

URBIS

LOT 1665 WANNEROO ROAD SINAGRA

**ADDENDUM 1
EAST WANNEROO
CELL 2 (SINAGRA)
ASP NO. 4**

PREPARED FOR
STOCKLAND
AUGUST 2021



URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Kris Nolan
Associate Director	Sean Morrison
Consultant	Rebecca Travaglione
Graphic Designer	Kelwin Wong
Project Code	ND2271

© Urbis 2019

This publication is subject to copyright. Except as permitted under the *Copyright Act 1968*, no part of it may in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission. Enquiries should be addressed to the publishers.

CONTENTS

1.0	IMPLEMENTATION	12	2.3	OVERVIEW OF ESTATE AND KEY FEATURES	36
1.1	STRUCTURE PLAN AREA	12	2.3.1	Vision/Objections	36
1.2	OPERATION	12	2.3.2	Design Layout	38
1.3	STAGING	12	2.3.3	Density	40
1.4	SUBDIVISION AND DEVELOPMENT REQUIREMENTS	12	2.3.4	Public Open Space	40
	1.4.1 Objectives	12	2.3.5	Movement Network	43
	1.4.2 Other Controls	13	2.3.6	Local Water Management strategy	50
1.5	LOCAL DEVELOPMENT PLANS	13		APPENDIX A: LANDSCAPE MASTERPLAN	
1.6	OTHER REQUIREMENTS	13		APPENDIX B: ENVIRONMENTAL ASSESSMENT REPORT	
1.7	ADDITIONAL INFORMATION	14		APPENDIX C: BUSHFIRE MANAGEMENT PLAN	
				APPENDIX D: LOCAL WATER MANAGEMENT PLAN	
2.0	EXPLANATORY REPORT	16		APPENDIX E: LANDSCAPE INPUT INTO LOCAL WATER MANAGEMENT STRATEGY	
2.1	PLANNING BACKGROUND	16		APPENDIX F: TRAFFIC IMPACT ASSESSMENT	
	2.1.1 Introduction and Purpose	16		APPENDIX G: ENGINEERING SERVICING REPORT	
	2.1.2 Land Description	18			
	2.1.3 Planning Framework	23			
	2.1.4 LPP3.1 – Local Housing Strategy Implementation	26			
	2.1.5 LPP4.19 – Medium Density	27			
	2.1.6 LPP 3.3 – Fauna Management	27			
	2.1.7 LPP 4.8 – Tree Preservation	27			
	2.1.8 LPP 4.3 – Public Open Space	27			
	2.1.9 Other Approvals and Decisions	28			
2.2	SITE CONDITIONS AND CONSTRAINTS	31			
	2.2.1 Biodiversity and Natural Area Assets	31			
	2.2.2 Landforms and Soils	32			
	2.2.3 Groundwater and Surface Water	33			
	2.2.4 Bushfire Hazard Assessment and Management Plans	34			
	2.2.5 Heritage	35			
	2.2.6 Services / Infrastructure	35			

IT IS CERTIFIED THAT AMENDMENT NO. 18 TO EAST WANNEROO
CELL 2 STRUCTURE PLAN NO. 4 WAS APPROVED BY RESOLUTION
OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

10 DECEMBER 2021

Signed for and on behalf of the Western Australian Planning Commission

A handwritten signature in black ink, appearing to read 'Rigali', is written over a horizontal line. The signature is enclosed within a light gray rectangular box.

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

TABLE OF AMENDMENTS

Amendment No.	Summary Of The Amendment	Amendment Type	Date Approved By Wapc



EXECUTIVE SUMMARY

This addendum to East Wanneroo Cell 2 Agreed Structure Plan No. 4 (ASP4) provides the structure planning framework for lot 1665 (1040) Wanneroo Road, Sinagra (the estate land).

Part One of this addendum functions as if it were in Part One of ASP4 with Part One of ASP4 making appropriate references to this effect.

This addendum provides a planning framework for the proposed estate in line with the WAPC's Structure Plan Guidelines.

The estate land will be able to be developed in the near-term, with the imminent closure of the poultry farm on-site. The estate will provide for 600 to 800 residential lots, as well as a primary school site and public open space. No commercial or industrial land uses are proposed. This addendum provides further planning controls to the estate land, following the successful lifting of urban deferred in October 2019.

This addendum provides for an estate with a layout slightly modified to that originally anticipated in ASP4 however still with seamless connections to existing and future surrounding development. The development of the approximately 40ha estate will contribute to the dwelling targets for the City of Wanneroo, and support the ongoing development of the Wanneroo Town Centre.

This addendum includes:

Part One – Implementation – providing the development controls for the estate.

Part Two – Explanatory Report – providing planning background and assessment of the estate, as well as an overview of its design features and integration with surrounding development.

Appendices including:

- Appendix A: Landscape Masterplan, prepared by LD Total.
- Appendix B: Environmental Assessment Report, prepared by Strategen Environmental.
- Appendix C: Bushfire Management Plan, prepared by Strategen Environmental.
- Appendix D: Local Water Management Plan, prepared by Strategen Environmental.
- Appendix E: Landscape input into Local Water Management Strategy, prepared by LD Total.
- Appendix F: Traffic Impact Assessment, prepared by Cardno.
- Appendix G: Engineering Servicing Report, prepared by Cossill & Webley.

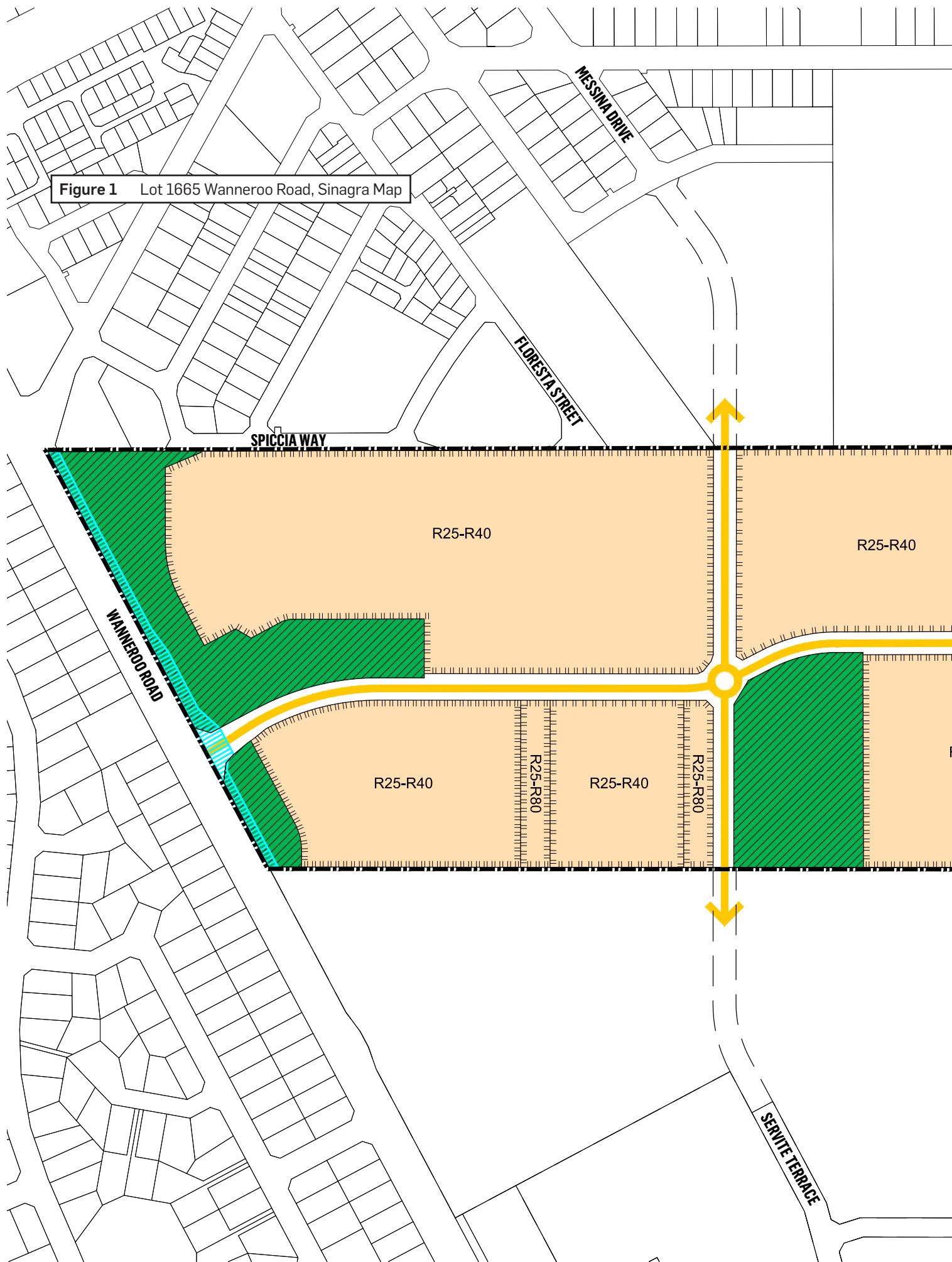
Table 1 Activity Centre Plan Overview

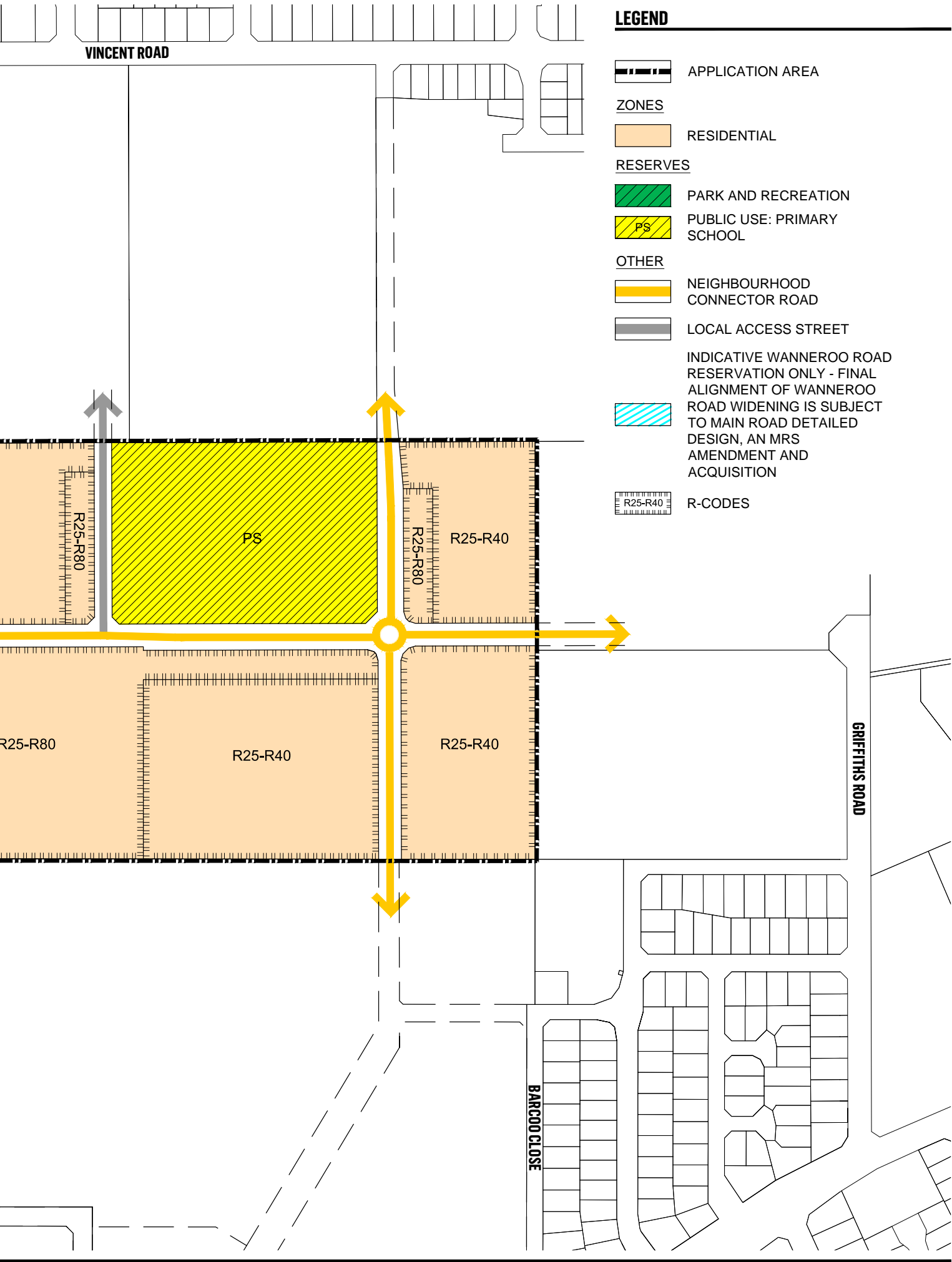
ITEM	DATA	STRUCTURE PLAN REF (SECTION NO.)
Total area covered by the structure plan	40.15 ha	
Area of each land use proposed:	Residential – 28.1 ha Public Use – Primary School – 3.5 ha	
Total estimated lot yield	600 to 800 lots	2.2.1
Estimated number of dwellings	600 to 800 dwellings	2.2.1
Estimated residential site density	15 to 20 dwellings per ha of gross subdivisible area	
Estimated population	1,980 to 2,640 persons	2.2.1
Number of high schools	0	
Number of primary schools	1	
Estimated commercial floor space	No commercial zoned land is provided. Some commercial operations may be considered were capable of approval in the residential zone (such as a child care).	
Estimated area and percentage of public open space given over to:		
• Regional open space	• 0ha	
• District open space	• 0 ha	
• Neighbourhood parks	• 1.82 ha, 1x neighbourhood park	
• Local parks	• 2.65ha, 3x local parks	
Estimated percentage of natural area	0 ha	

PART ONE

IMPLEMENTATION

Figure 1 Lot 1665 Wanneroo Road, Sinagra Map





1.0 IMPLEMENTATION

1.1 STRUCTURE PLAN AREA

This addendum applies to the portion of land identified in the East Wanneroo Cell 2 – Adopted Structure Plan no. 4 Map as the Poultry Farm Site at Pt Lot 1665 Wanneroo Road, Sinagra, WA.

This addendum applies to all areas within the boundary identified on the Addendum 1 Map, otherwise known as the estate.

1.2 OPERATION

This addendum forms part of East Wanneroo Cell 2 – Adopted Structure Plan No. 4 (ASP4), with Part One of this addendum to have effect as if were in Part One of the main body of ASP4.

This addendum comes into effect on the day the enabling amendment is approved by the WAPC, the date of which is outlined on the endorsement page. As per the deemed provisions from the date of endorsement this addendum, as a component of ASP4 is to have effect until 19 October 2025, unless otherwise determined by the WAPC.

Unless otherwise specified, the words and expressions used in this addendum shall have the respective meanings given to them in DPS2.

Nothing in this addendum is to be interpreted as limiting clause 4.2 of DPS2 which allows for variations to site and development standards and requirements.

Nothing in this addendum is to be interpreted as limiting clause 27 of the deemed provisions that outlines that a decision-maker for an application for development approval or subdivision approval in an area that is covered by a structure plan is to have due regard to, but is not bound by, the structure plan when deciding the application.

1.3 STAGING

Development of the estate can be progressed in the near term, as key roads and services in the locality are already in place, as the site is amongst the last to be developed in the surrounding built up area.

Prior to any occupation of development in the estate, the poultry farm operations must have been ceased, and any relevant contamination or odour-creating sources must have been appropriately remediated, noting that a Detailed Site Investigation has found there is no evidence of widespread or gross soil or groundwater contamination, with the exception of minor detections. [Refer to clause 3.4.2 of ASP4]

In addition to the cessation and remediation of poultry farm activities, the following works are required prior to occupation of development on the site:

- Appropriate provision of all essential services, including reticulated sewerage.
- Construction of a Neighbourhood Connector and its intersection with Wanneroo Road to the standard specified in the Transport Impact Assessment accompanying this addendum.
- At least one other road connection from the estate that is not to Wanneroo Road, to provide secondary vehicle access.

