



FURNISSDALE WEST STRUCTURE PLAN

LOTS 181 - 185, 197-198, 1186, 1187 RONLYN ROAD AND LOTS 179 & 180 RIVERSIDE DRIVE, LOTS 149,
150 & 156 PINJARRA ROAD
FURNISSDALE



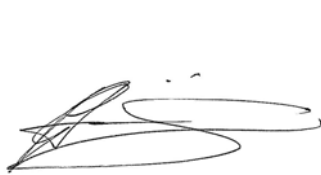
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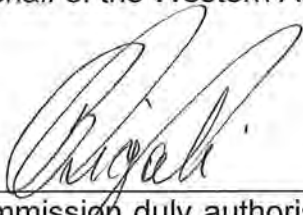
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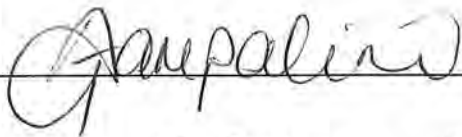
This structure plan is prepared under the provisions of the Shire of Murray
Town Planning Scheme No.4

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY
RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION
ON: 19 October 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

19 October 2016

Date

Date of Expiry: 19 October 2026

TABLE OF AMENDMENTS

Amendment No.	Summary of Amendment	Amendment Type	Date approved by WAPC



EXECUTIVE SUMMARY

The Structure Plan covers an area of 50.15 hectares of Residential Development zoned land in Furnissdale approximately 14 kilometres north west of the Pinjarra Town Centre and approximately 5 kilometres east of the Mandurah Town Centre.

The site is bordered by Riverside Drive to the northwest, Ronlyn Drive to the southeast and Pinjarra Road to the northeast. The locality is predominantly semi rural in nature, with some areas of remnant bushland, Commercial (to the northeast along Pinjarra Road) and low density residential land in the Furnissdale townsite, which abuts the subject land to the south.

The purpose of this Structure Plan is to facilitate the development of the subject site for residential purposes. This Structure Plan is therefore prepared to satisfy the requirements of Town Planning Scheme No. 4 to facilitate subdivision and development of the site. The design of the Structure Plan proposes for an open space design which provides green linkages to other reserves as well as preserving approximately 6.8 hectares of bushland.

The Structure Plan is based on contemporary planning principles with density yields appropriate to the area in line with current strategic planning principles.

The preparation of this Structure Plan has been undertaken in liaison with the Shire of Murray and government authorities.

Structure Plan Summary Table

Item	Data	Section number referenced in Part 2 report
Total area covered by the Structure Plan	50.15 hectares	1.2.2
Area of each land use proposed:		4.1
Residential	26.4 hectares	
Industrial	0 hectares	
Commercial	0 hectares	
Estimated lot yield	750 lots	4.3
Estimated number of dwellings	750 dwellings	4.3
Estimated residential site density	28 dwellings per site hectare 15 dwellings per gross hectare	4.3
Estimated population	1950 people	4.3
Number of high schools	0 high schools	4.6
Number of primary schools	0 primary schools	4.6
Estimated commercial floor space (for activity centres if appropriate)	0 net lettable area	4.7
Estimated area and % of public open space:		4.2
Regional open space	0 hectares, 0%	
District open space	0 hectares, 0%	
Estimated area and number neighbourhood parks	1.1 hectares, 3 parks	4.2
local parks	3.9 hectares, 5 parks	
Estimated number and area of natural area and biodiversity assets	6.8 hectares 1 park	4.2




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TECHNICAL APPENDICES

Appendix Number	Document Title	Nature of Document	Referral/Approval Agency	Summary of Document Modifications
1.	Certificates of Title	Information only	-	
2.	Flora and Vegetation Survey	Supporting document only	DPaW / Shire of Murray	
3.	Environmental Assessment	Supporting document only	DPaW	
4.	Local Water Management Strategy	Approval Required	Department of Water	
5.	Fire Management Plan	Approval Required	Department of Fire and Emergency Services / Shire of Murray	
6.	Transport Report	Supporting document only	Main Roads / Shire of Murray	
7.	Acoustic Report	Supporting document only	-	
8.	Engineering Report	Supporting document only	Shire of Murray	
9.	Landscape Master Plan	Supporting document only	-	



Part One

IMPLEMENTATION



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1. Structure Plan Area

This Structure Plan (hereafter referred to as the Structure Plan) applies to the urban zoned portion of Lots 181 - 185, 197, 198, 1186 and 1187 Ronlyn Road, Lots 179 and 180 Riverside Drive and Lots 149, 150 and 156 Pinjarra Road, this being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan map (Plan 1).

2. Operation

The date this Structure Plan comes into effect is the date of the Structure Plan being approved by the Western Australian Planning Commission.

3. Staging

Subdivision and development should proceed in stages, generally in accordance with Figure 14.

The poultry farm located on Lot 1186 Ronlyn Road, Furnissdale is to be permanently closed prior to any residential subdivision or development occurring within 500 metres of that lot.

4. Subdivision and Development Requirements

The Structure Plan outlines land use zones and reserves applicable within the Structure Plan area in accordance with the zones and reserves listed in the Local Planning Scheme.

4.1 Protection of Environmental Features

4.1.1 Conservation Area

The conservation area located on Lots 181 and 182 Ronlyn Road and Lot 180 Riverside Drive, Furnissdale should be set aside as public open space so it can be protect as a conservation area.


This area should be protected by:

- a) Controlling access to the area by people, pets, livestock and vehicles; and
- b) Appropriate management, through the preparation and implementation of a Public Open Space Management Plan.

4.1.2 Conservation Category Wetland

The Conservation Category Wetland within Lot 185 Ronlyn Road, Furnissdale, contains vegetation representative of Threatened Ecological Community FCT07, and should be protected by:

- a) Restricting access to this area by people, pets, livestock and vehicles;
- b) Providing a 20 metre wide buffer around the wetland, except where the wetland abuts Riverside Drive;
- c) Re-vegetating the buffer area with endemic plant species and in a manner which discourages access to the conservation area;
- d) Establishing a hydrological regime (through the preparation and implementation of a Wetland Management Plan) which maintains the wetland's environmental values and characteristics by managing water levels, the period of annual inundation and the quality of storm-water entering the wetland;

- 
- e) Appropriately managing (through the preparation and implementation of a Wetland Management Plan) weed control, revegetation, fencing, educational signage and any other relevant management issues; and
 - f) Ensuring that the wetland, its buffer and any abutting public open space are separated from residential development by a public road.

Mature Marri trees, located to the north of the abovementioned conservation category wetland contribute to the environmental and aesthetic values of the Structure Plan area and should be protected in accordance with the Shire of Murray's Tree Retention Local Planning Policy.

4.2 Response to Hazards and Separation Requirements

Bushfire Attack Level Contour Maps or Assessments and, if required, Bushfire Management Plans are to be prepared and submitted with all subdivision applications within the Structure Plan area, demonstrating compliance with the requirements of *State Planning Policy 3.7: Planning in Bushfire Prone Areas*. Bushfire attack level assessments should consider the impact of surrounding bushfire prone areas on the subdivision and development of land within the Structure Plan area and account for the staging of development.

No subdivision or development, excepting any proposed road or public open space, should be approved in Asset Protection Zone 1 unless it can be demonstrated that the 20 metre wide asset protection zone is not required on Lot 156 Pinjarra Road, Furnissdale.

No subdivision or development, excepting any proposed road, should be approved in Asset Protection Zone 2 unless it can be demonstrated that the 20 metre wide Asset Protection Zone is not required on Lot 150 Pinjarra Road and Lots 1186 and 1187 Ronlyn Road, Furnissdale.

Dwellings located in areas identified as requiring increased building protection measures are to be constructed in accordance with the requirements of *Australian Standard 3959: Construction of Buildings in Bushfire-Prone Areas under the Building Code of Australia*.

4.3 Public Open Space

Public open space should be provided in accordance with this Structure Plan, when approved.

4.4 Residential Densities and Development Standards

Dwelling Targets

It is intended that the Structure Plan area accommodate a minimum of 710 dwellings, with an average of at least:

- a) 26 dwellings per site hectare across the Structure Plan area; and
- b) 30 dwellings per site hectare within 400 metres of the Barragup – Furnissdale Activity Centre.

Residential Density

Plan 1 sets out the residential density codes that apply to the Structure Plan area.

Subdivision applications should demonstrate how the proposed subdivision meets (as a minimum) the density targets set out above. In doing so, the landowner/applicant should include a summary of the proposed dwelling yield of the subdivision.

5. Local Development Plans

Local Development Plans may need to be prepared for lots:

- a) immediately adjoining public open space;
- b) zoned Residential R20 fronting Ronlyn Road and Riverside Drive where additional development provisions are required to ensure a gradual transition from the existing rural and rural residential area;
- c) abutting a rear laneway;
- d) abutting Pinjarra Road or which are adversely affected by traffic noise from Pinjarra Road;
- e) where it is important to control vehicle access and egress;
- f) of an irregular shape or with an area of less than 350m²;
- g) narrow lots that require special conditions to be set;
- h) are subject to fire management requirements; and
- i) where otherwise deemed appropriate to the satisfaction of the Shire of Murray.

Where necessary, Local Development Plans should address the following matters:

- a) Building envelope(s) – ground and upper floor setbacks, building envelopes, north boundary setback for solar access, nil setbacks.
- b) Parking – location (mandatory or desired), potential additional parking for duplex-sized lots.
- c) Vehicle access – location of vehicle access points, particularly where laneway access is available.
- d) Fencing – heights, detailing, retaining walls, developer-provided fencing.
- e) Services – easements.
- f) Private Open Space – location of strategically important outdoor living areas.
- g) Landscaping – location of existing trees to be retained in the street or in lots (as agreed with the Local Government).
- h) Noise-buffering – location and type of noise-buffering and/or attenuation measures.
- i) Ancillary dwellings and/or studio dwellings, home business or home workspace – potential location and size, parking provision and location.
- j) Encroachments – reciprocal rights of way, party walls.
- k) Variations from *State Planning Policy 3.1: Residential Design Codes*.
- l) Mechanisms for expiry or variations of Local Development Plans.

Local Development Plans should be consistent with the Framework for Local Development Plans.

6. Other Requirements

6.1 Notifications

Notifications may be placed on the Certificate of Title for each affected lot to advise of:

- a) The construction standards required to achieve higher noise standards in accordance with *State Planning Policy No. 5.4: Road and Rail Transport Noise and Freight Considerations in Land Use Planning*.
- b) Building setbacks and construction standards to achieve a Bushfire Attack Level between BAL 12.5 and BAL 29, in accordance with *Australian Standard 3959-2009: Construction of Buildings in Bushfire Prone Areas*, and any subsequent amendments thereto.

6.2 Infrastructure Requirements

With regard to the Structure Plan area, it may be necessary to require developers to contribute to:

- a) Ceding and developing land for public open space in accordance with the Structure Plan and Liveable Neighbourhoods;
- b) Upgrading and widening those parts of Riverside Drive and Ronlyn Road which abut the Structure Plan area – upgrading these roads may involve the provision of dual use pathways, the installation of underground power lines, drainage facilities and street trees;
- c) Upgrading the Riverside Drive and Pinjarra Road intersection and the Ronlyn Road and Pinjarra Road intersection;
- d) Acquiring land required for the construction of drainage infrastructure necessary to drain the Structure Plan area; and
- e) The cost of preparing and administering developer contributions.

6.3 Funding Arrangements

Due to the fragmented nature of land ownership within the Structure Plan area, it will be necessary to coordinate contributions (made by landowners and/or developers) towards infrastructure and the ceding of land required to support the subdivision and development of land within the Structure Plan area. There are several mechanisms which can be used to coordinate the provision of contributions, including:

- a) A Development Contribution Plan, incorporated into the Local Planning Scheme;
- b) A voluntary agreement between the landowners and the Council; or
- c) Conditions of subdivision approval, where doing so would be consistent with the requirements set out in Appendix 1 of *State Planning Policy No. 3.6: Development Contributions for Infrastructure*.

The mechanism(s) used to coordinate infrastructure contributions should be finalised and given effect prior to the granting of conditional subdivision approval.

