latitude32
INDUSTRY ZONE

LATITUDE 32
DEVELOPMENT AREA 6A STRUCTURE PLAN

June 2020

DESCRIPTION	VERSION	DATE	DISTRIBUTION
Final for PDCC	1	2 August 2017	LandCorp
Draft for Advertising	2	2 November 2017	LandCorp, City of Cockburn
Final for Advertising	3	12 February 2019	Public Advertising
Post-Advertising Final for WAPC	4	6 June 2019	Western Australian Planning Commission
Final for Approval in accordance with WAPC schedule of modifications	5	3 June 2020	Western Australian Planning Commission

Acknowledgements

THIS DOCUMENT HAS BEEN PREPARED BY URBIS FOR LANDCORP

CERTIFICATION OF APPROVED STRUCTURE PLAN

This structure plan is prepared under the provisions of the Hope Valley Wattleup Redevelopment Project Master Plan.

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

06 July 2020

Table of Modifications

TABLE OF MODIFICATIONS TO PART ONE AND THE STRUCTURE PLAN MAP

MODIFICATION NO.	DESCRIPTION OF MODIFICATION	ADOPTED BY THE WESTERN AUSTRALIAN LAND AUTHORITY	APPROVED BY THE WESTERN AUSTRALIAN PLANNING COMMISSION

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Executive Summary

The Fremantle Rockingham Industrial Area Regional Strategy 2000 (FRIARS) was undertaken to protect and optimise the Kwinana Industrial Area, given the recognition of the Kwinana Industrial Area's importance to the State.

In accordance with the recommendations of FRIARS, the Hope Valley-Wattleup Redevelopment Project was established. It was rebranded as Latitude 32 in 2006. Latitude 32 is governed by the Hope Valley-Wattleup Redevelopment Act 2000 (the Act) and excises the Act area, by repealing the relevant planning schemes. These are replaced by the Hope Valley-Wattleup Redevelopment Project Master Plan 2005 (as amended December 2015) (the Master Plan). The Master Plan, for all intents and purposes acts as the Planning Scheme for the Redevelopment Area.

Located approximately 25km south-west of the Perth CBD, 15km south of the Fremantle GPO and 10km north of the Rockingham CBD, in close proximity to existing and planned service and transport infrastructure, Latitude 32 comprising a total area of approximately 1,400 hectares, is located within the municipal boundaries of the Cities of Cockburn and Kwinana.

In order to meet the statutory requirements of the Act and the Master Plan, it is necessary to prepare a structure plan that provides for certainty and flexibility, enabling land development and the timely release of industrial land that responds to market requirements.

This Structure Plan, including an area of 96.8ha, has been prepared for Development Area 6A (the Structure Plan area), being just one of six (existing and proposed) Development Areas within Latitude 32.

The Structure Plan has been prepared pursuant to Part 6 of the Master Plan to:

- Enable general industrial development through establishing an appropriate planning framework and design concepts; and
- Guide and support subsequent subdivision and development proposals.

The Structure Plan comprises a Part One – Statutory Section; Part Two – Explanatory Section providing context and justification to the preparation of the Structure Plan and associated technical reports and documentation to support the Structure Plan.

In order to guide and support subdivision and development proposals, this Structure Plan includes indicative lot layouts to ensure the Structure Plan area can be appropriately developed for industrial purposes. The Structure Plan design responds to existing and finished levels including extraction of primary resources, together with the significant road infrastructure proposed adjacent to the Structure Plan area. Where practicable, lot sizes and gradients have been designed to allow for the greatest flexibility to facilitate industrial development.

Due regard is to be given to the design principles and design rationale contained within the Structure Plan at the time of subdivision and development.

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Part One: Statutory Section

1 Part One

1.1 Structure Plan Area

The Structure Plan applies to the land identified within the black dashed line on the Structure Plan Map – *Plan 1* (the Structure Plan area). The Structure Plan is identified as the Development Area 6A Structure Plan (the Structure Plan).

1.2 Structure Plan Content

The Structure Plan comprises:

- Part One – Statutory Section

  Part One of the Structure Plan includes the Structure Plan Map and provisions and requirements that have statutory effect.

- Part Two – Explanatory Section.

  Part Two of the Structure Plan provides context, justifies and clarifies the provisions contained in Part One, and is used as a reference guide to interpret and implement Part One.

- Appendices

  Includes all specialist consultant reports and documentation used in the preparation of and to support the Structure Plan.

1.3 Interpretation and Relationship to the Hope Valley-Wattleup Redevelopment Project Master Plan

The Structure Plan has been prepared under Part 6 of the Hope Valley-Wattleup Redevelopment Project Master Plan (the Master Plan). The terms used in the Structure Plan shall have the same meanings given to them in the Master Plan or where not defined in the Master Plan as defined in the Structure Plan. Pursuant to clause 6.2.11.2 of the Master Plan, if any provision, standard or requirement of the Structure Plan is inconsistent with a provision, standard or requirement of, the Master Plan, then the Master Plan prevails to the extent of the inconsistency.

1.4 Structure Plan Objective

Subdivision and development in the Structure Plan area shall generally align with the following objective:

- To facilitate general industrial development including, but not limited to, those capable of supporting future operations and development within the Western Trade Coast.

1.5 Land Use, Subdivision and Development Requirements

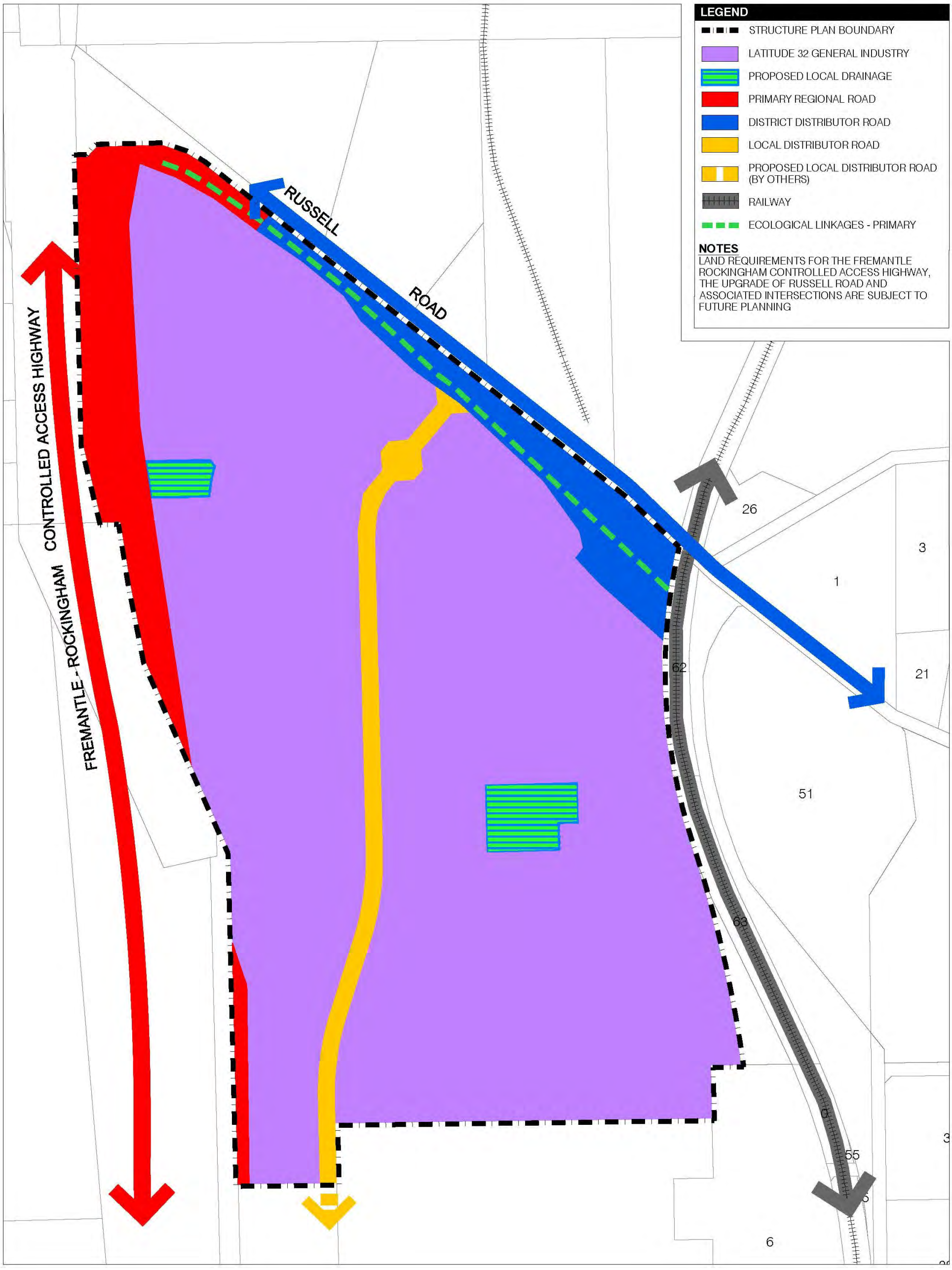
Land use permissibility within the Structure Plan shall be in accordance with the land use permissibility prescribed by the Master Plan for the Precinct within which the subject land is located.

The subdivision and development of the land is to be generally in accordance with the Structure Plan.

The Structure Plan is located within the Latitude 32 General Industry Precinct as described in Appendix 1 of the Master Plan. Land uses within the Structure Plan are to be in accordance with the land use permissibility prescribed by Table 1 of the Master Plan for the Latitude 32 General Industry Precinct.

In accordance with clause 6.2.3.2 and clause 6.2.3.3 of the Master Plan, the Structure Plan is to be given due regard when considering the subdivision and development of land within the Structure Plan area.

Subdivision and development should not be approved until a Development Contribution Plan (DCP) is in effect upon incorporation into Schedule 12 as per clause 6.3.4 and 6.3.5.



Plan 1 Development Area 6A Structure Plan

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Part Two: Explanatory Section

1 Introduction

1.1 Introduction and Purpose

The Structure Plan has been prepared for Development Area 6A (as described on *Figure 1 Latitude 32 Indicative Development Areas Plan*).

The Structure Plan has been prepared pursuant to Part 6 of the Master Plan to:

- Enable general industrial development through establishing an appropriate planning framework and design concepts; and
- Guide and support subsequent subdivision and development proposals.

1.2 Latitude 32 Background

The Fremantle Rockingham Industrial Area Regional Strategy 2000 (FRIARS), was undertaken to protect and optimise the Kwinana Industrial Area (KIA), given the recognition of the KIA's importance to the State.

In accordance with the recommendations of FRIARS, the Hope Valley-Wattleup Redevelopment Project, hereafter referred to as Latitude 32 was established. Latitude 32 is governed by the Hope Valley-Wattleup Redevelopment Act 2000 (the Act) and excises the Act area (Redevelopment Area) by repealing the relevant planning schemes. The Master Plan, gazetted in 2005, for all intents and purposes acts as the Planning Scheme for the Redevelopment Area.

Latitude 32, incorporating approximately 1,400 hectares of land, is strategically located within the Western Trade Coast (WTC) (refer *Figure 2 Locality Plan*). The WTC is made up of four estates, of which one is Latitude 32. Latitude 32 has been planned to complement the other estates within the WTC by supplying general and transport industrial land to support the strategic heavy and special industrial projects. Latitude 32 is nearby existing and planned service and transport infrastructure, including access to road, rail and sea.

Development Area 6A is located within close proximity to the Australian Marine Complex (AMC) in Henderson. The AMC is one of Australia's leading marine industrial estates providing manufacturing, fabrication, assembly service and repair for the marine, defence and resource industries. To the south is the Kwinana Industrial Area and Rockingham Industry Zone which also form part of the WTC

Latitude 32 is required to meet the statutory requirements of the Act and the Master Plan and ensure the planning framework provides for certainty and flexibility, enabling land development and the timely release of industrial land that responds to market requirements.

1.2.1 Westport – Port and Environs Strategy

Following the Government's decision in 2017 to review port planning in Perth and its surrounds, the Westport Taskforce was established to deliver an integrated strategy to meet freight and trade logistics for Perth and surrounding regions for the next 50-100 years.

The Westport: Port and Environs Strategy will provide increased certainty for port investors, communities and port users on the future of the Inner Harbour in Fremantle, the Outer Harbour in Kwinana, and will investigate how Bunbury Port may contribute to the overall freight task.

As part of its work, Westport will investigate the required rail and road networks and opportunities for trade expansions. For this reason, the planning for Development Area 6A will continue to be undertaken in consultation with the Westport Taskforce as required.

To support the strategic and long-term planning for WA's freight and trade logistic industry, land use planning for Latitude 32 needs to be flexible to accommodate outcomes of the planning underway by the Westport Taskforce. This includes but is not limited to an intermodal terminal investigation and the land and transport requirements associated with it.

The final Westport Strategy is expected to be presented to Government in September 2019. A working group has been established for the duration of the Westport project to integrate Latitude 32 planning with Westport's planning.

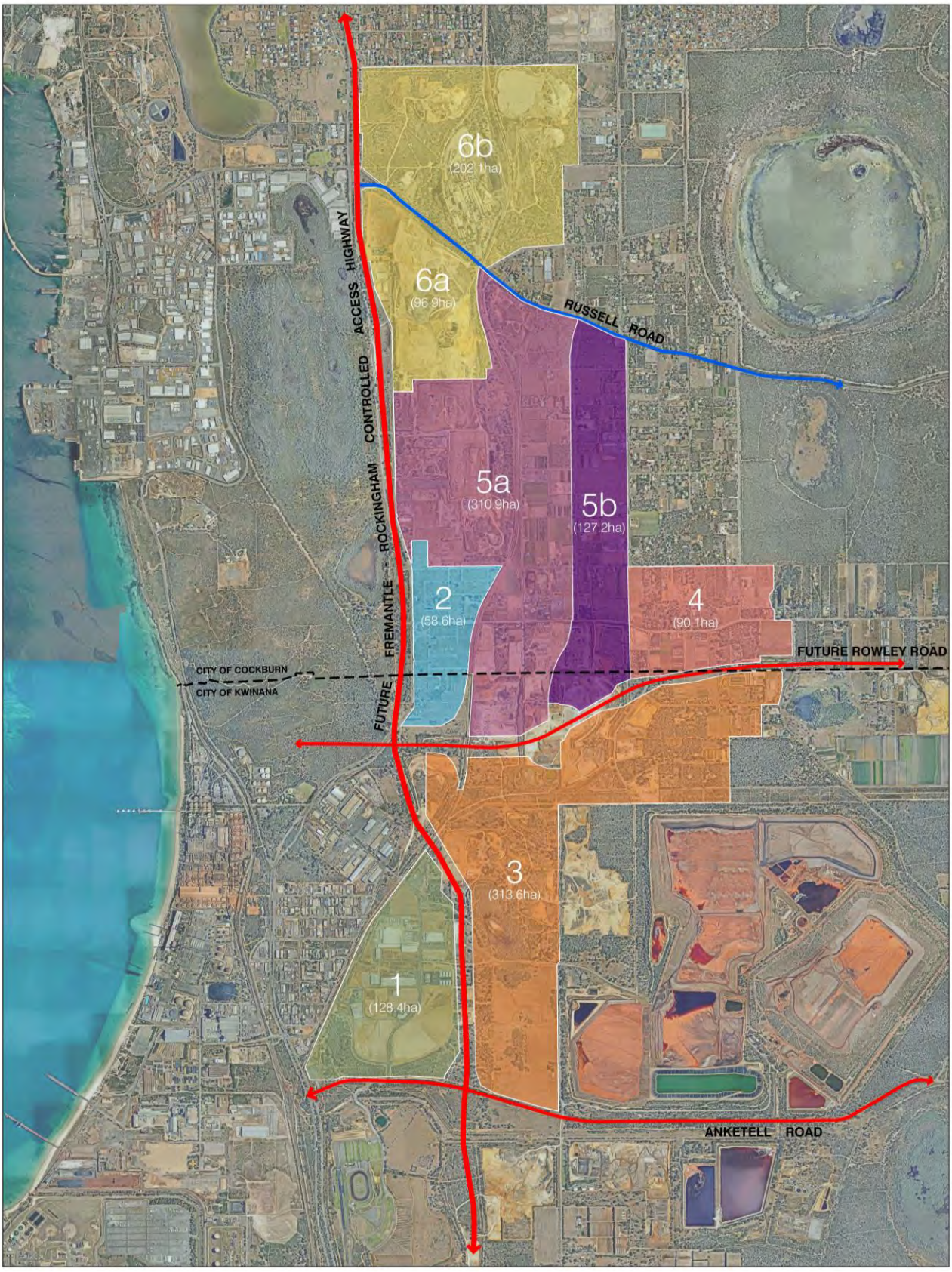


Figure 1 Latitude 32 Indicative Development Areas Plan

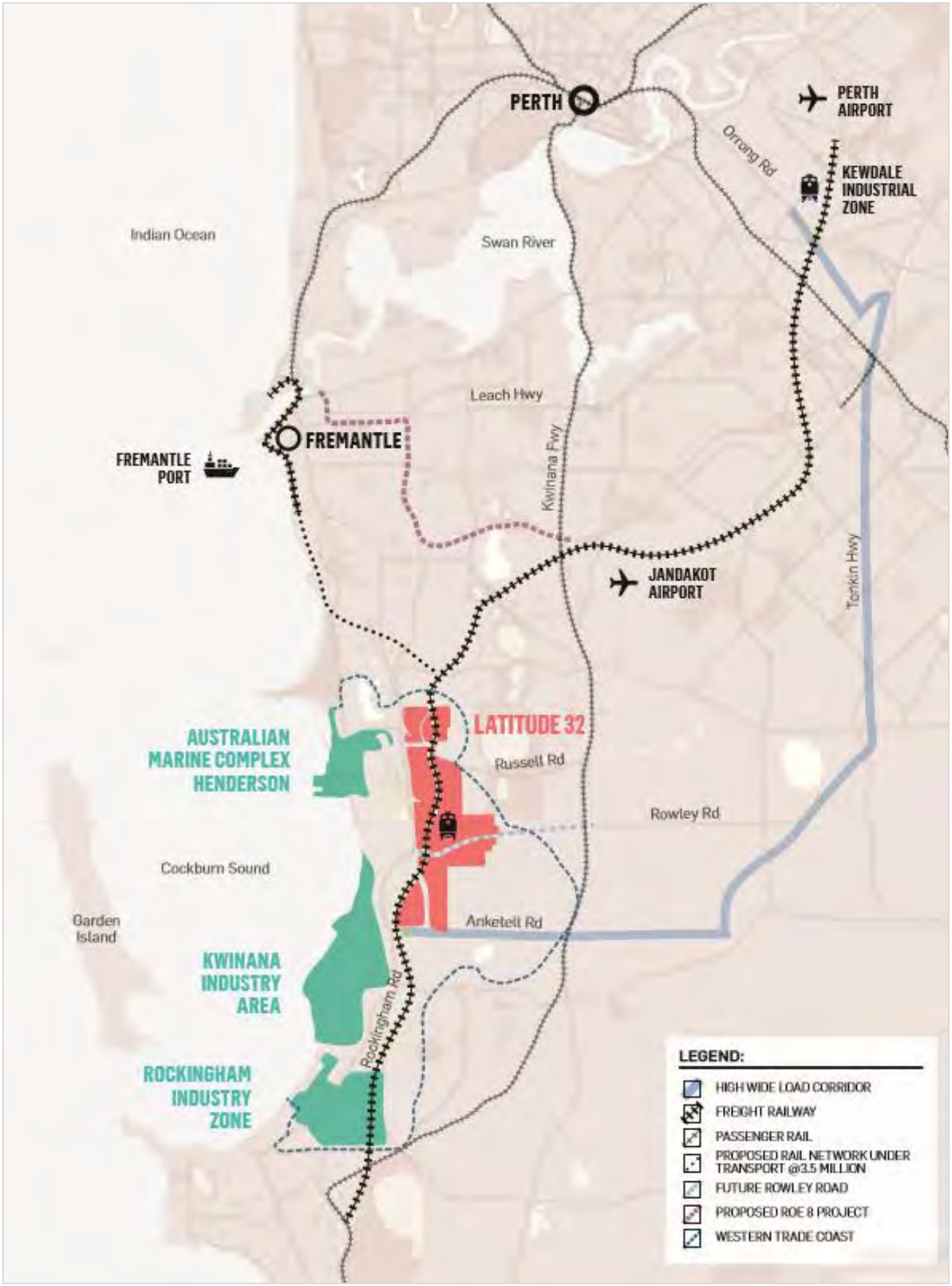


Figure 2 Locality Plan

1.3 Relationship to the Master Plan

As the key planning instrument for Latitude 32, the Master Plan is responsible for:

- Land use permissibility;
- Requirements for planning approval;
- Development contributions; and
- Protection of the environment and heritage.

