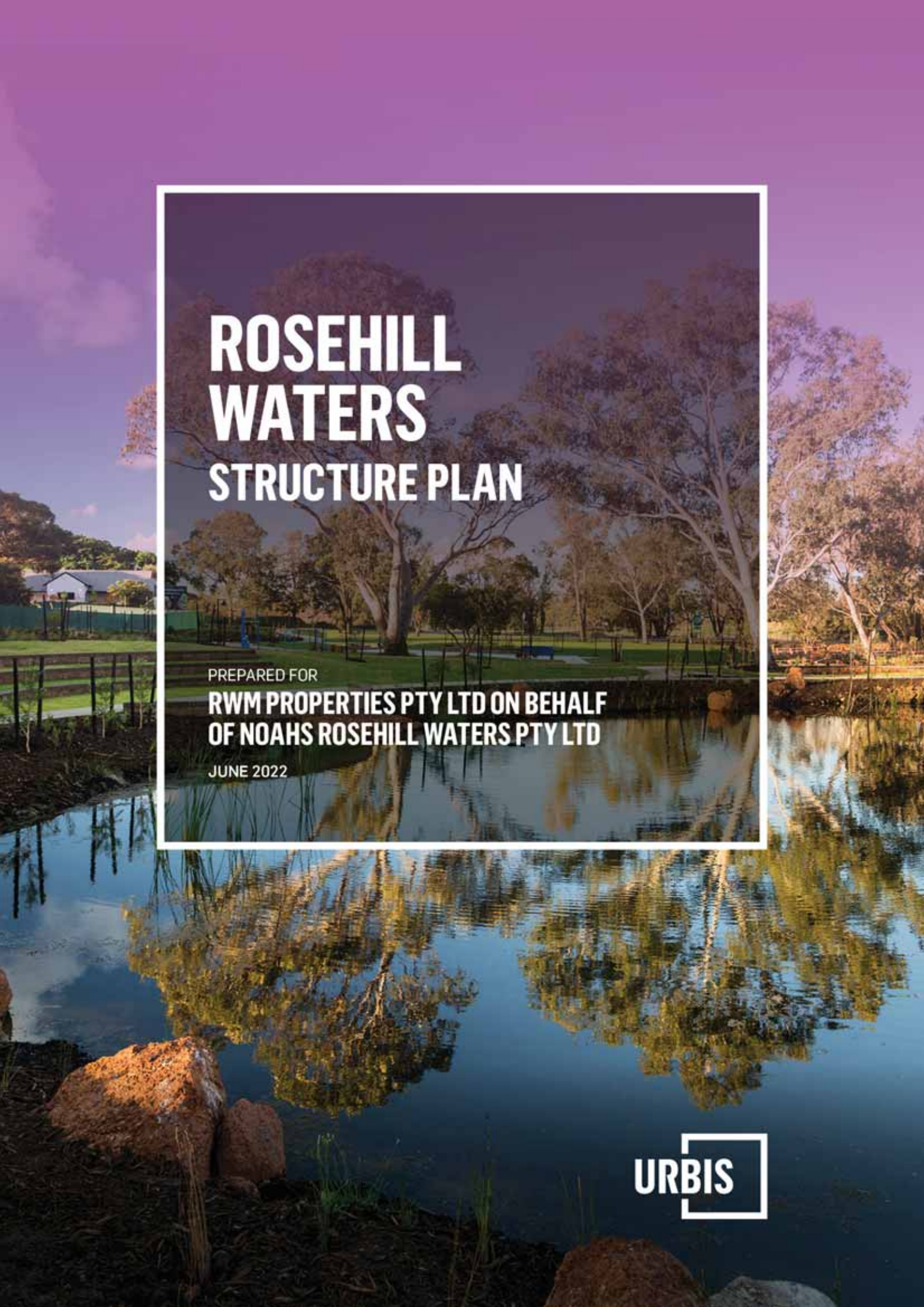


ROSEHILL WATERS
STRUCTURE PLAN

PREPARED FOR

RWM PROPERTIES PTY LTD ON BEHALF OF NOAHS ROSEHILL WATERS PTY LTD

JUNE 2022

URBIS

DEVELOPER

RWM PROPERTIES PTY LTD ON BEHALF OF NOAHS ROSEHILL ESTATE PTY LTD
('the proponent')

PROJECT TEAM

URBIS – Planning and Urban Design
COTERRA ENVIRONMENT – Environmental
COTERRA ENVIRONMENT - Hydrology
PRITCHARD FRANCIS – Civil Engineering
URBIS – Landscape Design
HERRING STORER ACOUSTICS – Acoustic Assessment
BUSHFIRE SAFETY CONSULTING – Bush Fire
DVC – Traffic & Transport
AMERGIN – Aboriginal Heritage Assessment
KAREN GREGORY COMMUNITY AND CONSULTATION – Community Advisor
MCMULLEN NOLAN GROUP – Land Survey

This structure plan is prepared under the provisions of the City of Swan Local Planning Scheme No.17

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON: 9 FEBRUARY 2017

Signed for and on behalf of the Western Australian Planning Commission

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

Witness

10 February 2017

Date

Date of Expiry: 9 FEBRUARY 2027

TABLE OF AMENDMENTS

AMENDMENT NO.	SUMMARY OF THE AMENDMENT	AMENDMENT TYPE	DATE APPROVED BY WAPC
1	Change density of Lot 802 (Stage 5) from R20 to R30	Standard	04 July 2022

EXECUTIVE SUMMARY

The Rosehill Waters Structure Plan (the Structure Plan) applies to the former Rosehill Golf Course and Country Club located in South Guildford, in the City of Swan. The subject site is approximately 49 hectares in area, positioned between the Palmer Barracks to the south-west and the Waterhall Estate to the north-east.

This Structure Plan promotes innovative and sustainable development, that includes provisions for built form and urban design as well as environmental and community benefits. The planning of the site has been heavily influenced by the contemporary urban design principles of integration and permeability, enhancement of natural features, and an amenity for the residents and the surrounding community.

The development of the site provides a key opportunity for urban infill within Perth's north east corridor, representing a logical and efficient delivery of urban development, consistent with the State Government's strategic vision and priorities as identified in Directions 2031 and Beyond and the North-East Sub-Regional Planning Framework. In addition, the Rosehill Waters Structure Plan celebrates the locality's history and natural assets through the retention and enhancement of the Helena River waterways and its foreshore and the existing historical and socially significant buildings and garden.

The Structure Plan proposes a highly progressive response to environmentally sensitive and sustainable design within the built form, density and mixed typologies. Rosehill Waters demonstrates how a challenging site can yield a great development in the hands of a committed developer who will also be responsible for influencing the built form product on the ground. Whilst limited in the range of residential densities provided, the Structure Plan allows for diversity in housing choice, as well as the creation of a robust community, with appropriate lot typologies and built form responses to open space areas, within proximity to the Helena River and to community centres.

The Structure Plan has the potential to deliver an overall housing density of 12 dwelling units per gross urban hectare. The Structure Plan allows for the creation of approximately 583 dwellings over approximately 41.21 hectares of Urban zoned land.

A focus has been given to the incorporation of water sensitive design principles, the retention of existing vegetation along key corridors and within open space areas, retention of natural drainage corridors and the enhancement of pedestrian linkages through to the Helena River. The Structure Plan supports the provision of approximately 5.4503ha of creditable public open space, over the 10% requirement, achieving an appropriate amount of equitably distributed, useable and connected open space areas.

The proposed street and movement network within the Structure Plan results in a well - connected and permeable street network which connects and directs residents to key points of interest, public open space and the broader local area efficiently and safely. Improvements and expansions are delivered to the existing pedestrian and cycle networks which will connect people to Guildford and Hazelmere and offer alternative modes of transport to the local community. Inherent within the overall sustainable design strategy, the street network performs an integrated role with the drainage strategy, supporting the conveyance within the road reserves along several streets.

As part of the preparation of the Structure Plan, the following technical and supporting documentation has been prepared and is summarised in this report. Full copies of these documents are provided in the technical appendices.

- Local Water Management Strategy (Coterra).
- Environmental Assessment and Management Strategy (Coterra).
- Foreshore Management Strategy (Coterra).
- Transport Impact Assessment (DVC).
- Infrastructure & Servicing Report (Pritchard Francis).
- Fire Management Plan (Bushfire Safety Consultant).
- Acoustic Report (Herring Storer Acoustics).
- Aboriginal Heritage Assessment (Amergin)
- Community Engagement Report (Karen Gregory)

STRUCTURE PLAN SUMMARY TABLE

ITEM	DATA	SECTION NUMBER REFERENCED WITHIN THE STRUCUTRE PLAN REPORT
Total area covered by the Structure Plan:	49.2309 hectares	Part 2, Section 3.4
Area of specific land uses: ▪ Residential ▪ Private Clubs and Institutions ▪ Public Purposes (Water Corporation)	 25.4724 hectares 4.9886 hectares 1.0565 hectares	Part 2, Section 3.4
Estimated lot yield:	583 lots	Part 2, Section 6.4.1
Estimated number of dwellings:	583 dwellings	Part 2, Section 6.4.1
Estimated residential site density	12 dwellings per hectare	Part 2, Section 6.4.1
Estimated population	Approx 1,700	Part 1
Estimated area and percentage of public open space given over to: ▪ Neighbourhood parks	5.4503 hectares (inclusive of drainage)	Part 2, Section 6.6

CONTENTS

FIGURES

TABLES

PART ONE: IMPLEMENTATION

IMPLEMENTATION OF STRUCTURE PLAN

1.1. STRUCTURE PLAN AREA

The Rosehill Waters Structure Plan (the Structure Plan), once endorsed, will become the guiding document in the consideration of future subdivision and development for the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map as shown in Figure 1.

1.2. STRUCTURE PLAN OBJECTIVES

The objectives of the Structure Plan are:

1. To provide guidance on the subdivision and development of the Structure Plan in a circumstance where the site has particular locational and developmental requirements.
2. To facilitate the orderly and proper planning of the Structure Plan within the context of the site's constraints relating to aircraft noise.
3. To adequately address the conditions of the Metropolitan Region Scheme (MRS) Amendment 1266/57 and the City of Swan's Local Planning Scheme No.17 (LPS17), Special Use Zone No.24.

1.3. STRUCTURE PLAN CONTENT

This Structure Plan comprises:

- Part 1: Implementation Section
- Part 2: Explanatory Section
- Part 3: Technical Appendices

The Structure Plan should be read in conjunction with the City of Swan Local Planning Strategy and the LPS17.

Part 1 of this Structure Plan is the implementation component of the Structure Plan which contains the Structure Plan Map and outlines the purpose and intent of the Structure Plan.

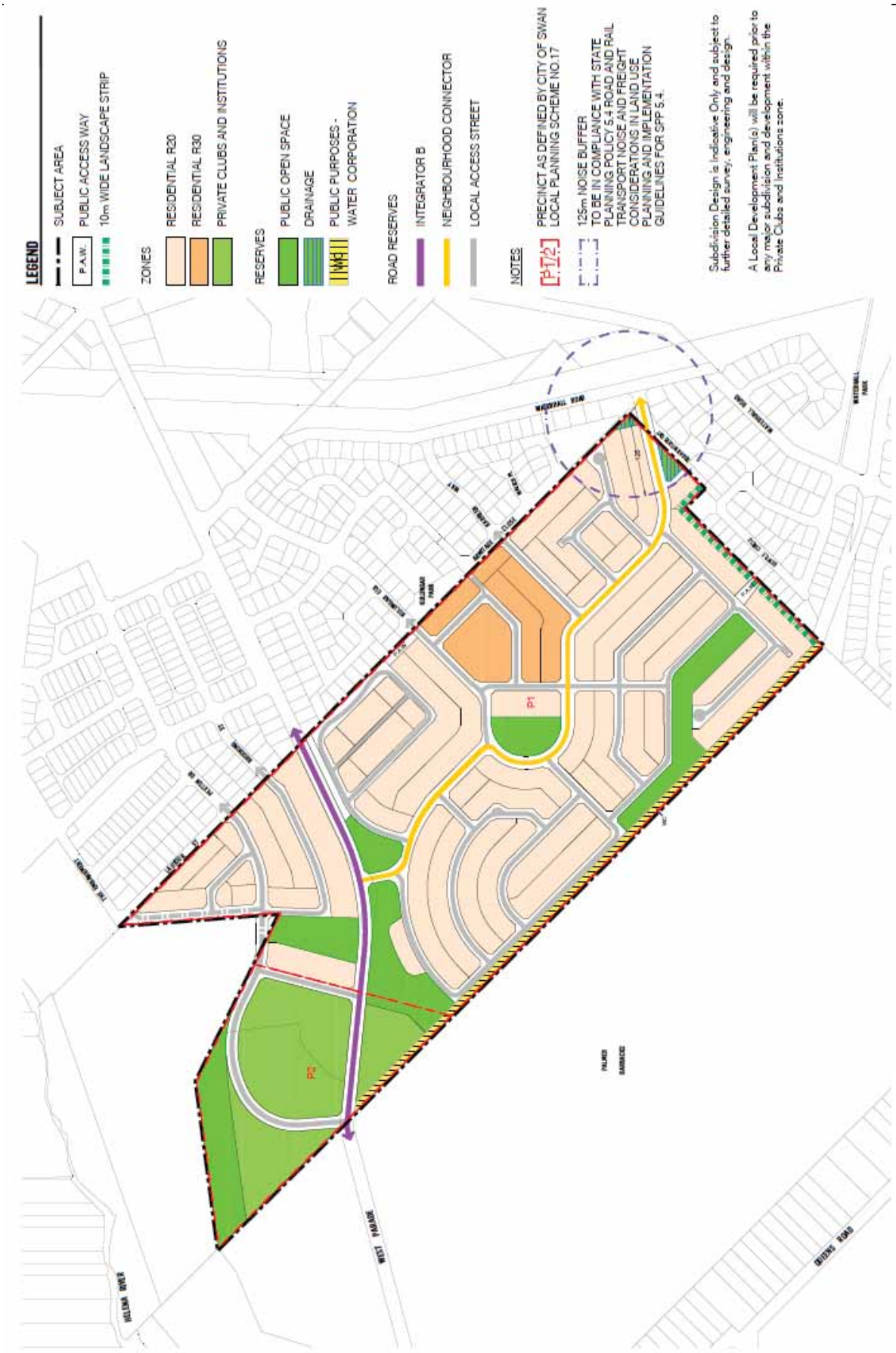
Part 2 of this Structure Plan is the explanatory section which contains the background information and explanation of the Structure Plan including design methodology, relevance and compliance with the planning framework. Part 2 also contains all supporting plans and figures.

Part 3 of this Structure Plan includes all of the relevant technical reporting which has been undertaken in support of the Structure Plan.

1.4. OPERATION

The Rosehill Waters Structure Plan comes into effect on the date in which the Structure Plan is approved by the Western Australian Planning Commission (WAPC). An approved structure plan is a document to which planning decision-makers are to give due regard to when making decisions on the subdivision and development of land within the Structure Plan.

Figure 1 Structure Plan



1.5. STAGING

Due to the nature and size of the Structure Plan area, it is proposed that the development be undertaken within seven (7) stages. The staging of the Structure Plan is largely influenced by existing site levels and earthworks, rather than the delivery of required infrastructure.

Notwithstanding, upon the creation of the 300th lot, upgrades to Great Eastern Highway and Queens Road intersection are required to be undertaken in accordance with the Structure Plan and the Legal Agreement between the proponent and the City of Swan.

Note: since the adoption of the original Rosehill Waters Structure Plan, and following negotiation between the proponent, City of Swan and MRWA, the proponent has paid to the City of Swan its contribution to the upgrade of the intersection. The City of Swan will determine when these works occur.

1.6. SUBDIVISION AND DEVELOPMENT REQUIREMENTS

1.6.1. Land Use and Development

1. Land use and development within the Structure Plan is to be consistent with the prescribed zonings and reservations as detailed on the Structure Plan Map and as defined under LPS17.
2. Land use permissibility is to be in accordance with the relevant zone and the land use permissibility's of the Zoning Table and Special Use Zone No.24 of LPS17.
3. No unacceptable land uses, as detailed under State Planning Policy 5.1 (SPP 5.1) are to occur within the 25 ANEF contour area.

1.6.2. Precinct Requirements

1. Land use and development within the Structure Plan is to be in accordance with the City of Swan LPS17 Special Use Zone No.24. All subdivision and development is to be in accordance with the conditions of this zone.

1.6.3. Residential Density

1. The residential density for the Structure Plan is R20, other than where the land is not affected by ANEF contours, in which case density is to be in accordance with the Structure Plan. The density for those areas affected by ANEF contours has been restricted to an R20 maximum through the conditions of the Metropolitan Region Scheme (MRS) Amendment 1266/57 which applies to the Structure Plan.
2. Residential density targets were established in Directions 2031 and Beyond and require new areas to adhere to a target of 15 dwelling units per gross hectare of 'Urban' zoned land. Due to the restrictions to density imposed under MRS Amendment 1266/57, the Structure Plan delivers a density of 12 dwellings per hectare across the Structure Plan.

Note: The detail as to how the Structure Plan addresses the conditions of MRS Amendment 1266/57 is outlined below.

1.6.4. Public Open Space

1. The provision of a minimum of 10 per cent public open space (POS) being provided in accordance with the WAPC's operational policy, Liveable Neighbourhoods (2009).
2. Public open space is to be provided generally in accordance with Figure 1 (Rosehill Waters Structure Plan) and Table 4 and Figure 17 of Part 2. An updated public open space schedule is to be provided at the time of subdivision for determination by the WAPC, on advice from the City of Swan.

1.6.5. Local Development Plans

(a) Residential Local Development Plan.

(i) Prior to determination of an application for approval to commence development or as a condition of subdivision (whichever comes first) a Local Development Plan (LDP) is to be prepared and submitted

to the City of Swan for approval for all land which directly abuts existing residential development. This LDP is to address the interface between existing and proposed dwellings and detail any required setbacks and interface treatments.

(ii) An LDP may also be prepared for any other area within the Structure Plan which requires specific built form controls and/or any specific requirements to address bush fire constraints and to achieve sustainable design initiatives.

(b) Private Clubs and Institutions Local Development Plan.

(i) Prior to the determination of an application for approval to commence development or subdivision (whichever comes first) a Local Development Plan (LDP) is to be prepared and submitted to the City of Swan for approval for all land within the 'Private Clubs and Institutions' zone. An LDP is not required prior to any change of use application.

(c) A LDP is required, at a minimum to address the objectives and requirements of the Structure Plan as well as Part 5A of the LPS17 and include details relating to:

- Street network and street block boundaries.
- Notional location and distribution of land uses which demonstrate how the development of the location contributes towards the objectives of the Structure Plan.
- Built form controls including building height, setbacks, indicative servicing/ storage areas and any other building design feature considered relevant.
- Location, areas, and primary function/ roles of any public/private open space.
- Indicative landscape treatments within the public realm.
- Interface treatments with the adjoining Helena River foreshore.
- Any other information considered relevant by the City of Swan to address the requirements of the Structure Plan.

1.6.6. Additional Information

The following technical information is required to be undertaken at future planning stages:

Table 1 Subdivision & Development Requirements

ADDITIONAL INFORMATION	PURPOSE	APPROVAL STAGE	CONSULTATION REQUIRED
Foreshore Management Plan	To provide detailed guidance on the interface between the Helena River foreshore and the Structure Plan area including pedestrian and vehicular access.	Condition of subdivision approval for any part of the Structure Plan area abutting the Helena River foreshore.	Swan River Trust (if required)
Urban Water Management Plan	To detail drainage construction works, monitoring and maintenance arrangements in accordance with the WAPC's Better Urban Water Management Guidelines	Condition of subdivision approval.	Department of Water

Landscape and Public Open Space Management Plan	To detail the ongoing management and maintenance arrangements of landscaping and public open space areas.	Condition of subdivision approval	City of Swan
Traffic Management Plan	To provide technical specifications relating to the upgrading of Queens Road/Great Eastern Highway and construction management arrangements and broader traffic requirements.	To be submitted with subdivision application	City of Swan, Main Roads WA (if required)
Flora/Vegetation Management Plan	To provide detail of specific management, mitigation and tree retention methods to be implemented at construction stage.	Condition of subdivision approval	City of Swan, Department of Environment (if required)
Fauna Management Plan	To provide detail of specific management strategies for the protection of fauna habitats.	Condition of subdivision approval	City of Swan
Geotechnical Report	Detailing the specific design and construction recommendations and requirements.	Condition of subdivision approval.	City of Swan

PART TWO: EXPLANATORY SECTION

2. INTRODUCTION AND PURPOSE

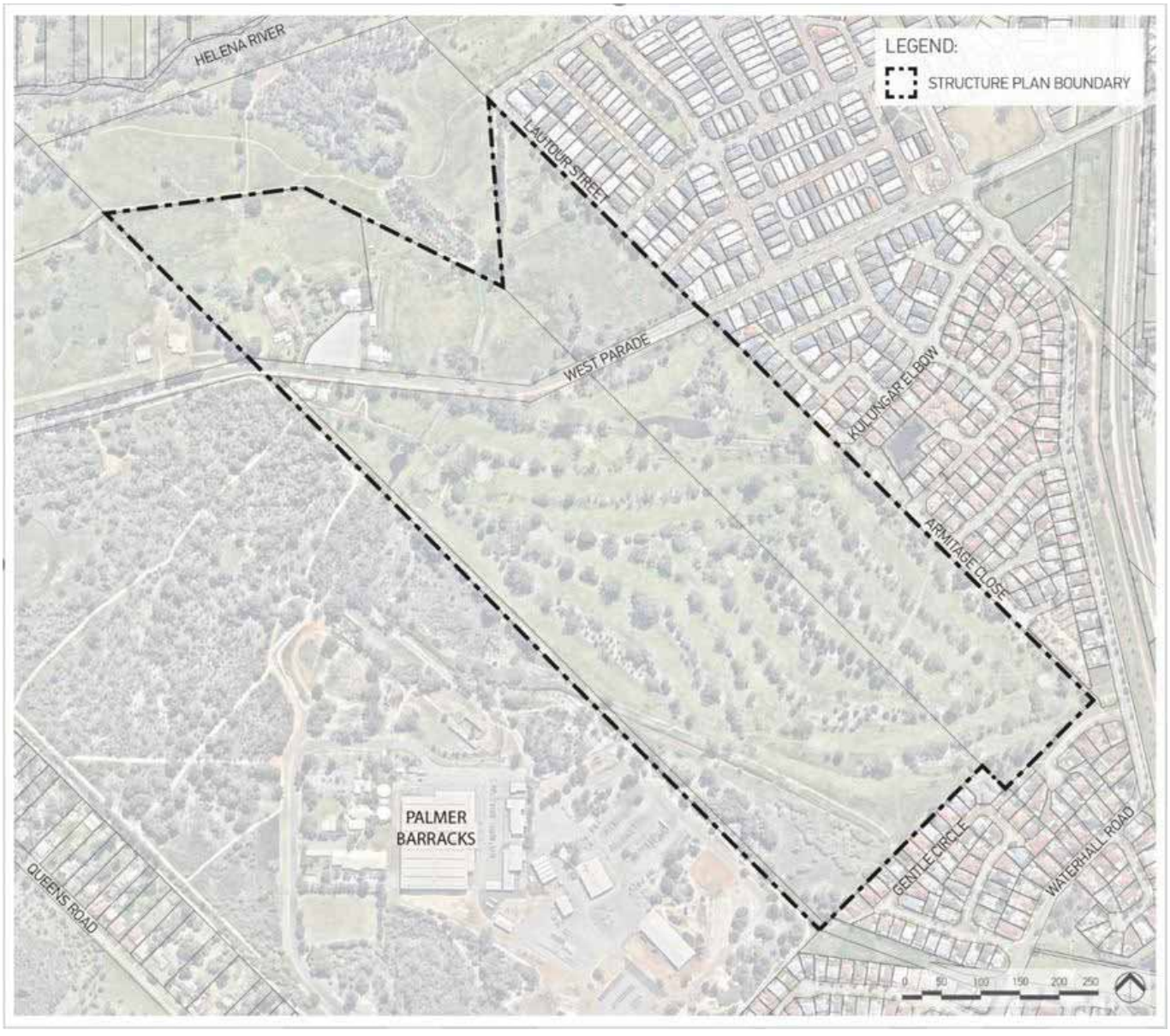
The Rosehill Waters Structure Plan (the Structure Plan) is prepared and lodged on behalf of the landowner, RWM Properties Pty Ltd. The Structure Plan encompasses former Lots 1, 57, 200 and 9000 West Parade, South Guildford (the site)(refer Figure 1).

