



It is certified that this Structure Plan was approved by resolution of the Western Australian Planning Commission on 23/7/2019
 This Structure Plan expires on 23/7/2029
 Signed [Signature]
 Director, Planning and Development
 File No. 110/191

LEGEND


METROPOLITAN REGION SCHEME

REGION SCHEME RESERVES

-  Parks and Recreation
-  (Site No. 261) Bush Forever Area

LOCAL SCHEME

LOCAL SCHEME RESERVES

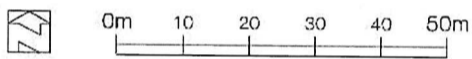
-  Parks and Recreation

LOCAL SCHEME ZONES

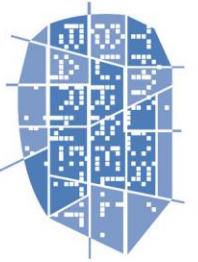
-  Residential (R40)
-  Residential (R30)

OTHER CATEGORIES

-  Structure Plan Boundary
-  Neighbourhood Connector 'B'
-  Future Integrator 'B'
-  Access Street
-  Future Access Street
-  Relocated former Giuffre Residence (Site) heritage plaque



PLAN 1 - Structure Plan Map



Lots 811 & 812 (#8) Fawcett Road, Munster

STRUCTURE PLAN




ENDORSEMENT

This Structure Plan is prepared under the provisions of the **City of Cockburn Town Planning Scheme No.3.**

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

23 July 2019
..... Date

Signed for and on behalf of the Western Australian Planning Commission


.....

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


..... Witness

23 July 2019
..... Date

23 July 2029
..... Date of Expiry



TABLE OF AMENDMENTS

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by WAPC

TABLE OF DENSITY PLANS

Each time a density plan is approved, the plan is to be recorded in the table of density plans at the front of the Structure Plan.

Density Plan No.	Area of Density Plan Application	Date Endorsed by WAPC



EXECUTIVE SUMMARY

This Structure Plan has been prepared to guide future subdivision and development of Lots 811 and 812 (No.8) Fawcett Road, Munster (hereafter referred to as 'subject land').

The subject land is located:

- Within the municipality of the City of Cockburn;
- Approximately 20 km southwest of the Perth Central Business District (CBD);
- Approximately 7 km west of the Cockburn Secondary Metropolitan Centre; and
- Immediately abuts the southern boundary of the planned Beeliar Drive extension through to Cockburn Road.

The Structure Plan proposes development of land for:

- Residential purposes comprising a mix of low to medium residential densities; and
- Ancillary uses such as public open space, drainage and local access arrangements.

Item	Data	Structure Plan Ref. (Section No.)
Total area covered by the Structure Plan	2.2996 ha	1.2.3
Area of each land use proposed:		3.3
• Zones		
• Residential	1.0140 ha	
• Reserves	N/A	
• Road Reserve	0.3918 ha	
• Public Open Space & Drainage	0.8938 ha	
Total Estimated Lot Yield	22 lots	3.3.1
Estimated No. of Dwellings	25 dwellings	3.3.1
Estimated Residential Site Density	24.7 dwellings per site/ha	3.3.1
Estimated Population	Approximately 68 people (based on 2.72 persons / dwelling)	3.3.1
No. of High Schools	N/A	3.7
No. of Primary Schools	N/A	3.7
Estimated Commercial Floor Space	N/A	3.8
Estimated area and percentage of public open space given over to:		3.4.1
• Regional open space	0.7335 ha	
• District open space	N/A	
• Neighbourhood parks	N/A	
• Local parks	0.1603 ha	
Estimated percentage of natural area	0.4679 ha (20.3% of Total Area)	3.4.1

TABLE OF CONTENTS

ENDORSEMENT	III	2.5 HERITAGE	19
TABLE OF AMENDMENTS	IV	2.5.1 ABORIGINAL HERITAGE	19
EXECUTIVE SUMMARY	VI	2.5.2 EUROPEAN HERITAGE	19
PART ONE IMPLEMENTATION	1	2.6 SURROUNDING LAND USES	19
1 STRUCTURE PLAN AREA	2	2.7 EXISTING MOVEMENT NETWORK	19
2 OPERATION	2	2.7.1 REGIONAL ROADS	19
3 STAGING	2	2.7.2 DISTRICT AND LOCAL ROADS	19
4 SUBDIVISION & DEVELOPMENT REQUIREMENTS	2	2.7.3 PEDESTRIAN NETWORK AND CYCLING	20
4.1 LAND USE	2	2.7.4 PUBLIC TRANSPORT	20
4.1.1 RESIDENTIAL	2	2.7.5 NOISE	21
4.1.2 PUBLIC OPEN SPACE	3	2.8 CONCEPT PLAN	21
4.2 NOTIFICATION ON TITLE	3	3 STRUCTURE PLAN	22
4.3 WETLAND/FORESHORE PROTECTION MANAGEMENT PLAN	3	3.1 DESIGN PRINCIPLES	22
4.4 SITE CONTAMINATION INVESTIGATION	3	3.2 DEVELOPMENT CONCEPT PLAN	22
4.5 DEVELOPMENT	3	3.3 LAND USE	22
5 LOCAL DEVELOPMENT PLANS	3	3.3.1 RESIDENTIAL	24
6 OTHER REQUIREMENTS	4	3.4 OPEN SPACE	24
6.1 DEVELOPMENT CONTRIBUTIONS	4	3.4.1 PUBLIC OPEN SPACE	24
7 ADDITIONAL INFORMATION	4	3.5 MOVEMENT NETWORK	25
PART TWO EXPLANATORY INFORMATION	7	3.5.1 ROAD NETWORK AND TRAFFIC VOLUMES	25
1 PLANNING BACKGROUND	8	3.5.2 TRAFFIC MANAGEMENT DEVICES	25
1.1 INTRODUCTION AND PURPOSE	8	3.5.3 PEDESTRIAN AND CYCLING NETWORK	25
1.2 LAND DESCRIPTION	8	3.5.4 DELIVERY AND SERVICE VEHICLES	25
1.2.1 LOCATION	8	3.6 WATER MANAGEMENT	25
1.2.2 LAND USE	10	3.7 EDUCATION FACILITIES	26
1.2.3 LEGAL DESCRIPTION AND OWNERSHIP	10	3.8 ACTIVITY CENTRES AND EMPLOYMENT	26
1.3 PLANNING FRAMEWORK	12	3.9 INFRASTRUCTURE COORDINATION, SERVICING AND STAGING	26
1.3.1 ZONING AND RESERVATIONS	12	3.9.1 WATER SUPPLY	26
1.3.2 STRATEGIC PLANNING FRAMEWORK	13	3.9.2 WASTEWATER	26
1.3.3 PLANNING POLICIES	13	3.9.3 UNDERGROUND POWER & STREET LIGHTING	26
LPP 1.16: MEDIUM DENSITY HOUSING IN THE DEVELOPMENT ZONE	14	3.9.4 TELECOMMUNICATIONS	27
2 SITE CONDITIONS AND CONSTRAINTS	15	3.9.5 GAS SUPPLY	27
2.1 BIODIVERSITY AND NATURAL AREA ASSETS	15	3.9.6 EARTHWORKS & RETAINING WALLS	27
2.1.1 CONSERVATION SIGNIFICANT FLORA	15	3.10 DEVELOPER CONTRIBUTION ARRANGEMENTS	27
2.1.2 THREATENED ECOLOGICAL COMMUNITIES	15	3.11 TECHNICAL STUDIES APPENDICES INDEX	27
2.1.3 CONSERVATION SIGNIFICANT FAUNA	15		
2.2 LANDFORM AND SOILS	15		
2.2.1 LANDSCAPE AND TOPOGRAPHY	15		
2.2.2 ACID SULFATE SOILS	16		
2.2.3 CONTAMINATED SITES	16		
2.3 GROUND AND SURFACE WATER	16		
2.3.1 GROUNDWATER	16		
2.3.2 SURFACE WATER	16		
2.3.3 WETLAND INTERFACE	16		
2.3.4 WETLAND MANAGEMENT MEASURES	18		
2.4 BUSHFIRE HAZARD	18		
2.4.1 BUSHFIRE ATTACK LEVEL ASSESSMENT	18		

APPENDICES

- APPENDIX A** PRE-LODGE MENT CONSULTATION TABLE
- APPENDIX B** ENVIRONMENTAL ASSESSMENT REPORT
- APPENDIX C** LANDOWNER FORESHORE COMMITMENTS
- APPENDIX D** BUSHFIRE MANAGEMENT PLAN
- APPENDIX E** TRANSPORT IMPACT STATEMENT
- APPENDIX F** TRANSPORT NOISE ASSESSMENT
- APPENDIX G** LOCAL WATER MANAGEMENT STRATEGY
- APPENDIX H** ENGINEERING SERVICING REPORT

PART ONE IMPLEMENTATION

1 STRUCTURE PLAN AREA

This Structure Plan shall apply to Lots 811 and 812 (No.8) Fawcett Road, 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

This Structure Plan commences operation on the date it is approved by the Western Australian Planning Commission (WAPC).