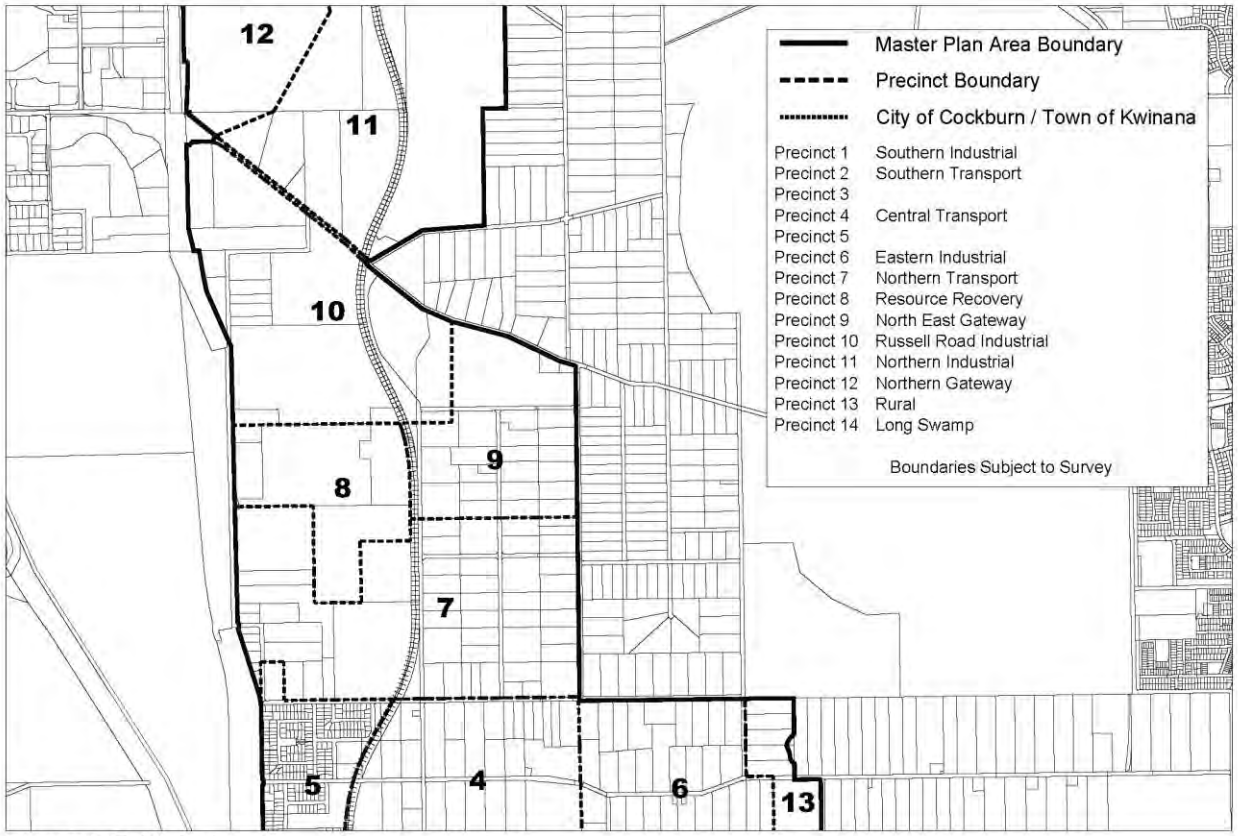
To allow for the adoption of the Structure Plan, amendments to the Master Plan are required. As such, Amendment No.18 is being progressed concurrent with this Structure Plan in order to consolidate a number of Precincts and associated land use permissibility; as well as align the Development Area and Development Contribution Area boundary with the Structure Plan boundary to enable subdivision and/or development of land. The specific changes within Amendment No.18 included:

- Amending Table 1 – Precinct Land Use by inserting a new precinct 'Latitude 32 General Industry' with associated land use permissibilities.
- Amending Schedule 11 – Development Areas to update the Development Area references to 6A.
- Amending Schedule 12 – Development Contribution Plans to replace the text 'DCA VI' with 'DCA 6A'.
- Amending Appendix 1 – Hope Valley Wattleup Redevelopment – Master Plan Map to reflect the changes made to Precinct boundaries, as detailed on *Figure 3*.
- Amending Appendix 3 – Hope Valley Wattleup Redevelopment – Development Areas and Development Contribution Areas Map to ensure alignment of the Development Area and Development Contribution Area boundaries with the Structure Plan as detailed on *Figure 4*.

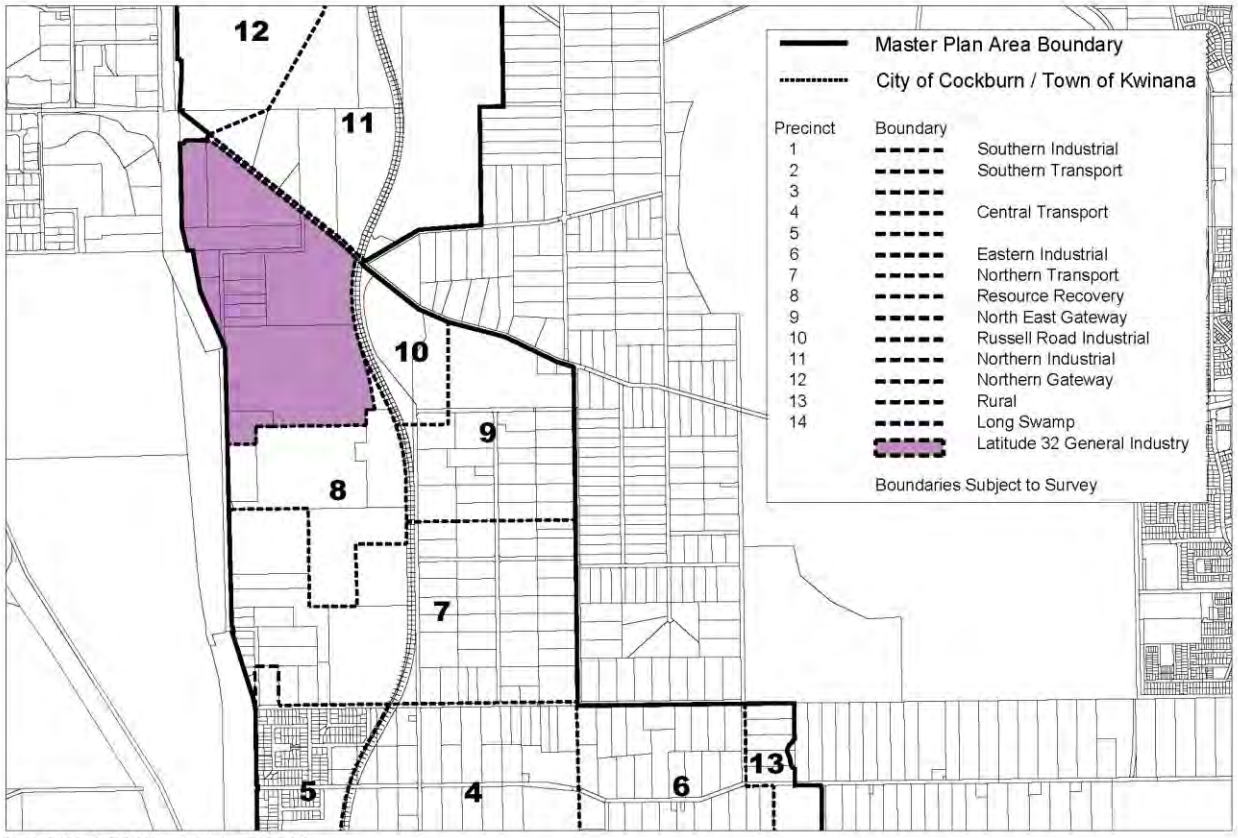
The modification of Development Areas, Precinct boundaries and land use permissibility was undertaken to:

- Provide consistency with the proposed Structure Plan for revised Development Area 6A and Latitude 32 General Industry Precinct.
- Broaden the land use permissibility for revised Development Area 6A and Latitude 32 General Industry Precinct whilst avoiding land use conflict.
- Enable the integrated development of revised Development Area 6A.

The boundaries for the remaining Development Areas and Precincts (*Figure 1 Proposed Latitude 32 Development Areas Plan*) will be reflected in future structure planning and supporting Master Plan amendments to align the boundaries with the Master Plan.

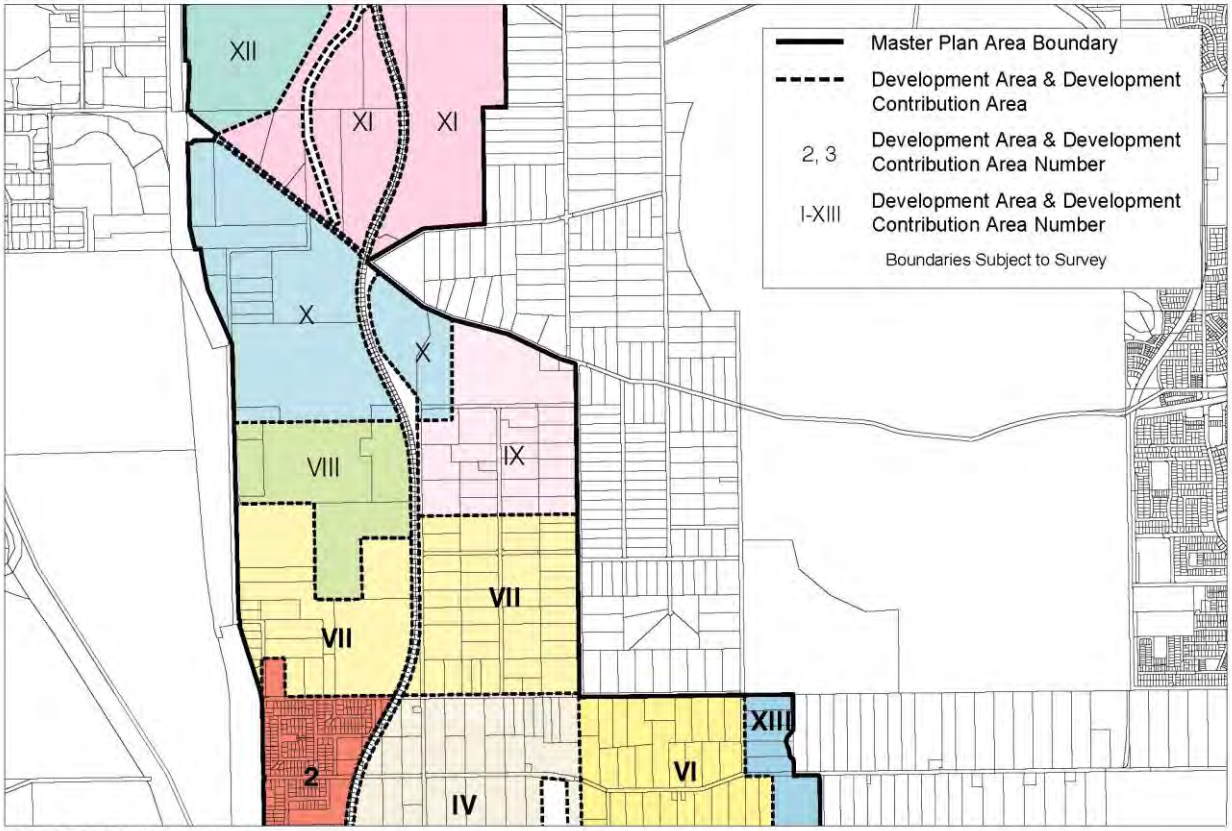


EXISTING PLAN

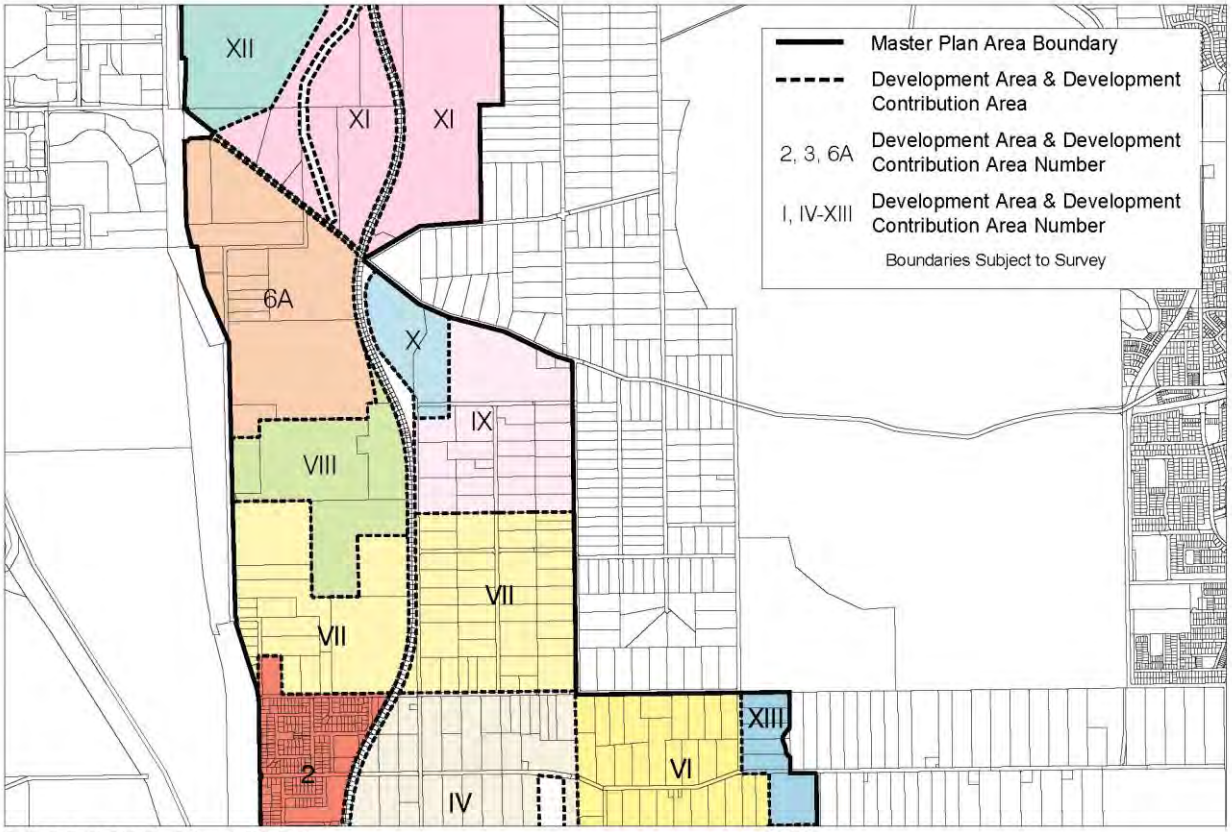


PROPOSED CHANGES

Figure 3 Proposed amendments to the Master Plan Appendix 1



EXISTING PLAN



PROPOSED CHANGES

Figure 4 Proposed amendments to the Master Plan Appendix 3

2 Site Context

2.1 Land Description

The Structure Plan area covers approximately 96.8ha of land in the north-west of Latitude 32, as identified on *Figure 5 Structure Plan Location Plan.* It is located within the City of Cockburn, approximately 25km south-west of the Perth CBD, 15km south of the Fremantle GPO and 10km north of the Rockingham CBD.

The majority of the Structure Plan area is currently being quarried for sand and limestone. Existing access to the quarry is via an eastern crossover from Russell Road. Along Rockingham Road Lots 16 and 17 contain Trade Display and Warehouse uses. In the south, Lot 201 is occupied by a residential dwelling with hard stand storage to the rear.

Lot 201 has direct access to Rockingham Road via an existing crossover, whilst the remainder of the Structure Plan area is accessed via Hurst Road / Rockingham Road intersection.

2.2 Legal Description and Ownership

The Structure Plan area, in comparison to other Development Areas in Latitude 32 is a consolidated cell, with a total of 4 landowners wholly located within the Structure Plan boundary. *Figure 6 Development Area 6A Land Ownership Plan* depicts the landownership arrangements within the Structure Plan area. LandCorp is the primary landholder within Development Area 6A.

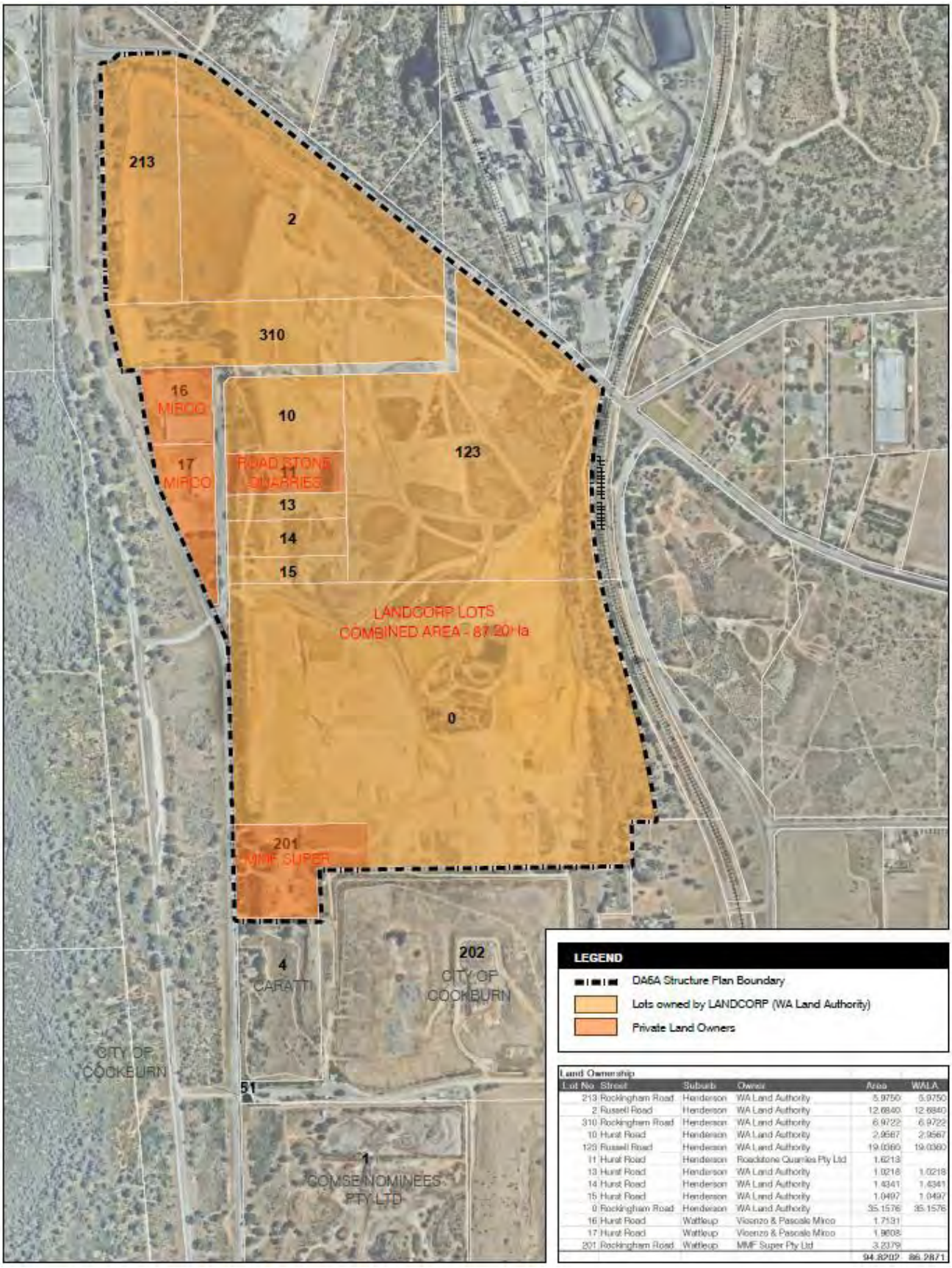
2.3 Structure Plan Area

The Structure Plan area has been determined based on the following factors in order to ensure it is both consistent with statutory boundaries under the Master Plan, and known alignment of key infrastructure items as outlined in *Table 1*:

Table 1 Structure Plan Area Description

BOUNDARY	DETERMINING FACTORS
North	The northern boundary is consistent with the southern boundary of existing Russell Road.
East	The eastern boundary has been determined by the existing rail reserve as set out in Appendix 2 – Hope Valley-Wattleup Redevelopment Reserves Map of the Master Plan. In addition, the eastern boundary has been established in consultation with the Department of Transport (DoT) to exclude land potentially required for the future Intermodal Terminal (IMT).
South	The southern boundary is defined by the City of Cockburn's Resource Recovery site and the inclusion of Lot 201 being a single landholding in private ownership.
West	The western boundary has been determined by the Road Reserve set out within Appendix 2 – Hope Valley-Wattleup Redevelopment Reserves Map of the Master Plan. This depicts the boundary of the Road Reserve for the Fremantle-Rockingham Controlled Access Highway (FRCAH).

Figure 5 Structure Plan Location Plan



Land Ownership

Lot No	Street	Suburb	Owner	Area	WALA
213	Rockingham Road	Henderson	WA Land Authority	5.9750	5.9750
2	Russell Road	Henderson	WA Land Authority	12.6840	12.6840
310	Rockingham Road	Henderson	WA Land Authority	6.9722	6.9722
10	Hurst Road	Henderson	WA Land Authority	2.9567	2.9567
123	Russell Road	Henderson	WA Land Authority	19.0369	19.0369
11	Hurst Road	Henderson	Roadstone Quarries Pty Ltd	1.6213	
13	Hurst Road	Henderson	WA Land Authority	1.0218	1.0218
14	Hurst Road	Henderson	WA Land Authority	1.4341	1.4341
15	Hurst Road	Henderson	WA Land Authority	1.0497	1.0497
0	Rockingham Road	Henderson	WA Land Authority	35.1576	35.1576
16	Hurst Road	Wattleup	Vicenzo & Pascale Mirco	1.7131	
17	Hurst Road	Wattleup	Vicenzo & Pascale Mirco	1.9608	
201	Rockingham Road	Wattleup	MMF Super Pty Ltd	3.2379	
				94.8202	86.2871

Figure 6 Development Area 6A Land Ownership Plan

2.4 Surrounding Environment

As outlined in *Table 2* below, the area surrounding the Structure Plan currently comprises a wide range of land uses from industrial to rural residential and recreation.