The purpose of the Structure Plan is to provide a broad framework to guide future subdivision, development and use of the land within the Structure Plan.

The Structure Plan will facilitate the establishment of an infill development of approximately 583 dwellings, contribute to an extensive open space network which integrates with the existing Helena River, connects to the established local and regional road network and expands on existing infrastructure.

This document provides all the necessary information and addresses the reporting requirements of the City of Swan's Local Planning Scheme No.17 (LPS17) and the requirements of the Planning and Development (Local Planning Scheme) Regulations 2015, including the Western Australian Planning Commission's Structure Plan Framework (August 2015).

Figure 2 Aerial Plan



3. LAND DESCRIPTION

The following section examines the context with respect to location, land use and ownership of the land the subject of the Structure Plan.

3.1. REGIONAL CONTEXT

The site is located within the City of Swan, approximately 13 kilometres north-east of the Perth Central Business District, within the South Guildford locality. The site is approximately 5 kilometres south-west of the Midland Strategic Regional Centre (refer Figure 3).

3.2. LOCAL CONTEXT

Locally, the site is approximately 1.5 kilometres south of the Guildford town centre and 2.5 kilometres north of Perth airport. The Structure Plan area is approximately 1 kilometre east of Great Eastern Highway,1 kilometre south of James Street, 1.5 kilometres west of Bushmead Road and less than 1 kilometre north of Great Eastern Highway Bypass (refer Figure 3).

The site is traversed by West Parade, a key connector between Hazelmere to the east of the site. The site has frontage to the Helena River foreshore to the north. The site is located directly adjacent to the established residential area of Rosehill and the developing Waterhall Estate to the immediate east and the Palmer Barracks to the west.

The Structure Plan area is serviced by the Guildford and Woodbridge Primary School which are located approximately 1.5 kilometres to the north-west and north-east respectively.

From a retail and employment standpoint, the site is serviced by the Guildford town centre, Bassendean Shopping Centre and Midland Centrepoint, and at a larger scale, Midland Gate. Swan Park Leisure Centre services the broader Guildford locality, and is approximately 6 kilometres to the north-east.

Bus services currently run from Midland train station through Rosehill Waters and Waterhall Estate. The Guildford Train Station is located approximately 2.0 kilometres to the north-east.

3.3. POPULATION & DEMOGRAPHICS

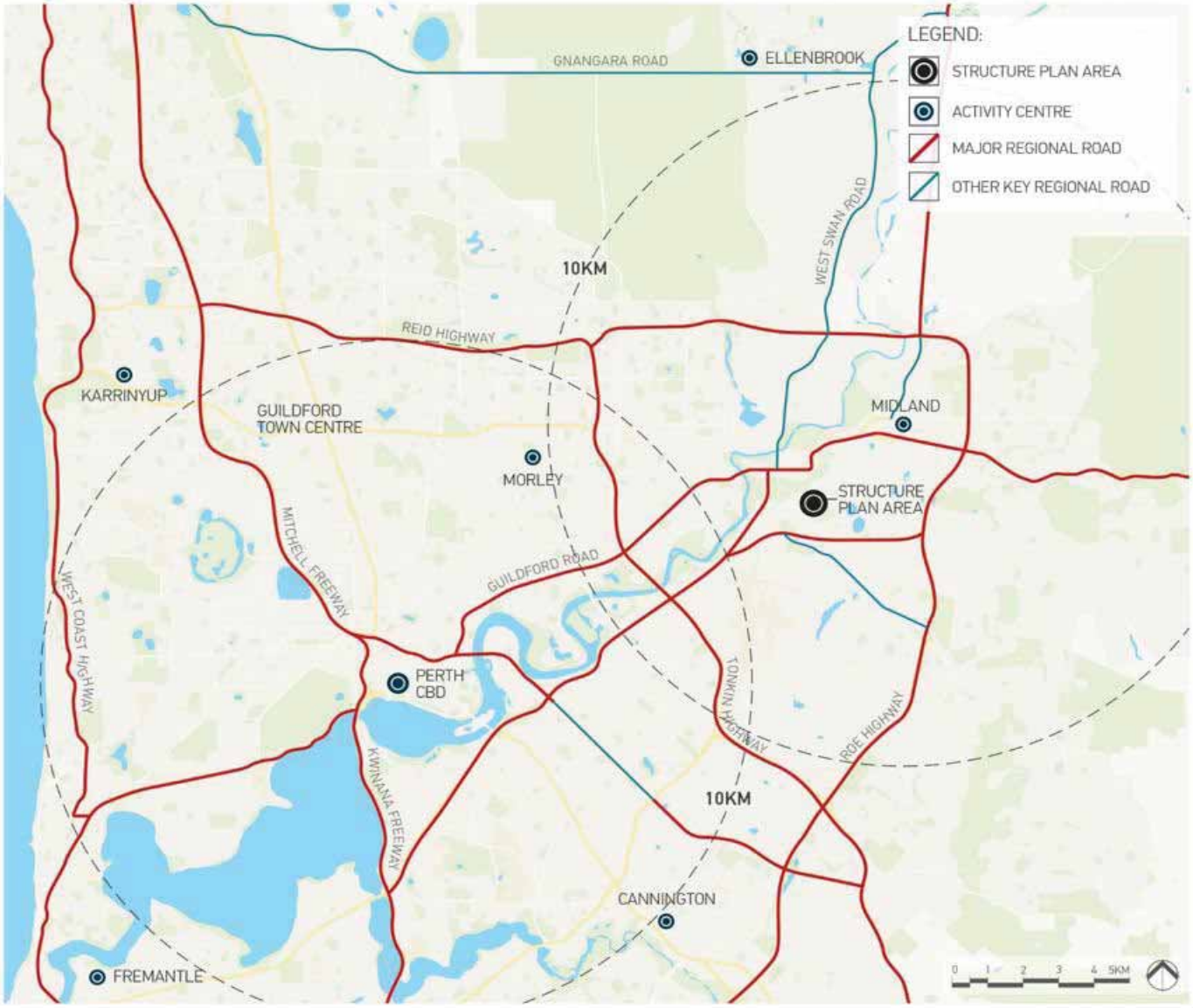
Guildford and South Guildford currently comprise approximately 7,000 residents.

There has been a growth in population by 1,000 residents since 2011. (2017; ABS). The South Guildford area comprises nearly 3,000 residents itself. Rosehill Waters will create dwellings to accommodate up to a further 1,700 residents bringing the total South Guildford community to 4,700 residents.

The demographic profile for the Structure Plan is likely to reflect the profile for the existing South Guildford community, which is currently characterised by:

- An average age of 35 years which is consistent with WA averages.
- An average household size of 2.6 persons which is consistent with WA averages.
- A higher proportion of young pre-school aged children and 35-45 year old adults.
- High mobility with an average of two vehicles per household.
- Low unemployment rates.
- High rates of full time employment.
- Income levels 20%-25% above the WA average.
- Separate dwellings – the Structure Plan will create more diversity and housing choice for the area.
- Houses developed mainly for owner occupiers rather than rental accommodation - suggesting a highly sought after area which is subsequently capable of creating stronger communities due to a less transient population

Figure 3 Regional Context Plan

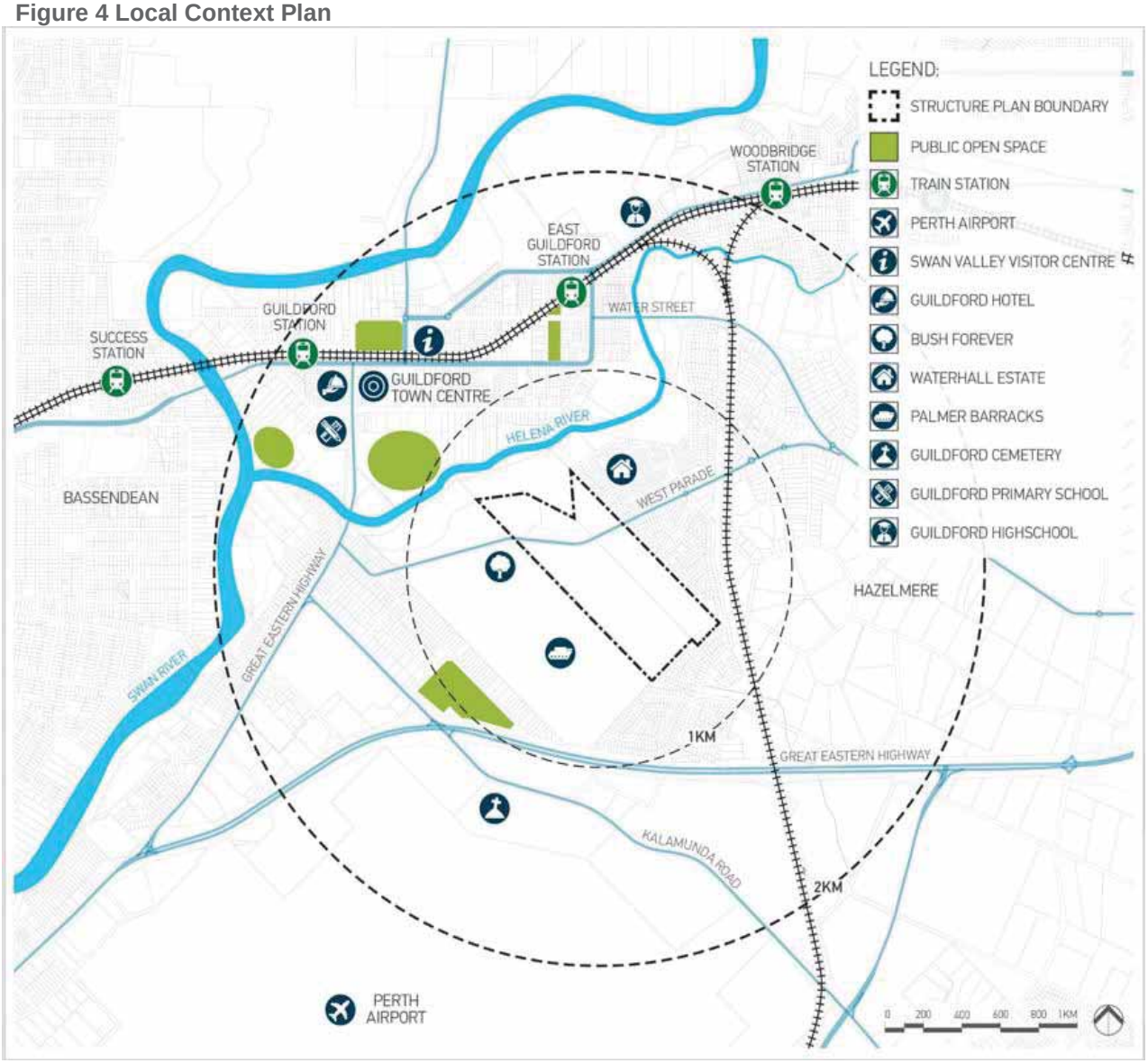


3.4. SITE DETAILS

The Structure Plan encompasses the lots formerly described as 1, 57, 200 and 9000 West Parade, South Guildford (the site), and since subject to further subdivision. The site occupies a total of 49.2309 hectares of land, including a portion of West Parade which traverses the site. The site is largely vacant land with most of the land previously being occupied by a private golf course.

The site includes Lot 1 which includes a Water Corporation water main running in freehold land along the south-western boundary. Topography across the site is gently undulating. There is little remnant vegetation within the site, with most of the trees having been planted as part of the previous land use activity.

Figure 4 Local Context Plan



4. PLANNING FRAMEWORK

The following section provides an overview of the relevant planning framework as it relates to the Structure Plan.

4.1. ZONINGS & RESERVES

4.1.1. Metropolitan Region Scheme

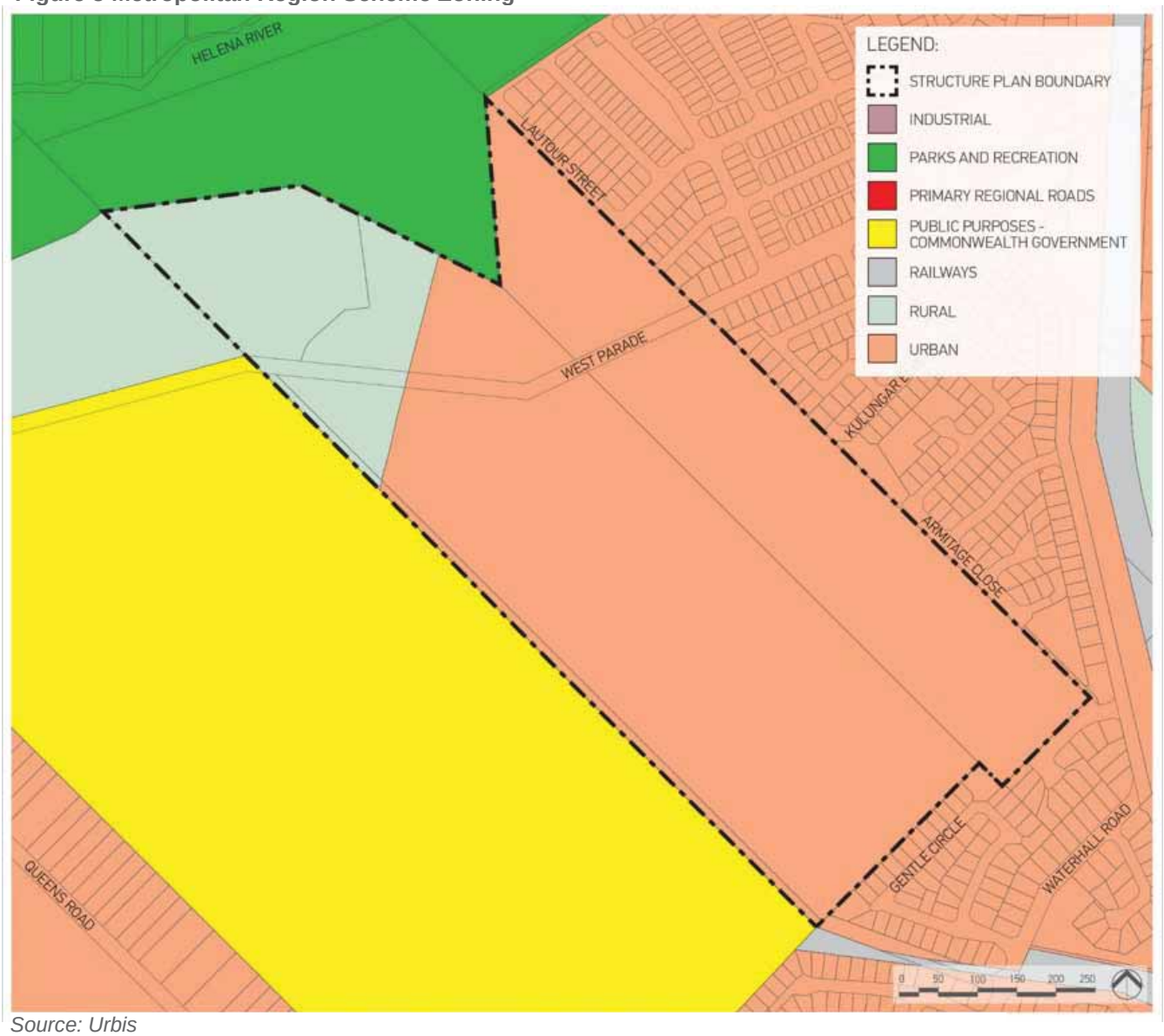
The majority of the site is zoned to 'Urban' under the Metropolitan Region Scheme (MRS), as per MRS Amendment 1266/57 which was endorsed and gazetted in June 2015.

Areas zoned 'Urban' provide for a range of activities including residential, commercial, recreational and light industrial. The remaining portion of the site remains zoned 'Rural' under the MRS.

4.1.2. City of Swan Local Planning Scheme No. 17 (LPS17)

The site is currently zoned 'Special Use' zone which assists in facilitating the implementation of the Structure Plan and provides the appropriate statutory framework to deal with unique site characteristics relating to aircraft noise, and the control over potential uses within the northern portion of the site affected by aircraft noise above the 25 ANEF contour.

Figure 5 Metropolitan Region Scheme Zoning



Source: Urbis

Figure 6 Local Planning Scheme No. 17 Zone

4.2. PLANNING STRATEGIES & POLICIES

The Structure Plan design has been shaped by the many State government considerations operating within the strategic planning environment. In reaching a holistic land use and urban outcome it is crucial that the relevant frameworks that apply to the land are carefully considered. This section summarises the relevance of these strategies/policies within the context of the Structure Plan.

4.2.1. State Planning Strategy

The State Planning Strategy (2007 as amended) was prepared by the WAPC as a whole of Government approach to guide sustainable land use planning throughout the State up until 2029. The Strategy is aimed at developing a land use planning system to help the State achieve a number of goals.

These include wealth, the protection of the environment and building and maintaining lively and safe communities for the enjoyment of future generations of Western Australians. The Structure Plan will ensure the alignment with the key objectives of the State Planning Strategy.

4.2.2. North-East Sub-Regional Planning Framework

The Perth and Peel@3.5 Million document provides strategic guidance to government agencies and local governments on land use, land supply, land development, environmental protection, infrastructure investment and the delivery of physical and community/social infrastructure for the Perth and Peel regions. It makes the case for change from a business-as-usual perspective to a more considered, connected, consolidated urban form. It links the four frameworks for each sub-region (North-West, North-East, Central and South Metropolitan Peel) and encourages the consideration of new urban growth opportunities.

The North-East Sub-Regional Planning Framework forms part of the Perth and Peel@3.5 Million strategic suite of planning documents. Future areas for urban and industrial development have been determined in conjunction with the Green Growth Plan, which is the State Government's Strategic Assessment of the Perth and Peel Regions, in order to avoid and protect areas which have significant environmental value.

The Framework identifies Rosehill Waters for Urban and Rural purposes. The Structure Plan is consistent with the Framework in this regard.

4.2.3. State Planning Policy No.3: Urban Growth and Settlement

State Planning Policy No.3: Urban Growth and Settlement (SPP 3) applies to the whole of the State in promoting a more consolidated settlement pattern which is more aligned to sustainable design and development. The objectives and principles of Directions 2031 and Liveable Neighbourhoods are preserved in this policy.

SPP3 recognises the historical low density housing trend and urban sprawl which has occurred in metropolitan Perth, acknowledging that this form of development only intensifies pressure on valuable land and water resources, imposes additional costs of infrastructure and services, and increases the dependency on private vehicles as a mode of transport.

Accordingly, the Structure Plan provides a consolidated development response which builds upon existing communities and established local economies, resulting in a more liveable and sustainable development.

4.2.4. State Planning Policy No.5.1 – Land Use Planning in the Vicinity of the Perth Airport

The purpose of State Planning Policy No.5.1 – Land Use Planning in the Vicinity of the Perth Airport (SPP 5.1) aims to protect the Perth airport from unreasonable encroachment by incompatible (noise-sensitive) land use and development and aims to minimise the impact the Perth airport has on the existing and future residential communities who may be impacted by noise.

SPP 5.1 provides guidance on the type of uses which can be entertained within the different noise exposure zones in accordance with Australian Standard 2021 (AS2021).

The Structure Plan area is affected by the 20-25+ ANEF contours, and since late 2019, approximately one third of the estate is no longer affected by any noise contours. Consistent with the recommendations of SPP 5.1 and the recently adopted Local Planning Scheme Amendment No.194, the use of the land will be consistent with those densities and uses contemplated as being either acceptable or conditionally acceptable within the relevant ANEF contour area.

4.2.5. State Planning Policy No.3.7 – Planning in Bushfire Prone Areas

Version 1.4 of the Guidelines for Planning in Bushfire Prone Areas assist in the interpretation and implementation of State Planning Policy No.3.7 – Planning in Bushfire Prone Areas (SPP 3.7), where residential development is proposed within fire prone areas. Portion of the estate is subject to risk of bush fire due to the adjoining Bush Forever Site to the immediate west and vegetation located within the Helena River reserve to the north. A Bush Fire Management Plan was approved in 2018 (Appendix F).

4.2.6. City of Swan Urban Housing Strategy

The City of Swan's Urban Housing Strategy was adopted by Council in June 2012 in response to the State Government's Directions 2031 and Beyond. The strategy provides the basis for the consideration of higher residential density in suitable locations in a bid to address Perth's growing population. The Strategy only identified land for increased densities on land which was already zoned 'Urban' at that time, and therefore, did not include the site, despite its recognition for future expansion under Directions 2031 and Beyond.

4.2.7. Other Policies and Guidelines

The following State policies are also directly relevant and applicable to the Structure Plan:

- Structure Plan Preparation Framework
- Liveable Neighbourhoods Operational Policy
- State Planning Policy No.7.3 – Residential Design Codes
- City of Swan Floodplain Management Development Local Planning Policy

The Structure Plan has been prepared to be consistent with the principles and requirements of the Western Australian Planning Commission's (WAPC) and City of Swan's operational policies and guidelines outlined above. Compliance with policy requirements is further demonstrated throughout Section 6 of this report.

The existing version of Liveable Neighbourhoods (2009) has been utilised in the development of this Structure Plan.

4.3. OTHER APPROVALS AND DECISIONS

4.3.1. Metropolitan Region Scheme Amendment No.1266/57

The majority of the Rosehill Waters Estate was rezoned from 'Rural' to 'Urban' as part of the MRS Amendment No.1266/57. This amendment was approved subject to a number of WAPC and Ministerial 'conditions' which were required to be complied with as part of the subsequent planning stages. The manner in which these have or are proposed to be addressed is outlined in Table 2.

