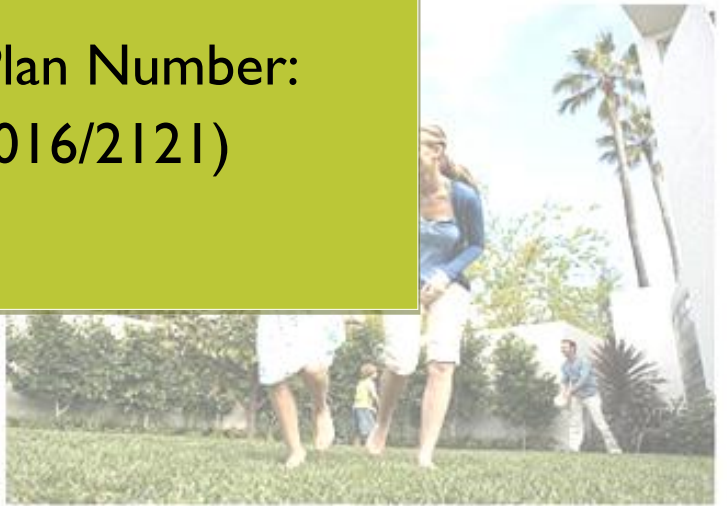




**KEROSENE LANE  
STRUCTURE PLAN  
BALDIVIS  
(Structure Plan Number:  
ROCK/2016/2121)**



Title: Kerosene Lane Structure Plan

Project Kerosene Lane

Prepared for: Infield Holdings Pty Ltd

Reference: I17A

Date of release: November 2016

Author: Masterplan

Contributors: Masterplan, Pritchard Francis, Bio Diverse Solutions,  
Move Consultants, 360 Environmental

Approved by: S. Kerr

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DOCUMENT	DATE	PREPARED	AUTHORISED	REVIEW
DRAFT 1	AUG 2015	SK/SDS	SK	INTERNAL
DRAFT 2	JULY 2016	SK/SDS	SK	CLN
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FINAL V1	DEC 2016	SK/SDS	CLN	WAPC
FINAL V2	APRIL 2018	SK/SDS	CLN	WAPC
FINAL V3	MAY 2018	SK	SK	WAPC

# ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Rockingham Local Planning Scheme No. 2.

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

**28 May 2018**

Signed for and on behalf of the Western Australian Planning Commission:



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



Witness

28 May 2018 Date

28 May 2028 Expiry Date

TABLE OF AMENDMENTS

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

## EXECUTIVE SUMMARY

The Kerosene Lane Structure Plan (SP) is prepared to facilitate and guide the subdivision and development for residential purposes of the Structure Plan area comprising lot 309 Kerosene Lane and lot 302 Mandurah Road in Baldivis.

It comprises an area of 7.09 hectares and is the urban zoned portion of original larger landholdings that comprised both an urban and a rural zoning. The subject land contains no structures and has historically been cleared and/or utilised for grazing purposes. As such it is generally parkland cleared with individual or limited stands of trees and where there is some vegetation this is generally regrowth in very poor condition as per the Keighery vegetation condition rating scale which accounts for the vegetation complex on the site rather than the quality of the individual trees.

An existing tree canopy comprising a number of mature trees is located in the eastern part of the Structure Plan area coinciding with proposed public open space areas under adjoining Structure plans providing an opportunity where possible to facilitate retention of some of this canopy to enhance local identity and a sense of place consistent with Element I of Liveable Neighbourhoods.

The SP has been designed to support State Government residential density targets and to carefully integrate within its surrounding context. It reflects the relevant planning framework and has been prepared in close collaboration with abutting landowners to achieve coordinated and integrated development interfaces with those landholdings.

The SP accommodates a variety of residential product and is designed to be permeable and to achieve best sustainable design practice where possible, including application of better urban water management, maximised solar orientation and efficient servicing and infrastructure coordination.

Careful consideration has been given to making future development under the SP as sustainable as possible by in addition to the solar and water sensitive design initiatives described above, focussing on connectivity, reducing transportation and environmental costs by promoting on site earthworking balance and incorporating bushfire management as an integral part of development design.

The key statistics and planning outcomes of the Structure Plan are outlined in the following summary table.

Item	Data	Structure plan Ref. (Section No.)
Total Area Covered by Structure Plan	7.09 Hectares	1.0
Area of each land use proposed <u>Zones</u>	Hectares                      Lot Yield	
<ul style="list-style-type: none"> <li>• Residential</li> <li>• Commercial</li> <li>• Industrial</li> <li>• Rural Residential</li> </ul>	4.3428 Hectares              131 NA NA NA	Part 2: 3.0
Total Estimated Lot Yield	130 Lots	Part 2: 3.1
Total Estimated Number of Dwellings	130 Dwellings	Part 2: 3.1
Estimated Residential Density	18 dwellings per gross hectare 30 dwellings per net hectare	Part 2: 3.1
Estimated Population	364	Part 2: 3.1
Number of High Schools	NA	NA
Number of Primary Schools	NA	NA
Estimated Commercial Floor Space	NA	NA
Estimated area and percentage of public open space given over to <ul style="list-style-type: none"> <li>• Regional open space</li> <li>• District open space</li> <li>• Neighbourhood parks</li> <li>• Local parks</li> </ul> Note: Each proposed park is located to integrate with the POS proposed under adjoining Structure Plans to facilitate creation of larger parks providing opportunity for integrated design and development where viable.	NA NA 1 park: 7296m2 1 park: 1287m2	Part 2: 3.2
Estimated percentage of natural area	NA	NA

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- Figure 11 – Development Concept Plan

## PART THREE- TECHNICAL APPENDICES

1. Environmental Assessment Report, Bio Diverse Solutions, 28/03/18
2. Kerosene Lane – Mandurah Road Servicing Report, Pritchard Francis, 10/11/16
3. Transport Impact Assessment, Move Consultants, 09/04/18
4. Bushfire Management Plan, Bio Diverse Solutions, 27/03/18
5. Local Water Management Strategy, 360 Environmental, 31/10/16, LWMS Addenda, Urbaqua, 16/04/18
6. Kerosene Lane POS Concept Plan, Mark Jumeaux, Folium Landscape Architecture, RV4, 16/04/18





**PART ONE**

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**IMPLEMENTATION**



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## 1.0 Structure Plan Area

This Structure Plan applies to Lot 302 Mandurah Road and Lot 309 Kerosene Lane Baldivis, being the land contained within the inner edge of the line denoting the structure plan boundary on the Structure Plan Map.

## 2.0 Operation

This Structure Plan comes into effect on the date it is approved by the Western Australian Planning Commission.

## 3.0 Staging

Development of the Structure Plan area will occur progressively in a number of stages. Development of each stage will be dependent upon provision of appropriate connections to the external road network and the extension of services sufficient to service each proposed stage.

## 4.0 Subdivision and Development Requirements

### Subdivision and Development Requirements

- a) Residential densities for the structure plan area are the residential densities shown on the Structure Plan Map.
- b) Land use permissibility within the structure plan area shall accord with the corresponding land use classification in the City of Rockingham Town Planning Scheme No. 2.
- c) This structure plan is supported by a Bushfire Management Plan (BMP), *Bushfire Management Plan – Lot 309 Kerosene Lane and 302 Mandurah Road, Baldivis, 27 March 2018* by Bio Diverse Solutions as amended. Any land falling within 100m of a bushfire hazard identified in the BMP is designated as a Bushfire Prone Area for the purpose of the Building Code of Australia.
- d) Notifications on Title

The Council shall recommend to the West Australian Planning Commission that a condition be imposed on the grant of subdivision approval for a notification to be placed on the Certificates of Title to suitably respond to the following:

- That the lot(s) with a bushfire attack level (BAL) rating of 12.5 or higher is within a designated bushfire prone area, subject to a *Bushfire Management Plan* and consequently, additional planning and building requirements may apply to development on this lot.

e) Management Plans

The Council shall recommend to the Western Australian Planning Commission that a condition be imposed on the grant of subdivision approval to respond to the following as identified by the structure plan.

- The preparation and implementation of a Tree Protection Management Plan.

## 5.0 Local Development Plans

Local Development Plan(s) are to be prepared for lots with one or more of the following attributes:

- a) Abutting Public open Space;
- b) With Laneway vehicle access; and
- c) With a Bushfire Attack Level of 12.5 or higher.