7. Additional Information

Additional Information	Approval Stage	Consultation Required
Transport Assessment	Submit with subdivision application	Shire of Murray / Main Roads WA
Transport Noise Assessment	Submit with subdivision application	Shire of Murray / Main Roads WA
Tree Survey / Retention Plan	Condition of subdivision approval	Shire of Murray
Urban Water Management Plan	Condition of subdivision approval	Shire of Murray / Department of Water
Bushfire Attack Level Assessment / Bushfire Management Plan	Submit with subdivision application	Shire of Murray / Department of Fire and Emergency Services
Public Open Space Development and Management Plan	Condition of subdivision approval	Shire of Murray
Mosquito Management Plan	Condition of subdivision approval	Shire of Murray / Department of Health
Contaminated Site Assessment	Condition of subdivision approval	Department of Environmental Regulation
Local Development Plan(s)	Condition of subdivision approval	Shire of Murray

Table 1: Additional Information

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Planning Design Delivery



- RESIDENTIAL
- Residential - R20
 - Residential - R30
 - Residential - R40
 - Residential - R60
- PARKS, RECREATION & CONSERVATION
- Public Open Space
 - Conservation Area
- WATER
- Wetland Buffer
 - Wetland
- TRANSPORT
- Neighbourhood Connector
 - Access Street - Local Road
- OTHER
- Structure Plan Boundary
 - Asset Protection Zone 1
 - Asset Protection Zone 2

0 125 250 Metres

REVISIONS

Rev	Date	Drawn
B	2015.07.08	M. Sullivan
C	2015.12.11	M. Sullivan
D	2016.05.12	W. Clements
E	2016.07.07	W. Clements



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Designer: R. Dial
Drawn: M. Sullivan
Projection: MGA50 GDA94
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Cadastre supplied by LANDGATE

Structure Plan

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William Clements 7 July 2016

Furnissdale West
Plan 1



Part Two

EXPLANATORY SECTION



ROWEGROUP

Planning Background

1.1 Introduction and Purpose

This Structure Plan has been prepared by Rowe Group on behalf of Coode Pty Ltd as a precursor to subdivision for land zoned 'Residential Development' under the provisions of the Shire of Murray TPS 4.

The purpose of the Structure Plan is to refine the provisions under the district framework and ensure a comprehensive approach to planning and development is undertaken, with input from the local community, landowners, government agencies and other key stakeholders.

The Structure Plan will guide future land use and development within the Furnissdale West area and provide a framework for more detailed planning at subdivision. The purpose of Part 2 of the Structure Plan provides explanation for the Statutory Part 1 provisions.

1.2 Land Description

1.2.1 Location

The subject land is located within the municipality of the Shire of Murray, in the locality of Furnissdale. The subject site is approximately 65 kilometres south of the Perth CBD, approximately 14 kilometres north-west of the Pinjarra Town Centre and approximately 5 kilometres east of the Mandurah Town Centre. The Serpentine River is situated approximately 350 metres west of the site.

The existing locality is predominantly semi-rural in nature, with some remnant bushland. Surrounding land uses include 'Highway Commercial' to the northeast (along Pinjarra Road) and low density residential within the Furnissdale townsite, which immediately abuts the Structure Plan area to the southwest.

Refer to Figure 1 – Regional Location.

Refer to Figure 2 – Locality Plan.

1.2.2 Area and Land Use

The Structure Plan area comprises approximately 50.15 hectares currently accessed by Riverside Drive and Ronlyn Road, which connect to Pinjarra Road in the north.

The Structure Plan area comprises rural properties ranging in size from approximately 1.9 hectares through to 5.8 hectares, which are currently being utilised for rural and rural-residential activities. A number of existing dwellings are also located within the Structure Plan area, with associated outbuildings, fences and other structures. These are intended to be demolished and removed as part of the development of the site.

It is noted there is an existing poultry farm currently operating on Lot 1186 Ronlyn Road, Furnissdale. It is intended that the poultry operator/owner will cease operation and relocate the business as subdivision works are progressed within the Furnissdale West Structure Plan area.

Refer to Figure 3 – Aerial Photography / Site Plan

1.2.3 Legal Description and Ownership

The Structure Plan comprises fourteen (14) freehold titles, being:

Address	Diagram	Volume / Folio	Area (Hectares)	Legal Proprietor
Lot 179 on Plan 8254	D8254	81/38A	4.0204	John Peter Davies
Lot 180 (No. 182) Riverside Drive, Furnissdale	D8254	81/37A	3.9471	Coode Pty Ltd
Lot 181 on Plan 8254	D8254	1301/944	3.9353	John Peter Davies
Lot 182 (No. 107) Ronlyn Road, Furnissdale	D8254	58/1A	3.9352	Leon Paul Boderacki
Lot 183 (No. 123) Ronlyn Road, Furnissdale	D8254	1766/316	3.9277	Clifford James Harper
Lot 184 (No. 135) Ronlyn Road, Furnissdale	D8254	39/ 203A	3.9301	Mervyn James Stewart Felicia Rosina Stewart
Lot 185 (No. 137) Ronlyn Road, Furnissdale	D8254	1737/ 911	3.9331	Murray John Gray Jill Ann Gray
Lot 197 (No. 75) Ronlyn Road, Furnissdale	D8254	278/131A	3.9351	Murray Thomas Poultney
Lot 198 (No. 61) Ronlyn Road, Furnissdale	D8254	17/102A	3.8539	Dennis Albert Wells Carolyn Betty Wells
Lot 1187 (No. 167) Ronlyn Road, Furnissdale	D26315	2503/76	1.9987	Loxleigh Pty Ltd
Lot 1186 (No. 155) Ronlyn Road, Furnissdale	D26315	2503/75	5.8803	Michael Edwin Twine Gregory Shayne Kendall
Lot 149 (No. 304) Pinjarra Road, Furnissdale	D20014	1579/299	2.0253	Serafina Vergone
Lot 150 Pinjarra Road, Furnissdale	D20014	1579/300	2.0257	Serafina Vergone
Lot 156 (No. 607) Pinjarra Road, Furnissdale	D20124	1837/106	2.7981	H and R Bostelman, S and K Draper, G Marshall and Lotus Bay Investments Pty Ltd

Table 2: Lot Details

Refer to Appendix 1 – Certifications of Title.

Planning Framework

2.1 Zoning and Reservations

2.1.1 Peel Region Scheme

The subject land is predominantly zoned 'Urban' under the Peel Region Scheme (PRS) with portions of Lot 149 Riverside Drive and Lots 150 and 156 Pinjarra Road, Furnissdale falling under the 'Primary Regional Road' zone. Those portions of Lot 149 Riverside Drive and Lots 150 and 156 Pinjarra Road which are zoned 'Primary Regional Road' under the PRS are not subject to this Structure Plan.

Pinjarra Road which abuts the northern portion of the site is reserved as a 'Primary Regional Road'. Portions of the nearby Serpentine River foreshore located on the opposite side of Riverside Drive are reserved as 'Regional Open Space' under the PRS.

Refer to Figure 4 – Peel Region Scheme Map.

2.1.2 Shire of Murray Town Planning Scheme No. 4

The subject land is zoned 'Residential Development' under the Shire of Murray Town Planning Scheme No. 4. Portions of Lot 149 Riverside Drive and Lots 150 and 156 Pinjarra Road are identified as 'Primary Regional Road' under the Scheme. The portions of land which are zoned 'Primary Regional Road' under the Scheme are not subject to this Structure Plan.

In accordance with the provisions of the zone under the Scheme, a Structure Plan is required as a precursor to subdivision and development. The Structure Plan has been prepared in accordance with the provisions of Clause 6.5 of the Scheme.

Refer to Figure 5 – Shire of Murray Town Planning Scheme No. 4 Zoning.

2.2 Planning Strategies

2.2.1 Directions 2031 and Beyond

Directions 2031 and Beyond provides a broad strategic framework defining the overall visions for the Perth and Peel Regions for the next 20 years. It sets out the planning framework for delivery of housing, infrastructure and services to accommodate future projected population growth within both regions. A key element of the overall visions identified by Directions 2031 is the consolidation of existing urbanised areas to ensure the efficient use of land and infrastructure.

Directions 2031 identify potential urban expansion and investigation areas. The subject land is within the 'Peel Sub-Region' and has been identified as 'Urban Deferred' land.

In accordance with the findings of the report, the population of the Peel Region is expected to increase by 45,000 people from 2008 to 2031 and therefore requires an additional 26,000 dwellings by this time.

The mapped Urban Deferred status of the land has been superseded by the respective 'Urban' and 'Residential Development' zonings of the land as previously noted. The Structure Plan is consistent with the broad strategic framework of the Strategy by facilitating the development of the land for approximately 710 additional dwellings.

2.2.2 Inner Peel Region Final Structure Plan (1997)

Within the Inner Peel Region Final Structure Plan (IPRSP) the subject site is identified as 'Future Urban Category B'.

The findings of the Structure Plan have been carried forward to zonings contained in the PRS and the Scheme. The subsequent rezoning of the land to 'Urban' under the PRS and 'Residential Development' under TPS 4 confirms the suitability and availability of the land for urban purposes. The Structure Plan accommodates the fragmented landownership by providing for an integrated but staged implementation of the Structure Plan as residential development progresses across the site.

Refer Figure 6 – Inner Peel Region Structure Plan.

2.2.3 Furnissdale Structure Plan

The subject land is located within the parameters of the Furnissdale Structure Plan which was completed in November 2003 by GHD Consultants Pty Ltd on behalf of the Shire of Murray. The Structure Plan has been approved by the Shire of Murray and endorsed by the WAPC.

The study was commissioned by the Shire in 2000 to explore opportunities for future residential development in the Furnissdale area, which had been identified in regional planning documents as having the potential for future urban development.

Since the Structure Plan was prepared, the strategic planning for the area has evolved and elements of the Plan are already redundant in regard to the future zoning of the land. The 'Urban' and 'Residential Development' zoning of the land supersede the need to retain Special Rural and lower density development on the subject land.

Refer to Figure 7 - Furnissdale Structure Plan.


2.3 Policies

2.3.1 Liveable Neighbourhoods

Liveable Neighbourhoods (LN) represents the WAPC's primary policy to guide the design and assessment of Structure Plans and subdivision for new urban development of residential communities in Western Australia. The underlying objective is to create quality neighbourhoods with site responsive identity supportive of local community that reduce dependency on private vehicles, and are more energy and land efficient. As such, LN focuses on an urban structure based on walkable mixed-use neighbourhoods with interconnected street patterns. It functions by drawing together key policy aspects into a single 'integrated planning and assessment policy' to provide for a performance based approach to planning assessment.

It does so according to a range of considerations including:

- ▲ Community;
- ▲ Movement;
- ▲ Lot Layout;
- ▲ Urban Water Management;
- ▲ Public Open Space; and
- ▲ Schools.



Liveable Neighbourhoods identifies a series of Objectives and Requirements for Structure Plan's that, when met, demonstrate compliance with the overall outcomes sought by LN. These objectives and requirements relate to items such as road layout, relationship of housing to open space and schools, school location/distribution, POS layout and location and housing densities.

The Structure Plan has been prepared to satisfy the various objectives and requirements of LN to ensure that more detailed proposals at subdivision stage are also capable of satisfying the relevant criteria.

2.3.2 State Planning Policy 2.1 – Peel Harvey Coastal Catchment

The subject land is located 350 metres east of the Serpentine River which discharges directly into the Peel-Harvey estuary to the south.

The general policy objectives as outlined under the Peel Harvey Coastal Plain Catchment Policy are focused on improving and balancing the social, economic, ecological, aesthetic and recreational management and potential of the Peel-Harvey Coastal Plain Catchment.

State Planning Policy 2.1 (SPP2.1) seeks to minimise the export of nutrient (primarily phosphorous) from land use and development within the catchment, to the district drainage network. It deals in particular with phosphorous discharge arising from subdivision and development of land, and requires that this should not exceed pre-development levels.

The following strategies have been included within the Local Water Management Strategy (LWMS) prepared by Hyd2o for the Structure Plan area to satisfy the requirements of SPP2.1:

- ▲ 1 in 5 year ARI event detained in POS to provide additional water quality treatment;
- ▲ Potential use of soakwells at lot scale;
- ▲ 1 year ARI storm events to be infiltrated where possible;
- ▲ 1 year ARI infiltration areas designed as ephemeral wetland/bioretenion areas with refined modelling to be undertaken at UWMP stage; and
- ▲ Infiltration areas located outside of wetland buffers.

The recommendations of the LWMS will be carried forward to subdivision and development stages by way of an Urban Water Management Plan which may be required as a condition of subdivision or development.

2.3.3 State Planning Policy 3 – Urban Growth and Settlement

The intention of State Planning Policy 3 (SPP 3) is to set out principles and considerations which apply to the planning and management of urban development.

Key objectives of SPP3 relate to the development of sustainable communities based on a number of considerations including environmental capability, employment opportunity, provision of adequately serviced land and accessibility to community services.

The Structure Plan area can be serviced with all essential infrastructures through extension of existing infrastructure available on adjacent land.

The subject land is located within 5 km of the Mandurah CBD and is well serviced by existing regional and local road networks and employment centres. Being situated within the locality of Furnissdale the land is within close proximity to a range of existing community infrastructure and services.

The Structure Plan therefore considered consistent with the intent and objectives of SPP 3.

2.3.4 State Planning Policy 3.6 – Development Contributions for Infrastructure

The objective of State Planning Policy 3.6 (SPP 3.6) is to clarify requirements for the provision of public infrastructure and facilities, ensure development contributions are equitably charged among those that benefit from the infrastructure and facilities, and to ensure consistency and transparency of the development contribution process.

Whilst there is presently no Development Contribution Plan in place for the Structure Plan area, provision has been built into Part 1 of the Structure Plan to require a Development Control Area to be introduced under the Scheme with the requirement for a Developer Contribution Plan to be prepared. The Developer Contribution Plan shall detail the cost sharing arrangement for common infrastructure items.

The provisions provided under Part 1 of the Structure Plan are considered to be consistent with the objective and intent of SPP 3.6.