The Western Australian Planning Commission (WAPC) and Department of Planning (DoP) have provided in-principle support to the preparation of a separate MRS amendment to rezone the remaining portion of 'Rural' zoned land to 'Urban', subject to further consideration of land uses and a demonstrated development capability. A MRS amendment will be progressed for this land in due course.

In accordance with the Local Planning Scheme Regulations 2015, the preparation and assessment of a future MRS amendment has no bearing on the ability for the Structure Plan to be progressed and the land developed. A structure plan may be prepared for any land (regardless of the underlying zone) where 'the Commission considers it necessary that a structure plan for the area is required for the purposes of orderly and proper planning' (Part 4, Clause 15 of the Deemed Provisions).

In the case of the approved 2015 Structure Plan, the WAPC provided consent to progress with the lodgement of the Structure Plan ahead of the land being rezoned under the MRS and the City of Swan LPS17. The letter from the WAPC Chairman to this effect is appended to this Structure Plan.

In progressing with a cohesive plan for the site, it is considered consistent with the orderly and proper planning for a structure plan to apply to the whole of the site, enabling a holistic approach to the planning for the area and to ensure the appropriate use of the land transpires.

Until such time as the remaining portion of the site affected by the 25+ ANEF contour is rezoned from 'Rural' to 'Urban' under the MRS, in the short term, the land within this area will be planned for and developed consistent with the objectives of the 'Rural' zone and its existing non-conforming use rights, acknowledging its future potential for Urban purposes.

Table 2 Compliance with MRS No. 1266/57 Conditions

CONDITION	COMPLIANCE
Residential development should be at a maximum density of R20.	Refer to Figure 1– Rosehill Waters Structure Plan. Following adoption of Amendment No.194, Special Use Zone No.24 (SUZ24) Condition 2 requires that residential density be at a maximum density of R20 except where land is below the 20ANEF exposure level, in which case density is to be in accordance with the Rosehill Waters Structure Plan.
A notification is to be included on all titles and within sale contracts, to be signed and acknowledged by all purchasers, which states as follows: "This land is subjected to aircraft noise at any time by the 24 hour a day, 7 day a week passenger and freight aircraft flight operations arriving and departing Perth Airport. The frequency of aircraft movements and the size of aircraft are forecast to increase indefinitely into the future. It is the responsibility of landowners to noise attenuate their property to ensure their amenity, as Perth Airport will remain curfew free."	This requirement is adopted via Condition 4 of SUZ24.
Noise insulation in accordance with AS2021-2000: Acoustics – Aircraft Noise Intrusion – Building Siting and Construction is required as a minimum for residential development within the 20 - 25 ANEF contour	This requirement is adopted via Condition 3 of SUZ24.
Existing residential development abutting the amendment area should be appropriately separated from new residential development in consideration of amenity impacts.	Refer to Part 2 of the Structure Plan.
Signage indicating "Aircraft Noise Area", similar to those in the vicinity of RAAF Base Pearce, should be erected and maintained to the east and west of the development on West Parade.	This requirement is adopted via Condition 5 of SUZ24.
An appropriate buffer should be provided along West Parade that retains the existing vegetation and maintains the visual amenity of West Parade.	Refer to Part 2 of this report.

4.3.2. Local Planning Scheme No.17 – Amendment No.194

Amendment No.194 was approved by the Minister and gazetted on 4 March 2022. The Amendment applied to Condition 2 of SUZ24 in response to modifications to the ANEF contours for Perth Airport which resulted in approximately one third of the Estate no longer being subject to ANEF contours, and the north-east portion being less affected. The revised condition adopted via Amendment No.194 reads as follows:

'Residential development shall be at a maximum density of R20, except where the land is below the 20ANEF exposure level, in which case the applicable density shall be in accordance with the Rosehill Waters Structure Plan.'

5. SITE CONDITIONS & CONSTRAINTS

Based on the background and planning context outlined above, the following section describes the key site opportunities and constraints that have informed and impacted on the Structure Plan urban form and structure.

5.1. BIODIVERSITY AND NATURAL AREA ASSETS

An Environmental Assessment Report (EAR) has been prepared by Coterra Environment and is included in Appendix A. The following sections have been directly informed by this report.

The former golf course use of the site has informed the structure and composition of the sites environmental and landscape features, which consist primarily of large cleared areas of planted lawn and introduced and planted trees. This vegetation provides limited environmental value and visual amenity to the landscape.

There are no Bush Forever sites located within the Structure Plan, however there is Bush Forever Site No.311 located directly adjacent to the west of the Structure Plan (refer Figure 8). This site is under the management of the Department of Defence and is owned by the Commonwealth Government.

The City of Swan Biodiversity Strategy (2005) indicates that there are no local natural areas occurring within the site. A regional ecological linkage occurs to the west of the Rosehill Waters site, connecting the Swan River (and associated Bush Forever Site No.491), Bush Forever Site No.311 and Bush Forever Site No.386 to the south. This linkage narrowly intersects with the western boundary of the Structure Plan. A second ecological linkage has been identified as marginally intersecting with the most northern portion of the Structure Plan.

These linkages have been identified as being cleared for pasture and heavily degraded, therefore offering very little ecological benefit. As such, any potential impacts on ecological linkages and adjoining Bush forever sites, as a result of the urban development of the site are considered minimal.

5.1.1. Flora & Vegetation

Original vegetation complexes occurring across the site include the Swan Complex (to the northern portion of the site), the Guildford Complex (to the north-western corner) and the Southern River Complex to the remainder of the site. The site has been largely altered from its original natural state due to the development of the Rosehill Golf Course in the 1950's, resulting in extensive clearing over years and very few examples of the above vegetation complexes remaining on site.

A Level 1 Flora and Vegetation Survey has been undertaken across the site in June 2012 (refer Appendix A). The survey confirms that very little remnant vegetation remains within the site, with the exception of a small area of remnant marri (Corymbia calophylla) woodland in the south-western corner of the site. The site does not contain any Threatened Ecological Communities or Priority Ecological Communities. Furthermore, no Threatened flora species as listed under the Environment Protection Biodiversity Conservation Act 1999 (EPBC Act) or Declared Rare or Priority Flora as listed by the Department of Parks and Wildlife (DPaW) were identified during the survey.

There were two 'true' (non-introduced) vegetation types identified within the site.

- Low forest A of Melaleuca rhaphiophylla over Tall Grass
- Forest of Corymboia calophylla over Low Heath C of Hypocalymma angustifolium or Open Dwarf Scrub C of Xanthorrhoea brunonis over Open Tall Sedges of Mesomelaena tetragona and Tetraria octandra

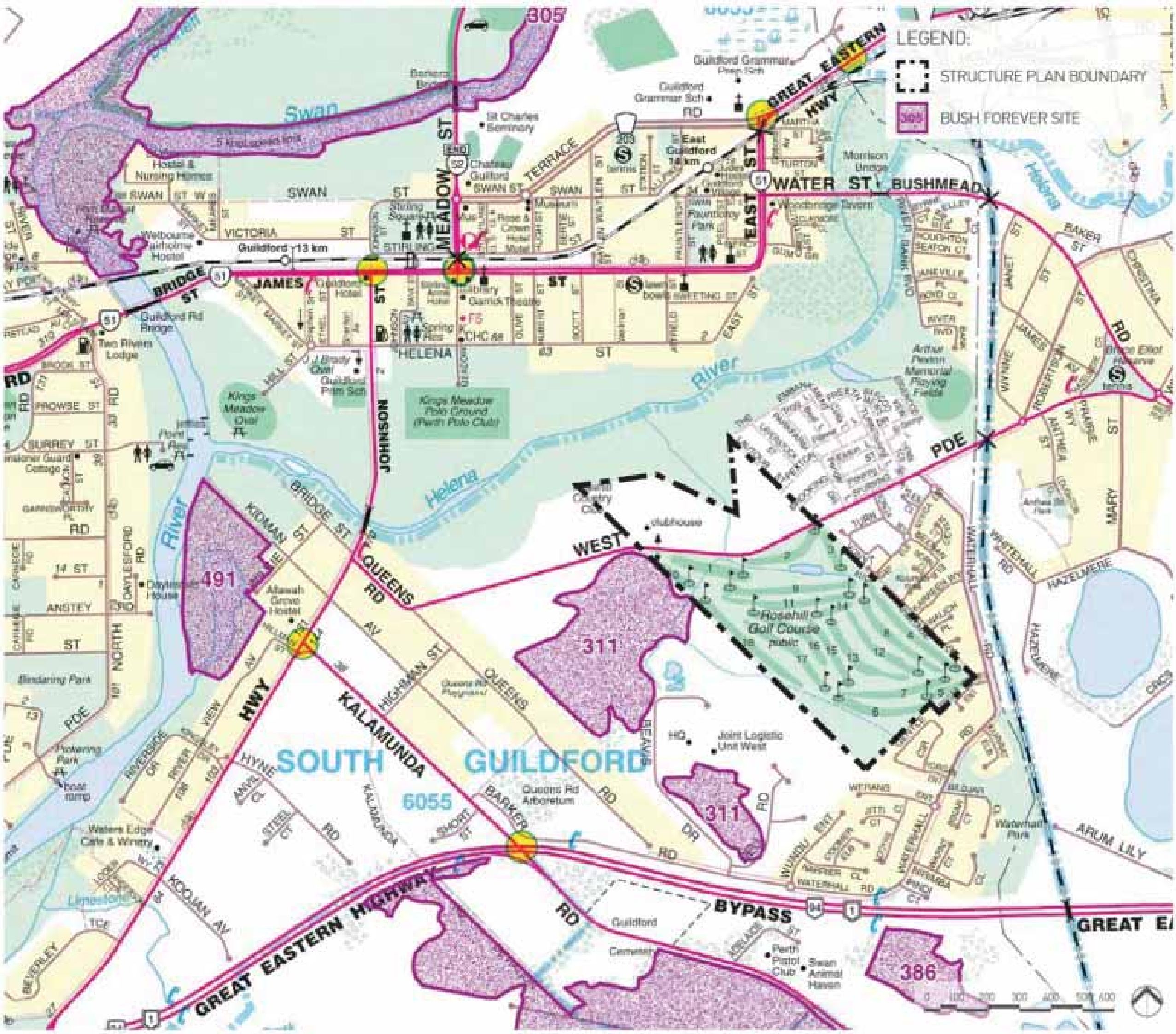
Various other vegetation units were identified across the site as detailed in Appendix A.

Most vegetation was recorded as being in a Completely Degraded condition, with the vegetation in the south-west corner varying between Very Good and Completely Degraded condition and the stand of Eucalyptus rudis subsp. Rudis along West Parade in a Degraded condition. There are a number of weed species which cover the site.

Any mature trees to be retained or transplanted will be identified and marked appropriately as part of the future Environmental Management Plan and Landscape Management Plan and prior to commencement of any pre-construction activities to ensure that they are provided with the appropriate tree protection zones.

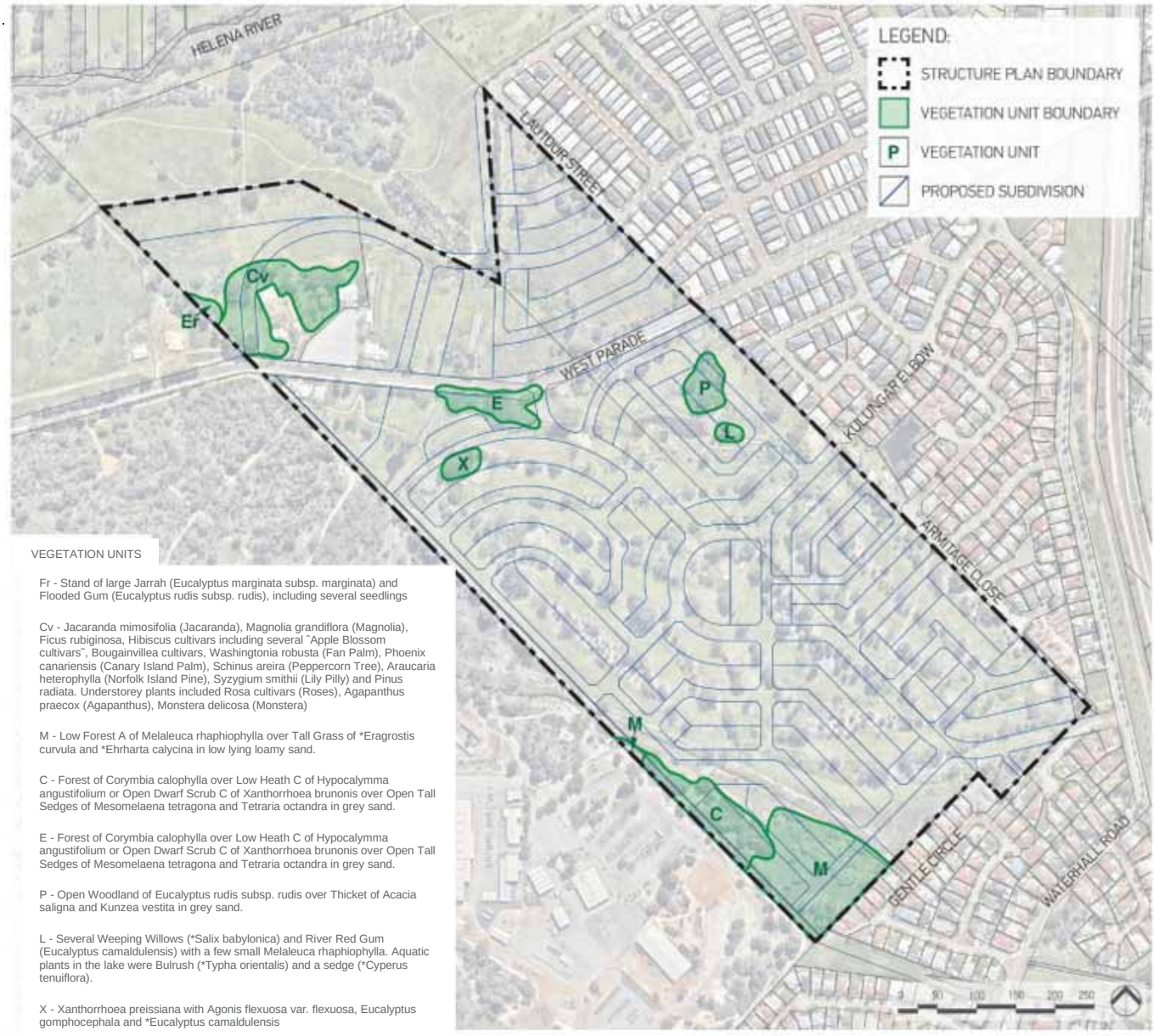
No management practises are required for significant flora or TECs/PECs as there were none found on site.

Figure 7 Bush Forever Sites



Source: Coterra Environment

Figure 8 Vegetation Units Mapping



Source: Coterra Environment

5.1.2. Fauna

An environmental assessment was conducted to identify potential fauna species that may inhabit the site. It was concluded that the native and planted mature trees and regrowth areas may be visited opportunistically by the native birds moving through the locality.

However, an assessment has considered it unlikely that the trees would be used exclusively by native fauna species on a permanent basis and there is no evidence of the Black Cockatoos nesting on the site.

There are 16 conservation significant species that could potentially be seen on the site. Of these species only three have been identified as potentially utilising the site for habitat. These are:

- Calyptorhynchus latirostris (Carnaby's Black Cockatoo).
- Calyptorhynchus banksia naso (Forest Red-tailed Black Cockatoo).
- Calyptorhynchus baudinii (Baudin's Black Cockatoo).

A number of trees were identified as part of the fauna habitat tree survey as being potentially significant in providing habitat (feeding and/or roosting) for black cockatoos. These trees are identified in Appendix A. Where possible potential fauna habitat trees will be retained on site within public open space and road verges. A Landscape Management Plan and Fauna Management Plan will be required at subdivision stage which details those trees identified for retention.

The drain and ornamental pond also provide habitat opportunities to aquatic fauna (e.g. waterbirds, long-necked turtles and native fish). The rehabilitation and retention of these natural drainage lines will ensure that the opportunities for fauna habitats are maintained.

5.1.3. Waterways

The two tributaries of the Helena River flowing through the site form the key environmental features of the Structure Plan.

A biophysical assessment has been undertaken as part of the Local Water Management Strategy (refer Appendix B) to determine the biological and physical

qualities of the waterways in accordance with relevant State Government policy.

The waterways traversing the site have been largely modified due to their historic use within the golf course and no rare and/ or endangered water-dependent flora or fauna have been identified. Notwithstanding there are still important local biological and hydrological functions of these waterways that require consideration in the future redevelopment, these include:

- Water quality treatment of surface water prior to discharge to the Helena River
- Support of aquatic, riparian and fringing vegetation
- Provision of localised aquatic habitat
- Water source for local terrestrial and avian fauna
- Flow regulation and floor risk management.

Significant efforts have been made to retain and enhance the biological and hydrological value of the watercourses and these natural assets have formed the foundation for the Structure Plan design response. However, some minor modifications to the existing systems will be required to facilitate functional urban form.

5.2. LANDFORM & SOILS

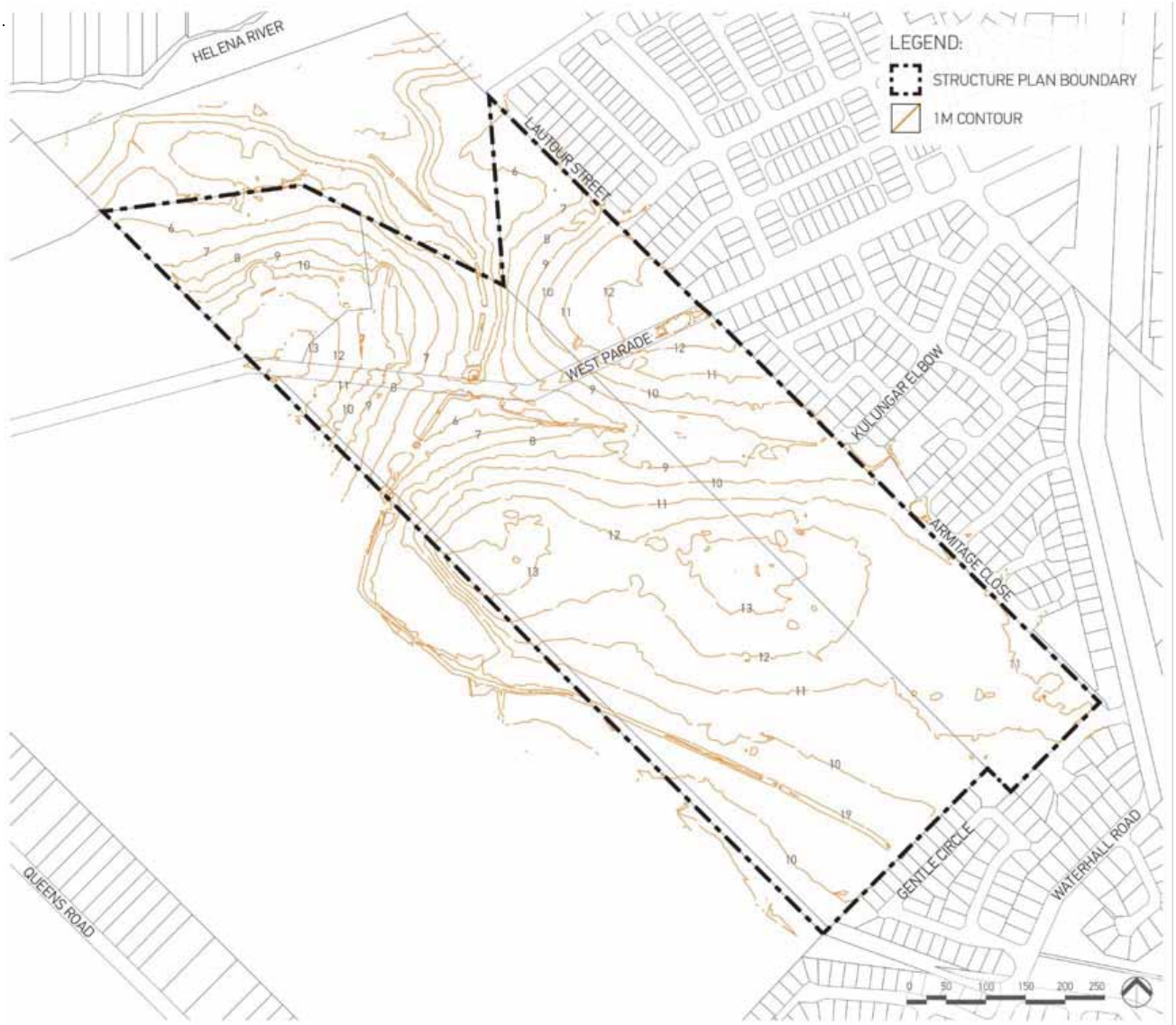
5.2.1. Topography

The site is gently undulating, with topography across the site ranging from approximately 10m AHD in the south-western portion of the site to approximately 5m AHD along the northern boundary (refer Figure 9).

Three high points of 13m AHD occur in the central area of the site, the north-west and the north-east. From the high points there are uninterrupted views south-east to the hills and to the north towards Helena River. These viewpoints provide opportunities to capitalise on views from these naturally elevated areas from both development and public spaces.

The low points of the topography provide opportunity to accommodate stormwater drainage into natural drainage and green corridors of public open space to maximise infiltration at source in line with the principles of water sensitive urban design, improving the amenity of the urban space and remaining sensitive to the existing environment.

Figure 9 Existing Topography



Source: Urbis

5.2.2. Soils & Geology

The site is characterised by the Guildford Formation – sand of varying depths over clay. The depth of the sand over the clay layer is less along the two tributaries and approaching the Helena River. The sub-systems contained within the site generally consist of minor sandy rises with moderately deep well-drained sand overlying gravelly mottled clay. The other sub-system comprises of seasonally inundated swamps with shallow very poorly drained grey siliceous sand over clay.

Generally, the site is capable of accommodating residential urban development which will include a balance of cut to fill site works. The soils and groundwater characteristics within the site pose some limitations however these limitations can be managed appropriately through engineering design and are therefore not considered to be serious constraints to the future development of the site. Structural fill which is required in certain areas, and where loose sand/uncontrolled fill currently exists will need to be reworked and applied in compact layers in order to sufficiently support buildings and infrastructure. The Geotechnical Report (included in Appendix D) provides engineering design recommendations which specifically address site preparation, foundation design, soil permeability, stormwater disposal and site drainage.

There are no known and/or registered contaminated sites within or adjacent to the site.