3 STAGING

Development staging is still to be determined, however it is likely that the subject land will be developed in 1 stage. Staging and development will be heavily influenced by market forces, connection to infrastructure and the timing of improvements to the surrounding road network.

4 SUBDIVISION & DEVELOPMENT REQUIREMENTS

4.1 LAND USE

The Structure Plan Map (**Plan 1**) identifies the following zones and reserves applicable to the Structure Plan area:

- Residential (R30 & R40);
- Parks and Recreation Reserves; and
- Local Road Reserves.

Land use permissibility within the Structure Plan area shall accord with the land use permissibility of the corresponding zone/reserve in the *City of Cockburn Town Planning Scheme No.3 (TPS3)*.

4.1.1 RESIDENTIAL

(i) Dwelling Target

Objective: *To provide for a minimum 15 dwellings per gross hectare of urban zoned land within the Structure Plan area.*

- a) Subdivisions are generally to achieve the following:
 - i. 15 dwellings per gross urban ha.

(ii) Residential Density

The Structure Plan Map (**Plan 1**) defines the residential density that applies within the Structure Plan.

(iii) RMD Codes

The Medium-density Single House development standards as outlined in WAPC Planning Bulletin 112/2016 apply to lots within the Structure Plan. Development of residential lots will be undertaken in accordance with the Planning Bulletin 112/2016 or an applicable local planning policy adopted by the local government.

4.1.2 PUBLIC OPEN SPACE

The proposed Structure Plan includes:

- (i) ceding of the Regional Open Space over Lot 811 with a management order to the City of Cockburn for the purposes of 'Recreation and Conservation'; &
- (ii) the creation of two areas of Local Open Space that form a natural extension of that land, and/or include existing Local Government infrastructure.

Existing vegetation and trees within areas shown on the Structure Plan Map (Plan 1) as Public Open Space is to be assessed for retention where they do not conflict with bushfire mitigation objectives.

4.2 NOTIFICATION ON TITLE

In respect of applications for the subdivision of land, the Local Government shall recommend to the WAPC that a condition be imposed on the grant of subdivision approval for a notification to be placed on the Certificate of Titles to advise the following:

- (i) Land or lots to be affected by an identified noise impact as outlined within the 'Transportation Noise Assessment' contained within **Appendix F**.
- (ii) Land or lots deemed to have a Bushfire Attack Level (BAL) rating of 12.5 or above as outlined within the Bushfire Management Plan contained within **Appendix D**; and/or
- (iii) Land or lots deemed to be impacted by midge nuisances as identified in Local Planning Policy 1.11 Residential Rezoning and Subdivision Adjoining Midge Infested Lakes and Wetlands.

4.3 WETLAND/FORESHORE PROTECTION MANAGEMENT PLAN

In respect of all application for the subdivision of land, the local government shall recommend to the WAPC that a condition be imposed on the grant of subdivision approval that a Wetland/Foreshore Protection Management Plan be prepared and implemented.

4.4 SITE CONTAMINATION INVESTIGATION

As the land has previously been used for market gardening purposes, the potential exists for soil and groundwater contamination. In this regard, a preliminary site investigation for soil and groundwater contamination shall be required at subdivision stage to determine if further investigation and/or remediation is required prior to commencement of subdivision works.

4.5 DEVELOPMENT

Development of land within the subject land is to be generally in accordance with the standards and requirements of TPS3. Proposed variations to these standards are to be outlined within a development application and will be considered by the determining authority with due regard to the intent and purpose of the standards.

5 LOCAL DEVELOPMENT PLANS

Local Development Plans (LDPs) are required to be prepared and implemented for lots affected by one or more of the following:

- Where they directly abut a Public Open Space reservation; and
- Quiet House Design requirements in accordance with the requirements of SPP 5.4.

Imposed as a condition of subdivision approval, the LDPs shall be prepared in a manner and form in accordance with Part 6, Clause 48(1) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

6 OTHER REQUIREMENTS

6.1 DEVELOPMENT CONTRIBUTIONS

The developer is to make satisfactory arrangements with the City of Cockburn to provide proportional contributions towards those items of development infrastructure defined by TPS3 for Development Contribution Area No.6 (DCA6) and Development Contribution Area No.13 (DCA13).

DCA6 requires a proportional contribution towards the widening and upgrading of Beelias Drive (Mayor Road), between Stock and Cockburn Roads. DCA13 requires a per lot/dwelling contribution towards the provision of Community Infrastructure within the Munster catchment.

7 ADDITIONAL INFORMATION

Prior to any subdivision or development of the land being supported, the following management plans, reports and strategies are to be prepared, as applicable, to the satisfaction of the relevant authority and provided at the relevant submission stage nominated in **Table 1**.

TABLE 1: MANAGEMENT PLANS, REPORTS AND STRATEGIES

Additional information	Approval stage	Approving Authority
Water Management		
Urban Water Management Plan	Condition of Subdivision	DWER, City
Environment		
Bushfire Management Plan Recommendations	Condition of Subdivision <i>(implemented through LDP's where necessary)</i> <i>(Notification on Title)</i>	City
Wetland/Foreshore Protection Management Plan	Condition of Subdivision	DBCA, City
Mosquito and Midges	Condition of Subdivision <i>(Notification on Title)</i>	City
Transportation Noise Assessment Recommendations	Condition of Subdivision <i>(implemented through LDP's where necessary)</i> <i>(Notification on Title)</i>	City
Engineering		
Detailed Engineering Drawings	Condition(s) of Subdivision	City, WC, WP
Other		
Local Development Plan	Condition of Subdivision <i>(if deemed necessary by City)</i>	City

City	City of Cockburn
DBCA	Department of Biodiversity Conservation & Attractions
DWER	Dept. of Water & Environmental Regulation
WC	Water Corporation
WP	Western Power

LEGEND

METROPOLITAN REGION SCHEME

REGION SCHEME RESERVES

- Parks and Recreation
- (Site No. 261) Bush Forever Area

LOCAL SCHEME

LOCAL SCHEME RESERVES

- Parks and Recreation

LOCAL SCHEME ZONES

- Residential (R40)
- Residential (R30)

OTHER CATEGORIES

- Structure Plan Boundary
- Neighbourhood Connector 'B'
- Future Integrator 'B'
- Access Street
- Future Access Street
- * Relocated former Giuffre Residence (Site) heritage plaque



PLAN 1 - Structure Plan Map

PART TWO EXPLANATORY INFORMATION

1 PLANNING BACKGROUND

1.1 INTRODUCTION AND PURPOSE

This documentation has been prepared by Taylor Burrell Barnett and the project team, on behalf of GM Property Group, to facilitate the assessment and approval of a Structure Plan for Lots 811 and 812 (No.8) Fawcett Road, Munster.

The Structure Plan outlines the vision for development of the subject land and establishes key requirements. The Structure Plan also includes information assessing the proposed development in context with the surrounding physical and natural environment. The Structure Plan has been prepared to address the requirements of the City of Cockburn Town Planning Scheme No.3 (TPS 3) and the Planning and Development (Local Planning Schemes) Regulations 2015 (the Regulations)

The Project Team responsible for preparing the information contained within this report is detailed in **Table 2**.

