

OUTLINE DEVELOPMENT PLAN

SOUTHERN RIVER PRECINCT 2

JANUARY 2006

Amendment 6, December 2019

This structure plan is prepared under the provisions of the City of Gosnells Town Planning Scheme No. 6.

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

11 October 2005

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

Date of Expiry: 19 October 2030

Amendment No.	Amendment summary	WAPC endorsed date
1 - 4	Various amendments to the approved original Local Structure Plan	2014 & prior
5	Increase lot density to a portion of the structure plan from R30 density to an R60 density	09-November-2017
6	Commercial land uses replaced with residential land uses and open space. Minor modifications to the internal road network and intersection treatments. Density ranges introduced for the remainder of the structure plan area.	07-January-2020

OUTLINE DEVELOPMENT PLAN

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INTRODUCTION

This report has been prepared on behalf of Devoncourt Pty Ltd, Daws and Son Pty Ltd and Emanuel Exports Pty Ltd (ESD) for submission to the City of Gosnells in support of a request to approve the attached Outline Development Plan. The Outline Development Plan provides a framework for the land's future development and a context for the consideration and approval of subdivision applications by establishing the general principles of urban design, land use, key road networks, open space and infrastructure.

The Outline Development Plan has been prepared for the 162 hectares of 'Urban' land located within Southern River Precinct 2. The remaining area of Southern River Precinct 2 is currently zoned 'Rural' but is subject to an MRS Omnibus amendment to rezone the land 'Urban'. Additional information has been provided for this area through the inclusion of an overlay to outline the future intention for urban development over this land.

A multi-disciplinary consultant team has been assembled in order to address the planning, environmental, engineering, traffic and landscaping requirements for the site as the basis for future development. The consultant team comprises:

Wallis Consulting and Development	- Project Management
Roberts Day	- Town Planning and Design
Cossill & Webley	- Engineering
RPS Bowman Bishaw Gorham	- Environmental Management Consultants
P Cala & Associates	- Landscape Architects
Transcore	- Traffic Management Consultants
GHD	- Urban Water Management Consultants

1.1 BACKGROUND

An earlier Outline Development Plan for the subject land was prepared by Mitchell Goff and Associates in 2003. This plan was determined satisfactory for advertising by the City of Gosnells and was advertised for public comment from 21 January 2004 to 3 March 2004. Council considered the proposal and submissions and comments received at its Ordinary Meeting held on 13 July 2004 and resolved to adopt the Outline Development Plan for final approval. The Outline Development Plan has been approved by the Western Australian Planning Commission and returned to the City of Gosnells for final adoption.

The previous Outline Development Plan has since been rigorously reviewed by the project team resulting in a significant overhaul of the design and as a consequence this new revised Outline Development Plan will supersede the earlier 2003 document. The original Outline Development Plan has been progressed to facilitate the commencement of the Stage 1 subdivision of the development.

1.2 AIMS AND OBJECTIVES

The principal objective of this Outline Development Plan (ODP) is to provide a guide for the cohesive development of the land, however, the project team has also sought to establish a set of guiding principles that recognise the opportunities presented by the site. As such the following objectives have been developed to serve as a guide for the overall planning of the project:

- To provide a framework for the progressive subdivision and development of the area by identifying areas for public open space, conservation, commercial and residential uses.
- To provide walkable, interconnected and efficient neighbourhoods that are sensitive to the existing site attributes.
- To provide a variety of housing types and densities to suit a diverse range of needs.
- To provide a road network with vistas and direct access to public open space.
- To preserve identified priority conservation areas.
- To facilitate regional education requirements through the provision of two Primary School sites.
- To establish broad cost sharing principles for common infrastructure works within the ODP area.

1.3 SUSTAINABILITY

The proposed ODP achieves sustainable outcomes through the use of an integrated planning approach, which seeks to maximise social, economic and environmental synergies throughout the development.

The Outline Development Plan achieves elements of sustainability through preferred practices associated with urban design. These include;

- Responding to and conserving the natural assets of the land, supplying an environmental richness to the area and a unique sense of place;
- Provision of various lot sizes across the site to accommodate a diverse range of housing types suited to differing lifestyles and budgets;
- Incorporation of Crime Prevention Through Environmental Design (CPTED) principles affording personal safety through passive surveillance; and
- An interconnected movement network facilitating direct pedestrian links and a legible road network with connections to the regional arterial networks and bus routes.

Amenities such as public open space and primary schools are provided as focal points for each precinct providing for leisure activities and community interaction within each neighbourhood. The interconnected street network reduces the distance to these amenities, which allows most residents to be located within 400 metres or five minutes walk of selected facilities. The development will encourage energy efficiency in a number of ways, as more journeys to local amenities can be completed on foot and car dependency can be reduced. The interconnected street network has also been planned for improved energy efficiency so that the lot layout is designed to take advantage of solar orientation.

The development also allows for best practice in urban water management, providing opportunities for water conservation.

The plan provides for a diversity of housing densities, accommodating a variety of lifestyles. Medium density areas are planned for in proximity of the neighbourhood centre / mixed business areas in the adjoining ODP area, generally surrounding the Holmes Street and Southern River Road intersection. This will facilitate local business and public transport initiatives.

The Outline Development Plan has recognised the importance of significant areas of conservation category wetlands and the desire for their conservation offers a solution whereby the development of the balance of the land provides the economic base to ensure the long term preservation, rehabilitation and management of this important conservation asset.

2

THE SUBJECT LAND

2.1 LOCATION

The land included within the Outline Development Plan (ODP) is situated in the locality of Southern River within the municipality of the City of Gosnells. It is located approximately 20km south-east of the Perth CBD, within 5km of the Gosnells City Centre and 1km of the Southern River Shopping Centre, which is currently under construction.

The subject land is bounded by Holmes Street, Balfour Street, Southern River and Furley Roads. The site is bounded by district distributor roads that will be subject to future upgrades, which will provide convenient access to the Perth CBD and greater metropolitan region (Refer Figure 1 – Location Plan).