The soil types specified to the site, as detailed in the Geotechnical Report (refer Appendix D) are:

Table 3 Soil Types

SOIL TYPE	CHARACTERISTICS
Topsoil	Grey-brown to black, sandy topsoil with some rootlets, from surface to a depth of 0.1 metres and 0.15 metres.
Sand	Generally loose to medium dense, yellow-brown, brown and grey, fine to medium grained sand to depths of between 0.6 metres and 6.0 metres underlying topsoil. The sand is loose to a depth of 2 metres at some test locations.
Clayey Sand/ Sandy Clay	Generally medium dense clayey sand and very stiff sandy clay, grey-green and orange-brown, medium to high plasticity, slightly gravelly in places, encountered underlying the sand from depths of between 0.2 metres to 6.0 metres.
Silty Sand	Generally loose, dark grey, black and grey brown silty sand with some clay underlying the topsoil to depths of between 0.2 metres and 0.5 metres.
Clayey Gravel/ Gravelly Clayey Sand	Medium dense, grey-green and brown with medium sized gravel ranging in depths of 0.4 metres – 1.6 metres.

5.2.3. Acid Sulfate Soils

The majority of the site is mapped by the Department of Environment Regulation (DER) as having a Moderate to Low risk of Acid Sulfate Soils occurring within 3 metres of the soil surface. It has been identified that a small area in the southern portion of the site is mapped as having a Low to Nil risk.

It is recommended that further detailed investigations be undertaken at detailed engineering design stage, at which point ground disturbing activities will be known.

5.3. GROUNDWATER AND SURFACE WATER

A Local Water Management Strategy (LWMS) has been prepared to support the Structure Plan, refer to Part 6 and Appendix B for more detailed information with respect to the management and conservation strategies proposed to be implemented as part of the more detailed planning stages.

5.3.1. Groundwater

The Perth Hydrogeological Atlas (DoW) indicates that the site is located above the Superficial, the Leederville and the Yarragadee aquifers. The Structure Plan is not located within a Public Drinking Water Source Area.

The groundwater within the site generally flows in a north westerly direction towards the Helena River. Groundwater level data has been obtained from four bores across the site. Groundwater levels of approximately 10 metres AHD are found to the south-west of the site with levels reducing in depth towards the river at 6 metres AHD. Similarly, groundwater becomes more saline towards the river, however salinity levels remain below regional data levels. Maximum levels recorded are consistent with regional data (refer Appendix B for more detail).

Areas where there is potential for groundwater perching were monitored, with maximum groundwater levels ranging between 0.13 metres to 0.51 metres below ground level for the shallower nested bores. Perching has been observed during winter.

The site has a licence to extract 160,500 kL per annum of groundwater from the Perth Superficial Swan aquifer until October 2020. Once consumption levels for earthworks and irrigation of public open space areas are confirmed, the current licence may need to be reviewed.

5.3.2. Surface Water

The site immediately abuts the Helena River foreshore, with the most northern boundary of the site being approximately 200 metres south of the river itself. A small tributary/ drain transects the site in a north-westerly direction. This tributary is highly modified, with long straight flow paths and uniform cross-sections. The tributary splits immediately upstream of West Parade. The EAR identifies that the culvert under West Parade and some small online ponds have hydraulic influence on the open channels.

The Structure Plan proposes to rehabilitate the highly modified drainage line into a 'living stream' multiple use corridor, forming part of the overall stormwater management of the Structure Plan. This will include vegetated banks and a more natural morphology that provides habitat opportunities for local fauna, aesthetic values to the local community and the conveyance of flood flows and water quality treatment.

Pre-development surface water flow and quality at the site has been measured since September 2012 (refer Appendix B). The quality of water flowing into and through the site was found to vary depending on its location along the drains. In particular, runoff entering from the adjoining urban area to the east exceeded general standards, largely as result of this estate not containing any Water Sensitive Urban Design (WSUD) features.

In addition, due to the sites historical use as a golf course (and agriculture prior to that) the site was subject to many years of fertiliser, herbicide and pesticide exposure. As a result, the change in land use will lend itself to a significant reduction in the application of chemicals.

Further details are provided in Section 5.13 of this report.

5.3.3. Floodways & Floodplains

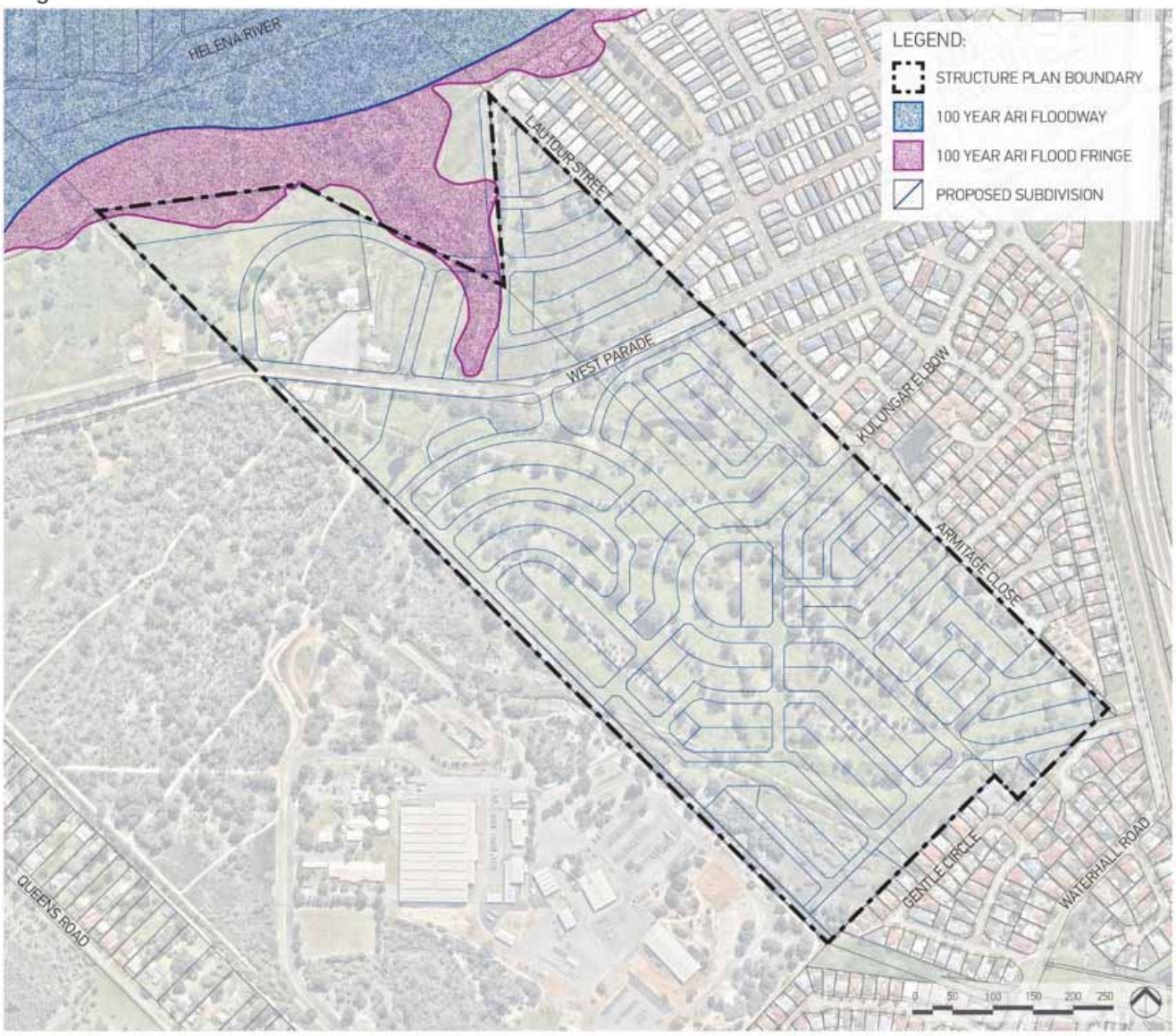
The site is subject to flooding from the Helena River and its tributaries which flow through the site. Floodways and floodplains are defined by the Department of Water and their implications on the site are shown in Figure 10. The northern portion of the site along the drainage channel downstream of West Parade is slightly impacted upon by the 100 Year ARI flood fringe.

It is important to consider the impact any flooding will have on the future residential development of the site and the impact any modifications to the existing system will have downstream. The flood flow route must be maintained to prevent risk to upstream or downstream communities.

Future urban development will be required to maintain appropriate minimum floor levels as determined by the Department of Water at the subdivision and development stages.

Further details with respect to flood mitigation and management are included in this report.

Figure 10 Flood Risk



Source: Coterra Environment

5.3.4. Wetlands

A large portion of the site is shown in the DEC Geomorphic Wetlands of the Swan Coastal Plain dataset as being Multiple Use Wetland (MUW). MUW's are described as having few environmental attributes and have no statutory and limited policy protection. The wetland on the site fits the definition of a palusplain MUW along the northern edge and a dampland MUW extending into the southern and northern areas.

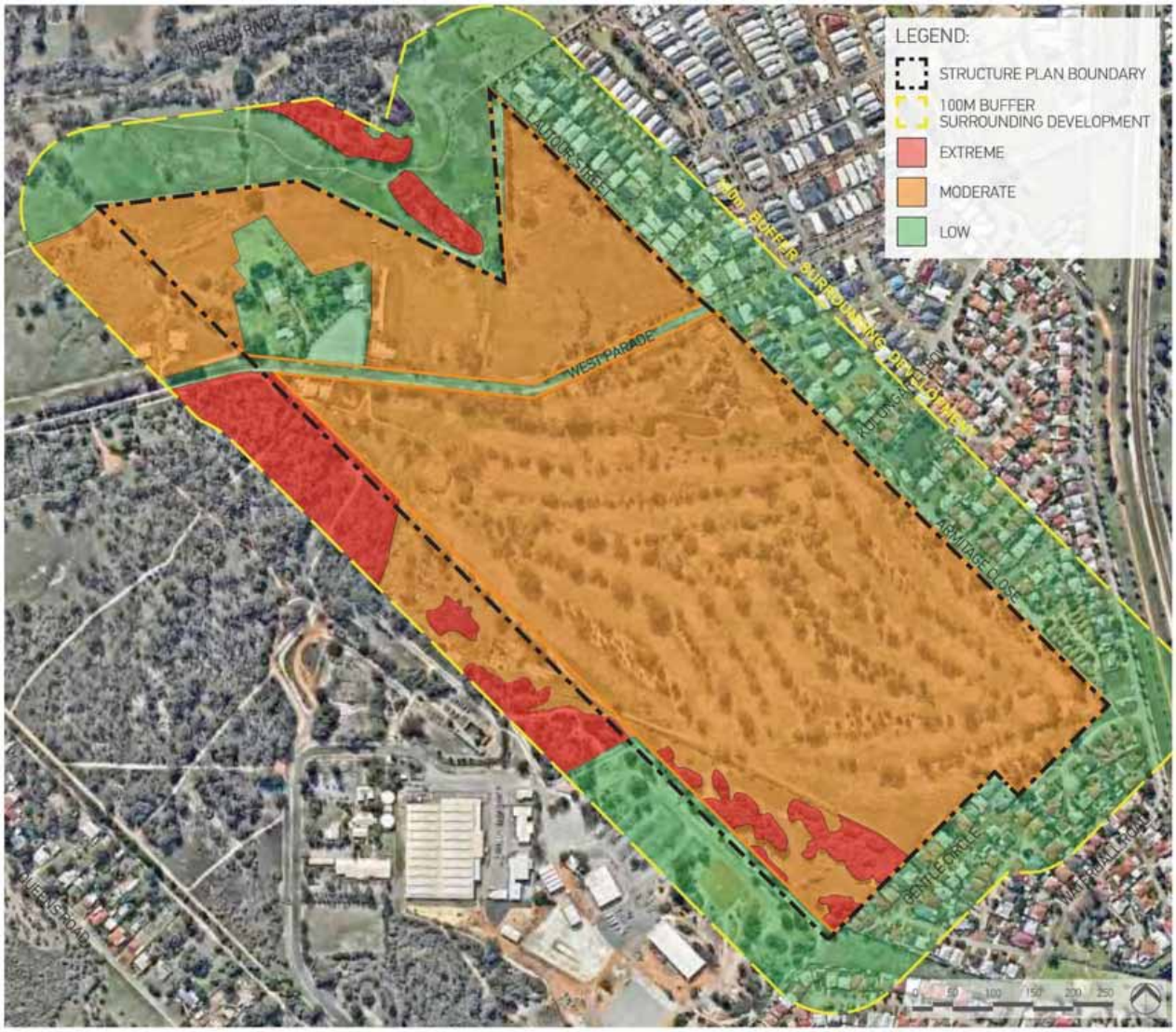
The use, development a management of the wetland should be considered in the context of ecologically sustainable development and best management practice catchment planning. There are no statutory buffers applicable to the wetland.

There are no mapped Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 (EPP) wetlands located within or immediately adjacent to the site.

5.4. BUSHFIRE HAZARD

A Bushfire Management Plan for Rosehill Waters Estate was adopted by the Department of Fire and Emergency Services (DFES) in 2018. Portion of the site is affected by bush fire risk, primarily due to the abutting Bush Forever site and vegetation within the Helena River foreshore.

Figure 11 Bushfire Hazard – Original Assessment



5.5. ABORIGINAL HERITAGE

The Heritage Inquiry System contains a number of Registered Aboriginal Sites and Other Heritage Places within and near to the site (refer Figure 12). These include:

- Bridge Camps – Aboriginal campsite (Site No. S02345)
- Helena River (ceremonial, mythological, repository /cache) (Site No.S02148)
- Bennett Brook Camp Area – plant resource, Aboriginal campsite, hunting place, water source (ceremonial, mythological, skeletal material / burial, man-made structure, fish trap, artefacts, scatter, historical) (Site No.S01997)

The watercourse/drain that traverses the site is mapped as part of the Helena River site (DAA Site ID 3758) and is a registered Aboriginal Site under Section 5 of the Aboriginal Heritage Act WA (AHA). Significance was attributed to the watercourse/drain as a result of movement of people, camping, ceremonial uses, hunting, fishing, gathering bush tucker and bush medicine.

An ethnographic and archaeological field survey has been carried out by Amergin Consulting (refer Appendix H) to assist in the preparation of the Structure Plan and to assist in determining the most appropriate design response for future subdivision and development, within the context of the existing cultural values. The key outcomes of the ethnographic study highlighted the significance of the Helena River, including the movement of people, camping, ceremonial uses, hunting, fishing, gathering bush tucker and bush medicine.

Similarly, the significance associated with the modified watercourse /drain which extends into the site and forms part of a registered site was highlighted. During consultation, concern was flagged around the realignment of the watercourse/drain with a preference that the drain returns to its former, natural course. The realignment of the drain along with its conversion to a “living stream” with associated public open space and indigenous planting was a favoured option.

Department of Aboriginal Affairs (DAA) has confirmed however, that the portion of the modified watercourse that extends into the Structure Plan is outside of the area reported as having heritage values. Therefore, no approvals under the Aboriginal Heritage Act 1972 are required. Notwithstanding, the design response has focussed around maintaining wherever possible a ‘living

stream’ incorporated into a public open space green link centred around the retention of any trees. This will result in an integrated water management system that is sensitive to the existing cultural values and aligned with Water Sensitive Urban Design (WSUD) principles.

5.6. EUROPEAN HERITAGE

No recorded sites of European heritage significance have been found within the site.

5.7. OTHER LAND USE CONDITIONS AND CONSTRAINTS

5.7.1. Existing Road Network

There is one key movement network traversing the site, being West Parade, which runs in an east/west direction.

5.7.2. Contaminated Sites

The DER’s Contaminated Sites Data Base was searched and there are currently no known and/or registered contaminated sites within or adjacent to the site.

5.7.3. Aircraft Noise

The site is located within close proximity to the Perth airport and portion of the site is affected by aircraft noise. Approximately one third of the site is unaffected by aircraft noise contours, with the balance of the site being within the 20-25 and 30+ ANEF contour range as identified in the Perth Airport Master Plan 2020 and within DPLH mapping adopted in late 2019 (refer Figure 13).

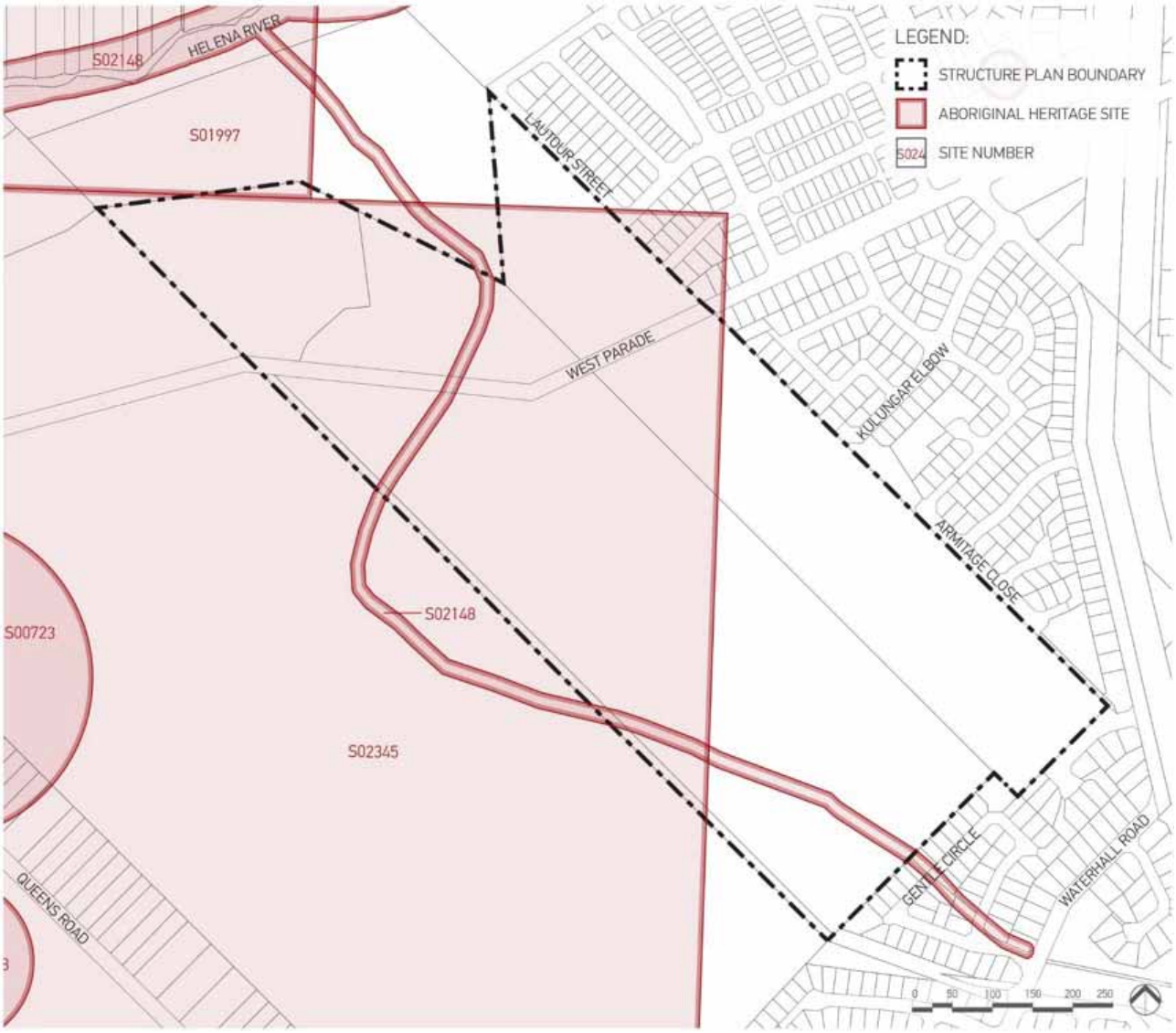
Development within the Structure Plan is required to comply with the requirements of SPP 5.1 with respect to the use of land, density and standard of built form to mitigate the impacts of noise on future residents.

5.7.4. Infrastructure & Utilities

The Infrastructure & Servicing Report included in Appendix D provides a full overview of the preliminary engineering investigations that have been undertaken as part of the formulation of the Structure Plan. The report does not identify any constraints with respect to the sites ability to be provided with key infrastructure into the future.

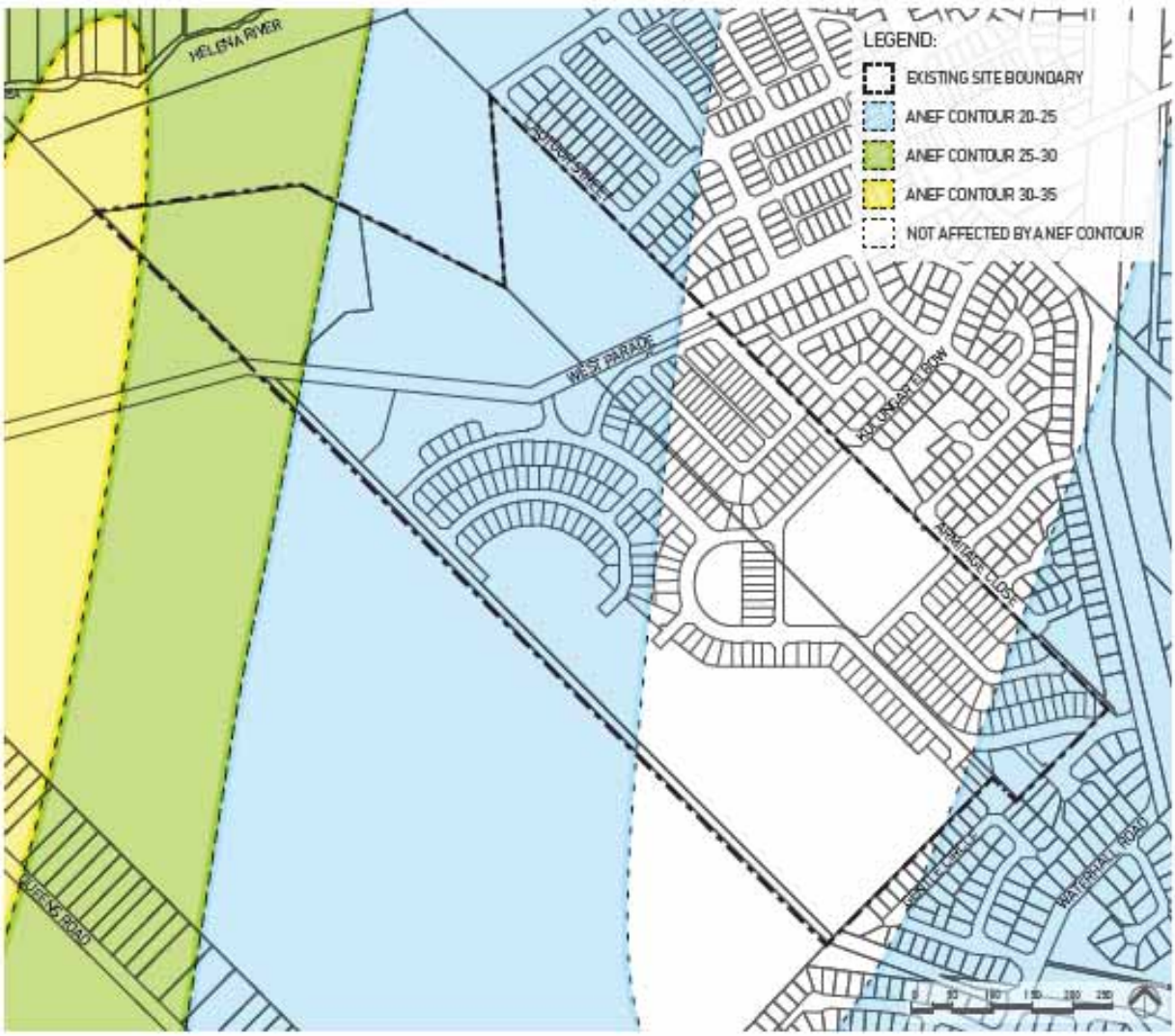
Figure 14 demonstrates the key site considerations and constraints as outlined in this report.

