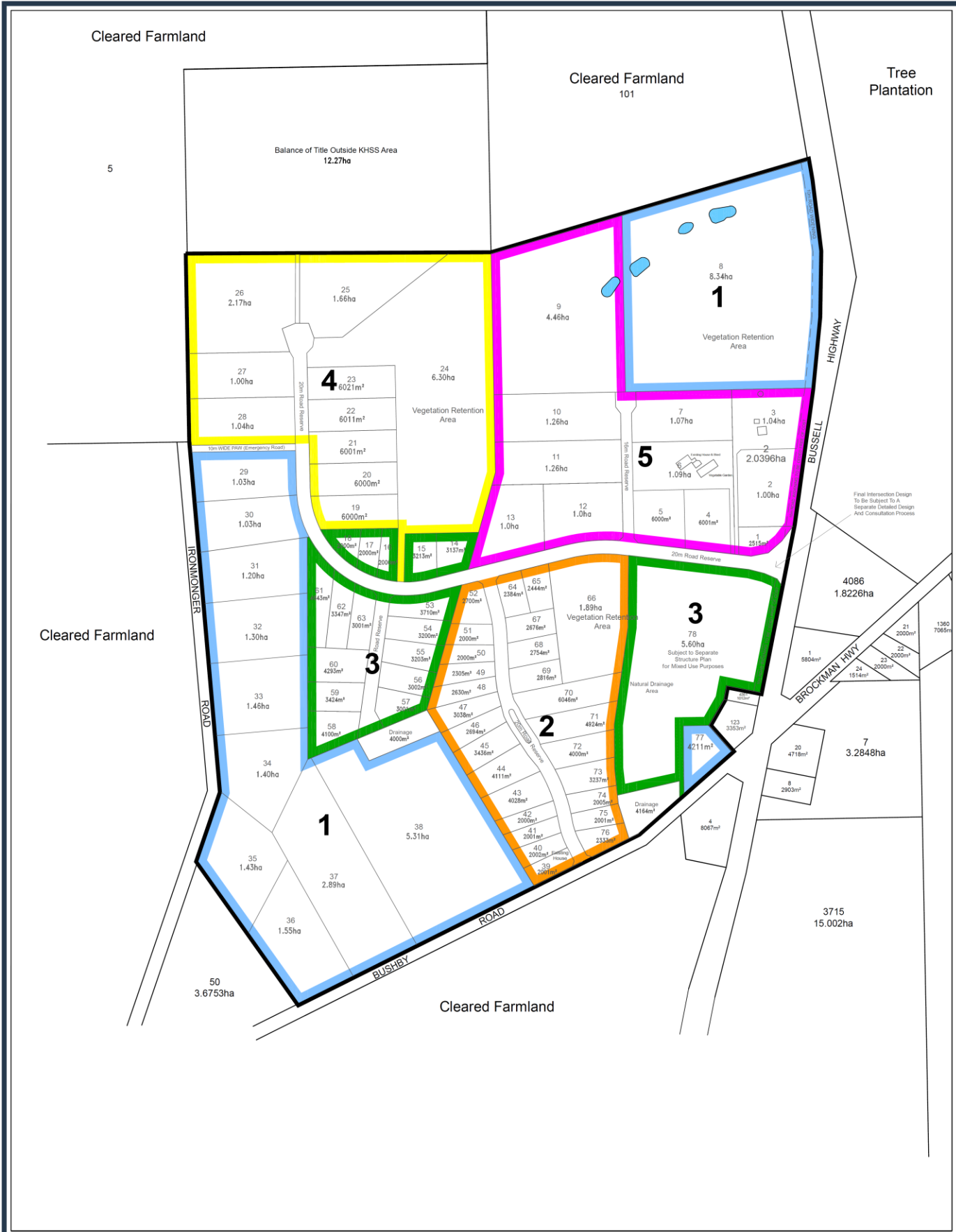
For the various reasons advised on the preceding page the recommended staging sequence is as follows. The development areas referred to are as shown on the structure plan (Figure 11) and the staging of land releases is shown on Figure 13.

Stage 1	Rural Residential in Ironmonger and Bushby Roads
Stage 2	Special Residential lots in Central Cluster.
Stage 3	Special Residential lots in Western Cluster.
Stage 4	Rural Residential lots in North Western Cluster.
Stage 5	Special & Rural Residential lots in North Eastern Cluster.