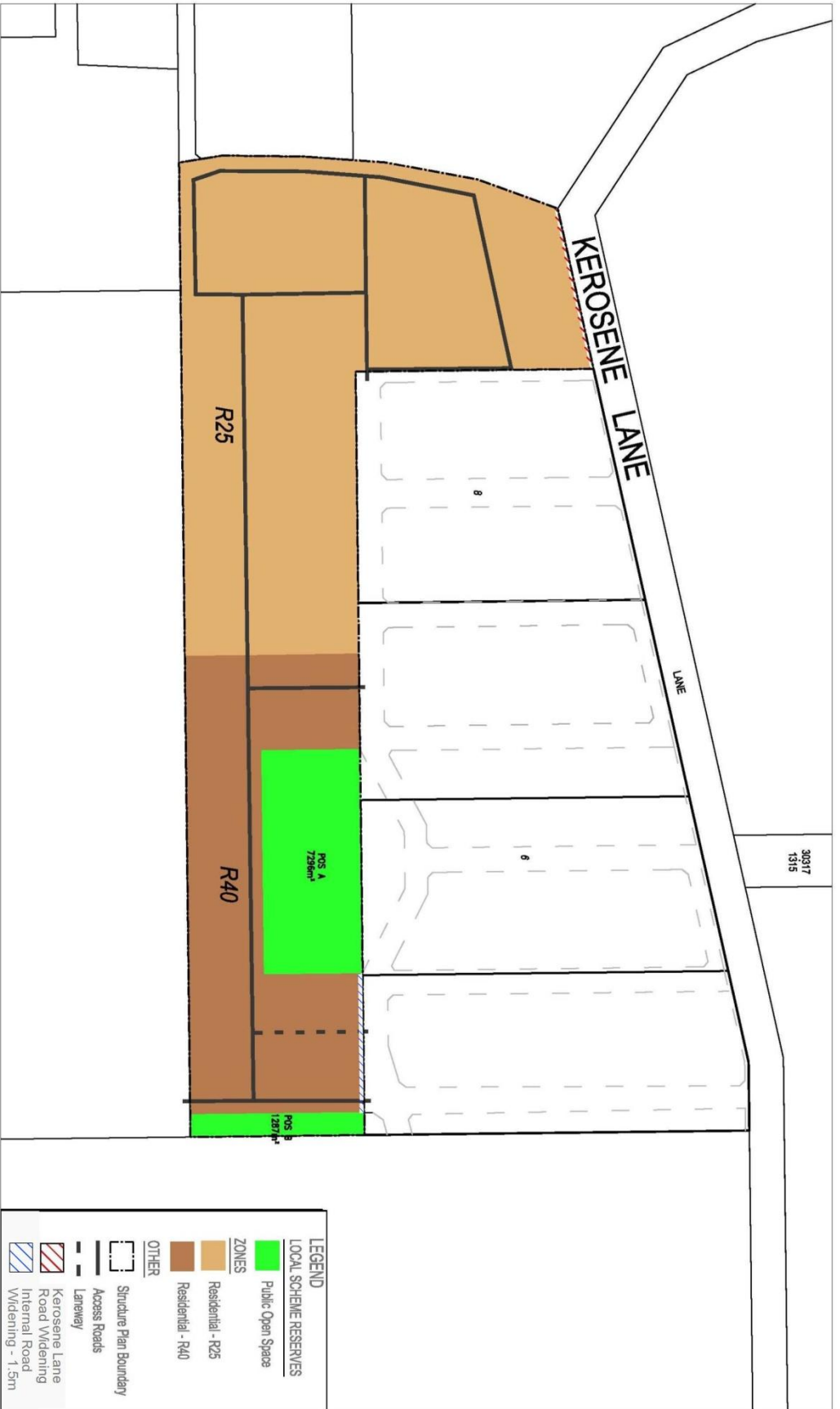
## 6.0 Other Requirements

- a) Development Contribution Arrangements

The Structure Plan is subject to the City of Rockingham Development Contribution Area 2.

## 7.0 Additional Information

Additional Information	Approval Stage	Consultation Required



# STRUCTURE PLAN MAP

Lot 302 Mandurah Road and Lot 309 Kerosene Lane  
 Baldvins - City of Rockingham

REGULATIONS ARE SUBJECT TO AMENDATION. CONSULTING ENGINEERS ONLY. ALL RIGHTS AND RESERVES ARE PRESERVED AND NOT SUBJECT TO OTHER SURVEY ENGINEERING AND SURVEY DATA.



date 09.04.15 | scale at A3 1:2000 | rd 177A ST022 Kerosene Lane | revised 20.01.2018



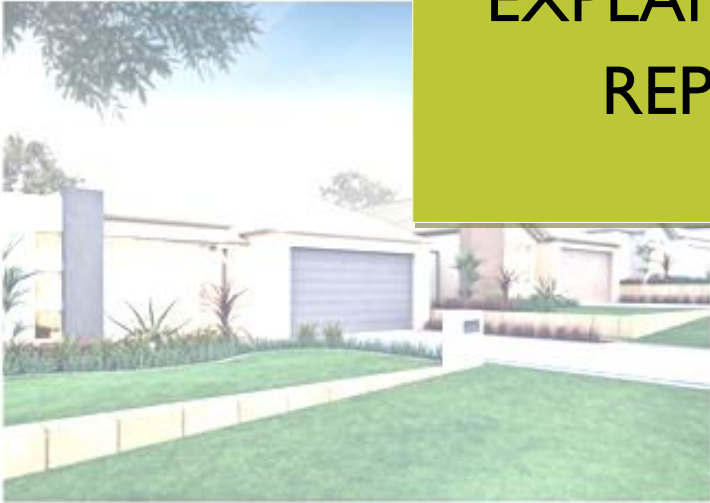
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**PART TWO**

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**EXPLANATORY  
REPORT**



## 1.0 Planning Background

### 1.1 Introduction and Purpose

This structure plan for portion of Lot 302 Mandurah Road and Lot 309 Kerosene Lane, Baldivis has been prepared by Masterplan Consultants of behalf on Infield Holdings Pty Ltd.

It is in lodged in accordance with clause 4.2 in the City of Rockingham Town Planning Scheme No. 2 which requires a structure plan to be approved for land zoned 'Development' under TSP 2 and provides the statutory planning framework to guide the future subdivision and development of the subject land contained within the structure plan boundaries.

The structure plan has been prepared in accordance with the City of Rockingham's 'Planning Procedure 1.6: Preparation and Assessment of Structure Plans' and the 'Western Australian Planning Commission Structure Plan Framework'.

It comprises three parts as follows:

Part 1 – Statutory section contains the structure plan map and the statutory planning provisions and requirements applicable to future subdivision and development of the subject land pursuant to clause 4.2.9 of TPS No.2

Part 2 – Explanatory section (this Part) provides an assessment of all relevant matters including the applicable planning framework, the site context and characteristics and provides an explanation of the proposed Structure Plan.

Part 3 – Technical appendices being those technical reports and supporting documentation as required.

### 1.2 Land Description

#### 1.2.1 Location

The land subject to this Local Structure Plan (the subject land) is located near the intersection of Mandurah Road and Kerosene Lane Baldivis. It is approximately 5km southeast of the Rockingham City Centre and 4km northwest of the Baldivis Town Centre.

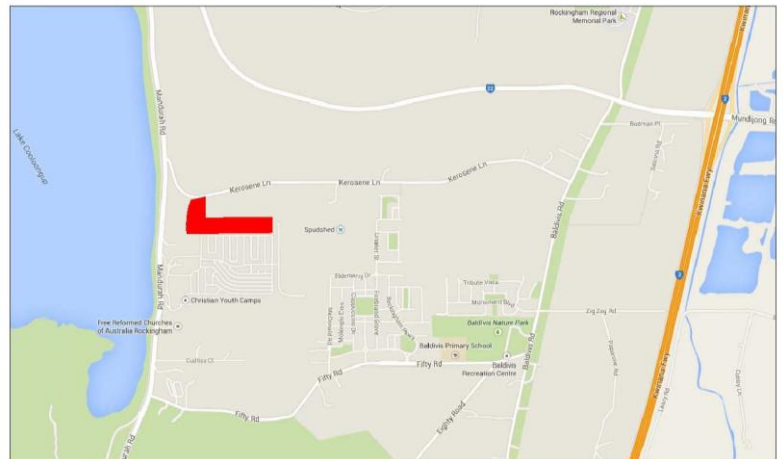


Figure 1: Location Plan

#### 1.2.2 Area and Land Use

The Subject Land comprises two abutting properties Lot 302 Mandurah Road and Lot 309 Kerosene Lane, zoned for 'Urban Development' and which has a combined area of 7.0882ha. The subject land has been parkland cleared with the land having historically been used for grazing of livestock but most recently for 'Rural Residential' purposes only.