Figure 12 Aboriginal Heritage Assets



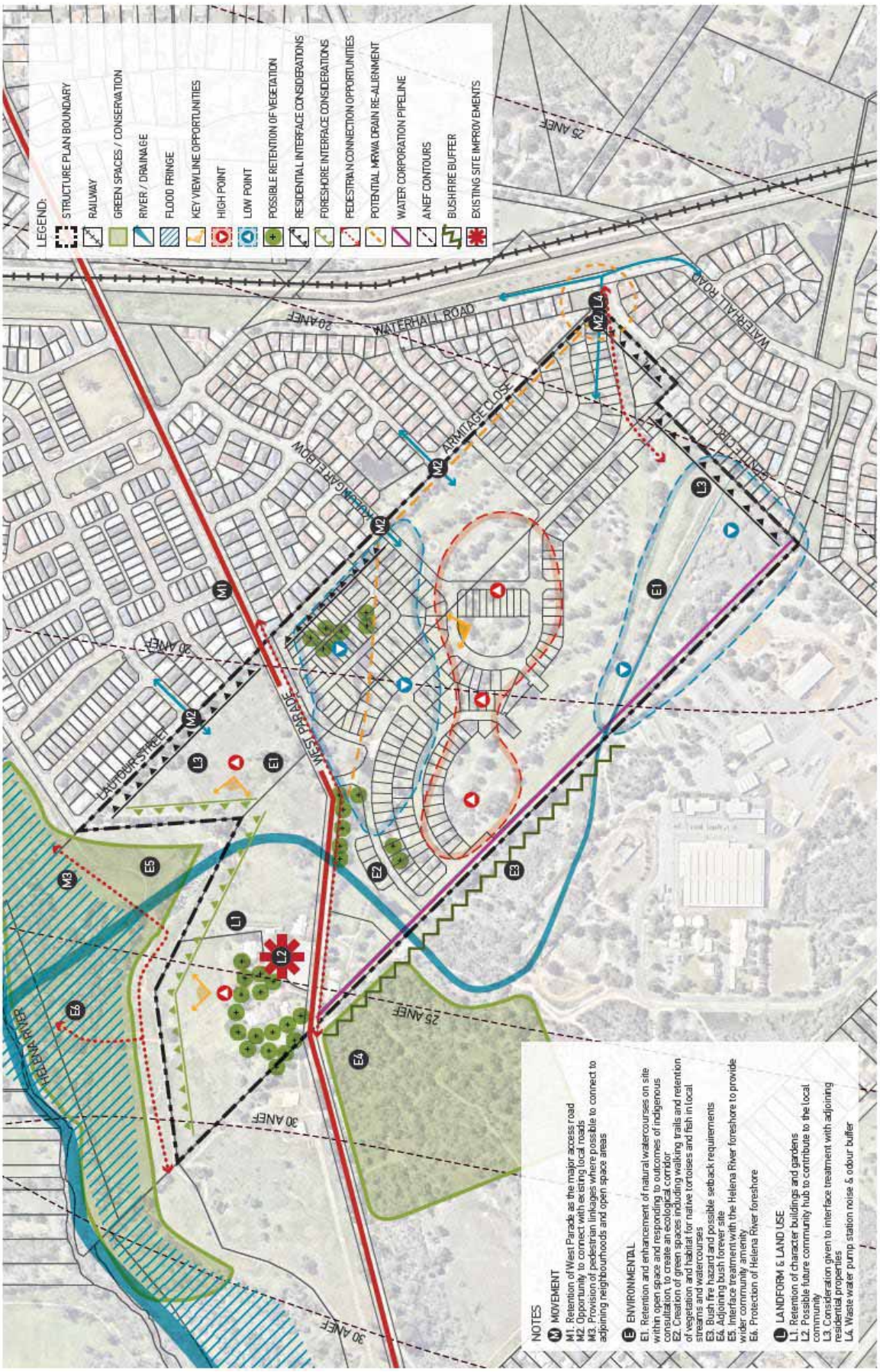
Source: Urbis

Figure 13 Aircraft Noise (DPLH: 2019)



Opportunities and constraints are consolidated within Figure 14: Opportunities and Constraints:

Figure 14 Opportunities and Constraints



Source: Urbis

6. DESIGN PHILIOSPHY, LAND USE & SUBDIVISION/DEVELOPMENT

The Structure Plan provides the framework for a robust, stand-alone urban development within the broader context of the South Guildford locality. The Structure Plan provides a level of detail that builds upon and refines the concept planning undertaken as part of the MRS Amendment process, whilst also remaining flexible in recognition of the more detailed stages of planning still to come. This section of the report provides the design philosophy and vision and articulates the land use and subdivision/development requirements for the land within the Structure Plan.

6.1. DESIGN VISION

There are a number of fundamental design principles that underpin the proposed Structure Plan, as summarised below:

- A strong overall philosophy focussed on a defined neighbourhood built upon simplicity, authenticity, connectivity, and creativity.
- Respect for the inherent features/ attributes of the land and its location.
- Strong pedestrian linkages focussed around key natural assets and topography, attractive and varied streetscapes and destinations which are well distributed, facilitating activity on the street.
- A design that responds to and recognises significant view corridors reflecting the heights of the hills to the south-east.
- Retention of mature trees where possible along key corridors (such as West Parade) and the Helena River to celebrate the rural qualities of the site.
- Celebration of water and the consideration and integration of the Helena River foreshore and its role within the urban fabric.
- Development of dwellings which offer a high level of amenity, affordability, and diversity, including limited medium density development
- A distinct identity and sense of place for future residents of the area which is both unique and recognisable.
- Retention of existing improvements such as the Reception Centre (Lodge), Stables and character gardens lending itself to adaptation into the future.
- Maintaining the existing character of the area through extensive open space provision along West Parade with strong linkages to the Helena River foreshore.
- A sound rationale for the development, including its context, constraints and opportunities to ensure that the future development is fully integrated with the existing surrounding residential development. Particular consideration has been given to the residential development to the immediate north-east and south-east of the Structure Plan area.
- To 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.
- To provide a low-key network of streets which reference parts of old Midland and Guildford.

Rosehill Waters will become a vibrant community comprising of residential, community and cultural activities to service the existing and future residents. Ultimately site considerations, combined with changing lifestyle demands, the need to address affordability, sustainable considerations and an objective to retain existing environmental assets has driven the urban structure.

An aesthetic which celebrates the rural qualities of old Guildford and Midland will be showcased in the tree lined streets, quality urban parks and accessibility to the Helena River foreshore.

The Rosehill Waters project vision has been developed around the following 6 key design principles:

- Green links

- Streetscape diversity
- Destination
- Unique identity
- Historical focus
- Accessible community

The following principles all link to each other to allow a succinct and cohesive concept through overarching elements of vegetation, user experience and site specificity. Each aspect aids the design in its entirety and is integral to the overall success and conceptual relevance of the project.

Figure 15 Design Philosophy

Source: Urbis

6.2. SUSTAINABLE RESPONSIVE DESIGN

Whilst housing diversity is somewhat limited with respect to density, there is the opportunity to improve the affordability and liveability of the dwellings through the provision of climate appropriate improvements to the dwellings which will make the home more affordable over its life span.

In this regard, considerable efforts have and will be made to achieve 6 leaves under the Urban Development Institute of Australia's EnviroDevelopment programme. Figure 16 outlines specific initiatives to be employed at Rosehill Waters as they relate to each EnviroDevelopment leaf. Design Guidelines will be employed and managed by the proponent to ensure built form related initiatives are delivered at the future stages of planning and development.

6.3. COMMUNITY CONSULTATION

In June 2013, the Gatti Family submitted the application to rezone the former Rosehill Golf Course from 'Rural' to 'Urban' under the MRS to facilitate residential subdivision and development. As part of this initial planning process, a Community Advisor was engaged to assist with the community engagement and information process.

Due to existing contractual arrangements by the proponent for the purchasing of the land, the proponent was not able to openly engage with the local community until the MRS Amendment was publicly advertised. As soon as this process was underway, immediate consultation and engagement was initiated with the local and wider community. In its entirety, the consultation process resulted in a number of community members participating through the following:

- Sample survey.
- Brochure drop.
- Flyer drop- open day sessions.
- 1:1 information sessions.
- Media/advertising.
- Media monitoring and response.
- Website Q and A, including feedback line.
- Two half day community information sessions.
- Doorknock in surrounding suburbs/ streets.
- Shopping centre display.
- Stakeholder briefings and information packages.
- Response to questions received via email, website and by telephone.

The various consultation exercises assisted in identifying the existing gaps in services and amenities within the local area which may be able to be addressed as part of the redevelopment, and provided the opportunity to community members to provide input into the concept planning process with respect to road layout, type of housing, response to aircraft noise, provision of public open space etc. For further detail with respect to the Rosehill Waters community engagement process (refer Appendix I).

The proponent is committed to continuing the engagement with the local community throughout the structure planning process through information sharing and ongoing meetings with individuals and interest groups.

Figure 16 Sustainable Responsive Design

ECOSYSTEMS:

Reduction in water use and fertiliser application compared to the previous use of land.

Retention of existing trees and canopy cover maintained wherever possible, restoring of important local water systems and foreshore reserve.

Minimisation of cut and fill to achieve a net balance.

ENERGY:

30 per cent energy reduction through building envelope construction and energy efficiency.

Minimum of 7-star NatHERS from all residential buildings.

High efficiency street lighting and solar powered external lighting.

Energy awareness programs provided to residents.

Design features within each home to assist in achieving optimum energy efficiency and the installation of smart metres.

Installation of sufficient solar photovoltaic (PV) generation to cover the typical annual energy consumption of a single dwelling.

WASTE:

Declaration of a 'Smart Waste Zone' to achieve best practice in waste management.

'Reuse depot' during construction allowing potentially useful excess materials from one contractor to be used by another.

WATER

50 per cent potable water reduction through efficient hydraulic fittings and options for rain water tanks.

Efficient irrigation through mulching of landscaped areas and reticulated systems such as a community bore.

Sustainable stormwater management through integrated landscape and drainage systems.

Climate wise landscaping through irrigation, mulching, soil conditioning etc.

MATERIALS:

20 per centre embodied emissions reduction for concrete.

Reuse and recycling of content taken from the site.

Avoidance of toxic materials.

COMMUNITY:

Community gardens and improvement to public access to open space and the Helena River foreshore encourages residents to take advantage of the local assets.

Integrated movement networks including provision of public transport and walking and cycling infrastructure.

Retention and restoration of existing site improvements including the Rosehill Lodge, Padbury Stables and existing gardens.

Engaging with local community groups and provision of community education and information.

Source: Urbis

6.4. LAND USE

The Structure Plan indicatively demonstrates how subdivision and subsequent development may occur on the site, consistent with the WAPC Structure Plan Framework 2015 (refer Figure 1).

6.4.1. Residential

Development proposed within the Structure Plan is primarily residential, providing housing at a density of R20 where land is affected by aircraft noise, and as specified on the Structure Plan (Figure 1) in the case of land unaffected by aircraft noise.

Density was previously restricted to R20 due to the site's exposure to aircraft noise from the Perth Airport, in accordance with the MRS Amendment 1266/57. However, since late 2019, approximately one-third of the site is no longer affected by aircraft noise, resulting in some opportunity to provide medium density on Lot 802 to R30. This will provide for some limited housing diversity and choice to occur within the estate.

A total of 583 lots will be created. A total of 25.4724 hectares (net) land is occupied for residential development. The applicable density of the estate based on the structure plan is 12 dwellings per hectare.

6.4.2. Private Clubs and Institutions

Private Clubs and Institutions' zoned land is located to the north-west corner of the Structure Plan area, on the northern side of West Parade. This land occupies a total of 4.9886 hectares of land and will primarily consist of the existing Rosehill Lodge building for a range of community and civic uses, compatible with the surrounding land uses and development.

Development and use of the land will be consistent with SUZ24 and SPP5.1. The co-location of this area with adjoining public open space will provide improved access to community and recreational opportunities to the future residents and those in surrounding suburbs.

6.5. LOCAL RESERVES

6.5.1. Public Purposes

Lot 1, located within the Structure Plan boundary is owned by the Water Corporation and is currently utilised for drainage infrastructure. The use of this land is not envisaged to change under the Structure Plan and is therefore shown to be a local reserve, consistent with the City of Swan LPS17.

6.5.2. Public Open Space

The provision of public open space (POS) is distributed throughout the site to provide direct accessibility to residents whilst also responding to the existing drainage lines present at the site. The layout and form of the POS comprises of a mixture of linear parks, smaller areas of POS and larger active spaces centred around the retention of existing trees wherever possible. A total of 5.4503 hectares of public open space is provided within the Structure Plan.

Further detail with respect to the provision of POS is included below.

Figure 17 Public Open Space

6.6. OPEN SPACE

6.6.1. Open Space Distribution and Calculation

WAPC's Liveable Neighbourhoods requires a range of site responsive public open space in order to address the district, neighbourhood and local needs of residents. Public open space should be provided through a mix of both unrestricted and restricted spaces which are both functional and useable.

Table 4 provides a breakdown of the open space proposed in accordance with existing Liveable Neighbourhoods requirements.

A minimum of 10 per cent of the gross subdivisible area will be provided as POS in accordance with Liveable Neighbourhoods. Table 4 demonstrates that the minimum 10 per cent POS requirement can be achieved at subdivision stage with preliminary calculations indicating that a POS provision of 10.45 per cent is achieved.

Given its purpose in performing a civic and community function, no public open space credit has been sought for the land zoned 'Private Clubs and Institutions' as this land will remain in private ownership.

The final public open space amount will be subject to detailed design at subdivision stage.

6.6.2. Tree Protection Zone

A key driver of the design has revolved around the desire to retain mature trees where possible. At the more detailed design stage (in particular when final levels are determined) those trees which are able to be retained within private landholdings, public open space and road reserves will be identified. The design intent is to utilise existing vegetation as a natural buffer to West Parade, to the foreshore reserve and between existing dwellings adjoining the Structure Plan. Tree protection zones will be identified to ensure the appropriate setbacks and the best opportunity for retention is provided.

6.6.3. Public Open Space (POS) Form & Function

The public open space proposed is a mix of smaller POS areas, multi-use corridors and larger centrally located public open space areas adjacent to residential development and the civic/community centre (land zoned 'Private Clubs and Institutions'). The POS layout focusses on providing access to all residents within the area, encouraging the use of the space by the community.

The design and placement of public open space within the Structure Plan has been driven by the following key principles:

- Conservation of mature trees and the implementation of native planting.
- Multi-use drainage corridors which encompass existing drainage lines and offer opportunities for passive open space.
- Protection of flora and fauna habitat.
- Provision of functional parkland and walk trails connected to the Helena River foreshore.

The POS plan demonstrates the location and type of public open space across the Structure Plan. The following section outlines the key aspects of the proposed POS based on Liveable Neighbourhoods principles and objectives, with a detailed description of each open space type (P1-P6) provided.

Table 4 Public Open Space Calculation

POS SCHEDULE

Gross Area		**49.2309 ha**
Deductions:		
Water Corp Drainage Corridor	DE	1.0565 ha
Private Clubs and Institutions	C1	1.2678 ha
	C2	2.9549 ha
	C3	0.7659 ha
Sub Total		**6.0451 ha**
Drainage	D1	0.0951 ha
	D2	0.0372 ha
	1:1yr	1.0619 ha
		1.1942 ha
Nett Area		**41.9916 ha**
10% POS Requirement required		**4.1992 ha**
Creditable Open Space	P1	1.2644 ha
Provided	P2	0.3338 ha
	P3	1.0843 ha
	P4	0.3176 ha
	P5	0.5122 ha
	P6	0.8761 ha
		4.3884 ha
% POS		**10.45%**

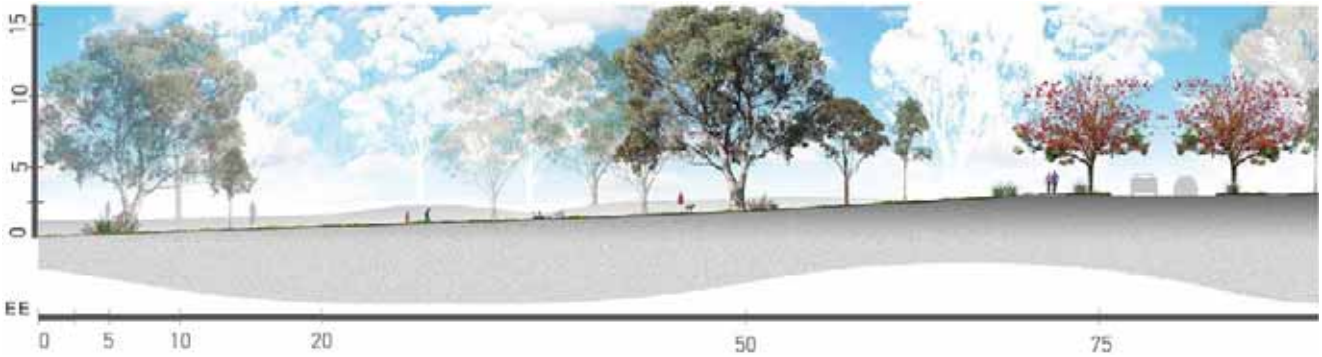
PUBLIC OPEN SPACE AND DRAINAGE

P1	1:1yr	0.0423 ha	**P4**	1:1yr	0.0102 ha
	U	1.2644 ha			0.0533 ha
		1.3067 ha		1:5yr	0.0019 ha
P2	1:1yr	0.3631 ha		U	0.3157 ha
	1:5yr	0.0260 ha			**0.3811 ha**
	U	0.3078 ha	**P5**	U	0.5122 ha
		0.6969 ha			**0.5122 ha**
P3	1:1yr	0.1884 ha	**P6**	1:1yr	0.4046 ha
	1:5yr	0.0252 ha		1:5yr	0.2285 ha
	U	1.0591 ha		U	0.6476 ha
		1.2727 ha			**1.2807 ha**
			TOTAL	**1:1yr**	**1.0619 ha**
				1:5yr	**0.2816 ha**
				U	**4.1068 ha**
				Civic	**4.9886 ha**
D1		0.0951 ha			
D2		0.0372 ha			
		0.1323 ha			

Source: Urbis

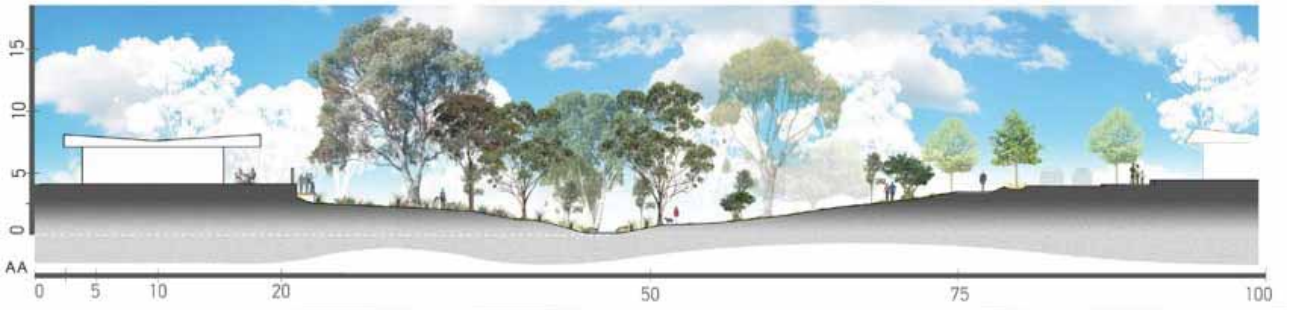
P1 Homestead Park

'Homestead Park' is the interface between the Civic Centre and the Helena River Foreshore. A number of existing landscape elements, particularly the original orchard and driveway alignment will be retained as part of the broader circulation and community function of this area. The POS itself will act as a buffer between the development and the foreshore and will include rehabilitation of the pre-existing dampland environment to support both habitat creation and water management.



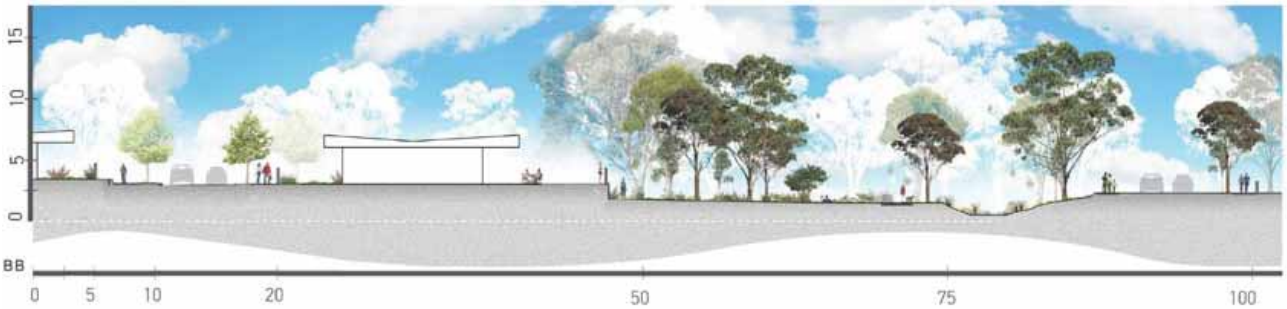
P2 Padbury Park

Padbury Park' is "proposed as a passive green park that links through to the Helena River foreshore. This space is focused around the retention and celebration of the existing watercourse that traverses the site and will include a mix of open grassed parkland and native planting. This park will provide a transition between the urban environment and the natural environment through appropriate planting which is reflective of the rural landscape and encourages habitat creation along the waterway.