1.4 SUBDIVISION AND DEVELOPMENT REQUIREMENTS

1.4.1 OBJECTIVES

Development in the estate area shall align with the following objectives:

- The estate will provide a high amenity residential estate at a range of densities, with primarily single detached dwellings.
- The estate will be connected to the surrounding area via Neighbourhood Connectors to Wanneroo Road and to surrounding land subdivisions as they are developed, including to the Wanneroo Town Centre if and when land to the south is developed. An east-west Neighbourhood Connector will provide a central spine through the estate.
- The estate will offer a series of public open spaces, as well as a primary school, with residents also having access to other public open spaces in the ASP4 area and beyond.
- The estate will be developed with due regard with adjacent development to allow for appropriate integration of transport and service infrastructure where appropriate.

1.4.2 OTHER CONTROLS

Table 2 sets out standards and guidance for various matters in the estate.

Table 2 Subdivision and Development Requirements

MATTER	CONTROL
Subdivision Layout	<p>The development and subdivision of the estate is to be of a layout generally in accordance with that outlined in the Addendum 1 Map.</p> <p>Layout changes may be contemplated to align with adjacent subdivision patterns, particularly to ensure that connecting roads align in their location and treatment.</p>
Land Use Zones and Reserves	All land is zoned or reserved as identified on the Addendum 1 Map.
Tree Retention	Reasonable efforts are to be made at appropriate stages to preserve trees of significant value in road reserves, park and recreation reserves, and the primary school site. Evidence of proposed tree retention is to be provided at each relevant subdivision stage.
Interface	Public open space, fencing and roads abutting adjacent areas shall have due regard to their interface and appearance (including consideration of levels), to enable seamless residential areas in ASP4 and where abutting the Wanneroo Activity Centre Plan Area.*
Public Open Space	Public open space is to be provided generally at the locations identified as Parks and Recreation Reserve in the Addendum 1 Map and at a total area no less than the total allocated within Pt Lot 1665 Wanneroo Road in Schedule 2 of ASP4.
Residential Density	<p>Residential density will be determined at subdivision stage, within the ranges specified in the Addendum 1 Map. A base density of R25-40 applies. At the locations identified as R25-80, the higher density codes of R60 and R80 can be applied only at the end of street blocks.</p> <p>A R-code plan is to be provided to the WAPC at the first subdivision stage, and updated as required at each additional stage. Notwithstanding density ranges, subdivision across the application area is not to exceed the density target of 600-800 lots/dwellings.</p>
R25-80 Areas	An R80 density coding may only apply at the end of street blocks and/or where lots are adjacent or abutting public open space.
R-MD	Development is subject to the provisions of Planning Bulletin No. 112/2016 - Medium Density Single House Development Standards - Development Zones.

*Noise walls are not contemplated on Wanneroo Road and noise mitigation for residential lots will be achieved by quiet house design where necessary.

1.5 LOCAL DEVELOPMENT PLANS

Development is to be in accordance with the Medium-Density Single House Standards, as outlined within Local Planning Policy 4.19 Medium-Density Housing Standards (WAPC Planning Bulletin PB112/2016), except where a Local Development Plan is required.

Local Development Plans (LDPs) are required to be in place prior to any subdivision and/or development that:

- Incorporates lots with direct frontage or lots with boundaries that abut to public open space.
- Terrace style housing which requires two storey boundary walls under the R80 coding.

The LDP(s) shall:

- Ensure that dwellings (where applicable) provide an attractive interface and appearance of the estate to Wanneroo Road.
- Ensure that the potential visual and amenity impact of garages, bin storage, and other service facilities is minimised.
- Ensure that public open space areas are afforded adequate casual surveillance from surrounding dwellings.
- Seek to minimise access points by consolidating cross-overs.
- Quiet house design as per the recommendations of the Transport Noise Assessment.

1.6 OTHER REQUIREMENTS

Development contributions for the estate are to be made in accordance with DPS2, including Schedule 6 of DPS2, or as otherwise agreed with the City of Wanneroo.

1.7 ADDITIONAL INFORMATION

Table 3 outlines additional information required

Table 3 Additional Information Requirements

ADDITIONAL INFORMATION	APPROVAL STAGE	CONSULTATION REQUIRED
BAL A BAL Contour Map or BAL assessment is required to determine indicative acceptable BAL ratings across the estate at each subdivision stage. This should be accompanied by identification of any bushfire hazard issues, and an assessment against the bushfire protection criteria requirements demonstrating compliance within the boundary of the affected area.	Subdivision Application, Development Application (for Primary School)	WAPC, City of Wanneroo, DFES (if required).
POS Schedule A schedule of allocated and to-be allocated POS, as required in Schedule 2 of ASP4 is to be provided at each subdivision stage, to ensure that the overall subdivision of the estate will meet POS contribution requirements.	Subdivision Application	WAPC, City of Wanneroo
Tree Retention Plan Details of proposed tree retention is to be provided at the first subdivision stage, and updated as required at each additional stage, identifying where significant trees are proposed to be retained.	Subdivision Application, Development Application (for Primary School)	WAPC, City of Wanneroo
R-Code Plan A R-Code is to be provided at the first subdivision stage, and updated as required at each additional stage, identifying R-codes applicable, within the ranges specified in the Addendum 1 Map.	Subdivision Application	WAPC, City of Wanneroo
Traffic Impact Assessment *Further assessment of the intersection functionality will be undertaken at stage of subdivision. This assessment will determine any intersection modifications required for the 100% completion of residential development and operation of the school.	Each stage of subdivision application	WAPC, City of Wanneroo, Main Roads Western Australia
Transport Noise Assessment Further assessment of the traffic noise impacts from Wanneroo Road is to be undertaken at each stage of subdivision, in accordance with State Planning Policy 5.4 - Road and Rail Noise.	Subdivision Application	WAPC, City of Wanneroo
Vegetation & Fauna Management Plan To address fauna habitats and vegetation to be retained or relocated.	First stage of subdivision and updated as required at each additional stage	City of Wanneroo
Kangaroo Management Plan To address relocation of the large population of kangaroos on-site.	First stage of subdivision and updated as required at each additional stage	City of Wanneroo, DBCA

*Update the TIA prepared by Cardno dated 9 July 2019 to address comments provided by MRWA related to traffic modelling

PART TWO

EXPLANATORY REPORT

2.0 EXPLANATORY REPORT

2.1 PLANNING BACKGROUND

2.1.1 INTRODUCTION AND PURPOSE

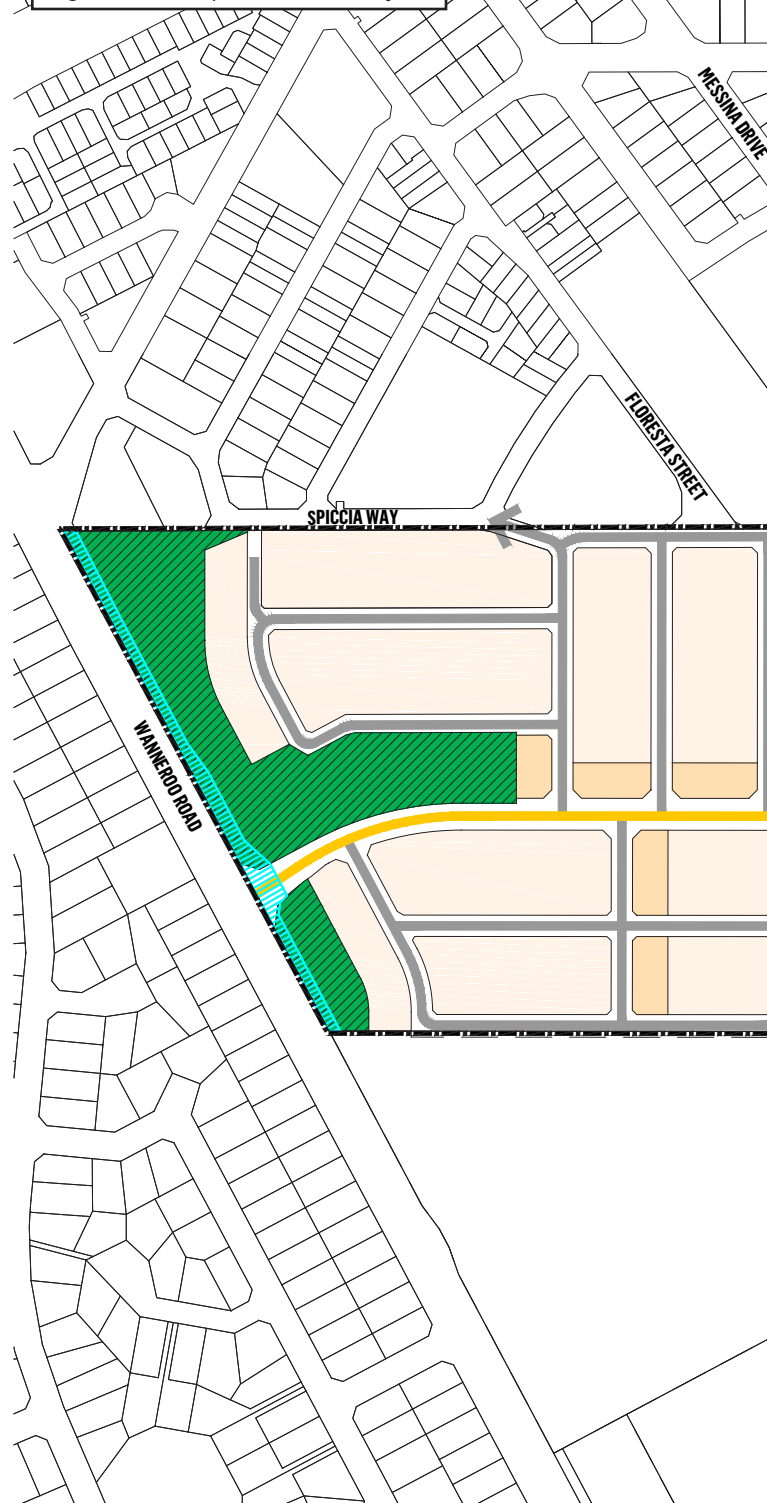
The vision for the estate is to achieve a variety in dwellings types, including the potential for higher density options. Key objectives for this addendum include:

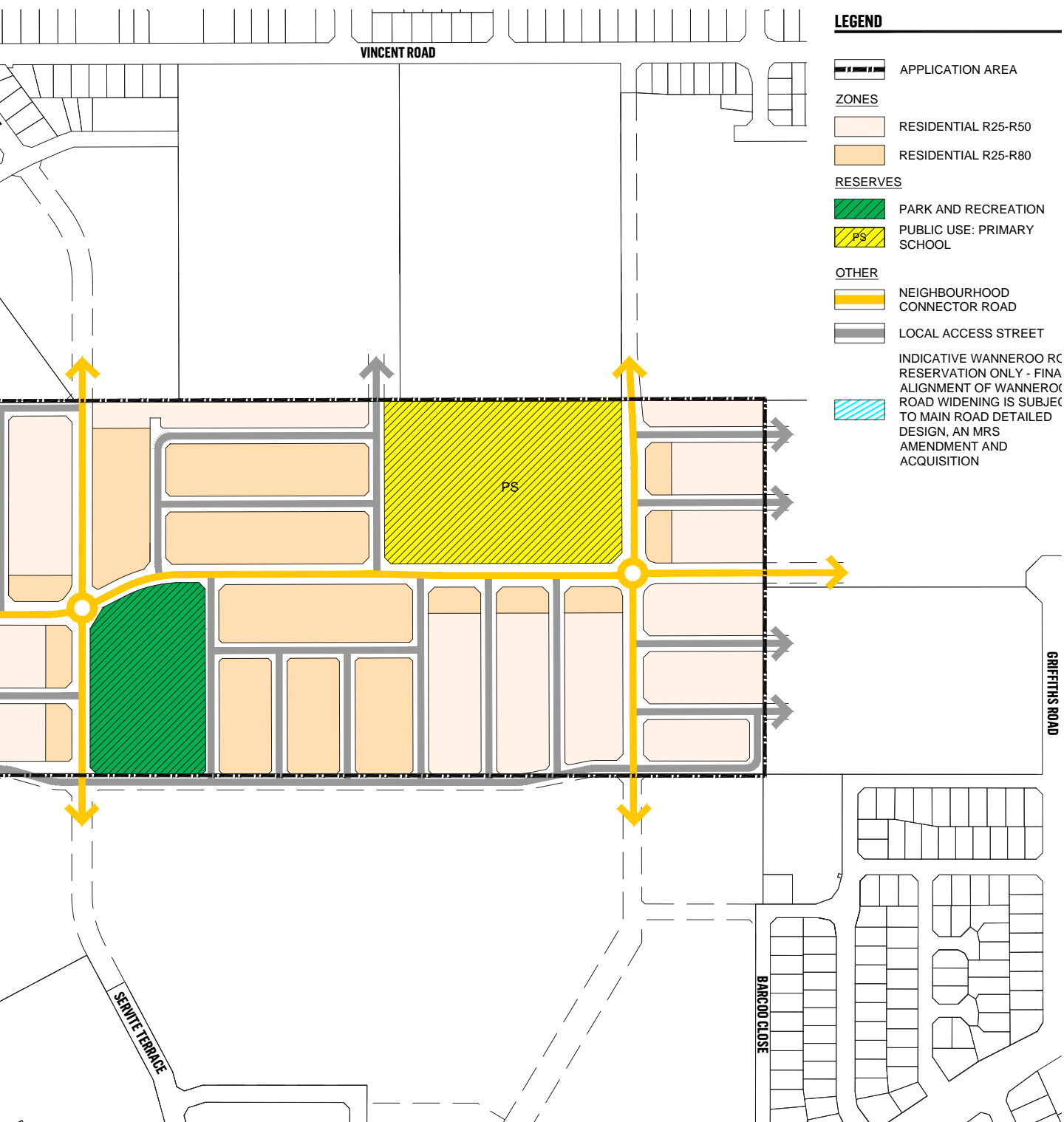
- The development of the land for predominantly residential purposes. Densities range from R25 to R80, providing opportunities to achieve higher density in appropriate locations.
- Multiple neighbourhood connector and local access roads that align with ASP4 (which affects land to the north and east) and the Wanneroo Town Centre Activity Centre Plan (which affects land to the south).
- Retention and utilisation of the existing full movement intersection to Wanneroo Road.
- 3.5ha of land for a primary school, consistent with the size and location required by ASP4.
- Dedicating public open space and drainage areas along Wanneroo Road to enable retention of key vegetation, accommodate topography changes and to provide a green entrance to the residential estate.
- The proposal will cater for a diverse range of lot sizes and dwelling types, whilst also capitalising on the locational advantages and landscape features which the subject land offers.

The total lot yield achievable is dependent on the densities achieved – with a range of approximately 600-800 dwellings being most likely. This could result in an estimated resident population of 1,980 to 2,640 persons, assuming the existing average 3.3 persons per household in Sinagra in the 2016 Census.

Figure 2 provides a concept overview of the proposed estate layout.