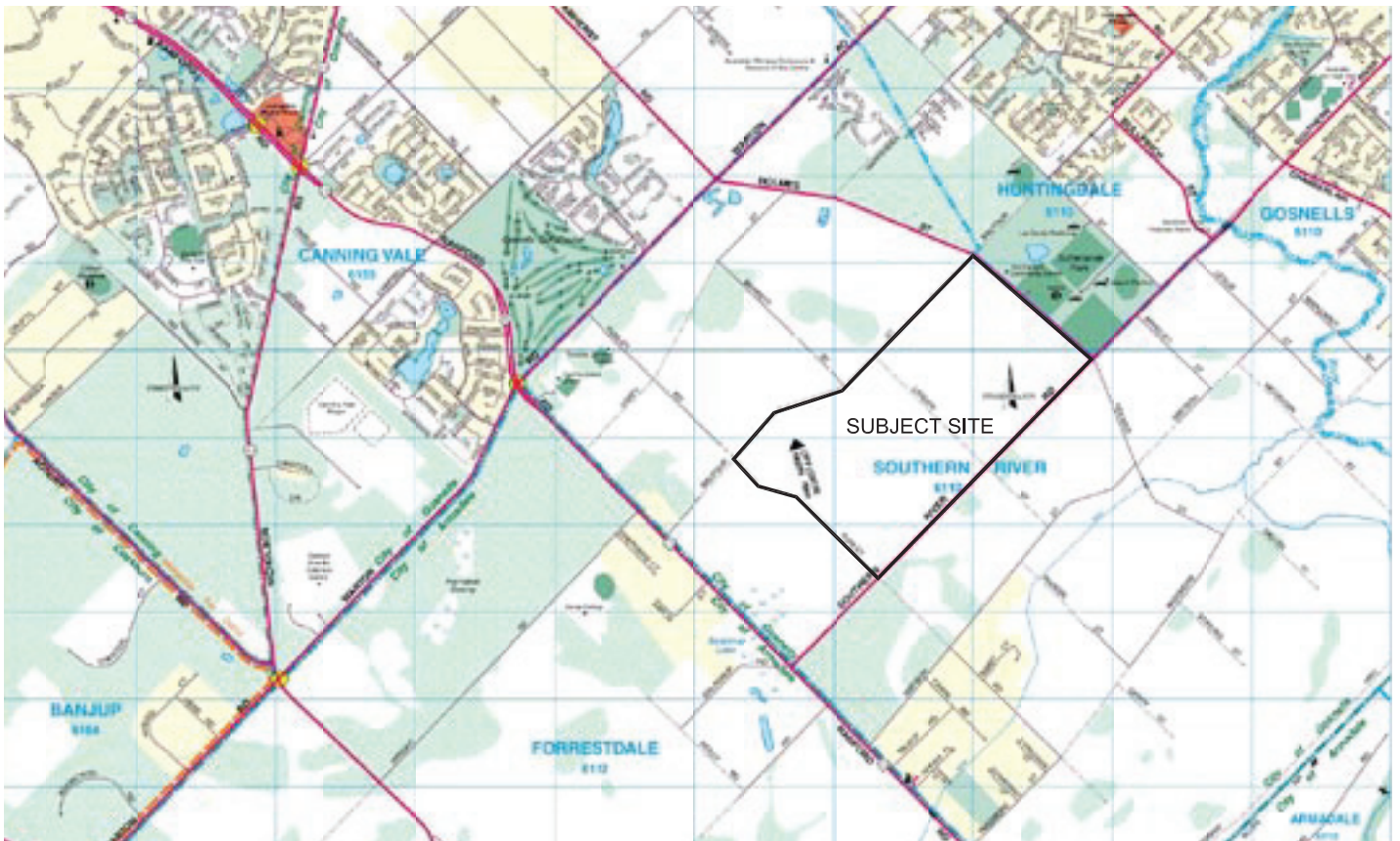


FIGURE 1: LOCATION PLAN

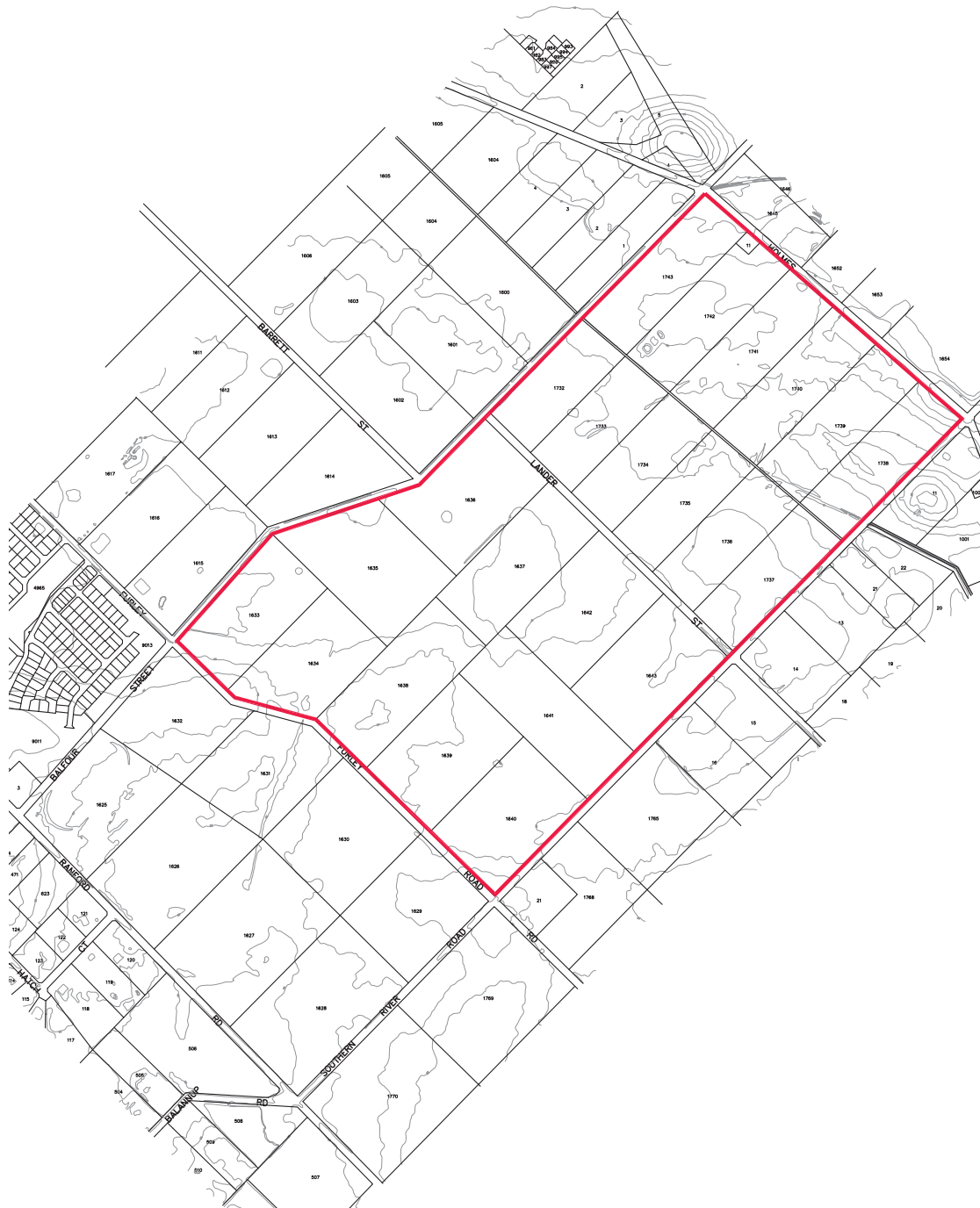


FIGURE 2: SITE AREA

2.2 OWNERSHIP AND DESCRIPTION

The subject land comprises 23 individual allotments which have a total combined area of approximately 159.4552 hectares. Including an existing drain and the Lander Street Road Reserve, the total ODP area is 161.6968 hectares. The allotments and land ownership within the subject site are described in Table 1 Land Ownership (Refer Figure 2 - Site Area).

Table 1 - Land Ownership

LOT	C.T.	AREA (HA)	LANDOWNER
1633	1587/484 1327/745	7.0820	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1634	1587/484 1327/745	7.0061	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1635	1587/484 1327/745	9.0295	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1636	1587/484 1327/745	8.2708	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1637	931/61	7.6132	Emanuel Exports Pty Ltd
1638	1587/484 1327/745	8.0937	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1639	1587/484 1327/745	8.0937	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1640	1587/484 1327/745	8.0937	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1641	1587/484 1327/745	8.0937	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1642	1017/688	8.0937	Paola & Michelle Tilli
1643	1587/481 1327/746	8.0937	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1732	1587/483 1327/747	5.0839	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1733	1587/483 1327/747	5.2356	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1734	1587/483 1327/747	5.3874	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1735	1587/483 1327/747	5.5138	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1736	1587/483 1327/747	5.6909	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1737	1587/482 1327/748	5.8174	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1738	1587/482 1327/748	6.4750	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1739	1587/483 1327/747	6.5256	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1740	1587/480 1327/749	6.5256	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1741	1587/483 1327/747	6.6014	Devoncourt Pty Ltd Emanuel Timothy Sydney Daws & Son Pty Ltd
1742	2149/299	6.4081	Elana Giancristofaro
1743	2049/250	6.6267	Dolphin Bay Pty Ltd



FIGURE 3: AERIAL PHOTOGRAPH

2.3 EXISTING LAND USE

The study area comprises predominantly five to nine hectare lots which are generally used for rural pursuits, resulting in much of the site having been cleared (Refer Figure 3 – Aerial Photograph).



3

CONTEXTUAL ANALYSIS

A key component of the design process is to establish an appropriate understanding of the site and its surrounding context (Refer Figure 4 – Site Context Plan (page 12)).

3.1 DISTRICT AND NEIGHBOURHOOD NODES

The Southern River Shopping Centre, which is currently under construction, is located at the intersection of Ranford Road and Balfour Street. A future neighbourhood centre has also been identified in district planning initiatives at a location framing the intersection of Holmes Street and Southern River Road, to be delivered by landowners in the adjoining Precinct 3A ODP areas. Both centres provide significant focal points that will need to be recognised by the proposed Outline Development Plan and in particular in the internal movement networks.

3.2 TRANSPORT NETWORK

The transport report prepared by Transcore identifies a range of transport related issues and opportunities relevant to the site including the analysis of the existing transport conditions and public transport.

As the area is currently predominantly rural there are no nearby public transport services, however as the ODP area is developed new bus routes will be introduced that will service the site.

3.3 OPEN SPACE

District playing fields are located on Holmes Street at the intersection of Southern River Road adjacent to the subject site. In addition there are also significant Bush Forever sites located on the south-west and north-east boundaries of the site. It will be important that the areas of proposed open space within the development link into these existing active and passive recreational areas. Future District playing fields are to be co-located with the future High School which will be located outside this Outline Development Plan in the area to the south of Southern River Road.

3.4 DESIGN INTERFACE

The subject site adjoins two district distributor roads, Southern River Road and Holmes Street. Both district distributor roads will generate road noise that need to be taken into account at the detailed design phase.

Southern River Road is a two lane rural road at present. The duplication of Southern River Road is planned for the period 2015 - 2021.

Holmes Street (the Garden Street extension) is also reserved "Other Regional Roads" in the MRS. The road is currently constructed to a single carriageway rural standard however will be upgraded in the future. The WAPC's Policy DC 5.1 – Regional Roads seeks to restrict access roads and driveways onto roads that are reserved under the MRS.

3.5 SOUTHERN RIVER PRECINCT 5 AREA

Southern River Precinct 5 generally includes the land that abuts the north of the subject site, north east of Ranford Road between Wright and Balfour Streets. The approved Outline Development Plan for this area has four road connections into Balfour Street of which two are neighbourhood connectors that will provide access between the two areas. The Precinct 5 area proposes residential development of R20 and greater with a small pocket of mixed use fronting Balfour Street, which will provide a residential interface with the subject site.

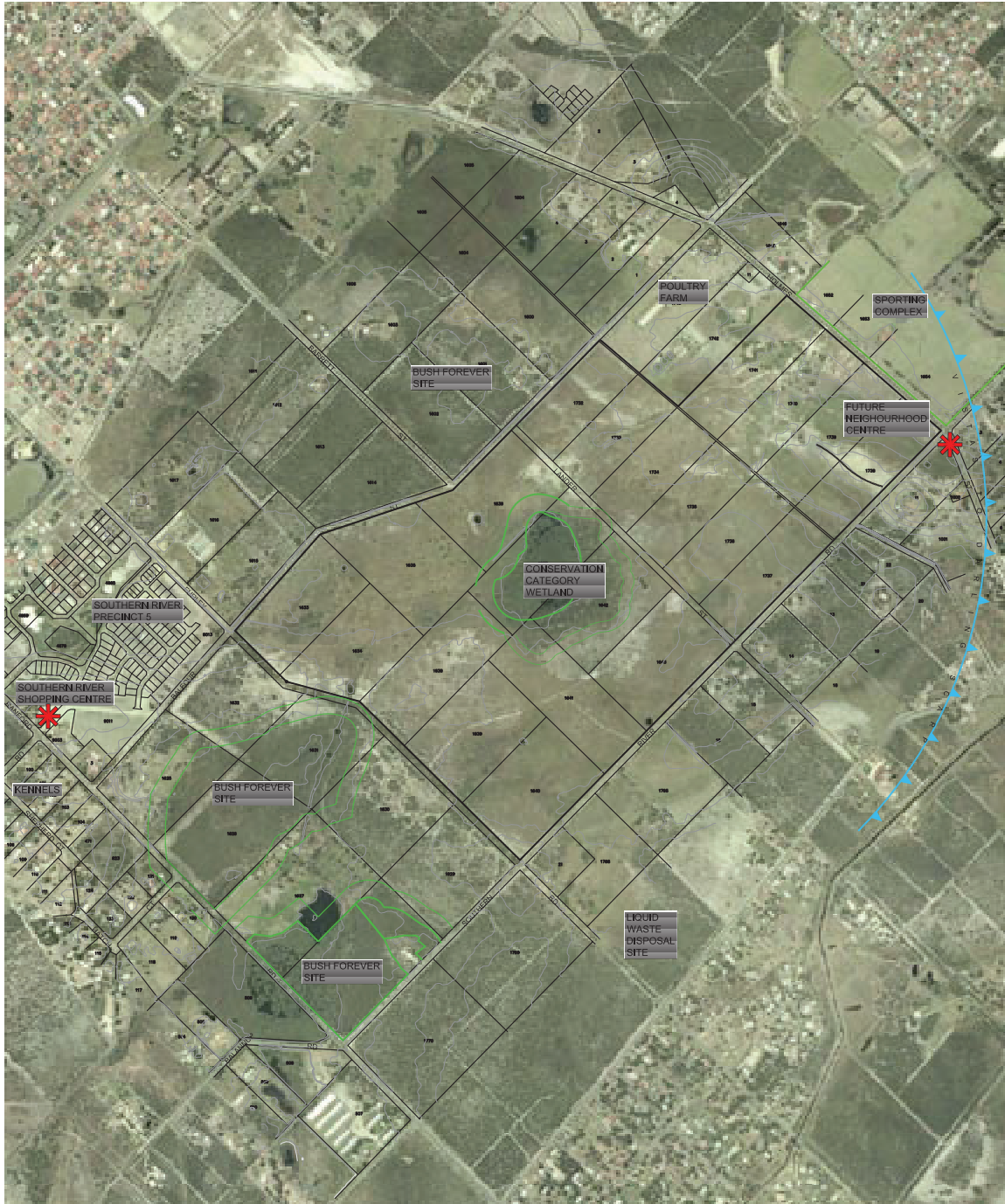


FIGURE 4: SITE CONTEXT PLAN

3.6 KENNEL ZONES

There are two Kennel zones within the Southern River area. The first and larger area is located along Ranford Road to the south of Matison Street and the second is on Ranford Road to the south of Wright Road.

Kennel zones require a 500 metre buffer. The buffers fall outside the Outline Development Plan area within rural zoned land and do not impact on this Outline Development Plan. However the District Structure Plan suggests that the Wright Road Kennel zone should ultimately be urbanised and as a result includes land within the zone's buffer as urban in this Plan.

3.7 POULTRY FARMS

A poultry farm is located on lot 2 Holmes Street in the Phase 3 area of the Outline Development Plan near the corner of Holmes and Balfour Streets. A 500m buffer is required for this site until it ceases operation.

Another poultry farm was located on lot 1743 Holmes Street. The owner of this poultry farm has ceased operations and commenced the process for the land's urban development. Therefore the requirement for a poultry farm buffer is no longer applicable to this site.

3.8 LIQUID WASTE DISPOSAL SITE

A liquid waste disposal site which operated between 1955 and 1981 is located approximately 400 metres south of the ODP area on Furley Road. Sampling of local bores, which was conducted as part of a Consultative Environmental Review in 1996 for the City of Gosnells, demonstrated that contamination from the site had not spread far with a conclusion that while not fit for drinking, the ground water in the area was not a health hazard. The Environmental Review recommended that as a precaution any new development within a 1500 metre radius of the site should be preceded by a detailed hydrological study and where risks to prospective purchasers cannot be eliminated memorials should be placed on titles warning of potential risks.

Further water quality monitoring and an associated report have been undertaken by RPS Bowman Bishaw Gorham and clearly demonstrate that ground water quality is not an issue for the urban development of the subject land. Groundwater monitoring has involved the collection of groundwater samples from 14 existing wells on site and the results from those wells closest to the facility did not exhibit any potential contaminant levels above either the laboratory detection limit or the Department of Environment drinking water guidelines (2003). Further details appear at Section 5.4 - Environmental Attributes and Implications for Development.