Table 2 Structure Plan Area Surrounding Environment

SURROUNDING ENVIRONMENT	EXISTING LAND USE	KNOWN FUTURE LAND USE
North	– Russell Road. – Cockburn Cement operation.	– It is assumed Cockburn cement will continue to operate in the long term.
East	– Midland to Kwinana Railway (MKR). – Quarrying and hardstand activities. – Rural residential uses including agricultural and horticultural activities.	– MKR and spur lines. – Future Intermodal Terminal (IMT) intended to accommodate a freight/container handling facility with likely uses including a container park, offices, warehouses and a distribution centre. This area constitutes Development Area 5. – Further east is future industrial development as part of Latitude 32. This area constitutes Development Area 4.
South	– City of Cockburn's Henderson Waste Recovery Park (Resource Recovery Site). – Quarrying activities. – Some temporary hardstand and storage uses have been established to support the demand for container storage and locating construction materials.	– The Resource Recovery Site will continue to operate and expand in the medium and long term. – Further south is future industrial development as part of Development Area 5.
West	– Rockingham Road (Primary Regional Road). – Beeliar Regional Park including Mt Brown, Lake Mt Brown and Brownman Swamp are located to the west of the Structure Plan area. – Further west to the north and south of the Beeliar Regional Park and making up part of the WTC are the Naval Base, Kwinana Power Station and Kwinana Industrial Area.	– The FRCAH once constructed will result in a physical edge to the Structure Plan area. – The land to the west of the future FRCAH, being Beeliar Regional Park, is outside of the Structure Plan area and consequently outside of Latitude 32 and will continue to be protected and managed as regional open space.

3 Planning Background

3.1 Planning Framework

The following section sets out the key documents applicable to the preparation of the Structure Plan.

3.1.1 Fremantle to Rockingham Industrial Area Regional Strategy 2000 (FRIARS)

FRIARS investigated the planning issues including development and redevelopment opportunities within the Fremantle to Rockingham corridor.

FRIARS aimed to provide for the future planning, in particular the provision of additional land for industrial uses in an area which was strategically recognised at that time as the best location for industrial land within the Perth Metropolitan Region. FRIARS also took into account existing and potential land use conflicts, the protection of the Kwinana Industrial Area and management of associated buffers along with the protection and enhancement of key natural assets within the vicinity of the Structure Plan area and the need to provide certainty to landowners.

FRIARS investigated a number of development options in consultation with key stakeholders and the community. The recommendations of FRIARS included an expanded industrial area to provide a land use transition buffer between the Kwinana Industrial Area and sensitive land uses. The creation of a Redevelopment Area was to be implemented through specific legislation, a master plan and an implementing agency.

3.1.2 Hope Valley-Wattleup Redevelopment Act 2000 (the Act)

In accordance with the recommendations of FRIARS, development within Latitude 32 is governed by the Act. The area the subject of the Act is referred to as the Redevelopment Area.

The Act excises the Redevelopment Area by repealing the planning schemes in operation within the area, being the Metropolitan Regional Scheme and local planning schemes of the Cities of Kwinana and Cockburn. In response to this, the Act sets out key functions and the statutory mechanisms which guide land use and development in Latitude 32 including the requirement for a master plan.

The Act specifies the Authority, being the Western Australian Land Authority (trading as LandCorp) and its function under the Act to plan, undertake, promote and coordinate the development and redevelopment of land in the Redevelopment Area.

3.1.3 Hope Valley-Wattleup Redevelopment Project Master Plan 2005 (as amended February 2017) (the Master Plan)

Prepared in accordance with the requirements of the Act, the Master Plan for all intents and purposes acts as the local planning scheme for the Redevelopment Area. The Act provides for, and guides the preparation of the Master Plan in order to:

> *"Promote the orderly and proper planning, development and management of the redevelopment area, including any provision that may be made by a local planning scheme under the Planning and Development Act 2005."*

In summary, in accordance with the intent of FRIARS and the Act, the Master Plan aims to resolve land use conflicts, protect and conserve heritage and environmental assets, provide for development in the area in a proper and orderly way, and distribute costs of common infrastructure.

The Master Plan provides for the procedure to establish statutory documents including; Structure Plans, Design Guidelines and Planning Policies, along with the requirements for Planning Approvals and measures in which to control and guide land uses and development.

The Structure Plan is prepared in accordance with Part 6 of the Master Plan and is consistent with the aims for development within the Redevelopment Area.

The Master Plan and any amendments to the Master Plan are to be considered by the Western Australian Planning Commission (the Commission) and approved or refused by the Minister for Planning. The Master Plan provides for the approval of structure plans by the Commission and approval of Design Guidelines by the Authority or the Commission.

3.1.4 Hope Valley-Wattleup Redevelopment Project Water Management Strategy 2007 (the WMS)

The WMS provides additional guidance in achieving the intentions of the Redevelopment Area, in particular meeting water quality objectives, targets and criteria. The WMS objective is to protect the key hydrological resources within and surrounding the Redevelopment Area.

The WMS develops an implementation framework and actions which guide the detailed investigations. The Strategy includes the requirement for a Local Water Management Strategy (LWMS) which addresses the objectives, design criteria and guidelines when preparing Structure Plans.

The Structure Plan has been prepared in accordance with the principles and requirements of the WMS as is outlined within Section 8 of this report. A LWMS has been prepared for the Structure Plan area.

In 2013, the Latitude 32 District Water Management Strategy (DWMS) was prepared to update the WMS in accordance with the Commission's *Better Urban Water Management (2008).* The DWMS was approved by the Department of Water and Environmental Regulations (DoWER) in May 2013.

3.1.5 Hope Valley-Wattleup Redevelopment Project Biodiversity Strategy 2007 (the Biodiversity Strategy) and Biodiversity Strategy (as amended 2015)

Condition 2 of Ministerial Statement 667 required a Biodiversity Strategy to be prepared for the project area.

The Biodiversity Strategy identifies Key Natural Areas (wetlands and remnant vegetation), provides for public open space, and identifies processes, policies and monitoring mechanisms to conserve and enhance biodiversity in the Redevelopment Area and adjacent environments. In providing guidance on the direction for biodiversity, the Biodiversity Strategy has assessed all flora, fauna and related biophysical attributes associated with the Redevelopment Area.

Strategic and management actions have been outlined to ensure the future planning and development of Latitude 32 is consistent with the objectives and direction of the Biodiversity Strategy.

Clause 7.1.5 of the Biodiversity Strategy requires a five-year review to ensure that the Biodiversity Strategy reflects current planning outcomes, current policies and best management practices in biodiversity and is updated and improved as more information and data becomes available. A review of the Biodiversity Strategy commenced in 2014 and the key outcomes of the review reflect the current environmental and localised structure planning for Latitude 32.

The Biodiversity Strategy (as amended 2015) has been supported by the OEPA on a number of occasions, most recently in 2016 (refer Letters dated 14 September 2014, 21 May 2015 and email dated 22 July 2016 at Appendix 2 of the Environmental Assessment Report at Appendix A).

The Structure Plan is consistent with the objectives, principles and management requirements of the Biodiversity Strategy (as amended 2015). Additionally, the Structure Plan has given consideration to the requirements of the Biodiversity Strategy (as amended 2015) when providing for remnant vegetation and Ecological Linkages as outlined within Section 4.1 of this report.

4 Site Conditions

4.1 Biodiversity and Natural Area Assets

An environmental assessment of the Structure Plan has been undertaken and a copy of the Environmental Assessment Report (EAR) is located within Appendix A. This EAR addresses the following key environmental factors including:

- Vegetation and Flora; and
- Fauna.

The EAR provides a summary of the existing Structure Plan area conditions and provides an outline of how the design of the Structure Plan responds to these site conditions creating a balance between protecting the biodiversity and natural assets whilst allowing for industrial development.

4.1.1 Vegetation and Flora

Vegetation and Flora Surveys over the Structure Plan area were undertaken in 2005 in line with the requirements of the Biodiversity Strategy.

The vegetation and flora within Development Area 6A has been subjected to long term degradation processes such as resource extraction, horticultural industry, weed invasion, altered water regimes, fire and development, which has resulted in limited native remnant vegetation remaining.

The only remnant vegetation that remains in Development Area 6A occur at the edges of the sand and limestone quarry and in the south-east corner, to the west of the rail line. The remaining area has been cleared of native vegetation.

There are no Bush Forever sites or Threatened Ecological Communities within the Structure Plan area.

4.1.2 Fauna

Development Area 6A provides limited fauna habitat due to the extensive disturbance from quarrying activities. The areas of Development Area 6A that have been cleared have almost no ecological value for native fauna. The mature trees may provide foraging and breeding habitat for some avifauna species. However, there is likely to be a paucity of native mammals and reptiles present because of the lack of understorey and the likely prevalence of introduced domestic or feral species such as foxes and cats.

The only conservation significant fauna that may pass through Development Area 6A is Carnaby's Black Cockatoo, Forest Red-tailed Black Cockatoo and Southern Brown Bandicoots.

Terrestrial Ecosystems undertook a Black Cockatoo Assessment over Development Area 6A in September 2016. The assessment included mapping of foraging habitat and a significant tree survey.

The survey mapped 58 significant trees with a diameter at breast height greater than 500mm and less than 1ha of good quality foraging habitat.

A referral under the *environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was undertaken in 2018 for the clearing of vegetation within Development Area 6A. The Department of Environment and Energy advised on 10 July 2018 that the clearing was 'not a controlled action' under the EPBC Act.

4.1.3 Wetland Buffers

There are no wetlands mapped in the Department of Biodiversity, Conservation and Attractions Parks and Wildlife Services (DoBCPW) Geomorphic Wetlands of the Swan Coastal Plain dataset as occurring in the Structure Plan area. Two wetlands with a management category of Conservation are mapped to the west of Rockingham Road and Development Area 6A.

The 200m buffer to Anderson Road Swamp extends into the future FRCAH within Development Area 6A. No industrial development will occur within the 200m buffer as the land is required for the construction of the FRCAH.

4.1.4 Ecological Linkages

In accordance with the Biodiversity Strategy (as amended 2015), the Structure Plan incorporates one Primary Ecological Linkage, as depicted on *Figure 7 Development Area 6A Ecological Linkages Plan.*

The Ecological Linkage is proposed to be located along the verge of Russell Road connecting eastward to Development Area 5 and further east connecting to Development Area 4. The Ecological Linkage will provide for avian movement and habitats through the planting of a variety of endemic species of an appropriate size. The final alignment and form of the Ecological Linkage will be determined as part of the final design of Russell Road.

Refer to section 6.3.4 for details of the design principles for Ecological Linkages.

4.2 Landforms and Soils

The topography over the site is highly modified from quarrying activities. The lowest parts of the existing quarry are within the centre of the site with an elevation of 1 mAHD, the majority of the base of the quarry is approximately 10 mAHD. The edges of the site are representative of natural surface with elevations grading from east to west, ranging in elevation from approximately 2 m AHD at Rockingham Road to 17 m AHD adjacent to the MKR.

As a result of quarrying activity, the existing Russell Road abutting the northern boundary is significantly elevated from adjoining development. Immediately south of the Structure Plan boundary, is an existing bund associated with the City of Cockburn's Resource Recovery Site creating a substantial level difference and forms a barrier to future industrial development.

The site has been used predominantly as a limestone quarry with layers of limestone removed. From observation, the site consists of a mix of consolidated limestone and sand. The perimeter of the site consists of a mix of the natural surface and a mix spoil removed during the process of quarrying. According to the Western Australian Planning Commission (2003) and DEC's Acid Sulphate Soil (ASS) mapping, there are no ASS located within the site.

Figure 7 Development Area 6A Ecological Linkages Plan

4.3 Groundwater and Surface Water

The Structure Plan area is located within the Valley Groundwater System, a part of the broader Cockburn Groundwater Area. The area is underlain with a superficial limestone, marl and cemented sand aquifer. The aquifer is recharged by rainfall and some upward leakage from the Leederville aquifer which is located further below. Groundwater flows in a westerly direction through the Structure Plan area to Cockburn Sound.

Depth to groundwater varies over the Structure Plan area from approximately 2m to 12m below the existing natural surface.

Three groundwater monitoring bores were installed on site by RPS and monitored for groundwater levels and quality on a monthly basis between October 2010 and May 2011. Groundwater has a very low gradient across the site, with flow west toward the Indian Ocean.

The Structure Plan area does not contain any defined waterways, watercourses, drains within the site. All surface water runoff infiltrates through the sandy subsurface profile.

4.4 Contaminated Sites

There are no known contaminated sites listed in the DoWER Contaminated Site Database as occurring in Development Area 6A. A Preliminary Site Investigation (PSI) will be undertaken prior to subdivision to identify any potential sources of contamination from the laydown yard in the sand and limestone quarry.

The City of Cockburn's Resource Recovery Site is located south of Development Area 6A. The City of Cockburn has advised that the DoWER license conditions for operating the facility prescribes that all impacts such as odour is contained within it's boundary. As required under the license, a complaints log is maintained to record any odour complaints.

4.5 Vibration and Acoustics

The eastern boundary of the Structure Plan area is located directly adjacent the Midland Kwinana Railway. It is acknowledged that this may result in noise and vibration effects on the landholdings within the Structure Plan area.

A Noise and Vibration assessment (refer Appendix B) has been undertaken in relation to the existing railway line and any potential future duplication of this line and potential effects on development. The results of the assessment have identified the following:

- Vibration
    - A recommended setback of 15m to development from the edge of the rail corridor to industrial facilities to ensure these structures will meet the requirements of AS2107:2000. For offices and amenities, a setback distance in the order of 30m from the edge of the railway line is recommended.

- Noise

    - Where possible office buildings and amenities should be located outside of the railway noise contour (within the 70 - 75 dB(A) noise contour and above) in order to ensure compliance with AS 2107:2000 (refer Figure 17 for an example).

    - Lots within the noise buffer shall ensure office buildings and amenities structures are designed, oriented and constructed from suitable materials in order to meet AS 2107:2000. Industrial facilities including workshops can be located adjacent to the railway line.

Provisions to ensure development will comply with the noise and vibration recommendations are included within the Latitude 32 Design Guidelines which provide the design principles and lot specific design criteria that apply to all development within Latitude 32.

4.6 Bushfire Hazard

A Bushfire Management Plan has been prepared for the purpose of identifying and reducing the threat of bushfire on the future development of the Structure Plan area. A copy of this report is located in Appendix C.

Due to the current extent of on-site vegetation, portions of the Structure Plan area are designated as bushfire prone, as outlined on the Western Australian Map of Bush Fire Prone Areas (DFES, 2017). The Bushfire Management Plan has been prepared in accordance with the Guidelines for Planning in Bushfire Prone Areas (the Guidelines) to meet planning requirements triggered under State Planning Policy 3.7 Planning in Bushfire Prone Areas.

A pre-development bushfire hazard level assessment identifies the majority of the site as having a Moderate or Low bushfire hazard level, reflecting that the majority of native vegetation has been cleared from the site. Given that the proposed development will result in clearing and/or management of the remaining on-site vegetation, the post development state of the site will result in even lower hazard levels and development will avoid areas of extreme bushfire hazard level.

The bushfire risks posed to future development by adjacent post development hazards can be managed through the standard application of acceptable solutions under the Guidelines, including provision for, and implementation of Asset Protection Zones, relevant bushfire building construction standards, provision of adequate emergency water supply and vehicular access, as well as through a direct bushfire suppression response if required.

Bushfire Attack Level (BAL) contour mapping prepared over the site demonstrates that minimum separation distances for a BAL–29 rating or lower can be achieved in the form of Asset Protection Zones consisting of either road reserves or building setbacks. Potential areas impacted by a BAL-29 rating are minimal and the majority of Development Area 6A is subject to a BAL-Low rating, requiring no specific construction requirements.

Given the staged nature of proposed development surrounding the Structure Plan area, vehicular access arrangements in the short, medium and long term duration of development have been addressed to ensure that all occupiers and visitors are provided with at least two vehicular access routes at all times.

Temporary on-site bushfire hazards will be managed through the creation and maintenance of 100 m wide cleared or low fuel buffers around each development stage, to ensure that buildings can be constructed within the identified BAL rating and construction is not impacted by temporary on-site vegetation.

These responses are being factored in to proposed development early in the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life, property and environmental assets.

4.7 Heritage

A summary of heritage associated with the Structure Plan area is summarised in in this section (with the full Heritage Strategy at Appendix D.

A search of the State Heritage Office's 'inHerit' database has identified no places of historic heritage value or any specific European Heritage sites within the Structure Plan area.

According to the Heritage Strategy, previous studies of the Aboriginal heritage for Latitude 32 have also been undertaken and have found that there are no previously recorded Aboriginal archaeological or ethnographic sites within the Structure Plan area.

A map illustrating the European heritage assets in the broader Latitude 32 area is provided at *Figure 8 European Heritage Assets.*

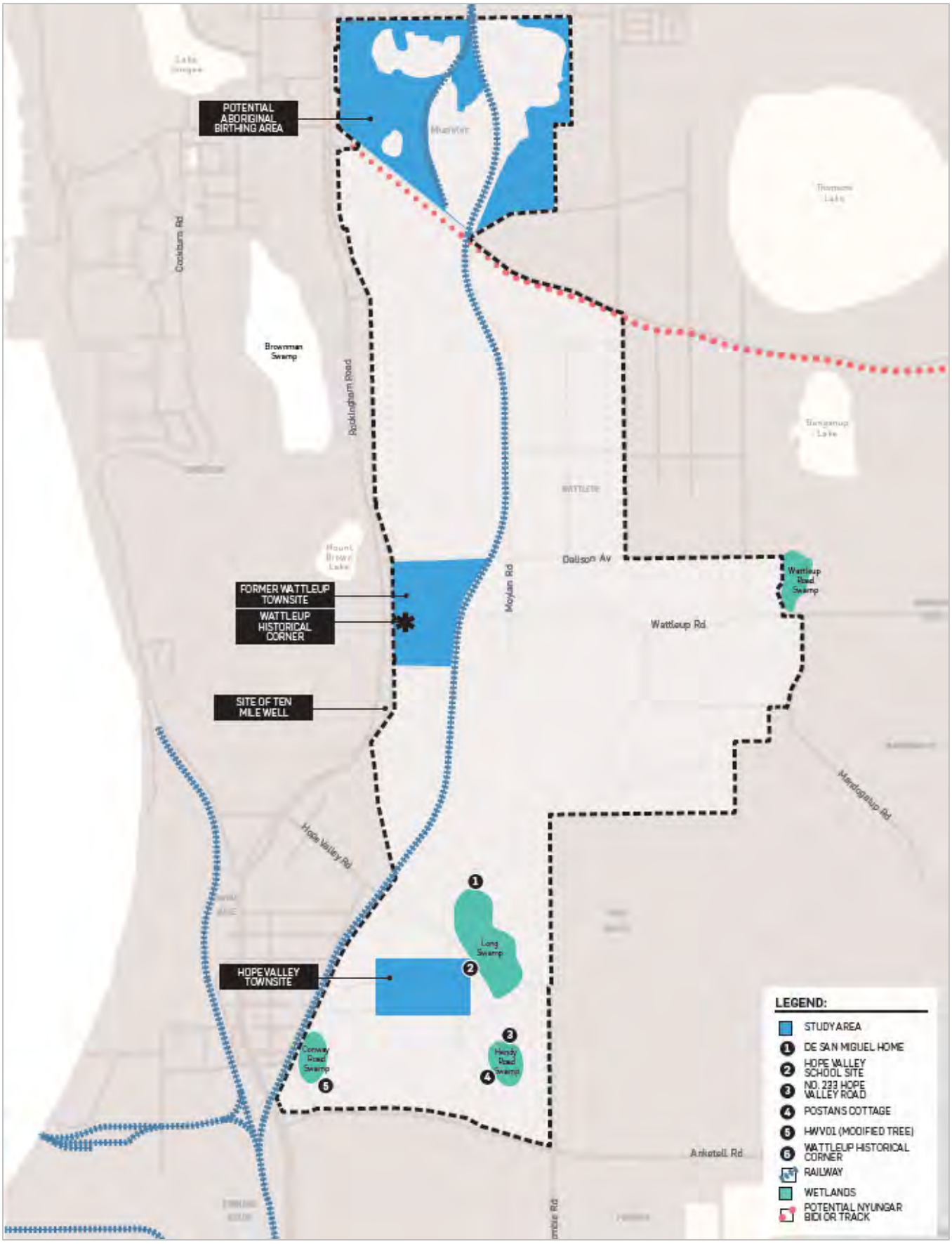


Figure 7 European Heritage Assets

5 Opportunities and Constraints

5.1 Summary

In order to gain an insight to the development parameters, site particulars and to guide design outcomes for the preparation of the structure plan and the ultimate industrial development, an Opportunities and Constraints Plan has been prepared and is summarised below (*Figure 9 Opportunities and Constraints Plan*):

- Existing utilities and services running through and adjacent to the Structure Plan area;
- Characteristics including existing structures, activities, vegetation;
- Movement network including the future FRCAH and Russell Road;
- Opportunities relating to Ecological Linkages, consolidated landownership, accessibility, existing land uses and development;
- Constraints relating to accessibility, natural topography, and uncertainties surrounding the potential IMT to the east; and
- The ability to achieve the appropriate levels to accommodate development.