2.3.5 State Planning Policy 4.3 – Poultry Farms Policy

The planning intent behind State Planning Policy 4.3 (SPP4.3) is to provide development criteria for the assessment of land which is the subject of an application for rezoning, subdivision or development for the purpose of poultry farms, and to further set out the planning process in relation to other land uses (including residential) which are proposed to be situated within the vicinity of poultry farms.

Clause 5.4 of SPP4.3 specifically outlines assessment criteria in relation to proposals to rezone, subdivide and develop land for residential and rural-residential purposes which are situated within 300 to 500 metres of existing poultry farms. Such assessment criteria include consideration of projected odours, dust and noise and vehicle movement issues (including time of day and frequency).

The subject land contains an existing poultry farm within Lot 1186 Ronlyn Road. The poultry operator/owner will cease operation and relocate the business post approval of this Structure Plan thereby freeing Lot 1186 and land located within the current buffer for subdivision and development.

Two further mapped poultry farms are located within 500 and 750 metres of the subject land. The nearest farm is located approximately 500 metres north-west of the subject land, on the northern side of Pinjarra Road and abutting the Serpentine River. The other poultry farm is situated approximately 750 metres south-east of the subject land, on the eastern side of Furnissdale Road. Both poultry farms are located sufficient distance from the subject land so as not to create any potential land use conflict, particularly as the northern poultry farm has not operated for more than 5 years.

2.3.6 Planning Bulletin No. 79 – Designing Out Crime Guidelines

The Structure Plan exhibits a strong focus on 'crime prevention' principles through, for example, the following:

- ▲ Where laneways are proposed they are straight and designed to maximise visibility;
- ▲ In general roads form a simple grid pattern, which promotes a high level of legibility and visual connectivity;
- ▲ The Structure Plan accommodates uniform lots that will support houses oriented to the street and to public open space;

- ▲ Lots with direct frontage to POS shall be subject to LDP's which will further reinforce an effective relationship to that POS, including with respect to surveillance;
- ▲ Small lot precincts supporting narrow frontages can potentially include laneways so that (particularly opposite POS) the street is not dominated by garages and can, instead, be devoted to outdoor living space and habitable rooms thereby maximising public realm interaction and surveillance; and
- ▲ The legible and efficient road network as well as regularly spaced POS fosters a high level of walkability, which is consistent with a safe public realm.

2.3.7 Barragup Furnissdale Activity Centre Policy

The Barragup Furnissdale Activity Centre Policy was adopted by the Shire of Murray on 18 December 2014 which is intended to guide the development of the centre to create a high quality main street along Pinjarra Road which serves as the primary gate way to the Shire.

Whilst the subject land is not subject to the provisions of the policy, a portion of the Structure Plan area in the north east abuts the south western most edge of the Barragup Furnissdale Activity Centre. Specifically, Lot 150 directly abuts the portion of the activity centre zoned for 'Residential' purposes, whilst Lot 1187 abuts a portion of the activity centre zoned 'Neighbourhood Centre'. Consultation with both the Shire of Murray and the adjoining landowner has been undertaken during the development stages of the policy to ensure the Structure Plan appropriately integrates with the centre.

The following design measures have been undertaken to ensure an appropriate integration with the future activity centre is provided:

- ▲ The Structure Plan proposes residential densities code of R60 and R-AC to those lots adjacent to the future 'Residential' precinct of the Barragup Furnissdale Activity Centre. The 'Residential R-AC' coding proposed over Lots 149 and 150 Pinjarra Road provides for the opportunity to create higher density development which has the potential to accommodate a range of housing types to complement the activity centre such as detached terraces, townhouses and small scale multiple dwellings. The proposed R60 and R-AC zonings provide an appropriate transition of built form between the activity centre and the Structure Plan area.
- ▲ A road interface has been provided for between the 'Spud Shed' site and Lot 150. The road interface provides for the opportunity to maximise the outlook of the future residential lots within the centre site over the area of public open space located within Lot 150.
- ▲ Residential lots have been provided for backing on to the southern boundary of the 'Spud Shed' site on Lots 151 and 152 Pinjarra Road. The lots are proposed to be serviced by a rear right-of-way (as shown on Figure 10 – Detailed Layout Plan) located within Lots 151 and 152 Pinjarra road. The rear right-of-way is to be developed and provided as part of the future redevelopment of the site and is to be a gazetted road to ensure the future lots will have vehicular access at all times.

2.4 Other Approvals and Decisions

At the time of writing, we are unaware of any other approvals or decisions that might impact on the consideration of the Structure Plan.

Site Conditions and Constraints

3.1 Biodiversity and Natural Area Assets

The following provides a summary of the environmental site conditions and constraints. For further information the Environmental Assessment Report is provided in Appendix 3.

3.1.1 Flora and Vegetation

A comprehensive Flora and Vegetation survey was undertaken by ENV across the Structure Plan area in 2010. The vegetation surveyed on site consisted of one main vegetation unit being:

AfBaCc - *Woodland of Allocasuarina fraseriana, Banksia attenuate, Corymbia calophylla, Kunzea glabrescens, Macrozamia riedlei, Hibbertia hypericoides, Iridasceae sp. And Briza maxima.*

A total of 46 families, 97 genera and 144 taxa were recorded within the survey area (113 native flora taxa and 31 introduced) with the survey concluding that none of the taxa found were of significance.

It is noted that no Endangered or Vulnerable species pursuant to the EPBC Act were located during the survey. Further, no Priority Flora or Declared Rare Flora were located within the Structure Plan area during the survey.

The condition of the vegetations across the sites ranges in quality from being predominantly Very Good condition to Good condition with only some areas towards the edges of the site being described as Degraded to Completely Degraded condition.

3.1.2 Remnant Vegetation

An area of approximately 6.83 hectares of remnant bushland within Lots 180 – 182 Ronlyn Road has been identified by the Office of the Environmental Protection Authority (OEPA) to be of regional significance. The area of remnant vegetation to be retained, as shown on the Structure Plan, is consistent with that provided to the proponent by the OEPA.

The rationale for the boundary recommended by the OEPA is to 'maximise the size of the bushland in a shape that will improve the long term viability and potential linkage to Southern River' (OEPA, 2011).

3.1.3 Threatened Ecological Communities


A search of DPaW's Threatened Ecological Community (TEC) database (2015) indicates there are no TEC's known to exist on site.

Notwithstanding, during a site visit DPaW determined the vegetation associated with the Conservation Category Wetland located within Lot 185 Ronlyn Road to be consistent with that of TEC FCT 7 which is broadly defined as a claypan on the Swan Coastal Plain.

Based on the advice received from DPaW, the TEC vegetation is to be wholly retained within the area of CCW with a buffer distance of 20m being required in this instance. The buffer to the TEC / CCW is to be revegetated with native species and may be used for passive recreational activities such as walk trails.

3.1.4 Wetlands

The DPaW's Geomorphic Database Wetlands of the Swan Coastal Plain depicts the following wetlands within the Structure Plan area:

- 
- | | |
|----------|--|
| UFI 3548 | Multiple Use Wetland, located generally across the north western boundaries of Lots 184, 185 and Lot 1186 Ronlyn Road. |
| UFI 3549 | Multiple Use Wetland, extending across the north western corner of Lot 183 Ronlyn Road and a small portion of the north western corner of Lot 182 Ronlyn Road. |
| UFI 3650 | Conservation Category Wetland, located centrally within Lot 185 Ronlyn Road. |

The portions of wetland classified as 'Multiple Use' which extend into the Structure Plan area will be subject to development. The area of 'Conservation Category' wetland however, will be managed and retained in accordance with the written agreement with DPaW as detailed within Part 1 of the Structure Plan report.

A Wetland Management Plan will be required as a condition of subdivision approval.

3.1.5 Fauna

A Fauna Survey was carried out as part of the Environmental Report prepared by ENV in 2007 for the Structure Plan area. The survey generally concluded that no Declared Rare, Endangered, Vulnerable or Priority Fauna species were located on the site.

The results of the survey however, suggest that a number of species of fauna which have conservation significance may utilise the site for feeding purposes or part of a larger home range. These species include:


- ▲ Numbat;
- ▲ Brush-tailed Phascogale;
- ▲ Western False Pipistrelle;
- ▲ Greater Long-eared Bat;
- ▲ Muir's Corella;
- ▲ Forest Red-tailed Black Cockatoo;
- ▲ Baudin's Cockatoo; and
- ▲ Carnaby's Cockatoo.

The report stated however, that the species listed above are only likely to utilise the area for feeding purposes and more suitable habitat for these species to utilise exists in abundance in the Pinjarra area. As such, the taxa are not expected to be specifically dependant on the habitats found within the site.

A Fauna Management Plan will be prepared as a condition of subdivision approval that details the protection measures applicable to the site.

3.2 Landform and Soils

The subject land is relatively flat. There is a slight gradation from 3.9 metres Australian Height Datum (AHD) within the north eastern portion through to 2.0 metres AHD in the south western portion of the subject land.



The subject site is situated within the Pinjarra Plain with soil types of predominantly Bassendean Sands, overlaying the Guildford Formation. Given the sites proximity to the Serpentine River, small portions of the site are underlain by estuarine and lagoonal deposits.

3.2.1 Acid Sulphate Soils

The Department of Environmental Regulation (DER) Acid Sulphate Soil Risk Mapping identifies the entire site as having high to moderate risk of acid sulphate soils (ASS) occurring within 3m of the natural soil surface.

Whilst testing undertaken by ENV in 2007 indicated that there was no actual ASS present, the potential for ASS below the watertable was identified. As soils will be disturbed for the installation of services such as sewerage, more detailed ASS assessment and management plans will be required as development progresses.

In this regard, an ASS Management Plan will likely be required to be prepared and implemented as a condition of subdivision approval.

3.2.2 Contamination

A search of the Department of Environmental Regulation's (DER) Contaminated Sites Database does not indicate the presence of contamination within the land.

Whilst no properties within the Structure Plan area are listed as contaminated on the Contaminated Sites Database, it is recognised that further investigation and remediation will need to be undertaken over Lot 1186 Ronlyn Road which is presently used for poultry farming, prior to subdivision or development occurring. The operating poultry farm will ultimately cease operation as subdivision and development progresses within 500m of the site.

All remedial works required will be undertaken in accordance with the *Contaminated Sites Act 2003* and verified by an independent auditor prior to approval by the DER.

3.3 Groundwater and Surface Water

3.3.1 Surface Water

There are no surface water streams or surface flows within the site, however it is noted that the site is located to the west of the Serpentine River. Floodplain mapping available from the Department of Water indicates that a small portion of the site adjacent to Riverside Drive is located within the flood fringe of the Serpentine River, however it is noted that this sits well outside of the floodway.

The site is divided into two catchments both of which discharge into the Serpentine River. Within the northern catchment, a naturally low depression exists along Riverside Drive which coincides with part of the Multiple Use wetland area. During winter, water is present within the depressions. It is noted there are three existing culverts present under Riverside Drive near the depression to convey flow under the road and to the Serpentine River. The culverts and flow path are to be reinstated to enable flow to the Serpentine River from this area.

3.3.2 Groundwater

Results of ground water monitoring undertaken by the Department of Water indicated the base average annual maximum groundwater levels (AAMGL) ranged from 1m AHD to 1.5m AHD within the Furnissdale West area, with the depth to groundwater ranging from at surface to 2.0m below ground level.

The modelling also concluded that in the event of 0.9m sea level rise, AAMGL would rise to 1.75m AHD to 2.0m AHD across the site.

To facilitate local scale planning for subject area, ENV undertook 2 years of groundwater monitoring from October 2007 to October 2009. Details of the monitoring undertaken and results are provided in the LWMS at Appendix 4.

3.4 Bushfire Hazard

A Fire Management Plan has been prepared for the Structure Plan in accordance with the WAPC's *Planning for Bushfire Protection Guidelines 2010*. The Fire Management Plan has considered the requirements of draft State Planning Policy 3.7: Planning for Bushfire Risk and Management. The Fire Management Plan is provided as Appendix 5 to this report. The following provides an overview of bushfire management assessment undertaken and the applicable development provisions which apply to the site.

3.4.1 Hazard Assessment

The Fire Management Plan (FMP) identifies the site as comprising predominantly a low to moderate fire hazard threat.

The development of the Structure Plan area as per the proposed layout will result in a reduced threat of bushfire due to urbanisation of the site and removal of bushfire prone vegetation.

The FMP identifies the dwellings located adjacent to the areas of OEPA vegetation and CCW / TEC vegetation as those areas requiring increased construction standards to satisfy the WAPC's guidelines.

3.4.2 Management Requirements

The FMP proposes a variety of measures to manage the fire hazard, including:

- ▲ A minimum 20 metre Building Protection Zones separating future development from fire hazard;
- ▲ Dwelling construction to a standard to align with the designated bush fire attack level (BAL) within the Building Protection Zone; and
- ▲ Compliance with and annual Fire Control Notice issued by the Shire of Murray under the Act.

The Fire Management Plan will be required to be implemented as a condition of subdivision approval. It is noted the FMP does not propose to modify the area of remnant bushland required to be protected by the OEPA.