4

STATUTORY CONSIDERATIONS & RELATED PLANNING STUDIES

4.1 STATUTORY PLANNING CONSIDERATIONS

Metropolitan Region Scheme

All landholdings within the study area are currently zoned “Urban” under the Metropolitan Region Scheme. Ranford Road and Holmes Street, which form the northern and southern boundaries of the broader land area, are reserved as “Important Regional Roads” (Refer Figure 5 – Metropolitan Region Scheme)

The land situated immediately south of the study area is zoned “Rural” with a “Parks and Recreation” reserve located on the southern corner of Southern River and Ranford Roads. Generally areas north of the subject land are zoned “Urban” and the surrounding land to the south is zoned “Urban Deferred” and “Rural”.

The Department for Planning and Infrastructure has initiated a Metropolitan Region Scheme Omnibus amendment 1082/33 that proposes rezoning the ‘Rural’ zoned land not affected by Bush Forever within Southern River Precinct 2 to ‘Urban’. For this amendment to progress it has been necessary for Regional Open Space boundaries to be defined in order to secure protection for the Bush Forever site 413B.

City of Gosnells Town Planning Scheme No 6

All landholdings within the study area are zoned “Residential Development” under the City of Gosnells Town Planning Scheme No 6. The “Residential Development” zone requires that an Outline Development Plan is prepared to establish the pattern of development and local zonings (Refer Figure 6 –Town Planning Scheme No. 6). Section 7 of the City of Gosnells Town Planning Scheme No 6 (TPS 6) provides the statutory framework and administrative provisions for the preparation, adoption and implementation of Outline Development Plans.

The land that adjoins the study area to the south-west and immediately north is currently zoned “Rural” in TPS 6 while land to the north-west is zoned “Residential Development”.

To the south of Ranford Road the land is under the jurisdiction of the City of Armadale and is generally zoned “Rural”.

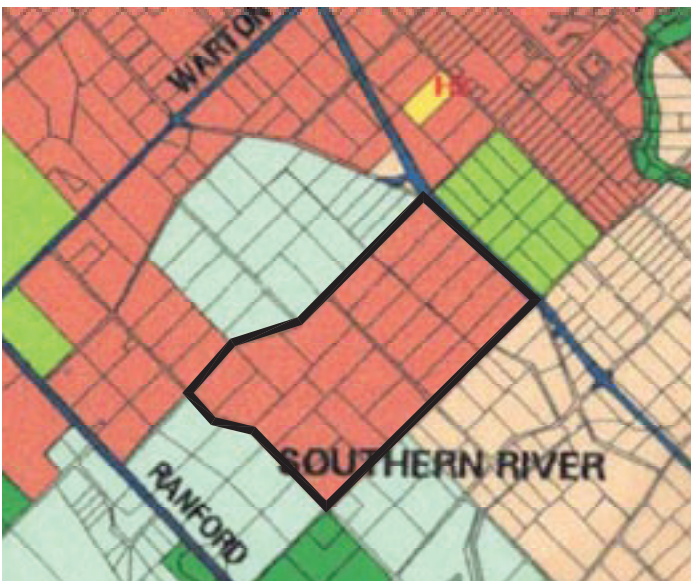


FIGURE 5: METROPOLITAN REGION SCHEME

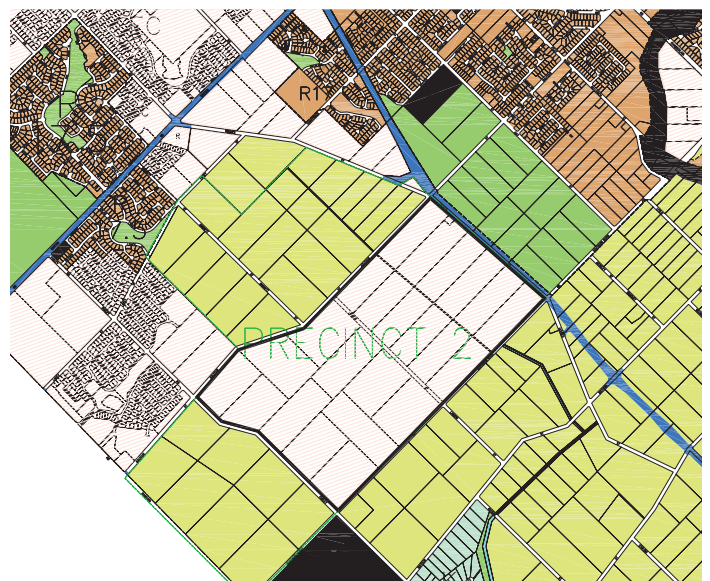


FIGURE 6: TOWN PLANNING SCHEME NO. 6

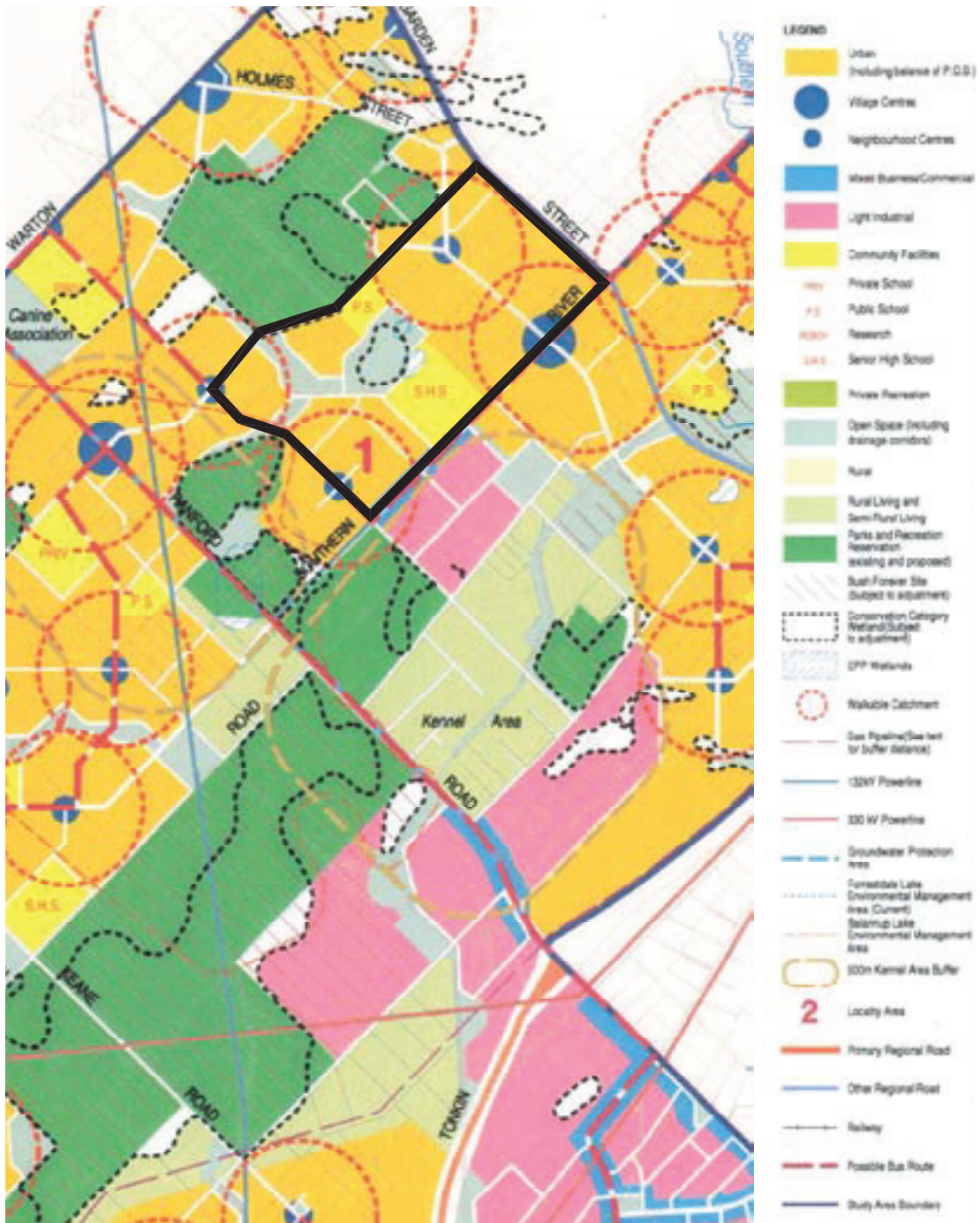


FIGURE 7: DISTRICT STRUCTURE PLAN

4.2 REGIONAL PLANNING STUDIES

Metroplan

Metroplan was adopted as a metropolitan-wide Structure Plan for the Perth region in 1990. It provides an indication of the general location and extent of major land uses in the metropolitan region. The document examined the potential for an expanded urban region and following an assessment of constraints identified the subject land as being suitable for "Future Urban".

South East Corridor Structure Plan

The South East Corridor Structure Plan was released by the then Ministry for Planning in June 1996. The plan provides the broad framework for future development in the South-East corridor over the next 30 years. The subject landholdings are included in this strategy as "Urban".

Network City

Network City identifies Southern River Road and Ranford Road as Activity Corridors. Network City aims to integrate transport and land use in a network of places connected by corridors that allow for the movement of freight and people. These places of exchange are activity centres, and are connected by activity corridors.

Metropolitan Region Scheme Amendment

An amendment to the Metropolitan Region Scheme (No. 927/33) in July 1993 resulted in most of the Southern River area including the subject land being zoned "Urban Deferred" under the Metropolitan Region Scheme. Urban deferment of the subject land was lifted on 8 April 2003.

Draft Southern River Structure Plan

In 1996 the then Department of Planning and Urban Development, in consultation with the City of Gosnells, produced a draft structure plan for the Southern River area covered by the Metropolitan Region Scheme Amendment (No. 927/33). While the plan was not formally adopted by the Western Australian Planning Commission, the document was used by the Ministry for Planning as a guide to planning intentions for the area. This plan identified much of the subject land as "Urban" with associated areas of open space, primary schools and a high school.

Southern River / Forrestdale / Brookdale / Wungong District Structure Plan

The Southern River / Forrestdale / Brookdale / Wungong District Structure Plan (District Structure Plan) was published in 2001 (Refer Figure 7 – District Structure Plan). The District Structure Plan focuses on the physical arrangement of urban areas, primary road systems, public transport, neighbourhoods, schools, open space, shopping facilities and major infrastructure, providing the planning framework for the preparation of Outline Development Plans and subsequent subdivision and development. The main features of the Plan in relation to the subject land include:

- The majority of the land is shown as Residential.
- A Village Centre is shown along Southern River Road between Holmes and Lander Streets.
- Mixed Business development is shown along Southern River Road near the intersection of Furley Road.
- The Conservation Category Wetland is identified.
- Primary and Secondary School sites are shown within the site area.

4.3 LOCAL PLANNING INITIATIVES

Activity Centres Planning Strategy

The City of Gosnells Activity Centres Planning Strategy was endorsed by Council in April 2012, and forms the basis for guiding the allocation and spatial arrangement of non-residential and commercial floorspace in the City.

The Strategy suggests that 7,000sqm of retail floorspace should be provided generally surrounding the intersection of Holmes Street and Southern River Road (referenced as ID 18; SR-08 Large). Planning for the adjoining Precinct 3A and Precinct 3A (South) ODP areas includes catering for the retail need, with the provision of at least 10,000sqm of retail floorspace. The provision of non-residential and commercial floorspace is therefore satisfied.