The 8.3 ha Vegetation Retention lot in the north eastern corner can be released in Stage 1 as it has Main Roads formal approval for a crossover at its northern extremity. Main Roads will support early subdivision on the basis that its standard access covenant is registered on Title confirming that when the internal access road is constructed the Bussell Highway crossover will be removed.

The mixed use lot on Bussell Highway could be released in Stage 3, or earlier, if Main Roads confirms roundabout land requirement and intersection design.

This same staging sequence has been provided to the WAPC's Regional Developers Intentions Survey. The first stage of subdivision at DIA 3 is proposed in the Spring of 2015. Subsequent stages will be constructed as lot sales advance.



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0 50 100 150 200 250m  
 SCALE 1:5000 @ A3

Compiled by: Development Cartographics  
 DATE: 12th JANUARY 2015  
 Cadastral and Topographic data supplied by Landgate

**LEGEND:**

Subject Land..... [Black Outline]

Stage 1..... [Blue Box]  
 Stage 2..... [Orange Box]  
 Stage 3..... [Green Box]  
 Stage 4..... [Yellow Box]  
 Stage 5..... [Magenta Box]

LOT YIELD: 78 LOTS

**STAGING PLAN**  
**Figure 13**

LOTS 102, 103, 104 AND 2  
 BUSSELL HIGHWAY, KARRIDALE  
 Shire of Augusta-Margaret River

### **13.0 ADDITIONAL PLANS AND STUDIES**

The following separate studies and plans have informed the preparation of the structure plan:-

- (i) Sustainability Outcomes and Implementation Plan, which details the targets and suggested method of delivery in respect of sustainability outcomes.
- (ii) Community Needs Study, which documents suggested community needs and the consultation processes employed to gain that information.
- (iii) Developer Contributions Scheme, which sets out suggested developer contributions and timing.



## 14.0 CONCLUSIONS

The subject site has been identified for residential development in various WAPC and Shire documents, most particularly the Leeuwin Naturaliste Ridge Statement of Planning Policy and the Karridale Hamlet Settlement Strategy.

All environmental, engineering and geotechnical studies confirm the site is suitable for development. All significant stands of trees are protected by way of Restrictive Covenants which mandate the retention of the trees and/or Leeuwin Naturaliste Ridge Conservation reservation. The proposed road network is efficient, safe and permeable, and all future residents will be located within an extended walkable catchment ie all development is within 800 metres of the various services and facilities located at the crossroads.

In accordance with the Shire's preference for alternative services, all water supply will be via rainwater tanks and all lots will be developed with on site effluent disposal systems to match Shire and Health Department standards. Stormwater drainage will be managed on site through a series of detention basins, swales and drainage reserves which will, where appropriate, be planted with sedges and rushes to enhance ecological functioning by accommodating natural flow, providing habitat for small fauna and assisting the water cleansing process.

The structure plan incorporates design principles from the WAPC's Liveable Neighbourhoods document and the Shire's Rural Hamlet Design Handbook. The plan provides for clusters of different lot sizes, to satisfy the full range of market demands, in discrete but permeable precincts. Pedestrians can move freely between the clusters and throughout the overall development. The proposed dual use path network allows immediate access to the crossroads at crossing points agreed by Main Roads WA.

This 'Karridale West' local structure plan provides the planning framework for future subdivision consistent with the objectives of the Leeuwin Naturaliste Ridge Statement of Planning Policy and the Karridale Hamlet Settlement Strategy.