P3/P4 Lockart and Berckelman Park

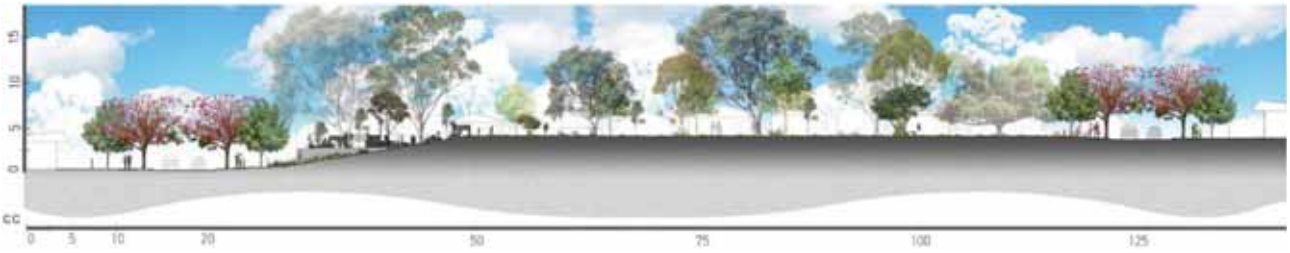
This linear parkland, located to the south of West Parade aims to enhance and celebrate the rural character of the area via an open, rural edge along West Parade. This will be realised through the retention of the existing landform, waterways and trees. A variety of informal passive grassed play areas will be developed along with walkways providing pedestrian access from the estate through to the civic/community hub.



P5 Serpentine Park

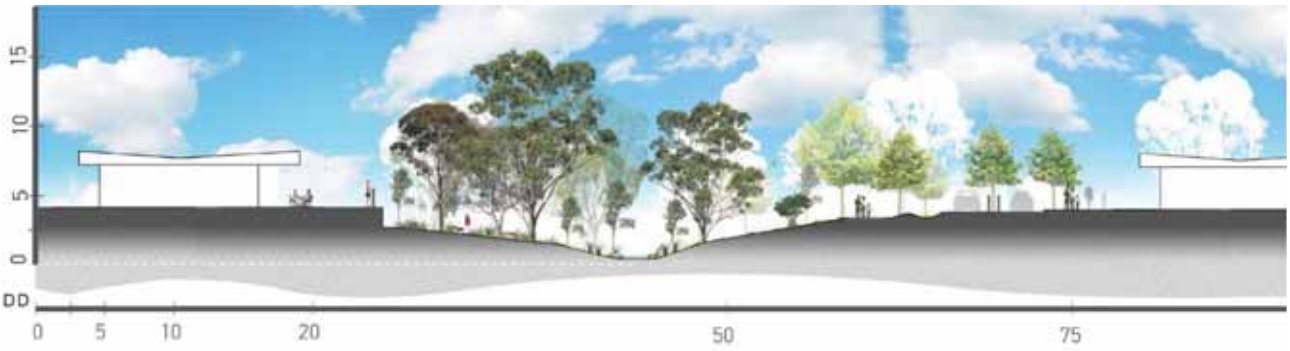
Serpentine Park is located centrally within the development and is located to provide an alternative experience for residents. The park is a visual focal point looking south from the entry road from West Parade and provides a semi-active central node for community gathering. The park is located along the central spine of the estate and provides commanding views, potentially extending to the Helena River. Due to the distinct character and unique locational advantages, this public open space will incorporate nature play, BBQ's, shelter and the retention of trees to create a distinct community outdoor space.

This park also serves as an intermediate destination for residents moving from the south eastern end of the development to the civic centre and Helena River. This park has been located to assist in encouraging pedestrian and cycle movement.



P6 Nullagine Park

Nullagine Park follows the living stream located to the south-west of the Structure Plan to create a passive space for informal gatherings. This linear park will incorporate planting with a native focus and the retention of the ingress and egress levels of the existing stream. Retention of trees where possible and habitat creation through re-profiling and rehabilitation of the waterway will contribute to the rural character of the estate and ensure the existing water quality and habitat is improved.



D1/D2/D3 Tone Park

Flanking the threshold of the subdivision to the east, at the intersection of Edgar Wilkes Entrance, these separate areas of public open space will provide small pocket parks which will serve as pause points for those traversing the site. The siting of the parks will also provide an opportunity to create a visual entry and buffer into the site transitioning from the existing developments into the leafy green streets of the Structure Plan area. Due to the natural topography levels, these parks will play a drainage function with the retention and planting of trees assisting in creating a visual entry statement into the estate from the south. A cross-section has not been provided for this POS area due to its primary drainage function. Due to the size and drainage function of these open spaces, no formal open space credit is sought for these areas.

Kulunga Park

It is currently proposed that Kulunga Park, situated on the outside of the eastern boundary of the Structure Plan be upgraded as part of the subdivisional works for the Structure Plan. The upgrade will address the current grassed areas and planting as well as the potential improvement to the linkages and finishes within the public open space. The extent of the upgrade will be assessed in conjunction with the City of Swan and

determined at the more detailed planning stages. Kulungar Park does not form part of any credited open space as it falls outside of the Structure Plan. A cross-section of this POS has not been provided as it sits outside of the Structure Plan and will be subject to further consideration and detailed design.

Water Corporation Corridor (Lot 1)

Ownership of Lot 1 resides with the Water Corporation and as such, all management of this corridor will remain with the authority. The proposed interface with Lot 1 will vary pending the adjacent land use. POS areas will blend seamlessly with the lot and the streetscape interface will vary from at grade integration to landscape batters.

6.7. LANDSCAPE DESIGN

To assist in creating a high quality public realm which contributes to the amenity of the residents and surrounding locality, a Landscape Master Plan has been prepared to accompany the Structure Plan.

The approach to landscaping has been strongly based on the overall philosophy of creating a defined neighbourhood built upon simplicity, authenticity, connectivity and creativity. Maintaining the existing character of the area which references history and heritage and celebrates the rural character of the site is intrinsic in the overarching landscaping design. On the ground, the landscaping will directly respond to the sites natural assets and ecological corridors with respect to tree and topography retention, wherever possible. The landscape approach will respond to EnviroDevelopment initiatives through the selection of native tree species and urban water sensitive design. The proposed landscape design is included in Figure 18.

6.7.1. Irrigation Strategy

It is intended that the irrigation system will utilise the existing bore and the associated licence which was previously used to irrigate the former golf course and surrounds.

It is intended that the system and bore will not only allow for the irrigation of the various areas of POS, but investigations are being undertaken for the provision of a ‘Community Bore’ which will be metered to allow residents to have reliable access to irrigation water for their lots and verges. The irrigation system will be designed such that it adheres the ‘water wise standards’ as outlined by the Water Corporation and the Irrigation Association of Australia (IAA) and industry best practices.

All landscape areas will be hydrozoned and designed to minimise water use through the appropriate selection of species and soil enhancements.

6.7.2. Landscape Management

The industry accepted standard Developer funded and managed landscape and irrigation maintenance period is typically two (2) summers as outlined in Liveable Neighbourhoods. Following this period, the landscape and irrigation maintenance will be handed over to the City of Swan to manage, unless otherwise negotiated.

Figure 18 Landscape Masterplan

Source: Urbis

6.8. CIVIC AND COMMUNITY FACILITIES

Provision has been made within the Structure Plan for community and civic facilities within the land zoned 'Private Clubs and Institutions'. The provision of this area has largely been driven by the desire to retain the existing improvements on the site, including Rosehill Lodge and its gardens. This has been further recognised through various consultation undertaken to date which has identified a clear community interest in the retention of the Lodge.

All land uses permitted to be developed within this zone will need to be in accordance with the conditions of SUZ24.

The permissible land uses within this zone (Precinct 2) are considered to be appropriate within the context of the 25+ ANEF contour and acceptable land uses as they apply under SPP 5.1 and AS2021. Those land uses listed under Clause 4.3 – Zoning Table of LPS17 which are not acceptable under SPP 5.1 and AS2021 have been excised as 'X' (non-permissible uses) and listed accordingly within the 'Special Use' zone.

From a community development perspective, the Structure Plan has been designed to leverage the site's natural assets including its proximity to the Helena River foreshore, whilst also addressing site constraints (exposure to aircraft noise). Notable community outcomes achieved in the plan, include:

- Potential for civic and community facilities within the existing improvements and within the remaining land set aside for 'Private Clubs and Institutions'.
- Recognition and celebration of historical and heritage assets of the local area.
- Community and civic spaces being located adjacent to pedestrian and cycle linkages, with accessibility to the Helena River foreshore and Guildford townsite being improved through additional linkages.
- Space has been made available for community festivals, events and community gardens, encouraging community interaction and vibrancy.
- The provision of landscaping design which results in functional, accessible and integrated areas of public open space areas.

6.9. FUTURE MRS AMENDMENT

The gazettal of MRS Amendment 1266/57 resulted in the rezoning of Rosehill Waters from 'Rural' to 'Urban' up to the 25 ANEF contour (as defined by the Perth Airport Master Plan 2014) to facilitate the redevelopment of the land as contemplated under this Structure Plan.

At the time of consideration of the original MRS Amendment 1266/57, the WAPC determined that there was not sufficient detailed information on the type of land uses that could be located within the 25+ ANEF contour area nor the appropriate planning mechanisms in place to guide the development of that land. Notwithstanding, the MRS Amendment 1266/57 Report on Submissions specifically states that the decision to exclude the area "does not preclude the matter being given further consideration later depending on future circumstances and the State and Local Government policy context".

The Structure Plan includes the land above the 25+ ANEF contour, with the land within this area zoned for 'Private Clubs and Institutions' and public open space (consistent with the overarching 'Rural' zoning) until such time as the land is rezoned to 'Urban' under the MRS.

An MRS Amendment will be progressed over the remaining portion of the site.

The uses which will be contemplated within this area will be consistent with SPP 5.1 and AS2021. As such, the rezoning of this land is considered to represent a logical and efficient expansion of urban development.

In addition to the above, it is proposed as part of the new MRS Amendment, that the northern site boundary be rationalised. This will essentially involve the "evening" out of the foreshore reserve, assisting in the delineation of a more logical boundary, resulting in an improved interface with the Structure Plan and improved public access.

This rationalisation will involve the exchange of a portion of land within the Structure Plan boundary located to the north of the community/civic hub with land which is currently vested with the WAPC, to the north of Padbury Park. The details and particulars of this "land exchange" are being worked through with the WAPC. Once this amendment has been progressed, a modification will be required to the Structure Plan to reflect the new MRS zonings and Structure Plan boundary.

6.10. FUTURE VILLAGE CENTRE

On the presumption that the proposed MRS Amendment and land-swap proceed, it is the intention of Noahs Rosehill Waters Pty Ltd to re-develop the Private Clubs and Institutions zone into a small Village Centre.

Figure 19 identifies at a conceptual level how this redevelopment may occur whilst still retaining and celebrating the Rosehill Lodge, Stables and Gardens. Whilst also to be the subject of a structure plan amendment and local development plan, the concept provides for a full line supermarket (3,500m2 NLA) and range of supporting speciality tenancies (up to 1,200m2 NLA). Although not heritage listed, during early stages of consultation, the surrounding community identified the importance of the existing Rosehill buildings and gardens, as well as the desire for any redevelopment to incorporate a small activity centre. Accordingly every effort will be made to deliver a design that retains both structures and the garden whilst balancing fundamental retail design drivers (i.e. parking, exposure and service access).

From a movement perspective, the concept retains the alignment of the extension of Pexton Drive, providing an esplanade road and access to the Helena River foreshore. Additionally a private north-south access way off West Parade will provide for both vehicular and pedestrian access through to the commercial component of the centre, the stables and car parking to the north. A small plaza space linking the gardens, stables and

the shopping centre will provide a central focus and potential location for alfresco dining. As per the submitted structure plan, the back-of-house components of the shopping centre will be sleeved by rear loaded residential development (lots sit within the 20-25 ANEF contours).

Obviously the design is the subject of further refinement and the proponent looks forward to working with the City of Swan in this regard once the proposed MRS Amendment has progressed.

Figure 19 Future Village Centre

Source: Urbis

6.11. MANAGEMENT OF INTERFACES

The Structure Plan is bounded by existing residential development to the north-east and south-east boundaries. Local roads separate some areas of housing whilst other existing dwellings immediately abut the boundaries of the Structure Plan. Following feedback from the community, and as a direct response to the MRS Amendment No.1266/57 outcomes, the design seeks to create a more appropriate interface between the proposed development and the existing residential dwellings.

The conditions of the MRS Amendment No.1266/57 specifically require that;

"Existing residential development abutting the amendment area should be appropriately separated from new residential development in consideration of amenity impacts"; and

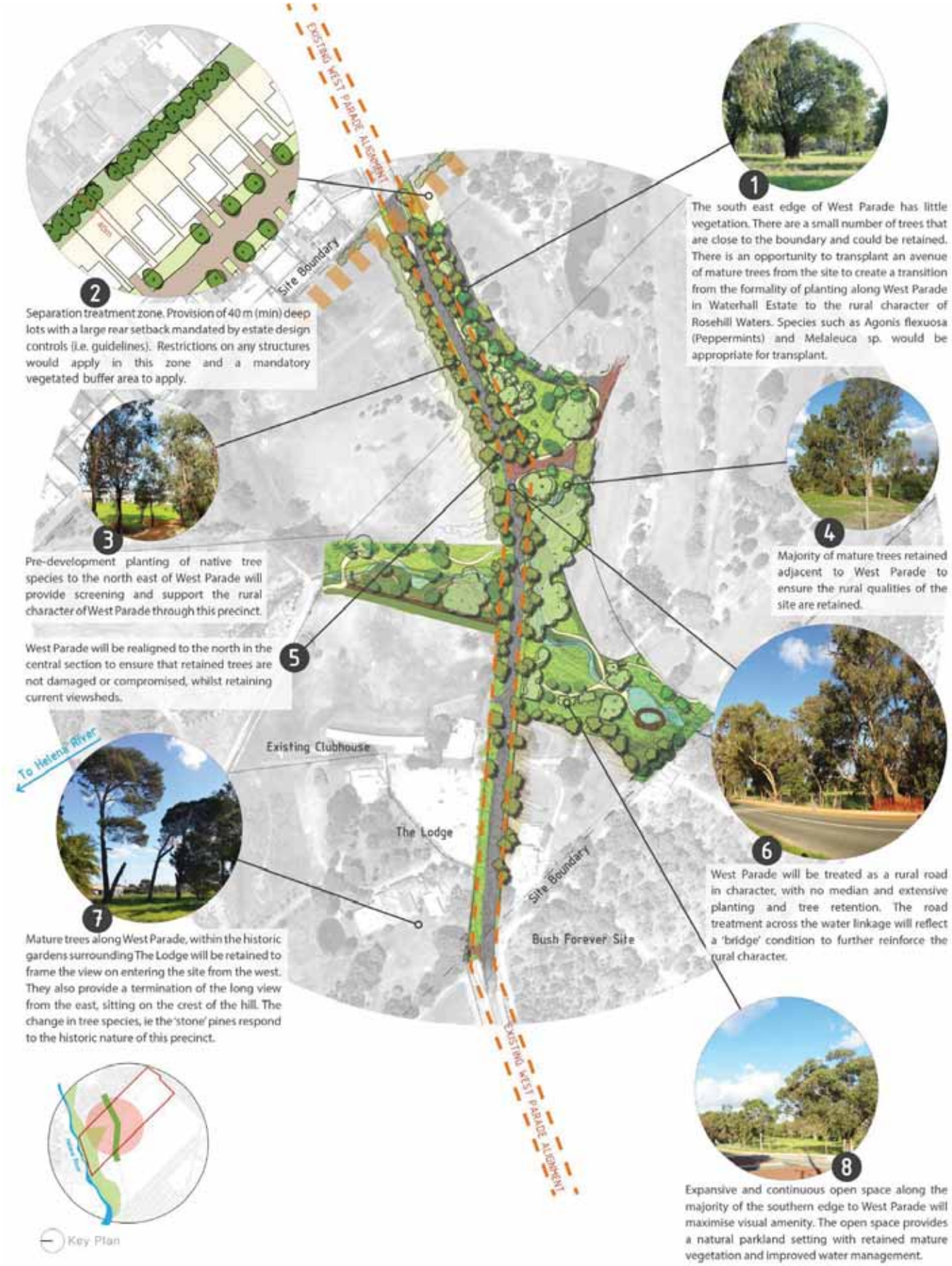
"An appropriate buffer should be provided along West Parade that retains the existing vegetation and maintains the visual amenity of West Parade."

The Structure Plan design has been configured to ensure an appropriate interface and buffer has been provided to respond to the above requirements. Details of this design response is as follows:

- Deeper lots (i.e. 40 metre deep lots) will be provided to those lots immediately abutting existing residential development (refer Figure 20). The deeper lots will facilitate building footprints are appropriately setback from this boundary. These setback areas will be planted out (by the proponent) as part of the build out, with the exact type and nature of planting being determined through consultation with the community. Where a road interface is provided to existing residential development, the proponent will provide “over and above” landscaping to the verge treatments. The exact nature of these treatments will be determined in consultation with the City of Swan and the local community.
- The requirement for Local Development Plans to provide the detailed control over separation distances between all lots which are directly adjacent to existing residents. These LDPs will be required as a condition of subdivision and/or prior to any development.
- To the largest extent POS abuts West Parade, with mature trees being retained wherever possible. Pre-development planting of native tree species to the north east of West Parade will provide screening and support the rural character of the road. The road reserve will be widened to the south-east to allow for the transplantation of any mature trees from site (where possible) to create an avenue of mature trees along West Parade.

The above along with the detail provided in Figure 20 demonstrates how the conditions of MRS 1266/57 have been considered within the preparation of the Structure Plan and how they will be delivered at the detailed design stage.

Figure 20 Buffer & Separation Treatments



6.12. MOVEMENT

This section has been directly informed by the Transport Impact Assessment undertaken by DVC (refer Appendix E) and highlights the key elements and details of the proposed and existing road networks, the road hierarchy classification and road cross-sections. This section also provides an overview of the pedestrian and cyclist network within the Structure Plan.

6.12.1. Existing Access & Movement

The Structure Plan is presently accessed from West Parade which transects the site in an east-west direction. The north-east boundary of the Structure Plan abuts some roads within the existing residential estate, namely Lautour Street and Armitage Close, with other residential roads terminating at the boundary. Edgar Wilkes Entrance forms part of the south-eastern boundary.

Major arterial roads within close proximity include Great Eastern Highway to the west and Great Eastern Highway Bypass to the south.

6.12.2. Movement Network Hierarchy

The Structure Plan provides for a District Distributor B (West Parade) and Neighbourhood Connector as well as key local access streets that connect to the existing street network. The road hierarchy is shown in Figure 21.

Arterial access to the Structure Plan will be provided predominately by West Parade which links to Great Eastern Highway in the west and to Bushmead Road to the east. Access to the Structure Plan from the south is afforded by the existing Waterhall Road a Local Distributor that passes in a north-south direction through the existing Rosehill estate. A planned SE – NE running Neighbourhood Connector ('main spine') will pass through the Structure Plan and connects traffic to either West Parade or Waterhall Road. Pexton Drive runs in an east-west direction and connects residential traffic to the future civic/cultural centre (Private Clubs & Institutions zone) and will function as an Access Street – B.

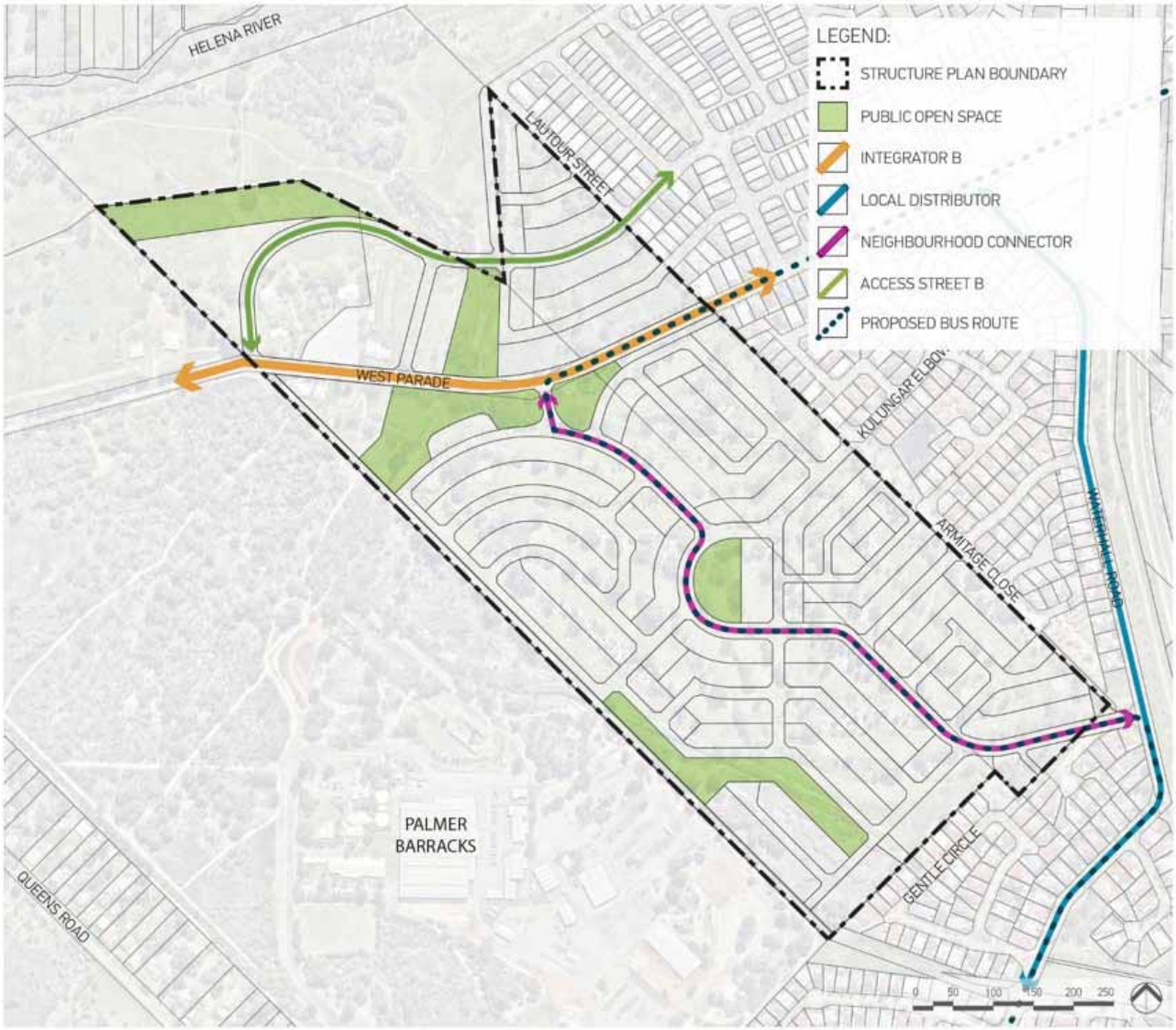
The access system has been developed carefully to share traffic generated amongst the surrounding streets and intersections. The analysis undertaken by DVC (refer Appendix E) confirms that there is sufficient existing capacity within the arterial and local road network to accommodate the traffic generated from the Structure Plan. The traffic volumes forecast within the Structure Plan are comfortably within the acceptable limits as prescribed in Liveable Neighbourhoods (2009).