### 1.2.3 Legal Description and Ownership

Legal Description and ownership is summarised in Table I following while cadastral boundaries are identified in figure 2.

Table I: Description and Ownership

Lot	Street	Ct Vol/Folio	Owner
309	Kerosene Lane	2903/999	Infield Holding Pty Ltd
302	Mandurah Road	2874/250	Infield Holding Pty Ltd

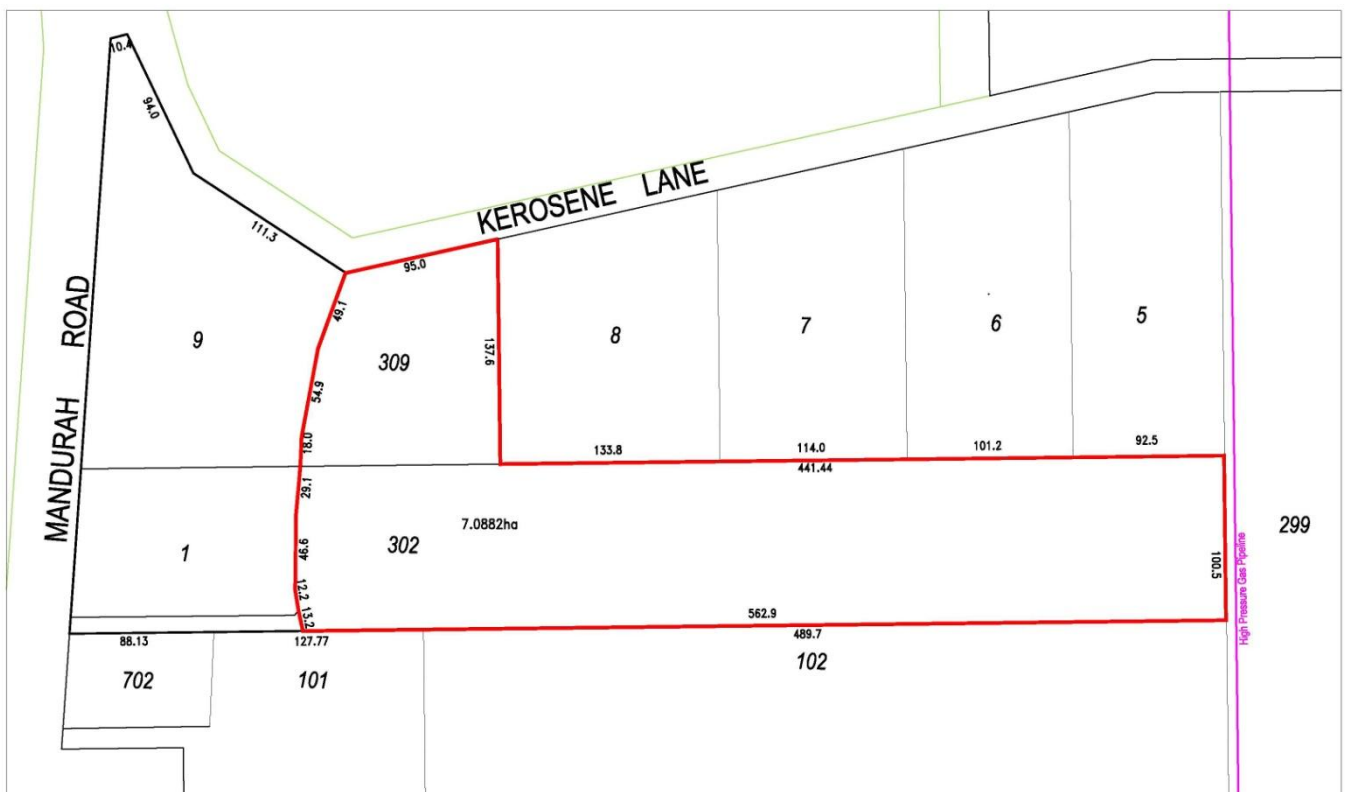


Figure 2: Cadastre



Figure 3: Subject Land

## 1.3 Planning Framework

### 1.3.1 Zoning and Reservations

The land subject to this Local Structure Plan is zoned 'Urban' under the Metropolitan Region Scheme.



Figure 4: Metropolitan Region Scheme

It is zoned 'Development' under the City of Rockingham Town Planning Scheme No. 2. As a consequence approval of a Structure Plan by the City of Rockingham and its endorsement by the West Australian Planning Commission is required. Clause 4.2 of TPS No.2 sets out the statutory requirements for the preparation and adoption of a structure plan within the Development zone. This structure plan has been prepared in accordance with the requirements of clause 4.2.

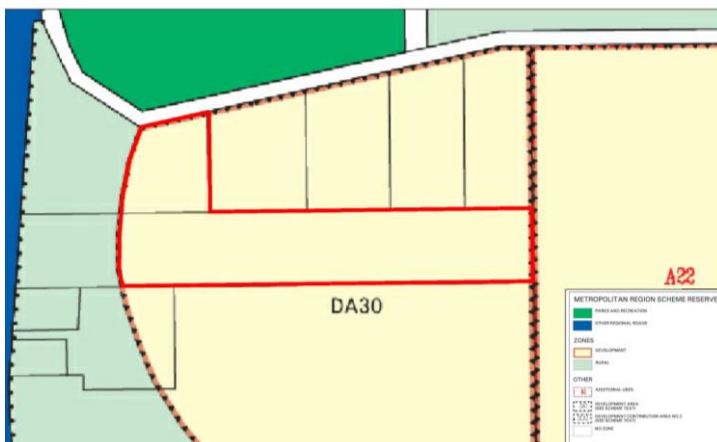


Figure 5: City of Rockingham TPS No.2

### 1.3.2 Regional and Sub-Regional Structure Plans

The subject land, reflecting its 'Urban' zoning in the MRS, is identified for 'Urban Development' purposes in relevant regional strategic documentation including designation for 'Urban' purposes within the South Metropolitan and Peel Sub-Regional Framework.

The subject land is located within the endorsed Baldivis North District Structure Plan. It is located within Precinct 2 under the DSP and is identified for 'Residential Development' Purposes.

### 1.3.3 Planning Strategies

Directions 2031 and Beyond provides overarching strategic guidance for the future development of the Perth Metropolitan Region. Of relevance is a stated target density for new residential development of 15 dwellings per gross urban zoned land. The Structure Plan exceeds this target.

### 1.3.4 Planning Policies

The Structure Plan has been prepared within the context of the wider State and Local Planning Policy Framework including where relevant applicable State Planning Policy and Development Control Policies.

A number of items are particularly noted including SPP 3.1 Residential Design Codes, Liveable Neighbourhoods and Planning Bulletin 112/2015 R-MD Codes:

- State Planning Policy 3.1 – Residential Design Codes (WAPC 2015)

The State Planning Policy 3.1 – Residential Design Codes (R-Codes) control residential development throughout Western Australia. The R-Codes are the agreed mechanism to control density

within residential zones, through the application of R-Code densities in local planning schemes.

The R-Code density primarily controls the allowable average and minimum lot size, with built form performance standards and 'deemed-to-comply' examples, specific to the nominated density, described within Parts 5 & 6 of the R-Codes.

The Structure Plan map designates a proposed R-Code density range in response to certain locational and design criteria. Further discussion in regard to R-Codes density is provided at Part 3.1 of this report.

- Liveable Neighbourhoods (WAPC 2009)

Liveable Neighbourhoods (LN) is the WAPC operational policy guiding the design of structure plans. The objective of LN is the delivery of a high quality residential environment.

The Structure Plan responds to the requirements of LN by promoting an interconnected, safe and walkable neighbourhood, providing a variety of lot sizes and housing types, responding to the diverse housing needs of the community and maximising land efficiency by achieving a residential density of 30 dwellings per net residential site hectare, exceeding the upper threshold of the Liveable Neighbourhoods target.

Further discussion regarding density targets is provided in part 3.1 of this report.

- Planning Bulletin 112/2015 – R-MD Codes (WAPC 2015).