5.2 Opportunities

The opportunities for the Structure Plan area can be broken down into three distinct categories being: Existing Land Use and Development, Natural Environment, and Access. A summary of the relevant opportunities are set out in *Table 4* below along with responses, where appropriate, as to how these have been incorporated into the design of the Structure Plan.

Table 4 Structure Plan Opportunities and Design Responses

OPPORTUNITY	DESIGN RESPONSE
Existing Land Use and Development	
LandCorp owns the majority of land.	The Structure Plan design has taken into account LandCorp ownership and has endeavoured, where practicable, to provide infrastructure items on this land. This will avoid significant impacts or losses of land on private landowners, and create certainty for the provision of that infrastructure.
Large expanses of the Structure Plan area have been previously cleared.	N/A
Coordination of levels and earthworks with existing quarry activity.	There is an opportunity to coordinate the quarrying operation to suit the final earthworks strategy.
May be possible to steeply batter/step into limestone to reduce wall heights at boundary.	The indicative lot layout has been designed to allow for the stepping of lots in response to fixed level constraints. Steep batter grades within limestone cuttings adjacent to the MKR and Russell Road increase the developable land area.
Natural Environment	
Development is located outside of the 200m buffer to Anderson Road Swamp.	The 200m buffer to Anderson Road Swamp extends into the FRCAH reservation with the Structure Plan area, however it does not extend into the land designated general industry.
Ecological Linkages can be provided from Beeliar Regional Park through the Structure Plan area and beyond.	The Structure Plan design has provided for an Ecological Linkage along the southern edge of the Russell Road reserve in accordance with the Biodiversity Strategy (as amended 2015).

OPPORTUNITY	DESIGN RESPONSE
The soils are suitable for the infiltration of stormwater.	N/A
Groundwater levels are approximately 1m AHD across the site.	N/A
Opportunity to minimise and/or simplify verge treatments in favour of strategic large-scale planting to reduce capital and maintenance costs.	The Landscape Master Plan included within the Landscape Design Report which supports the Structure Plan has taken into account the reduction of costs and maintenance requirements in developing the species list and planting quantities for the Structure Plan area.
Access	
Maintain access from Hurst Road to Rockingham Road until the FRCAH is constructed.	The design formulation allows for medium term and long-term access scenarios in order to utilise the existing road network until such time as regional road upgrades occur. The FRCAH will be delivered post-2031 and until such time, access to Rockingham Road from Hurst Road provides an opportunity to continue to service existing and future development (in the medium term) within the Structure Plan area.
Opportunity to provide access to the south providing a connection to Musson Road.	The Structure Plan design has been formulated to provide a southern connection that will ultimately connect south through Development Area 5 to Musson Road in Development Area 2.

5.3 Constraints

The constraints relevant to the Structure Plan area can be generally categorised into Land Use and Development and access. A summary of the relevant constraints are set out in Table 5 below along with responses, where appropriate, as to how these have been factored into the design of the Structure Plan.

Table 5 Structure Plan Constraints and Design Responses

CONSTRAINTS	DESIGN RESPONSE
Land Use and Development	
Cockburn Resource Recovery Site is located to the south of the Structure Plan boundary. Potential issues relating to noise and odour, geotechnical restrictions and potential contamination.	The Structure Plan boundary is located to the north of the City of Cockburn Resource Recovery site. The boundary has been determined to ensure that there will be no adverse effects from the Development Area 6A Structure Plan on the City of Cockburn Resource Recovery Site.
Significant level constraints from adjacent infrastructure requiring fixed levels.	The proposed levels for the Structure Plan area have been derived on the assumption that the fixed infrastructure levels are to be maintained. The development within the Structure Plan area will not affect the existing infrastructure.
Significant level constraints from adjacent (future) regional road designs.	The structure plan shall be designed to respond to future design levels. This will mean land currently sterilised by batters associated with existing roads may be made available for development at a later date (when regional roads are constructed in their ultimate form).
Rail spurs lie between the potential IMT and the Structure Plan area.	The Structure Plan has taken into account the potential rails spurs and has provided sufficient buffer distances to ensure there will be no adverse effects on the development within the Structure Plan area, or reverse sensitivity effects on the rail transport network.

CONSTRAINTS	DESIGN RESPONSE
Southern landholding consists of private landholdings.	Where practicable the Structure Plan has provided for the development of private landholdings on an individual basis. The existing lot layout for private landholdings has been maintained where possible.
Uncertainties regarding the potential future IMT.	The Structure Plan has been formulated to ensure that it does not prejudice the location and layout of the potential IMT in any form. The eastern boundary has been determined on advice received from the DoT in relation to land requirements for the potential future IMT.
Fire Management considerations.	A Bushfire Management Plan has been prepared for the Structure Plan area. A pre-development bushfire hazard level assessment identifies the majority of the site as having a Moderate or Low bushfire hazard level, reflecting that the majority of native vegetation has been cleared from the site. The bushfire risks to proposed development posed by these post-development hazards can be managed through standard application of acceptable solutions under the Guidelines for Planning in Bushfire Prone Areas.
Access	
The FRCAH is indicated to be in place post-2031 which will sever access to the west.	At the time the FRCAH is constructed, the intersection of Hurst Road and Rockingham Road and existing crossovers to Rockingham Road will be severed. The Transport Assessment has outlined both the interim access arrangements and the ultimate connections to the Structure Plan area.
Existing major services in Russell Road including gas and overhead powerlines.	The Servicing Strategy has taken into account the relocation of the required services within the existing road reserves.
Existing local road network will be required to be realigned.	The Structure Plan includes the realignment of Hurst Road to provide a second access point connecting south to Musson Road in Development Area 2. The realignment will support a more uniform lot layout to support industrial development and has utilised the existing road reserve where possible.

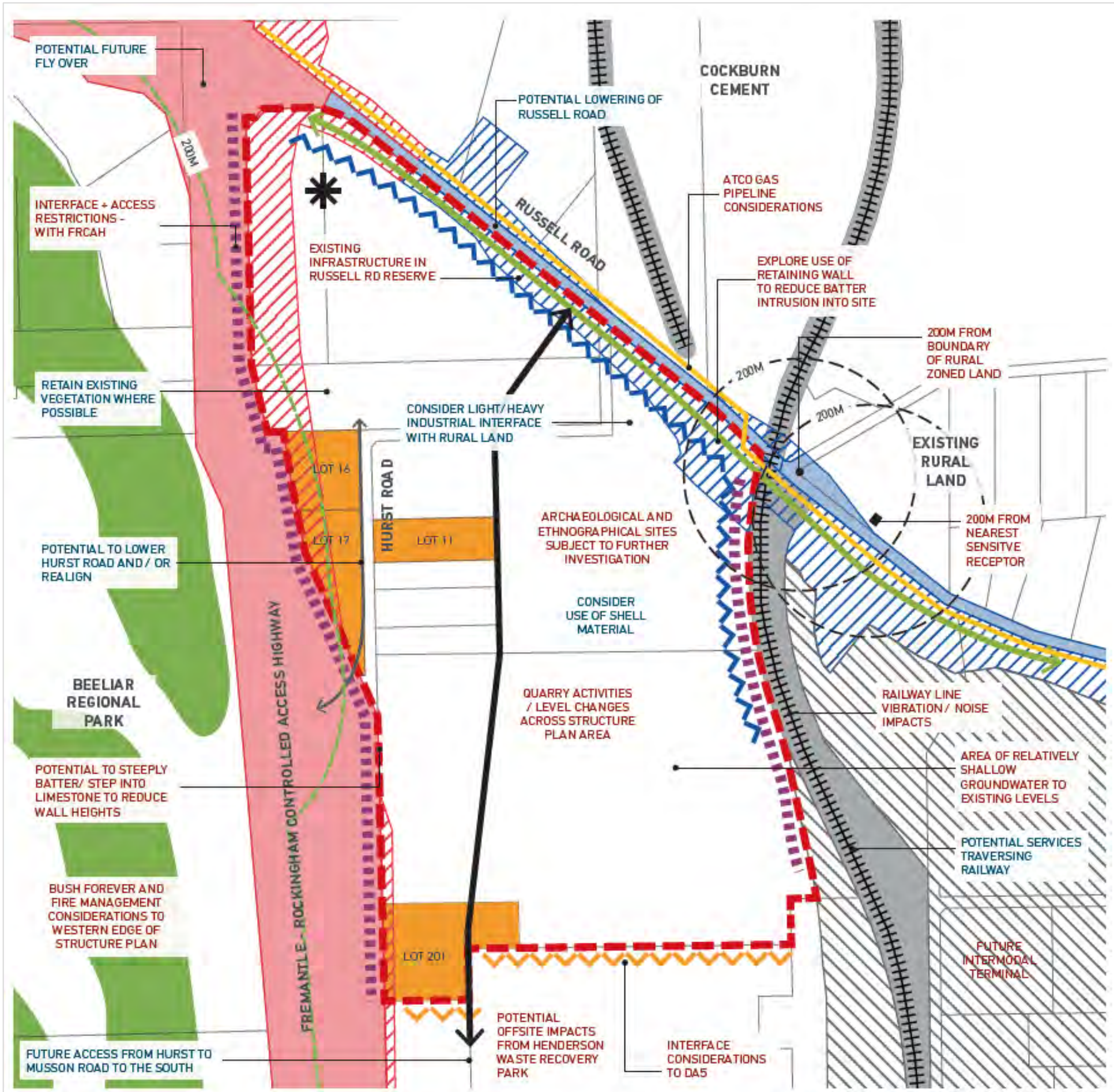


Figure 9 Opportunities and Constraints Plan

6 Structure Plan

6.1 Structure Plan Area

As outlined within Section 2.3 the establishment of the Structure Plan area has been determined in order to facilitate the preparation of an effective structure plan to guide future subdivision and development. The Structure Plan area aligns with the Latitude 32 project area boundaries and Development Area 6A within the Master Plan and defined as follows:

- The northern boundary is consistent with the southern edge of existing Russell Road alignment.
- The southern boundary is defined by the City of Cockburn's Resource Recovery site and the inclusion of Lot 201 Rockingham Road being a single landholding in private ownership.
- The western boundary has been established through mirroring the Redevelopment Area boundary as determined by the Act. The western boundary follows the current Metropolitan Region Scheme Reserve (being the road reserve for the FRCAH).
- The eastern boundary has been determined by the existing rail reserve as set out in Appendix 2 – Hope Valley Wattleup Redevelopment Reserves Map, of the Master Plan. In addition, the eastern boundary has been established in consultation with DoT in response to land requirements for the potential future IMT.

Development Area 6A provides a compact and relatively unconstrained parcel of land which once structure planned could be brought to the market in a relatively efficient timeframe.

6.2 Structure Plan Design Formulation

Due to the significant constraints, relating primarily to the fixed levels across the Structure Plan area, indicative lot layouts have been established to ensure the Structure Plan area can be appropriately developed for industrial purposes. Lot sizes and gradients have taken into account the fixed levels within and surrounding the Structure Plan area.

The northern portion of Development Area 6A has been designed to provide an appropriate interface to Russell Road responding to substantial level differences to the existing road reserve. The existing Hurst Road alignment has been maintained where possible to enable private landholdings to be retained and lots following the existing cadastre. The level of Hurst Road has been lowered by approximately 1.5 metres to meet grades of adjoining existing lots where possible and to minimise impact on existing private landholding.

Lots to the east that interface with the MKR have been designed to allow for sufficient setback in response to noise and vibration impacts as well as level differences to the MKR.

The southern boundary of the Structure Plan area interfaces with a substantial bund forming part of the Resource Recovery Site. Lots to the south have been designed to back onto the Resource Recovery Site to allow for sufficient setbacks to any sensitive land uses (e.g. office or administration buildings) which will be located to the front of the lot addressing the local road. This design has been carefully considered in order to provide a high level of visual amenity and consideration of the streetscape for future industrial development.

The majority of the Structure Plan is made up of relatively large land parcels which has allowed the lot layout to be relatively uniform to the east of Hurst Road and to the south whilst responding to the fixed constraints within and surrounding the Structure Plan area.

Whilst final lot sizes will be determined by the market, an indicative concept plan has been prepared to demonstrate how the area could be subdivided to smaller lots. The indicative lot layout has an average lot size of 6,217sq.m with a minimum lot size of 2,250sq.m and a maximum of 2.3788 hectares.

Figure 10 Non-Statutory Structure Plan Map should be read in conjunction with *Table 6* overleaf, which provides a more detailed framework for planning and describes the many issues that have been taken into consideration when preparing the Structure Plan. As per the Commission's Structure Plan guidelines this is an indicative plan that is intended to provide a framework for further subdivision and development.

In the event that a landowner wishes to vary from the Structure Plan's indicative road layout and lot pattern when preparing a subdivision application, *Table 6* outlines those matters that should be taken into consideration.

Finished lot levels as identified within *Figure 11 Development Area 6A Levels Plan* have been established, and respond to the significant fixed level constraints and ongoing extraction of primary resources both within, and in the vicinity of the Structure Plan area.

Table 6 Structure Plan Design Parameters

DESIGN PRINCIPLES	DESIGN RATIONALE	VARIATIONS TO FIGURE 9 NON-STATUTORY STRUCTURE PLAN MAP (INDICATIVE PATTERN OF SUBDIVISION)
Levels Planning and Earthworks The extraction of resource has been factored into the forward planning. Co-ordinating levels is critical in activating industrial development whilst providing opportunities for resource extraction, meeting state requirements for both resource extraction and the supply of industrial land. The design recognises: – Priority Resource Location under State Planning Policy 2.4 (SPP2.4) Basic Raw Materials; and – Shortage of sand resource across the Perth metropolitan area.	In accordance with SPP 2.4 the design allows for the extraction of all high-quality limestone within the Structure Plan area to 2-3 metres above the water table (in accordance with Department of Water and Environmental Regulations policy). To achieve coordinated levels (post resource extraction), the final extraction level has been identified to reduce the amount of backfill. In areas of limestone extraction, the industrial development level is the lowest possible level to achieve access and standard engineering requirements, refer *Figure 11 Development Area 6A Levels Plan.* The opportunity for sand extraction has also been incorporated within the design.	Due regard is to be given to the design principles and design rationale in considering any subdivision application that proposes to vary from the *Figure 10 Non-Statutory Structure Plan* and the indicative pattern of subdivision that is proposed and compliance with all of the following design criteria: 1. Proposals must demonstrate the need to alter the levels depicted on *Figure 11 Development Area 6A Levels Plan;* 2. Proposed modification must maintain the ability for reasonable provision of gravity sewer, drainage and servicing across the Redevelopment Area, with any amendments to servicing strategies being approved by the relevant approving authorities; 3. Proposed design change must have regard to existing and proposed road and infrastructure (power lines) levels; 4. Proposed levels shall have regard to existing and proposed levels on adjacent sites and must not adversely affect the ability of any other land parcel to comply *Figure 11 Development Area 6A Levels Plan* and to be serviced with gravity sewer, drainage and other utilities; 5. Staging and the retention of access to existing dwelling (Lot 201) until subdivision and/or development occurs; 6. The process for modification to the lot boundaries will need to demonstrate no adverse impact on adjoining landowners unless written agreement is obtained; and 7. Where a variation is proposed across cadastral boundaries the Applicant must provide written agreement from affected landowner(s).
Implementation Landowners have existing use rights to remain within the Redevelopment Area. The Structure Plan has been designed to allow landowners to: – Remain – existing use rights in accordance with clause 4.9 of the Master Plan. – Relocate – sell property on private market. – Redevelop – participate in the development of the area.	Should landowners' future intention be to remain on site, access to the property is required to be retained. As a consequence: – Lot 201 shall retain access to Rockingham Road until such time as Main Roads WA commence the construction of the FRCAH or when closure of access to Rockingham Road via the existing crossover is severed; (whichever is the earlier). At the time the FRCAH is constructed, alternative access south will be provided via a new Local Distributor Road in the south.	
Utilities and Services Staging Development relies on the appropriate provisions and staging of critical infrastructure. The design of the utilities has been undertaken in consultation with the utility providers and landowners. It is for guidance purposes only.	Any variations to the staging strategy to undertake non-frontal development is likely to lead to temporary infrastructure requirements, the costs of which will be borne by the landowner or developer without reimbursement via the DCP.	
Movement Network The movement network has been designed having regard to: – Staging of development; – Retention of existing rural residential dwellings and/or commercial uses; – Retention of dwellings during resource extraction; – Standard engineering requirements for roads within industrial developments; and – Provide a flexible road system that provides for efficient movement.	The movement network has been designed in accordance with the following: – To maximise the industrial land yield; – To recognise the fragmented nature of land ownership and provide for independent subdivision wherever possible; – To facilitate a variety of lots sizes; – Road grades not to exceed 3% and allow for gravity sewer and drainage to regional low point within the catchment; and – To allow development prior to the construction of the abutting regional roads by providing a series of internal parallel roads abutting the regional road system. – To manage the visual amenity to the Resource Recover Site. – To allow adjoining landowners to share the cost of roads.	
Land Use and Lot Size Latitude 32 is a long-term project with demand for industrial land changing over time. The design allows for flexible and adaptable land use and lot sizes allowing market forces to shape development and supply.	The design allows for flexibility in relation to lot size, configuration, frontage, depth and utility to accommodate changes in market demands. This flexibility is however, premised on compliance with the design principles and design rationale described above. The lot configuration also accommodates appropriate interface to the existing Rockingham Road, the future FRCAH, Russell Road, the MKR and Resource Recovery Site.	
Fragmented Ownership It has been recognised that the Structure Plan area comprises of four (4) landowners.	Where practicable the Structure Plan has been designed around existing cadastre to allow for landowners to develop individually.	
Bushfire Considerations Limited areas have been identified as Bushfire Prone on the DFES Bushfire Prone Map. Bushfire related planning requirements apply to these areas in accordance with State Planning Policy 3.7.	Subdivision and development of land will take into consideration the following principles to minimise potential bushfire impact: – Minimum Asset Protection Zones as prescribed in the Development Area 6A Bushfire Management Plan; – On-site staging buffers of 100m wide to ensure each approved stage is surrounded by a 100m buffer prior to development; – Increased building construction standards for all proposed buildings situated within 100m of post development classified vegetation to ensure building construction standards align with the assessed BAL under AS 3959; – Vehicle access network provides a minimum of two access links to the surrounding public road network; – Reticulated water supply is provided throughout Development Area 6A; – High risk land uses should be avoided within Bushfire Prone areas with high risk land uses located in areas of BAL – 12.5 to BAL -29 to comply with Policy Measure 6.6.1 of State Planning Policy 3.7; – Internal landscaping designed to be compliant with AS3959 low threat exclusions; – Ecological Linkages are considered to be excluded from classification under AS 39592009 (Clause 2.2.3.2 d) on the basis that revegetation on the basis that revegetation will be less than 20 m wide, will not be within 20 m of other classified vegetation and development adjacent to Ecological Linkages will be subject to 20m building setbacks.	