Local Housing Strategy

The City of Gosnells has prepared and adopted a Local Housing Strategy. The strategy has also been endorsed by the Western Australian Planning Commission. The aim of this document is to provide strategic direction to meet future housing needs within the City by identifying areas that have the capacity to accommodate increased residential densities in order to cater for population growth and change. The strategy confirms the preferred location for medium density housing which generally relates to proximity to facilities including public transport, commercial or community facilities and public open space.

5

ENVIRONMENTAL CONSIDERATIONS

5.1 OVERVIEW

Emmanuel Exports Pty Ltd proposes to progressively develop a parcel of land from rural to residential. The land holding is bounded by Holmes Street, Southern River Road, Ranford Road and Balfour Street, Southern River (the site). The landholding is within the City of Gosnells.

5.2 SITE ENVIRONMENTAL ASSESSMENTS AND OUTLINE DEVELOPMENT PLANS

Adopted Outline Development Plan

In December 2003, the Southern River Precinct 2 Town Planning Scheme Amendment 6 No. 30 Report and Outline Development Plan (ODP) was submitted requesting rezoning land in Southern River generally bounded by Balfour Street, Furley Road, Southern River Road and Holmes Street from 'General Rural' to 'Residential Development'.

The Scheme Amendment was referred to the Environmental Protection Authority (EPA). Under Section 48A of the Environmental Protection Act 1986 (EP Act), the EPA set a level of assessment at "Scheme Not Assessed-Advice Given", as the overall environmental impact of the Scheme Amendment's implication would not be significant to warrant formal assessment under the EP Act.

The environmental issues raised by the EPA included:

- former liquid waste disposal site and the potential for contaminated groundwater;
- proximity of Poultry Farms and the potential for unacceptable impacts of noise and odour on future residents;
- the identification of conservation value wetlands on site and protection by the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992;
- Lake Balannup;
- Wright Road Kennel area;
- the potential for the generation of Acid Sulphate Soils in any development on site; and
- the Southern River Urban Water Management Strategy (UWMS) and recently signed Memorandum of Understanding (MoU).

If the subdivision design is consistent with the adopted Outline Development Plan (ODP) and addresses the issues raised by the EPA, the Western Australian Planning Commission is not required to refer the proposed to the EPA for assessment under Section 38 of the EP Act.

Revised Outline Development Plan

The revised ODP (2005) covers the same area as the adopted ODP (2003) and addresses the issues previously raised by the EPA regarding the adopted ODP i.e. Bush Forever boundaries, Conservation Category Wetland (CCW) areas and Resource Enhancement wetlands as identified by the EPA (2004). The ODP (2005) continues to show protection of these wetlands with appropriate buffers.

5.3 DISTRICT STRUCTURE PLAN

The WAPC (2001) Southern River/Forresdale /Brookdale /Wungong District Structure Plan identifies at a strategic level areas for Park and Recreation Reservation including Bush Forever areas, Conservation Category Wetlands and Open Space /drainage corridors which includes the central wetland area (Lander Swamp) which is both a Conservation Category Wetland and a Resource Enhancement Wetland.

5.4 ENVIRONMENTAL ATTRIBUTES AND IMPLICATIONS FOR DEVELOPMENT

Urban Water Management

Urban water management within the region is strategically addressed in the Southern River/Forrestdale /Brookdale /Wungong District Structure Plan via the associated Integrated Land and Urban Water Management Plan (ILUWMP) for the district. Local Water Management has previously been addressed at a precinct level within the Town Planning Scheme Amendment No. 30 Report and adopted ODP (2003).

Water issues and their management are the same for both the adopted 2003 and revised 2005 ODP's. How these issues will be addressed will be guided by the ILUWMP and specifically through precinct level Local Water Management Strategies.

Water Management for this revised ODP/precinct is further discussed in Appendix C - Local Water Management Strategy. This strategy does not deal with the entire ODP area. It deals with land within the ownership of Dawes, Tilli, Walker and Jordan. All other landholdings within the ODP are the subject of a separate drainage catchment. They will also be the subject of separate subdivision proposals by different proponents and are anticipated to be covered by their own individual Local Water Management Strategies and Local Water Management Plans.

The district ILUWMP is not finalised and the Local Water Management Strategy in Appendix C and more detailed Local Water Management Plans may therefore require some modification to reflect the final district strategy. An unresolved issues at present relates to the Department of Environments requirement to maintain the existing hydrological regime and how to deal with this in a manner that is acceptable to other stakeholders. The issue has particular relevance in the north east portion of this revised ODP where there are some existing open drains that are proposed to be converted into a major swale system with drainage inverts at AAMGL or at the existing agricultural drainage invert.

The Water Corporation is undertaking monitoring and modelling in the area to determine potential impacts of major rainfall events specifically in relation to the capacity of the Water Corporation's Forrestdale Main Drain. The results of this modelling will determine specific land uses requirements needed to accommodate such events. In the context of the ongoing modelling underway for the Forrestdale Main Drain and the preparation of the ILUWMP, the appropriateness, form and function of the major swale system will need to be resolved prior to the approval of the revised ODP

The district ILUWMP and Local Water Management Strategies (LWMS) will be implemented through detailed design and subdivision of the land and this will be demonstrated in an Urban Water Management Plan (UWMP) that will accompany any application for subdivision and major application for development approval. The local UWMP's will need to be consistent with and demonstrate how the principles and objectives established through the district ILUWMP and LWMS are to be achieved at the detailed stage of subdivision or development, eg. addressing such specific issues such as management of pollution from sealed surface in commercial developments. The UWMP's will need to satisfy all the requirements, as set out in the ILUWMP document, of relevant signatories to the MOU group which prepared the ILUWMP and be considered and approved by the Department of Environment and City of Gosnells at the subdivision clearance stage.

Wetlands

The main central wetland area (Lander Swamp) within the site is classified as part Conservation Category Wetland (CCW) and part Resource Enhancement Wetland (REW) by the DoE.

The CCW supports a high level of ecological attributes and functions. The main objective for this type of wetland is preservation of wetland attributes and functions through reservation in National Parks, crown reserves and state owned land, protection under Environmental Protection Policies and wetland covenanting by landowners. Wetlands within the REW management category have been partially modified but still support substantial ecological attributes and function.

Both the adopted ODP (2003) and the revised ODP (2005) provide for buffers around key wetland areas. The revised ODP (2005) includes a 50m wetland buffer for CCW's and a 30m wetland buffer for REW's.

It should be noted that the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 identifies two small EPP wetlands near the north east boundary and eastern boundary of Lander Swamp. Wetland site verification indicates that these EPP areas do not correctly reflect wetland areas. The Draft Environmental Protection (Swan Coastal Plain Wetlands) Policy 2004 redefines the EPP boundary to reflect the CCW area within Lander Swamp, which is protected under the adopted and revised ODP.

There are no significant changes between the adopted ODP and the revised ODP on the issue of wetlands. The revised ODP complies with EPA advice given on the adopted ODP.

Bush Forever Sites

Both the adopted and revised ODPs set aside Bush Forever sites in accordance with the District Structure Plan and Bush Forever (2000).

Since the formulation of the adopted ODP, Bush Forever boundaries within Lot 1627 and 1625 have been refined in accordance with the MRS amendment No. 1082/33 (WAPC, 2004). This amendment has been referred to the Bush Forever Hearing Panel. Once completed, the WAPC will forward recommendations to the Minister for Planning and Infrastructure for approval and sign-off.

There are no significant changes between the adopted ODP and the revised ODP on the issue of Bush Forever. The revised ODP complies with EPA advice given on the adopted ODP.

Acid Sulphate Soils

Acid Sulphate Soils (ASS) have not historically been identified as a problem within other similar subdivision areas in the City of Gosnells. For example no acid urban lakes are known to occur. However the majority of the site is identified as a 'medium' risk ASS area with a 'high' risk area mostly identified in the Conservation Category Wetland areas. The high risk ASS areas are generally within Conservation areas and/or Bush Forever areas which will not be developed, or within areas that will have fill brought in as part of the development; hence there is limited risk of exposing potential ASS to oxidation.

However should dewatering be required in or adjacent to potential ASS areas, or excavation required that extends greater than 2m into the natural soil profile (for example for the installation of sewerage infrastructure), then an Acid Sulphate Soil Identification and Management Plan will be prepared as part of the subdivision planning for the site. Any management required for the site will be in accordance with DoE guidelines and requirements.

There are no significant changes between the adopted ODP and the revised ODP on the issue of ASS. The revised ODP complies with EPA advice given on the adopted ODP.

Groundwater Contamination

The EPA (2003) advised during the TPS 6 amendment processes that the former liquid waste disposal site (located east of Bletchley Park) had the potential for contaminated groundwater and was an environmental issue that needed to be addressed.

Former (Off Site) Liquid Waste Facility

The former site commenced operations in mid 1950's and concluded in 1981, types of waste disposed at the site comprised mainly of night soil and brewery waste (City of Gosnells, 1996). Various contamination investigations have occurred for the site prior to site remediation. A Site Remediation and Validation Report summarising conclusions of remediation (in accordance with Ministerial Conditions) has been prepared by Thiess Services (2005) for the site. This Report is currently being reviewed by the DoE. Report conclusions are summarised below:

- Site works commenced in April 2004 and ceased in November 2004.
- Remediation works were carried out in a staged approach, which included Ground Penetrating Survey, Pre-excavation sampling program, excavation program, post excavation validation program, backfilling and capping, environmental monitoring program and groundwater monitoring program.
- Post excavation validation sampling results indicated that the former liquid waste disposal facility has been remediated to HIL-F guidelines and is suitable for a commercial land use.
- Within the upper or shallow section of the local aquifer, groundwater flows in a variable easterly direction (away from our site). Flow is more consistently to the north east in the deeper sections of the aquifer.
- A Groundwater Monitoring Program has been implemented to monitor the ongoing changes to the groundwater after removal of the source of contamination. Ongoing monitoring is required to statistically confirm that groundwater quality has significantly improved. Additional bores were installed on the north eastern boundary of the former liquid waste facility, down gradient of the site.
- The monitoring program commenced in May 2004, since this time three groundwater monitoring events have been completed (Thiess, 2005).

ENV Australia (2005) has recently completed the fourth groundwater monitoring event. Conclusions from this report are summarised below:

- Since June 1994 the water table in the area has decreased by approximately 0.5m.
- Petroleum hydrocarbons and metal impacts in monitoring bores near the north east boundary of the former liquid waste site have been identified. Based on a north easterly groundwater flow direction and a similarity in analytes, the former contents of the lagoons are the likely source of contaminants.
- Separate Phase Hydrocarbons (PSH) and dissolved phase impacts at the site vary seasonally due to fluctuations in the water table. Remediation of the site is expected to cause a short-term increase in dissolved impacts and then a decline with time as the source has been remediated.
- Within MP9 monitoring bore the thickness of PSH has decreased from May 2005 to April 2005. This trend is non seasonal.
- There are also on-seasonal decreases in BTEX concentrations.
- Overall there appears to be a non-seasonal increase in arsenic, nickel and zinc concentrations (ENV Australia, 2005).

Groundwater monitoring results indicate that the level of contamination is not as severe as that depicted in the EPA (1997) bulletin 876. It should be noted that the monitoring bore located slightly up-gradient of the contamination source within Lot 21 adjacent to Southern River Road is destroyed and is not part of the monitoring program. Groundwater quality data is from the bore down gradient of the site and the former source of contamination.

Groundwater Monitoring On Site

A groundwater quality monitoring sampling event has been recently completed by RPS BBG at the proposed 162ha Bletchley Park development at Southern River, which may have been impacted from activities at the former Southern River Liquid Waste Disposal Facility located to the east of the land parcel.

Information provided with the assessment indicated that groundwater contamination was observed to the east and south of the facility rather than the west where the development site is.

Groundwater was collected from several monitoring bores on site. Depth to groundwater is shallow and a function of site topography. Observed groundwater flow direction at the time of sampling is in a northerly direction across the site.