Planning Bulletin 112/2015 – Medium Density Single House Developments Standards – Structure Plan Areas (R-MD

Codes) outlines the WAPC position in relation to a consistent set of R-Code variations within new Structure Plan areas. The R-MD Codes provide agreed R-Code variations to 'deemed-to-comply' built form criteria, including street and lot boundary setbacks, open space, garage setback and width and vehicular access, parking, overshadowing and privacy. The R-MD Codes focus on single dwellings and grouped dwellings for lots coded R25-R60.

The City has prepared a local Planning Policy No. 3.3.22 to address application of the R-MD Codes within the Development Zone.

- Local Planning Policy 3.4.1

At a Local Authority level, in addition to relevant planning procedure outlined by the City of Rockingham to guide preparation and assessment of local structure plans, 'Local Planning Policy 3.4.1 Public Open Space' is of most direct relevance to the preparation of the structure plan.

LPP 3.4.1 sets out the objectives and policy provisions the City shall have regard to in considering the provision, location, design and development of public open space areas. The criteria contained within LPP 3.4.1 will be considered by the City in assessing local structure plans and have therefore been addressed within this structure plan documentation.

The proposed Structure Plan is considered to appropriately reflect and conform to relevant policy expectations.

### 1.3.5 Other approvals and decisions

At the date of lodgement of the Structure Plan documentation no other approvals or decisions had been identified which were

considered relevant to the proposed Structure Plan.

Three approved Structure Plans abut the subject land. The Tuart Lakes Retirement Village Structure Plan adjoins the subject land to the south and provides the development guidance for a park home village development which is currently progressively being implemented. A connection to the subject land is indicated within the approved Tuart Lakes Village Structure Plan.

The Paradiso Estate Structure Plan abuts the eastern boundary of the subject land. No direct connection between the Paradiso Estate and the subject land is indicated; with the land use abutting the boundary of the subject land determined by the existence of the Parmelia High Pressure Natural Gas Pipeline and associated easement, which runs parallel to the eastern boundary of the subject land within the Paradiso Structure Plan area. As such the directly abutting land is designated for Public Open Space purposes.

The Paradiso Estate Structure Plan includes provision for development of a local neighbourhood centre and a primary school. Initial stages of subdivision are currently being progressed within the Paradiso Estate based upon the approved Local Structure Plan.

The lots 5-8 Kerosene Lane Structure Plan include the four properties abutting the land on the northern boundary.

This incorporates an integrated interface with the proposed Structure Plan, including

shared roads and coordinated location of Public Open Space.

### **1.3.6 Pre lodgement consultation**

Pre lodgement consultation has been undertaken with a range of relevant stakeholders including officers from both the City of Rockingham and the Department of Planning.

In addition, as part of preparation of technical reports pre lodgement consultation has also been undertaken with servicing, environmental and heritage agencies.

As well detailed liaison and negotiation has been completed with abutting property owners to ensure an agreed approach to the interface between the SP and abutting land and the timely and efficient provision of services and infrastructure.