Figure 2 Proposed Estate Layout





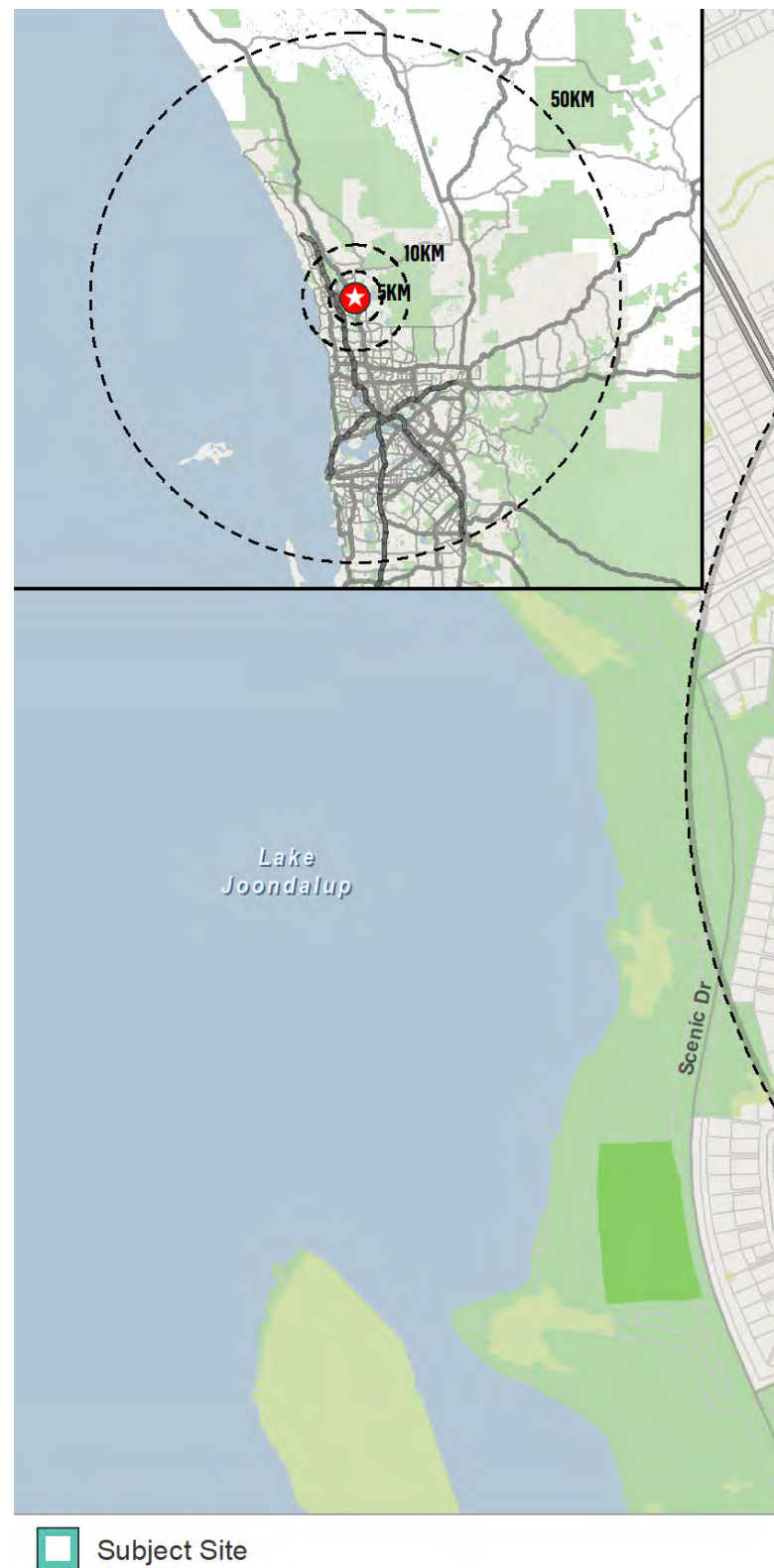
2.1.2 LAND DESCRIPTION

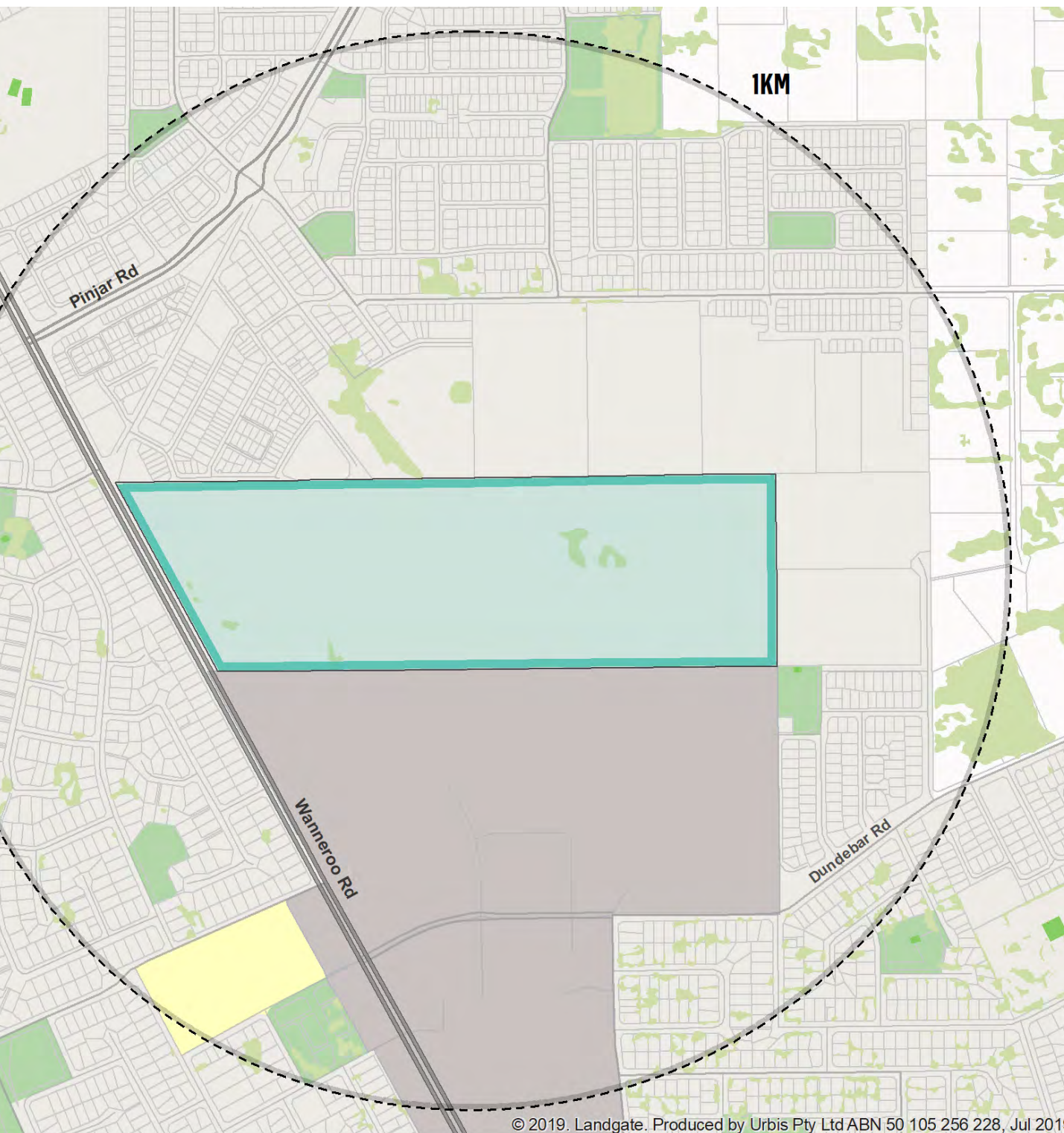
Location

The estate is in the suburb of Sinagra, approximately 22km north of Perth's Central Business District, 4km east of the Joondalup City Centre and approximately 500m north of the Wanneroo Town Centre. Lake Joondalup is located approximately 600m west. Refer to Figure 3.

The estate land fronts Wanneroo Road, which is an arterial road providing a north / south connection between Perth's northern suburbs and the CBD.

Figure 3 Location Plan





© 2019. Landgate. Produced by Urbis Pty Ltd ABN 50 105 256 228, Jul 2019

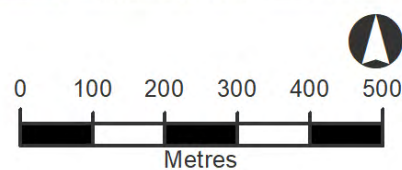



Figure 4 Aerial Photograph



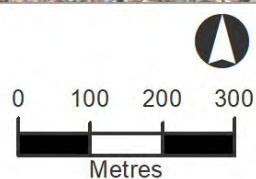
 Subject Site



2.1.2.1 Area and Land Use

The estate is situated within the broader East Wanneroo locality. As the site has historically been used as a poultry farm, surrounding land has been subject to buffer controls and is most undeveloped.

Beyond this buffer area, land in the East Wanneroo Area is generally developed with low-to-medium residential development predominately comprising detached single houses. The Wanneroo Town Centre is located south of the subject site, which contains the Wanneroo Central shopping centre and a range of retail and hospitality services. Refer to Figure 4.



2.1.2.2 Legal Description and Ownership

The estate lot details are outlined in Table 5 and illustrated in Figure 5.

Table 4 Lot Details

Lot	No.	Plan	Vol/Fol	Area (ha)	Local Zoning	MRS Zoning	Registered Proprietor
1665	1040	103478	1294/460	40.15ha	Urban Development	Urban Deferred	Stockland Development Pty Ltd

Figure 5 Cadastral Plan



2.1.3 PLANNING FRAMEWORK

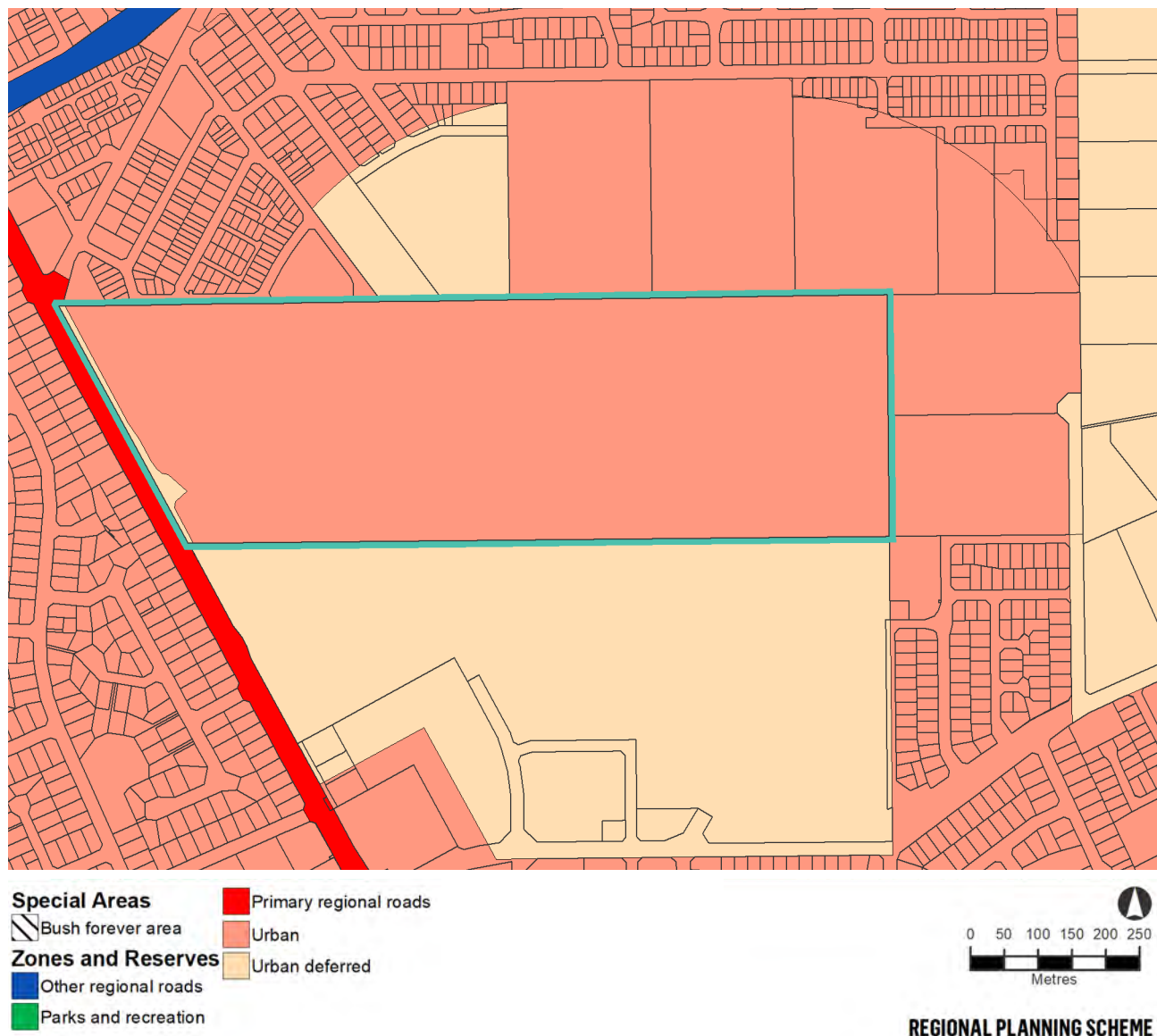
2.1.3.1 Zoning and Reservations

Metropolitan Region Scheme

The estate land is predominately zoned 'Urban' under the Metropolitan Region Scheme. Wanneroo Road to the immediate west is reserved for 'Primary Regional Roads' and is under the care and control of Main Roads Western Australia. Refer to Figure 6.

The subject site was previously zoned 'urban deferred', with the poultry farm operations being the sole driver of the urban deferred status. A time limited lease to the poultry farm will see the farm operations conclude by December 2020, with a right to extend that term by a maximum of 12 months. Accordingly, the urban deferred status over the majority of the land was successfully lifted in October 2019. It is noted that the small slither of land fronting Wanneroo Road remains 'urban deferred', due to this land being identified for road widening.

Figure 6 MRS Map



City of Wanneroo District Planning Scheme No. 2 (DPS2)

The estate land is zoned Urban Development under DPS2. The purpose of this zone is to provide for the orderly and proper planning of larger areas through the provision of comprehensive structure planning to ensure that development is undertaken in an integrated manner.

No subdivision or development is to occur within the Urban Development zone until a structure plan has been prepared and adopted. ASP4 has previously satisfied this criteria, with this addendum (as a part of ASP4) continuing to satisfy this criteria.

East Wanneroo Cell 2 (Sinagra) Agreed Structure Plan No. 4 (ASP4)

ASP4 was first adopted in June 2004, and has since been subject to a number of amendments.

The estate land is largely zoned Residential under ASP4, with an applicable residential density of predominantly R20, with sections of R40 fronting designated public open space areas. This addendum amends these densities to provide residential density ranges of R25 – R80 within the core of the subject site; and R25 – R50 in other areas.

A buffer precinct is established over the estate land and surrounding parcels through clause 3.3 of ASP4, as a result of the poultry farm operations – with no development permitted until such time that farm ceases to function. The imminent ceasing those operations, together with the proposed lifting of the of the urban deferred status will enable the site to be effectively normalised to the Residential zone under ASP4.

ASP4 identifies a 3.5ha primary school and 4.1766ha of public open space within the estate land. This addendum maintains the 3.5ha primary school site, however increases the total area of unrestricted public open space – refer to Table 6.