TABLE 2: PROJECT TEAM AND RESPONSIBILITIES

Project Role	Consultant
Town Planning and Urban Design	Taylor Burrell Barnett
Survey	McMullen Nolan Group
Environmental Assessment	360 Environmental
Bush Fire Management	Bushfire Safety Consulting
Civil Engineering	Cossill & Webley
Water Management	JDA Consultant Hydrologists
Traffic and Transport	I3 Consultants WA
Environmental Noise Assessment	Lloyd George Acoustics

1.2 LAND DESCRIPTION

1.2.1 LOCATION

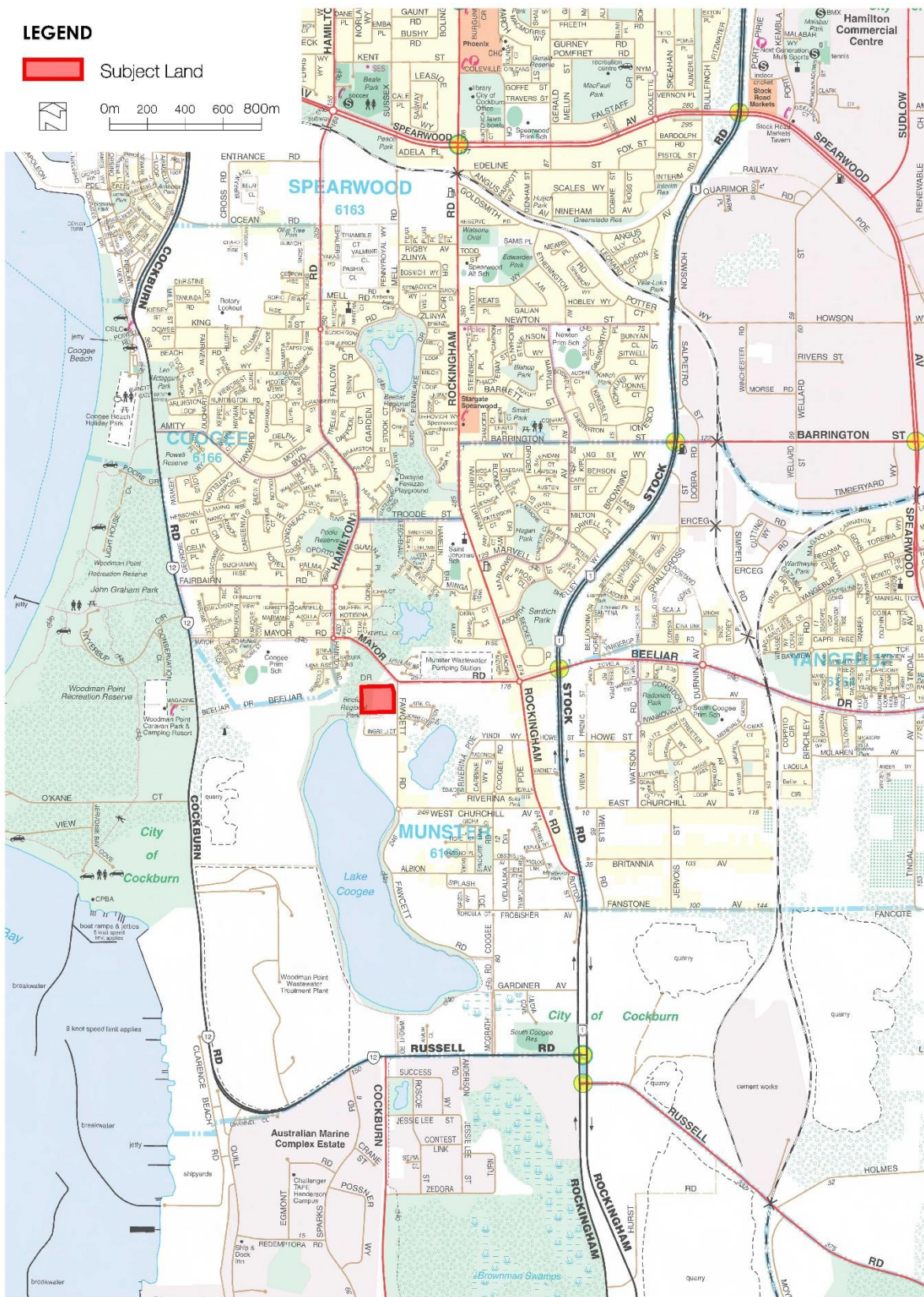
The subject land falls within the municipal boundaries of the City of Cockburn, approximately 20 km southwest of the Perth CBD.

The land is situated within the suburb of Munster and is bounded by Fawcett Road to the east, a Water Corporation owned pipeline reservation to the south, the Beeliar Regional Park to the west, and land acquired by the State to facilitate a future extension of Mayor Road/Beeliar Drive to the north (refer to **Figure 1**).

The land enjoys excellent access to the regional road network, with Mayor/Beeliar Road (Other Regional Road) providing a direct connection to Cockburn and Stock Roads (both Primary Regional Roads) a short distance to the west and east respectively.

Fremantle is the closest Strategic Metropolitan Centre (10km north), Cockburn Central the nearest Secondary Centre (7km east), with the Phoenix District Shopping Centre (3km north) and Merevale Gardens Neighbourhood Centre (2km east) accommodating the weekly shopping requirements of future residents. Two Local Centres are also within walking distance, being the Lighthouse Corner Store and Churchill Avenue Local Centres (located 1km northwest and southeast of the site respectively).

Coogee Primary School is located a short walk (approximately 800m) to the west.



1.2.2 LAND USE

Lot 812 and the eastern portion of Lot 811 have been extensively cleared of native vegetation as a result of previous land use activities (principally market gardens) with an existing dwelling located in the northeast corner of Lot 812 (fronting Fawcett Road), being the only remaining asset.

Surrounding land is a mixture of government reserves and other former market garden land gradually transitioning into low-to-medium density residential purposes.

1.2.3 LEGAL DESCRIPTION AND OWNERSHIP

The legal description, ownership and size of the subject land (refer **Figure 2**) is described in **Table 3** below:

TABLE 3 - LAND TENURE

Lot	Landowner	Plan Number	Volume / Folio	Area (ha)
811	Western Australian Planning Commission (WAPC)	DP 43519	2591 / 950	0.7600
812	GM Coogee Pty Ltd	DP 43519	2591 / 951	1.5396
TOTAL				2.2996



FIGURE 2 - Site Plan

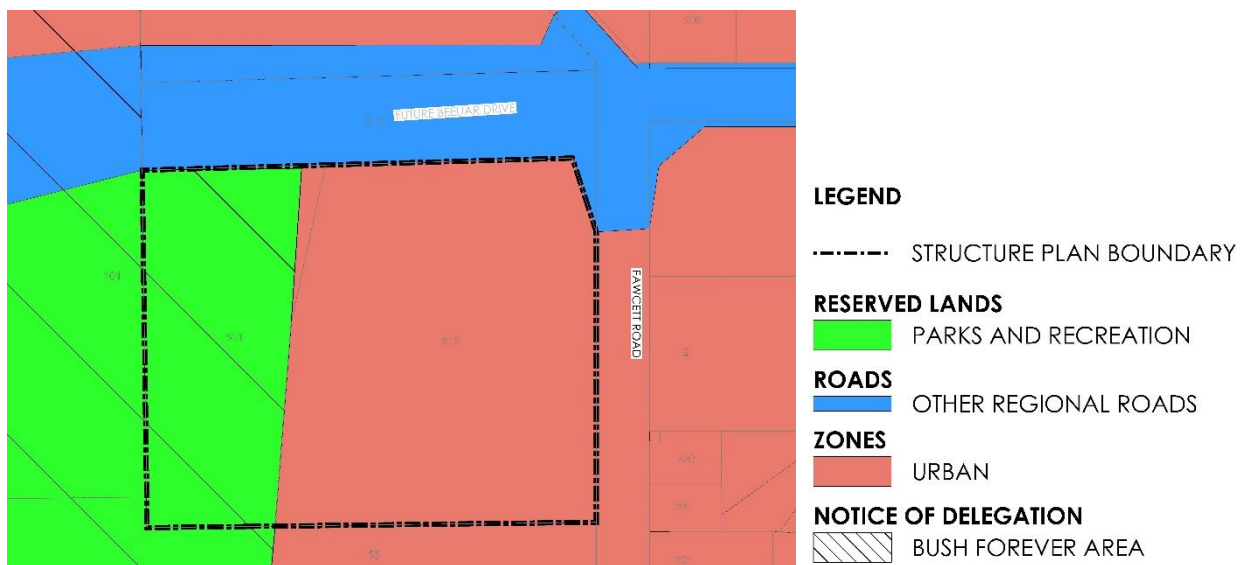
1.3 PLANNING FRAMEWORK

1.3.1 ZONING AND RESERVATIONS

METROPOLITAN REGION SCHEME

Lot 811 is predominantly reserved for 'Parks and Recreation', with its balance and the entirety of Lot 812 zoned 'Urban' under the *Metropolitan Region Scheme* (MRS).