Groundwater samples were analysed for contaminants known to occur at the waste disposal facility which included heavy metals, solvents and nutrients. Those wells closest to the facility; which are B9, B12 and B14 did not exhibit any potential contaminant levels above either the laboratory detection limit or the Department of Environment (DoE) drinking water guidelines (2003). Levels of nitrate at monitor well B12 opposite the liquid waste site were elevated compared to other wells suggesting some minor impact from the waste site. Levels were however below drinking water guidelines.

Ammonia concentrations exceeded the DoE drinking water criteria from an aesthetic perspective in the wells located at the northwest corner of the site. These levels are of no consequence with regard to use of the groundwater for irrigation purposes other than potential odour.

Phosphorous concentrations are elevated across the entire site up to 8.8mg/L which is at levels (>0.05mg/L) that may result in algal blooms and potential bioclogging of irrigation equipment.

Overall groundwater quality across the site has been impacted with varying levels of nutrients at concentrations above what could be considered background values. This is due to its historical use as pasture and the expected poor nutrient holding capacity of the sandy soils. Nevertheless the groundwater quality would not represent a risk to human health if used as an irrigation source.

Therefore, from preliminary investigations, it can be concluded that the estimated plume area as presented in the Environmental Protection Authority (EPA) Bulletin 876 and reflected in the EPA's comments on the adopted ODP does not extend into the site (Bletchley Park) boundary.

6

EXISTING SERVICE INFRASTRUCTURE

6.1 POTABLE WATER SUPPLY

The Water Corporation's planning for the district provides for the ODP area to be developed for residential land use. Ultimately, distribution mains will be built in Balfour Road, Holmes Street/Garden Street, Southern River Road, Ranford Road and Wright Road.

The Water Corporation has advised the first stages of development of the ODP area can be serviced from an existing 200mm reticulation main in Furley Road located within the adjoining Boardwalk Estate. Once this reaches capacity, the Corporation intends to construct the 600mm main in Wright Road to augment supply to the Boardwalk/ODP area from the existing 760mm diameter trunk main in Forrest Road, south of the site.

6.2 WASTEWATER RETICULATION

The ODP area lies within two broad sewer catchments.

Wastewater from land between Holmes Street and Lander Street is intended to discharge into a Type 90 pumping station to be built about 400m south of Holmes Road and 300m west of Southern River Road. The Type 90PS will also serve development proposed east of Southern River Road.

Wastewater from the ODP area south of Lander Street is proposed to discharge to a Type 180 pumping station to be located near the intersection of Barrett Street and Balfour Road. The Type 180PS will also serve all of the Boardwalk and Landstart's Harrisdale Project located to the south of Ranford Road.

Ultimately, the Type 90PS pumps into the Type 180 DPS which in turn pumps to a series of other proposed pumping stations south of the site.

In the short term, there is sufficient spare capacity in existing infrastructure to the north and west of the ODP area to discharge wastewater from initial stages to subdivisions.

The Type 180 PS will require a 50m buffer measured from the centre of the wet well.

6.3 ELECTRICITY SUPPLY

Electricity supply is available nearby and can be readily extended to the ODP area.

6.4 GAS SUPPLY AND TELECOMMUNICATIONS

Gas and telecommunications services are available to the ODP area and can be readily extended.

7

THE OUTLINE DEVELOPMENT PLAN

7.1 OVERVIEW

The Outline Development Plan (ODP) has been prepared through a collaborative design approach, in consultation with relevant stakeholders recognising the need to provide a robust framework for the long term development of the land. The objective of the design process has been to achieve a cohesive and equitable means to realising the land's development potential, whilst ensuring a high standard of community design and environmental conservation.

Following endorsement by the approving authorities, the ODP will provide a strategic framework and guide to future development of the site consistent with the Southern River/Forrestdale /Brookdale /Wungong District Structure Plan.

7.2 COMMUNITY DESIGN PRINCIPLES

The urban design principles applied to the site have been formulated with regard to the site and its relationship to its immediate surrounds and regional location. They include:

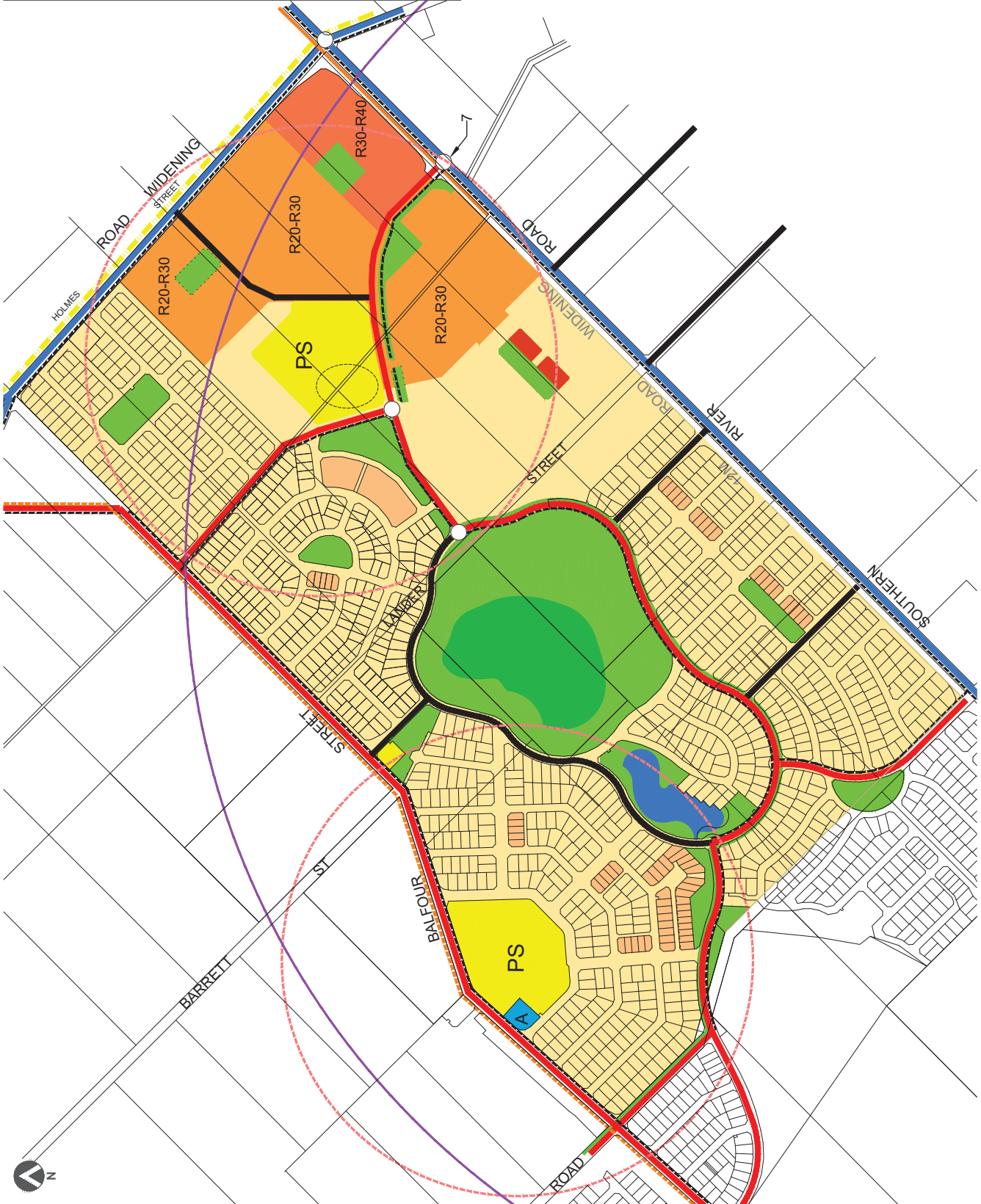
- An overall layout that is site responsive and which integrates with its surrounds, recognising the Darling Scarp as a natural backdrop;
- An interconnected modified grid layout, affording the site strong legibility and a link to its natural amenities;
- A subdivision road network and lot layout conducive to passive solar gain incorporated into house designs, where possible;
- The creation of a subdivision framework that enables a range of lot sizes to cater for varying lifestyle choices and budgets;
- The preservation of Conservation Category Wetlands integrated with areas of public open space;
- An open space network linked through landscaped swales connecting key areas of amenity such as educational, recreational and community assets;
- Leading practice drainage solutions to retain localised runoff near point of fall whilst providing for drainage swales within the local road network; and
- Provision of schools in central locations with strong connections that promote walkability.

ZONES

- RESIDENTIAL R20
- RESIDENTIAL R30
- RESIDENTIAL R20-30 (DENSITY RANGE; REFER NOTE 6)
- RESIDENTIAL R30-40 (DENSITY RANGE; REFER NOTE 6)
- RESIDENTIAL R60
- LOCAL CENTRE ZONE
- LOCAL RESERVES
- PUBLIC PURPOSES
- LOCAL OPEN SPACE
- OTHER
- APPROVED SUBDIVISION
- CONSERVATION CATEGORY WETLANDS
- DISTRICT DISTRIBUTOR
- NEIGHBOURHOOD CONNECTOR
- ACCESS STREET
- 400M PED SHED
- SHARED PATH
- POSSIBLE ROAD WIDENING/REALIGNMENT FOR EXTENSION OF HOLMES STREET
- 1500M LIQUID WASTE SITE BUFFER
- EXISTING PUBLIC TRANSPORT ROUTE
- PROPOSED PUBLIC TRANSPORT ROUTE
- ROUNDBABOUT

Notes:

- The area identified "A" within the Local Centre zone shall be restricted to use as a Child Care Centre.
- Urban Water Management Plan(s) are to be prepared for subdivision and development of the area. The recommendations of the management plan(s) shall be appropriately accommodated by the detailed subdivision and development proposals.
- Subdivision and development of the area shall incorporate the results of a vegetation survey conducted in conjunction with CALM.
- Any land required for the road widening of Garden Street is to accord with the Metropolitan Region Scheme.
- The exact location and arrangement of R30, R40 and Public Open Space areas will be subject to refinement at the subdivision stage.
- For areas with a density range shown on the map, a Density Code Plan is to be submitted at the time of subdivision to clarify the applicable R-code density that will apply to each lot. The application of density is to have regard to the following locational criteria:
 - Generally higher coding responding to:
 - 400 metres within retail / local centre provided to the south and east of the Holmes Street and Southern River Road intersection.
 - Within 400 metres of Primary School
 - Within 200 metres of Local Open Space.
- The location, design and construction of the intersection is to be to the satisfaction of the City of Coonells and the Department of Planning, Lands & Heritage.



7.3 DESIGN ELEMENTS

The ODP (Refer Figure 8 – Outline Development Plan) has been designed to facilitate the principles of community design to combine contemporary planning design values which are reflective of the sites existing character.

Neighbourhood Nodes

Neighbourhood nodes provide the focal points for the estate and assist in providing a range of lifestyle choices. The neighbourhoods have been planned around areas of amenity which include educational, recreational and community opportunities, interconnected through a strong movement network that encourages pedestrian passage along safe multiple use corridors.

The site forms two distinct neighbourhoods separated by the central Conservation Category Wetland with a number of smaller well defined precincts within each neighbourhood.

Movement Network

The movement network has been designed to allow the site to be permeated from the major arterial roads at strategic locations. The initial point of entry to the estate will be from Ranford Road via Balfour Street. Secondary entry points will be provided at various points along Southern River Road, Balfour Street and Holmes Street..

A central ring road provides a hard edged interface with the Conservation Category Wetland and contributes to the permeability of the site through multiple connections radiating across the site. The road layout throughout the development has been designed with recognition of the regional backdrop provided by the Darling Scarp.