# APPENDIX 1

## DEPOSITED PLAN 73105

AMENDMENTS TABLE			
NO.	AMENDMENT	APPROVED BY	DATE

LIMITED IN DEPTH TO 60.96 METRES





INTERESTS AND NOTIFICATIONS

SUBJECT	PURPOSE	EXPIRY DATE	DEBN	LAND BANKING	NOTIFY TO	COMMENTS

FORMER TENURE TABLE

LOT	FORMER TENURE	IN PLACE / DURATION	TITLE
121-124	LOT 121-124	0	FREEHOLD
121-124	LOT 121-124	0	FREEHOLD

TYPE		FREEHOLD
PURPOSE		SUBDIVISION
PLAN OF		
LOTS 121, 122, 123 AND 124		
DISTRICT	SUBURB	S.S.A.
TOWNSHIP		NO
S.S.L. FILE NO.		FORMER TENURE
LOCALITY	KAREELA	DEPTOR
LOCAL AUTHORITY		
NAME OF SUBJECT-MARGARET RIVER		
FIELD BOOK		
TRACED		
SURVEYOR'S CERTIFICATE - Reg 54		
I, the undersigned, being a duly qualified and licensed Surveyor, do hereby certify that the plan of subdivision hereon deposited is a true and correct representation of the land as surveyed and shown on the ground and that the same has been surveyed and shown on the ground in accordance with the provisions of the Survey Act, 1911, and that the same has been approved by the Surveyor-General.		
<b>FINAL</b>		
MARGARET RIVER <b>SURVEY Co.</b> Surveyors and Engineers 100/101 Sturt Street, Perth, Western Australia 6000 Telephone: (08) 9438 4444 Fax: (08) 9438 4445 Email: m.r.s@mrsvy.com.au www.mrsvy.com.au		
SCALE	1:5000	AT A2
ALL DIMENSIONS ARE IN METRES		
LOTTING		
TYPE OF SURVEY		
APPROVED BY		
WESTERN AUSTRALIAN LAND INFORMATION AUTHORITY		
IN ORDER FOR SEALING		
<b>APPROVED</b>		
 		
DEPOSITED PLAN		
<b>73105</b>		
SHEET 01 OF 01 SHEETS		
1		

## APPENDIX 2

### KARRIDALE HAMLET SETTLEMENT STRATEGY (with notations)

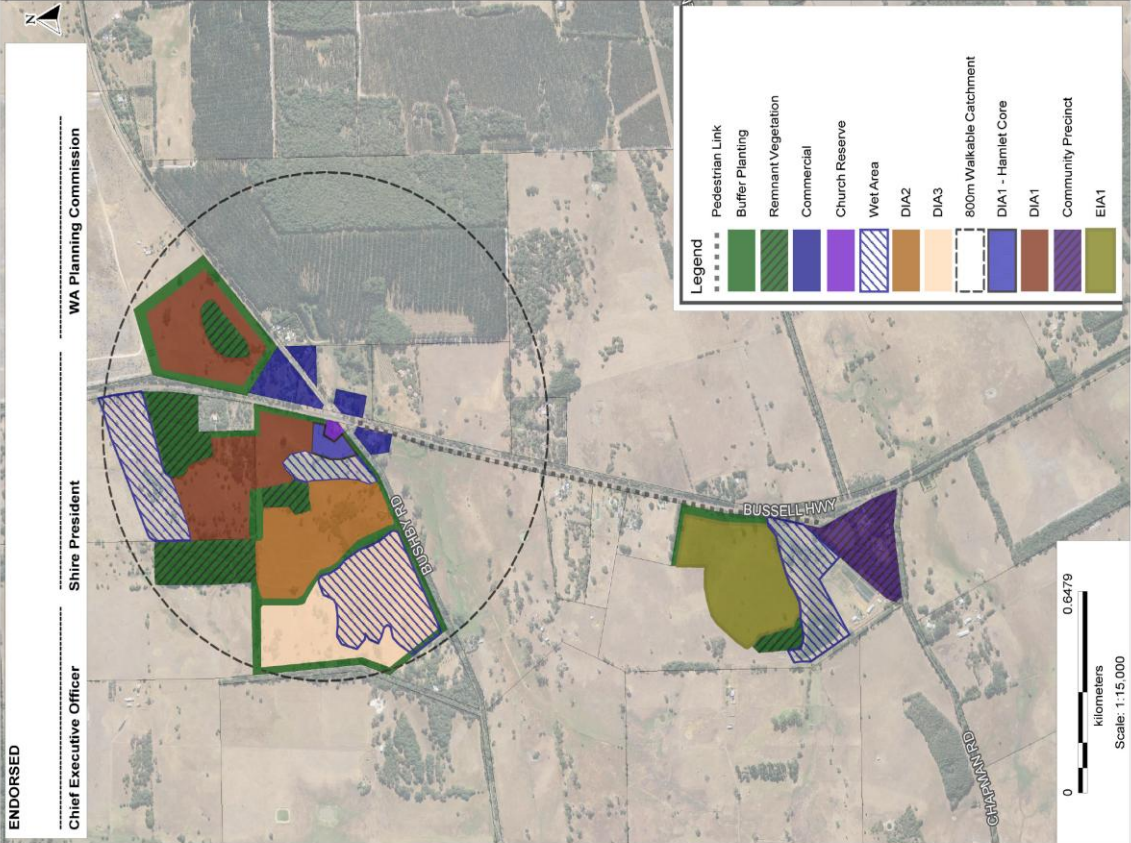
# KARRIDALE HAMLET SETTLEMENT STRATEGY - MAY 2011