3.5 Heritage

3.5.1 Indigenous Heritage

There are no known registered aboriginal sites within the Structure Plan area.

A search of Department of Aboriginal Affairs Aboriginal Heritage Inquiry System identified two sites of significance within close proximity to the site being:

- ▲ ID: 3367 "Barragup Crossing", located on the north side of Pinjarra Road, on the Serpentine River.
- ▲ ID: 3582 "Serpentine River", located approximately 350m from the Structure Plan area.



In accordance with the requirements of the Shire of Murray's Furnissdale Structure Plan and Traffic Impact Study of 2008, the Department of Aboriginal Affairs were consulted during the advertising period of the Structure Plan and raised no objection to the development the subject site.

3.5.2 Non-Indigenous Heritage

No places were identified on the Heritage Council of Western Australia Heritage Places Database or the Shire of Murray Municipal Heritage List for the Structure Plan area.

3.6 Context and Other Land Use Constraints

A Context Plan is provided at Figure 8 illustrating the various facilities located within proximity to the Structure Plan area. In addition an Opportunities and Constraints Plan has been provided at Figure 9 to illustrate factors located within and immediately around the subject site.

Refer to Figure 8 – Context Plan and Figure 9 – Opportunities and Constraints.

04

Land Use and Subdivision Requirements

4.1 Land Use

The Structure Plan sets out land use, residential densities, public open space, public and private transport provision, environmental considerations and servicing requirements.

The Structure Plan is proposed to comprise residential development ranging from R25 to R60 densities with a small portion of R-AC density provided for adjacent to the Barragup Furnissdale Activity Centre. Areas of higher density have generally been located in areas of high amenity such as adjacent to areas of public open space and the future activity centre along Pinjarra Road. The Structure Plan also comprises a range of local and neighbourhood public open space areas in accordance with Liveable Neighbourhoods requirements.

The following describes the design response proposed under the Structure Plan and addresses the relevant elements of Liveable Neighbourhoods.

Please also refer to the Structure Plan (Plan 1) and Figure 10 – Detailed Layout Plan.

4.2 Public Open Space

Under the provisions of Liveable Neighbourhoods a range of site responsive urban parkland is required, which appropriately addresses district, neighbourhood and local needs of residents, comprising a mixture of unrestricted and restricted open space.

The Structure Plan therefore provides a framework for the hierarchy and location of public open space areas across the site, considering the requirements for drainage and vegetation retention, and defining key areas of open space as identified on Plan 1.

The Structure Plan provides for approximately 5.1 hectares of public open space (POS) across the Structure Plan area by way of three neighbourhood parks and five local parks. This comprises 3.8 hectares of unrestricted (9.2% of gross subdivisible area) and 0.9 hectares of restricted open space (2.1% of gross subdivisible area).

As noted above, the hierarchy and location of POS areas have been designed to ensure residents are generally within:

- ▲ 150m of a local park;
- ▲ 400m of a neighbourhood park; and


A Landscape Master Plan (LMP) has been prepared for the Structure Plan area and included as Appendix 9 to this report. The LMP depicts the anticipated use and intent of each of the public open space areas.

The following provides a detailed overview of the public open space design response proposed under the Structure Plan.

Refer to Figure 11 - Public Open Space Plan and Figure 12 - Public Open Space Schedule.

4.2.1 OEPA Vegetation

It is recognised that the area of OEPA vegetation is not included in the overall provision of POS throughout the Structure Plan area. Notwithstanding, areas of POS have been provided around the



OEPA vegetation to accommodate bushfire protection requirements and to ensure an area of active open space is provided within the southern portion of the Structure Plan to satisfy the requirements of Liveable Neighbourhoods.

4.2.2 Conservation Category Wetland / Threatened Ecological Community

The area of POS containing the CCW and TEC has been designed in a manner to allow for the retention of areas of environmental significance whilst also accommodating stormwater drainage requirements and active open space opportunities.

The proposed design response therefore aims to deliver:

- ▲ The provision of a 20m buffer to the area mapped as CCW / TEC;
- ▲ Public and vehicular access to those areas of environmental significance being controlled to protect the environmental value of the wetland;
- ▲ The retention of the mature River Red Gums within the northern portion of the POS area; and
- ▲ The provision of an area of active open space to the south of the CCW / TEC area.

The resultant design outcome has been produced in consultation with the Shire, Department of Water and the Department of Parks and Wildlife.

4.3 Residential

Residential Densities have been established for the Structure Plan area in accordance with the requirements of Liveable Neighbourhoods and Directions 2031 to achieve densities of 22 dwellings per site hectare and 15 dwellings per gross site hectare respectively.

The Structure Plan generally provides for a transitional density of R20 to those lots which interface with the existing rural and rural residential areas, with a base density of R30 being provided throughout the Structure Plan area. Medium to higher densities of R40 to R60 have generally been located around areas of POS and within proximity to Pinjarra Road and the Barragup Furnissdale Activity Centre. A small area of R-AC density has been provided adjacent to the Barragup Furnissdale Activity Centre at the request of the landowners of Lots 149 and 150 Pinjarra Road.

Based on preliminary designs, the Structure Plan provides for a yield of approximately 700 dwellings. On this basis, the Structure Plan achieves a density of approximately 26 dwellings per site hectare, and 14 dwellings per gross hectare.

The Structure Plan therefore exceeds the average residential density of 22 dwellings per site hectare, however falls short of the 15 dwellings per gross hectare stipulated under Liveable Neighbourhoods and Directions 2031. This is largely due to the retention of the OEPA Vegetation which comprises 6.83 hectares of the total gross urban area.

Due to the proximity of the Barragup Furnissdale Activity Centre relative to the subject site, subdivision must meet the standard 30 dwellings per site hectare within 400m of the Activity Centre. Densities varying from R30 to R60 are proposed to ensure the density targets under Liveable Neighbourhoods are achieved.

4.3.1 Residential R20

Residential R20 lots are proposed to provide a transitional interface from the existing rural and rural-residential properties and the existing Residential R10 lots which form part of the Furnissdale townsite to the proposed residential area to minimise visual and amenity impacts to existing residents.

This is to be further reinforced through Local Development Plans which will be required for all transitional R20 lots with interface to the existing rural and rural residential areas and Residential R10 lots. The Local Development Plans are to provide further guidance for development in regard to:

- ▲ Lot frontage requirements;
- ▲ Setbacks and building envelope;
- ▲ Vehicular access requirements; and
- ▲ Landscape/ Vegetation Areas.

The Residential R20 lots are to be developed with wider lot frontages to complement the existing rural-residential and Residential R10 setting.

4.3.2 Residential R60

Areas of 'Residential R60' have been provided within the northern portion of the Structure Plan, generally to the west of Riverside Drive and a portion of land adjacent to Ronlyn Road and the future Spud Shed redevelopment site which forms part of the Barragup Furnissdale Activity Centre.

The proposed R60 area to the west of Riverside Drive has been proposed to facilitate a potential future 'Lifestyle Village'. The area of R60 density proposed adjacent to the Spud Shed site will facilitate a mix of housing options including detached terraces, townhouses and small scale multiple dwellings, consistent with the adjacent 'Residential Precinct' of the Barragup Furnissdale Activity Centre. The R60 zoning is consistent with *State Planning Policy 4.2 – Activity Centres for Perth and Peel* with higher densities being supported around activity centre nodes.

4.4 Movement Networks

The following provides a summary of the proposed movement network. For further information it is recommended the reader consult the Transport Assessment included at Appendix 6.

Refer to Figure 13 - Movement Network.

4.4.1 Existing Road Network

4.4.1.1 Pinjarra Road

Pinjarra Road is classified as a Primary Distributor under the Main Roads Functional Road Hierarchy and is constructed as a median-divided dual carriageway. Pinjarra Road is the major transport route between Mandurah and Pinjarra. An Intersection and Access Strategy for Pinjarra Road undertaken by Main Roads suggests that the road reserve will be widened from 40m to 60m and increased from 4 to 6 traffic lanes. The Structure Plan has reflected the required 10m widening as shown on the Structure Plan 1.

4.4.1.2 Riverside Drive

Riverside Drive is classified as a Local Distributor under the Main Roads Functional Road Hierarchy and is constructed as a un-kerbed, sealed road adjacent to the Structure Plan area.

Riverside Drive has a sealed width of approximately 6.1m with unsealed shoulder varying in width from 2.5m to 3.0m. It is noted there are no existing pedestrian or cycle paths along Riverside Drive.

4.4.1.3 Ronlyn Road

Ronlyn Road is classified as a Local Distributor under the Main Roads Functional Road Hierarchy and is constructed as an unkerbed, sealed road adjacent to the Structure Plan area. Ronlyn Road has a sealed width of approximately 6.1m with unsealed shoulder varying in width from 2.5m to 3.0m. There is an existing pedestrian path along the northern verge of the road reserve.

4.4.2 Proposed Road Network

The proposed road hierarchy for the Structure Plan has been determined from modelling based on the indicative Structure Plan layout, and provides for simple and efficient vehicle movements through the site.

The road hierarchy primarily consists of internal Access Streets, with two Neighbourhood Connectors providing north-south links from Pinjarra Road.

The movement network reflects a strong north-south and east-west modified grid configuration, with direct connections to Pinjarra Road, albeit with restricted right-turn access from Riverside Drive. The street block lengths are generally consistent with the requirements of LN, providing for connectivity and permeability through the site, for both pedestrians and vehicles.

4.4.2.1 Neighbourhood Connectors

Ronlyn Road and Riverside Drive are proposed as a combination of Neighbourhood Connector A and Neighbourhood Connector B road reserves and are expected to carry traffic volumes between 3,000 to 7,000 vehicles per day. The location of the transition from a Neighbourhood Connector A to a Neighbourhood Connector B occurs at the 'link road', which provides direct access to both Ronlyn Road and Riverside Drive.

It is expected that both Ronlyn Road and Riverside Drive will be upgraded to an urban standard along those portions of road abutting the Structure Plan area. The road reserve width is proposed to be a total of 24.4m for the portion of road classified as Neighbourhood Connector A, with a 20m road reserve being required for the portion of road classified as Neighbourhood Connector B. Both road reserves will incorporate a central median and on-street bicycle lanes.


4.4.2.2 Access Streets

The remainder of the streets within the Structure Plan are proposed to primarily consist of Access Street C road reserves, designed to a 16m cross-section in accordance with the Shire of Murray's infrastructure requirements. Where services are only required to one side of the road, such as adjacent to areas of public open space or the Pinjarra Road reserve, a reduced Access Street D cross-section of 13.5m is proposed.

An Access Street B of 20m in width is proposed within the central portion of the Structure Plan, located south of the area of public open space containing the CCW / TEC and running east-west from Ronlyn Road to Riverside Drive. The additional road reserve width is required to accommodate a central swale which is required to service the external drainage catchment, carrying stormwater to the existing culverts under Riverside Drive.

4.4.3 Public Transport

The existing Furnissdale area is currently adequately serviced by public transport. Transperth Bus Route 598 operates between Furnissdale and the Mandurah Bus Station which commences from the



western end of Smith Street and travels eastward on to York Road, Riverside Drive, Ronlyn Road before turning westward on to Pinjarra Road in to Mandurah.

It is noted however, that the existing bus route will need to be reviewed by the Public Transport Authority as subdivision and development progresses throughout the Structure Plan area to encompass the new residential areas. The revised bus route will depend on the staging of development and in particular the staging of new roads dwellings as they are constructed and inhabited respectively.

4.4.4 Pedestrian and Cycle Networks

In accordance with Liveable Neighbourhoods requirements, footpaths will be provided on at least one side of every street. It is noted there is an existing shared path along Ronlyn Road however currently no shared path exists along Riverside Drive. A shared path is proposed to be constructed as part of the required upgrades to Riverside Drive along those areas which abut the Structure Plan area.

The Access Streets within the Structure Plan area have low daily traffic volumes and are therefore suitable for on-road cycling. It is recognised however, that informal on-street parking will create some interference for on-road cycling however this will typically occur on very low traffic volume roads where the opportunity for conflict is considered to be low.

4.5 Urban Water Management

This section addresses the proposed urban water management network.

4.5.1 Water Management Strategies and Planning

4.5.1.1 Regional Water Management Strategy

An overarching Drainage Water Management Plan (DWMP) for the Murray region was released by the Department of Water in June 2011. The DWMP provides the framework for future planning and development proposals and their subsequent site-specific water management strategies and plans.

4.5.1.2 District Water Management Strategy

The West Furnissdale District Water Management Strategy (DWMS) was prepared in 2012 and provides guidance on water re-use options, stormwater detention basins, monitoring requirements, and structural and non-structural controls for stormwater treatment. The DWMS has been approved by both the Shire of Murray and the Department of Water (2012).

4.5.1.3 Local Water Management Strategy

A Local Water Management Strategy (LWMS) has been prepared in support of this Structure Plan and is provided as Appendix 4.

The LWMS addresses the Structure Plan area, and provides a refinement of flood modelling, the surface water management strategy and the groundwater management strategy to a local scale. The LWMS has been prepared in accordance with the principles, objectives and key criteria of the WAPC's Better Urban Water Management 2008.