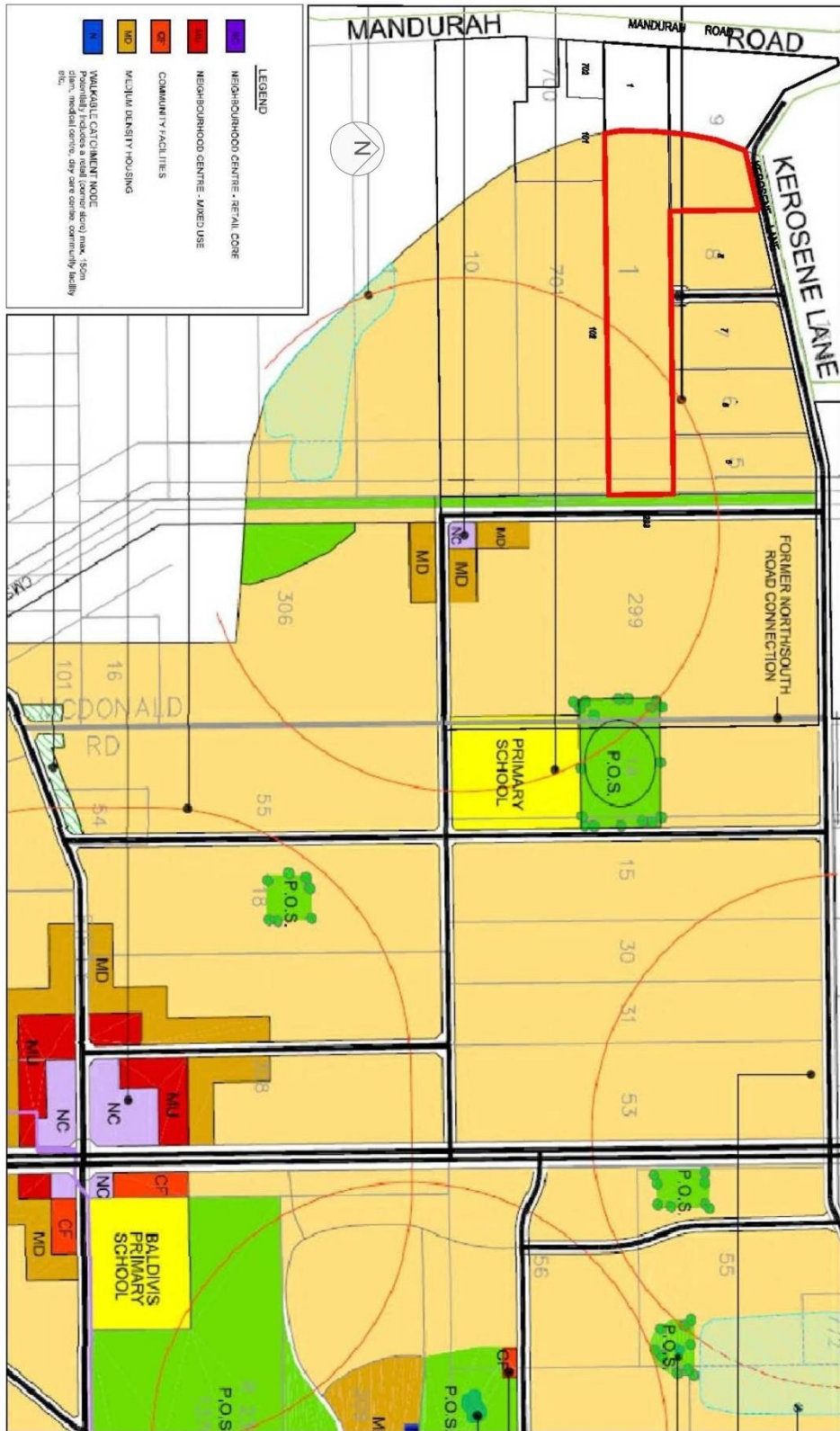


Figure 6: North Baldvis Structure

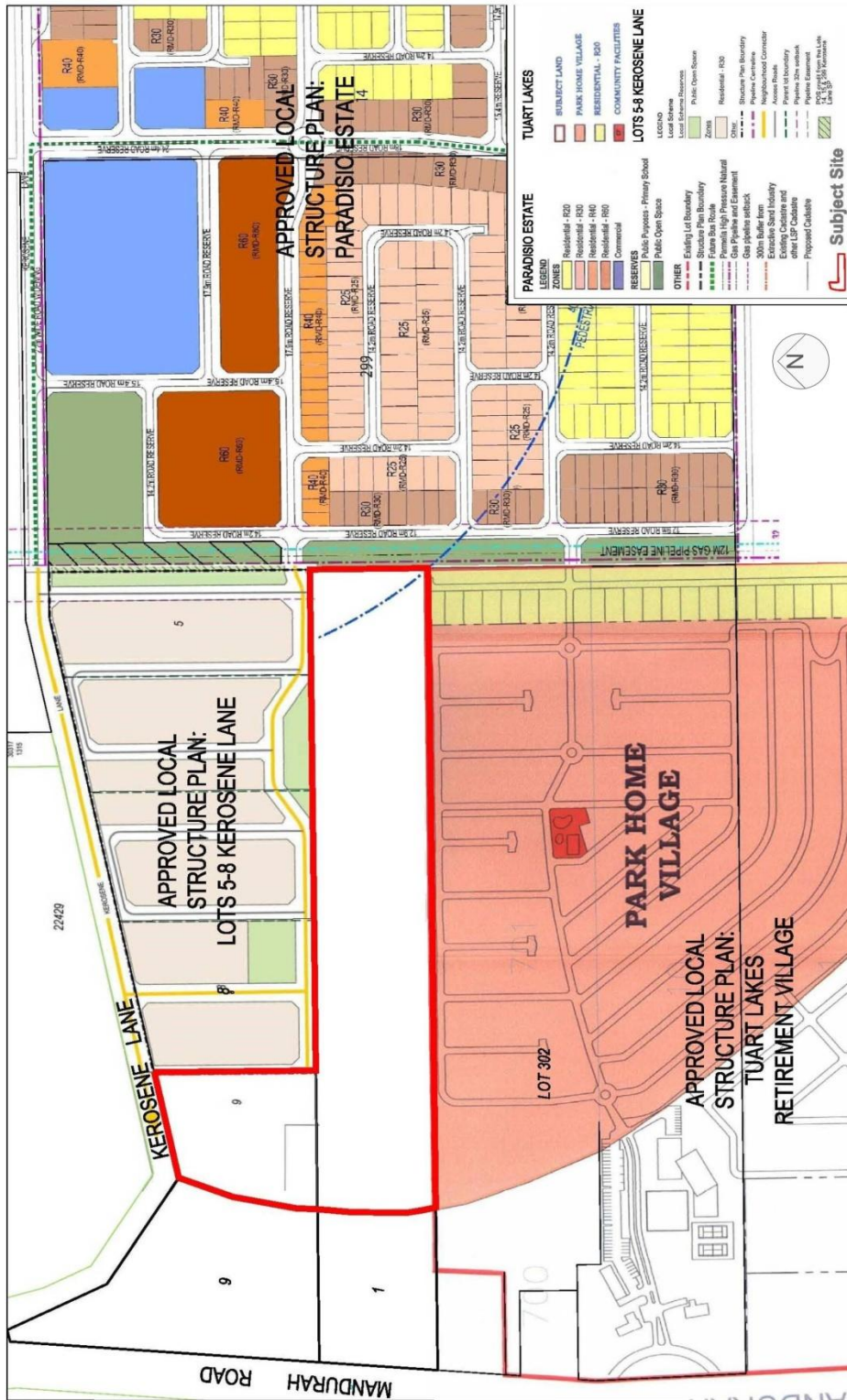


Figure 7: Adjoining Local Structure Plans

## 2.0 Site Conditions and Constraints

### 2.1 Biodiversity and Natural Area Assets

Biodiversity and natural area assets are detailed in the Environmental Assessment Report (Bio Diverse Solutions, 28/03/18) included as Appendix One in Part 3 Technical Appendices. The findings of this report are summarised following:

#### 2.1.1 Flora and Vegetation

The majority of the subject land has historically been cleared with the remaining area of vegetation comprising generally isolated stands of trees/individual trees or in the eastern end of the subject land an area of currently regenerating Eucalyptus. The state of the vegetation based upon the Keighery vegetation condition rating scale on site ranges from degraded to completely degraded and is characterised by the dominance of weed species throughout the site (90-100%) and the absence of any native understorey or complexity of vegetation structure.

Nevertheless there is a range of existing trees across the site and these have been mapped as part of the Environmental Assessment Report included as Appendix I. This may provide an opportunity to retain trees as per element I of Livable Neighbourhoods and potential trees for retention have been considered in the Appendix I report.

While no records of Priority Flora or Declared Rare Flora were identified in the subject land, a number of species were identified within 10km of the subject land. As such specific targeted field surveys and a risk assessment was undertaken. This has confirmed that it is highly unlikely that any

of the listed flora species occur within the survey area. No known Threatened Ecological Communities are present on the subject land.

#### 2.1.2 Fauna

A desktop assessment identified potential fauna species potentially occurring within 10km of the subject land which was followed by a targeted field survey to determine the likelihood of threatened species utilising the subject site and the significance of the habitat to them.

There was evidence of a species of conservation significance, (the Quenda) visiting the site via tracks moving between the eastern part of the site through the adjoining properties to the north to the conservation reservation on the northern side of Kerosene Lane.

It was thought they were moving into the subject land to feed on occasion but most likely sheltered in the nearby nature reserve. With the immanent clearing and development of the abutting land north of the subject site, between the nature reserve and the subject land, this visitation is expected to cease.

As part of the tree survey referred to above a number of trees were identified as meeting the criteria as suitable trees for breeding purposes for the Red Tailed Black Cockatoo, Baudin Cockatoo and Carnaby's Cockatoo, there was no evidence of either feeding or roosting activity on the subject land as part of two separate surveys of the site. Nevertheless where it is possible trees meeting the criteria have been identified in the Appendix I report for potential retention. This is discussed further in 3.4 following.



The potential of the subject site as part of any ecological linkage is discounted with residential development progressively underway to the south and east, planning for residential development currently under consideration to the north and a major regional road in Mandurah Road severing any potential link to the rest.

## 2.2 Landform and soils

A site analysis of the subject site is shown in Figure 8. The highest part of the subject land is at the western end where the site abuts the north-south ridge that runs parallel to Mandurah Road.

The highest part of the subject land sits at 21 metres. From there the land slopes downhill towards the east generally dropping some 6 metres over 230 metres before a steeper decline in the centre of the site of 5 metres over 100 metres before again then plateauing out over the majority of the eastern third of the site, albeit with a three metre rise again at the south-east corner of the subject land.

In affect the subject land comprises a higher plateau area at the western end and a lower plateau at the eastern end with a central quite steeply sloped area connecting the two. Views are available from the western half of the subject land towards the east and south.

The subject site is located within the Spearwood Dune system characterised by underlying Tamala Limestone with surficial sediments.

Soils are sandy derived from the weathering of Tamala Limestone which underlies the sand with the depth of sand above the limestone up to 4m in places.

The site is not within an area of high or moderate risk of acid sulphate soils.

## 2.3 Groundwater and surface water

Water management and drainage is addressed in detail as part of the Local Water Management Strategy (LWMS). In summary there is no existing surface water on the subject land and groundwater is well below surface level with clearance to groundwater varying from 5m to 12m across the site.

Surface drainage generally comprises absorption at surface or, in heavy rain events, sheet flow following the topography of the subject land.

The LWMS confirms the capacity of the proposed Structure Plan area to be developed in accordance with all the requirements and principles of Better Urban Water Management.

Lot 2209 Millar Road is registered as a contaminated site with ongoing remediation works continuing. Broader studies are currently underway to assess potential impacts on groundwater in the locality. In this regard a monitoring bore has been installed within the proposed POS area. Investigations remain ongoing with no date for completion yet confirmed.

## 2.4 Bushfire hazard

A detailed Bushfire hazard assessment and Bush Fire Management Plan (BFMP) has been prepared and is attached as technical

appendix number 4. (Bushfire Management Plan, Bio Diverse Solutions, 27/03/18).

This provides an assessment of the bushfire hazard affecting the subject land and confirms that development as proposed under the Structure Plan can be undertaken in accordance with relevant policy requirements including State Planning Policy 3.7

The BFMP confirms BALs of BAL 29 or less will be applicable to proposed lot, dependent upon when clearing is progressing on adjoining properties. It is noted these properties are subject to development approvals.

In any case development is designed to ensure appropriate separation is achieved

from potential bushfire hazards such as by implementation of wider road reservation or larger lots to allow increased building setbacks.

The attached BFMP confirms the development as proposed in the structure plan can be undertaken in compliance with bushfire planning requirements.