Land to the east and south is similarly zoned 'Urban', whilst land to the west is reserved for 'Parks and Recreation' (a continuation of Bush Forever Site No. 261 that also forms part of the Department of Biodiversity Conservation and Attractions managed Beeliar Regional Park). To the north the alignment of the future Beeliar Road extension is reserved as an 'Other Regional Road', with a continuation of the urban zone beyond.



CITY OF COCKBURN TOWN PLANNING SCHEME NO. 3

The MRS 'Urban' zoned land is then zoned 'Development' under the City of Cockburn *Town Planning Scheme No. 3* (TPS 3).

The same land falls within 'Development Area 5' (DA5) which is intended to facilitate residential development except within identified land use buffers associated to the Woodman Point Wastewater Treatment Plant, the Munster Wastewater Pump Station and the operations of Cockburn Cement. Table 9, contained within Schedule 11 (Development Areas) of TPS3 outlines the provisions applicable to DA5, requiring (in part), an approved Structure Plan to guide future subdivision and development decision making in accordance with clause 27(1) of the *Deemed Provisions*.

The same land is also located within two Special Control Areas, being 'Development Contribution Plan Area No.6' (DCA6), which requires a proportionate contribution towards the widening and upgrading of Beeliar Drive (Mayor Road) between Stock Road and Cockburn Road, and 'Development Contribution Plan Area No.13' (DCA13), which requires a per lot/dwelling contribution towards the provision of Community Infrastructure in the Munster catchment. Further information on the special details that apply to land are set out in Table 10 contained within Schedule 12 (Development Contribution Plans) of TPS3.

1.3.2 STRATEGIC PLANNING FRAMEWORK

DIRECTIONS 2031 AND BEYOND

Directions 2031 and Beyond is Western Australia's high level spatial framework and strategic plan. The document provides a vision for future growth of the metropolitan Perth and Peel regions, with the aim of achieving a pattern of growth which promotes a better balance between greenfield and infill development.

The subject land is located within the south-west sub-region, where it is noted that an additional 208,000 dwellings are required in order to accommodate a projected population of 278,000 in the region by 2031. This growth is to be achieved through a combination of infill and greenfield development and presumes that all 'Urban' zoned land within the south-west sub-region is made available to accommodate this objective.

PERTH AND PEEL @ 3.5MILLION (& SUB-REGIONAL FRAMEWORKS)

Published in March 2018, the *Perth and Peel @ 3.5 Million* suite of documents articulate:

- where future homes and jobs should be located;
- how to protect important environmental assets;
- how to best utilise existing and proposed infrastructure; and
- appropriate areas for greater infill development and residential density.

The subject land is located within the *South Metropolitan Peel Sub-Regional Planning Framework*, which reflects the land's existing reservation for 'Open Space' and zoning for 'Urban' purposes. The minimum urban infill dwelling targets identified for the City of Cockburn are 2,790 dwellings in 2016-21 and 1,690 dwellings from 2021-26. Approval to this Structure Plan will assist the City of Cockburn in achieving its infill dwelling targets.

1.3.3 PLANNING POLICIES

STATE PLANNING POLICIES

SPP 3.7 PLANNING IN BUSHFIRE PRONE AREAS

State Planning Policy 3.7 - Planning in Bushfire Prone Areas (SPP 3.7) and its associated guidelines seek to reduce the risk of bushfire to people, property, and infrastructure by encouraging a conservative approach to strategic planning, subdivision, development, and other planning decisions proposed in bushfire-prone areas.

SPP 3.7 applies to all land which has been designated as bushfire prone by the Commissioner for Fire and Emergency Services (FES) on his Map of Bush Fire Prone Areas (as is the case in this instance). Accordingly, a Bushfire Management Plan (BMP) has been prepared and used to inform the structure plan design. A copy of the Bushfire Management Plan is included at **Appendix D** and is discussed in further detail at Section 2.4.

SPP 5.4 TRANSPORT NOISE CONSIDERATIONS IN LANDUSE PLANNING

State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning (SPP 5.4) seeks to minimise the adverse impact of transport noise, at the same time as protecting critical transport routes from the incursion of adjoining noise-sensitive residential development.

Due to the expected nature and volume of traffic along the future extension of Beeliar Road, an Environmental Noise Assessment has been undertaken in accordance with the requirements of SPP 5.4 to inform the structure plan design. A copy of the Environmental Noise Assessment prepared by Lloyd George Acoustics is included at **Appendix F**.

PLANNING BULLETINS

RMD CODES

Residential Medium Density Codes (RMD) density codes shown on **Plan 1** are to correspond with the associated RMD Codes within Appendix 1 of *Planning Bulletin 112/2016*, which set out variations to the *Residential Design Codes* that are deemed to constitute 'deemed-to-comply' Development within the Structure Plan area and which do not therefore, require neighbour consultation and/or planning approval to implement.

The provisions set out in Appendix 1 (*Residential Medium Density Codes*) act as a replacement to existing R-Codes standards for building and garage setbacks (Clauses 5.1.2, 5.1.3 and 5.2.1), open space (Clause 5.1.4), parking (Clause 5.3.3), visual privacy (Clause 5.4.1) and solar access (Clause 5.4.2).

LOCAL PLANNING POLICIES

LPP 1.11: MIDGE BUFFER ZONES

Local Planning Policy 1.11 – Residential Rezoning and Subdivision Adjoining Midge Infested Lakes and Wetlands (LPP 1.11) seeks to address the problem of seasonal midge swarms in the vicinity of lakes and wetlands which can adversely affect the quality of life of nearby residents by restricting residential subdivision and development in areas considered most likely to be subjected to midge nuisance, and/or advising future residents of the potential nuisance prior to purchase.

The subject land falls entirely within the 500m & 800m buffers of the combined Lake Coogee / Market Garden Swamps 3 and 4 wetland chain and is therefore subject to the requirements of LPP 1.11.

Reflective of the outcome of subdivision and development proposals adjacent the same wetland chain to both the north and south, an anticipated condition of subdivision approval will require a Notification pursuant to Section 165 of the *Planning and Development Act 2005* to be placed on the Certificates of Title of all the proposed lots, advising of the existence of a hazard or other factors. The anticipated wording of the Notification is as follows:

“This lot may be affected by seasonal midge activity from nearby lakes. Enquiries can be made with the City of Cockburn Environmental Health Services.”

LPP 1.16: MEDIUM DENSITY HOUSING IN THE DEVELOPMENT ZONE

Local Planning Policy 1.16 – Single House Standards for Medium Density Housing in the Development Zone (LPP 1.16) provides guidance on how the acceptable variations to the single house deemed-to-comply provisions of the R-Codes outlined in the WAPC's *Planning Bulletin 112/2016*, can be applied to future development in TPS3.

It does so by replacing the deemed-to-comply requirements of the following clauses of the R-Codes with those set out in the provisions of the policy:

- Building and Garage setbacks – Clauses 5.12, 5.13 and 5.21;
- Open Space – Clause 5.1.4;
- Parking – Clause 5.3.3;
- Visual Privacy – Clause 5.4.1; and
- Solar Access – Clause 5.4.2.

As stated in Section 4.1.1 of **Part 1** of this report, the Medium-Density Single House development standards as outlined in the WAPC *Planning Bulletin 112/2016* apply to lots within the Structure Plan. Development of residential lots will be undertaken in accordance with *Planning Bulletin 112/2016* or an applicable local planning policy adopted by the local government. All other R-Codes standards apply.