4.5.2 Proposed Drainage Network and Infrastructure Requirements

Surface water flows are to be managed at the lot level and development scale to maintain predevelopment hydrology by retaining or detaining surface water and to infiltrate runoff close to source. The proposed drainage system will consist of a series of lot soakwells, a road drainage system comprising pipes and bioretention areas and ephemeral storage areas within POS to provide water quantity and quality treatment for stormwater generated from the proposed development.

In accordance with the LWMS prepared for the site, the key elements for managing stormwater within the Structure Plan area are as follows:

- ▲ Rehabilitation of the conservation category wetland buffer; and
- ▲ Use of distributed public open space areas for ephemeral stormwater retention/detention.

4.5.2.1 Local Drainage

The LWMS proposes three areas for stormwater retention. Storage Area A is located in the southwest corner of the site and is proposed to discharge via a piped outlet into the Serpentine River. A culvert is required to be installed under Riverside Drive which continues within the road reserve easement towards a regional open space reserve to the south which will ultimately discharge into the Serpentine River.

Storage Area B is located adjacent to Riverside Drive and accesses the existing culvert under the road. As per the LWMS, Storage Area B has been designed to detain the 1 in 5 year ARI via the existing 300mm diameter culvert under Riverside Drive, with a spillway being created for the greater events to discharge via the 600mm culvert which exists under Riverside Drive and is ultimately discharged towards the Serpentine River.

Storage Area C is located in the northwest corner of the site and has been designed to detain the 1 in 5 year ARI with greater events being released via a spillway towards the conservation category wetland. The greater events will flow back toward Riverside Drive and utilise an existing drainage easement from Riverside Drive to the wetland.

In accordance with the processes defined under *Better Urban Water Management*, an Urban Water Management Plan (UWMP) will be required to be prepared and implemented at the time of subdivision. The UWMP will refine and implement the proposed drainage network/system, as defined under the LWMS.

4.5.2.2 Groundwater Management

In accordance with the preliminary bulk earthworks plan which have been prepared as part of the servicing report, the proposed post development levels are to range from between 3.25m AHD to 3.5m AHD. This is to be achieved predominantly through the importation of fill.

It is likely that subsoil drainage will be used across the site to establish a controlled groundwater level to ensure adequate separate between groundwater and the natural surface.

4.5.2.3 Ongoing Management and Responsibilities

The ongoing water management and responsibilities are summarised in the table below.

Organisation	Role/Responsibility
Shire of Murray	Reinstates the piped drainage outlet to the Serpentine River. Assumes future long term responsibility for roads and storm water infrastructure including the ongoing operation and maintenance thereof subsequent to agreed handover by the developer.
Water Corporation	Assumes future responsibility for the potable water supply and sewerage infrastructure including the ongoing operations and maintenance thereof.
Developer	Obtain approval of the UWMP. Implement approved Acid Sulphate Soils Management Plans (where required), and Taking Water and Disposal Licenses during construction of subdivision works.

Organisation	Role/Responsibility
	<p>Demonstrate that the proposed subdivision designs supportive of the UWMP can achieve the water quantity and quality objectives and criteria set by this document.</p> <p>Undertake post development monitoring, including the provision of appropriate monitoring locations, for a period of 2 years following sale of the last lot within the development.</p> <p>Utilise monitoring data to amend or provide BMPs to ensure that water quality objectives are achieved.</p> <p>Construct and subsequently maintain stormwater control measures until handover to the Shire of Murray.</p>

Table 3: Water Management Responsibilities

4.6 Education Facilities

The Structure Plan does not propose the creation of any new school sites.

The existing education facilities within the Furnissdale and nearby Pinjarra locality will adequately cater for the needs of the future residents. Pinjarra presently accommodates both a public and private primary school and a senior high school.

It is noted that a new Primary School is planned for on the eastern side of Ronlyn Road to serve the wider Furnissdale urban catchment area.

4.7 Activity Centres and Employment

4.7.1 Activity Centres

In accordance with *State Planning Policy 4.2: Activity Centres for Perth and Peel* (SPP 4.2), the closest Strategic Metropolitan Centre to the Structure Plan area is the Mandurah City Centre, located approximately 4.2 to the west. It is also noted the Pinjarra townsite, which is recognised as a Secondary Centre, is located approximately 13.4 kilometres from the Structure Plan area.


The Mandurah City Centre comprises the main regional activity centre within close proximity to the Furnissdale West area. The Centre is well positioned to provide for a diversity of uses, including a range of economic and community services required to service the future population.

At a local level, the Barragup Furnissdale Activity Centre abuts the north eastern portion of the site. The Barragup Furnissdale Activity Centre provides a diverse, main street based neighbourhood centre to serve the daily and weekly needs of the Barragup and Furnissdale communities.

4.7.2 Employment

Given the location of the site relative to the Mandurah City Centre, there are a number of regional employment opportunities available to the community in close proximity to the Structure Plan area. The Pinjarra townsite is also located within close proximity to the site and provides for local employment opportunities.

A number of industrial employment opportunities may be available to the local community at nearby Industrial Centres such as Nambeelup, Greenfield, Pinjarra and Oakley which is identified as a Strategic Industrial Centre.



Local employment opportunities will also be generated from the Barragup Furnissdale Activity Centre along with the existing commercial uses along Pinjarra Road. The centre seeks to create both a 'Neighbourhood Centre' and a 'Business' precinct which will create a variety of job opportunities for local residents.

The proposed Primary School site on the eastern side of Ronlyn Road will also provide for employment opportunities for the local community.

4.8 Infrastructure Coordination, Servicing and Staging

The following provides a summary of the infrastructure and servicing for the Structure Plan area, however for further information it is recommended the reader consult the Engineering Services Report provided as Appendix 8.

4.8.1 Water Supply

The site is situated with the Water Corporation's Yunderup Pressure Reduction Valve (PRV) water Supply zone. Current water supply to the Furnissdale area is via a system of PRV's off the large distribution mains along Pinjarra Road (DN700 and DN460).

Water supply to the Structure Plan area will need to be via reticulation-sized mains DN200, DN250 with smaller reticulation as needed. The reticulation layout will be further reviewed at detailed design stage in consultation with the Water Corporation's Land Servicing Branch.

It is noted that the Water Corporation's long term planning for the Pinjarra and Mandurah area is currently under review. The review is set to define whether the Yunderup PRV zone continues to be served from the Stirling Trunk main, from a future Pinjarra scarp tank to the east or from the north-west via the Mandurah tanks and distribution system. It is expected this will be further defined as detailed design work is undertaken at subdivision stage.

4.8.2 Sewer

The Water Corporation has advised that the subject site falls under the Barragup planning area where it is proposed to install gravity sewers feeding to a new pump station on Ronlyn Road. The required future pump station will be located within the proponent's land, subject to approval from the Water Corporation at detailed design stage.

The southern portion of the Structure Plan area overlaps with the catchment of the existing permanent Vacuum Pump Station on Ronlyn Road. It is noted preliminary investigations indicated there was limited capacity within the existing Vacuum Sewer Pump Station however this would ultimately be subject to further discussions at detailed design stage.

Any extensions/upgrades that are necessary for development shall be the responsibility of the developer as part of the normal subdivision process.

4.8.3 Natural Gas

AtcoGas propose to install a 225mm PE high pressure gas main along Pinjarra Road. AtcoGas advised they would review the Structure Plan and advise if any further upgrades are required. To date, no further correspondence has been received.

It is expected that gas could be reticulated from the high pressure main into the Structure Plan area however will be further investigated at subdivision stage.

4.8.4 Electricity

Western Power has indicated that it has made arrangements to cater for the future load growth in the Furnissdale Area. This includes an updated to the Meadow Springs Sub-station distribution feeder which will increase supply capacity to the South Metro 22kV area, which include the Furnissdale area.

Western Power's network mapping facility indicates there is currently 5MVA capacity in the network with this increasing to 15MVA capacity of five years with the capacity reducing back to 5MVA in 20 years after development.

The current demand for residential development is typically around 4.7kVa per lot. It is anticipated based on these per lot calculations that the Structure Plan area would create a total load of 12.2MVA. This increase will typically be catered for by Western Power in accordance with the planning predictions for the area.

Street lighting will be installed in accordance with the relevant Australian Standards and in accordance with approved Western Power and Shire of Murray designs.

Any extensions/upgrades that are necessary for development shall be the responsibility of the developer as part of the normal subdivision process.

4.8.5 Telecommunications

The National Broadband Network Company (NBN Co.) will provide optic fibre cabling for the new development which will replace the local Telstra copper network. NBN Co. has reviewed the Structure Plan and to date, has not advised of any land requirements for hub facilities.

4.8.6 Development Staging

An Indicative Staging Plan has been included at Figure 14.

The Staging Plan indicates that development is likely to commence in the area immediately to the south of the OEPA vegetation, with the exception of Lot 197. This represents the most logical first stage of development given the location of existing services and the existing Furnissdale townsite to the south of the Structure Plan area.


The second stage of development is expected to commence from the north and progressively move in a southerly direction. The timing of the second stage of development will be largely dependent on the closure of the existing poultry farm on Lot 1186.

It is also noted that the development timeframe for Lots 149 and 150 Pinjarra Road is uncertain as these lots are under separate ownership to the proponent and may have differing development timeframes.

Refer to Figure 14 – Indicative Staging Plan.

4.9 Developer Contribution Arrangements

The Structure Plan does not form a Development Contribution Area under the Scheme. As such, prior to subdivision and/or development proceeding on the subject land a Scheme Amendment will be required to introduce a Development Contribution Area into the Scheme to cover 'hard' infrastructure items. The Development Contribution Plan is to be approved and incorporated in the Council's Local Planning Scheme as per the requirements of State Planning Policy 3.6 – Development Contributions for Infrastructure.



It is understood that the list of items to be included within the Development Contribution Area generally includes the following:

- ▲ Pinjarra Road;
- ▲ Riverside Drive;
- ▲ Ronlyn Road;
- ▲ Public Open Space;
- ▲ Conservation Area;
- ▲ Drainage; and
- ▲ Community Infrastructure.

Should the Development Contribution Area not be finalised prior to subdivision within the Structure Plan, it is likely that an interim development contribution arrangement between the proponent and the Shire will be established to cover the payment of interim costs.

4.10 Other Requirements

4.10.1 Traffic Noise

Traffic noise has been identified as a potential issue for those lots with frontage to Pinjarra Road. An Acoustic Assessment was undertaken by Herring Storer Acoustics which has been included as Appendix 7 to this report.

The Acoustic Assessment notes that the current traffic noise generated from Pinjarra Road is in excess of the requirements as per the WAPC's State Planning Policy 5.4 – Road and Rail Transport Noise (SPP 5.4) and Freight Considerations in Land Use Planning. The Acoustic Assessment notes that should a noise wall of 2.4m in height be installed along Pinjarra Road, it is likely that noise levels would not exceed that permitted under SPP 5.4. Notwithstanding however, the Shire of Murray has expressed that a noise wall is not suitable in this location for aesthetic streetscapes reasons given the portion of Pinjarra Road which would be subject to a noise wall is one of the main entry roads into the Shire.

Local Access Roads have been provided for abutting Pinjarra Road to create additional separation distance between lots with frontage to Pinjarra Road to minimise impacts of traffic noise whilst promoting an aesthetically pleasing streetscape outcome.

Further detailed noise amelioration methods shall be investigated at the time of subdivision which is likely to be enforced by way of a condition of subdivision approval.