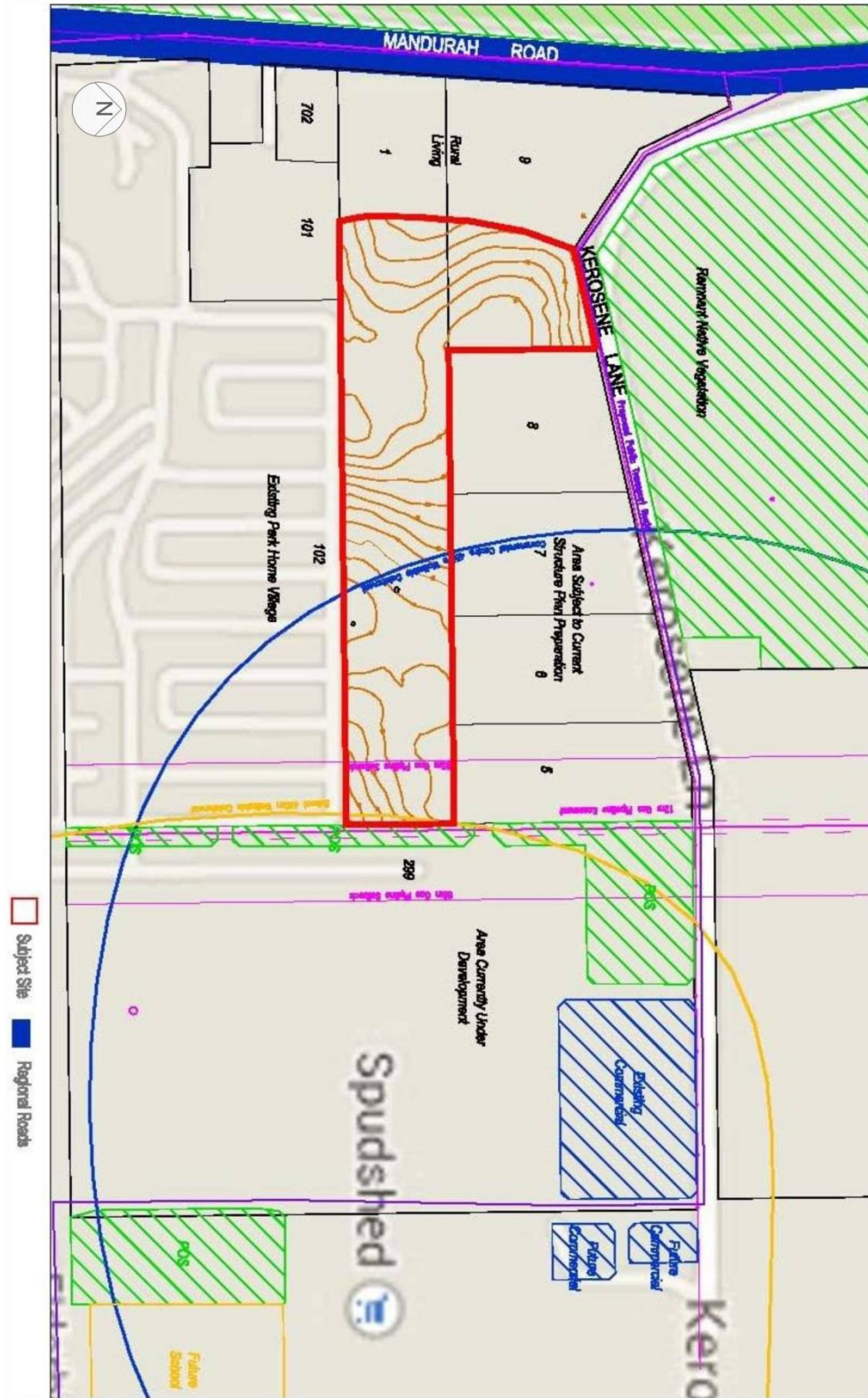


Figure 8 : Context Plan

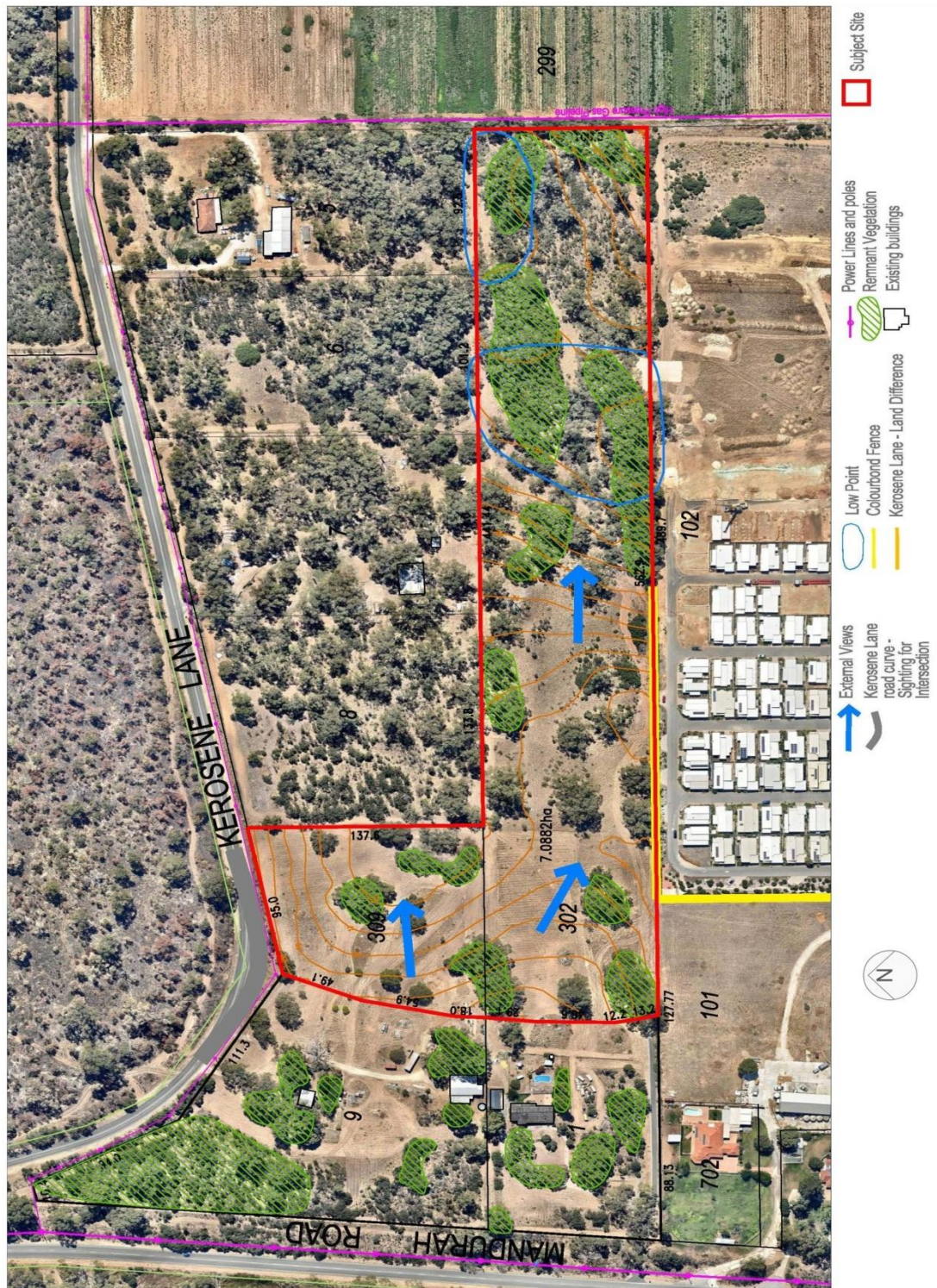


Figure 9: Analysis Plan

## 2.5 Heritage

There are no sites, or items of European heritage identified on the subject land. A search of the Department of Indigenous Affairs Register of Aboriginal Sites does not identify the subject area as either containing or being within the vicinity of an Aboriginal heritage site.

## 2.6 Context and other land use constraints and opportunities

The locational context of the subject land is illustrated in Figure 8. The site is irregular in shape and has a limited frontage to Kerosene Lane.

Kerosene Lane will become a major district road and a 2m widening is required along the Kerosene frontage to facilitate this. In addition the eastern boundary of the subject land abuts a major gas pipeline easement parallel to the boundary and as a consequence the eastern end of the land is affected by an associated buffer.

The majority of the abutting land to the south is subject to an existing structure plan which is facilitating the progressive development of this area for a Park Home Village. A small area abutting the south-west corner and the area between Mandurah Road and the western boundary of the subject land are zoned rural, with a potential implication for the interface between these areas and ongoing bushfire risk mitigation.

As noted a gas pipeline easement abuts the subject land. This easement is within the Paradiso Estate residential development currently being progressively developed in accordance with an endorsed structure plan. Under this structure plan a future neighbourhood shopping centre and a

primary school are proposed, both of which are within 400m of the subject land.

There is limited access permitted traversing the gas pipeline and as a consequence no direct road connectivity is available between the subject land and Paradiso Estate. An east-west link in the form of a neighbourhood connector road is proposed across the pipeline into the abutting land north of the subject land.

The gas pipeline easement and buffer facilitates the creation of a linear park that is shared with adjoining properties and is 900m in length.

The four properties abutting the subject land to the north comprise the Lots 5-8 Kerosene Lane Structure Plan, approved by the WAPC in July 2017. Liaison has been undertaken with the proponents of the northern Structure Plan to ensure a co-ordinated and agreed approach to road design, interface, servicing and development staging is secured. The two Structure Plans have been designed to share in creation of a neighbourhood park 1 hectare in size.