6.12.3. Street Types

Road reservation widths will range from 20 metres for the Neighbourhood Connector to 12 -15 metres for the local access streets, consistent with the ranges contemplated in Liveable Neighbourhoods (2009). The smaller reserve widths are generally for shorter, low volume and low parking demand streets, with larger reservation widths making allowance for median or verge features.

A 10 metre road reservation width has been contemplated within the Aged Persons site. Whilst this is a minor deviation from the minimums standards of the Residential Design Codes (R-Codes), this width is considered to meet the performance criteria of the R-Codes in that legible access is provided via the internal movement network and pedestrian safety is maintained given the low speed environment and high quality landscaping. In addition, the proposed bus route within close proximity to this site will reduce the dependence on the private car. The detailed design of this internal access road will be determined as part of a Development Application for the potential future Aged Persons site.

Figure 21 Movement Network Plan

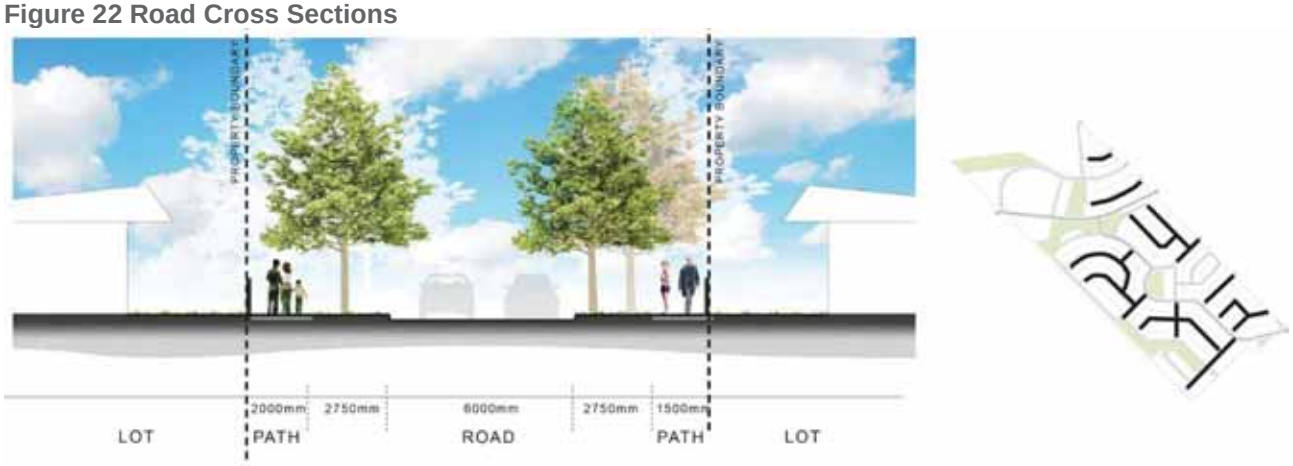


Source: Urbis

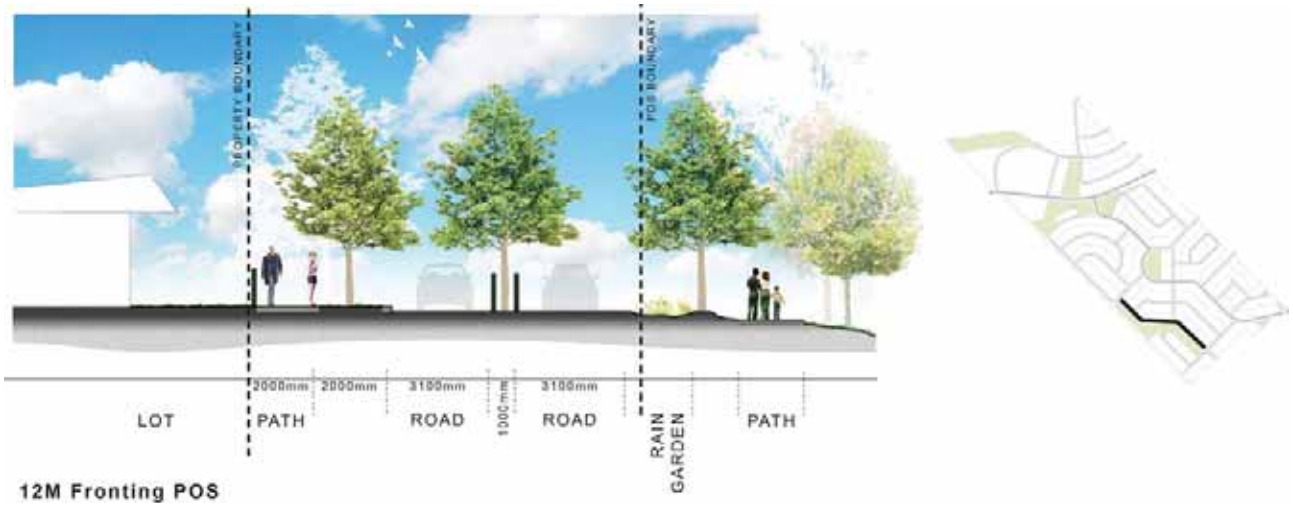
The street cross-sections at Figure 22 identify the proposed Structure Plan road network, including the identification of a hierarchy of local access streets within the Structure Plan. The design of the streetscapes has been largely driven by existing topography and the desire to retain trees within verges where possible. In some instances road pavement has been diverted to sit closer to the road reserve boundary to allow

for tree retention. In some circumstances, multiple cross-sections have been provided for the same portion of road. This has been done to demonstrate the multiple options that may apply depending on site conditions and final detailed design.

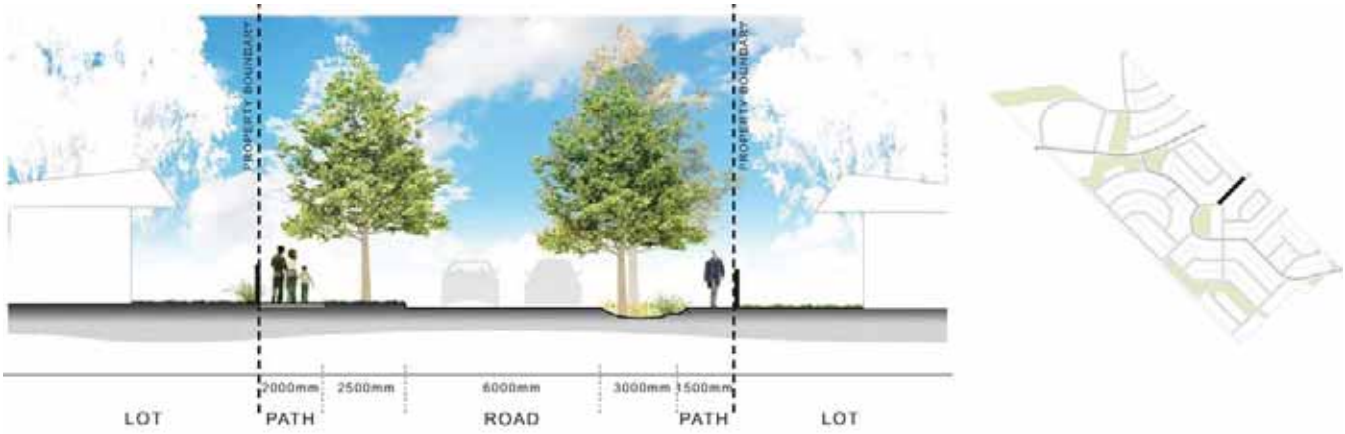
Figure 22 Road Cross Sections



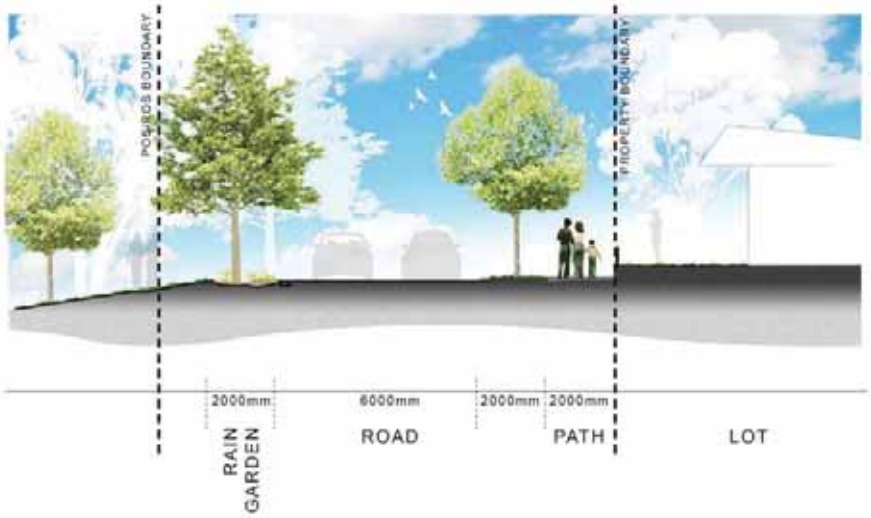
15m Road Reserve



12M Fronting POS

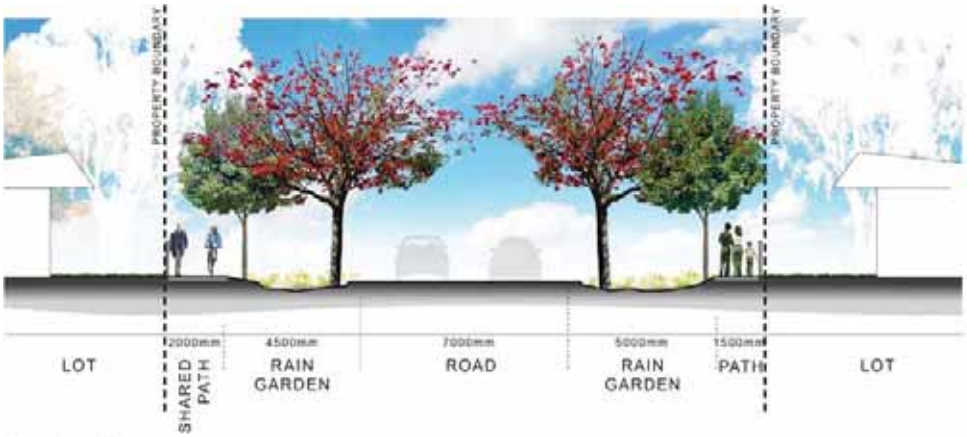


15m Road Reserve
With Rain Garden

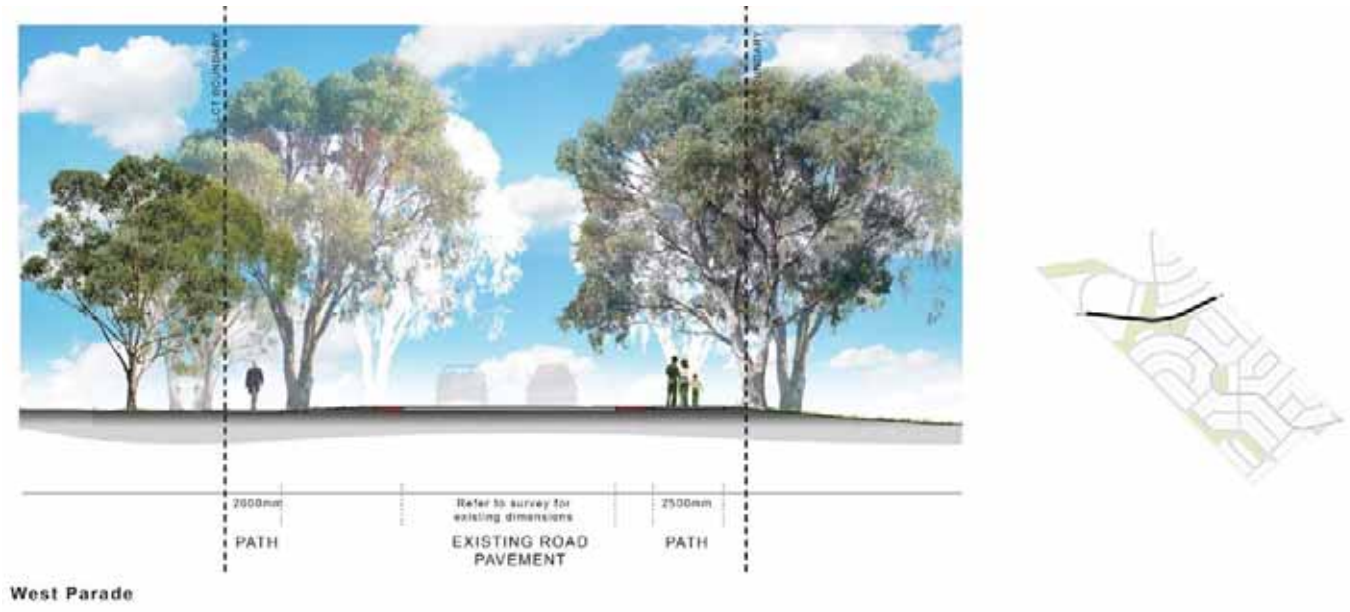


12m Fronting POS

12m Adjacent Watercorp Reserve



20m Road Reserve With Drainage



Source: Urbis

There are a number of streets within the Structure Plan which will connect to the existing street network of the neighbouring estate, these include connections to:

- Pexton Drive
- Lautour Steet
- Brooking Street
- Kulungar Elbow
- Karreen Way
- Edgar Wilkes Entrance
- The Embankment

Generally, these networks will be designed to seamlessly connect to the existing reservation width and form of the existing streets. However, of particular importance are the following connections and their circumstances:

The Embankment – The road connection from the Structure Plan to The Embankment to the north-east corner of the site is located outside of the Structure Plan boundary and located within land reserved for 'Parks and Recreation' (owned by WAPC). Future planning for this stage of the Structure Plan will include a land exchange and the acquisition of this portion of land and some of its surrounds to achieve the ultimate development scenario. The MRS Amendment to facilitate this process has been progressed with the WAPC.

Kulungar Elbow – The current traffic volumes of Kulungar Elbow are less than 1,000 vehicles per day (vpd). As a result of development within the Structure Plan, daily volumes are expected to increase to 1300 vpd. Notwithstanding, local access streets are able to cater to 3,000 vpd and as such the proposed increase in traffic is well within the roads capacity. The existing pavement width on Kulungar Elbow however is predominately 6 metres. It is acknowledged that typical pavement widths of 7.2 metres should be provided to roads carrying volumes in excess of 1,000 vpd. It is proposed that the road remains at 6 metres (with some localised widening), with the proposed extension

into the Structure Plan to also be 6 metres. The Traffic Impact Assessment supports the minor reduction in road width given the existing speed control measures in place.

It is also worth noting that the future connection will traverse a small area of land which is currently reserved and vested to the City of Swan (Lot 12013 Kulungar Elbow). Negotiations will be required with the City at subdivision stage to authorise the construction of this road through this portion of the reserve.

6.12.4. Upgrades to Great Eastern Highway/Queens Road Intersection

As part of earlier planning for Rosehill Waters, the impact the development will have upon the Great Eastern Highway and Queens Road intersection has been comprehensively analysed. This analysis has demonstrated that the current level of service at the intersection results in difficulties turning right out of Queens Road, with a level of service F (LoS F) currently experienced.

Consultation has been undertaken with the City of Swan and Main Roads WA to determine any necessary upgrades and appropriate design response. Accordingly, it has been requested by the City that some form of upgrade be undertaken to cater for the increased volumes of traffic generated by the development until such time as the Helena River bridge is upgraded (no known timeframe for delivery). As such, the agreed works between all parties (Developer, City of Swan, Main Roads WA) will result in the extension of the left turn lane to allow more vehicles to bypass right turn queues on the Queens Road approach during peak periods. It is important to note that despite the upgrades, the right hand turn on to Great Eastern Highway will remain at LoS F.

This upgrade will be triggered upon creation of the 300th lot with the terms and details for delivery being articulated in a legal agreement between the landowner and the City of Swan.

Note: Since adoption of the original Rosehill Waters Structure Plan, the developer has paid an agreed amount, as negotiated between the City of Swan, MRWA and the developer, to the City of Swan for the proponent's contribution to the upgrade of the intersection. The City of Swan will determine when these works occur.

6.12.5. Pedestrian and Cycle Network

The pedestrian and cyclist network will provide a high level of accessibility and connectivity for pedestrians and cyclists within the Structure Plan to the surrounding neighbourhoods. Figure 23 demonstrates that almost all of the Structure Plan is located within a 800 metre radius from the Waterhall Local Centre and the Rosehill Civic Centre, with all land within the Structure Plan located within 800 metres of the future proposed bus route.

A key focus has also been placed on providing improved linkages to nearby services within the Guildford town centre, through the provision of a pedestrian linkage through the Helena River foreshore.

The existing cycle path along West Parade will be retained in its current form and cycling will be safe on all local streets within the Structure Plan where traffic flows are less than 3,000vpd. Similarly, the low traffic volumes on the existing surrounding and proposed street network will allow for pedestrians to safely and easily navigate through the Structure Plan as desired, with footpaths being provided to at least one side of the road to all streets.

The hierarchy for pedestrian and cyclist facilities within the Structure Plan is consistent with Liveable Neighbourhoods and is demonstrated in Figure 24.

6.12.6. Public Transport

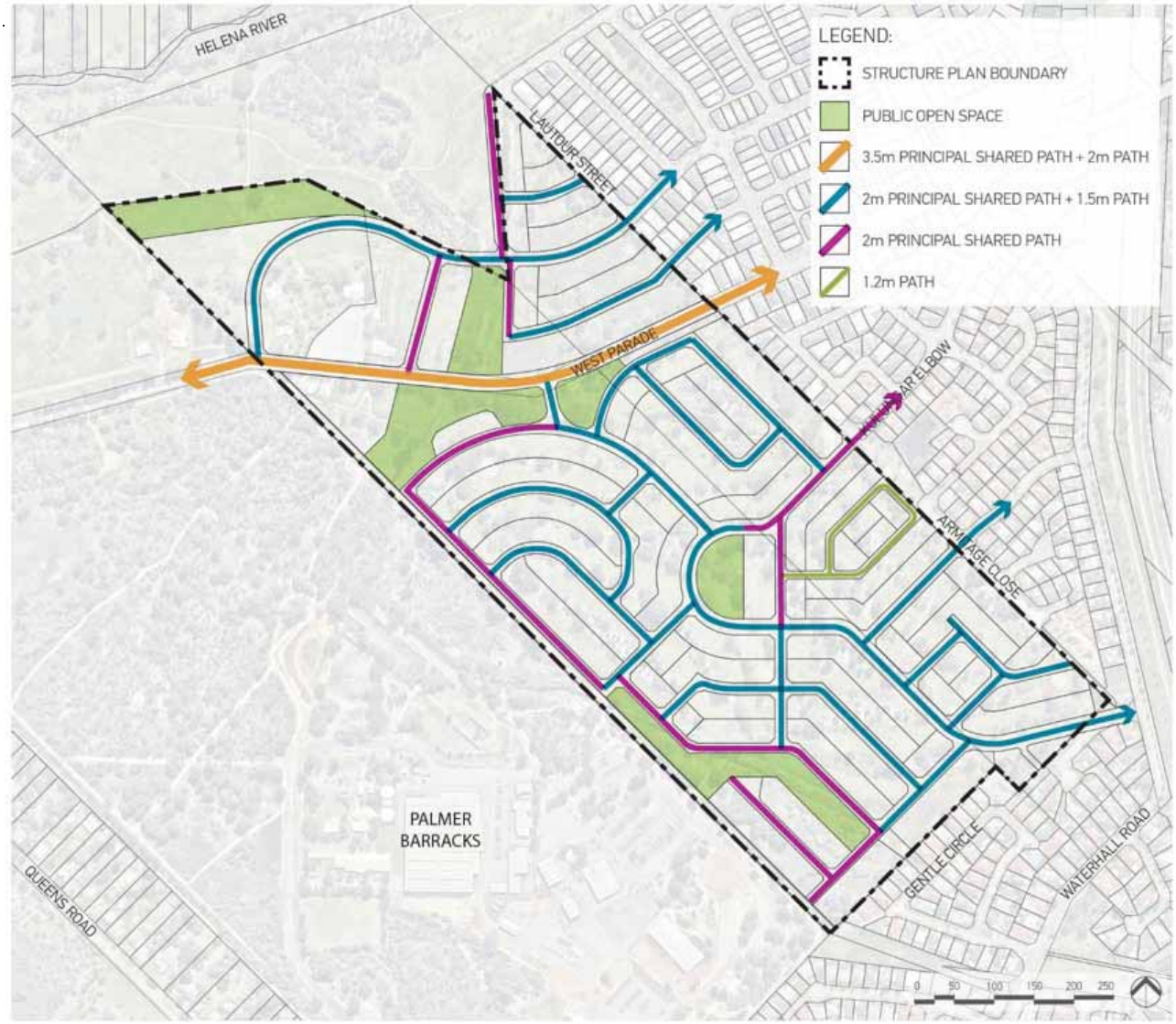
Midland Strategic Regional Centre is approximately 5 kilometres to the north- east of the subject site, where the metro rail line service from the Perth CBD currently terminates. Bus 304 currently services the neighbouring residential estates to the east of the Structure Plan and runs services to the Midland bus station. The nearest bus stop from the Structure Plan is located approximately 400 metres which is a comfortable 5 minute walking distance.

It is proposed that a bus route run through the 'main spine' of the development (refer Figure 24) to improve access to public transport at the site, and in particular improve the accessibility to public transport for the elderly at the aged person's site. Preliminary consultation has been undertaken with the Public Transport Authority (PTA) with advice received providing in-principle support to the proposed route. The details as to the timing of the switch to the new alignment will be determined upon construction and in liaison with the PTA.

Figure 23 Ped-shed Analysis

Source: Urbis

Figure 24 Pedestrian & Cycling Network



Source: Urbis

6.13. WATER MANAGEMENT

This section of the Structure Plan has been directly informed by the Local Water Management Strategy (LWMS) prepared by Coterra (refer Appendix B). The LWMS defines the surface water and groundwater management objectives and strategies including water quality management, water conservation and sustainability measures and the requirements for additional work at future planning stages.

In developing a water management strategy the intention is to incorporate Water Sensitive Urban Design (WSUD) through the implementation of Best Management Practices (BMP) in the management of surface water and groundwater, nutrient, flood, water use and wastewater. This will ensure that there is no undue impact on the existing local drainage infrastructure or the environment and that the site is adequately protected from flooding.

6.13.1. Water Conservation

As previously mentioned, a key design feature of the Structure Plan is the delivery of a more sustainable community. It is envisaged that the development will seek UDIA EnviroDevelopment accreditation as part of the detailed planning stages. A number of water conservation related elements of the development will be employed which will contribute to attaining the 6 leaves being sought.