Table 5 Open Space Comparison

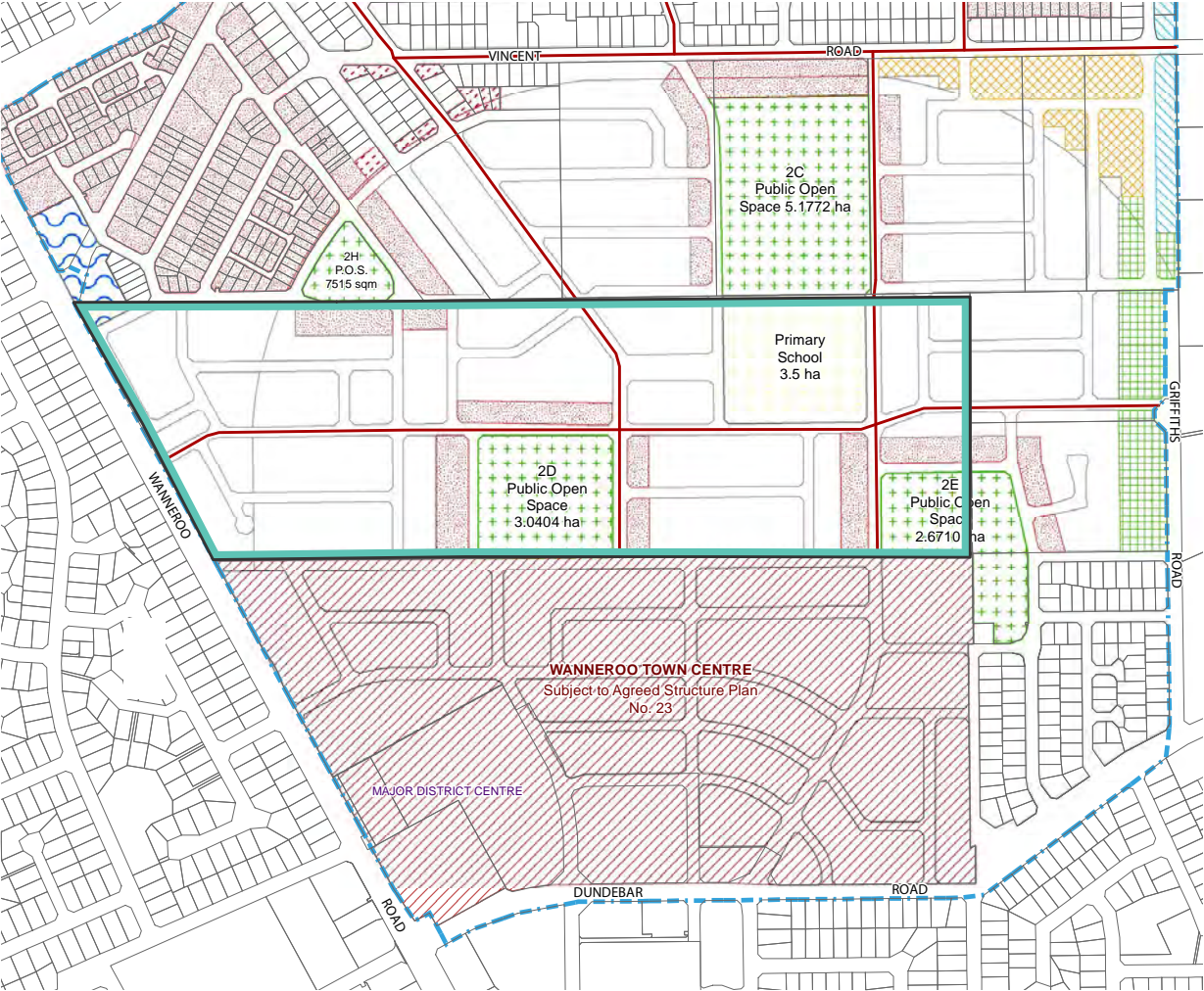
	Addendum 1	Current ASP4
Primary School	3.5ha	3.5ha
Public Open Space	4.47ha	4.1766ha
Drainage	0.1444 ha	0.2500ha

The layout of the proposed public open space also largely reflects the adopted ASP4 layout, with the notable change being the re-allocation of one of the smaller portions of public open space from the eastern side of the estate to the western side adjacent to Wanneroo Road – this is discussed and justified in S2.3.4.1.

East Wanneroo Cell 2 – ASP4 Developer Contribution Plan

The estate land is located in the East Wanneroo Cell 2 (Sinagra) developer contribution area. Developer contribution implications resulting from the development of the estate will be considered through a separate process.

Figure 7 Existing ASP4 Map



LEGEND:

	Subject Site		R10
	Activity Centre Boundary		R25
	Public Open Space		R30
	Drainage Sump		R40

Note: Unless otherwise denoted, the residential code is R20.



2.1.3.2 Planning Strategies

Perth and Peel @ 3.5 Million and North West Sub-Regional Planning Framework

Perth and Peel @ 3.5 Million and associated North-West Sub-Regional Planning Framework provides the overarching strategic planning framework guiding sustainable urban growth and efficient use of infrastructure. Key priorities for the North-West Sub-Region include achieving a more consolidated urban form and meeting long-term housing requirements.

The framework identifies the estate land as urban deferred undeveloped, with the poultry farm buffer identified as the only development constraint.

The City of Wanneroo is assigned an urban infill target of 27,920 additional dwellings by 2050. The intensification of dwellings facilitated by the development of the estate will contribute to achieving this target.

The timing of development of the estate land is identified as a 'medium-long' (2022+) prospect. As the existing poultry farm is now operating under a time limited lease ending in December 2020 (with a right to extend by 12 months), development of the estate may occur sooner than anticipated by the framework.

City of Wanneroo Local Housing Strategy

The City of Wanneroo Local Housing Strategy provides a strategic guide for housing direction within the City of Wanneroo. Objectives of the strategy include:

- Providing a wide range of housing choices.
- Focussing housing in proximity to community facilities and services, including employment centres and transport hubs.

With specific reference to greenfield areas, the Local Housing Policy advocates for:

- Co-locating workplaces, schools and leisure facilities with housing, through clustering residential neighbourhoods around town centres.
- Lot layouts to provide a mix of housing types, lot sizes and densities.

This addendum seeks to provide diversity in the housing typologies of the Sinagra area through the application of broad residential density codes. Given the estate's proximity to the Wanneroo Town Centre, it is a suitable candidate to execution of higher residential densities, and this intent is consistent with the principles of the Local Housing Strategy.

2.1.3.3 Planning Policies

SPP 3.7 – Planning in Bushfire Prone Areas

The estate is identified as a 'Bushfire Prone Area' in accordance with the Department of Fire and Emergency Services 'Map of Bushfire Prone Areas'. A Bushfire Management Plan has been prepared to address the development of the estate, refer to S2.3.4.1 for an overview of this assessment.

SPP 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning

SPP5.4 addresses and guides potential transport noise issues occurring from major transport corridors, and its impact on noise sensitive development. SPP5.4 is relevant given the estate's frontage to Wanneroo Road.

Potential solutions to mitigate any noise impacts may include:

- Separation distances.
- Building design such as located outdoor living areas away from noise sources.
- Noise attenuation barriers (noise walls).
- Building construction techniques.

As these techniques are largely dependent on lot layout and building design, noise mitigation will be considered as part of the subsequent subdivision and/or development application stage.

2.1.4 LPP3.1 – LOCAL HOUSING STRATEGY IMPLEMENTATION

LPP 3.1 provides the policy implementation to achieve the outcomes identified within the City's Local Housing Strategy. The estate is located within a 'Part 2 – Other Infill Development' area in the policy.

The following criteria are established as a guide to the implementation of residential densities in the policy:

- R60 within 400m walkable distance from an edge of an Activity Centre, excluding Local Centres.
- R40 between 401m and 800m walkable distance from an edge of Activity Centre excluding Local Centres.
- R60 within 250m of a high frequency bus route designated stops ('High Frequency Bus Routes' are defined as having a minimum of 4 services per hour during peak periods).

The estate achieves a number of the above criteria – primarily given its abutting of the Wanneroo Town Centre, and is therefore a suitable candidate for achieving higher density development in appropriate locations.

2.1.5 LPP4.19 – MEDIUM DENSITY

LPP4.19 outlines development controls which may be applied to medium density housing, as a replacement to the deemed-to-comply standards of the R-Codes. LPP4.19 applies where an approved structure identifies that the R-MD Codes (Single House Standards for Medium Density Housing) is applicable.

As identified within section 1.5 of this report, development is to be in accordance with the Medium-Density Single House Standards of LPP4.19 and the WAPC Planning Bulletin PB112/2016, except where a Local Development Plan is required.

LPP4.19 will therefore be applicable to subsequent single house development proposals, unless an LDP is otherwise required.

2.1.6 LPP 3.3 – FAUNA MANAGEMENT

LPP 3.3 seeks to guide the management of fauna and macro-fauna during the urban development process. Part 2 of LPP3.3 details the specific management requirements, which includes the preparation of Environmental Management Plan Guidelines to support structure planning and subdivision. Part 2 also details the measures to be undertaken prior to the staged clearing.

The Environmental Assessment Report prepared by Strategen Environmental (refer Appendix B), includes consideration of the potential fauna and habitat impacts, and associated management measures.

The fauna management including proposed native vegetation clearing was considered and assessed through the dedicated process under the EPBC Act. This clearance application has been granted approval by the Department of Environment and Energy subject to conditions (EPBC 2017/7921).

Ongoing fauna management will be undertaken through the Construction Environmental Management Plan, which is required as a condition of the EPBC Act clearing approval.

2.1.7 LPP 4.8 – TREE PRESERVATION

LPP 4.8 guides the protection of significant trees through the structure plan, subdivision and development application process. The key policy initiative is to locate areas of public open space to accommodate significant trees. This remains an overarching design principle of the estate, with a Tree Retention Plan also forming part of the subdivision requirements.

2.1.8 LPP 4.3 – PUBLIC OPEN SPACE

LPP4.3 provides guidance on the location, function and design of POS. The objective of the policy is to provide diversity in recreational spaces, protect local natural assets, incorporate water sensitive design whilst also providing amenity and managed access to the community.



2.1.9 OTHER APPROVALS AND DECISIONS

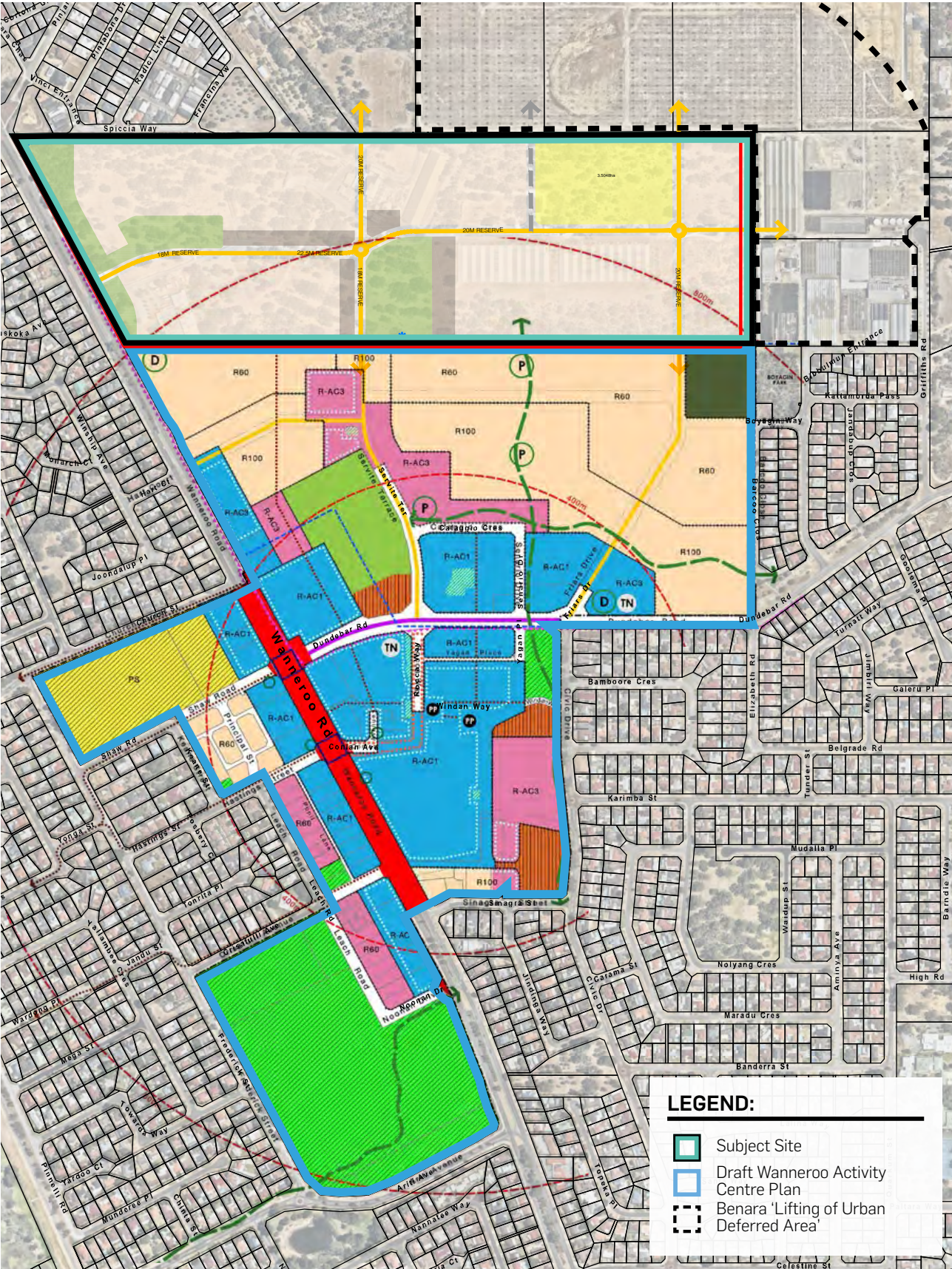
This addendum has been formulated with consideration of the surrounding planning framework, including integration with active planning proposals on adjoining lands. Refer to Table 7 and Figure 8.

The estate will seamlessly integrate with surrounding development.

Table 6 Other Approvals and Decisions

Proposals	Details
Lifting of Urban Deferred within the subject site.	The urban deferred status of the land was successfully lifted in October 2019.
Benara Nurseries Lifting of Urban Deferment Application	The WAPC in March 2019 approved a request by proprietors Quito Pty Ltd for the lifting of urban deferment status of 33ha of land in Sinagra currently occupied by Benara Nurseries adjacent to the estate – refer to Figure 8. This lifting was based on the imminent cessation of poultry farm operations on the estate land.
Wanneroo Town Centre – Activity Centre Plan No. 90 (Draft)	<p>The Draft ACP seeks to provide a 'comprehensive planning framework to guide the future development of a vibrant, progressive and prosperous town centre which will act as a focal point for business and the local community.'</p> <p>The Draft ACP covers land abutting the full southern boundary of the subject land, the immediate portion of which also has urban deferment status.</p> <p>Land along the southern border and beyond is indicated as for residential development, with the Draft ACP noting that this is subject to the poultry farm on the subject land ceasing operations. The lifting of urban deferment on the estate, which will facilitate the ceasing of poultry farm operations will allow for the objectives of the ACP to be achieved.</p> <p>The Draft ACP contains a number of north-south neighbourhood connectors which are indicated as continuing north into the estate. This addendum aligns with these roads, allowing clear integration of the estate and future development in the Draft ACP area. These roads will provide direct pedestrian, vehicle and potentially public transport routes into the core of the Wanneroo town centre.</p> <p>R100 residential is indicated either side of the western north-south neighbourhood connector on land in the Draft ACP at the southern boundary with the subject land. Public open space and medium density R60/80 is shown either side of the road in the estate, which provides an appropriate transition from the scale of development anticipated in the Draft ACP.</p> <p>The R25-R80 development indicated across the estate aligns with the R60 shown in the Draft ACP generally straddling the common border.</p> <p>The Draft ACP also contains an indicative 'green link' travelling north-south into the estate. A 19.5m road reserve is provided for in the estate linking into this green link, with the road allowing for a dedicated footpath and cycle lane – enabling access from surrounding areas to the primary school.</p> <p>This Draft ACP was advertised for public comment from 10 January 2019 to 14 February 2019, and is thereby considered a seriously entertained document.</p>

Figure 8 Planning Proposals in Locality



2.1.9.1 Pre-Lodgement Consultation

A summary of consultation undertaken in support of the lifting of urban deferred is provided in Table 8.

Table 7 Consultation Outcomes

Agency	Outcomes
Urbis	
DPLH	Meeting with Mat Selby (Director Metro North) in February 2019 to discuss lifting of urban deferment request for Benara Nurseries land and requirements for similar request for the estate. DPLH staff also attended a visioning workshop for the estate in July 2018. Informal liaison and correspondence has been ongoing on the form of this Structure Plan amendment.
Main Roads WA	Correspondence in late 2018 with MRWA revealed potential widening requirements for Wanneroo Road. No MRS amendment is underway nor has there been any agency or government announcements to this effect and therefore this potential proposal has not been reflected in this addendum. However, it is noted that the land required for this road widening remains 'urban deferred' under the MRS.
City of Wanneroo	Two meetings were held with Pas Bracone (then Manager Approval Services) and staff to discuss concept design and planning process in late 2018 and early 2019. City of Wanneroo staff also attended the aforementioned visioning workshop in July 2018. Informal liaison and correspondence has been ongoing.
Cossill & Webley	
Water Corporation	Confirmation of wastewater capacity for the intended development subject to completion of DN450 Neerabup Main Sewer and receipt of advice in relation to connection to existing water reticulation network was received in April 2016. Further liaison took place in October 2018 which confirmed the sewer upgrade was due to commence in November 2018, with completion expected mid-2019, well in advance of works for the estate.
City of Wanneroo	The City confirmed in June 2018 Confirmation that there is no existing water management plan over the East Wanneroo Cell 2 area.
Main Roads WA	Liaison in October 2017 revealed that MRWA is generally supportive of a full-movement priority intersection in the vicinity of the location proposed within the then concept plan (and now reflected in this addendum).
Strategen Environmental	
Department of Environment and Energy	There has been ongoing engagement via telephone and in-person in Canberra to discuss the progression of assessment of the project under the EPBC Act. The proposed clearing has been assessed under the EPBC Act, and has been approved subject to conditions.
Department of Biodiversity Conservation and Attractions (DBCA)	There has been ongoing engagement regarding identification of offset sites and alternative offset options. The process of offset site identification, for the purpose of clearing conditions of the EPBC Act clearing approval, is ongoing.
Department of Water and Environment Regulation (DWER)	Confirmation that groundwater monitoring is not required.
City of Wanneroo	Ongoing engagement regarding drainage management approach.