The context of the subject land is illustrated in Figure 7.

Analysis of the subject land also suggests both opportunities and constraints inherent in the subject land. The site essentially comprises a higher western plateau and a lower eastern plateau separated by a reasonably steep central ridge. While this offers potential external views from a range of locations within the land, the nature of the topography combined with unusual shape of the subject area and the need to interface with the adjoining development proposed to the north, drives the design response.

The orientation and shape of the subject land limits the opportunity to maximise solar orientation by restricting the potential opportunity to create east-west orientated lots for most of the resulting lot product.

Some vegetation preservation is envisaged in potential open space locations either as part of the buffer to the abutting gas pipeline or as part of a larger developed POS that is co-located with future POS to the north within the adjoining development.

An existing tree canopy comprising a number of mature trees, including Tuarts and Jarrahs as well as younger trees, is located in the eastern part of the Structure Plan area coinciding with proposed public open space areas under adjoining Structure Plans providing an opportunity where possible to facilitate retention of some of this canopy to enhance local identity and a sense of place consistent with Element 1 of Liveable Neighbourhoods.

Analysis of the subject land is illustrated in figure 8.

As a consequence the subject land is impacted by a number of design issues as follows;

- 2m Road widening along Kerosene Lane;
- Gas Pipeline buffer affecting eastern edge of subject land;
- Interface with rural area along western boundary and south-west corner of subject land;
- Interface with future development proposals for abutting land to the north.

The proposed Structure Plan appropriately responds to all of these design issues.

### 3.0 Proposed Structure Plan

The Structure Plan will facilitate development of the subject area for residential purposes. A predominately single residential estate designed around sustainability and affordability is envisaged to sit comfortably within its surrounds.

Relevant components of the Structure Plan are discussed following.

#### 3.1 Residential

Residential densities of R25 to R40 are proposed with higher densities located to the east of the subject site and lower density further to the west. Lot sizes vary in order to promote increased diversity of housing product supporting variety in offering and affordability. Lots have been designed to orient directly north-south or east-west where possible to maximize opportunity for solar infiltration.

Lot depths are generally in the order of 30 to 32 metres with variety in lot size created via variation in lot frontages. The majority of lots proposed are front loaded with sizes anticipated in the order of 310sqm to in the order of 550 sqm. Average lot size is expected to in the order of 332sqm. Provision is also made for a number of smaller rear loaded lots generally around 290sqm. The combination of lot product is expected to generate a yield in the range of 130 dwellings.

The requirement to achieve a minimum density of 15 dwellings per gross hectare of residential land as outlined in Directions 2031 and Beyond is acknowledged. This

represents a target in the order of 107 dwellings or 113 dwellings per site hectare (as per most recently advertised Liveable Neighbourhoods Draft). The proposed Structure Plan yield of 130 dwellings meets these targets.

#### 3.2 Public Open Space

A minimum of 7067.1sqm based on the 10% requirement is required to be provided in Public Open Space. Up to 8583sqm of Public Open Space is indicatively provided within the Structure Plan representing approximately 12.14%. This is provided in two components; a large regular shaped open space area of 7296sqm identified as POS A, and a smaller POS area abutting the eastern boundary of the subject land within the buffer associated with the abutting gas pipeline, comprising an area of 1287sqm and identified as POS B. Both areas form part of larger areas of POS shared with

CALCULATION OF REQUIRED POS PROVISION		
Lot 309	1.399ha	
Lot 302	5.689ha	
<b>Total Site Area (ha)</b>		7.0882
DEDUCTIONS		
Kerosene Lane Road Widening	0.0210	
<b>Total Deductions</b>		0.0210
Gross Subdivisible Area (total area minus deductions, ha)		7.0672
<b>Required POS (10%)</b>		0.7067
POS PROVIDED		
<b>Breakdown of POS Provided</b>		
Contribution may comprise		
Minimum 80% Unrestricted use	0.5654	
Maximum 20% Restricted use	0.1413	
<b>Restricted POS</b>		
-Landscaped Drainage Swale - Portion of POS A, Lot 302	0.1100	
<b>Total Restricted POS Credited to a Maximum 20%</b>		0.1100
<b>Unrestricted POS (by Function)</b>		
Neighbourhood park		
Lot 302 - POS A (Portion)	0.6196	
Lot 302 - POS B	0.1287	
<b>Total Unrestricted Public Open Space</b>		0.7483
<b>Public Open Space Provision Provided</b>		0.8583
<b>POS Provision as Percentage of Gross Subdivisible Area</b>		(12.14%)

adjoining properties. Refer figure 10.

POS Provision is summarised in the following POS Table 2:

Of the total 10% POS requirement being 7067.1m<sup>2</sup>, up to 20% may be allocated as restricted POS. This equates to an area of 1413.4m<sup>2</sup>. POS B forms part of the buffer associated with the abutting gas pipeline and will be utilised as passive open space and landscaped with waterwise low maintenance native vegetation. This classified as “unrestricted” POS.

A portion of POS A will be allocated towards restricted POS associated with drainage purposes of a maximum 1100m<sup>2</sup>. This is well within the allowable maximum of unrestricted POS of 1417.64 m<sup>2</sup>

It is envisaged POS A will be developed to accommodate the drainage function as part of a wider landscaped area, including protection of existing trees where possible, retention and rehabilitation of other native vegetation and the provision of grassed turf area allow passive recreational activity.

The Structure Plan indicates an overprovision of POS to provide some flexibility at future subdivision stage. It may be at this stage, with further detailed design, that POS Area A is further refined so that a provision closer to the overall 10% requirement of 7088.2 m<sup>2</sup> is provided.

The proposed POS development is illustrated in Appendix 6 - POS Concept Plan.

### 3.3 Movement Network

A traffic impact assessment report (Transport Impact Assessment, Move Consultants, 09/04/18) is attached as Appendix 3. This confirms the proposed

structure plan is appropriately designed to provide a legible and interconnected movement network that conforms to all policy guidance and requirements.

The subject land and district road network via adjoining development is reflective of the District Structure Plan and though it has a frontage to Kerosene Lane, no access is proposed to Kerosene Lane. A 2m strip will be ceded to the Kerosene Lane reservation to facilitate its future upgrading.

The traffic assessment confirms classification of all internal roads as Access Road C as per the Liveable Neighbourhoods guidelines. Proposed reservation widths will vary from 13.2m abutting POS Area B for a length of 66m in the east to 17m abutting adjoining rural zoned land in the west. The main local road link is 15.5m with remaining small roads and 14.2m. Refer to figure 10 Proposed Movement Network and Public Open Space.

The proposed Structure Plan will contribute 1.5m to the east-west connector road abutting the northern boundary for a length of approximately 90m abutting Lot 5 to the north between the proposed Public Open Space A and the eastern boundary of the Structure Plan area.

A road connection to the south is also provided via the north-south road abutting the Parmelia Gas Pipeline along the eastern boundary of the Structure Plan area.

### 3.4 Urban Tree Canopy

A detailed survey of existing trees was undertaken (refer Appendix I: Environmental Assessment Report). This picked up all trees on site. Existing tree cover varies across the site with the



western portion generally comprising small stands or individual trees while the eastern portion contains a more consistent tree canopy. Overall there were some 500 non significant immature trees (as per policy classification) and 49 significant trees mapped. The majority of non significant trees are located within future housing lots or roads.

The 49 significant trees will be subject to detailed engineering assessment to maximise retention of as many of these trees as is viable. A preliminary engineering assessment for structure plan purposes has suggested that at least 18 of these trees should be able to be retained. Of the 31 remaining trees, 2 are located at the back of future rear loaded lots where access and services are required to be provided, 25 are likely to be unable to be retained because of required earthworking and level changes and 4 are unlikely to be retained because of potential tree canopy impacts on future built form.

The location of POS areas was selected in the eastern part of the site to incorporate that part of the subject land with the majority of potentially significant tree canopy. As such within proposed POS areas A and B 13 significant potential habitat trees have been identified and 12 are expected to be retained with only 1 lost due to required earthworking.

The unusual shape of the subject site has dictated the future subdivision layout leaving little design flexibility around existing trees while its topography will necessitate substantial earthworking. Within the context of these constraints maximisation of retention of viable potential habitat trees has been pursued.

It is expected that a detailed tree management and protection plan will be required as a condition of subdivision approval which will incorporate measures to maximise tree retention where viable and to protect retained trees as part of the development process.