ENDORSED

Chief Executive Officer

Shire President

WA Planning Commission



## GENERAL PRECURSORS TO DEVELOPMENT

1. Any development strategy shall be prepared, to the satisfaction of the Shire and DoW, prior to support for any Scheme amendment. This District Water Management Strategy shall be completed in accordance with the "Better Urban Water Management Framework", and this plan shall address and provide detailed information on, but not be limited to, the following:

- 1.1 The hydrological system in the sub-district, including the Turner, Brook System, and the nature and extent of surface and groundwater;
  - 1.2 Identification and mapping of flood risk 1 in 5, 1 in 10 and 1 in 100 year events both north and south of Bushby Road and measures to control peak flow rates in natural systems;
  - 1.3 Sustainable Water Supply including collection and use of rain water and connection to a reticulated potable and recycled water scheme;
  - 1.4 Strategy for collection, treatment, reuse and disposal of wastewater;
  - 1.5 Control of run off and nutrients into Turner Brook and groundwater;
  - 1.6 Stormwater reuse, treatment and infiltration at source;
  - 1.7 Water requirements to sustain and enhance wetlands / water dependent ecosystems;
  - 1.8 Inclusion of water in urban design and landscape elements to enhance the amenity of urban areas.
2. The total lot yield shall not exceed 50 lots within the area identified for development on this strategy plan. Development will be staged in accordance with the text of this Strategy;
  3. The rezoning of any land for development under this strategy shall include:
    - 3.1 The preparation of a detailed structure plan consistent with the provisions of Local Planning Scheme No. 1;
    - 3.2 Investigation and the preparation of detailed development contribution requirements that include provision for:
      - 3.2.1 Forward funding or construction of a dual use path to connect commercial facilities and residential land use in the north of the strategy plan with the school and community facilities at the junction of Bussell Highway and Chapman Road;
      - 3.2.2 Upgrading and improvement to the Karridale Hall facilities;
      - 3.2.3 Facilitation of pedestrian movements across Bussell Highway at the location of commercial activities;
      - 3.2.4 Connection of the Crossroads to the Rails to Trails reserve.
  - 3.3 An assessment of the flora and fauna values of areas of remnant vegetation. This assessment shall also detail long term management strategies for the preservation and enhancement of areas of remnant vegetation identified on the strategy plan, with these strategies given effect through the Scheme Amendment, Structure Plan and Subdivision processes.
  - 3.4 A requirement of the required structure planning or as a subsidiary Detailed Area Plan. These guidelines will address appropriate built form and integrated sustainability measures appropriate to the rural and historic context of Karridale.
  - 3.5 A comprehensive Public Open Space strategy addressing the distribution, management and tenure of open space to meet the recreational needs of the community and where necessary, provide for mitigation of the visual impact of development.
  - 3.6 Consideration of provisions for land use that encourage working from home.
  - 3.7 Detailed Fire Management Planning, providing for acceptable mitigation of risk from the threat of fire without compromising the integrity of areas of remnant vegetation.
  - 3.8 Within DIAs 1 & 2, examination in detail of the traffic, capacity and safety of Bushby Road and propose any relevant upgrades to the satisfaction of the Shire and Main Roads WA. Conservation of existing mature trees along Bushby Road will be given due regard.
  - 3.9 Future development shall avoid seasonally waterlogged areas, as identified by the district water management strategy and included on this strategy plan as the 'wet areas' known at the time of compiling this strategy. Additionally, future development shall choose locations where minimal fill to avoid high water tables is required. This shall be detailed in structure planning for each development area.