The following conservation practices, subject to Council approvals, may be deployed at detailed design stage:

- Reduction of potable water usage with all homes fitted with AAA rated water fixtures (toilets, showers, taps etc.).
- Wastewater being disposed of via a Water Corporation regional system.
- Rainwater tanks being included as a standard option to all new homes.
- Groundwater will be used for ongoing public open space irrigation.
- Installation of a community bore to irrigate lots.
- Promote the use of alternative water sources, water efficient appliances and efficient landscaping in private and outdoor spaces.
- Water harvesting and reuse where possible, soil amendment and mulching and water efficient sprinkler systems.
- Irrigation of landscaping will be minimised through a design which combines hard and soft-landscaping, the use of hydroplanting and the selection of low water use native species to meet irrigation demand. Where possible, existing native trees will be retained as part of the development proposals to reduce the establishment time and water demand.

6.13.2. Stormwater Management

The former use of the site as a golf course generated comparatively less amount of run off compared to an urban development, as proposed. The additional stormwater runoff generated on site will require stormwater retention and treatment infrastructure.

The drainage strategy centres around the conversion of an existing man-made drain into a living stream to provide for an integrated and more sustainable management of stormwater. The drainage catchment areas and stormwater runoff patterns are naturally driven by the topography of the land. Future earth working on the site to suit urban development has been considered in the management of runoff. To ensure that downstream environments are not impacted upon by development upstream, the development of the Structure Plan is required to ensure that peak pre-development flow rates are maintained. This is achieved through the use of detention storage areas spread throughout the development.

The drainage areas indicated within the LWMS (refer, Appendix B) are based on a minimum volume of storage of 3.20m3 per lot. This is based on the 1 year 1 hour rainfall total (0.016m) being multiplied by the roof area (m2), based on a typical 200m2 dwelling on a 450m2 lot. Sufficient storage has been accounted for within the Structure Plan, as demonstrated in the LWMS.

Lot run off within the Structure Plan will be managed through the use of soakwell systems to retain and infiltrate roof runoff within individual lots which are within sandy soils. Alternatively runoff will be harvested in

rainwater tanks. Those lots which sit on clayey soils will require lot connection pits which will be piped to the stormwater system designed to cater up to the 1 in 5 year average recurrence interval (ARI) events. The pipe system will discharge via a bubble-up into a raingarden or swale sized to treat and infiltrate the first flush event. Greater events will overflow to the streets and ultimately to existing open drainage channels and new drainage areas created in public open space areas.

In almost all instances stormwater runoff generated in events above 5 year ARI will be conveyed in the road reserves and discharged directly into the living stream. However, the existing topography at the site prevents runoff generated from the south-east corner from entering the proposed living stream.

Stormwater from this area will be infiltrated via underground infiltration cells in this portion of the site. The level and type of drainage and piping within the road reserves will be dependent on the road hierarchy.

The impact different soil types have on stormwater management will be determined in greater detail at the subdivision stage.

Runoff from any minor storm events will be retained and treated within bioretention systems in public open space areas to ensure water quality objectives are met.

Road runoff generated in the 'first flush' event of the year generally contains the highest concentration of contaminants. All runoff from this event will be collected and treated prior to discharge into the living streams, the foreshore or infiltrated to groundwater. Water quality treatment areas in the form of raingardens and biofiltration swales will be used through the development to undertake this treatment. The LWMS provides the indicative locations for the water quality treatment areas.

6.13.3. Living Streams

The development of the site provides a key opportunity to improve the environmental and social value of the existing drains. As previously mentioned the drains will be converted into living streams and integrated into public open space areas to provide for sustainable water management. The living streams will be designed to convey runoff from the proposed urban areas as well as runoff from upstream catchments.

Additionally, the drain will contribute significantly to the quality of water within the drain, resulting in overall ecological and sustainable improvements. Online storage will be provided to the drains to ensure that post-development flow rates do not exceed the pre-development conditions.

A conceptual design for the drain has been provided in the LWMS.

6.13.4. Groundwater Management

No formal subsoil drainage system is proposed as part of the development, however some minor subsoil drains may be required upstream of retaining walls to manage localised conditions.

Due to the clayey nature of the soils, perching of groundwater can occur. Avoidance of perching will be addressed at detail design stage. Across the majority of the site sands have at least 1.2 metres of separation from the ground water level, however those areas to the north-east of the site adjoining the Helena River and the pocket to the south- west will require earthworks to ensure that a minimum of 1.2 metres separation is achieved. Re-contouring may also be required to provide a positive gradient towards the living stream, without the need for subsoil drainage.

By virtue of the change in land use, a significant improvement to the quality of groundwater will be experienced.

Stormwater runoff from road reserves will be treated within biofiltration swales/ rain gardens with adequate separation distances from maximum groundwater levels to manage nutrient loads generated within the urban catchment.

There is no expected alteration in groundwater levels from the proposed development site.

6.13.5. Flood Management

As mentioned above, there is sufficient capacity within the existing drains on site to convey the pre-development 100 year ARI event. It will be important however that appropriate flood mitigation is provided through appropriate finish floor levels to all buildings. As a result it is recommended that finished floor levels to dwellings/buildings be constructed between 300-500mm above the 100 year ARI flood level, depending on the lots risk to flood.

In accordance with the City of Swan LPS17, development within a flood prone area will be required to obtain planning approval. This includes the construction or extension of any building or earthworks. The City of Swan will be required to refer the application to the Department of Water for their advice with respect to finished floor levels.

6.14. BUSHFIRE MANAGEMENT

A Bushfire Management Plan has been approved by DFES for the Structure Plan area (refer Appendix F).

The bushfire hazard that could threaten the development is concentrated in the Bush Forever woodland to the west of the site and the revegetation area to the north of the site. These areas will represent a permanent threat to specific areas of the development.

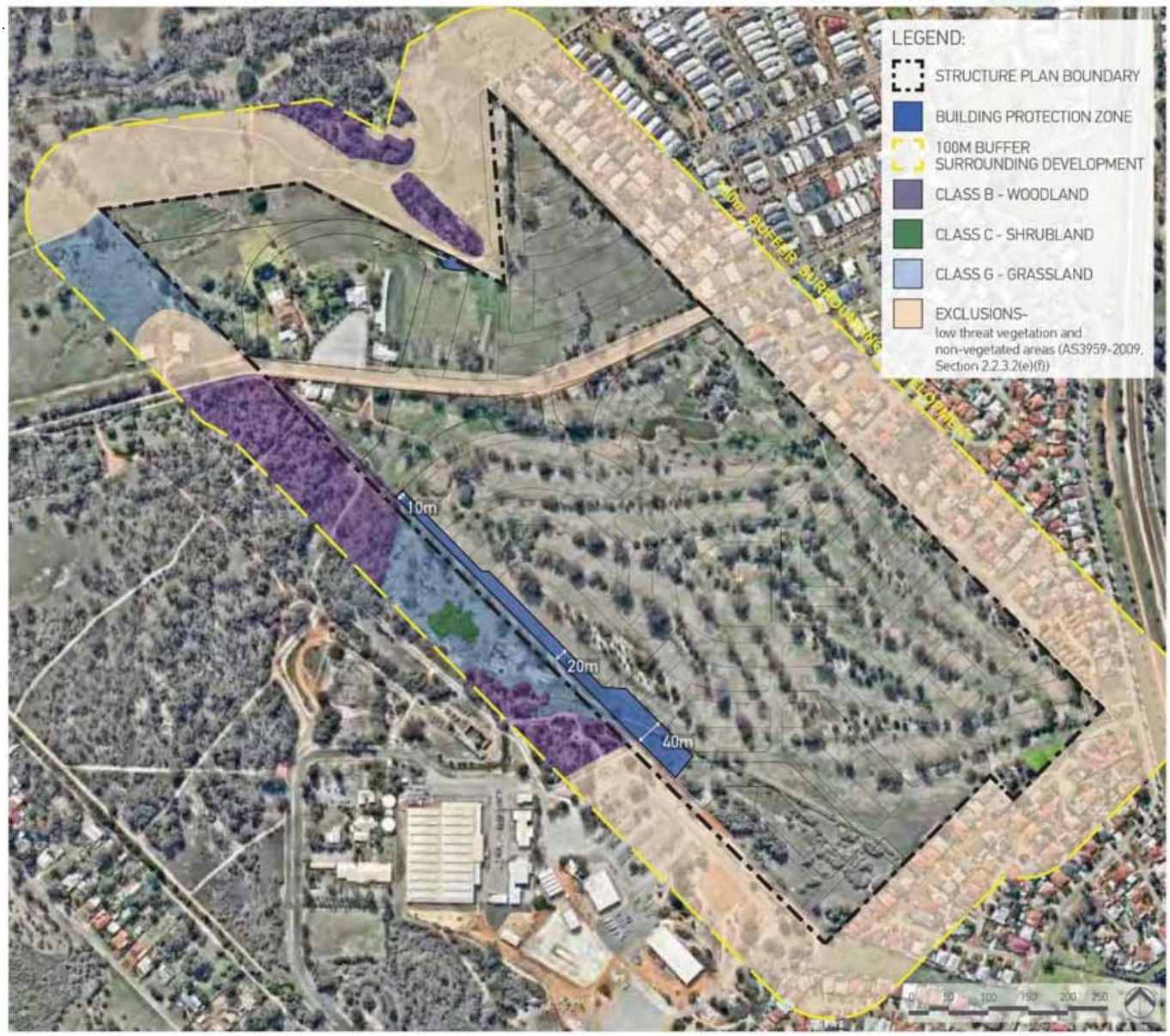
Fire management strategies in these areas have focussed on adequate setbacks, the presence of a Building Protection Zone and increased building standards (in accordance with AS3959:2009). This results in BAL-29 not being exceeded and therefore an acceptable level of risk is achieved in accordance with the Planning for Bush Fire Protection Guidelines 2010.

A 10 - 40 metre permanent Building Protection Zone (BPZ) measured from areas identified as being a bushfire hazard will be required. This will largely be accommodated within perimeter road reserves and front setbacks. The purpose of the BPZ is to provide an area of reduced fuel load from the area identified as being a hazard. The Building Protection Zone is identified in Figure 25.

A minimum of 10 metres of BPZ is a minor deviation from the standard required under the Guidelines (20 metres), however the siting and design of the Structure Plan, combined with the landscaping and road network design is considered to warrant a minor reduction to the BPZ which is appropriate to the level of bushfire risk that applies to the site.

In addition to the BPZ, any new dwellings constructed within 100 metres of the identified classified vegetation will require consideration of the need for increased construction standards to comply with AS3959 Construction of Buildings in Bushfire Prone Areas. As an accurate BAL rating cannot be determined at the structure planning stage, a BAL assessment will be required at subdivision stage (as part of an updated Fire Management Plan) to confirm the accurate BAL rating for each individual lot created. For those lots which are deemed to require fire management responses as a result of the BAL assessment, a notification pursuant to section 70A of the Transfer of Land Act 1893 will be required to be placed on the certificate of title to notify prospective purchasers that the lot is subject to a fire management plan and increased construction standards.

Figure 25 Building Protection Zone



Source: Bush Safety Consulting

6.15. NOISE MANAGEMENT

The purpose of State Planning Policy 5.1 – Land Use Planning in the Vicinity of Perth Airport (SPP5.1) aims to protect the Perth Airport from unreasonable encroachment by incompatible (noise-sensitive) development, and aims to minimise the impact the Perth Airport has on existing and future residential communities that may be potentially impacted by noise.

SPP 5.1 provides guidance on the type of uses which can be entertained within the different noise exposure zones in accordance with Australian Standard 2021 (AS2021).

Residential development can be considered (as a conditionally acceptable use) up to the 25 ANEF contour, with noise sensitive land use and development generally not being supported in areas above 25 ANEF.

Notwithstanding there are a number of other non-sensitive land uses such as, but not limited to church, cinema, library, office, shop, showrooms and warehouse which have been deemed as being acceptable or conditionally acceptable within the 25-30 ANEF contour area under AS2021.

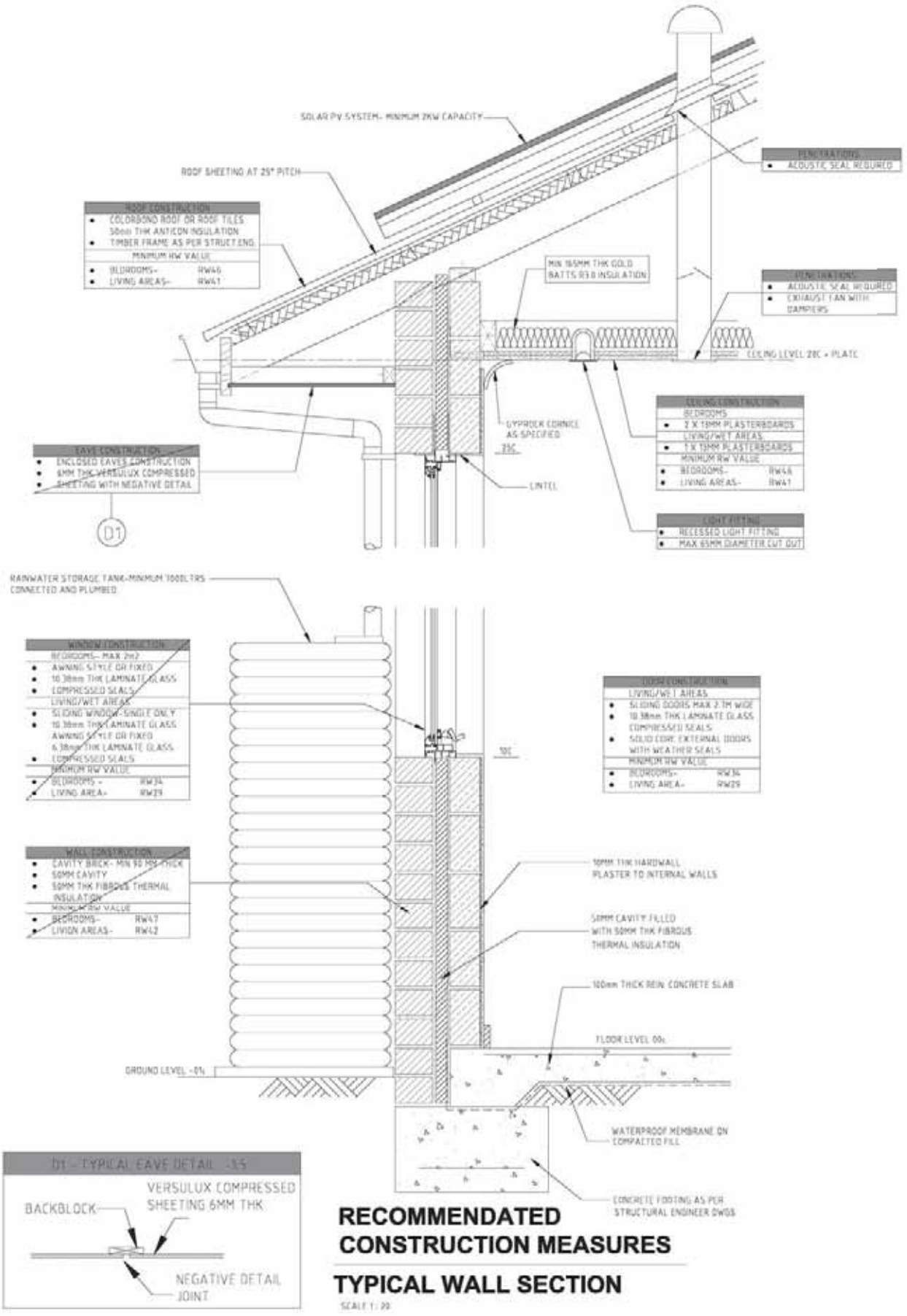
Approximately one-third of the Structure Plan is unaffected by aircraft noise, with the balance being affected by the 20-25 and 25-30 ANEF contour (as per the Perth Airport Master Plan 2014 and associated DPLH

mapping referred to in SPP5.1 accordingly). Residential development will not encroach within the 25+ ANEF contour as provided under the conditions of the proposed 'Special Use' zone. Land uses able to be entertained within the 25-30 ANEF will be consistent with SPP 5.1 and will be informed by the structure planning for the site. Within the area unaffected by aircraft noise, limited density development to R30 on two sites is allowed as per the Structure Plan (Figure 1).

All residential development within the Structure Plan area will include noise insulation in accordance with AS2021-2015. Various noise mitigation methods will be included in the built form in terms of the finishing's and materials to roofs and ceilings, walls, windows and doors (refer Figure 26).

In addition to the above, and consistent with the conditions of MRS Amendment No.1266/77, notifications will be placed on all certificates of titles and within sale contracts notifying all prospective purchase that their land is subject to aircraft noise. Refer to Appendix G for more information with respect to noise management.

Figure 26 Acoustic Construction Measures



6.16. SERVICING & INFRASTRUCTURE

6.16.1. Power

The Structure Plan has access to a number of 22kV HV feeders, including one located along West Parade (south of Waterhall Road) another continues north of Waterhall Road and a third HV feeder runs along Beavis Drive. These feeders are fed from Hadfield Zone Substation, the Hazelmere Zone Substation and the Guildford Substation.

Western Power has indicated that there is capacity within the existing network of between 20-25MVA with the potential for capacity to increase in the future. As such, there is the capacity to supply the whole of the development, but network reinforcement will be required to transfer power to the site. The staging of the development will ensure that natural loading to individual feeders will ensure that the trigger for any major network upgrades is avoided.

It is possible to either install a dedicated feeder from the existing aerial HV feeders that service properties adjoining the Structure Plan, alternatively partial augmentation of the existing aerial HV feeder could be undertaken.

6.16.2. Sewer

Some mechanical or other upgrades to the existing Waterhall pump station will be required to ensure that the projected flows from the development can be supported. The upgrades will require further consultation with the Water Corporation with respect to the funding and timing of delivery for the upgrades. In addition, adjusted catchment boundaries will need to be developed in conjunction with Water Corporation to cater to the change in land use and to ensure allocated flows are appropriate for the change of land use from the former golf course to residential development.

Refer Appendix D Infrastructure and Servicing Strategy.

6.16.3. Water

The Water Corporation will need to undertake a review of the water planning in the South Guildford locality, however the timing of this is unknown. The nature and inherent flexibility of water reticulation is such that it will have minimal impact on the Structure Plan layout.

In the interim, the Structure Plan is capable of being serviced by the existing reticulated water infrastructure, subject to appropriate headworks charges and negotiations through the Water Corporation.

Refer Appendix D, Servicing and Infrastructure Strategy.

6.16.4. Gas

ATCO Gas has indicatde that the existing infrastructure is only capable of servicing approximately 100 dwellings. To service the whole Structure Plan area, a 250 metre extension of the existing main within the neighbouring Waterhall Estate will be required along West Parade. ATCO Gas have confirmed that the cost of pipework for the extension can be met, however all civil works including trenching, traffic management and reinstatement is to be met by the developer. ATCO Gas will provide pipework for standard servicing requirements to all lots, subject to a common trench system is prepared and backfilled by the developer.

Therefore, the Structure Plan is capable of being serviced by the existing gas supply infrastructure through the extension from the Waterhall Estate, subject to appropriate headworks charges and negotiations through ATCO Gas occurring at the subsequent detailed planning stages.

6.16.5. Telecommunications

Existing communications to the site are currently provided by Telstra from the Bassendean exchange, approximately 4.4 kilometres from the site. Multiplexing equipment located at the western end of West Parade near Queens Street provides substantial capacity to the area.

It is understood that the development falls within the Australian Government's National Broadband yield criteria, which aims to reticulate communication assets to all new development of over 100 lots. Existing NBN Co fibre has already been installed to service the adjacent Waterhall development, it is understood that this fibre could be extended to service the Structure Plan. The developer will be responsible for the cost

of infrastructure. There may be specific easements required which will be considered at the detailed planning stage.

6.16.6. Earthworks

Due to the existing topography of the Structure Plan, significant earthworks will be required to prepare the site for residential development. The staging of development is largely driven by the approach to earthworks being the treatment of clay areas and the treatment of generally sandy areas. The site will be earthworked with the intent to minimise import fill requirements in the aim of achieving a cut to fill balance across the site, consistent with the EnviroDevelopment strategy.

Small areas of clearing will be required to remove existing trees where they have not been able to be retained within public open space or reserves and have been identified as having low retention value. Topsoil will be stripped and where possible reused on site.

Construction of retaining walls will be required to ensure level building sites, with specific planning and engineering techniques implemented to minimise walls of significant height. Allowances have been given near retaining walls to ensure appropriate drainage within clay soils.

A construction management plan required as part of subsequent detailed design stage will outline the intention and scope for the proponent to organise waste collections during the different stages of constructions. All earthworks will be undertaken to ensure compliance with the EnviroDevelopment initiatives.

Refer Appendix D, Servicing and Infrastructure Strategy.

6.17. BUILT FORM DELIVERY

Unlike typical land developments involving multiple landowners and builders, Rosehill Waters will be built out completely by the proponent. This means that houses, streets and public open spaces will be designed and delivered as an integrated community. Significant benefits with this approach include:

Community Benefit:

- A strong desire and common interest in ensuring the goals are achieved and the benefits flow to the local community.
- Understanding of the community concerns raised during the planning process and the delivery of a design which reaffirms community values.

Faster Delivery:

- Faster construction times minimising disruption to surrounding residents.
- Public open space, landscapes and amenities delivered sooner.

Improved Site Management:

- Potential impacts of construction on nearby residents reduced and better managed due to single builder co- ordination.
- A single point of management and contact to provide information to residents.
- Capacity to establish a Smart Waste zone.

Integrated Design:

- An integrated approach to the protection and management of environmental features.
- A more community focussed development which fits in seamlessly with the surrounding residents.
- A better focus on the delivery of an overall vision, not just individual homes.
- The ability to directly address the conditions of MRS Amendment 1266/57.
- Greater control over the implementation of AS2021 and the building standards set by the Fire Management Plan.

- Greater control over the implementation of the EnviroDevelopment Strategy.

Due to the restriction on density within the Structure Plan, the ability to provide diversity in built form is limited. Notwithstanding, it is recognised that Rosehill Waters will comprise of a broad demographic, with the mix of households requiring equally diverse housing choices. As such, the Structure Plan will include a mix of housing size and typologies. Design Guidelines will be prepared and managed by the proponent which will assist in achieving built form objectives.

TECHNICAL APPENDICES

APPENDIX A ENVIRONMENTAL ASSESSMENT REPORT

APPENDIX B APPROVED LOCAL WATER MANAGEMENT STRATEGY

APPENDIX C FORESHORE MANAGEMENT STRATEGY

APPENDIX D INFRASTRUCTURE AND SERVICING REPORT

APPENDIX E TRAFFIC IMPACT ASSESSMENT (AND ADDENDUM – DENSITY)

APPENDIX F APPROVED BUSHFIRE MANAGEMENT PLAN

APPENDIX G ACOUSTIC ASSESSMENT (2015)

APPENDIX H ABORIGINAL HERITAGE ASSESSMENT

APPENDIX I COMMUNITY ENGAGEMENT REPORT

APPENDIX J OUTCOMES OF PRELIMINARY CONSULTATION

APPENDIX K MINISTERS CORRESPONDENCE

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