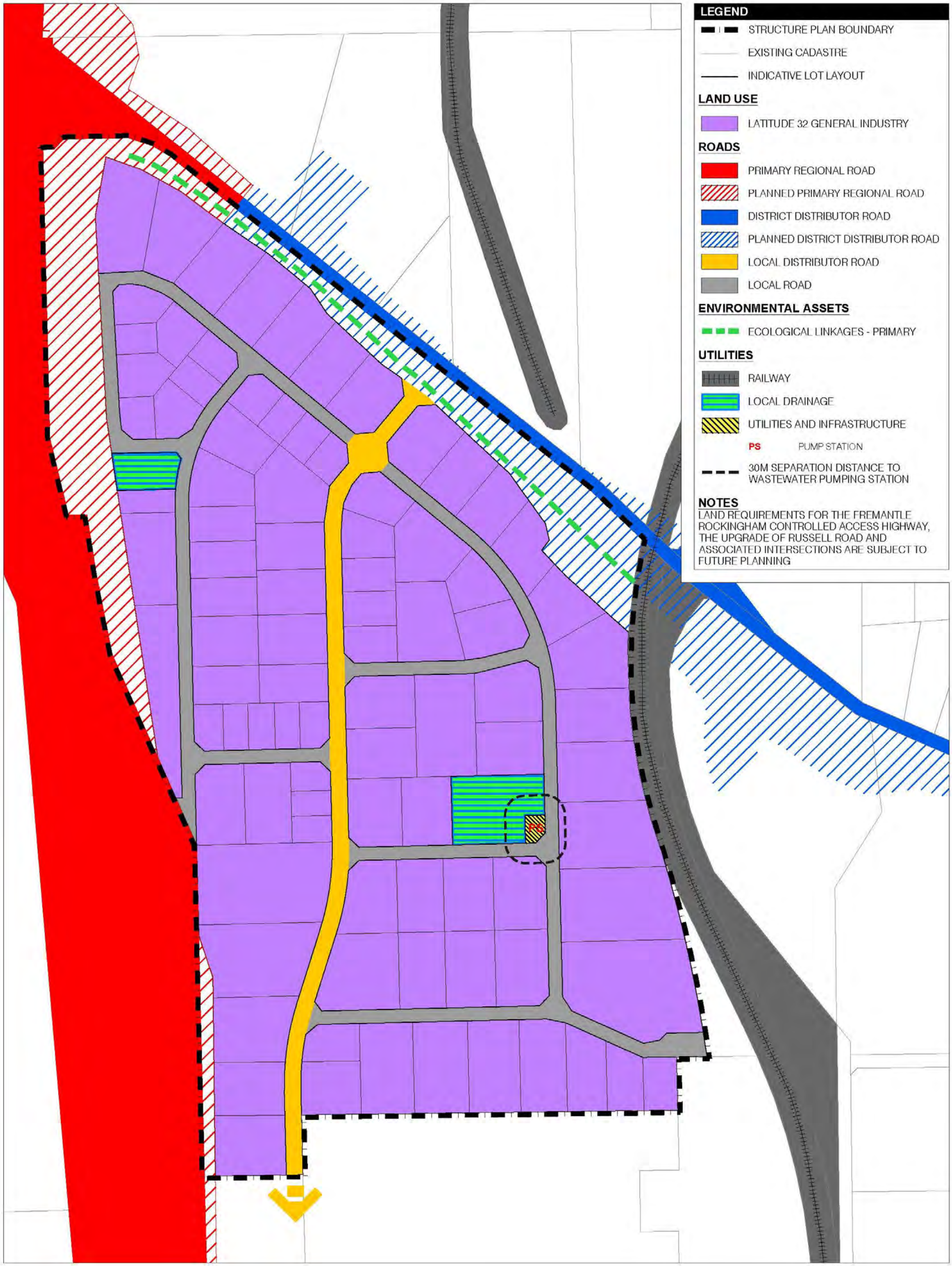


Figure 10 Non-Statutory Structure Plan Map

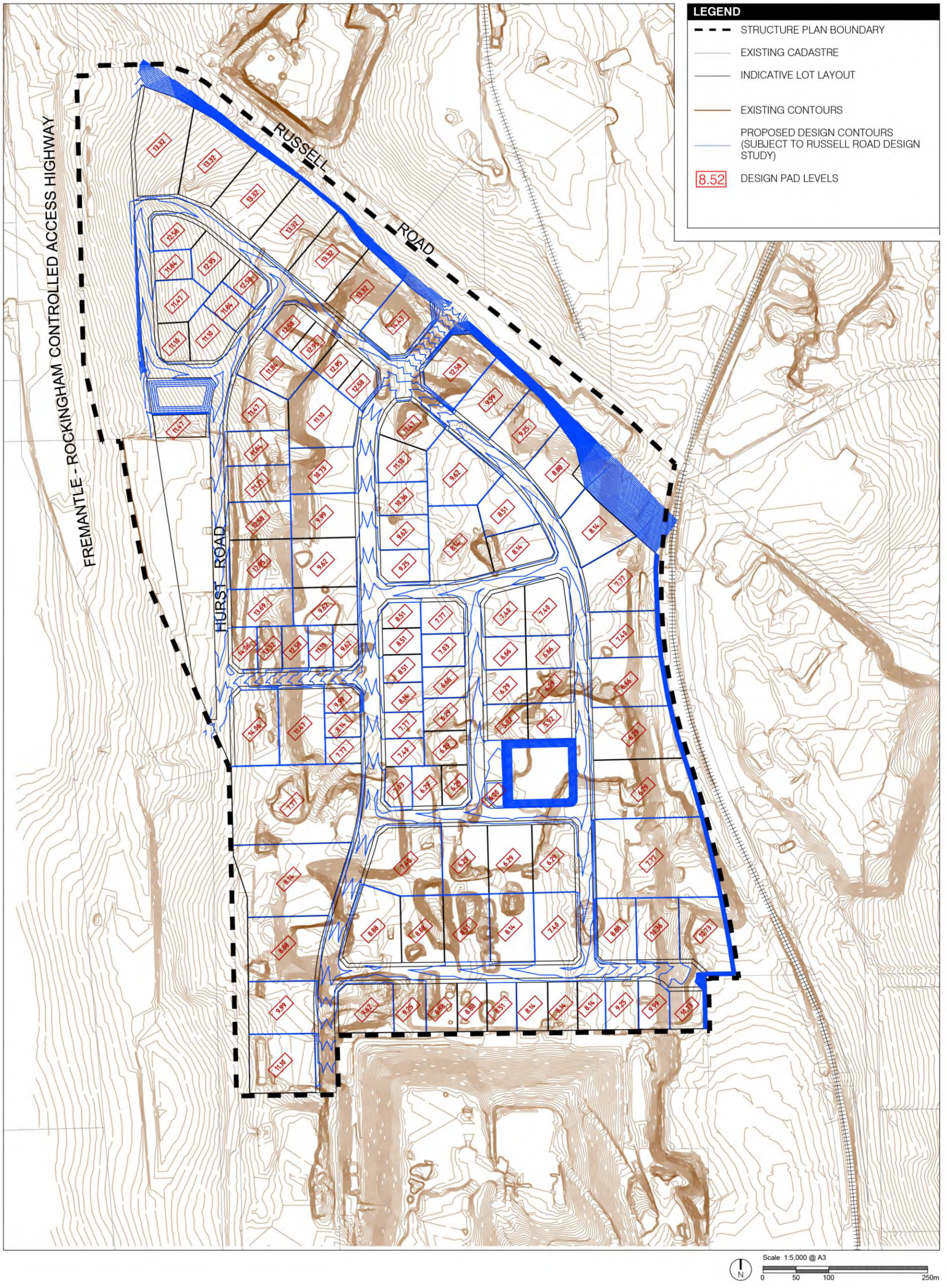


Figure 11 Development Area 6A Levels Plan

6.3 Land Use

The land use permissibility relating to the Structure Plan is set out within Latitude 32 General Industry Precinct within Table 1 of the Master Plan (as modified by Amendment No.18).

Industrial uses are the primary land use within the Structure Plan area and capture developable land as noted on *Figure 10 Non-Statutory Structure Plan Map*. The intention of the 'Industry' classification is to provide for a range of industrial uses within the Structure Plan area, providing for a flexible approach to development. This aims to allow landowners, developers and market forces to determine where specific activities will be located.

A small number of existing landowners within the Structure Plan area are currently utilising their land for either quarry, hardstand, trade display, showroom/warehouse, administration and the like. The Structure Plan layout has been designed to minimise impact on existing private landholdings and allow existing 'general industry' type uses to continue. However, should the landowner(s) wish to remain and continue/develop their land for industrial purposes on a permanent basis, at the expiry of any temporary approval, compliance with the Structure Plan requirements, Design Guidelines and any applicable planning policies will be required through a new planning approval.

An outline of the uses within the Structure Plan area, other than 'Industry' are generally described below.

6.3.1 Roads

The Structure Plan incorporates district and local level roads in order to provide appropriate access through the Structure Plan area and to industrial lots.

All land required for the construction of roads within the Structure Plan area, including batters and embankments are to be set aside as road reserve at the time of subdivision and development.

6.3.2 Ecological Linkages

Ecological Linkages provide vegetated linkages between adjacent conservation areas by way of ecological corridors within road reserves and existing vegetated reserves. Ecological Linkages are described within the Biodiversity Strategy (as amended 2015) as non-contiguous vegetation which connect larger areas of native vegetation within, and external to the Structure Plan area.

The Ecological Linkage within the southern verge of Russell Road is nominated as a primary Ecological Linkage under the Biodiversity Strategy (as amended 2015). The Ecological Linkages are to be approximately 15m wide and will be constructed as part of the landscaping works for the Development Area, as a requirement of subdivision. The design principles for the Ecological Linkages include:

- Aim to maximise the connectivity between Key Natural Areas through verge and median planting along primary connector roads;

- Use of a variety of endemic plant species; and
- Provision of ongoing maintenance.

Design principles relating to planting within the Ecological Linkages are identified within the Biodiversity Strategy (as amended 2015) as follows:

- Aim to maximise the width, connectivity and structural complexity of vegetation in links as much as possible to make them suitable for a broad range of avifauna, bats and fauna.
- Use a variety of endemic plant species to provide an over-storey, mid-storey and understory in primary Ecological Linkages and an over-storey and mid-storey in the secondary Ecological Linkages that will adapt to the local environment and provide habitat suitable for a range of endemic fauna species within the area.
- Keep the corridors as wide as possible (primary linkages not less than 15m and secondary linkages not less than 5m). As a minimum, where possible gaps in the linkage should be less than 50m when accommodating driveways and crossroads.
- Where possible, retain existing trees (particularly those with roosting hollows) and understorey along and natural areas adjacent to proposed corridors.
- Provide for the ongoing protection, maintenance and monitoring of these linkages to ensure their long-term success.

These principles have informed the design of the Ecological Linkages which are discussed further within the following supporting documents;

- The Landscape Design Report including road cross sections, planting and potential species (refer Appendix G);
- The Engineering Strategy including road design and cross sections, refer (Appendix H); and
- The Latitude 32 Design Guidelines including the special requirements and design criteria.

Throughout Latitude 32, it is planned to allow for Ecological Linkages within either road verge; or solid medians with intermittent breaks and/or roundabouts in strategic locations to allow for appropriate turning movement. It is envisaged that at the detailed design phase there may be some refinement to take into consideration road geometry and sight lines.

The planting and interim management (5 years) for the Ecological Linkages will be provided for within the DCP. *Table 8* outlines the intended management arrangements for Ecological Linkages.

Table 8 Land Use Assets Summary

ASSET	COMPONENTS	STATUS	USE / FUNCTION	CURRENT OWNERSHIP	PROPOSED OWNERSHIP	FUNDING
Ecological Linkage – Russell Road Primary Linkage	Vegetation within road reserves.	Not reserved under the Master Plan.	Providing avifauna links between wetlands and Key Natural Areas within and adjacent to the Structure Plan area as required by the Biodiversity Strategy (as amended 2015).	Crown Land (DoPLH).	Crown Land (DoPLH). Managed and operated by City of Cockburn.	Establishment of Ecological Linkages incorporated into the DCP and apportioned across the entire Redevelopment Area.

6.3.3 Utilities and Infrastructure

To appropriately service Development Area 6A utilities, infrastructure and local drainage are identified within the Structure Plan. Utilities and infrastructure are indicated on *Figure 22 Infrastructure and Servicing Plan* and the local drainage (infiltration basins) are identified within *Figure 20 Stormwater Management Plan*. These areas do not constitute reserves under the Master Plan and are to be utilised for the purposes of:

- A Waste Water Pump Station (WWPS) site; and
- Local drainage.

Further details pertaining to the design and operation of the utilities are provided within Section 9 Infrastructure and Servicing.

Land for utilities and infrastructure will generally be ceded free of cost to utility providers as outlined in *Table 9*. The WWPS is to be constructed and funded by Water Corporation as it is standard practice that infrastructure is provided by the service provider. The cost of providing the land for the WWPS and local drainage may be recovered through the Development Contribution Plan.

Table 9 Utilities and Infrastructure Summary

INFRASTRUCTURE / UTILITY ASSET	STATUS	USE / FUNCTION	CURRENT OWNERSHIP	PROPOSED OWNERSHIP
Waste Water Pump Station (WWPS)	Provision of land for WWPS's and associated earthworks required to facilitate transfer of the land to the Water Corporation. To be ceded to Water Corporation at time of subdivision.	The proposed sewer strategy for the Structure Plan area consists of a possible Type 90 WWPS located in the southern portion of DA6A. The size and location of the WWPS is to be determined at the detailed development stage in consultation with the Water Corporation.	LandCorp	Water Corporation

Drainage	Provision of drainage infrastructure to service industrial development (including acquisition of land for drainage basins). To be established as part of subdivision works.	The extent of drainage infrastructure is identified by the Local Water Management Strategy (LWMS).	Various	City of Cockburn

7 Movement Network

The movement network is critical to the viability and efficiency of any industrial estate. The movement network for the Structure Plan area has been designed in accordance with the following objectives:

- To maximise the industrial land yield;
- To recognise the fragmented nature of land ownership and provide for independent subdivision wherever possible;
- To facilitate a variety of lots sizes;
- Road grades not to exceed 3%;
- Aligning the proposed design with the intentions and opportunities of landowners on Hurst Road;
- To allow development prior to the construction of the abutting regional roads by providing a series of internal parallel roads abutting the regional road system;
- To provide a flexible road system that provides for efficient movement throughout the Structure Plan area; and
- In recognition of the impact of the surrounding regional road network, allowing for staged access arrangements in the short, medium and long term.

A Transport Assessment has been undertaken for the Structure Plan area. Outlined below is a summary of the report and the full report is included at Appendix E.

7.1 Movement Network

The movement network has been derived based on linkages to the existing road network and taking into consideration the severance of the Structure Plan area that will occur with the construction of the FRCAH. Access to the Structure Plan area is described below and illustrated in *Figure 13 Movement Network Plan* and comprises the following:

- Construction of FRCAH in its ultimate form post-2031 to the west of the study area. The FRCAH is currently proposed as a controlled access highway with 3 lanes in each direction and is to have a posted speed limit of 100km/h; and

- Russell Road upgraded to 2 lanes in each direction by 2027/28 (source: City of Cockburn – Regional and Major Roadworks 2016 – 2030).

7.1.1.1 Duplication of the Freight Rail Line

Consultation was undertaken with Brookfield Rail in June 2014 to identify the short, medium and long-term planning of the MKR adjacent to the Structure Plan area. Advice from Brookfield Rail suggests that a duplication of the existing rail line between Kwinana to Cockburn South (which includes the entire section of the rail line that runs through Latitude 32) is planned in the medium-term. The exact timing of the rail line duplication will depend on a range of economic factors and is subject to future analysis. The additional rail line would be provided within the existing 40m rail reserve, therefore does not impact on the Development Area 6A eastern boundary.

7.1.1.2 Future Intermodal Terminal (IMT)

An area of approximately 205 hectares has been identified for a potential IMT (a facility where the exchange of freight between different modes of transport can occur) is proposed to be located within Development Area 5. At the time of writing, the Westport Taskforce is currently preparing an integrated strategy to meet freight and trade logistics for Perth and surrounding regions for the next 50-100 years.

The Strategy will guide the planning, development and growth of the Port of Fremantle at the Inner and Outer Harbour, the required rail and road networks, and opportunities for trade expansions. The strategy will also consider the Commonwealth Governments Department of Defence requirements within the Australian Marine Complex and relationship with peripheral industrial land within Latitude 32.

The viability, size (land requirements), location and timing of the IMT will be determined by investigations being undertaken by the Westport Taskforce regarding the outer harbour. The IMT will have no impact on Development Area 6A. Whilst under review, importantly the Structure Plan for Development Area 6A does not prejudice the outcomes of planning for the IMT.

7.1.2 Alternative southern connection option

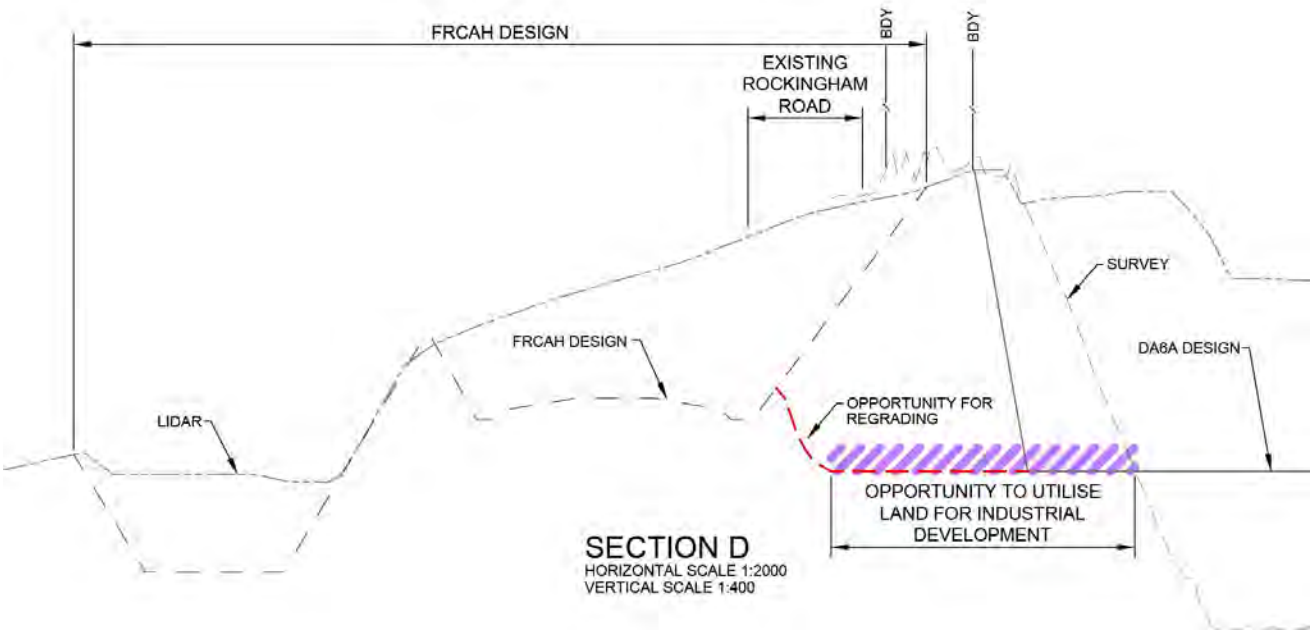
The existing intersection of Hurst Road with Rockingham Road will remain operational in the medium term to provide access to the initial stages of development until such time the FRCAH is constructed. At the time the FRCAH is constructed (post-2031), the intersection of Hurst Road and Rockingham road will be severed.

In order to maintain two access points for the Structure Plan area, a new Local Distributor Road (LDR) will run south from Russell Road through the centre of the Structure Plan area. This LDR will ultimately provide a district connection from Russell Road south through Development Area 5 to Musson Road in Development Area 2. Details regarding the current, medium and long term access arrangements are provided in section 7.2.

In the long term an opportunity exists to utilise redundant land associated with the FRCAH to provide for the southern extension of Hurst Road, refer to the black dashed line in *Figure 16 – Long Term Access Arrangements*. This long term option provides an opportunity to take advantage of underutilised land in the road reservation, however, is subject to agreement with Main Roads WA.

A cross section is provided in *Figure 12 – FRCAH and Structure Plan Design Cross Section* to illustrate the level difference, design considerations for Hurst Road and the constrained interface to the FRCAH (detailed cross sections are provided in Appendix H). The alternative option to utilise land within the FRCAH represents a positive design outcome increasing land use efficiency and creating an improved interface between adjoining land uses.

Figure 12 FRCAH and Structure Plan Design Cross Section



Source: Cossill & Webley, Urbis (2017)

7.1.3 Russell Road Design Review

Russell Road is an existing two lane road adjoining the northern boundary of the Structure Plan area. The Structure Plan design has been formulated assuming Russell Road will be maintained at its current level and upgraded from a two lane to four lane road in accordance with the City of Cockburn Major Capital Works Projects 2013 to 2030. Ultimately, the upgrade of Russell Road to two lanes each direction is required to support current regional traffic growth and is not triggered by the future industrial land uses within Latitude 32 project.

The design and land requirements of Russell Road is currently being reviewed by the Department of Planning, Lands and Heritage (DoPLH) and the City of Cockburn. Preliminary investigations have been undertaken for an alternative design for Russell Road to examine the potential for lowering a portion of the road between the ultimate grade separations at the FRCAH and railway overpass.

The preliminary investigations indicate it would be possible to lower Russell Road by up to 10m to match levels within both DA6A and the future DA6B to the north (Cockburn Cement operations) without requiring additional land beyond the current design. The opportunities and constraints associated within this option include, but are not limited to:

OPPORTUNITIES	CONSTRAINTS
• Significant reduction in batters from Russell Road reducing land requirements.	• Traffic disruption in the short term, • Relocation of services may be more extensive.

• Limestone resource beneath Russell Road and adjacent land could be extracted. • Improved visibility and interface with land in Development Area 6A and 6B to the FRCAH and Russell Road providing an opportunity for a landmark development. • Service relocations on Russell Road could be accommodated without traffic management. • The first stage of Russell Road construction could be undertaken without traffic management with interim access provided through Development Area 6A. • Safety risks associated with the proposed steep batters with the current road design will be reduced.	

The alternative option to lower a portion of Russell Road will be subject to consultation with Main Roads WA, City of Cockburn, State agencies (including Department of Transport and relevant service agencies), Brookfield Rail and affected landowners. Following completion of the design review of Russell Road it is likely that the additional land identified by GHD (2012) will be reduced and made available for industrial development.

The Structure Plan for Development Area 6A is based on the existing design for Russell Road which was prepared by GHD in 2012. The alternative design is however, discussed above to demonstrate that approval to the DA6A Structure Plan does not prejudice either option or any alternative options resulting from the ongoing design process.

