



WEST MUNDIJONG INDUSTRIAL AREA DISTRICT STRUCTURE PLAN REPORT



Research, Design & Delivery of Sustainable Development

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EXECUTIVE SUMMARY

On behalf of the Shire of Serpentine Jarrahdale (the Shire), TME Town Planning Management Engineering Pty Ltd (TME) has been engaged to prepare a District Structure Plan (hereafter referred to as the 'structure plan') for the West Mundijong Industrial Area.

The West Mundijong area has recently been identified as a future industrial area in the following key documents prepared by the State Government:

- Directions 2031 and Beyond;
- Draft Southern Metropolitan Sub-Regional Structure Plan 2009; and
- Economic and Employment Lands Strategy: non-heavy industrial: Perth metropolitan and Peel regions.

The status of West Mundijong as a future industrial area is also supported by the Council and Western Australian Planning Commission (WAPC) approved, Mundijong Whitby District Structure Plan.



Part 1 - Strategy Section

1.0 STRUCTURE PLAN AREA

The structure plan area is approximately 474.34 hectares and is located west of the Mundijong town site. The area is located approximately 45 kilometres south east of the Perth Central Business District.

The area is framed by Mundijong Road (south), Tonkin Highway Road reserve (east), Kwinana freight rail (north) and Kargotich Road (west).

Refer *Figure 1 Page 3 - West Mundijong District Structure Plan*.

2.0 STRUCTURE PLAN CONTENT

The structure plan has been formulated as a strategic document to support concurrent amendments to the Metropolitan Region Scheme (MRS) and the local Town Planning Scheme No. 2 (the Scheme). Further, the structure plan will be instrumental in guiding the development of subsequent local structure plans.

Whilst the structure plan is a strategic or policy document only, the report and plan have been prepared generally in accordance with the WAPC's guidelines for statutory structure plans.

Accordingly the structure plan comprises of two parts:

- a) Part 1 – Strategy or policy section
- b) Part 2 – Non strategy (explanatory) section

Part 1 only includes the structure plan map and strategic or policy requirements.

Part 2 is intended to provide an outline or explanation of the structure plan.