2 SITE CONDITIONS AND CONSTRAINTS

An *Environmental Assessment Report* was prepared by 360 Environmental to inform preparation of the Structure Plan. A full copy of the report is included at **Appendix B**, with relevant extracts are summarised below.

2.1 BIODIVERSITY AND NATURAL AREA ASSETS

2.1.1 CONSERVATION SIGNIFICANT FLORA

Lot 811 is identified as part of Bush Forever Site No.261, an Environmentally Sensitive Area which forms part of the Beeliar Regional Park. Notwithstanding its designation, the eastern portion of Lot 811, and the entirety of Lot 812 contain no naturally occurring vegetation, with only patchy rehabilitation involving endemic and non-endemic species of Highly Degraded or Degraded condition occurring in the southern portion of the land.

Some naturally occurring vegetation abuts the wetland within Lot 811, being closed tall scrub of *Melaleuca viminea* with *Melaleuca huegelii* over various sedge species. Other patches of vegetation within Lot 811 reflects the past land use as a market garden, with the presence of olive trees, fruit trees and fennel identified in the September 2017 survey, which has subsequently been removed. It is highly unlikely that any Threatened or Priority flora species would be present given the historical land use and the limited vegetation on-site being the product of rehabilitation.

Notwithstanding the above, revegetation works is to occur over Lot 811 as part of the implementation of a Wetland/Foreshore Protection Management Plan which may be required at subdivision stage.

2.1.2 THREATENED ECOLOGICAL COMMUNITIES

Desktop searches of the Commonwealth Department of the Environment and Energy's (DEE) *Protected Matters Search Tool* identified one Threatened Ecological Community (TEC) as potentially occurring within 2 km radius of the site, being Banksia Woodlands of the Swan Coastal Plain ecological community. The reconnaissance survey undertaken by an experienced Botanist concluded that no vegetation within the site is Banksia woodlands. The majority of remaining vegetation is a result of rehabilitation or is in association with the adjacent wetland.

2.1.3 CONSERVATION SIGNIFICANT FAUNA

Due to being in mostly Completely Degraded (1.74ha) and Degraded condition (0.28ha), it is unlikely that the subject land offers valuable fauna habitat. The surrounding environment is mostly cleared of native vegetation and consists of rural landholdings and residential developments, containing limited vegetation. Whilst more broadly the area contains wetlands that may support migratory waders and wetland species, due to the relative lack of vegetation it is unlikely that fauna species would utilise these areas or that they constitute valuable feeding or breeding habitat.

2.2 LANDFORM AND SOILS

2.2.1 LANDSCAPE AND TOPOGRAPHY

The subject land is located within the Swan Coastal Plain bioregion, which is characterised by a low-lying coastal plain, mainly covered with woodlands. The subject land falls gently westward from Fawcett Road towards the Regional Park with an approximate high point of 11m Australian Height Datum (AHD) in the southeast corner to a low point of 3m AHD along the western boundary of the land.

The geology of the subject land is typically Tamala Limestone. Soil Landscapes and Land Systems mapping has identified the subject land as being within the **Spearwood System** (*Sand dunes and sand plains, yellow dep sands, pale deep sands and yellow/brown shallow sands*), Department of Agriculture and Food (DAFWA) Soil subsystems mapping indicates the subject land is within the **Spearwood S4a Phase** subsoil system (*Flat to gently undulating sandplain with deep, pale and sometimes bleaches sands with yellow-brown soils*).

2.2.2 ACID SULFATE SOILS

A review of DWER's *ASS Risk Maps* indicates the subject land is not expected to be at risk. Pockets of 'High to Moderate' ASS risk lie within 3m of natural soil surface to both the west and east, but these are limited to areas immediately surrounding Lake Coogee and existing wetlands.

2.2.3 CONTAMINATED SITES

Whilst the subject land is not presently identified on DWER's *Contaminated Sites Register* a number of surrounding properties are identified as having been 'Remediated for Restricted Use'. As the subject land is known to have been periodically used for market garden purposes since the 1890s, a Preliminary Site Investigation (PSI) is currently being undertaken for the site to determine the presence of any contaminants and if any further work is required to facilitate development of the land for Residential purposes (as proposed).

2.3 GROUND AND SURFACE WATER

2.3.1 GROUNDWATER

DWER's *Perth Groundwater Map* indicates that the depth to groundwater across the subject land ranges from between 1.3m and 7.8m AHD. The land is not located within a Public Drinking Water Source Area. There are no current groundwater licences applicable to the land and all groundwater aquifers in the area are fully allocated.

2.3.2 SURFACE WATER

Outside the retained/protected portions of Lot 811, there are no existing water drainage features within the subject land, nor does the land appear within the mapped 100 Year ARI Floodplain Area. Surface water runoff generally flows in a south-westerly direction towards Lake Coogee. The land is located within the Lake Coogee/Packham drainage scheme area, in which drainage flows towards the hydrologically connected Market Garden Swamps and Lake Coogee (located south of the Study Area). Water levels in these two wetlands is controlled via pumping, with the Market Garden Swamps having a natural seasonal drying regime.

2.3.3 WETLAND INTERFACE

The Geomorphic Wetlands Swan Coastal Plain dataset identifies portions of the Lake Coogee fringe vegetation located within the western most portion of Lot 811, as a Conservation Category Wetland (CCW) (UFI 15167), with two small patches of adjacent land classified as Resource Enhancement (REW) (UFI 15921 & 15923). The extent of these areas does not impinge upon Lot 812.

A generic buffer distance of 50m from the edge of CCW and REW's is typically recommended by the Department of Biodiversity, Conservation and Attractions (DBCA). In this instance however, there is a strong argument to vary its generic standards by virtue of the land's current state, its historic disturbance through extensive market garden use, competing bushfire safety requirements and consistency with other wetland interface areas in the locality.

Preliminary discussion with City Officers resulted in general acceptance that a fully rehabilitated 50m wetland buffer from the CCW or mapped REW would not be appropriate in this instance. Instead it was suggested that Lot 811 (owned by the WAPC) be included in the Structure Plan, its eastern portion being landscaped by the developer to a POS standard to act as an appropriate wetland interface consistent with urban development to the south, and at subdivision the land being ceded and vested into the care and management of the City for 'Conservation and Recreation' purposes.

Figure 3 best illustrates the outcome of those discussions. The fundamental elements of the Foreshore Landscape Concept Plan include positioning the shared path along the western extent of the necessary Bushfire Management Zone (as a clearly defined, accessible and defendable edge), the cleared area west of that path being rehabilitated with wetland fringing vegetation, and the portion of Lot 811 east of the path being landscaped as turfed POS. A small drainage basin is also located at the relative low point in this area.



FIGURE 3 – Indicative Foreshore Landscape Concept Plan (extracts)

Letters confirming the developer’s willingness to rehabilitate, landscape and otherwise embellish the land to a POS standard, and the WAPC’s agreement to have their land included in the Structure Plan and willingness to cede the land to the City at the end of the process (as requested by the City) are attached at **Appendix C**.

2.3.4 WETLAND MANAGEMENT MEASURES

Due to the relative proximity of the CCW to proposed urban development, it is anticipated that a Wetland/Foreshore Protection Management Plan may be required at subdivision stage to the requirements of the City of Cockburn and/or DBCA. The Management Plan will be prepared to include appropriate management measures to ensure the wetland and the interface between the wetland and the urban development is appropriately managed to ensure there are no adverse impacts to the CCW.

The Management Plan will be prepared in accordance with the requirements of the relevant agency and will include details to manage the following aspects:

- Native fauna;
- Domestic and feral fauna;
- Water quality;
- Surface water;
- Development works;
- Public amenity;
- Landscaping, POS and paths; and
- Revegetation works including weed control.

The Management Plan will also include a monitoring and management program, completion criteria, timeframes and the responsible parties.

2.4 BUSHFIRE HAZARD

In recognition that the entirety of the subject land has been designated as bushfire prone on the WA Map of Bush Fire Prone Areas (DFES 2017), a Bushfire Management Plan (BMP) has been prepared by Bushfire Safety Consulting to accompany the Structure Plan (refer to **Appendix D**).