In addition extensive replanting will be implemented as part of POS areas and within future public roads incorporating native species.

Development of the site will necessitate removal of much of the existing tree canopy, albeit that the majority of this comprises non significant immature trees, however, where viable significant existing mature trees are retained, particularly within the POS areas. This combined with extensive replanting will contribute to establishment of an urban tree canopy over the entire subject site.

### 3.5 Co-ordination with Adjoining Land

Future development likely to occur under the proposed structure plan is illustrated in Figure 11: Development Concept.

The proponents have undertaken detailed and lengthy liaison with representatives of the abutting land to the north and the Paradiso Estate to the west.

This has resulted in a co-ordinated design approach with the proposed development of the abutting northern lands and has included preparation of a number of agreements between the various landowners to facilitate and co-ordinate access, construction and extension of services and the road network to support development of the subject land.

Access to the subject land will be via the road network to be developed in the abutting land to the north and the

management where feasible in collaboration with the proponents of the

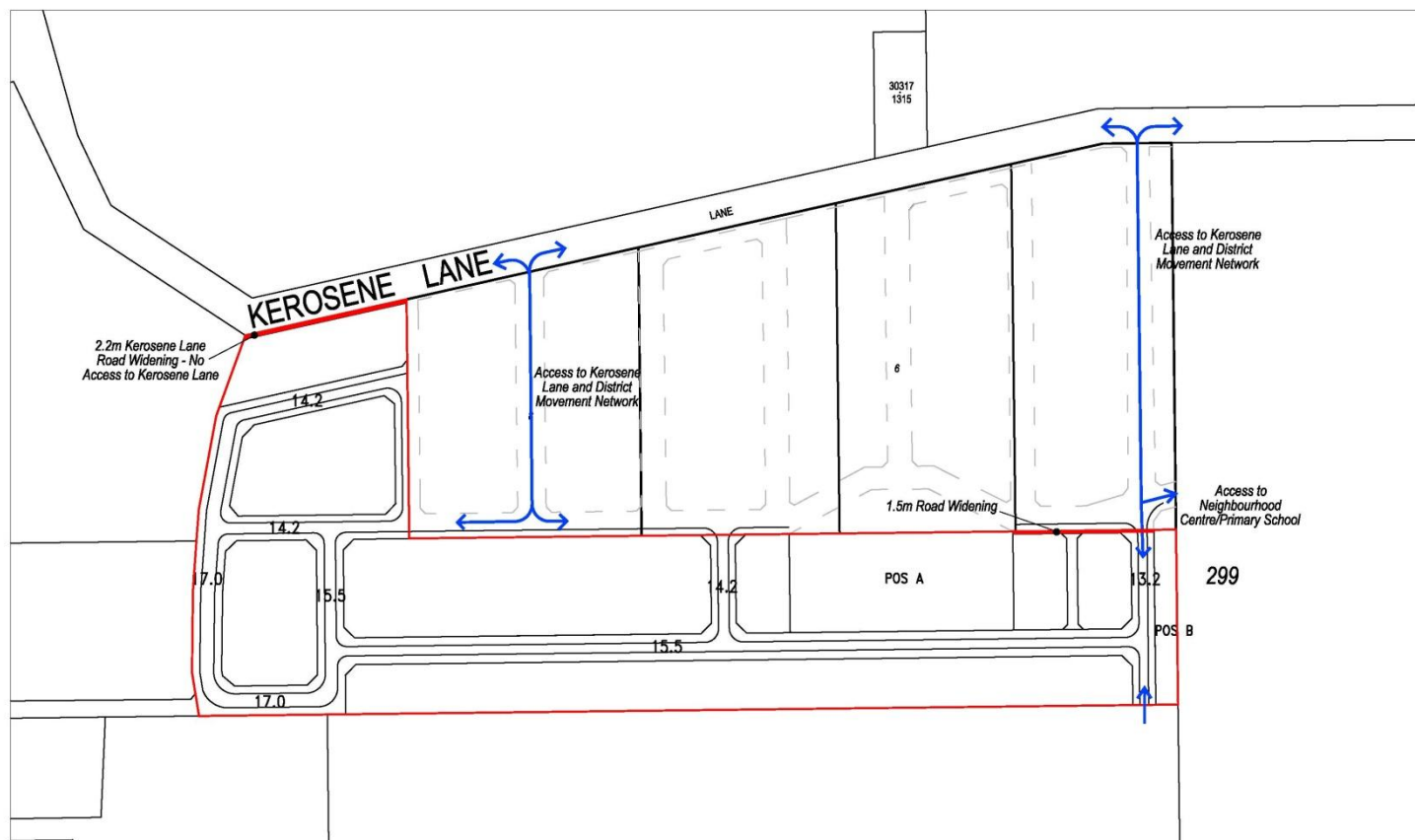


Figure 10: Proposed Movement Network and Public Open Space agreements referred to above include arrangements between the owners to secure and facilitate this.

The battleaxe access leg for Lot 302 connects to Mandurah Road remains zoned rural and is not part of the Structure Plan area or future development.

Upon development of lot 302 this land is to be transferred into adjoining lot 301 Mandurah Road with a suitable legal agreement entered into between the proponent and the owner of lot 301 to this effect.

The Structure Plan has been designed to provide Public Open Space abutting areas of Public Open Space provided under structure plans for adjoining properties. This will provide opportunities for co-ordinated design and development of the open space areas potentially including water

adjoining structure plans.

### 3.6 Infrastructure and Servicing

Proposed infrastructure and servicing under the Structure Plan is detailed in Appendix 2: Engineering Infrastructure Report (Kerosene Lane-Mandurah Road servicing Report, Pritchard Francis, 10/11/16) with relevant items summarised following:

Engineering investigations have indicated that a cut to fill balance across the subject land can be achieved avoiding the need to import any structural fill. The subject land will be reshaped to accommodate creation of level housing lots. This will require retaining in some parts of the proposed development and an indication of likely

future retaining is provided within the Appendix 2 report.

The site is currently unserviced and all reticulated servicing infrastructure will need to be extended to the subject land. Sewer will be extended from the Paradiso Estate to the east with an anticipated connection approximately 650 metres in length. An appropriate legal agreement has been completed as noted in Section 3.4 above to ensure delivery of this service.

Likewise an extension to provide reticulated water infrastructure to the subject site is required, in this instance approximately 1.5km from the nearest applicable connection to the east. The existing high voltage power infrastructure along Kerosene Lane is expected to be able to service this site without the necessity for any further external upgrades.

In summary all necessary reticulated services can be extended to the subject land to service the proposed development. Where relevant appropriate legal agreements have been reached with abutting landowners to ensure the co-ordinated delivery of this infrastructure can be achieved.

Appropriate storm water drainage management and design is detailed within the proposed Local Water Management Strategy included as Appendix 5 to this report. The LWMS and inherent storm water drainage response within it has been designed to meet the requirements and standards of Better Urban Water Management.

This will involve the use of portion of POS Area A for a drainage swale associated with urban water management. This is sufficient to meet the required standards

and is well within the 20% allowable allocation for Restricted Use POS under Liveable Neighbourhoods.

In conclusion the subject land is able to be serviced and connected to all relevant infrastructure and the future servicing and engineering of the subject land will not be an impediment to development.

### 3.7 Staging

Development is likely to comprise two stages, with stage 1 most likely to start from the eastern end of the subject land to approximately mid way through the property with the second stage to then be the balance of the subject area dependent upon take up of developed lots etc.

The extent of preferred staging will be finalised closer to the time of development and will be influenced by services extension and progression of development of the adjoining land. At this stage it is estimated that stage 1 will comprise in the order of 55 lots plus the POS areas, with stage 2 being the balance of 75 lots.

Development of each stage will be dependent upon provision of appropriate connections to the external road network and extension of services sufficient to service each stage with these to be demonstrated at the time of subdivision application.





Figure 11: Development Concept Plan



**PART THREE**

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**TECHNICAL  
APPENDICES**



# Technical Appendices Index

Technical Document	Document Status		
	Supporting	Approval	
		Agency	Approval Status
Environmental Assessment Report	√	City of Rockingham	
Engineering Servicing Report	√	City of Rockingham	
Traffic Impact Assessment Report	√	City of Rockingham	
Bushfire Management Plan	√	City of Rockingham	
Local Water Management Strategy	√	City of Rockingham Department of Water	
LWMS Addendum	√	City of Rockingham Department of Water	
POS Concept Plan	√	City of Rockingham	