2.2 SITE CONDITIONS AND CONSTRAINTS

2.2.1 BIODIVERSITY AND NATURAL AREA ASSETS

The Environmental Assessment Report (EAR) prepared by Strategen Environmental outlines that the estate land is relatively unconstrained and suitable for urban development. Refer Appendix B.

As noted in the report, the proposed clearing of the estate land will be subject to separate assessment under the EPBC Act in terms of impacts on threatened species.

Table 9 outlines the biodiversity and natural area assets identified within the EAR.

Table 8 Biodiversity and Natural Area Asset Conditions

Condition	Details
Vegetation	<p>Vegetation conditions on the estate land ranges from Good to Completely Degraded, with the majority of the site (35.98 ha) being in a Degraded to Completely Degraded condition. Much of the remaining intact vegetation is extremely fragmented or isolated and has been impacted by weed infestation and Kangaroo grazing pressures in some areas. There is low species diversity and a significant portion of the vegetation is devoid of native understorey.</p> <p>Strategen conducted further analysis in relation to Banksia Dominated Woodlands within the site however determined that the vegetation condition was too disturbed to meet the diagnostic criteria for the Threatened Ecological Communities (TEC) – the conclusion of which has been confirmed by the Commonwealth.</p> <p>No conservation significant flora species were recorded on the estate land.</p>
Fauna	<p>A fauna survey has recorded the following:</p> <ul style="list-style-type: none"> • The presence of the EPBC listed Carnaby's Black Cockatoo (<i>Calyptorhynchus latirostris</i>); and • Possibility of the EPBC listed Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii</i>) and Baudin's Black Cockatoo (<i>Calyptorhynchus baudinii</i>) also occurring in the area. • A large population of Western Grey Kangaroos. • A total of 14.5 ha of Black Cockatoo potential foraging and breeding habitat has been identified across two habitat types. A total of 264 potential breeding trees were recorded during the field survey, however no tree hollows were identified. <p>While no other species pursuant to the EPBC Act or Biodiversity Conservation Act were recorded during the field survey, there is also potential for the Priority 4 Southern Brown Bandicoot to occur as there is suitable habitat present for this species.</p>
Conservation Areas	There are no Bush Forever sites, Environmentally Sensitive Areas or Regional Ecological Linkages present on the subject land. No Priority Local Natural Areas are identified on the land by the City of Wanneroo.
Wetlands	There are no surface water features or geomorphic wetlands present on the estate land.
Environmental Approvals	EPBC Referral 2017/7921 was prepared and submitted to the Department of the Environment and Energy (DEE) in May 2017 and was approved September 2019 subject to conditions.

2.2.1.1 Management of Natural Assets

The measures proposed to mitigate and manage impacts to the cockatoo's onsite have been determined in consultation with DEE and are cognisant of the City of Wanneroo Local Planning Policy 4.8: Tree Preservation.

Tree retention will occur in POS in the western and southern central portions as well as within road reserves where possible. Whilst this POS configuration differs from the current ASP4, these POS areas are considered to draw superior environmental outcomes, namely through the retention of Eucalyptus woodland vegetation and significant trees for black cockatoos.

The management of any retained trees on site will be undertaken consistent with the Construction Environmental Management Plan (CEMP) which is required as a condition of the EPBC Act approval.



2.2.2 LANDFORMS AND SOILS

The EAR concludes that soils are well suited for urbanisation, with no widespread contamination, as outlined in Table 10.

Table 9 Summary of Landforms and Soil Conditions

Condition	Details
Topography	The estate land contains an elevation difference from east to west. Total level difference is 51m, ranging from RL80 AHD at the north-east corner to RL29m AHD at the north western corner.
Geotechnical	<p>A Geotechnical Report commissioned by Galt Geotechnical concludes that the site will achieve a Class A site classification under AS2870-2011.</p> <p>The report summarises that the estate land is well graded, and the permeable sand is well suited to urbanisation. It is noted that limestone pinnacles are present at the ground surface and below the sand within the site, which may require more detailed investigation at a later stage to determine the strength of the material for excavation.</p>
Acid Sulfate Soils (ASS)	The estate land has no known risk of ASS.
Contamination	<p>There is no evidence of widespread or gross soil or groundwater contamination.</p> <p>Petroleum hydrocarbons and Polychlorinated byphenils (PCB) have been detected reflecting small-scale localised minor spills or releases from point sources, however it does not represent a significant risk and remedial action is not considered necessary.</p> <p>Asbestos Containing Material (ACM) and asbestos fibres have been identified adjacent to the dangerous goods storage shed and at locations of former site structures, signifying that ACM may be more widespread and will require additional delineation or remedial works. This work will inform the requirements of an asbestos removal control plan (ARCP), which will be implemented prior to commencement of demolition and development works.</p>

2.2.3 GROUNDWATER AND SURFACE WATER

The EAR concludes that groundwater levels and surface water matters will not constrain the development of the estate – refer to Table 11.

As no District Water Management Strategy has been prepared for the ASP4 area, a Local Water Management Strategy has been prepared for the estate land – refer Appendix D.

Table 10 Summary of Groundwater and Surface Water Conditions

Condition	Details
Groundwater Level	<p>The Perth Groundwater Map details a maximum groundwater level range between 23 m AHD in the north-western corner of the estate land to 37m AHD in the eastern portion.</p> <p>These levels were generally validated during groundwater level and quality monitoring undertaken in September 2017, which found the maximum groundwater level to vary from 23 – 39m AHD over the site.</p> <p>Depth to groundwater ranges from between 5m and 41m, with the majority of the land having a depth of more than 8m over the site. Minimum depth is 4.4m at the low point in the north-eastern corner of the site.</p> <p>The separation of surface to groundwater of greater than 4m is considered adequate clearance for finished floor levels and infiltration of stormwater at this location.</p>
Groundwater Quality	<p>Groundwater entering the estate land is broadly similar with groundwater quality migrating offsite. This finding indicates that historical poultry farm operations have not adversely impacted the quality of groundwater.</p> <p>Groundwater quality is considered generally suitable for irrigation purposes.</p>
Groundwater Licencing	<p>The estate land has one existing superficial aquifer groundwater abstraction licence for 74,250 kL/yr, which will be transferred to Stockland upon commencement of urban development.</p>
Surface Water	<p>Hydrography mapping does not identify any surface water features or watercourses within the subject site.</p> <p>The subject site consists of highly permeable soils, and the existing hydrological regime consists of infiltration of rainfall to the superficial aquifer.</p>
Geomorphic Wetlands	<p>No geomorphic wetlands are located on the estate land. The closest identified wetlands of conservation significance are:</p> <ul style="list-style-type: none"> • Lake Joondalup, located 400m west; and • Mariginup Lake, located 1.3km north.
Public Drinking Water Source Areas (PDWSA)	<p>No PDWSA's are present on the estate land.</p>

2.2.4 BUSHFIRE HAZARD ASSESSMENT AND MANAGEMENT PLANS

Given the estate land is identified as a 'Bushfire Prone Area' under the Department of Fire and Emergency Services Map of Bushfire Prone Areas, a Bushfire Management Plan (BMP), including a Bushfire Hazard Level (BHL) assessment has been prepared – refer to Appendix C.

The BHL assessment has categorised the bushfire hazard level as either low, moderate or extreme. This provides an indication of the likely impact of a bushfire event associated with vegetation within and adjacent to the site. The BHL assessment will be supplemented by a further Bushfire Attack Level (BAL) assessment occurring during future subdivision and/or development stages.

Key outcomes of the BHL assessment include:

- The pre-development assessment identified a combination of 'Extreme' and 'Moderate' BHL for the site. The vegetation modification and clearing proposed as part of the redevelopment of the site will substantially reduce this risk. This results in a post-development risk of predominately 'Low'.
- A temporary BHL of 'Moderate' will impact the southern portion and a small northern section of the subject site, until development of the adjoining land progresses. This may require further assessment during later detailed design stages (subdivision and/or development application stage).
- Following development works, no habitable buildings will be located in areas identified as having an 'Extreme' BHL.

A key challenge for this development will be achieving an appropriate balance between retaining significant remnant vegetation whilst ensuring an appropriate bushfire risk is applied. The following approaches will enable this balance:

- Strategically locating lot boundaries to minimise clearing impacts from Asset Protection Zones (APZs).
- The retention of vegetation and/or trees in POS, where retention does not result in an unacceptable risk to future habitable buildings.
- Selective planting and/or revegetation within POS and streetscapes, where said planting does not result in an unacceptable risk to future habitable buildings.

These measures will be considered during the subsequent subdivision and/or development application stages, where a detailed BAL assessment will be completed, and resultant APZ specifications are confirmed.



2.2.5 HERITAGE

There are no registered Aboriginal heritage sites or European heritage places occurring on the estate land.

2.2.6 SERVICES / INFRASTRUCTURE

An Engineering Servicing Report has been prepared by Cossill & Webley – refer to Appendix G.

This report details the current infrastructure provisions and strategies for servicing the estate, and concludes that there are no major servicing impediments to the development of the estate – refer to Table 12.

Table 11 Proposed Servicing

Service	Note
Wastewater	<p>The proposal will require two future 225mm sewer mains to be constructed to convey wastewater to the north of the site, being:</p> <ul style="list-style-type: none">• One wastewater retic main required through the centre of the subject site, in a north-south alignment; and• One within the Wanneroo Road reserve graded north. <p>Water Corporation has confirmed that the proposed flows to the east of the development area can be fully accommodated when the Neerabup Main Sewer is completed, which is scheduled for construction in 2019.</p> <p>The first 15mm of stormwater runoff within the subdivided residential allotments will be contained within the property through soakwells or other infiltration systems. For higher density lots, allowance may be made to manage a proportion of the runoff in the City of Wanneroo controlled street drainage network which will ultimately discharge into POS.</p>
Stormwater	<p>Stormwater runoff within the subdivided residential allotments will be contained within the property through soakwells or other infiltration systems. For higher density lots, allowance may be made to manage a proportion of the runoff in the City of Wanneroo controlled street drainage network which will ultimately discharge into POS.</p>
Water Reticulation	<p>Water Corporation has confirmed that the reticulation requirements of the site can be supplied from the water main located in Wanneroo Road.</p>
Power	<p>The existing 22kV overhead powerlines are anticipated to have sufficient capacity for the development. A number of substation sites (transformer and switchgear) will be required for the high voltage power network within the site.</p>
Gas Reticulation	<p>ATCO Gas Australia has confirmed the estate can be serviced from the existing high-pressure gas reticulation in Wanneroo Road.</p>
Telecommunications	<p>Two existing communications cables run within Wanneroo Road (Optus and NBN).</p>
Groundwater Irrigation	<p>The subject site has an existing groundwater abstraction licence for 74,250kL/yr. The proposed 4.69ha of POS and drainage area will equate to a projected long-term irrigation demand of 34,227kL/yr, indicating the existing groundwater allocation for the subject site is sufficient for the POS irrigation requirements. A combined landscaping and construction license will be used during the construction phase, with a maximum uptake of 74,000kL/yr. This will be reduced at completion of construction.</p>
Fill	<p>Subdivisional works to establish the development pads and internal roads will require cut-to-fill earthworks of in-situ sand.</p> <p>The finished level across the estate will be dictated by the levels at the boundaries of the site, and the necessity to grade the finished levels into the two independent sewer catchments.</p> <p>Cut-to-fill excavation will extend to a depth of 9m, with further sewer reticulation of 3m depth. As limestone was encountered at a depth of 5m, some limestone excavation may be required to complete the civil works.</p>

2.3 OVERVIEW OF ESTATE AND KEY FEATURES

2.3.1 VISION/OBJECTIONS

The controls and requirements outlined in Part One underpin the delivery of the vision for the estate.

The vision is to deliver a benchmark residential community which defines Wanneroo's next generation of village living. The estate will have a distinctive sense of place. It is shaped by its abundant landscape and is designed to provide walkable neighbourhoods, quality public spaces and accommodate a variety of housing typologies and densities. Residents will be connected by legible tree lined boulevards and pedestrian streets to access local parks, schools and the Wanneroo Town Centre. An illustrative masterplan demonstrating these concepts is provided at Figure 9.

Site Responsive Design

Utilise the existing landform and natural amenity to emphasis the unique character of the site and establish a lush environment from day one.

- The location of parks and drainage areas to respond to location of existing mature vegetation and landform.
- Celebrate and retain the site's natural appearance from the exterior where possible.
- Maximise panoramic views from the public realm towards Lake Joondalup.
- Where possible, landform modification is to follow the general characteristics and integrity of the site.

Connectivity

Allow residents to explore their community by linking key land uses along a legible pedestrian and vehicle network.

- Locate amenities on key pedestrian routes.
- Link the movement network and public realm.
- Create clear access to services and public transport.
- Link the precinct with the existing Wanneroo community and future development stages.
- Provide strong green connections to the Wanneroo Town Centre.

Village Living

Celebrate the precinct's characteristics to create distinct villages with their own identity and character.

- Provide a variety of lifestyle opportunities for residents.
- Position villages to take advantage of landform and proximity to amenities.
- Provide compact villages within walking distance of daily life activities.
- Link the villages with tree lined boulevards and walkable streets.
- Establish an environment which provides opportunities for public and active recreation that specifically seeks to promote improved liveability, health and well-being to future residents and the local community
- Create a distinct identity and sense of place for future residents of the area which is both unique and recognisable



Figure 9 Masterplan Concept



2.3.2 DESIGN LAYOUT

The design for the estate provides for walkable neighbourhood structure centred around a large central park and a primary school site. The layout promotes an active community by giving residents a variety of options to move between areas of interest.

A central boulevard connects the estate's entry on Wanneroo road to the central park and the primary school bus route in the future. Two north-south boulevard roads connect the site to the Wanneroo Town Centre and the existing developments within Sinagra. The boulevard allows pedestrians and cyclist to traverse the site and has the capacity to accommodate a bus route in the future.

Local roads follow a legible grid design which facilitates connected streets and high level of permeability. Overall the movement network is laid out in such a manner so there are alternate routes available.

Roads within the western portion of the site have been aligned in an east-west direction to maximise public views to Lake Joondalup and to respond to the existing topography.

Public open spaces have been distributed within the estate to provide optimal benefit the future residents and the existing Wanneroo community. The estate's entry along Wanneroo Road is celebrated by a generous entry POS in which large number of existing significant trees are being retained. This will provide instant character to the development as well as retains the natural outlook for the existing Wanneroo residents. In addition, the entry POS will provide a visual and noise buffer to the future residents of the estate.