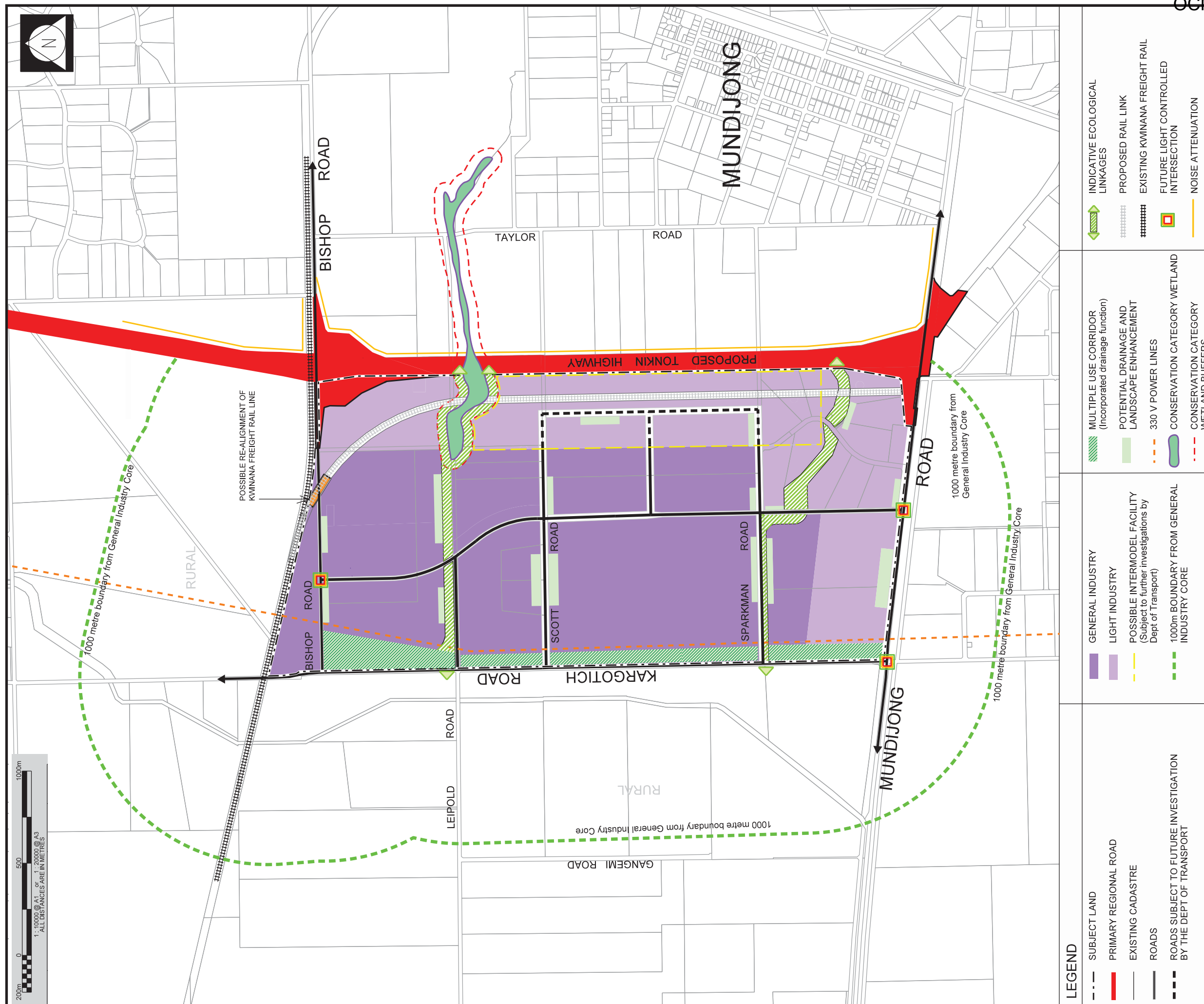
The structure plan also seeks to provide:

- a) An outline of intended industrial land use for the area;
- b) A proposed district distributor road framework including integration with existing and planned future transport infrastructure;
- c) An outline of key environmental features requiring further investigation in subsequent stages of the planning process;
- d) Proposed interface measures with existing and planned sensitive uses;
- e) An outline of servicing issues and requirements;
- f) A broad framework for implementation;
- g) A district drainage framework; and
- h) Guidance in the preparation of local structure plans.

3.0 AMENDMENTS TO METROPOLITAN REGION SCHEME AND LOCAL PLANNING SCHEME

The West Mundijong District Structure Plan has been formulated to support an amendment to the MRS to include the land in the 'Industry' zone. The Shire also supports a concurrent amendment to the local scheme to include the land in the 'Urban Development' zone.

As explained in Part 2, the local scheme includes the requisite structure planning provisions to enable a concurrent amendment to be considered, as required by clause 126(3) of the *Planning and Development Act 2005*.



4.0 INTERPRETATION AND SCHEME
RELATIONSHIP

- 4.1 The terms used in the structure plan have the respective meanings given to them in the Scheme or where not defined in the Scheme, as set out in this structure plan.
- 4.2 The structure plan shall guide Council and the WAPC in considering local structure planning proposals submitted pursuant to clause 5.18 of the Scheme.