FIGURES



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A	2014.03.20	M. Sullivan
B	2014.05.16	K. Trenberth



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Date Drawn:	2014-03-20
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Client:	Various
Designer:	S. Jeleric
Drawn:	M. Sullivan
Projection:	N/A

Plan ID: 5227-FIG-02-B
Regional Mapping supplied by WA Planning Commission

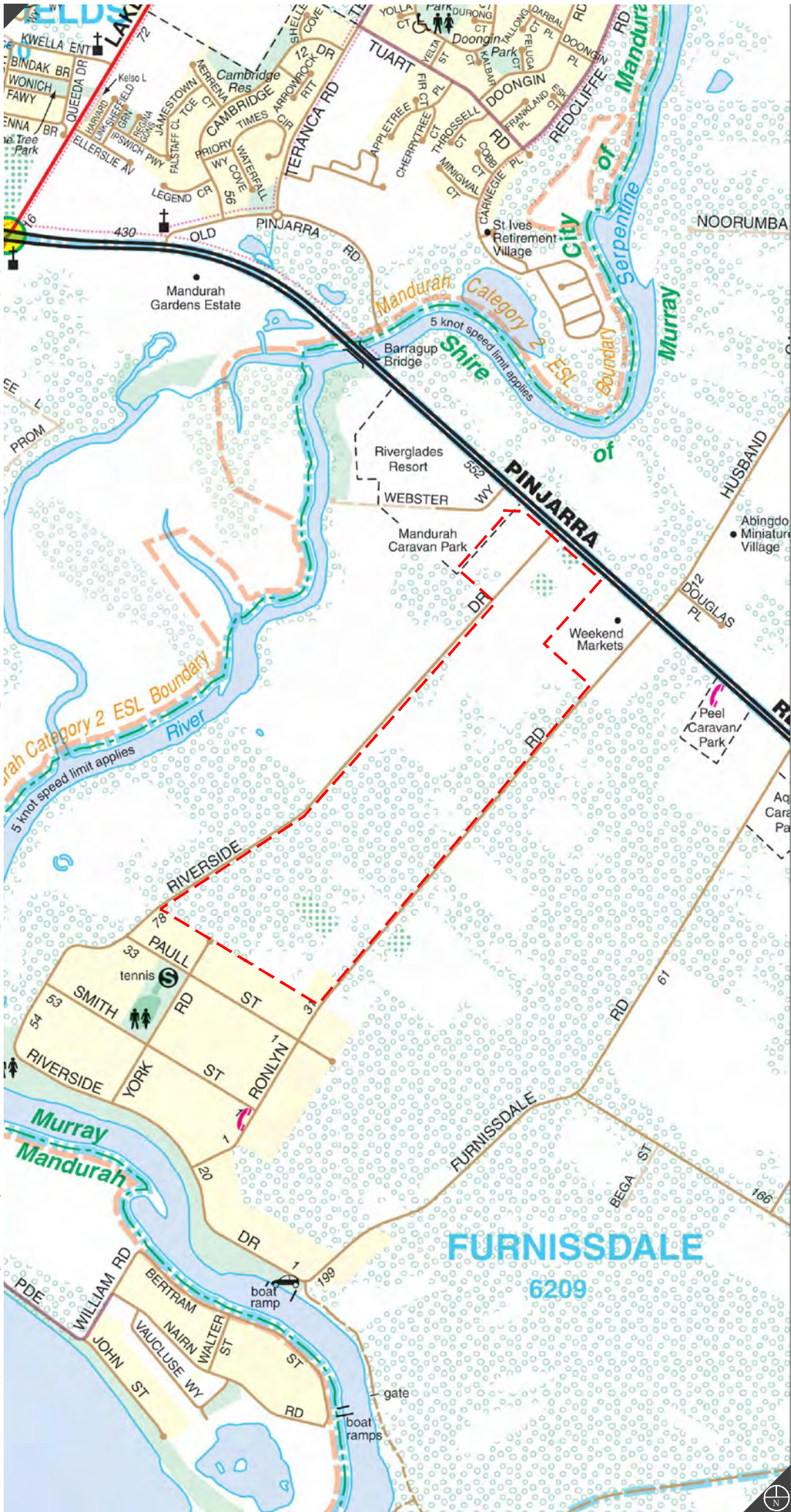
Furnissdale West
Figure 1

Regional Location



LEGEND

--- Subject Site



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A	2014.03.20	M. Sullivan
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Drawn:	M. Sullivan
Projection:	N/A
Plan ID:	5227-FIG-03-C
Cadastral Data supplied by STREETSMART	

Locality Plan

N:\TOWN PLANNING\5000-5999\5227\DRAWING\A-CAD\5227_FIG03C_20160512 FURNISSDALE [LOCALITY - FIGURE 2].DWG
William Clements 7 July 2016

Furnissdale West
Figure 2

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Planning Design Delivery



LEGEND

- Subject Site
- 7 Existing Lot Numbers
- Existing Boundaries

0 187.5 Metres

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Scale:	1:7500 @ A4
Client:	Various
Designer:	S. Jeleric
Drawn:	M. Sullivan
Projection:	MGA50 GDA94
Plan ID:	5227-FIG-04-C

Aerial Photography captured and supplied by NEARMAP

Aerial Photography / Site Plan

N:\TOWN PLANNING\5000-5999\5227\DRAWING\A-CAD\5227_FIG04C_20140512 FURNISSDALE (AERIAL AND SITE - FIGURE 3).DWG
William Clements 9 July 2016

Furnissdale West
Figure 3



Legend

- Subject Site
- Reserved Lands**
 - Regional Open Space
 - Waterways
 - Public Purposes
Denoted as follows:
H Hospital
 - Primary Regional Roads
- Zones**
 - Urban
 - Rural

0 500 Metres

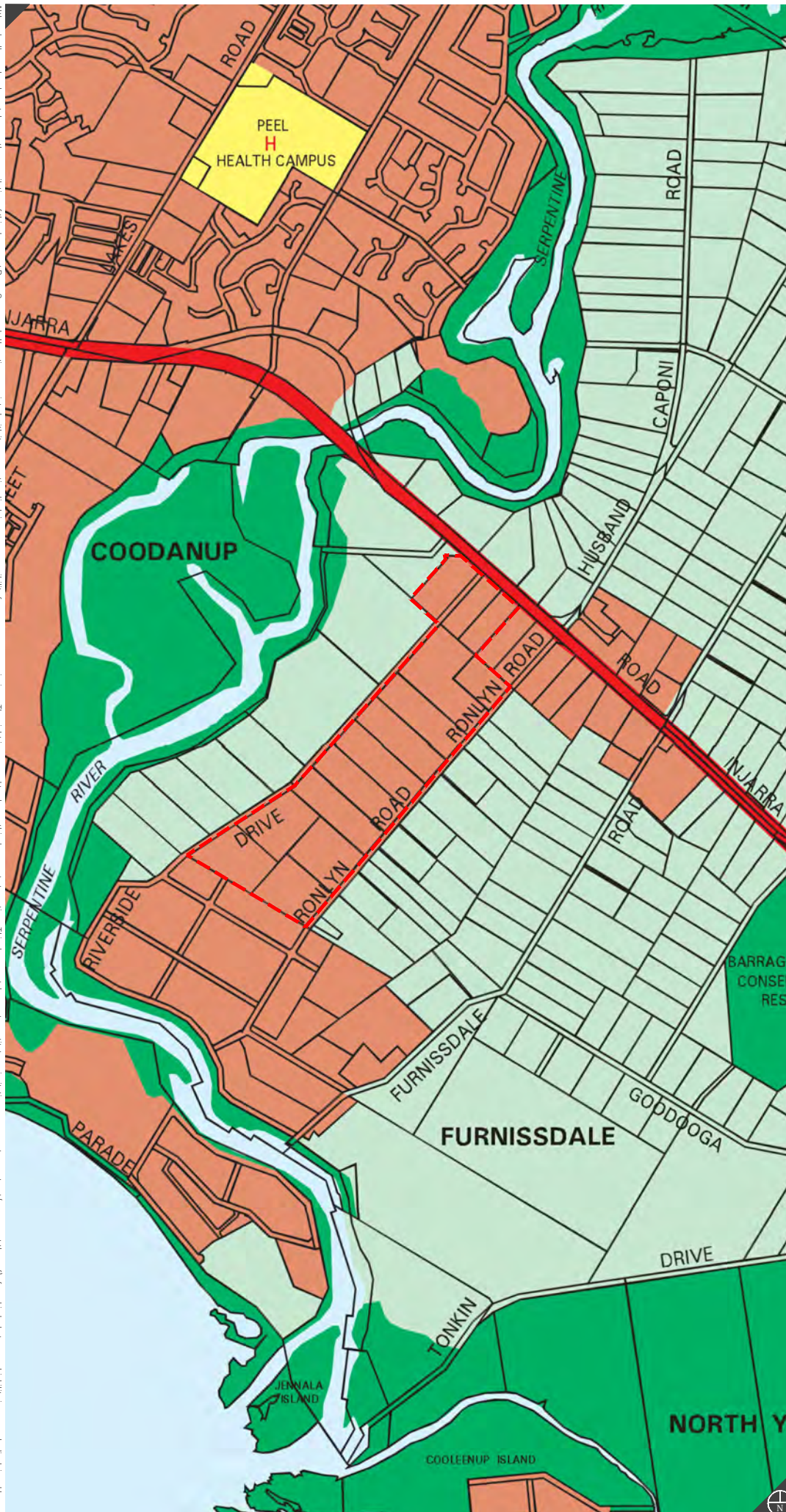
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Client: Various
Designer: S. Jeleric
Drawn: M. Sullivan
Projection: MGA50 GDA94
Plan ID: 5227-FIG-05-C
Zoning supplied by WA Planning Commission



Furnissdale West
Figure 4

Peel Region Scheme Zoning



LEGEND

- Subject Site
- PEEL REGION SCHEME RESERVES**
 - Parks And Recreation
 - Waterways
 - Primary Regional Roads
- ZONES**
 - Residential Development
 - Residential
 - Commercial
 - City Centre - Commercial Deferred
 - Caravan / Chalet Park
 - General Rural
 - Special Rural
- OTHER**
 - R Codes
 - Additional Uses
 - Scheme Boundary
 - Local Government Boundary
 - ▲▲▲▲ Flood Prone Areas (100 Year Flood)
 - SR3
 - 1
 - SCA-Development Contribution Area
 - No Zone

0 250 Metres

REVISIONS

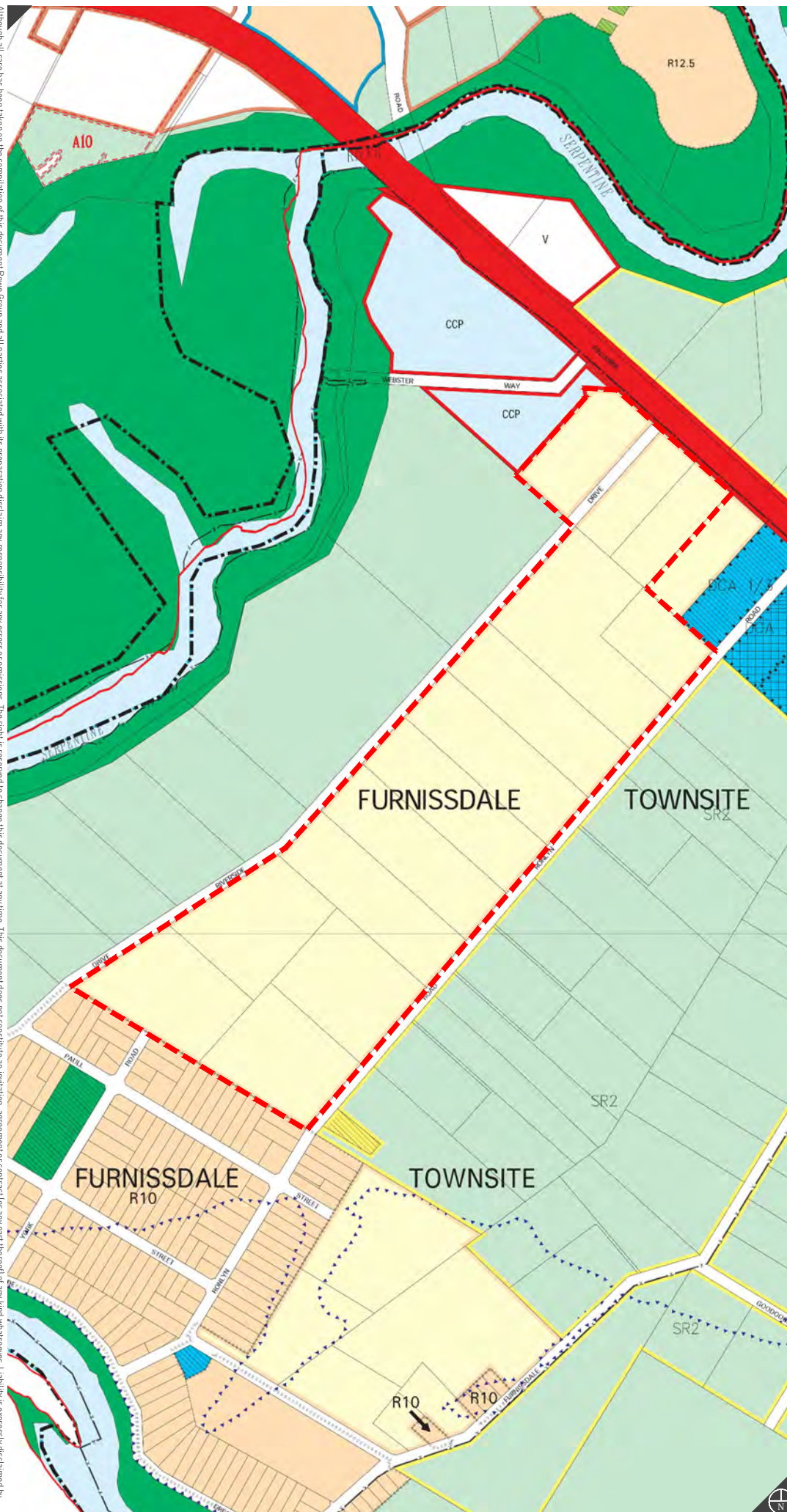
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Client: Various
Designer: S. Jeleric
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Projection: MGA50 GDA94
Plan ID: 5227-FIG-06-C
Zoning supplied by WA Planning Commission