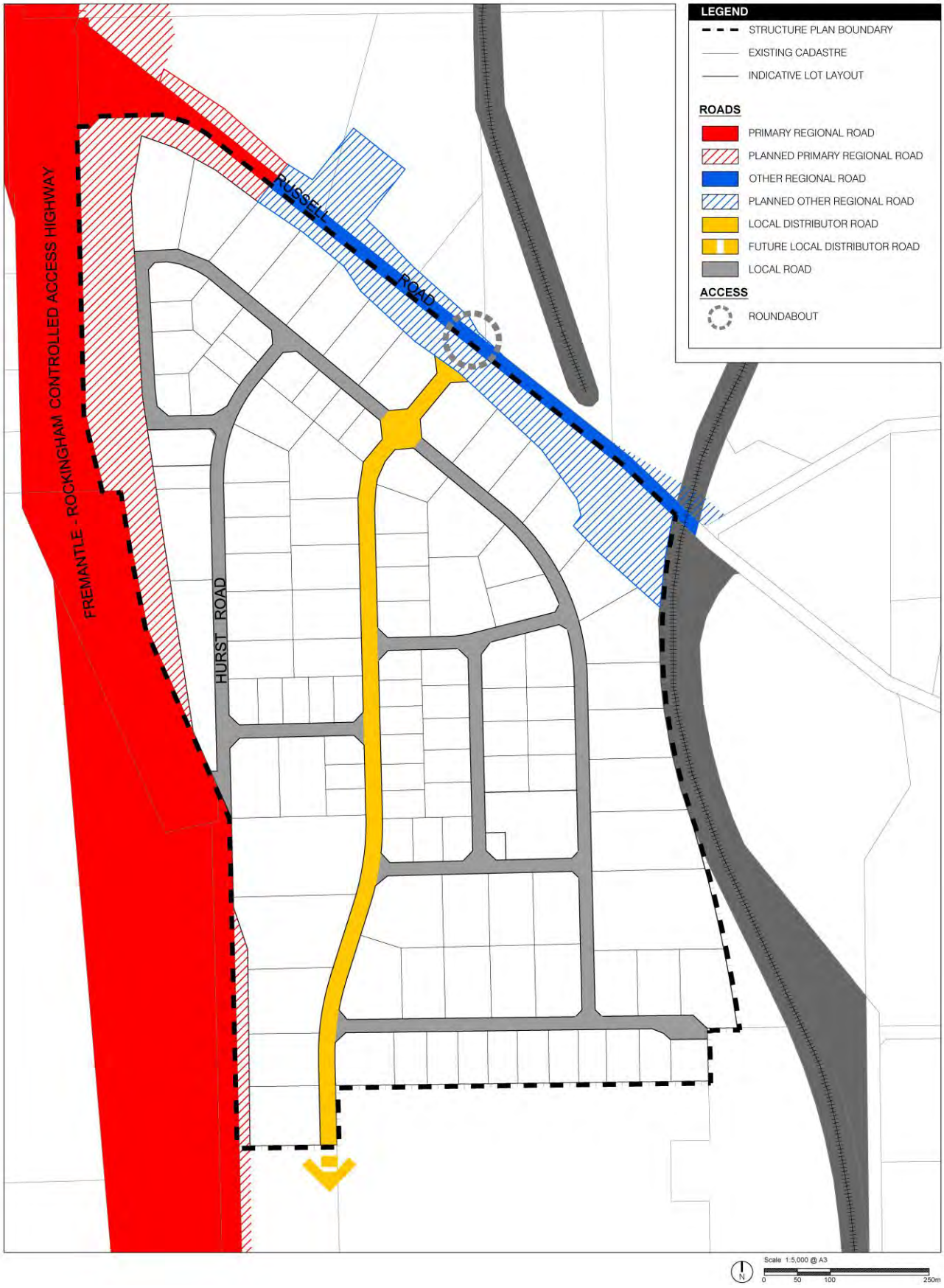


Figure 13 Movement Network Plan

7.2 Movement Network – Strategic Considerations

Due to the future planning considerations either immediately abutting or surrounding the Structure Plan area, it is necessary to consider the staged access arrangements. Whilst described in more detail in the Transport Assessment (refer Appendix E), in summary these include:

- The proposed FRCAH to the west, a future regional road planned for construction post-2031.
- The upgrade of Russell Road to 2 lanes in each direction by 2027/28 as part of the City of Cockburn – Regional and Major Roadworks 2016-2030.
- The proposed Rowley Road to the south, a future regional road planned for construction by 2026.
- To the east is the proposed IMT that may generate the need for additional access and regional road requirements and the potential relocation of the MKR line to the west. This is subject to ongoing concept planning by the DoT.

Given these considerations, the access arrangements to Development Area 6A are required to be both robust and flexible as road infrastructure will sever existing access points at some time in the future.

To suitably demonstrate that Development Area 6A is both robust and flexible and it does not prejudice any future planning decisions, in relation to Development Area 6A or the broader strategic area, access has been considered based on the existing access, the medium access and long term access options. These access options are summarised below and as mentioned above discussed in more detail within the in the Transport Assessment (refer Appendix E).

7.2.1 Current Access Arrangements

Timeframe: Retain current access – Nominally prior to 2021

The current access arrangements are illustrated in *Figure 14 Existing Access Arrangements*.

Hurst Road reservation currently extends from Rockingham Road to Russell Road, however, is only partially constructed where it intersects with Rockingham Road and a small portion into Development Area 6A.

Early stages of development will rely on the existing access to Rockingham Road via Hurst Road together with the existing crossovers to Rockingham Road and Russell Road.

Hurst Road will, in the short term, continue to provide a connection between Rockingham Road and the existing lots within the Structure Plan area.

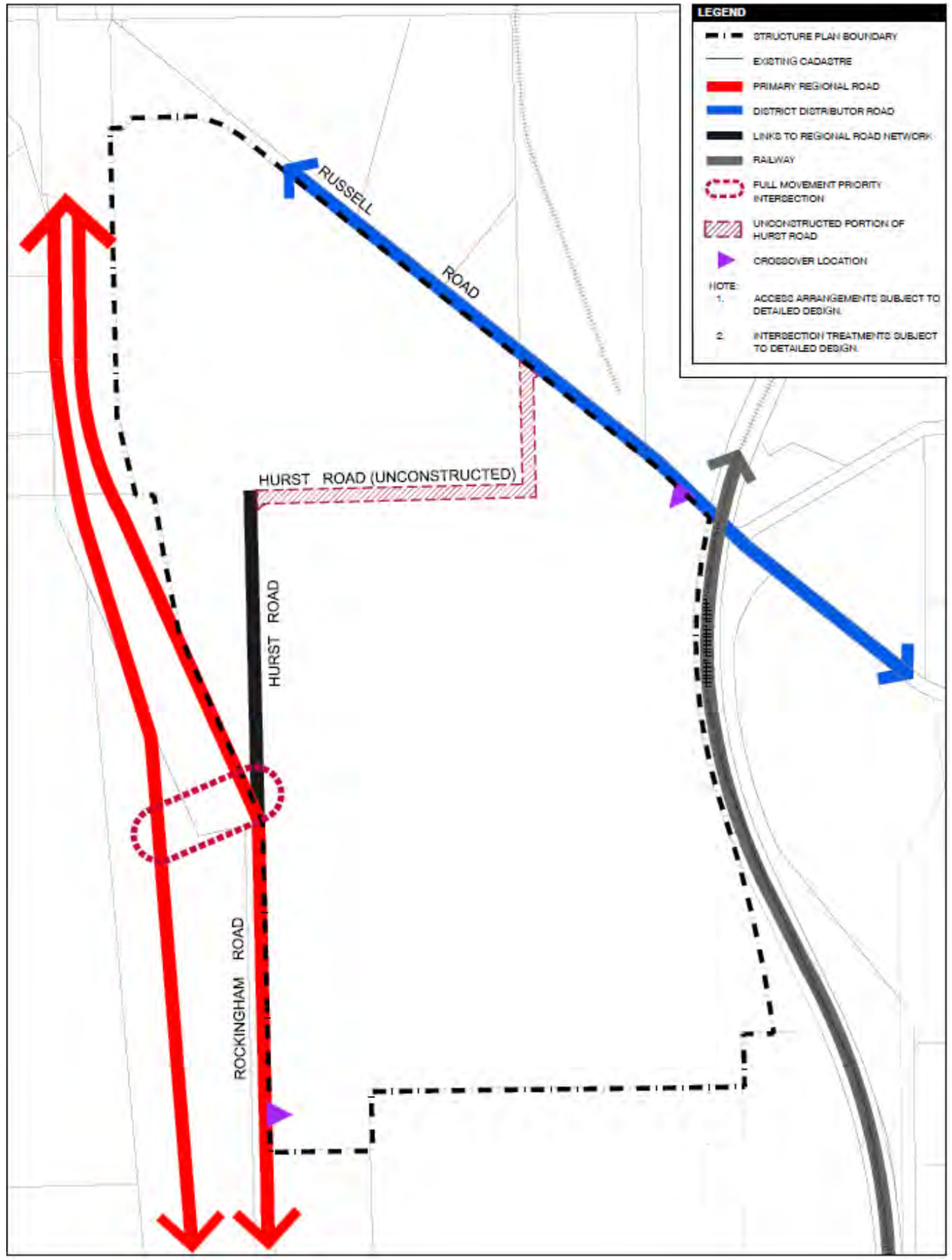


Figure 14 Existing Access Arrangements

7.2.2 Short-Medium Term Access Arrangements

Timeframe: Nominally between 2021 – 2031

Defined as the year that the existing access arrangements to Development Area 6A will no longer perform satisfactorily during the peak hour periods, but prior to full build-out of the entire surrounding regional road network. The proposed short-medium term access arrangements for the Structure Plan area are shown in *Figure 15 Medium Term Access Arrangements*.

Changes to the access in the short-medium term include:

Rockingham Road via Hurst Road

Initial stages of development will be accessed from Rockingham Road via existing Hurst Road which will be extended as an internal local road.

It is expected the existing intersection of Hurst Road with Rockingham Road will remain operational in the medium term to provide access to the initial stages of development until either the FRCAH is constructed (severing access to Rockingham Road) or when an alternative point of access is available, whichever occurs first.

Russell Road

Russell Road will remain in its current form as a regional distributor road (one lane in each direction).

In the short-medium term (i.e. prior to the duplication of Russell Road, subject to City of Cockburn major capital works program), the intersection of Russell Road and the new Local Distributor Road is proposed to be a channelised priority T-intersection).

The existing crossover to Russell Road providing access to the quarry operations will be severed once the Russell Road / LDR intersection is constructed.

Local Distributor Road

A new Local Distributor Road (LDR) will run south from Russell Road through the centre of the Structure Plan area. The staging of construction of the LDR and local road network will depend on the rate at which DA6A develops.

Ultimately the LDR will provide a district connection from Russell Road south through DA5 to Musson Road in DA2.

The crossover to Lot 201 Rockingham Road in the south will remain in place to provide legal access until such time as the development front moves south and/or the LDR is constructed and access to Rockingham Road severed (whichever comes first). Construction of the LDR will be staged to respond to the rate of development and the timing of the upgrade to Russell Road.

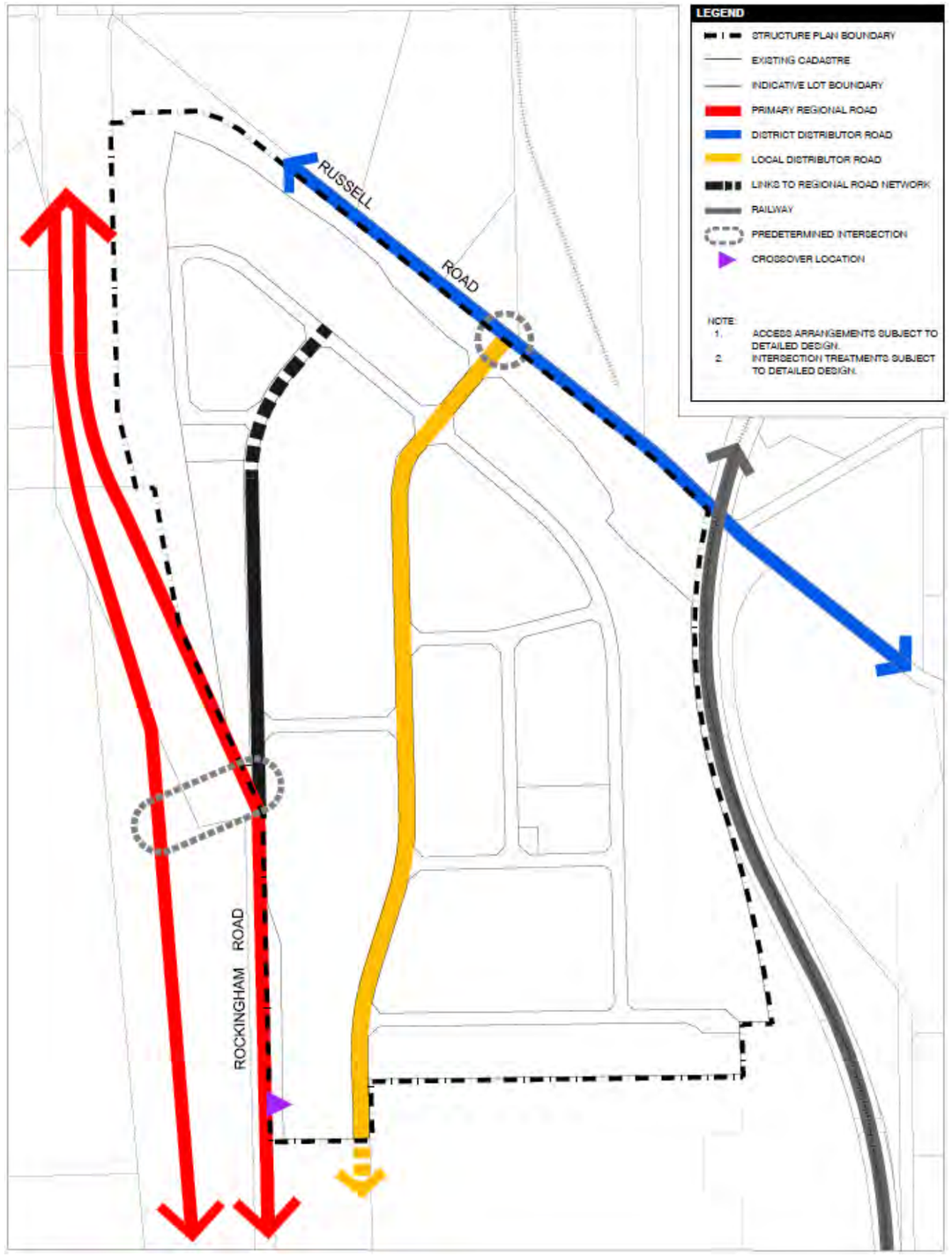


Figure 15 Medium Term Access Arrangements

7.2.3 Long Term Access Arrangements

Timeframe: Nominally post-2031

The proposed long term access arrangements within the Structure Plan area are outlined below and shown in *Figure 16 Long Term Access to Arrangements.*

FRCAH – constructed beyond 2031.

Russell Road

Russell Road is assumed to be upgraded to a 4-lane road in the long term. The intersection of Russell Road / LDR is proposed to be in the form of a 4-way roundabout, which also provides connectivity to Development Area 6B (north of Russell Road).

Whilst the City of Cockburn major road capital works program indicates that Russell Road will be duplicated by 2027/28, discussions at an officer level suggest that this timing may be much later. The timing for the ultimate upgrade of Russell Road will be subject to further detailed design investigations with the City of Cockburn and the DoPLH.

Hurst Road

In the long term, access to Rockingham Road via Hurst Road will be severed following the construction of the FRCAH.

Local Distributor Road

With the FRCAH severing access at Rockingham Road / Hurst Road post-2031, a new LDR will run south from Russell Road through the centre of the Structure Plan area. This LDR will ultimately provide a district connection from Russell Road south through Development Area 5 to Musson Road in Development Area 2.

The timing of this connection will be associated with the construction of the FRCAH (severing access to Rockingham Road from Hurst Road) and when a second access point is required to service the Structure Plan area. The crossover to Lot 201 at this point in time will be removed.

Alternative Option for Southern Connection

As detailed in section 7.2.1 (*Figure 12 FRCAH and Structure Plan Design Cross Section*), an alternative access option is to provide for the southern extension of Hurst Road by utilising the land comprising the batters between the southbound carriageway of the FRCAH and the Structure Plan boundary, refer to the black dashed line in *Figure 16 Long Term Access Arrangements*. This alternative alignment provides an opportunity to take advantage of redundant land in the road reservation. This has in the past been notionally supported by Main Road WA however, is subject to detailed design and coordination with Main Roads WA.

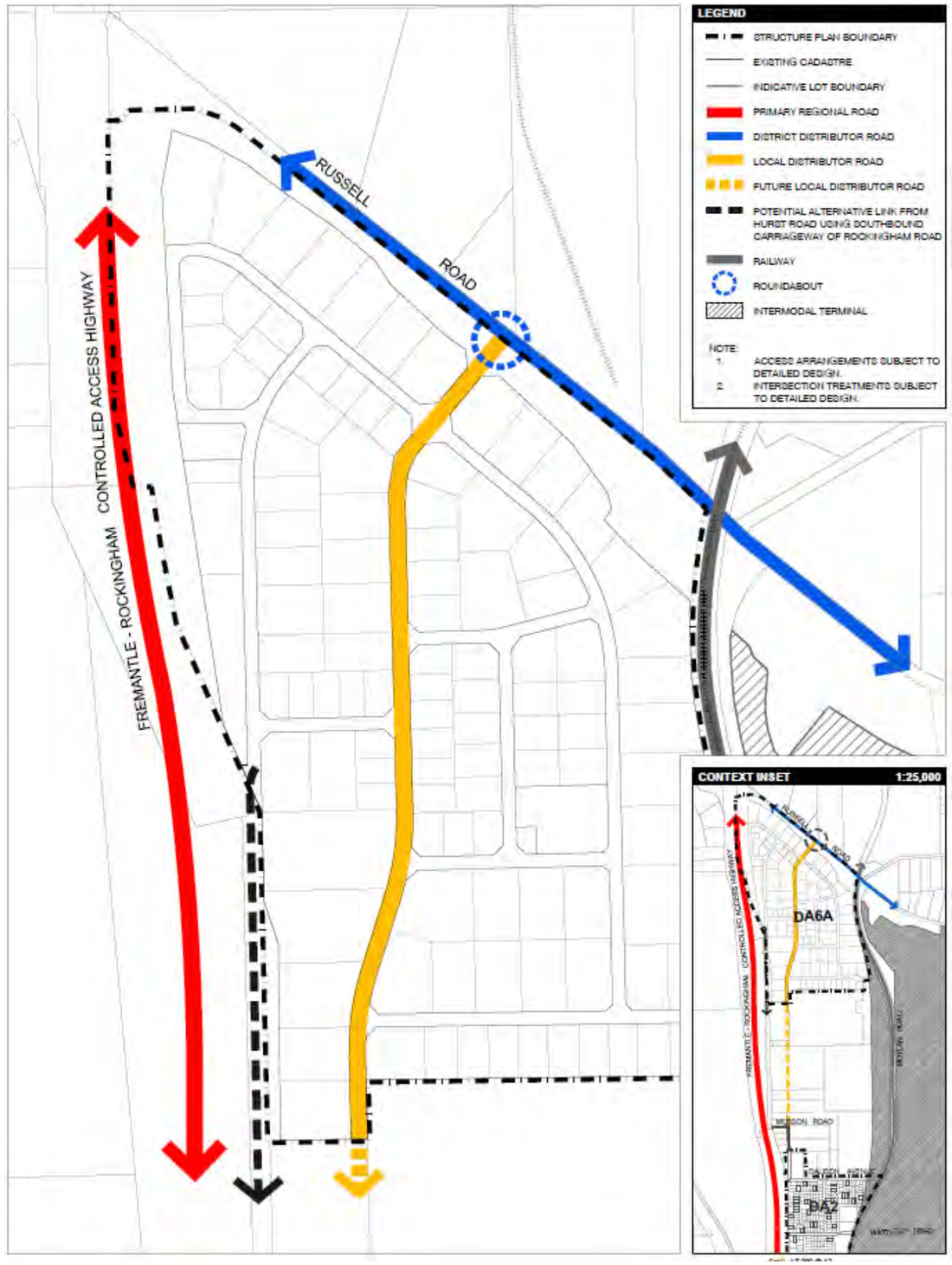


Figure 16 Long Term Access Arrangements

7.3 Proposed Road Reserve Widths

The road reservation widths for the key roads are illustrated below. A full set of cross sections are included within the Transport Assessment, Appendix E:

7.3.1 District Distributor Road (DDR) – Russell Road

Russell Road DDR is proposed to have a minimum 44.0m road reservation width to allow for two 3.5m lanes in each direction, 1.0m sealed shoulders, 6.0m verges and a minimum 15.0m Primary Ecological Linkage in the southern verge. The ultimate road reserve requirements is subject to detailed planning and design. An indicative cross section is provided in *Figure 17 Proposed Road Reservation Width and Cross-Section for the District Distributor Road.*