Vehicular movement and routes will be identified through a clear road hierarchy. Neighbourhood connectors have been designed to provide an integrated system of local streets linking to the regional road network, establishing a legible vehicular movement system within the site. Access from the neighbourhood connectors to residential cells will be along access streets, some of which will incorporate a secondary function involving drainage swales. In addition to the drainage function the swales will provide landscaped connections between points of amenity. Local roads will generally terminate at swale roads affording a range of experiences when accessing or egressing the site.

The efficient road network will suit local bus services as well as provide legible and direct routes for local and shared paths. Priority will be given to the pedestrian through the provision of landscaped swale roads providing radial links between nodal areas. These links will allow safe pedestrian movement in an enhanced aesthetic environment.



FIGURE 9: PUBLIC OPEN SPACE

Land Uses

The site is in proximity to a range of land uses that will meet the requirements of an emerging community including daily shopping needs, recreation and education. Whilst the major land use will be residential, supporting land uses include the provision of two primary schools, passive and active open space and conservation areas.

Conservation

Significant areas of conservation provide a natural quality to the development, which will contribute to the site's environmental sense of place. The areas of Conservation Category Wetland, Bush Forever and Resource Enhancement Wetland supply a natural amenity that has been retained within the ODP. The environmental character will be enhanced whereby the conservation areas will be central to a range of environmental and recreation experiences.

Public Domain

The public domain/landscape strategy aims to reinforce the site's natural features through management and an enhanced landscape strategy that upgrades amenity and reinforces positive spatial definition at a local level. Remnant vegetation and areas of conservation will provide a natural theme to areas of the development. Details of the landscaping concepts and design principles are contained in Appendix A - Landscape Architecture. Deciduous species will be used for street trees. Landscaping of Local Open Space areas will generally be in accordance with City of Gosnells policy 6.3.2.2.- Development of Public Open Space.

Local Open Space

Parks will allow accessible spaces large enough to provide for quality areas suitable for passive and active recreation including kick-about areas and are located within a short walk of most residents. Central to the provision of recreation space is the enhanced natural of the Conservation Category Wetland and Bush Forever sites. These significant natural areas are complemented by a series of small landscaped parks suitable for both passive and active informal recreation.

The local open space comprises a large central area and a number of local neighbourhood parks, centrally located in each residential precinct and ranging in area from 4163m² to 8856m² (Refer Figure 9 – Public Open Space). A significant feature in the provision of public open space is the lake and park proposed as a major recreational attraction and focal point. The lake and open space will be developed as part of the first stage of the development and combined with the adjoining linear open space also provides a recreational link between the two significant conservation category wetlands.

In accordance with standard practice for the locality the provision of public open space is based upon 100% credits for the CCW buffers and 50% credit for the proposed lake areas. A special precinct rating will be applied to all lots within the Estate to support the ongoing maintenance of enhanced landscaping within parks and drainage corridors. Table 2 outlines the Public Open Space Schedule.

Table 2 - Public Open Space Schedule Phase 1

Total Area (ha):	161.6968	POS Area	Active (ha)	Limited Use (ha)	Total (ha)
		A	0.5000	0.3058 (B)	0.8058
Deductions:		B	1.2259	0.6648 (W)	1.8907
CCW	5.2200	C	0.9941	4.9109 (RE) 5.4015 (B)	11.2565
BP Primary School	3.8517	D	0.5638	0	0.5638
SG Primary School	4.0349	E	0.4614	0	0.4614
Local Centre	0.2355	F	0.4163	0	0.4163
Public Purpose	0.1635	G	0.4394	0	0.4394
<i>Sub Total</i>	<i>13.5056</i>	H	0.5044	0	0.5044
		I	0.8856	0	0.8856
Developable Area:	148.1912	J	0.2534	0	0.2534
		K	0.1148	0	0.1148
POS Required:	14.8191	L	1.1603	0	1.1603
		M	0.1158	0	0.1158
POS Provided:	20.0707	N	0.8192	0	0.8192
		O	0.3833	0	0.3833
		Total	8.7877	11.2830	20.0707

(B) - Buffers to CCW and Resource Enhancement / (RE) - Resource Enhancement / (W) - Permanently Inundated Water Bodies

Residential

The ODP proposes the creation of approximately 1600 dwellings. Residential neighbourhoods have been created around centrally located areas of public open space. The street layout within these neighbourhoods aims to strengthen the relationship of residents to local and regional open space areas. In this way, a greater number of residents will share the amenity benefits gained from these areas and the development will benefit from a heightened sense of place.

A range of lot types across the site will provide for diversity in built form and accommodate a variety of lifestyle choices. Residential densities varying between R20 and R40 provide the statutory framework to implement the variety of lot types proposed. An Indicative Subdivision Layout Plan for Phase 1 is included at Figure 10.

In terms of providing for a varied range of lot product the following yield proportions are proposed:

Table 3 – Yield Proportions

Lot Size	
Character (800m ²)	5%
Traditional (600m ²)	70%
Lifestyle (480m ²)	10%
Laneway (360m ²)	7.5%
Cottage (420m ²)	7.5%
Total	100%

Traditional home sites with a residential density of R20 and site areas of approximately 550-650m² will form the majority of lot product within the estate. The lot size is reflective of market requirements and provides the foundation for the residential framework.

Laneway home sites with a residential density of R30 will be created on lots of around 350-400m². These lots are located in strategic positions primarily around areas of public open space, swales and within close proximity to the village centre. The lots are generally rear loaded and have narrow frontages to accommodate compact residences with reduced front setbacks. Key design features may include front verandahs and vertical separation to differentiate between the public and private realm, allowing residents privacy whilst offering passive surveillance of the street.

A number of group housing sites (R40 residential density) will be provided throughout the estate in key areas of amenity complying with state and local government policy which encourages the location of increased density within 400-800 metres of activity nodes. In particular the City of Gosnells Local Housing Strategy requires the location of medium density housing to be based on accessibility to services and facilities. The medium density sites on the revised ODP are all located within 400m of a variety of services and facilities including public transport routes, commercial nodes (local and mixed business areas), community facilities and local open space.

Larger estate home sites will be provided through larger lots (character lots) within the project area, which will add to the diversity of the area and supply the foundation for larger homes to contribute to the aesthetic appeal and quality of the estate.

Schools

Consultation with the Department of Education and Training has identified the requirement for two primary schools within the site to address the educational requirements of the site and its immediate surrounds.

A primary school site has been located on Balfour Street, which will serve the initial stages of development as well as the existing residential area located to the north. It is located central to the catchment and will be accessed through a road hierarchy incorporating swale roads. The primary school site has been incorporated into the first stages of the development to ensure the early provision of the site and its transfer to the Department of Education and Training.

As part of an integrated approach to the provision of education facilities a child care centre is proposed adjacent to the primary school site, building upon and reinforcing the important community focal point that both facilities present in the early development of community.

The second primary school is centrally located within the north eastern neighbourhood and has a prominent central position with a direct link to the Village Centre.

Both locations have received in-principle support from the Department of Education and Training.

The adopted ODP provided for a High School site located on the corner of Lander Street and Southern River Road. This site is not provided for in the revised ODP as it is now to be located within an adjoining ODP area to the south of Southern River Road.

Land Use Budget

The ODP comprises a range of land uses for the long term development of the land. Table 4 provides a breakdown of the land uses.

Table 4 - Land Use Budget Phase 1

Total Area	161.67ha
Residential	126.31ha
Conservation Category Wetlands	5.22ha
Public Open Space	20.07ha
Primary Schools	7.88ha
Road Widening	2.03ha
Public Purpose	0.16ha
Total	161.67

8

IMPLEMENTATION

The proposed ODP forms Phase 1 of the total Southern River Precinct 2 area. The ODP area is appropriately zoned in both the Metropolitan Region Scheme and the City of Gosnells Town Planning Scheme whilst the balance of the Precinct 2 area is currently subject to Metropolitan Region Scheme Amendments (Refer Figure 11 – Southern River Precinct 2). There is no impediment to the implementation of Phase 1 as the land is zoned and is the subject of an existing approved ODP. Phases 2 and 3 will be subject to separate outline development plans following the completion of the statutory approvals process associated with the proposals for rezoning.

8.1 STATUTORY PLANNING

Metropolitan Region Scheme

Land within the ODP area (Phase 1), bounded by Furley Road, Balfour Street, Holmes Street and Southern River Road, is zoned Urban within the Metropolitan Region Scheme. The balance of the land within the Precinct 2 area (i.e. Phases 2 and 3) is zoned Rural. Phase 2 is bounded by Ranford Road, Balfour Street, Furley Road and Southern River Road, whilst Phase 3 is located west of Balfour Street and south of Holmes Street.

Areas within Phases 2 and 3 have been recognised as Bush Forever and Conservation Category Wetlands which have been incorporated into the broader planning framework for the precinct. Bush Forever boundaries within Phases 2 and 3 have been refined as part of the proposed MRS amendment No. 1082/33 (WAPC, 2004) which provides for the land's inclusion in the Parks and Recreation Reserve. Finalisation of Amendment No. 1082/33 (expected in early 2006) will allow the balance of the land to be rezoned Urban as part of the proposed MRS Omnibus Amendment for the South East Corridor. Following endorsement this may facilitate adjustment to the area calculations and cost sharing proportionment within the ODP.

City of Gosnells Town Planning Scheme No.6

The land within the ODP area is zoned Residential Development within the City of Gosnells Town Planning Scheme No. 6 (TPS 6) which is consistent with its zoning under the MRS. The land immediately adjacent the ODP is zoned Rural and Parks and Recreation.

The ODP identifies the zones available under the TPS and recognises densities which may be applied to residential zones.

8.2 STAGING

Staging of the development will commence from the south western corner of the site at the intersection of Furley Road and Balfour Street with the initial stage being 300 lots. Access will be attained via a road connection from Balfour Street and supplemented with Furley Road and local connections on to Balfour Street. In addition, indications are that a second development front may commence from the north at Holmes Street over lots 1742 and 1743.

The development will be activated through a timeframe of 8 – 10 years with yields of approximating 150 lots per year.

Following the completion of statutory rezonings Phases 2 and 3 will be incorporated into the proposed development on a staged basis.

8.3 COST SHARING FOR COMMON INFRASTRUCTURE WORKS AND LOCAL OPEN SPACE

Common Infrastructure Works

As required under TPS 6 provision has been made to broadly address the sharing of costs associated with common infrastructure works. The cost contribution payable is based on an amount per hectare of land developed for residential purposes as determined on the ODP. These costs have been based on the tables provided in Appendix D of this report.

These works and costs have been identified as:

- Drainage construction
- Regional Road land acquisition and construction
- Traffic management
- CCW land acquisition and development
- General administration and studies
- School sites

As previously addressed the proposed ODP forms only a part of the total Southern River Precinct 2 area. The balance of the land (referred to as Phases 2 and 3) is currently zoned Rural in the MRS, which has meant that under current statutory requirements, proposals for the land's longer term employment cannot be included in the ODP. However, as significant areas of Phases 2 and 3 will ultimately be zoned Urban the proposed common infrastructure works and order of costs addresses the entire Southern River Precinct 2 area.

It is acknowledged that the inclusion/exclusion of individual cost items identified in Appendix D will be addressed in further detail through an Amendment to TPS 6 to introduce new cost sharing provisions. A Developer Contribution Plan will be prepared in conjunction with this amendment.

For costs contributions purposes the Precinct 2 area has been divided into the three Phases. Based upon the ODP (Phase 1) and initial planning for Phases 2 and 3 the Net Developable Area (NDA) has been calculated for each Phase, where NDA represents the total area of the Phase, less open space and drainage (swales) and school sites.

Phase 1	124.34
Phase 2	27.95
Phase 3	12.56
Total	164.85

Local Open Space

In regard to the provision of Local Open Space, allocation has been made in each Phase. In assessing open space, 100% credit has been allowed for CCW buffers and 50% credit for the proposed lake area in Phase 1. The area of the CCW has not been included in the calculations for the provision of Open Space. The areas will vary as the result of the preparation of the detailed plans of subdivision.