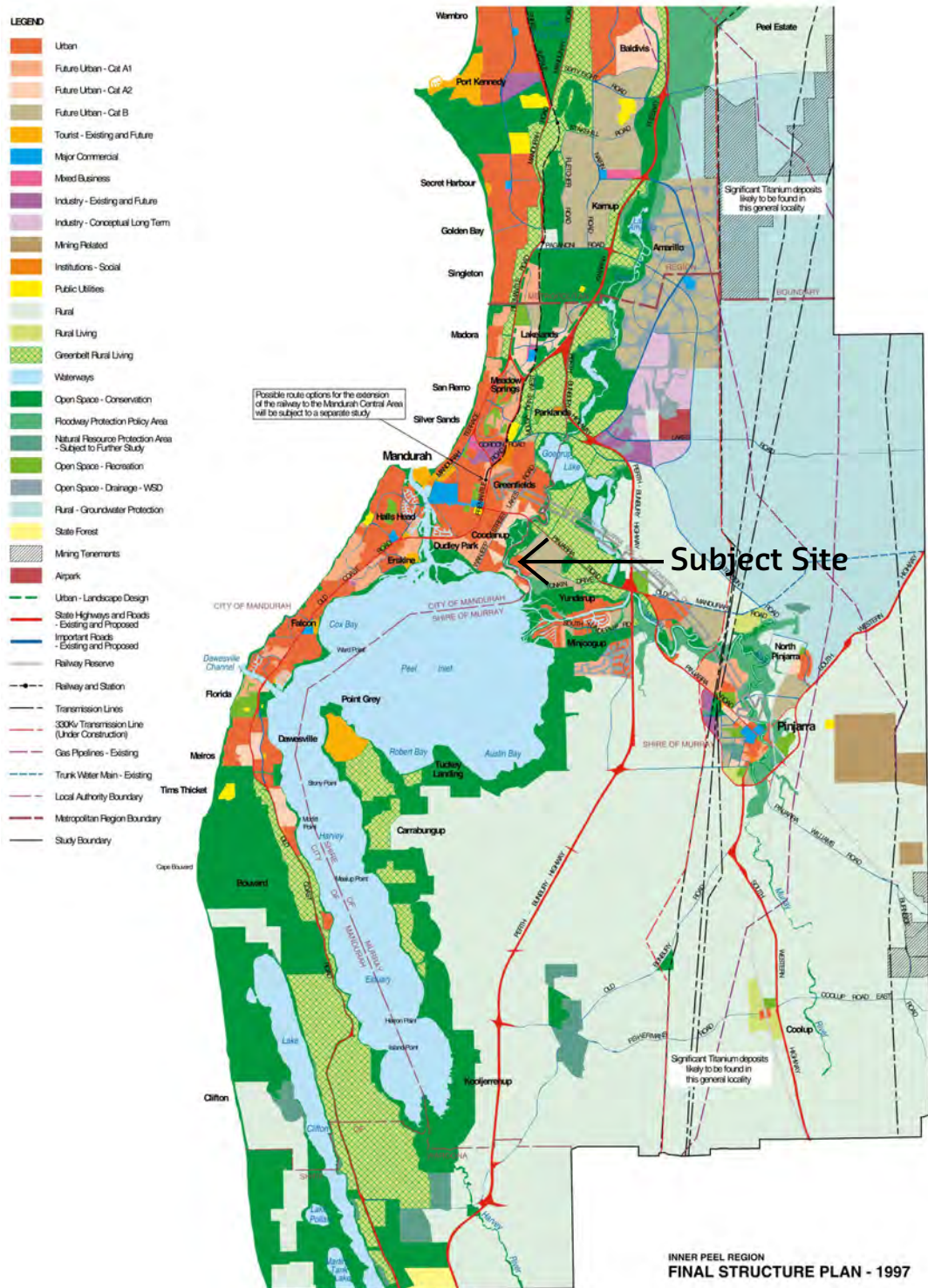
Furnissdale West
Figure 5



Town Planning Scheme No. 4



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INNER PEEL REGION
FINAL STRUCTURE PLAN - 1997

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A	2014.05.22	K. Trenberth
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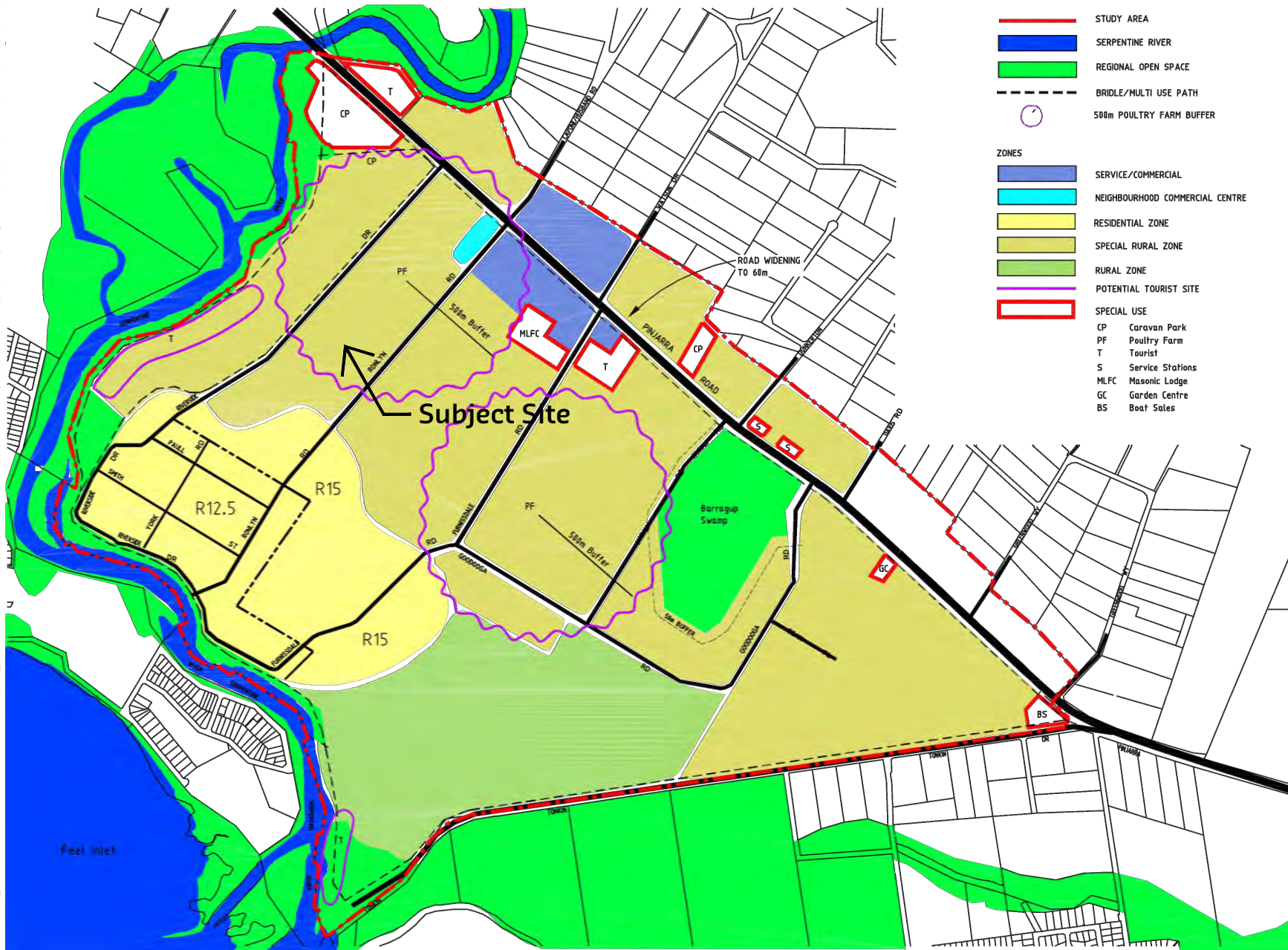


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Designer:	P. Fitzgerald
Drawn:	K. Trenberth
Projection:	MGA50 GDA94
Plan ID:	5227-FIG-16-B

Inner Peel Region Structure Plan

Furnissdale West
Figure 6



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Designer: P. Fitzgerald
Drawn: K. Trenberth
Projection: MGA50 GDA94
Plan ID: 5227-FIG-15-A
Cadastral Data supplied by LANDGATE

Furnissdale Structure Plan

N:\TOWN PLANNING\5000-5999\5227\DRAWING\A-CAD\5227_FIG15A_20140522 FURNISSDALE (FURNISSDALE STRUCTURE PLAN - FIGURE 7).DWG
William Clements 9 July 2016

Furnissdale West
Figure 7



LEGEND

--- Subject Site

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Context Plan

Furnissdale West
Figure 8

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- LEGEND
- Subject Site
 - Existing Boundaries
 - Contours
 - Existing Lot Numbers
 - Existing Building
 - Traffic Lights
 - Viewscapes
 - OEPA Vegetation
 - Bushfire Protection Zone
 - Poultry Farm
 - 500m Buffer to Poultry Farms
 - 300m Buffer EPA
 - Tourist
 - Commercial Precinct (Local Centre)
 - Wetland - Conservation
 - Wetland - Conservation 50m Buffer
 - Wetland - Multiple Use
 - Flood Fringe (2011)
 - Flood Fringe (2011) - 90m Buffer

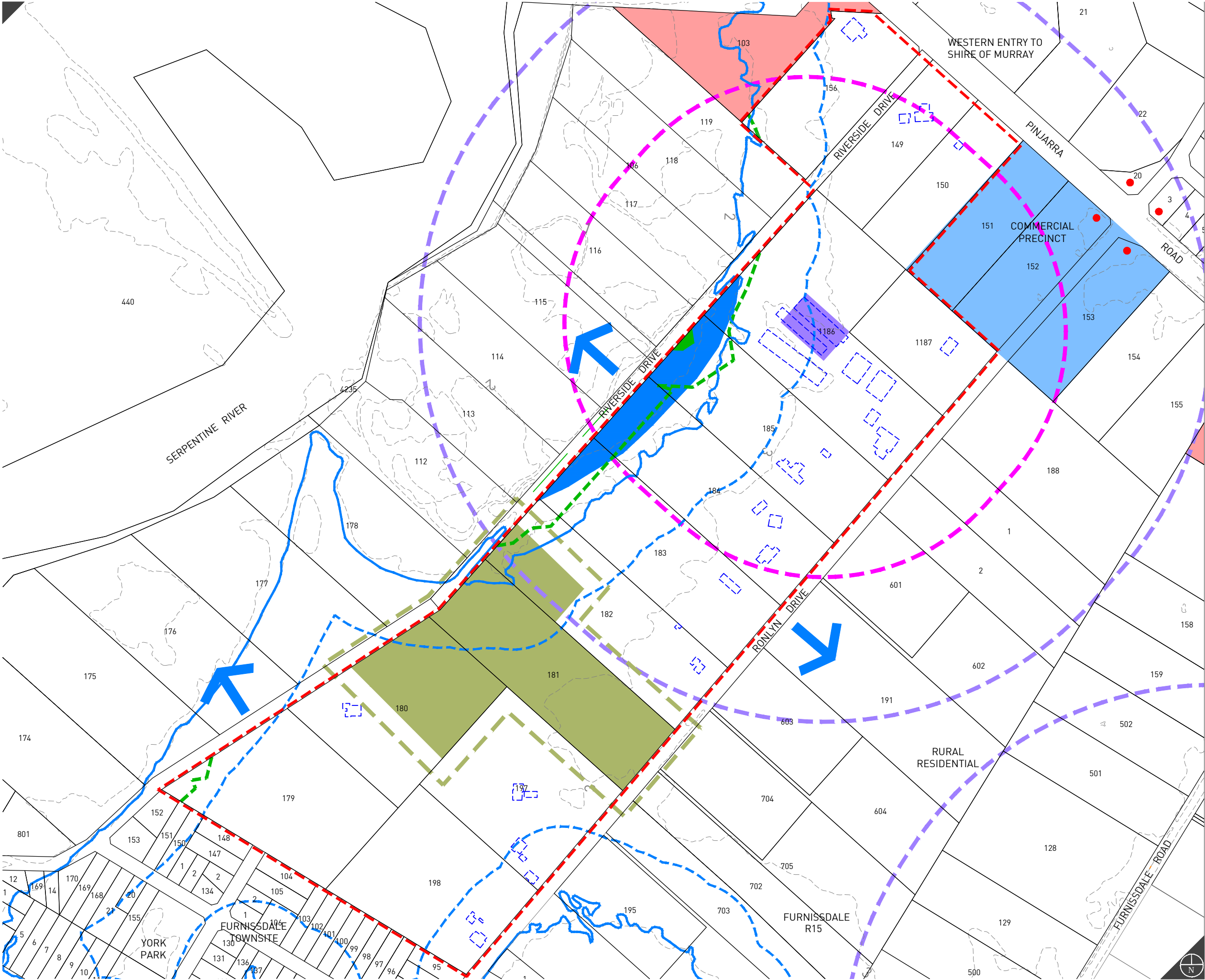
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Opportunities and Constraints