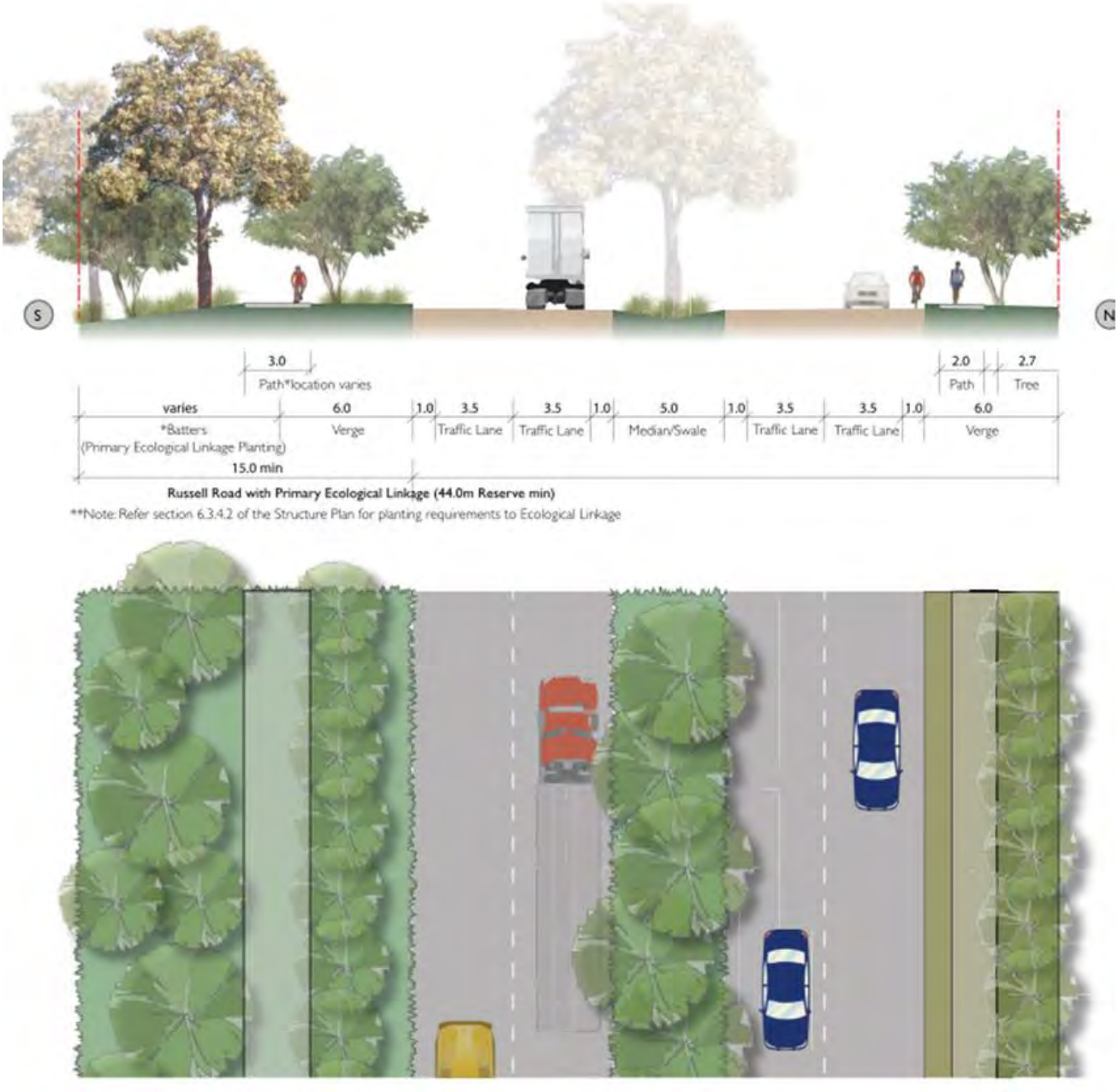


Figure 17 Proposed Road Reservation Width and Cross-Section for the District Distributor Road

7.3.2 Local Distributor Roads (LDRs)

The LDRs are proposed to have a 25.0m road reservation width to allow for turning pockets for right-turning vehicles, as well as 5.5m traffic lanes in each direction, refer *Figure 18 Proposed Road Reservation Width and Cross-Section for the Local Distributor Road.*

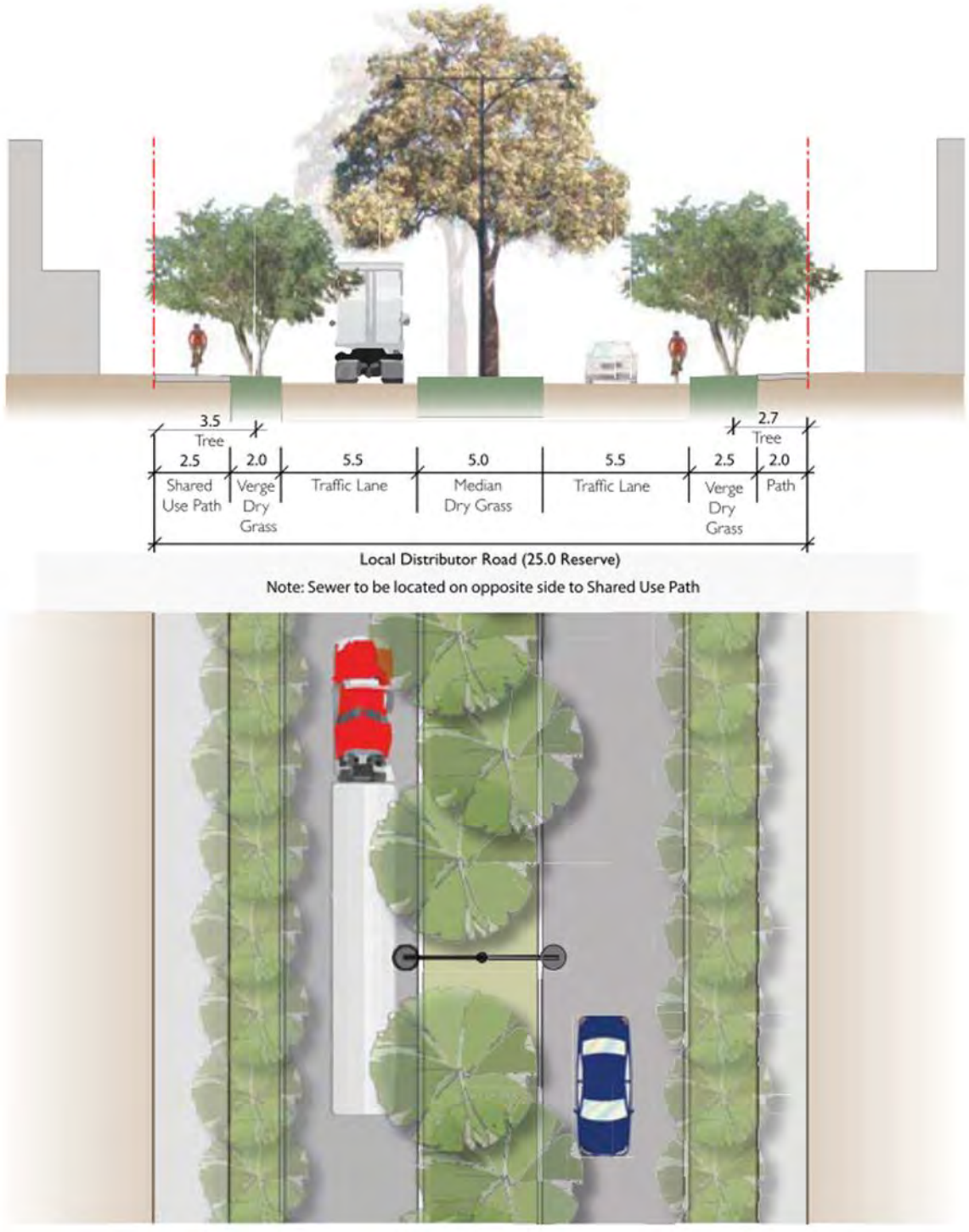


Figure 18 Proposed Road Reservation Width and Cross-Section for the Local Distributor Road

7.3.3 Local Roads

Local Roads are proposed to have a 20.0m road reservation width, which includes 5.0m traffic lanes in each direction, 2.5m parking embayment and 2.5m verge in each direction, refer *Figure 19 Proposed Road Reservation Width and Cross-Section for the Local Roads*. The proposed road cross-section for the Local Roads allows sufficient width for heavy vehicle movements along these roads.

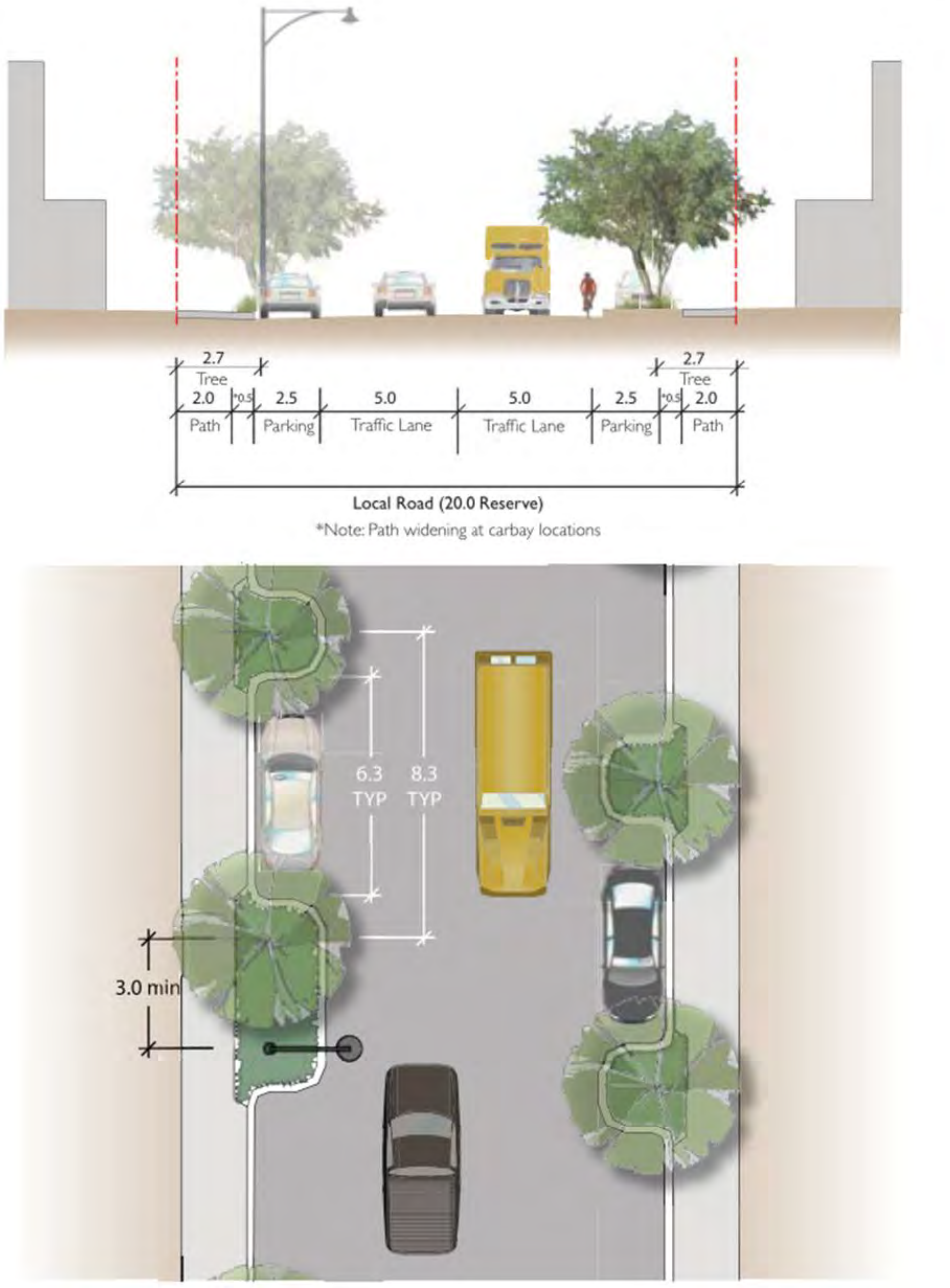


Figure 19 Proposed Road Reservation Width and Cross-Section for the Local Roads

7.4 Public Transport and Pedestrian and Cycling Infrastructure

The bus interchange and train station in Aubin Grove (near the Russell Road and Kwinana Freeway interchange) have recently commenced services (May 2017). The facility includes a parking facility with 2,000 car parking bays, 88 bike parking bays, 19 motorbike parking bays and six bus feeder services.

Consultation has also been undertaken with the PTA regarding the suggestion to relocate the route of the existing 920 bus service between Fremantle to Rockingham. Once the FRCAH is constructed, it is understood that this will form the main corridor for the 920 bus service (due to the controlled-access nature of the road).

PTA have indicated that while the industrial land uses as part of Latitude 32 are generally associated with low employment density, relocation of the 920 service to the NSDDR would be preferred as the land uses along Rockingham Road would likely attract even less patrons. It is noted that any deviation of the 920 bus service to Latitude 32 will require demonstration that the overall journey times for the 920 bus service between Fremantle and Rockingham will not be negatively impacted by such a deviation.

Physical infrastructure improvements such as bus queue-jump facilities and on-street bus bays may be required to improve the journey times for a limited-stop bus service through this area. It is noted that the queue-jump facilities described require minimal additional physical road infrastructure and would generally consist of lengthening left turn lanes at signalised intersections. These measures would be expected to be implemented by the PTA following completion of the NSDDR from Anketell Road to Russell Road, and would be required only to mitigate the impact of regional traffic use of the NSDDR.

A Principal Shared Path (PSP) is expected to be constructed as part of the FRCAH along the eastern carriageway and will provide primary regional cycling connectivity for all of Latitude 32. The level of access for cyclists from the FRCAH to the Latitude 32 internal cyclist network will ultimately depend on the detailed design of the FRCAH and Russell Road.

8 Water Management

A LWMS has been prepared in respect of the Structure Plan (refer Appendix F).

The LWMS provides an integrated total water cycle management approach to development, with an assessment of:

- The pre-development environment;
- Development of water use sustainability initiatives;
- A stormwater management strategy;
- A groundwater management strategy; and
- A plan for implementation of individual subdivision plans.

Key elements of the LWMS are outlined below.

8.1 Water Use Sustainability Initiatives

Development of the Structure Plan area will lead to an increased demand for water for new industry. Water conservation measures implemented to reduce scheme water consumption within the development will be consistent with Water Corporation's "Waterwise" land development criteria, and include:

- Promotion of use of waterwise practices including water efficient fixtures and fitting (taps, showerheads, toilets and appliances, rainwater tanks, waterwise landscaping);
- Use of native plants in drainage corridor areas and within lots; and
- Maximising on site retention and infiltration of stormwater.

To best manage water demands within the Structure Plan area, the landscape design focuses on the remediation of natural areas, creating biodiversity linkages and street plantings. The use of waterwise plant species will be documented further in subsequent UWMP documents, in consultation with local authorities. The landscape design included in Appendix G also proposes the use of waterwise plants.

8.2 Stormwater Management Strategy

The term 'water sensitive urban design' (WSUD) is commonly used to reflect the planning and design of urban environments that is sensitive to the issues of water, sustainability, and environmental protection (Institution of Engineers, 2006).

Although Latitude 32 is industrial (rather than urban development), the best management practices, structural controls and non-structural controls generally associated with WSUD are considered to be relevant. A summary of WSUD initiatives are outlined in the *Table 10.*

Table 10 Summary of WSUD

	STRUCTURAL CONTROLS	NON-STRUCTURAL CONTROLS
Development Scale	– All other basins infiltrating all storm events up to 1 in 100 year ARI. – Planting of sedges to assist in stripping nutrients prior to infiltrating into the groundwater table.	– Reduced turfed area to reduce nutrient inputs. – Street sweeping. – Monitoring.
Lot Scale	– Infiltration at source for all storm events up to 1 in 20 year ARI. – Bunded washdown areas. – Bunded hazardous materials areas.	– Stormwater contamination risks identified and addressed in engineering design. – Car park maintenance.

8.2.1 Stormwater Modelling

All stormwater across the site is proposed to be dealt with on site with no outlets proposed to other catchments or wetlands. All stormwater is to be infiltrated and stormwater infiltration storage areas have been sized to infiltrate the 1 in 100 year ARI event.

Within each catchment road runoff will be collected through a series of pits and pipes for frequently occurring events (1 in 10 year ARI) with greater events travelling via overland flow paths.

No run-off has been assumed to contribute from individual lots for events up to 20 year ARI. Consistent with industrial zone guidelines, it has been assumed that each individual lot will retain all flows up to and including the 1 in 20 year ARI event. City of Cockburn's current standard for stormwater requires industrial/commercial lots to retain 1 in 100 year ARI event however the City of Cockburn have allowed an exception to the ordinary standard in this case, allowing just the 1 in 20 year ARI to be retained, consistent with the approach applied in the approved Structure Plans for Development Areas 2, 3 and 4.

Post development catchment mapping and land use breakdown is illustrated in *Figure 20 Stormwater Management Plan*.

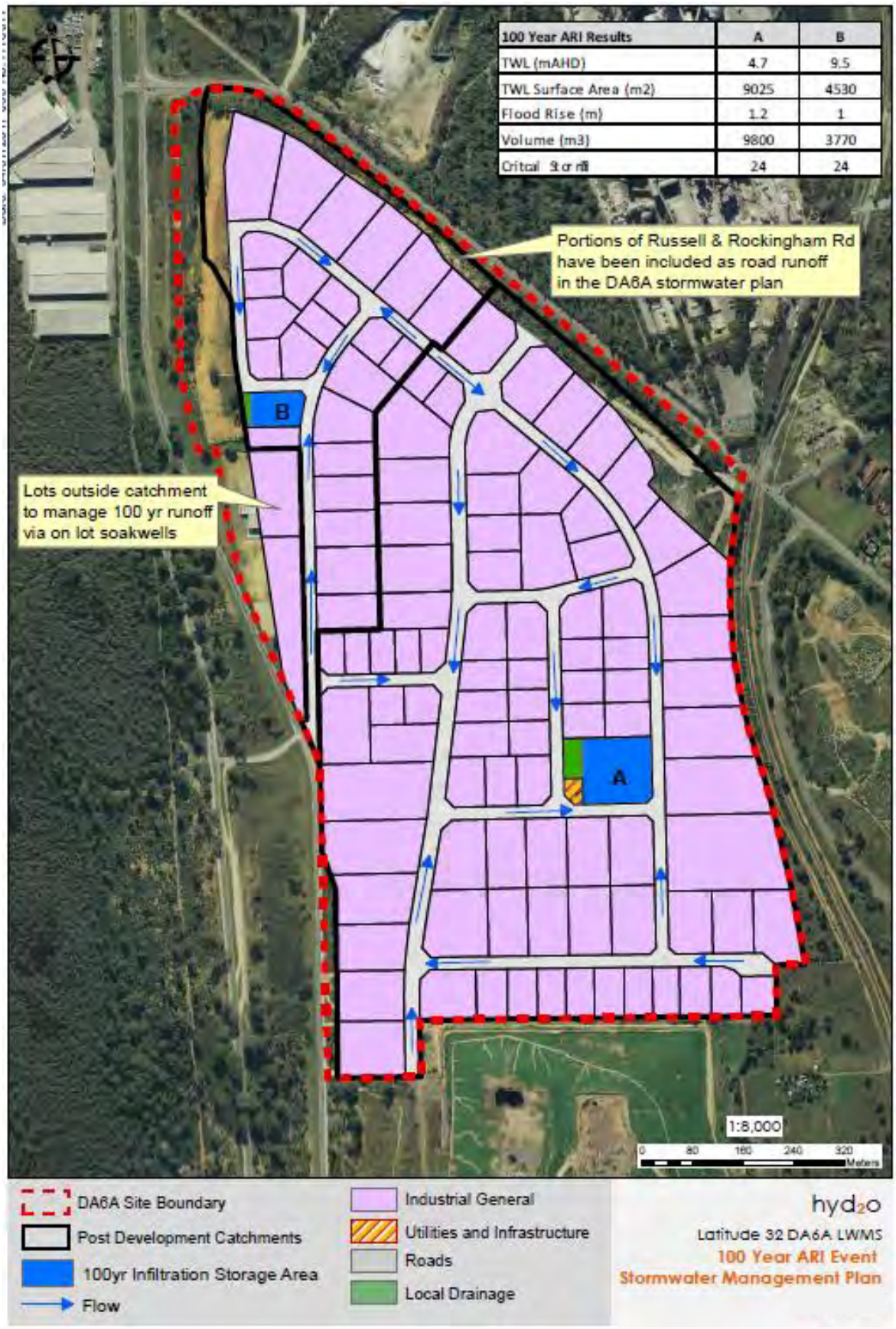


Figure 20 Stormwater Management Plan

8.3 Groundwater Management

Depth to groundwater varies over the development area from approximately 2 m to 12 m below the existing natural surface.

Proposed lot levels will vary from approximately 5.7m AHD in the central area (near the drainage reserve) and along the southeast boundary, to a height of 13.1m AHD along the northern boundary of the site as set out in *Figure 10 Development Area 6A Levels Plan*. Due to this clearance to groundwater and the sandy soil profile, it is unlikely that imported fill will be required for the site. As a result of the above factors, subsoil drainage will not be necessary at the site.

8.4 Subdivision and Urban Water Management Plans

Consistent with processes defined in Better Urban Water Management (the Commission 2008), an Urban Water Management Plan (UWMP) should be developed and submitted to support the subdivision application/s for the Structure Plan area. Preparation of the UWMP will be the developer's responsibility.