Contributions to the ODP Account are to be made by each phase in accordance with the proportions of NDA of the entire ODP. The Table below shows the Local Open Space contribution of each phase as a percentage of the Total NDA . The overall contribution rate for Local Open Space is 18.93%. It is significant to note that the percentage figure for Open Space contribution in the adopted ODP included land requirements for CCW's and therefore the amount of Open Space provided in the revised ODP is greater. In the revised ODP CCW land acquisition has been included as a Common Infrastructure Works cost as detailed in Appendix D.

Table 5 - Local Open Space Contribution

PHASE	LOS (HA)	NDA	LOS % OF TOTAL NDA
1	17.72	124.34	10.75
2	9.07	27.95	5.50
3	4.42	12.56	2.68
Total	31.21	164.85	18.93



Technical Note: No. 1

Date: 28/02/2019

Project No: t18.085

Project: **The Village, Bletchley Park**

Subject: **Transport aspects of proposed Bletchley Park ODP Amendment**

1. Introduction

The approved Outline Development Plan for Southern River Precinct 2 (the subdivision estate known as Bletchley Park) included a proposed 4.5ha local centre / mixed business site at the western corner of the Southern River Rd / Holmes St intersection. That site is now proposed for residential development instead.

This technical note evaluates future traffic flows on the Bletchley Park road network with that proposed residential land use.

2. Proposed ODP Amendment

The existing ODP and the proposed modified ODP plan are shown in Appendix A. The proposed modifications primarily involve the removal of 4.5ha of local centre and mixed business land use and replacement with 4ha of R30 residential land and 0.5ha of local open space; plus the replacement of almost 19 hectares of Residential R20/30/40 with Residential R30. Preliminary concept plans for the ODP Amendment area indicate an increase in yield in the order of 50-60 residential lots in the amendment area.

The proposed amendment would also eliminate the need for two left in / left out intersections that were proposed to serve the local centre on Southern River Road and Holmes Street.

3. Existing Development

As can be seen in Figure 1 about three quarters of the ODP area has already been developed based on the existing approved ODP plan. The proposed amendment only affects the undeveloped eastern portion of the site.

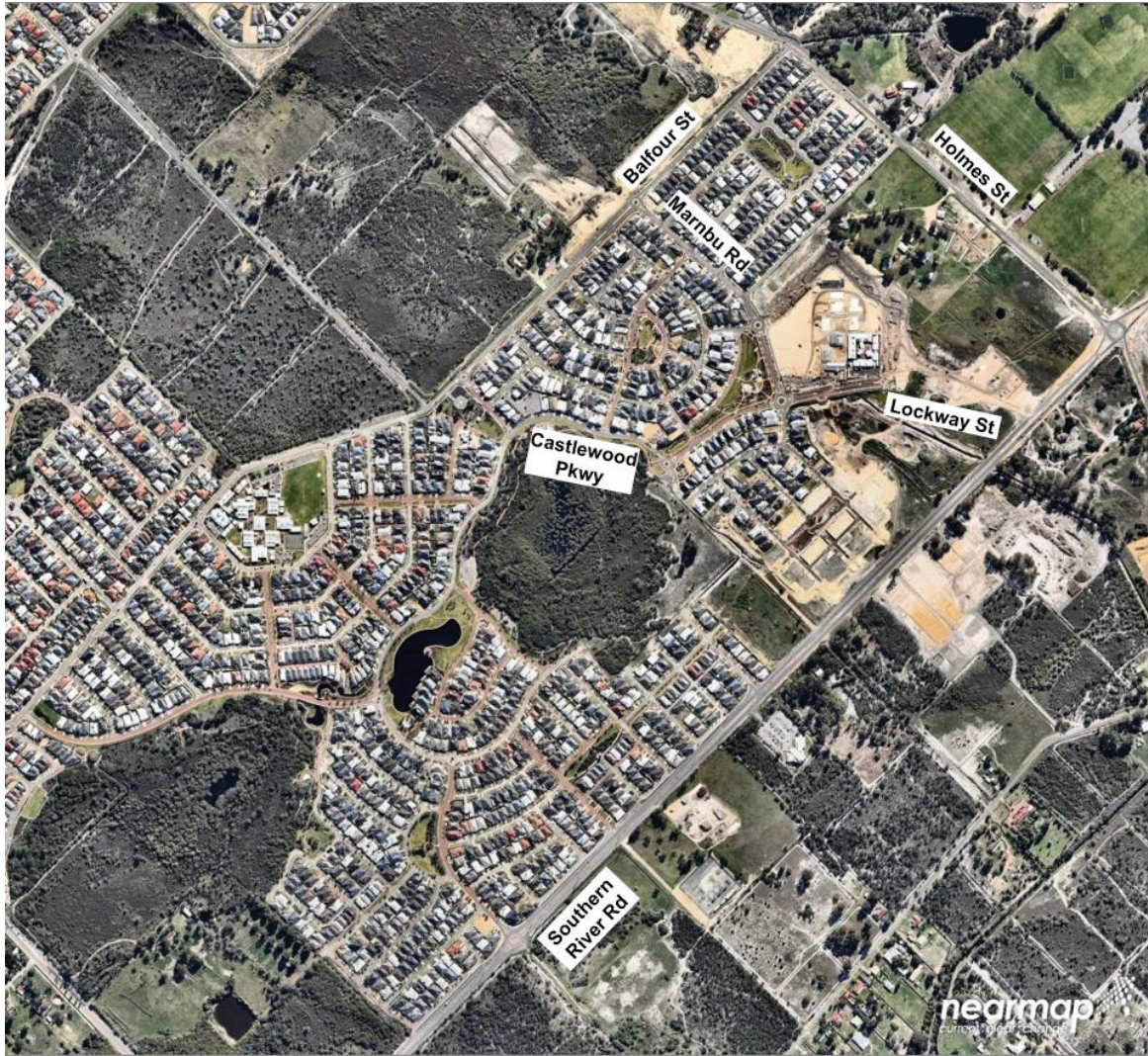


Figure 1: Existing extent of development

4. Future Traffic Volumes

The future weekday traffic flows associated with the land uses proposed in the study area have been estimated using an EMME traffic model of this part of the southeast corridor of the metropolitan area that has been progressively developed by Transcore for a number of projects in this area culminating in a strategic transport model developed for the City of Armadale and the Metropolitan Redevelopment Authority.

The traffic model incorporates urban growth in this area including future urban development within the Southern River area.

The Bletchley Park ODP area shown in the plans at Appendix A (proposed amendment) has been modelled with a total of 1633 dwellings and two primary school sites (assumed 560 students each).

The daily traffic generation rate used in the ODP area for this analysis is 8 vehicle trips per day (vpd) per dwelling, which corresponds to peak hour trip generation rates recommended in the Western Australian Planning Commission (WAPC)

Transport Impact Assessment Guidelines (2016). The WAPC TIA guidelines indicate that schools generate traffic flows equivalent to two vehicle trips per student per day.

Therefore the modelled 1633 dwellings in the ODP area will generate two-way total traffic flows of approximately 13,000vpd with approximately 2,200vpd of that total travelling to and from the two primary schools.

The original *Southern River Precinct 2 Amendment Area Outline Development Plan Traffic Impact Statement* (October 2005) “estimated that the development ultimately would generate approximately 18,500 daily vehicle trips (total of both ins and outs) during a typical weekday”, so it is clear that the proposed amendment (in particular the change from local centre / mixed business to residential) will result in an overall reduction of traffic generation from the ODP area.

The distribution of the vehicle trips generated by the ODP area is determined by the traffic model in proportion to the location of trip productions and attractors for work trips, education trips and other trips (shopping, social, recreational, etc.) among all the land uses in the traffic model.

The modelled total daily traffic flows on the key roads in the ODP area are shown in Figure 2.



Figure 2: Future Daily Traffic Volumes

The traffic model includes assignment of through traffic movements from neighbouring areas onto the ODP area road network where appropriate to reflect the connectivity that these roads provide as part of the overall road network of the area. The traffic flows actually generated by the ODP area are shown in brackets on Figure 2.

The 2031 total daily traffic volumes shown on Southern River Road and Holmes Street were obtained from previous advice provided by the City of Gosnells based on Main Roads WA 2031 traffic model results. The volumes shown on those roads are slightly higher than the equivalent figures from Transcore's traffic model but are used in this analysis to ensure a conservative and robust approach is adopted.

5. Road Hierarchy

The classification of roads within the ODP area is shown on the ODP plan at Appendix A (and on Figure 2). This designates a number of roads as neighbourhood connectors (coloured red on the ODP plan) in accordance with the road hierarchy in the version of the WAPC Liveable Neighbourhoods document that was current when the original ODP plan was prepared.

The most recently constructed section of Lockway Street east of Marnbu Road has been constructed to the Neighbourhood Connector A standard of the current Liveable Neighbourhoods policy, which involves two 3.5m traffic lanes, a central median (3m wide in this case, two 1.5m cycle lanes, a 2.5m shared path on the north verge abutting the primary school site, a 1.8m path on the southern verge and embayed parking in the verge where required. This is accommodated within a 23m road reserve in accordance with Liveable Neighbourhoods. This road standard is identified in Liveable Neighbourhoods as appropriate for traffic volumes ranging from 3,000 to 7,000vpd. Accordingly, it is recommended to continue this Neighbourhood Connector A road standard for the final section of Lockway Street through to Southern River Road to accommodate the future modelled traffic flows of 5,600vpd on that section.

A number of other key roads are coloured black on the ODP plan at Appendix A and labelled as "Access Streets". In fact this designates the more important access streets on the plan which will generally carry traffic flows higher than 1,000vpd. These correspond to the classifications of Access Street B or Access Street C in the current Liveable Neighbourhoods policy and have typically been constructed with a road carriageway of approximately 7.2m in a road reserve up to 18m wide. That standard of access street would be appropriate for the black Access Street connecting from Lockway Street to Holmes Street on the eastern side of the primary school site.

All other access streets within the ODP Amendment area will carry traffic flows of less than 1,000vpd and would be designed as Access Street D in Liveable Neighbourhoods. In the existing areas of Bletchley Park this typically consists of a 6m road carriageway within a 15m road reserve, with potential to reduce one verge where it abuts public open space, as permitted in the Liveable Neighbourhoods policy.

6. Intersections

There are already ten intersections along neighbourhood connector roads in the ODP area that have been constructed as single-lane roundabouts. Two dual-lane roundabouts have been constructed on Southern River Road at the Aldenham Drive and Holmes Street intersections.

Another dual-lane roundabout is planned at the Southern River Rd / Lockway St intersection as the structure plan for the site on the opposite side of Southern River Road proposes this will be a 4-way intersection to provide full movement access onto Southern River Road for future commercial development along that frontage of Southern River Road.

Preliminary subdivision concept plans for the ODP Amendment area also anticipate creation of a 4-way intersection controlled by a single-lane roundabout on the black access street connecting from Lockway Street to Holmes Street.

The location of all these existing and proposed roundabouts is shown in Figure 3.



Figure 3: Intersection treatments

Generally all other intersections are proposed to be Give-Way controlled T-intersections or low volume access street 4-way intersections with threshold treatments similar to a number of examples already constructed in existing

subdivision stages in the ODP area (eg. south and east of the western primary school site on Figure 3).

One T-intersection on Lockway Street is marked as “to be determined”. This would either be a single-lane roundabout or a Give-Way controlled T-intersection. It is proposed that this should be constructed as a Give-Way controlled T-intersection. The 3m wide median on this section of Lockway Street can accommodate a short right turn lane so that through traffic on Lockway Street will not be obstructed by a vehicle waiting to turn right into the access street.

Table 2.4 from AUSTRROADS “*Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings*” (see Table 1) illustrates the traffic volume thresholds above which a detailed intersection capacity assessment is required for a priority-controlled intersection.