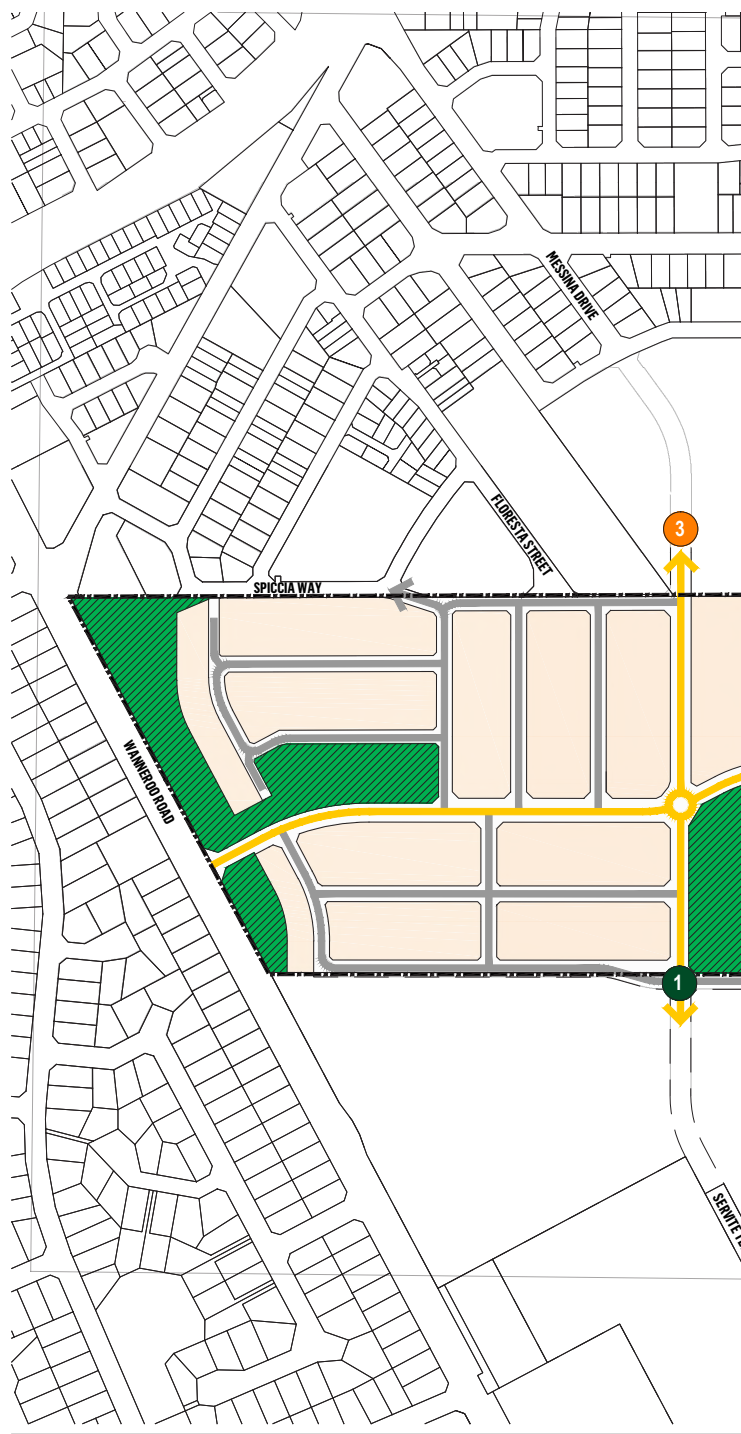
The central park retains a variety of mature trees as and incorporates areas which are both undulating and flat providing opportunities for various forms of recreation. The park is located where main boulevards road meet making it highly accessible to both the future residents of the estate and the wider community.

The primary school is the main focal point within the eastern part of the estate. It is conveniently located along two boulevard roads making is easily accessible by foot, bicycle and car. The primary school is co-located with a proposal regional open space within adjoining landholding providing a large community hub for the wider community.

2.3.2.1 Coordination with Adjoining Land

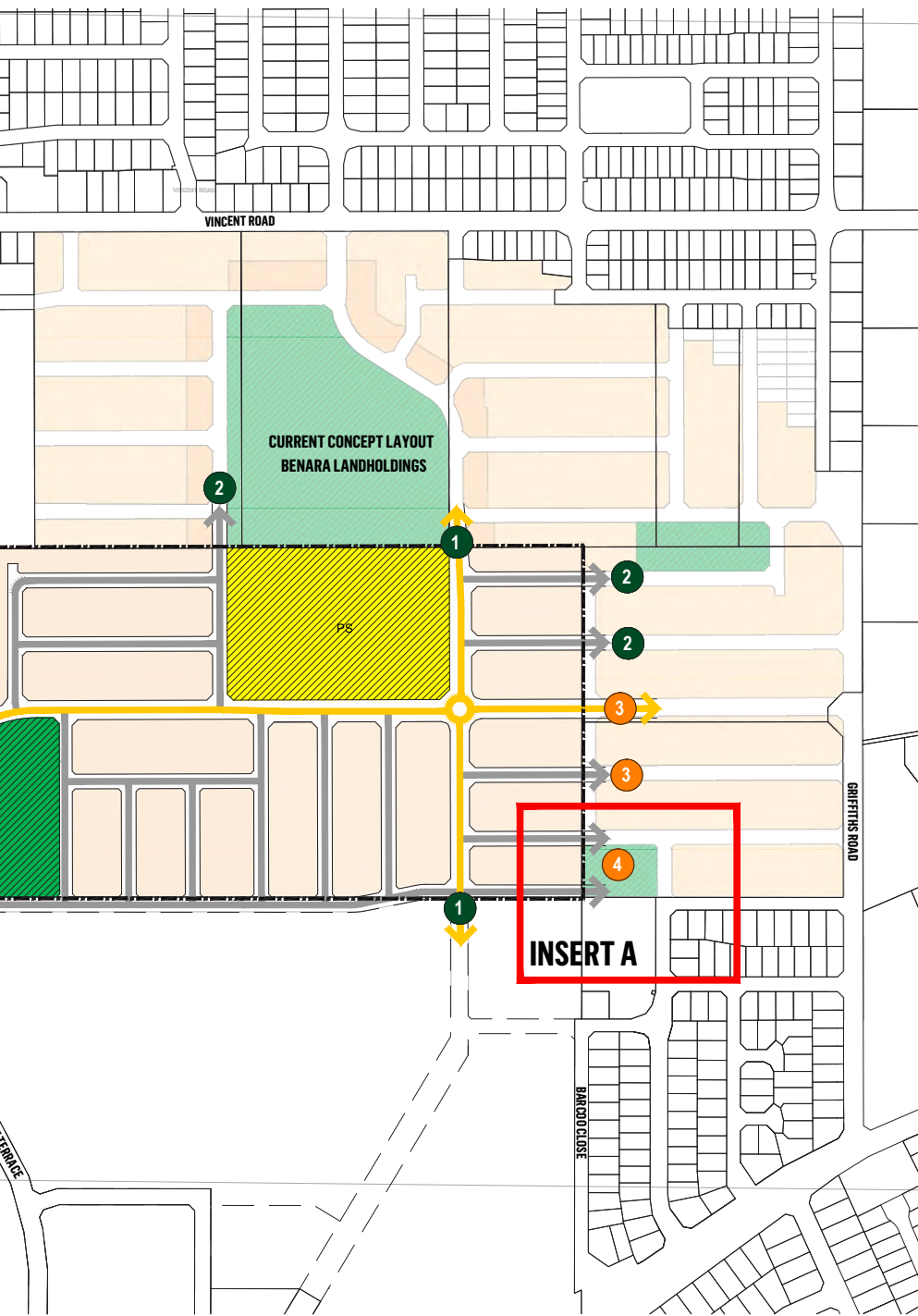
Development coordination with adjoining landholdings is to be generally in accordance with the following plan.

Figure 10 Development Coordination Plan



Development Coordination Plan
Lot 1665 Wanneroo Road, Sinagra

Level 14, The Quadrant, 1 William Street | Perth WA 6000 Australia | +61 8 9346 0500 | URBIS Pty Ltd | ABN 50 105 256 228

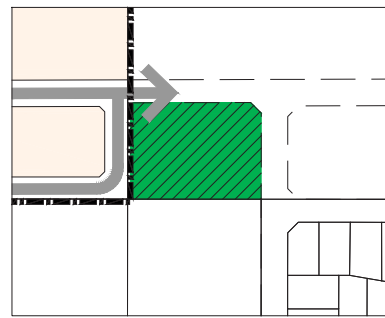


LEGEND

- APPLICATION AREA**
- ZONES**
- RESERVES**
- OTHER**
- NOTES**
- 1 CONNECTION IN ACCORDANCE WITH EXISTING CELL 2 AND WANNEROO TOWN CENTRE STRUCTURE PLANS
 - 2 REVISED CONNECTION AGREED BETWEEN ADJOINING LANDOWNER
 - 3 ROAD CONNECTION SUPPORTED SUBJECT TO MINOR COORDINATION REQUIREMENTS (E.G. RESERVE WIDTH/ALIGNMENT)
 - 4 INTERFACE AGREED SUBJECT TO DETAILED DESIGN (REFER TO INSERT A)

INSERT A

POTENTIAL ALTERNATIVE LAYOUT OPTION AGREED BETWEEN LANDOWNERS



DATA SOURCE
MNG & Hex Design + Planning
PROJECTION
PCG94

DISCLAIMER
Copyright by Urbis Pty Ltd. This drawing or parts thereof may not be reproduced for any purpose or used for another project without the consent of Urbis. The plan must not be used for coloring, copying or distribution and no reliance should be placed on this plan for any financial dealing of the land. This plan is conceptual and is for discussion purposes only and subject to further detail study, Council approval, engineering input, and survey. Cadastral boundaries, areas and dimensions are approximate only. Written figured dimensions shall take preference to scaled dimensions.

CLIENT
Stockland

PROJECT NO.
ND2271
DRAWING NO.
17
DATE
25/3/2020
REVISION
a

2.3.3 DENSITY

The estate will have two density ranges, being R25-R50 and R25-R80.

The density ranges enable flexibility in the delivery of lot sizes and housing types. Site specific densities will be assigned at subdivision stage.

The lower density bracket of R25-R50 is generally applied to the east and west periphery of the estate, providing an appropriate transition and interface to the surrounding existing or future residential development. The R25-R80 density range is applied to the core of the estate, enabling the execution of higher densities in key locations (such as abutting parks and recreation spaces) and on roads connecting into the town centre, whilst still providing opportunities for lower density where landforms or interface warrants.

An R80 density coding may only apply at the end of street blocks and/or where lots are adjacent or abutting public open space.

LDP provisions are in place to ensure interfaces POS are managed, as well as in terrace style development..

2.3.4 PUBLIC OPEN SPACE

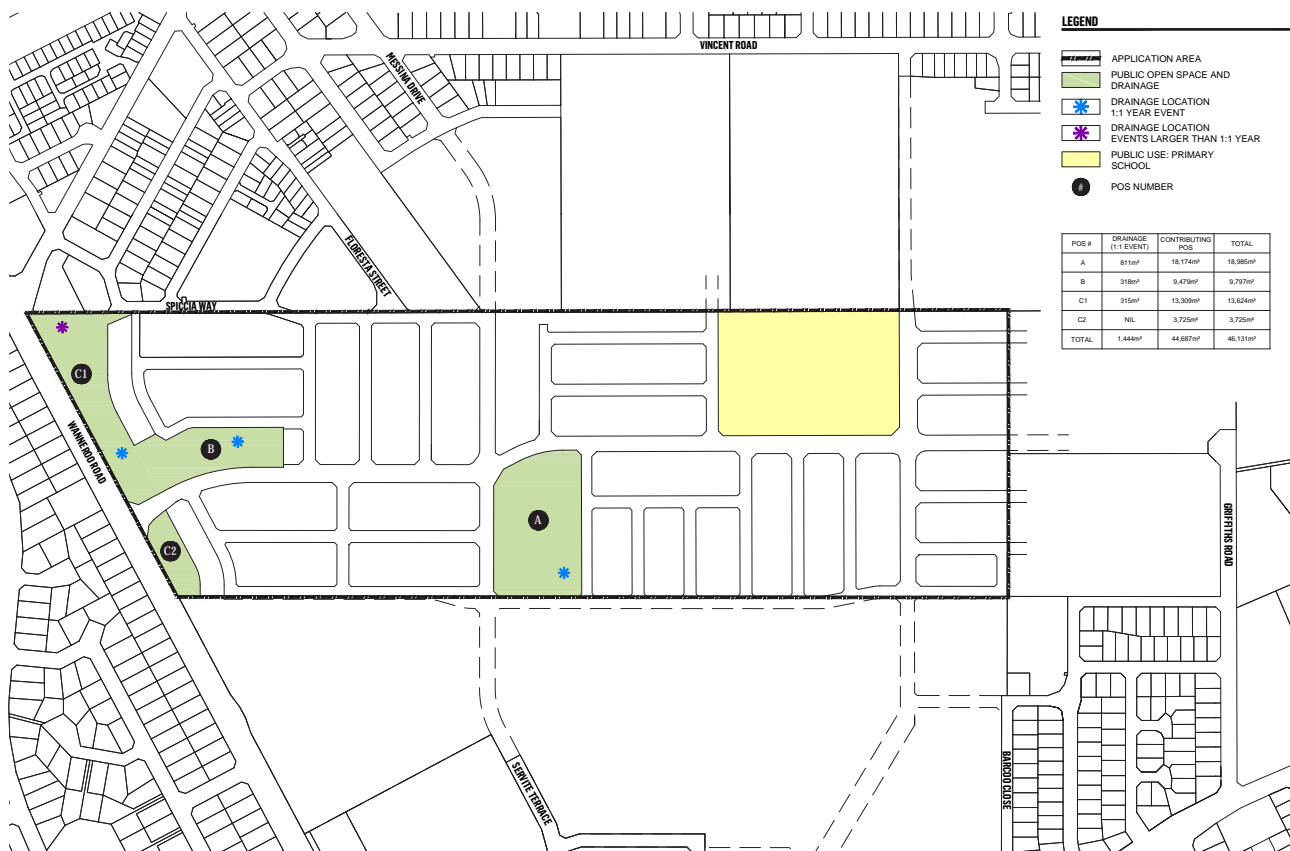
The layout proposed for the estate maintains the quantity of POS always allocated to the site, with details outlined in Table 13, noting that the current ASP4 does not utilise the WAPC's Liveable Neighbourhoods methodology to open space calculation.

Table 12 Public Open Space Summary

SITE AREA	40.15ha
EXISTING STRUCTURE PLAN	
Dedicated Drainage	0.25ha
Contributing POS	4.18ha
PROPOSED STRUCTURE PLAN	
Dedicated Drainage (1:1 year event)	0.14ha
Contributing POS	4.18ha (11.56%)
Future Wanneroo Road Reservation	0.35ha



Figure 11 Public Open Space Plan



2.3.4.1 Public Open Space Design

A Landscape Masterplan has been prepared by LD Total in support of the proposed amendment, which illustrates the general intent for the development of the public open space. Refer Appendix A - Landscape Masterplan.

The following table provides a summary of the landscaping components and management.

Table 13 Landscaping Scheme Objectives

Landscaping	Details
Landscape Plantings	<p>Primarily native waterwise and low water use species will be selected, with garden beds to be mulched to 75mm (or otherwise in accordance with the Bushfire Management Plan requirements).</p> <p>Natural bushland will be retained where feasible.</p>
Planting Design	<p>Planting design and patterning will be selected based on watering patterns, allowing for hydrozoning.</p> <p>Turn areas are limited to reduce irrigation requirements. Turn is focused around facilities such as play spaces, active areas and picnic spaces where it is best utilised.</p>
Irrigation	<p>The POS projected long-term irrigation demand is 34,227kL/yr, based on the following assumptions:</p> <ul style="list-style-type: none"> Permanent irrigation of turf with an irrigation rate of 6,750 kL/ha/yr Establishment irrigation of planted areas (POS and landscaped verges) at a rate of 6,750 kL/ha/yr for two years. <p>The primary school is presumed to require an irrigable area of approximately 2ha, requiring approximately 13,500kL/yr.</p> <p>Water for the POS and primary school will be sourced from the existing site 74,250kL/yr groundwater licence allocation.</p>
Management and Maintenance	<p>A POS management and maintenance program will be implemented to reduce irrigation rates and fertiliser use, promoting water savings. This includes implementing an efficient irrigation system.</p>

A notable variation from the public open space design presented through ASP4 is the relocation of the POS from the south-east corner of the subject site, which now forms a combined entry and linear park fronting Wanneroo Road. This design seeks to distribute the open space (including drainage sump) over three public recreational spaces.

This alternative design provides the combined benefits of retaining a number of significant trees and habitat present within the Wanneroo Road frontage, whilst also providing a natural acoustic barrier to Wanneroo Road. The location of the park capitalises on the change in topography fronting Wanneroo Road, adding interest to the park trails and spaces.

The objectives of the landscape scheme are to implement sustainable outcomes and reduce water and fertiliser use, as outlined in Table 14.

A summary of the design principles underwriting the public open space is provided in Table 15.