8.5 Groundwater Monitoring

Pre-development monitoring has already been undertaken for the site by RPS. Where applicable, additional data collected from this programme will be used to inform the development of the UWMP.

Post-development groundwater monitoring is proposed in all pre-development groundwater monitoring bores to provide suitable coverage of the Structure Plan area. Where bores have been destroyed they will be replaced in the closest convenient location. The following frequency of monitoring is proposed:

- Monthly groundwater level measurements; and
- Quarterly groundwater quality analysis.

Monitoring will be undertaken by the landowner/developer for a three year period post development consistent with usual DoWER requirements. An annual report will be prepared summarising the results of the program.

8.6 Implementation

A summary of roles, responsibilities and funding to implement the LWMS is provided in *Table 11*.

Monitoring outcomes will be used in a continual improvement capacity to review the implemented WSUD within the Structure Plan area and inform the planning and design approaches for subsequent stages of development.

Any modification required to the LWMS as a result of monitoring outcomes would be identified through the review process of monitoring data and would require the agreement of all parties (DoWER, Developer and local authority).

Table 11 Implementation, Roles and Responsibilities

IMPLEMENTATION ACTION	LANDOWNER DEVELOPER	FUTURE INDUSTRY (LOT SCALE)	CITY OF COCKBURN	DEPARTMENT OF WATER, ENVIRONMENT AND REGULATION
Completion of District Scale Predevelopment Monitoring Programme	☑			
Preparation of UWMP	☑			
Review and Approval of UWMP			☑	☑
Construction of infiltration stormwater storage areas and landscaping	☑			
Construction and design of lot scale stormwater drainage system		☑		
Street sweeping for initial 1 year	☑			
Street sweeping after 1 year			☑	
Landscape maintenance for initial 2 years	☑			
Landscape maintenance after 2 years			☑	
Assessment of development applications for future industry			☑	
Post Development Monitoring Program and Reporting	☑			
Review of Annual Monitoring Report				☑

9 Infrastructure and Servicing

The facilitation of development relies on the appropriate provisions and staging of critical infrastructure. An Earthworks and Servicing Strategy (Engineering Strategy) has been prepared by Cossill and Webley Consulting Engineers for the Structure Plan area, refer Appendix H. A summary of requirements and assumptions is provided below and depicted within *Figure 21 Infrastructure and Servicing Plan*.

9.1 Earthworks

Investigations for the Structure Plan area include an earthworks and levels strategy based on logical servicing and implementation considerations. Developing the strategy included consultation with landowners in the Structure Plan area. The Engineering Strategy includes final design levels and a summary of assumptions and methodology. The servicing strategies outlined within the Engineering Strategy assume the final levels follow the earthworks plans.

Landowners or developers must comply with the final levels as shown on *Figure 11 Development Area 6A Levels Plan* to allow for industrial development and logical servicing over the Structure Plan area. Any variation of the design levels would require assessment to ensure impacts on any other landowners are addressed adequately.

9.2 Roads

Designs for the levels and implementation of earthworks have considered the use of existing roads and/or road reservations either in the interim scenario or ultimate scenario. In all cases it is assumed that for full development of the site to occur, existing roads must either be removed, reconstructed or upgraded/widened to industrial standards to support the additional traffic.

9.3 Drainage

In accordance with the LWMS (refer Appendix F), the drainage strategy for the majority of the lots consists in summary of:

- Lots to contain and infiltrate up to 1 in 20 year ARI rainfall even on site consistent with other Development Areas within Latitude 32.
- Road systems will cater for runoff up to 1 in 10 year ARI and will be captured and conveyed in a conventional it and pipe system with larger flows conveyed by overland flow with the road reserves.
- Catchment runoff for up to 1 in 100 year ARI to be contained in the development area in landscaped infiltration basins. Because DA6A has no overland flow route to divert stormwater exceeding the 1:100 year capacity, it would be prudent to assess the consequences of extreme storm events.
- All habitable floor levels to be minimum 0.5m above 100 year ARI flood levels.
- Maintain surface and groundwater levels at or better than current water quality.

- Stormwater will be treated in bio-retention basins upstream of the catchment infiltration basins prior to infiltration into the soil profile.

This overall drainage strategy is consistent with the finished grading strategy developed for the site and clear overland flow paths and infiltration basin sites have been identified and sized.

At subdivision stage an Urban Water Management Plan will be required that further details design of the drainage system in accordance with the City of Cockburn and DoWER requirements.

9.4 Water

Development Area 6A is within the Water Corporation license area for water supply and sits within the Thompson Lake Water Reticulation Scheme. This scheme provides for future water supply to Latitude 32 and is currently under review as part of an assessment of options being considered for the Medina Water Supply.

There are no existing water reticulation mains in the Structure Plan area. Water Corporation has indicated that water supply to Development Area 6A can be made by connection to an existing water DN900 steel distribution main running along the western side of Rockingham Road (future FRCAH). All lots within the development will be required to be serviced with water reticulation pipes which will be connected to the water supply network.

Continuity of supply within the water supply network can be achieved in the long term by making another connection point to the east, outside the Structure Plan boundary. This would include extending reticulated water east of the site across the MKR reserve into Development Area 5. A short length of easement within Development Area 5 in the south-east corner of the site would be required to protect the water supply extension and other services – sewer, power, gas, NBN.

9.5 Sewer

There is no existing sewer infrastructure servicing within the Structure Plan area. The whole of Development Area 6A Structure Plan is included within the Wattleup sewer district.

The Water Corporation has recently undertaken sewer planning over the area which was released in January 2017. The northern part of Latitude 32 is included within the Wattleup sewer district which is planned to be sewered with flows going to the Woodman Point Waste Water Treatment Plant. The southern part of Latitude 32 is included within the East Rockingham sewer district which is planned to be sewered with flows going to the Rockingham Wastewater Treatment Plant.

Planning shows a Type 90 wastewater pump station "S" within Development Area 6A, which receives pumped flows from north of Russell Road, pumped flows from east of DA4, and gravity flows from the northern portions of DA4 and DA5 (proposed intermodal facility).

Flow from pump station "S" is planned to be conveyed north to the Woodman Point Wastewater Treatment Plant via pressure sewer and the future Bibra Lake main sewer located approximately 3.6km north of the site.

Water Corporation has advised that pump station "S" and the DN750 outfall connection to Bibra Lake main sewer is tentatively scheduled commencing in year 5 (2022) of the capital works program. Timing is subject to change pending confirmation of development and funding availability.

The Engineering Strategy provided at Appendix H details the proposed sewer planning strategy for Development Area 6A.

9.6 Power

The Structure Plan area does not have any existing Western Power infrastructure that could cause major impacts on development, or that could not be removed and replaced with underground cables.

There is an existing HV and LV overhead line located on the eastern side of Hurst Road, which will need to be undergrounded in conjunction with lowering Hurst Road. Existing HV and LV overhead lines and underground cables in Russell Road may need relocation depending on the future design and upgrading of Russell Road. An existing 132KV line runs south from Cockburn Cement Zone Substation on Moylan Road east of the MKR reserve and has no impact on the Development Area 6A.

Lots proposed in the Structure Plan area are able to be served from the existing Western Power infrastructure originating from the existing Zone Substation called Cockburn Cement located on Holmes Road and the MKR.

It is expected the first stage of development may connect to the existing HV underground cables located in Russell Road. As development progresses, a new feeder may need to be extended from the Cockburn Cement Zone Substation to maintain network conductivity in a ring fashion. Long term, the Structure Plan area may need a new HV feeder to be installed and connected to the Zone Substation. Detailed power requirements will be confirmed by Western Power at subdivision stage.

At each phase of development, network studies will be undertaken in conjunction with Western Power to determine the optimum manner in which to service each new Development Area. A summary of the consultation with Western Power is contained within Appendix C of the Engineering Strategy at Appendix H.

9.7 Communications

Existing Telecommunications infrastructure owned by Nextgen are located within Russell Road. These are required to be relocated or protected as part of the development of the Structure Plan area.

NBN services to all lots could be possible but will be dependent on the predicted rate of rollout at the time and subject to NBN approval and requirements. At time of subdivision it is anticipated that NBN will review the surrounding network access options and undertake a business case on provision of NBN services if the expected three year lot yield is less than 100 premises. NBN may elect not to service the development.

The nearby Flinders Precinct (Development Area 1) was serviced in anticipation of NBN services and so this may roll on to the balance of Latitude 32. If rejected by NBN, Telstra will service area.

9.8 Gas

An existing high pressure steel gas main owned by ATCO Gas is located within Russell Road.

The provision of reticulated gas for industrial subdivisions is not normally mandatory and so would depend on the types of developments that are planned.

The nearest gas reticulation assets to the Structure Plan area are located in the Flinders Precinct. These assets provide gas services to existing lots within the subdivision via an extension of distribution assets from high pressure mains further west in Rockingham Road.

Depending on the uptake of gas in the development, Atco will review funding arrangements for any headworks extensions to the estate. Such funding arrangements will be subject to negotiation between developers and Atco at the time of subdivision. Atco has previously funded gas extensions to the Flinders Precinct based on customer demand within the Estate.

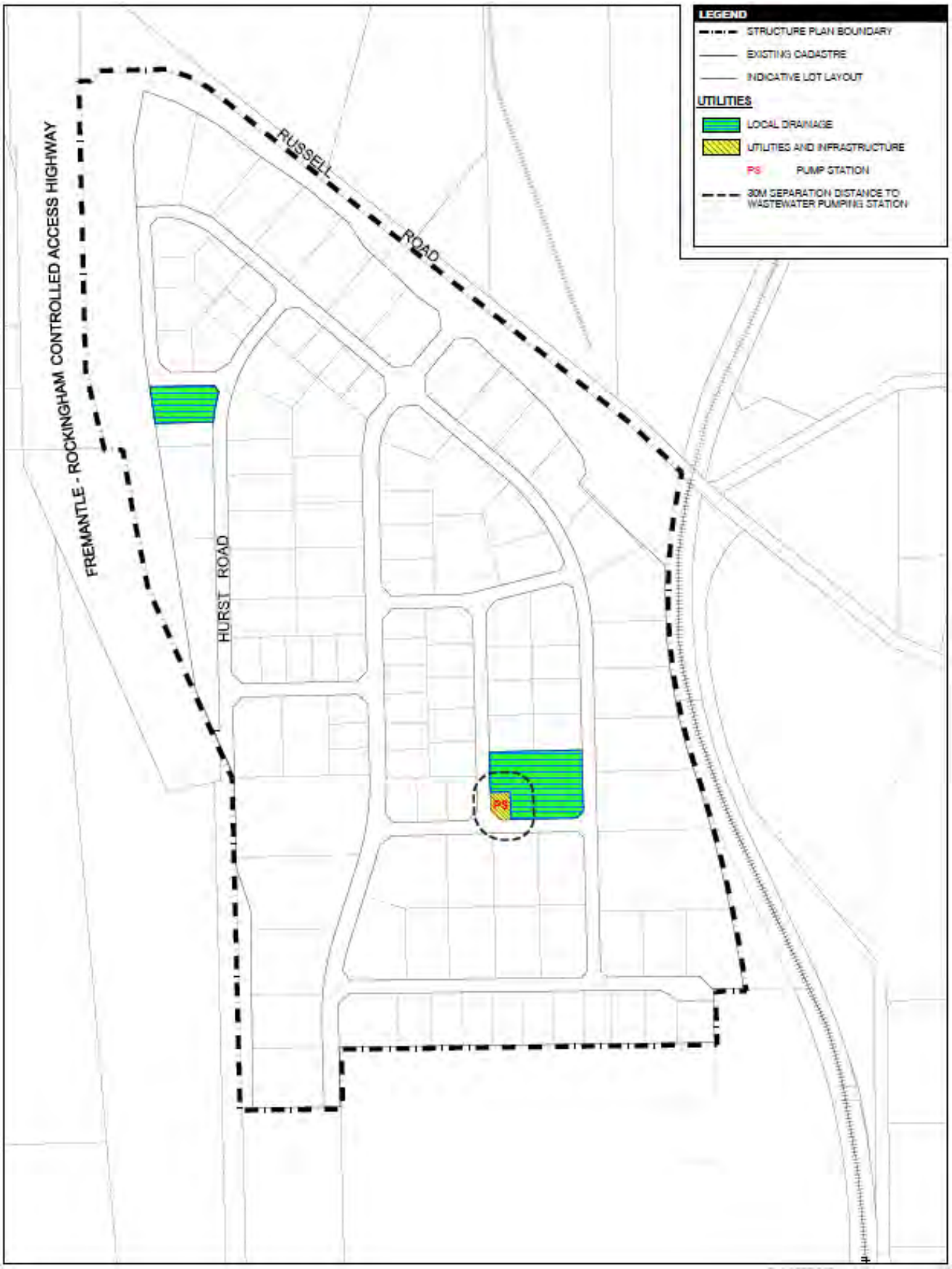


Figure 21 Infrastructure and Servicing Plan

10 Landscape Master Plan

A Landscape Master Plan has been prepared for the Structure Plan area (refer to the Landscape Design Report, Appendix G), setting out landscape requirements for a number of key locations.

Given the majority of the Structure Plan area will be substantially altered as a result of earthworks, and the nature of development intended, there will be little opportunity for retention of vegetation within road reserves and private lots. The focus therefore, is on replanting of road reserves and drainage basins.

Landscape treatments within these areas will focus on:

- Create avian Ecological Linkages to Beeliar Regional Park along Russell road.
- Explore opportunities for retained vegetation to be utilised as habitat.
- Strengthen key areas of preserved high quality vegetation if possible to improve the amenity of these areas.
- Minimisation of maintenance, and use of sustainable and durable materials;
- Select plants that have low water use, tolerate harsh environmental conditions, low maintenance, preserve clear sight lines and low fuel species to comply with the intent of the Bushfire Management Plan.
- Apply Crime Prevention Through Environmental Design (CPTED) criteria though landscape design. Discourage use of these areas at night through absence of lighting.

The Landscape Master Plan sets out guidelines for streetscape planting along road corridors within the Structure Plan area which are identified as follows:

- District Distributor Road (Russell Road);
- LDRs; and
- Local Roads.

Planting along road corridors is designed to increase biodiversity and provide avian Ecological Linkages through the Structure Plan area; design for sight lines and other driver and pedestrian safety considerations; and planting of hardy and low water use species, with particular species identified for each corridor to reinforce character and create streetscape unity.

11 Implementation

11.1 Roles and Responsibilities

The implementation of the Structure Plan requires inputs from all key stakeholders to ensure that development is activated in accordance with the provisions of the Structure Plan. *Table 12* outlines the roles and responsibilities of the Commission, LandCorp, City of Cockburn and landowners in progressing development within the Structure Plan area.

Table 12 Roles and Responsibilities

	COMMISSION	LANDCORP	LOCAL AUTHORITY	LANDOWNER
Structure Plan including all technical appendices	Approve or refuse Structure Plan.	– Prepare Structure Plan. – Advertise Structure Plan. – Forward Structure Plan to the Commission for Approval.	Consulted authority as part of public comment (advertising).	– Provision of comments during advertising. – Preparation of applications in accordance with the Structure Plan.
Latitude 32 Design Guidelines	Referral authority if Design Guidelines initiated by LandCorp.	– Prepare Design Guidelines. – Adopt Design Guidelines.	Provision of comments during advertising.	– Provision of comments during advertising. – Undertakes to design the proposed development in accordance with the design guidelines.
Subdivision	Determining authority for subdivision applications.	Referral agency for subdivision applications.	Referral authority for subdivision applications.	Prepares subdivision applications in accordance with the Structure Plan and submits to the Commission.
Development Approval	Determining authority for development applications (currently delegated to City of Cockburn and City of Kwinana in line with Delegation Schedule).	Referral agency for development applications.	Determining authority (as delegated) for development applications unless referred by the City to the Commission in line with Delegation Schedule.	Undertakes to prepare a development application in accordance with the Master Plan, the Structure Plan and Design Guidelines.
Amendment No. 18	– Grant Consent to Advertise. – Assessing Authority for recommendation to the Minister on Master Plan Amendment.	– Prepare and advertise. – Consider comments following the public comment (advertising) period.	– Consulted authority prior to amendment being forwarded to the Commission for consent to advertise. – Referral authority during advertising.	Provision of comments during advertising period.
Road Realignments	Responsible Authority	Prepare application for realignment or land exchange where impact on LandCorp landholding.	Referral authority for review and comment.	Provision of comments during advertising.

11.2 Staging

The staging of subdivision and/or development within the Structure Plan area will be determined primarily by the individual landowners and their desire and capacity to undertake the next stage of works.

The infrastructure strategy is based on the assumption that the land with access to Hurst Road and Rockingham Road in the western portion of the Structure Plan area will be the first area developed due to access considerations, landownership and key infrastructure developments required for initial development.

It is highlighted that the sufficient access and an ability to provide temporary drainage and servicing may result in the staging occurring in a different manner. The Structure Plan has inherent flexibility to enable various staging proposals.

11.3 Road Alignment

Hurst Road within the Structure Plan area will require partial realignment to facilitate the construction of the proposed road network.

Procedures will be undertaken in accordance with the requirements of the Commission and the DoPLH to facilitate the realignments at an appropriate time in the future to accord with the timing of the proposed development. A summary of the process is set out in *Table 13* below.

Table 13 Road Realignment Process

	RESPONSIBILITY	AGENCY	REQUIREMENTS
Road Realignment Request	LandCorp	DoPLH	Letter requesting realignment of roads inclusive of: – Plans of proposed road realignment; – Description of existing and proposed land tenure; – Evidence of consultation with landowners; and – Evidence of consultation with utility service providers and agreement on proposed realignment.
Amalgamation Applications	LandCorp	Commission	– Form 1A and associated application fee; – Plan of Subdivision (amalgamation); – Letter outlining proposed amalgamations; and – Evidence of undertaking road realignment process with DoPLH.

Prior to commencing the process, discussions should be held with the DoPLH and the Commission to ensure the currency of the process identified in Table 13 above.

11.4 Development Contribution Arrangements

Development Contribution Plans (DCP's) are important 'delivery tools' for large land development projects with high levels of land fragmentation or ownership.

Overall DCP's provide certainty over the planning and delivery of infrastructure required to facilitate development, whilst also ensuring that the cost of infrastructure is shared equitably amongst land owners. Importantly, DCP's can also encourage development by providing certainty that prefunding costs will be recovered from future development contributions. Consequently, all landowners within the Structure Plan area are liable to contribute to various enabling infrastructure items. The DCP framework for Latitude 32 must contemplate delivery of infrastructure over an exceptionally large area of land over a long period of time (35-50+ years).

The DCP model proposed for Latitude 32 comprises two separate cost contributions (applied to each Development Area) for the two infrastructure categories outlined in *Table 15*.

The cost contribution rate(s) will be expressed as a per square metre (m^2) charge of Net Developable Area. Depending on the level of tenure fragmentation in each Development Area, not all Development Areas require a local level DCP to be prepared.

Table 15 DCP Delivery Model

DCP	CATEGORY	INFRASTRUCTURE	COST APPORTIONMENT METHODOLOGY
District DCP	District level infrastructure	• Biodiversity Strategy Implementation • North-South District Distributor Road • Russell Road upgrade (portion of) • Land for power infrastructure site(s) • Land for waste water site(s) • Administration costs	Pro rata amount - allocated to each Development Area * Note: roads costs will be apportioned having regard to traffic modelling and the respective utilisation per Development Area. Administration charges applied per Development Area to reflect the amount of infrastructure /complexity of each Development Area DCP.
Local DCP	Local level infrastructure	• Drainage • Local Distributor Road costs • Administration costs	Apportioned based on the catchment of the particular infrastructure item (measured by area). Administration charges applied per Development Area to reflect the amount of infrastructure /complexity of each Development Area DCP.

11.5 Additional Requirements

Prior to the subdivision or development within the Structure Plan area the tasks and documents, as outlined within *Table 14* are required to be completed (where applicable):

Table 14 Additional Requirements Prior to Subdivision and/or Development

TASK/DOCUMENT	APPLICABILITY	STATUS	RESPONSIBILITY
Latitude 32 Design Guidelines	All lots.	Approved.	LandCorp on behalf of landowners
Bushfire Management Plan Review	Lots located within bushfire prone areas.	Bushfire Attack Levels to be reviewed prior to development in the context of vegetation condition and proposed built form and fire attenuation measure.	Landowners / developers
Groundwater monitoring programme	DoWER requirement.	Ongoing	LandCorp on behalf of landowners
Biodiversity Strategy (as amended 2015)	Review every 5 years in accordance with the Ministerial Conditions.	The Biodiversity Strategy (as amended 2015) has been supported by the OEPA on a number of occasions, most recently in 2016 (refer Letters dated 14 September 2014, 21 May 2015 and email dated 22 July 2016.	LandCorp on behalf of landowners
Significant Impact Assessment and Commonwealth Referral	Those lots identified with significant vegetation.	To be prepared.	Landowners/developers

latitude 32
INDUSTRY ZONE

Appendix A: Environmental Assessment Report

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Appendix B: Noise and Vibration Assessment

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Appendix C: Bushfire Management Plan

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Appendix D: Heritage Strategy

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Appendix E: Transport Assessment

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Appendix F: Local Water Management Strategy

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Appendix G: Landscape Design Report

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Appendix H: Engineering Strategy

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Appendix I: Glossary of Terms