The BMP is a strategic level plan which identifies necessary bushfire protection measures to be applied at nominated steps in the development process to accommodate compliance with:

- *SPP 3.7 – Planning in Bushfire Prone Areas*;
- *Guidelines for Planning in Bushfire Prone Areas*; and
- *Australian Standard for Construction of Buildings in Bushfire-Prone Areas (AS3959-2009)*.

2.4.1 BUSHFIRE ATTACK LEVEL ASSESSMENT

As part of the BMP, a Bushfire Attack Level (BAL) Contour Map has been prepared which outlines the predictive BAL lines having regard for future development and management arrangements on the subject land and immediate surrounds.

The BAL contour assessment over the project area indicates that all proposed lots are affected by a BAL-12.5 rating, with those closest the south east corner of the site increasing to BAL-19 and/or BAL-29. BAL ratings for individual lots can be revalidated at subdivision application if any design changes have occurred. BAL ratings for individual buildings can be confirmed post-completion of subdivision works prior to lot title/sale, or at the building permit application stage.

The bushfire construction provisions of the National Construction Code will be applied to proposed buildings in accordance with the assessed BAL under AS 3959 standards.

The BAL contour assessment is considered suitable for the purposes of informing future planning/building stages; however, acceptance of the BAL contour map at future planning/building stages is at the discretion of the City and reassessment of the BAL may be required at future planning/building stages of development.

2.5 HERITAGE

2.5.1 ABORIGINAL HERITAGE

A search of the Aboriginal Heritage Inquiry System (DPLH 2017) identifies Lake Coogee as being the closest Registered Site (#20866 – Mythological), with none being located within the subject land.

2.5.2 EUROPEAN HERITAGE

A search of the relevant heritage databases has confirmed there are no registered places of World, National or State Heritage significance on the subject land, however the former Giuffre Residence is recognised as being of local significance (site #70) on the City of Cockburn Municipal Heritage Inventory.

Originally settled in 1864, a limestone cottage was built by Chinese market gardeners circa 1890. The market gardens were then abandoned in the 1920s, then restored in the 1950s before being acquired by the Water Corporation in the early 2000s. The residence was subsequently demolished as part of necessary water infrastructure upgrade works and replaced with a plaque explaining the history of the site. Relocation of the plaque to a more noticeable and manageable location within the boundaries of the proposed POS reservation, where the history of the site can be better celebrated, is included as part of this proposal

2.6 SURROUNDING LAND USES

Beyond Lake Coogee to the west are the Woodman Waste Water Treatment Plant (WWTP) and Munster Wastewater Pump Station. 2km to the south-east lies the Cockburn Cement facility. A review of the City's IntraMaps System has confirmed that the subject land lies beyond the extent of any land use buffers associated with those activities.

2.7 EXISTING MOVEMENT NETWORK

A *Transport Impact Statement* was prepared by i3 Consultants WA to inform preparation of the Structure Plan. A full copy of the report is included at **Appendix E**, with relevant extracts summarised below.

2.7.1 REGIONAL ROADS

The subject land is connected to the primary regional road network via Mayor Road, an east-west distributor road connecting Stock Road and Beeliar Drive to the east with Cockburn Road to the west. In time, Beeliar Drive is planned to be extended to connect to Cockburn Road in a more direct manner, using the same section of Mayor Road east of Fawcett Road. There is uncertainty as to when this will occur, with the link not appearing on the City's Regional and Major Roadworks Plan (2016-2030) and no funding in the City's forward budgets for this.

2.7.2 DISTRICT AND LOCAL ROADS

MAYOR ROAD

Mayor Road is currently a two-lane single sealed and kerbed carriageway with channelisation at the Fawcett Road intersection, including a wide traffic island/pedestrian refuge on its eastern side. It is classified as a Distributor/Neighbourhood Connector B road, with a posted speed limit of 60 km/h. Average daily traffic volumes are 6,710 (Monday to Friday).

FAWCETT ROAD

Fawcett Road is also a two-lane single sealed and kerbed carriageway road, classified as a local Access Street. The road currently runs between Mayor Road at its northern end and Churchill Avenue to the south before turning east to connect to Coogee Road, but is in the process of being disconnected south of Albion Avenue to address high-speed through traffic use.

Located along the eastern boundary of the subject site it acts as the sole access and frontage road to the site and is subject to the default urban speed limit of 50 km/h. Average daily traffic volumes are currently 1,165 (Monday to Friday), but is expected to reduce upon disconnection.

FAWCETT/MAYOR ROAD INTERSECTION

Observations of driver behaviour on site revealed a concern with the approach speed of eastbound traffic on Mayor Road with many drivers appearing to be unprepared to slow down and stop when the vehicle in front slows down or stops to turn right into Fawcett Road. The planned disconnection and other measures (speed cushions) aimed at reducing the use of Fawcett Road as a through road will reduce the number of right turns into Fawcett Road by as much as 60 during the peak hours. The number of right turns forecast to be generated by development of the subject land is between 5 and 10, hence there will be a significant overall reduction in this movement by the time the proposed subdivision is fully occupied, resulting in a reduced potential for crashes.

It is noted that there is a 60 km/h speed limit on Mayor Road from east of Atwell Crescent to Rockingham Road and Stock Road, with the remaining sections subject to the default 50 km/h limit or 40 km/h school zone. The current situation where the speed limit is increased to 60 km/h from 50 km/h and then traffic is slowed by a 30 km/h Slow Point at Fawcett Road indicates that there is merit in reducing the speed limit to 50 km/h for the entire length of Mayor Road, irrespective of any development proposals.

This road safety assessment has identified an inconsistency with the speed management along Mayor Road that could be addressed through applying the default urban speed limit of 50 km/h for its full length. It is recommended that this is considered by the City of Cockburn and Main Roads WA irrespective of any development proposals.

There are no identified safety concerns generated by the proposed development.

2.7.3 PEDESTRIAN NETWORK AND CYCLING

Footpaths servicing the site are located along the western/southern sides of both Mayor and Fawcett Roads respectively, with another high-quality path meandering through the south-east corner of the subject land, that forms part of a planned east-west connection between Lake Coogee and Market Garden Swamp #3.

In addition to the above footpath network, the City's *Active Travel Plan* identifies both Mayor and Fawcett Roads as Local Bike Friendly Routes that provide access to the broader regional cycleway network.

2.7.4 PUBLIC TRANSPORT

There are two bus stops on Mayor Road within a 2-minute walk of the subject site. Both stops (one westbound, one eastbound) serve route 532, which travels between Fremantle and Cockburn Central Train Stations via Beelias Drive. There are regular services between 6.05 AM and 11.16 PM on weekdays, 6.27 AM and 11.36 PM on Saturdays 7.43 AM and 11.06 PM on Sundays and public holidays.

2.7.5 NOISE

A Noise Assessment has been prepared by Lloyd George Acoustics to support this Structure Plan and is contained in **Appendix F**. The purpose of this assessment was to anticipate the impact noise received within the development from vehicles travelling along the future extension of Mayor/Beeliar Road. Where noise levels are expected to exceed determined criteria, attenuation measures have been identified in order to reduce noise intrusion to acceptable levels.

Noise received at the residences within immediately proximity to the future Beeliar Drive extension are expected to exceed SPP 5.4 "Noise Target." No noise wall is required for these residences to achieve compliance with SPP5.4, however they will require the use of architectural treatment packages ("Quiet Noise Design"), which landowners will be made aware off via notifications on the relevant Certificates of Title.

The requirement for architectural treatment packages will also be addressed in an LDP, as outlined in **Part 1**. The preparation of an LDP and notifications on relevant Certificates of Title are anticipated conditions of subdivision approval.

2.8 CONCEPT PLAN

The Approved Munster – Phase 3 Structure Plan, which included an indicative subdivision layout over the subject land, is shown at **Figure 4**.

To achieve the objective of ensuring appropriate coordination with the development of surrounding land, this design forms the basis of the design (in particular the proposed road and open space networks) submitted as part of this proposal.