Table 14 Public Open Space Design Summary

POS Reference	Area	DETAILS
POS A – Neighbourhood Hero Park	1.8985 ha	<p>POS-A provides the formal playground area for the local community. The design of playground spaces will be designed to accommodate the natural topography of the land, whilst retaining mature trees for shade and interest where possible.</p> <p>Irrigated turn areas are placed in pockets amongst the remnant and native vegetation. The intent of the irrigated areas is to provide functional, active spaces for informal sporting activities and community events.</p> <p>POS-A will also accommodate a planted drainage basin (Catchment A), to be planted with native species.</p>
POS B – Linear Park	0.9797 ha	<p>The combined entry and linear park will define the entrance experience for the estate, which transitions to the green entry boulevard along the key east-west neighbourhood connector road. This open space will include active and passive components.</p>
POS C1 – Entry Park	1.3624ha	<p>This green entrance extends along the entire frontage to Wanneroo Road, and will also provide a natural acoustic buffer to Wanneroo Road.</p>
POS C2 – Entry Park	0.3725ha	<p>The preservation of landscape amenity is the overriding principle for this entrance statement. As a reflection of this intent, the POS is dominated by retained trees and additional native plantings, with only intimate picnic and playground spaces designed to be subtle structures within the natural landscape.</p> <p>The pathway network and strategically placed turn areas encourage the active and recreational use of the parkland, and provide links with surrounding areas, including Lake Joondalup.</p>



2.3.5 MOVEMENT NETWORK

2.3.5.1 Existing Movement Network

Table 16 outlines the current movement network surrounding the estate land.

Table 15 Current Movement Network

Road	Details
Wanneroo Road	<p>Wanneroo Road is located immediately west of the subject site. A full movement priority-controlled intersection currently provides vehicle access between the subject site and Wanneroo Road.</p> <p>Wanneroo Road is reserved as a Primary Region Road under the MRS, and a Primary Distributor under the Main Roads WA hierarchy. Wanneroo Road comprises a four-lane carriageway (two lanes in each direction) and provides a north-south arterial connection for Perth's northern suburbs.</p>
Pinjar Road	<p>Pinjar Road is located approximately 400m north of the estate land.</p> <p>Pinjar Road is a Distributor A road under the MRWA hierarchy, and provides a connection between Wanneroo Road and Joondalup Drive. Pinjar Road comprises a four-way carriageway (two lanes in each direction), with a signalised intersection with Wanneroo Road.</p>
Dundebar Road	<p>Dundebar Road is located approximately 500m south of the subject site, and is a Local Distributor Road under the Main Roads hierarchy. Dundebar Road provides an east-west connection, forming a signalised intersection with Wanneroo Road.</p>
Vincent Street	<p>Vincent Road is located approximately 300m north of the subject site.</p> <p>Vincent Road is a Local Distributor road under the Main Road WA hierarchy, and comprises a two lane road intersecting with Pinjar Road.</p>
Public Transport	<p>Transperth bus services no. 467 and 468 operate along Wanneroo Road immediately west of the subject site. These services provide a connection between Whitfords Train Station and Joondalup Train Station. A bus station for these services is provided adjacent to the subject site.</p> <p>The nearest train station is the Joondalup station located approximately 3km west of the subject site. However, Lake Joondalup forms a barrier to accessing this station, extending the actual travel distance to approximately 8km.</p>
Pedestrian and Cyclist Infrastructure	<p>The estate land does not currently contain dedicated pedestrian or cycling infrastructure.</p> <p>A pedestrian footpath is provided along Wanneroo Road, but no dedicated cycling infrastructure is provided in proximity to the subject site.</p>



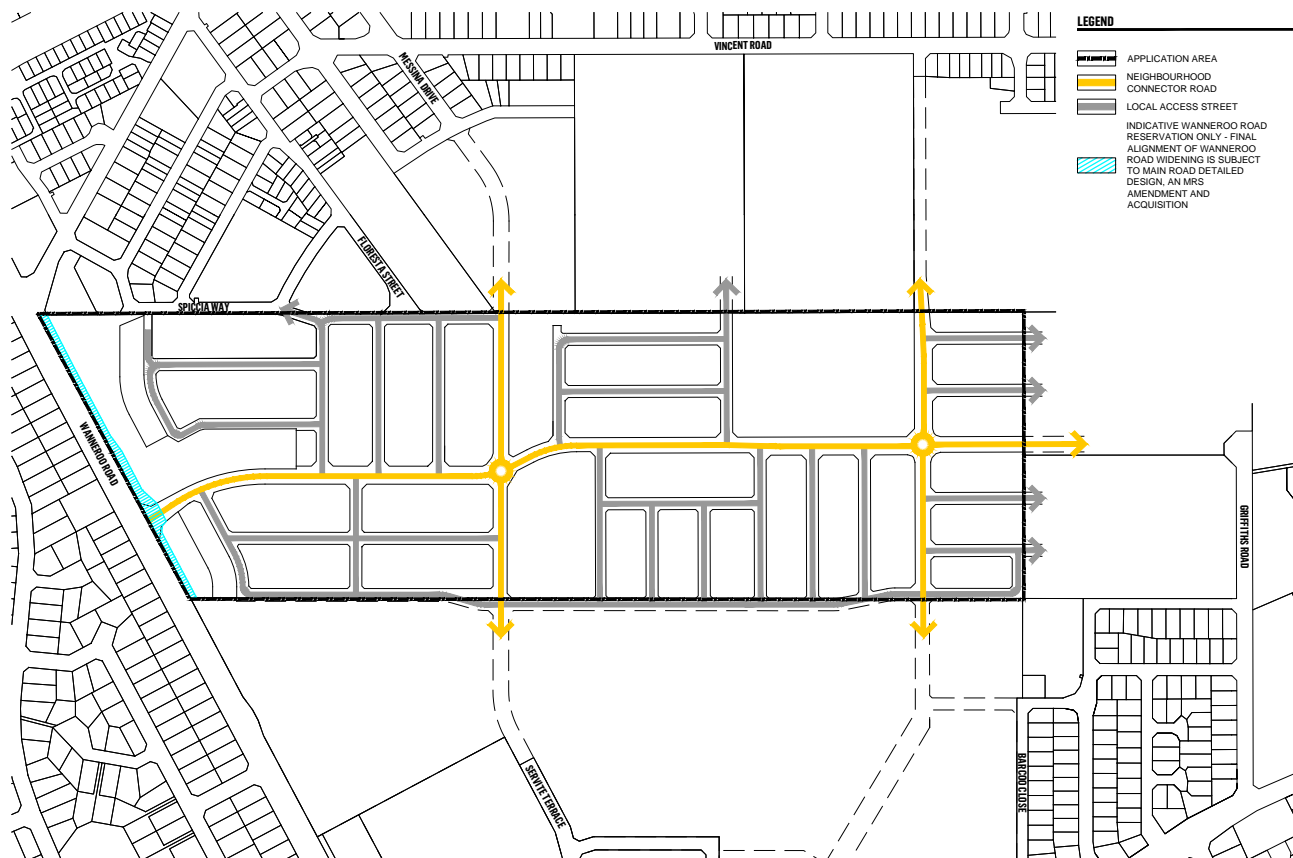
2.3.5.2 Proposed Vehicle Movement Network

The key internal movement network proposed for the estate remains generally consistent with the adopted ASP4, and to align with the draft Wanneroo Town Centre - Activity Centre Plan (as advertised) to the south, with key features being:

- One east/west neighbourhood connector road. This neighbourhood connector will intersect with Wanneroo Road to the west, via a full movement 'T' intersection. An east connection to Griffiths Road will also ultimately be provided in coordination with the adjoining landholdings.
- Two north/south neighbourhood connector roads, connecting to the adjoining road network. These neighbourhood connectors will ultimately provide a link to Pinjar Road and Vincent Road to the north, and Dundee Road to the south, providing alternate connection to Wanneroo Road and also further east.
- Numerous internal local access roads to provide vehicle access to local traffic.

Figure 11 provides an overview of the proposed vehicle movement network.

Figure 12 Proposed Vehicle Movement Network



2.3.5.3 Proposed Pedestrian and Cyclist Network

The key considerations underpinning the layout of the pedestrian and cyclists network is connection to surrounding areas, connection between green spaces. A high intensity of pedestrian and cyclist infrastructure is also provided adjacent to the primary school, where pedestrian activity will be concentrated.

The majority of pedestrian and cyclist infrastructure will follow the alignment of road carriageways, and is provided within the road reservations. The approach to and from Wanneroo Road provides an exception to this, where the pedestrian and cycling network is provided through the entry park. The intent behind this design is to increase separation from vehicle traffic, as relatively high levels of traffic are anticipated at the Wanneroo Road intersection.

Figure 12 provides an overview of the proposed pedestrian and cyclist movement network.

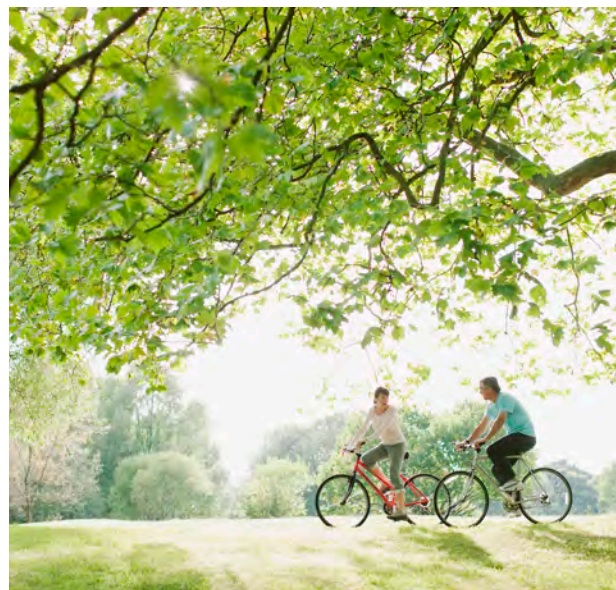
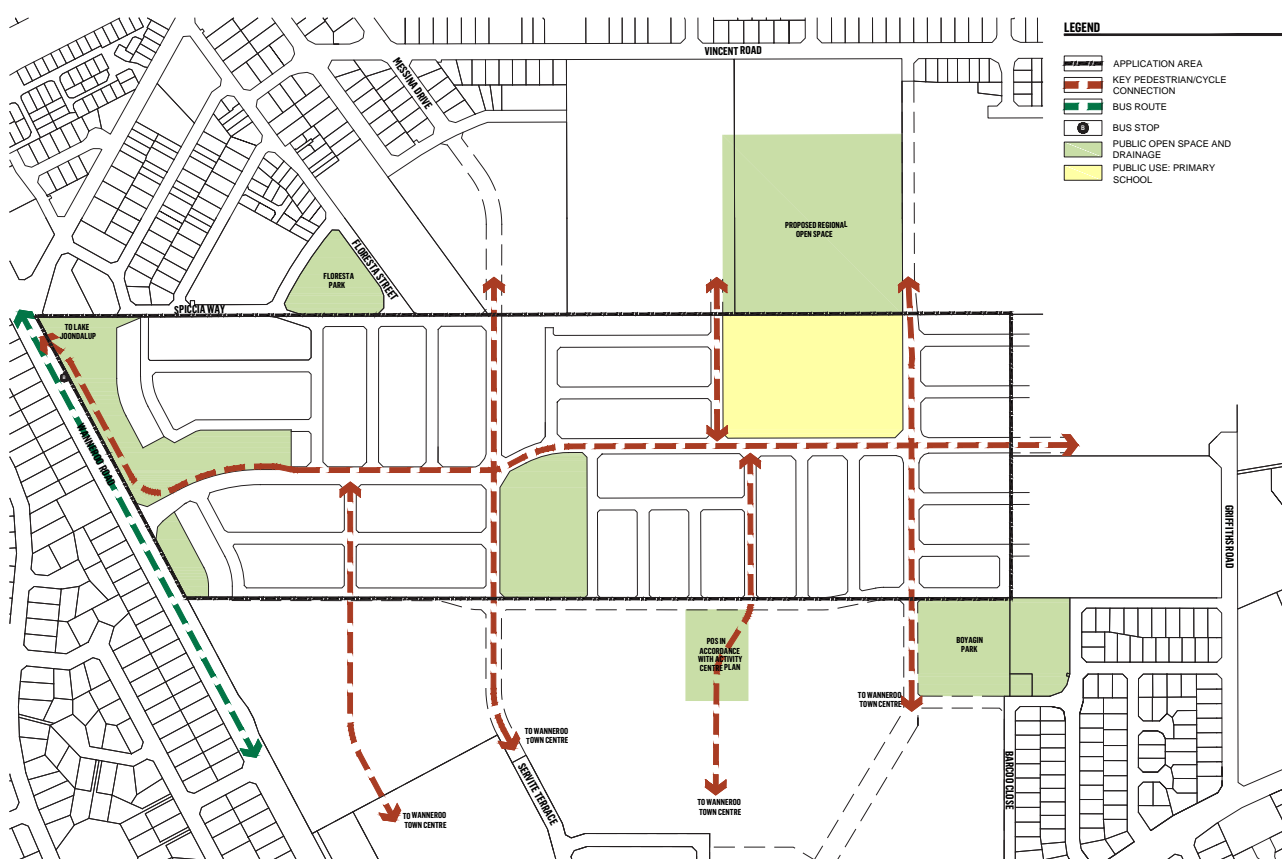


Figure 13 Pedestrian and Cyclist Movement Network.