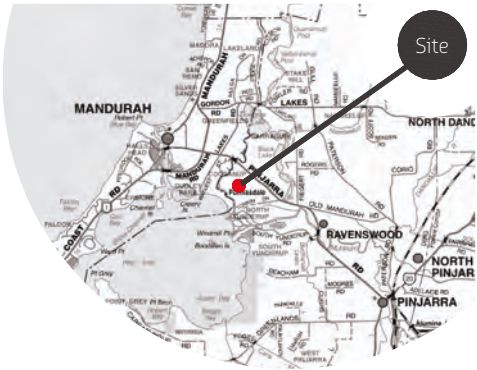
Furnissdale West
Figure 9

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Planning Design Delivery



- LEGEND**
- Subject Site
 - Existing Boundaries
 - Existing Lot Numbers
 - Proposed Boundaries
 - OEPA POS Boundary
 - Bush Fire Development Buffer
 - OEPA Vegetation
 - POS
 - CCW
 - Densities
 - R20
 - R30
 - R40
 - R60

0 125 250 Metres

REVISIONS		
Rev	Date	Drawn
G	2015.08.31	W. Clements
H	2015.12.11	M. Sullivan
I	2016.01.19	W. Clements
J	2016.07.07	W. Clements



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Designer:	P. Fitzgerald
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Projection:	MGA50 GDA94
Plan ID:	5227-FIG-19-J

Cadastre supplied by LANDGATE

Detailed Layout Plan

N:\TOWN PLANNING\5000-5999\5227\DRAWING\A-CAD\5227_FIG19J_20140707_FURNISSDALE (DETAILED LAYOUT PLAN).DWG
William Clements 7 July 2016

Furnissdale West
Figure 10



LEGEND

- Subject Site
- Existing Boundaries
- Existing Lot Numbers
- Proposed Boundaries
- 400m Walkable Catchment
- 150m Walkable Catchment
- Drainage
- POS
- CCW
- River Red Gums to be Retained

0 200 Metres

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F	2015.08.31	W. Clements
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Scale: 1:7500 @ A4
Client: Coode Pty Ltd
Designer: S. Jeleric
Drawn: M. Sullivan
Projection: MGA50 GDA94
Plan ID: 5227-FIG-08-H

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Furnissdale West
Figure 11

Public Open Space

N:\TOWN PLANNING\5000-5999\5227\DRAWING\A-CAD\5227_FIG08H_20160512_FURNISSDALE (POS - FIGURE 11).DWG
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Furnissdale West Local Structure Plan – Public Open Space Schedule					
10.05.2016					
Site Area (Structure Plan boundary)					50.15
Less					
Protected Bushland Site (POS H - OEPA Vegetation)				6.83	
CCW Core				0.496	
Net Site Area					42.82
Deductions					
Pinjarra Road widening				0.2376	
Drainage (1:1yr) * See below				0.5990	
Total				0.8	
Gross Subdivisible Area					42.0
POS @10%					4.2
Public Open Space Contribution					
May comprise:					
Min 80% unrestricted POS				3.4	
Min 20% restricted use POS				0.8	
Total Required POS					4.2
POS Reference Number (area within urban zone/LSP boundary only)			1:1yr Drainage (m²) <i>Deduction from Net Area</i>	Unrestricted Urban POS sites (m²)	1:5yr Restricted POS (m²) / CCW buffer
A	2111		580	816	715
B	4006		0	4006	0
C	14801		3150	5207	6444
D	9198		0	9198	0
E	14497		0	14497	0
F	6423		2260	2565	1598
Total	51036		5990	36289	8757
	5.1		0.6	3.6	0.9
Percentage of gross subdivisible area		12.2%	1.4%	8.6%	2.1%

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B	2015.10.13	W. Clements
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Job Ref: 5227
Scale: N.A. @ A4
Client: Various
Designer: R. Dial
Drawn: W. Clements
Projection: N.A.
Plan ID: 5227-FIG-23-C

Furnissdale West
Figure 12

Public Open Space Schedule



LEGEND

- Subject Site
- Primary Distributor
- Neighbourhood Connector A
- Neighbourhood Connector B
- Access Street B
- Access Street C
- Access Street D
- Laneway

0 187.5 Metres

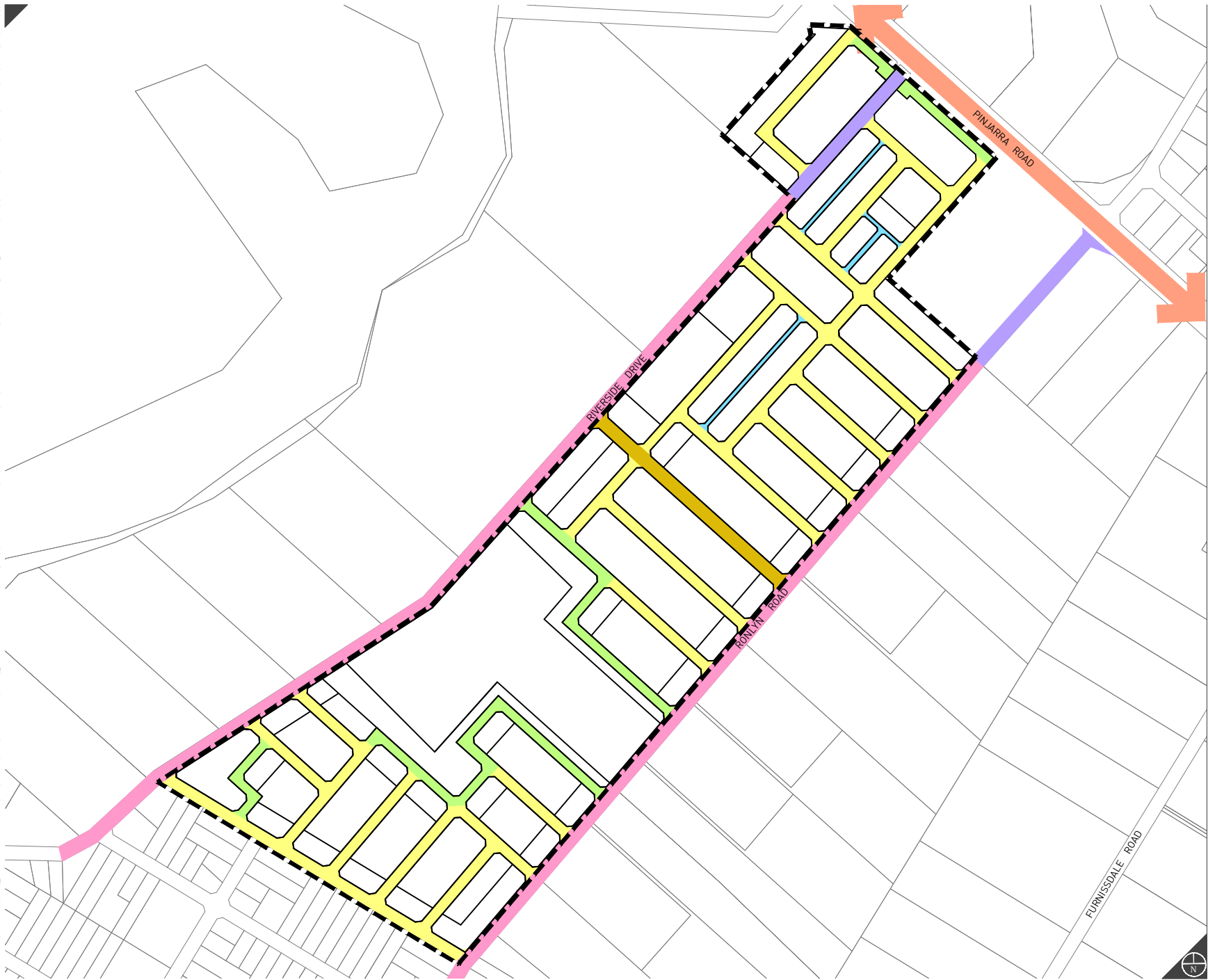
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Rev	Date	Drawn
B	2014.05.19	K. Trenberth
C	2014.10.27	K. Trenberth
D	2015.08.31	W. Clements
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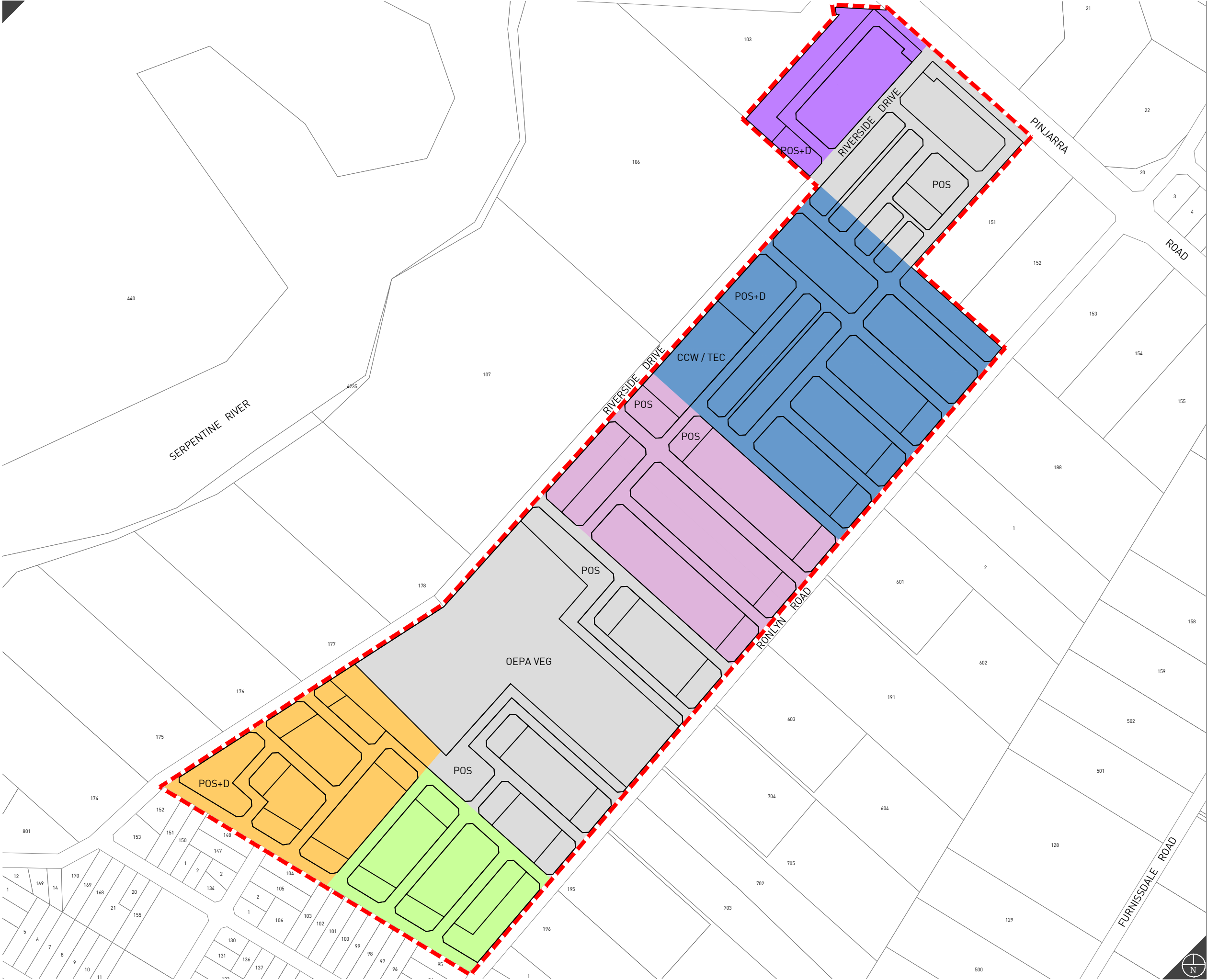
Date Drawn: 2014-03-24
Job Ref: 5227
Scale: 1:7500 @ A4
Client: Various
Designer: S. Jeleric
Drawn: M. Sullivan
Projection: MGA50 GDA94
Plan ID: 5227-FIG-10-E
Cadastral Data supplied by LANDGATE



Furnissdale West
Figure 13

Movement Network

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Indicative Staging Plan

N:\TOWN PLANNING\5000-5999\5227\DRAWING\A-CAD\5227_STG01D_20151013 FURNISSDALE (STAGING - FIGURE 14).DWG
7 July 2016
William Clements

Planning Design Delivery



- LEGEND
- Subject Site
 - Existing Boundaries
 - Existing Lot Numbers
 - Proposed Boundaries
 - Stage 1
 - Stage 2
 - Stage 3
 - Stage 4
 - Stage 5
 - Residual Stages

0 125 250 Metres

REVISIONS

Rev	Date	Drawn
A	2014.05.19	K. Trenberth
B	2014.10.27	K. Trenberth
C	2015.08.27	W. Clements
D	2015.10.13	W. Clements



w: www.rowegroup.com.au
e: info@rowegroup.com.au
p: 08 9221 1991

Date Drawn: 2014.05.19
Job Ref: 5227
Scale: 1:5000 @ A3
Client: Coode Pty Ltd
Designer: P. Fitzgerald
Drawn: K. Trenberth
Projection: MGA50 GDA94
Plan ID: 5227-STG-01-D

Cadastre supplied by LANDGATE

Furnissdale West
Figure 14