Table 1. Traffic volume thresholds for detailed intersection capacity analysis

Major Road Type	Major Road Flow (vph)	Minor Road Flow (vph)
Two-lane	400	250
	500	200
	650	100
Four-lane	1,000	100
	1,500	50
	2,000	25

Figure 2 indicates the daily traffic flows on this section of Lockway Street will be approximately 5,800vpd and on the access street approximately 1,400vpd, so peak hour traffic flows would be approximately 10% of those daily volumes or 580vph and 140vph respectively. By interpolation of the traffic flows in Table 1 this intersection would be below that threshold and does not require detailed analysis. From this table (and from extensive previous experience in this type of analysis) it is anticipated that this T-intersection would operate satisfactorily with minimal queues and delays, so a roundabout would not be necessary at this intersection.

7. Conclusions

The Outline Development Plan for Southern River Precinct 2 (the subdivision estate known as Bletchley Park) included a proposed 4.5ha local centre / mixed business site at the western corner of the Southern River Rd / Holmes St intersection. An amendment to the approved ODP is now proposed to change the use of that site to residential instead; plus the replacement of almost 19 hectares of Residential R20/30/40 with Residential R30.

This technical note evaluates future traffic flows on the Bletchley Park road network with the proposed residential land use. The change from local centre / mixed business to residential land use in the proposed amendment results in an overall reduction in future traffic generation from the ODP area.

The remaining unconstructed section of Lockway Street northwest from Southern River Road would still be classified as a neighbourhood connector, the same as in the current approved ODP. It is anticipated to carry future traffic flows of approximately 5,600vpd and should be constructed to a Neighbourhood Connector A standard, similar to the recently constructed section of Lockway Street adjacent to the primary school site.

The T-intersection on Lockway Street at the southeast corner of the primary school site is proposed to be constructed as a Give-Way controlled T-intersection and is anticipated to operate satisfactorily in that configuration under the forecast traffic flows.

The Lockway Street / Southern River Road intersection is planned to also connect to a future access road on the southeast side of Southern River Road forming a 4-way intersection, which is planned to be constructed as another dual-lane roundabout on Southern River Road.

Appendix A

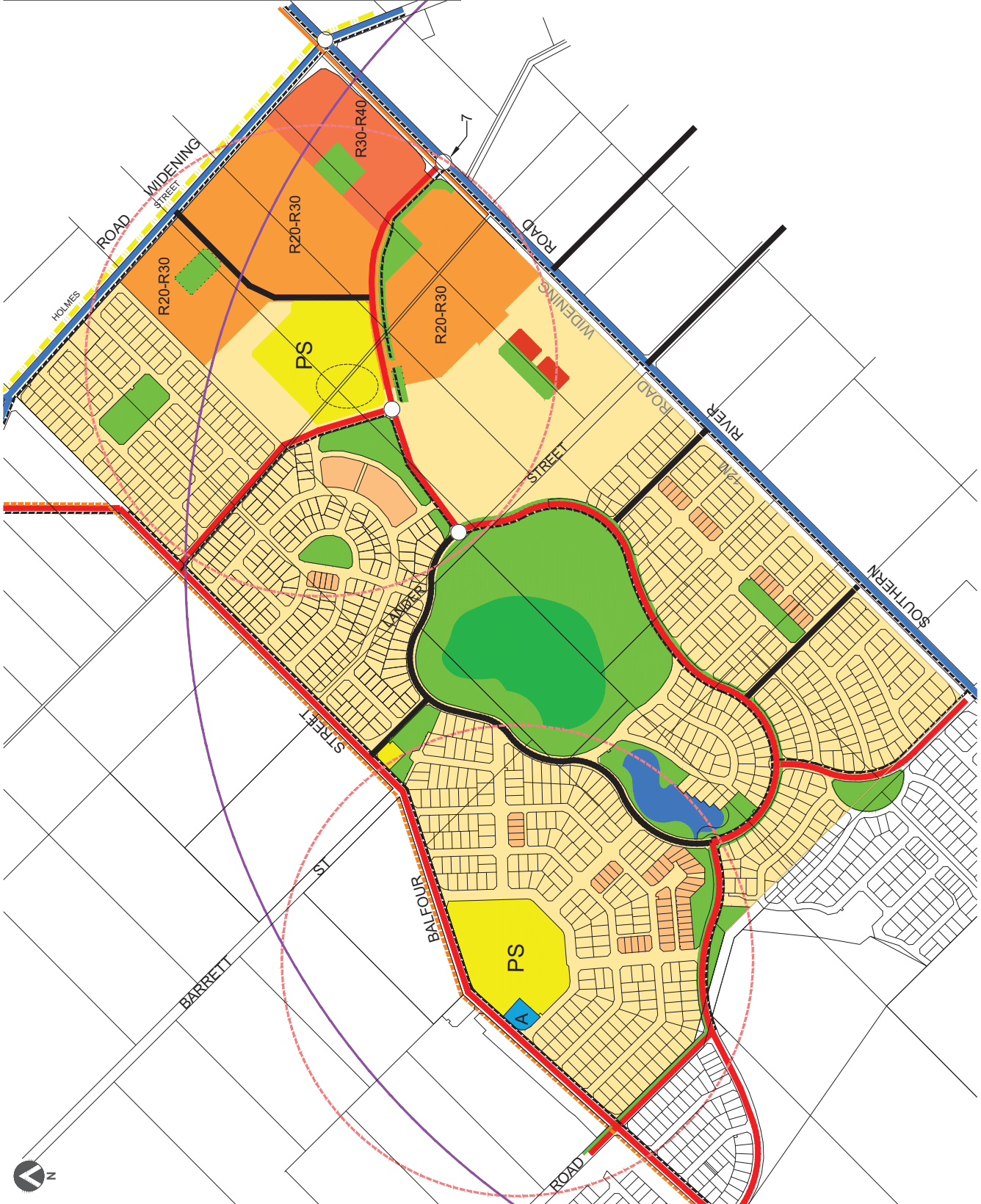
Proposed Outline Development Plan Amendment

ZONES

- RESIDENTIAL R20
- RESIDENTIAL R30
- RESIDENTIAL R20-30 (DENSITY RANGE; REFER NOTE 6)
- RESIDENTIAL R30-40 (DENSITY RANGE; REFER NOTE 6)
- RESIDENTIAL R60
- LOCAL CENTRE ZONE
- LOCAL RESERVES
- PUBLIC PURPOSES
- LOCAL OPEN SPACE
- OTHER
- APPROVED SUBDIVISION
- CONSERVATION CATEGORY WETLANDS
- DISTRICT DISTRIBUTOR
- NEIGHBOURHOOD CONNECTOR
- ACCESS STREET
- 400M PED SHED
- SHARED PATH
- POSSIBLE ROAD WIDENING/REALIGNMENT FOR EXTENSION OF HOLMES STREET
- 1500M LIQUID WASTE SITE BUFFER
- EXISTING PUBLIC TRANSPORT ROUTE
- PROPOSED PUBLIC TRANSPORT ROUTE
- ROUNDBABOUT

Notes:

- The area identified "A" within the Local Centre zone shall be restricted to use as a Child Care Centre.
- Urban Water Management Plan(s) are to be prepared for subdivision and development of the area. The recommendations of the management plan(s) shall be appropriately accommodated by the detailed subdivision and development proposals.
- Subdivision and development of the area shall incorporate the results of a vegetation survey conducted in conjunction with CALM.
- Any land required for the road widening of Garden Street is to accord with the Metropolitan Region Scheme.
- The exact location and arrangement of R30, R40 and Public Open Space areas will be subject to refinement at the subdivision stage.
- For areas with a density range shown on the map, a Density Code Plan is to be submitted at the time of subdivision to clarify the applicable R-code density that will apply to each lot. The application of density is to have regard to the following locational criteria:
 - Generally higher coding responding to:
 - 400 metres within retail / local centre provided to the south and east of the Holmes Street and Southern River Road intersection.
 - Within 400 metres of Primary School
 - Within 200 metres of Local Open Space.
- The location, design and construction of the intersection is to be to the satisfaction of the City of Coonells and the Department of Planning, Lands & Heritage.



25 July 2018

Dumal Kannangara
City of Gosnells
PO Box 662
Gosnells
WA 6990

Dear Dumal

Re: Southern River Precinct 2 Outline Development Plan – LWMS Addendum

Please accept this letter of addendum to the *Bletchley Park Local Water Management Strategy* (GHD, as amended in February 2014) which was prepared and approved in accordance with the requirements of *Better Urban Water Management* (WAPC, 2008) and the *Southern River Integrated land and Water Management Plan* (DWER, 2009).

This addendum has been prepared to provide supporting information pertinent to proposed amendments to the Southern River Precinct 2 Outline Development Plan (Roberts Day, 2011).

Summary of relevant changes to the outline development plan

Attachment 1 presents a comparison of land uses and lot/road layouts from the endorsed and amended versions of the Outline Development Plan (ODP). The changes include the following elements that are relevant to water management in the ODP area:

- 4.5ha of local centre zone adjacent to Southern River Road has been removed
- The total area of residential zoned land is increased by approximately 4ha
- Changes in residential R-codes resulting in reduced R40, being replaced by R20/R30
- The total area of local open space is increased by approximately 0.5ha

Impacts of changes to the outline development plan

Land use changes – urban/residential

Redistribution of land areas from Local Centre to Residential to has the potential to change impervious area and therefore result in revised runoff rates and volumes. This may change areas required for water quality treatment as well as for flood management.

The LWMS, in providing preliminary stormwater modelling made no distinction between the various residential design codes in runoff coefficient but included variable initial losses for different residential design codes as follows:

- The LWMS assumed a constant runoff coefficient of 0.4 for all urban land (including all residential zones and the local centre).
- Open space was modelled with a lower runoff coefficient of 0.2.
- Impervious areas of R20 residential lots were modelled with an initial loss of 16mm
- Impervious areas of Local Centres and R30/40 residential lots were modelled with an initial loss of 1.5mm
- Open space was modelled with an initial loss of 0mm

Therefore, the changes result in an overall reduction in runoff coefficient and increase in initial losses such that reduced flows can be expected in the arterial drainage system and no revision to the LWMS is required in this regard.

Subsequent UWMP's already prepared and approved for The Village Stage 1 and Lane Gardens subdivisions have included more detailed modelling and design of stormwater management systems. In these areas, there have been no changes to land uses. However, because the ODP area has an integrated stormwater management system it will be necessary to review the overall stormwater management system serving parts of these areas.

An Urban Water Management Plan is currently being developed for the final part of the ODP area (The Village Stage 2), which contains the changed land use areas and interfaces with The Village Stage 1 and Lane Gardens subdivisions as shown in Attachment 2. Therefore, it is expected that these changes, including a review of water quality treatment and flood storage provisions in can be accommodated as water management systems are designed during the subdivision and urban water management plan development phase.

Land use changes – public open space

Creation of a new local open space area increases the land area available to accommodate water management systems. Therefore, these changes will assist with the design of water management systems during the subdivision and urban water management plan development phase and no revision to the LWMS is required in this regard.

I trust that the information provided in this letter of addendum provides you with the information required to support the proposed amendments to Southern River Precinct 2 Outline Development Plan. Please do not hesitate to contact me on (08) 9328 4663 or at helen@urbaqua.org.au should you have any questions.

Yours sincerely,



Helen Brookes
DIRECTOR
URBAQUA

Attachments:

1. Structure plan comparison
2. Figure showing the proposed Village Stage 2 UWMP study area

ZONES

- RESIDENTIAL R20
- RESIDENTIAL R30
- RESIDENTIAL R20-30 (DENSITY RANGE; REFER NOTE 6)
- RESIDENTIAL R30-40 (DENSITY RANGE; REFER NOTE 6)
- RESIDENTIAL R60
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Notes:

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