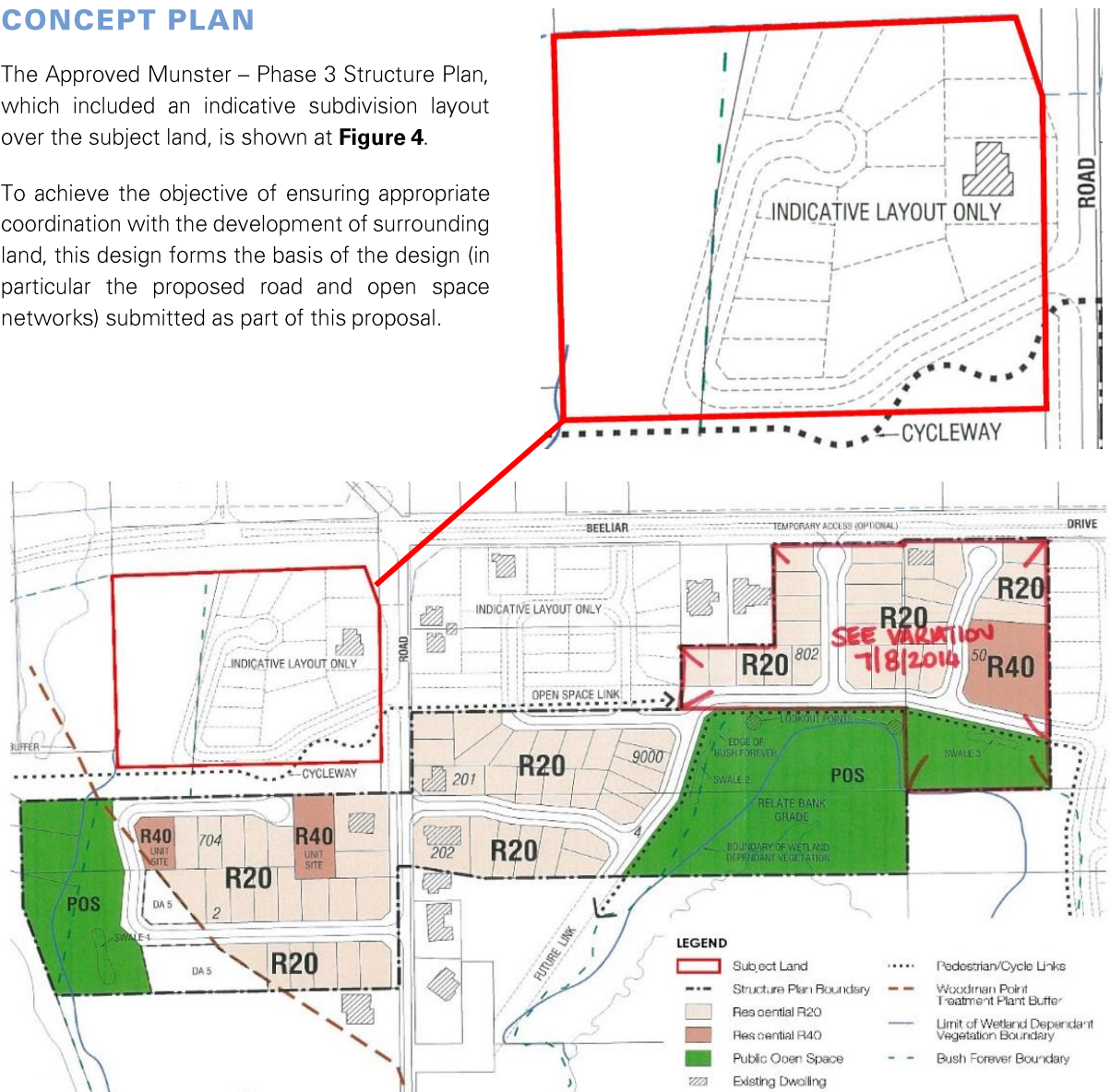


FIGURE 4 – Munster – Approved Phase 3 Structure Plan (extract)

3 STRUCTURE PLAN

3.1 DESIGN PRINCIPLES

Fundamental design principles that underpin the proposed Structure Plan, are summarised below:

- Provide for lot diversity that will enable the construction of a diverse range of housing types to accommodate different housing demands;
- Accommodation of passive recreational opportunities, via the provision of local reserves and enhancements to the adjoining regional reservation; and
- Provision of attractive, safe and convenient local roads.

3.2 DEVELOPMENT CONCEPT PLAN

In addition to the Structure Plan Map included within Part 1 – Implementation (**Plan 1**), a Development Concept Plan (**Figure 5**) has been prepared to provide an illustration of the development intent. Whilst this graphical representation is indicative only, it indicates how the streetscapes and residential development will occur.

The Development Concept Plan has been prepared based on the following key design considerations:

- **Road Structure** – The existing Road Reserves of Fawcett Road and the planned extension of Beeliar/Mayor Road have defined the structure of the plan. A local access street connection from Fawcett Road, terminating in a cul-de-sac is proposed.
- **Residential Development** – The Structure Plan provides for a variety of housing choices through the designation of R30 and R40 density codings and the application of the Medium-Density Single House development standards as outlined in WAPC *Planning Bulletin 112/2016*. A range of lot sizes and housing types is achievable based on the proposed arrangement.
- **Integration** - The Development Concept Plan demonstrates how the development integrates with and will not prejudice future development of surrounding land parcels, or the planned extension of Beeliar Drive.

3.3 LAND USE

The primary land use within the Structure Plan area is 'Residential.' A summary of the land uses and areas is provided in **Table 3**:

TABLE 3 – LAND USE

Zone / Reserve	Area (ha)
Residential	1.0140
Roads	0.3918
Public Open Space & Drainage	0.8938
Total	2.2996

LEGEND

- Subject Land
- Residential (R40)
- Residential (R30)
- Future Integrator 'B' Road
- Future Access Street
- ① Retained Remnant Vegetation
- ② Revegetated Wetland Buffer
- ③ Hard Edge to Building Protection Zone
- ④ Integrated POS/
Drainage Infrastructure
- ⑤ Relocated Heritage Plaque
- ⑥ Trafficable Emergency Access Way

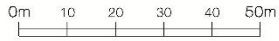


FIGURE 5 - Development Concept Plan

3.3.1 RESIDENTIAL

It is intended that medium density single house development standards apply to all land designated RMD-30 and RMD-40 on **Plan 1**. The density codes and indicative yield is detailed in **Table 4**.

TABLE 4 – ESTIMATED DWELLING YIELD

Density Coding	Yield
R30 (300m ² average)	21
R40 (220m ² average)	4
TOTAL	25

POPULATION TARGET

The Development Concept Plan suggests a potential yield of at least 25 lots. This could accommodate a total population of up to 68 based on 2.72 people per household (Id Community 2016).

3.4 OPEN SPACE

3.4.1 PUBLIC OPEN SPACE

As discussed in Section 2.3.3. of this report, at the City’s request agreement has been reached with the WAPC for Lot 811 to be included in the Structure Plan, to facilitate its embellishment (inclusive of drainage infrastructure – as broadly depicted in **Figure 3**) and ultimately, the transfer of management requirements to the local authority outside of the 10% requirement.

In addition to embellishment of the MRS reserved land (including a battered turf edge mirroring the Ingrilli Court Foreshore treatment to the south of the site), two areas of Local Open Space are proposed that will form a natural extension of the wetland foreshore and include existing Local Government infrastructure. The outcome is the creation of some active, but principally passive recreational opportunities.

A public open space calculation has been prepared in accordance with Liveable Neighbourhoods, as detailed in **Table 5**. Whilst forming part of the proposed local Parks and Recreation reserve on the Structure Plan Map (**Plan 1**), due to being the result of an historic zoning anomaly and already being in government ownership the 0.0265ha balance of Lot 811 has been treated as a deduction as opposed to creditable area, meaning the Structure Plan provides just 8.69% creditable Public Open Space. The 1.31% (0.0202ha) Public Open Space shortfall shall be provided as a cash-in-lieu contribution made to the local government at the first stage of subdivision.