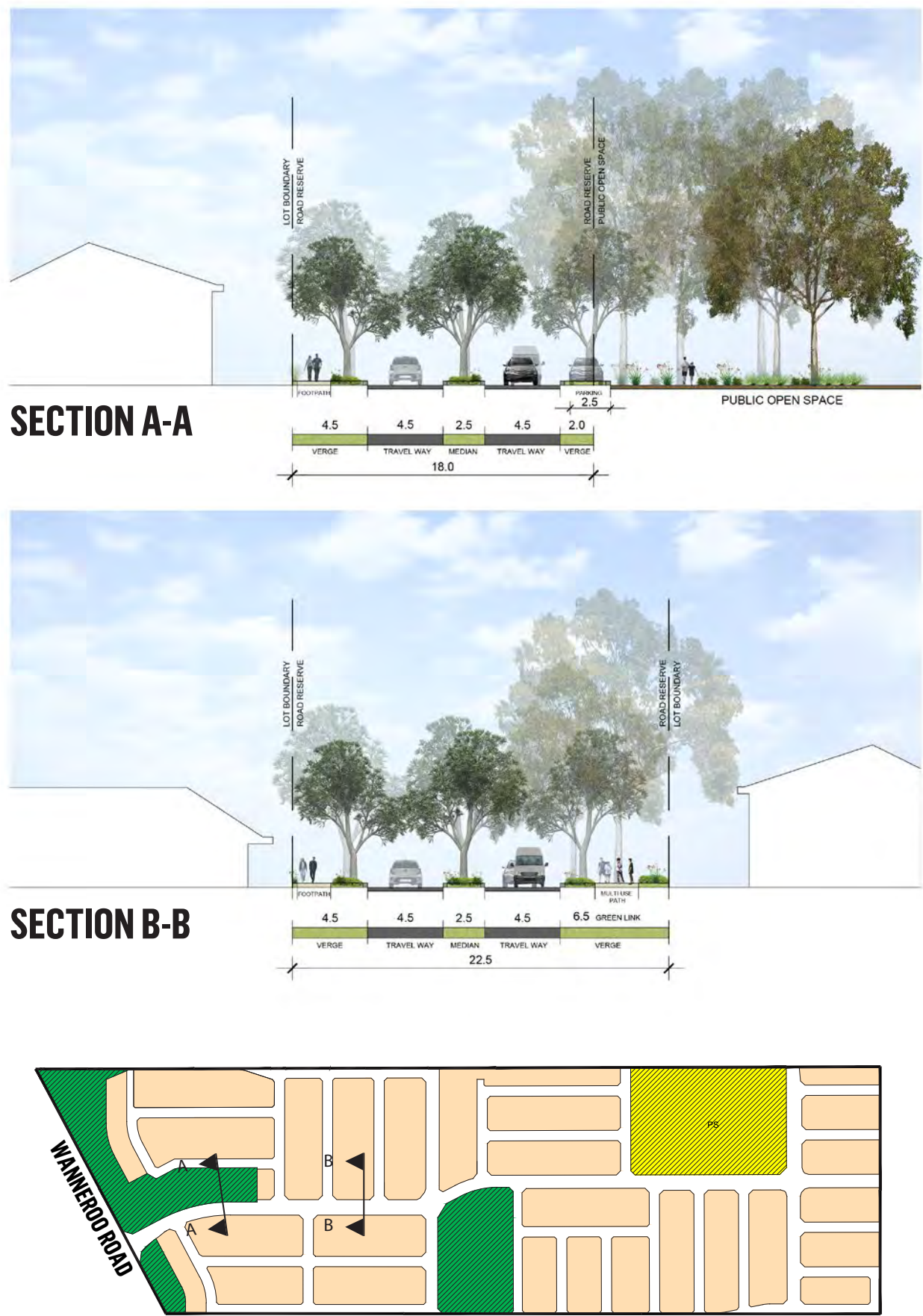
2.3.5.4 Road Hierarchy

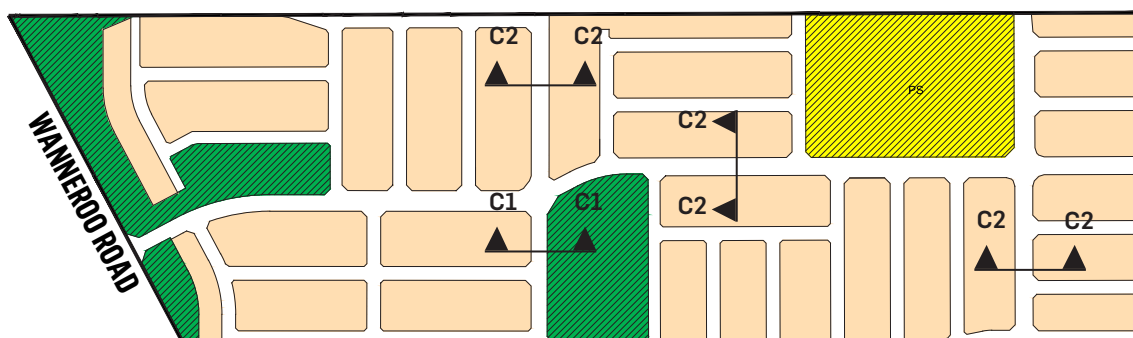
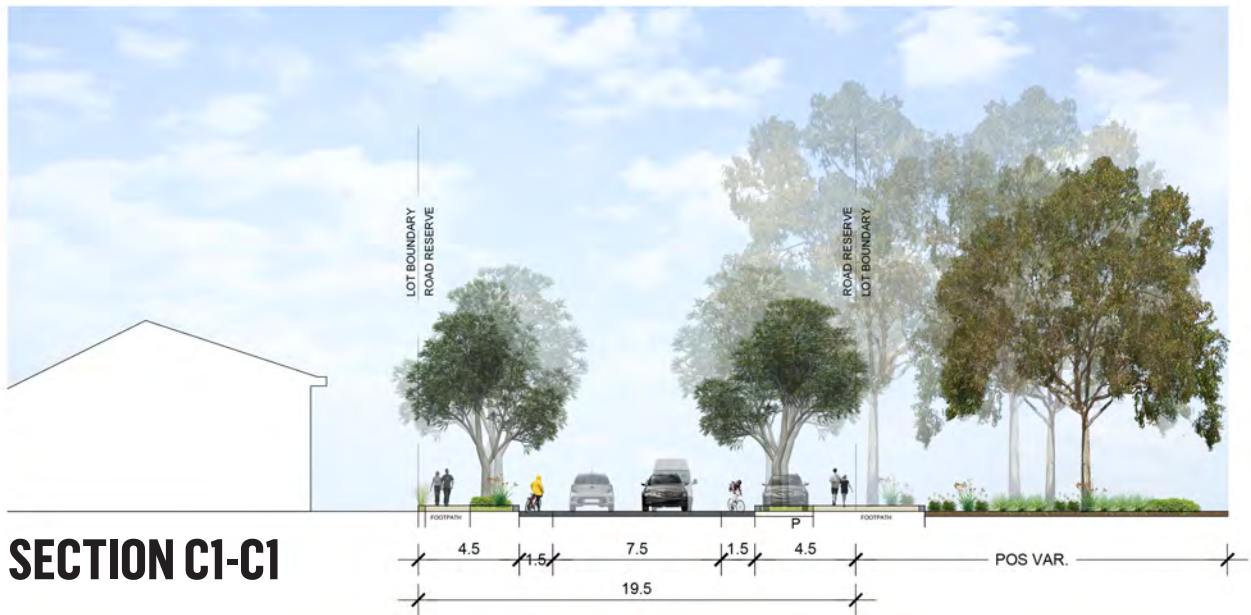
Table 17 summarises the estate road hierarchy and associated design intent of those carriageways.

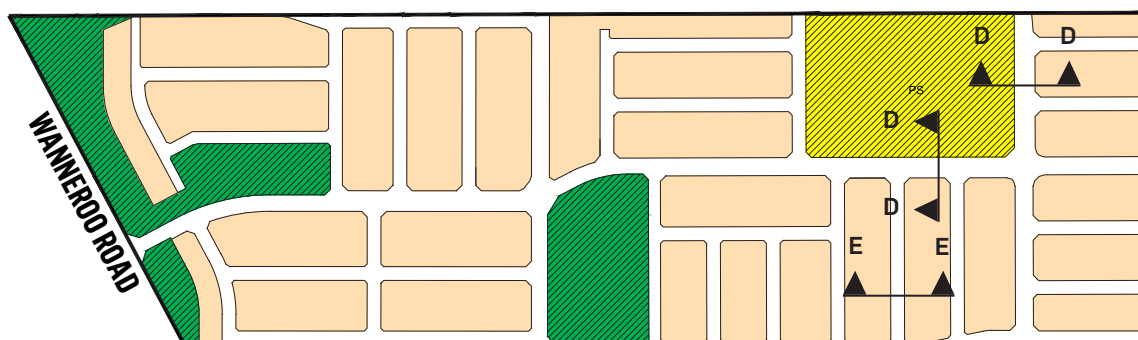
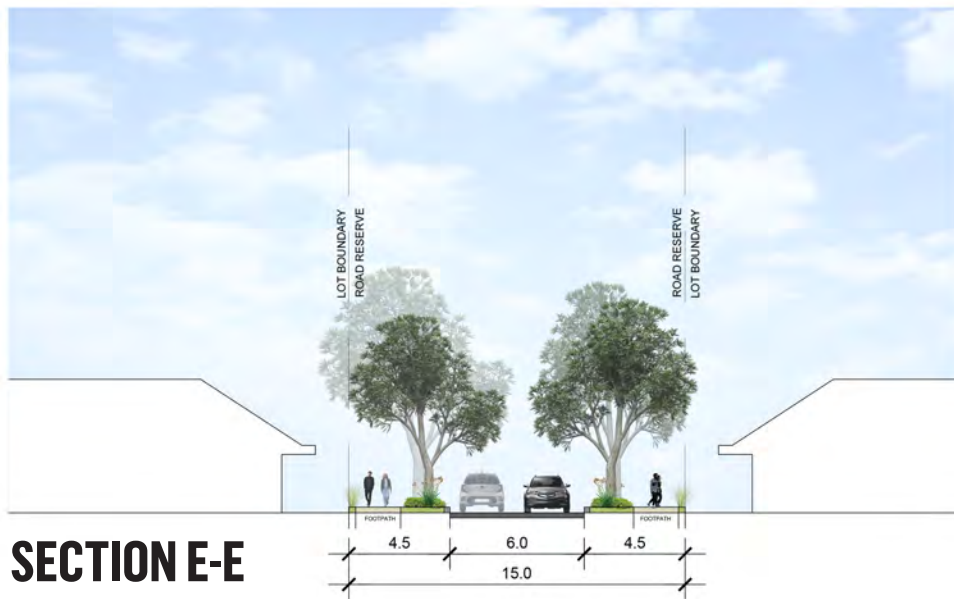
Table 16 Movement Network

Road Hierarchy	Design Intent
East / West Neighbourhood Connector (Sections A-A) <i>Wanneroo Road to the Entry Park and Linear Park</i>	<p>The east/west neighbourhood connector road is 18m at its approach to Wanneroo Road (denoted at Section A-A).</p> <ul style="list-style-type: none"> ■ The narrowing of the road (less than the road further into the estate) is achieved through the placement of the bicycle lane through the Entry Park and Linear Park. This provides a safer alignment for cyclists, as the approach to / from Wanneroo Road is expected to be a relatively heavy traffic environment. ■ The pinching of the road also dedicates less land to the road reservation, enhancing the estate's entrance experience. ■ The 18m road reserve will continue to provide a 4.5m wide carriageway, consistent with Main Roads road design requirements.
East / West Neighbourhood Connector (Section B-B) <i>Linear Park to the Neighbourhood Park</i>	<p>The road connection between the Linear Park and Neighbourhood Park will provide a 22.5m road reservation, with a continuation of the 4.5m carriageway near Wanneroo Road.</p> <p>Additional road reservation width is designed in this section to accommodate a 6.5m green link. The intent of the green link is to provide a safe consolidated cycle and pedestrian route between the entry POS and the central park and setup the estate entry experience. It re-interprets the current site conditions and sets up an amenity spine to serve the first development stages.</p>
Other Neighbourhood Connectors (Section C2 – C2) <i>Neighbourhood Park to primary school</i> <i>Neighbourhood Park to northern development</i> <i>Friars Drive to primary school</i>	<p>The approach between the Neighbourhood Park to the primary school and the connections to the Neighbourhood Park are expected to accommodate higher levels of pedestrian and cyclist traffic.</p> <p>A 19.5m road reservation is provided, accommodating a dedicated footpath and cycle lane.</p>
North / South Neighbourhood Connector (Section C1 – C1) <i>Servite Terrace to Neighbourhood Park</i>	<p>The road reservation to the Neighbourhood Park replicates the C2 – C2 design, with the only exception being the additional width of footpath within the Neighbourhood Park, and parallel parking provided adjacent to the park.</p>
Neighbourhood Connectors Adjoining Primary School (Section D – D)	<p>Roads adjoining the primary school are provided with substantial cycling and pedestrian infrastructure.</p> <p>Road reservation width of 22.5m are provided adjacent to the primary school. This enables provision of a footpath alignment separated from the road reserve via a landscape strip. A wider pedestrian footpath of 2.5m is provided to the primary school frontage, being the area of highest pedestrian activity.</p> <p>A dedicated 1.5m wide cycle lane is also accommodated within the road carriageway.</p>
Local Roads (Section E – E)	<p>Local roads provide a 15m wide carriageway. The design accommodates a pedestrian footpath separated from the road carriageway by a landscape strip.</p> <p>All local roads have the ability to accommodate visitors parking within the road reserve or on the driveway.</p>

Figure 14 Road Sections







2.3.5.5 Road Network Capacity

A Traffic Impact Assessment (TIA) prepared by Cardno supports the estate design – refer to Appendix F.

The TIA has assessed the estate based on the following scenarios:

- Interim outcome (Scenario 1): 33% residential buildout, with site access via Wanneroo Road and one northern Neighbourhood Connector road; and
- Ultimate outcome (Scenario 2): a 10-year growth scenario, where 100% buildout including primary school and all road connections are completed.

Key findings of the TIA are:

- At full build out, the estate is anticipated to generate a total of 1,018 and 1,017 vehicle movements during the peak AM and PM period respectively.
- SIDRA analysis of the interim scenario demonstrates the intersection between the estate and Wanneroo Road will operate at an acceptable level of service.
- Analysis of the ultimate outcome demonstrates generally acceptable level of service, with the only exceptions being the right-turn to/from Wanneroo Road.

Any level of service delays for the right-out movement onto Wanneroo Road are attributed to the high levels of through traffic travelling along Wanneroo Road in both directions. This is thereby a reflection of regional traffic growth outcomes largely independent of the development of the estate.

In acknowledgement of this outcome, Part One of this addendum has detailed a requirement to complete a further Traffic Impact Assessment for the final stage of subdivision. This further assessment will provide a more accurate forecast of the future road network and intersection capacity, with any access modifications and/or restrictions to be considered at this stage.

Importantly, the ultimate outcome will provide a number of alternative traffic connection options for residents seeking to access Wanneroo Road, including:

- Northern neighbourhood connector to Pinjar Road via Messina Drive and Vincent Road. The Pinjar Road / Wanneroo Road intersection is a full-movement traffic signal-controlled intersection.
- Southern neighbourhood connector to Dundobar Road via future Servite Terrace and Friars Drive. The Dundobar Road / Wanneroo Road intersection is a full-movement traffic signal-controlled intersection.

Future residents of the estate will naturally redistribute their internal travel patterns to utilise these alternative access points to Wanneroo Road during peak traffic periods. The further Traffic Impact Assessment to be completed at the final stage of subdivision will provide a more accurate assessment of this peak hour traffic redistribution.

2.3.6 LOCAL WATER MANAGEMENT STRATEGY

The Local Water Management Strategy (LWMS) provided at Appendix D has been developed in accordance with Better Urban Water Management, with the driving principles of water conservation / efficiency of use, and water quantity and quality management. Table 18 details the specific objectives underpinning the LWMS.

A hydrological opportunity and constraints assessment has also identified the following site characteristics informing the LWMS:

- Sandy soils providing a high infiltration rate, resulting in on-site infiltration being the preferred method of stormwater disposal.
- Depth to groundwater greater than 4m.
- Sub surface limestone has been identified in some areas.
- Groundwater is available for irrigation.

Table 17 Local Water Management Strategy Objectives

Strategy	Details
Water use	<ul style="list-style-type: none">■ Minimise the use of potable water where drinking water quality is not essential;■ Achieve a significant reduction in water use below the 100 kL/person/year State Water Plan (Government of Western Australia 2007) target.
Groundwater and surface water quantity	<ul style="list-style-type: none">■ Where there are identified impacts on significant ecosystems, maintain or restore desirable environmental flows and/or hydrological cycles;■ For flood management, manage up to the 1% Annual Exceedance Probability (AEP) within the development area to pre-development flows;■ Retain and restore existing elements of the natural drainage system.
Groundwater and surface water quality	<ul style="list-style-type: none">■ Implement best practice stormwater management practice as detailed in the with an emphasis on a treatment train approach and maintaining 1% AEP post development discharge volumes and peak flow rates at pre-development levels■ Ensure that the 63.2% AEP, 1-hour event (15 mm) receives treatment prior to discharge to a receiving environment.

2.3.6.1 Water Conservation

The following design and management measures will be implemented to reduce the overall water demand and consumption resulting from development:

- The ability to provide smaller lots encourages a reduction in the use of water for gardens.
- Use of native plants in POS areas and buffers.
- Maximising on site retention of stormwater.

2.3.6.2 Stormwater Management Strategy

The water management approach detailed within the LWMS will implement a total water cycle management approach, with no stormwater to be discharged from the site up to the 1% AEP event.

The following stormwater management approaches have been proposed through the LWMS:

- Manage and treatment of stormwater run-off from impervious services from by the first 15mm of rainfall as much as practical.
- Additional stormwater run-off beyond the 15mm will be directed towards the centralised basins in the POS.

The LWMS concludes that the site has sufficient public open space to manage the drainage requirements on site, up to and including the 1% AEP event, demonstrating that the site is capable of being developed as proposed.

TECHNICAL STUDIES AND APPENDICES INDEX

Table 18 Technical Studies and Appendices

Appendix	Document Title	Approval Required / Supporting Document Only	Approval Agency
Appendix A	Landscape Masterplan		
Appendix B	Environmental Assessment Report		
Appendix C	Bushfire Management Plan		
Appendix D	Local Water Management Plan		
Appendix E	Landscape Input into Local Water Management Plan		
Appendix F	Traffic Impact Assessment		
Appendix G	Engineering Servicing Report		



APPENDIX A

LANDSCAPE MASTERPLAN

APPENDIX B

ENVIRONMENTAL ASSESSMENT REPORT

APPENDIX C

BUSHFIRE MANAGEMENT PLAN

APPENDIX D

LOCAL WATER MANAGEMENT PLAN

APPENDIX E

LANDSCAPE INPUT INTO LWMP

APPENDIX F

TRAFFIC IMPACT ASSESSMENT

APPENDIX G

ENGINEERING SERVICING REPORT