## DEVELOPMENT AREAS (See Text of Strategy for Specific Requirements)

4. Development Investigation Area 1 - Land within DIA1 will form the greatest density of development. Wet areas will be avoided, remnant vegetation protected and development buffered by appropriate mitigation through landscape planting. The development of the Hamlet Core should be subject to an investigation of suitable lotwork opportunities to be facilitated by provisions introduced through a future amendment to LPS1.
5. Development Investigation Area 2 - Land within DIA2 will form a transition in lot size/density between DIA1 and DIA3. Development of DIA2 is subject to preservation of remnant vegetation, avoidance of wet areas, and buffering from DIAs 1, 3 and Bushby Road.
6. Development Investigation Area 3 - Land within DIA3 will be developed in the form of rural residential development incorporating measures to ensure the physical separation of development from the adjacent DIA2, including the establishment of buffer planting as identified on the Strategy Plan. The physical separation of development from the adjacent DIA2 shall be undertaken through the establishment of buffer planting and agricultural uses on adjoining land. Investigation will be undertaken of management and tenure of the adjacent 'wet areas' with consideration of measures to incorporate this land within rural residential lots but exclude significant physical infrastructure such as roads and buildings.
7. Enclave Investigation Area 1 - The Development of EIA1 is subject to substantial progress of DIAs 1 and 2, as identified in the staging requirements of the Strategy text. Development is subject to protection of remnant vegetation, buffer planting and consideration of the adjacent wet area, including the dam in terms of appropriate tenure for long term management and incorporation into the future development of the site to be consistent with the principles of the Shire's Hamlet Design Guidelines, with not more than 20 lots provided, generally in the area identified. A further 5 rural smallholdings of between 1 and 5 ha may be established about the perimeter.
8. All remnant vegetation is to be retained and measures examined through the Scheme Amendment and Structure Plan process to ensure appropriate long term tenure and management of these features. Remnant vegetation should not be impacted on by fire management regimes.
9. Commercial areas will be utilised to enhance the function of Karridale as a rural service centre, and provide convenience retail, tourism facilities and opportunities for cottage industry. Development should enhance the streetscape and be consistent with the character and context of Karridale.
10. The community precinct will remain the focal point for community based activities, and development contributions will assist and enhance the existing community facilities.
11. Future tenure, management and land use on the church reserve will be investigated by the Council with a view to incorporating this land within the development of Karridale, subject to the retention of significant vegetation on this land.
12. Buffer planting is required to serve the purpose of mitigating the visual impact of development, preventing coalescence between development areas, and mitigating land use conflict between residential and agricultural land use.





## APPENDIX 3

### MAIN ROADS WA LETTER DATED 9 DECEMBER 2011



Enquiries: Paul Davies  
Our Ref: 11/37  
Your Ref:

9 December 2011

Mr. R Pawluk  
Melvista Park Pty Ltd  
PO Box 333  
NORTH BEACH WA 6290

Dear Richard

**INDICATIVE SUBDIVISION CONCEPT FOR SUSSEX LOCATIONS 4023 AND 4024  
BUSSELL HIGHWAY KARRIDALE**

I refer to your correspondence received on 25 October 2011 and previous correspondence of 4 July 2011 regarding the indicative subdivision concept design for the above mentioned property.

With regard to the issues raised in your correspondence the following comments are provided for your consideration.

1. **Proposed Highway Intersection** - The proposed new intersection location is generally considered suitable. The intersection will need to be designed and constructed to the specification and satisfaction of Main Roads. The attached sketch 1 shows an indicative concept for the intersection including left and right turn intersection treatments.

Sketch 1 also shows requirements for a pedestrian crossing near the proposed new intersection which will require a kerbed island to be provided with footpaths constructed to the road pavement and provision of street lighting. Detailed design drawings of the intersection will be required for Main Roads approval.

The intersection will be required to be constructed at the cost of the developer.

2. **Dual Use Path to School** - It is requested that the dual use path be located as far from the highway pavement as possible. The dual use path could be provided adjacent to the road reserve boundary along the western side, however, the issue of service locations will need to be addressed. Also, the path could potentially be subject to flooding in some low lying area and clearing of vegetation will be required.

The proponent for the dual use path will need to obtain necessary clearing permits and approval of relevant service providers. It is considered that the dual use path may be more easily constructed outside the road reserve on the western side which is primarily through cleared farm land.

Notwithstanding the above it is noted that the school is located approximately 2 km south of the town site. It is suggested that demand for the dual use path should be



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determined in conjunction with the Education Department and long term proposals for the school.

3. **Pedestrian crossings** - Main Roads has concerns in regard to provision of pedestrian crossings on the highway in view of potential conflicts with vehicles and pedestrians. It should be noted that Bussell Highway is a designated as a high and wide transport route.

The attached sketch plans 2 and 3 show indicative concepts for provision of pedestrian crossings and necessary road upgrading/ improvements to accommodate island treatments. The required road works will need to be undertaken at the cost of the developer.

It is suggested that you liaise with the Shire in regard to demand for pedestrian crossing facilities and long term intensions for development of the town site. It is considered that three pedestrian crossings may not be warranted for the proposed development.

Detailed design drawings for the pedestrian crossings and necessary road upgrading/ improvements will be required for Main Roads approval

With regard to the proposed new intersection with Bushby Road this intersection is the responsibility of the Local Authority.

If you require any further information please contact Paul Davies on 9724 5662.

Yours faithfully,



Brett Belstead  
Director of South West Operations