TABLE 5 - PUBLIC OPEN SPACE SCHEDULE

PUBLIC OPEN SPACE	(ha)
Gross Site Area	2.2996
DEDUCTIONS	
Regional Open Space	0.7335
Balance of Lot 811	0.0265
Total Deductions	0.7600
Gross Subdivisible Area	1.5396
Creditable Public Open Space Required @ 10%	0.1540
CREDITABLE POS PROVISION	
Southern Reserve (Lot 812)	0.1338
Unrestricted POS	0.1338
Restricted POS	0.0000
PUBLIC OPEN SPACE PROVISION	8.69%
SHORTFALL / CASH-IN-LIEU REQUIREMENT	0.0202

3.5 MOVEMENT NETWORK

3.5.1 ROAD NETWORK AND TRAFFIC VOLUMES

LOCAL ACCESS STREETS

One road is proposed to service the land with vehicular and pedestrian access, being a cul-de-sac with its entrance off Fawcett Road positioned as far as practical from the future intersection of Fawcett Road with the Beeliar Road extension. Classified as a local 'Access Street D' on the basis it is expected to carry volumes below 1,000 vpd, a 6m wide, two-way carriageway within a 13m reserve width is proposed (involving an offset carriageway with a reduced 2.5m verge on open space side). Based on the indicative dwelling yield of 25, it is expected that the proposed development will generate up to 225 vpd (216 beyond the current situation) on the surrounding network.

3.5.2 TRAFFIC MANAGEMENT DEVICES

Give-way signs are proposed as intersection control for the intersection with Fawcett Road.

3.5.3 PEDESTRIAN AND CYCLING NETWORK

To compliment the existing path network, connections are proposed initially along the northern side of the access street, before swapping to the southern side where it will continue on through the Regional Open Space (in a northward direction towards the Beeliar Road extension), inclusive of connections to the existing east-west link within the adjoining Water Corporation owned land. The final location of the footpaths will be determined in consultation with the City at the detailed design stage of development.

3.5.4 DELIVERY AND SERVICE VEHICLES

It is expected that delivery and service vehicles (such as waste removal vehicles) servicing the residential area will not require designated parking spaces given that they can operate safely within the road reserve. The intersection and cul-de-sac head will be designed in accordance with the turning circle requirements of delivery and service vehicles.

3.6 WATER MANAGEMENT

A Local Water Management Strategy (LWMS) has been prepared by JDA in support of the Structure Plan (refer to **Appendix G**). The LWMS provides the framework for total water cycle management within the proposed development has been prepared in accordance with the Australian Standards and regulatory requirements inclusive of the City of Cockburn's Local Planning Strategy and typical Stormwater Management requirements.

Preliminary discussion with the City has resulted in acceptance to permit the discharge of stormwater effluent via a typical subdivision pit and pipe network into the adjacent Lot 811. It is anticipated Lot 811 will house a bioretention basin to contain the smaller events with the larger events to overflow from the bioretention basin to a larger infiltration basin. No significant underground stormwater detention systems or infiltration basins directly within the Site are anticipated to be required.

Some modification to existing stormwater infrastructure (side entry pits and soak wells) will be required near the new road intersection with Fawcett Road to ensure the existing system is not compromised. Due to the proximity of the groundwater table, the existing topography of the site and the high permeability results obtained during the geotechnical investigation, subsoil drainage is not anticipated to be required within the site.

The preparation and approval of an Urban Water Management Plan (UWMP) prior to the commencement of development, is an anticipated condition of subsequent subdivision approval

3.7 EDUCATION FACILITIES

The subject land lies within the catchment of Coogee Primary School, located some 800m west along Mayor Road, which is capable of accommodating the long term educational needs generated by this development.

Additional existing education facilities located within close proximity to the subject land include:

- St Jerome's Primary School (1km northeast);
- South Coogee Primary School (1.9km to the east); and
- South Metropolitan TAFE-ACCEPT Campus (2km southeast).

3.8 ACTIVITY CENTRES AND EMPLOYMENT

Given the subject land's strategic location to existing employment opportunities within the Cockburn, Melville, Fremantle, Kwinana and Perth areas, additional employment generated land uses are not considered necessary.

3.9 INFRASTRUCTURE COORDINATION, SERVICING AND STAGING

The project's civil engineering consultant, Cossill & Webley, has prepared an Engineering Servicing Report. The report is attached as **Appendix H**, with a summary of the relevant utility infrastructure advice outlined below:

3.9.1 WATER SUPPLY

Water supply to the site will be provided via connections to an existing DN200 main located in the Western verge of Fawcett Road directly fronting the site. The Water Corporation has indicated no upgrades of the existing network are required to facilitate this development.

3.9.2 WASTEWATER

Three potential sewer servicing concept plans have been provided to the Water Corporation for review. The Water Corporation detailed their preference is for the sewer reticulation servicing of the Site to grade north through the adjoining land holdings (Lots 810 & 701), with connection and discharge into the existing sewer reticulation at the intersection of Mayor Road / Apium Mews.

Should the land owner of Lot 701 not permit the installation of sewer reticulation within their landholding, the following alternatives have been accepted in principle by the Water Corporation as alternate sewer servicing strategies for the Site;

1. Sewer reticulation to grade south over existing Water Corporation infrastructure with connection and discharge into the existing sewer reticulation located in Ingrilli Court; or
2. Sewer reticulation to grade east towards Fawcett Road, with reticulation to grade and follow the existing road reserves with connection and discharge into existing sewer reticulation at the intersection of Mayor Road / Apium Mews.

The proposed intersection is located within the vicinity of existing infrastructure. Adjustments to existing sewer pressure main access chamber lids may be required to suit any change in level.

3.9.3 UNDERGROUND POWER & STREET LIGHTING

The site is expected to be supplied by existing LV/HV infrastructure located within Fawcett Road. All power to the Site will be underground and fed from a transformer and switchgear to be located appropriately within the site. An overhead connection inclusive of power poles located within the western verge of Fawcett Road (servicing the existing dwelling) will require removal prior to works proceeding on site. A stay pole is also located in the western verge of Fawcett Road which may pose a constraint to the location of crossovers.

3.9.4 TELECOMMUNICATIONS

NBN Co services are currently available in adjacent developments. Given that there are potential connection points close proximity to the Site, backhaul charges are not likely to be incurred.

Developers of new residential estates have the option to pay NBN or an alternative service provider for provision of a high-speed broadband network. In either case the developer will install pit and pipe infrastructure that can accommodate a future high-speed broadband network.

3.9.5 GAS SUPPLY

Consistent with the servicing of development immediately south of the site, it is anticipated that the site will be serviced with gas via an extension from ATCO Gas' existing reticulation main in Fawcett Road.

3.9.6 EARTHWORKS & RETAINING WALLS

Anticipated earthworks involve clean imported fill placement along the western portion of the site to ensure sewerage infrastructure can be facilitated. Earthworks to existing levels will maintain the natural fall of the site with stormwater anticipated to grade and drain in an east to west direction.

Negotiated outcomes will be required to address differences between the design levels for the site and neighbouring vacant landholdings and reserves. This will likely involve battering along the western and southern edges and retaining along the northern edge. Lots around the cul-de-sac head will sit at a lower level (with a retaining wall used along rear boundaries) to minimise the amount of fill required, and to reduce the extent of battering into Lot 811.

3.10 DEVELOPER CONTRIBUTION ARRANGEMENTS

The developer is to make satisfactory arrangements with the City of Cockburn to provide proportional contributions towards those items of development infrastructure defined by the TPS3 for Development Contribution Area No's 6 and 13 (DCA6 and DCA13).

DCA6 requires a proportional contribution towards the widening and upgrading of Beelias Drive (Mayor Road), between Stock and Cockburn Roads, whilst DCA13 requires a per lot/dwelling contribution towards the provision of Community Infrastructure within the Munster catchment

3.11 TECHNICAL STUDIES APPENDICES INDEX

Appendix	Document Title	Assessment Agency	Approval Status
B	Environmental Assessment Report	Dept. of Water & Environmental Regulation	Submitted with LSP
D	Bushfire Management Plan	City of Cockburn	Submitted with LSP
E	Transport Impact Statement	City of Cockburn	Submitted with LSP
F	Transport Noise Assessment	City of Cockburn	Submitted with LSP
G	Local Water Management Strategy	Dept. of Water & Environmental Regulation	Submitted with LSP
H	Engineering Servicing Report	City of Cockburn	Submitted with LSP