5.0 COMPLIANCE WITH DISTRICT
STRUCTURE PLAN

- 5.1 Development, including land use and subdivision within the district structure plan area shall not be permitted until a local structure plan is prepared and endorsed in accordance with the requirements of clause 5.18 of the Scheme.
- 5.2 Future development shall comply with the following noise emission limits:
 - a) General industry core: 108 dB(A)
 - b) Light industry support precincts: 101 dB(A)
- 5.3 Local structure plans shall be consistent with the structure plan, including the following supporting documents:
 - a) Environmental Assessment Report – including Noise Assessment Report (Appendix A)
 - b) District Water Management Strategy (Appendix B)
 - c) Traffic Impact Statement (Appendix C)

6.0 MODIFICATIONS TO THE DISTRICT
STRUCTURE PLAN

- 6.1 In considering modifications to the structure plan Council may have regard to clause 5.18.4 ‘Change or Departure from Structure Plan’.

7.0 LOCAL STRUCTURE PLANNING
REQUIREMENTS

7.1 Local Structure Plan Areas

The area has been divided into five (5) Local Structure Plan Areas (LSPA’s). Generally the LSPA’s embody the following:

- a) Single ownership, where possible;
- b) Commonality of issues; and
- c) Where possible, multiple frontages to existing constructed and unconstructed roads to assist with land assembly and development of land by individual owners.

Refer Figure 2 Page 5 - Local Structure Plan Areas and Table 1 - Local Structure Plan Areas.

7.2 Prerequisites for Consideration of Local Structure
Plans

Upon completion of rezoning, land owners may give consideration to preparation of a local structure plan. Prior to submission of a local structure plan, several prerequisites will need to be fulfilled, some relating specifically to local structure plan areas, as detailed below:



Figure 2 - Local Structure Plan Areas

Local Structure Plan Area	Likely Stage	Prerequisites to Local Structure Planning (To be read in conjunction with Table 2)
LSPA 1	1	<ul style="list-style-type: none"> • Completion of developer contribution scheme by the Shire of Serpentine Jarrahdale • Construction of the Tonkin Highway adjoining the Estate or demonstration of an alternative equivalent sound attenuation measure to the satisfaction of the Department of Environment and Conservation
LSPA 2	2	<ul style="list-style-type: none"> • Completion of developer contribution scheme by Shire of Serpentine Jarrahdale • Cessation of sensitive land use (s) within LSPA or implementation of emission management strategies to the satisfaction of the Department of Environment and Conservation • Construction of the Tonkin Highway adjoining the Estate or demonstration of an alternative equivalent sound attenuation measure to the satisfaction of the Department of Environment and Conservation
LSPA 3	3	<ul style="list-style-type: none"> • Completion of developer contribution scheme by Shire of Serpentine Jarrahdale • Cessation of sensitive land use (s) within LSPA or implementation of emission management strategies to the satisfaction of the Department of Environment and Conservation • Construction of the Tonkin Highway adjoining the Estate or demonstration of an alternative equivalent sound attenuation measure to the satisfaction of the Department of Environment and Conservation
LSPA 4	4	<ul style="list-style-type: none"> • Completion of developer contribution scheme by Shire of Serpentine Jarrahdale • Completion of feasibility investigations into possible intermodal facility and re-alignment of Kwinana freight rail by the Department of Transport • Cessation of sensitive land use (s) within LSPA or implementation of emission management strategies to the satisfaction of the Department of Environment and Conservation • Construction of the Tonkin Highway adjoining the Estate or demonstration of an alternative equivalent sound attenuation measure to the satisfaction of the Department of Environment and Conservation
LSPA 5	5	<ul style="list-style-type: none"> • Completion of developer contribution scheme by Shire of Serpentine Jarrahdale • Completion of investigations into possible intermodal facility and re-alignment of Kwinana freight rail by the Department of Transport • Cessation of sensitive land use (s) within LSPA or implementation of emission management strategies to the satisfaction of the Department of Environment and Conservation • Construction of the Tonkin Highway adjoining the Estate or demonstration of an alternative equivalent sound attenuation measure to the satisfaction of the Department of Environment and Conservation

Table 1 - Local Structure Plan Areas



Planning Proposal				
Information Required/Tasks To Be Completed	MRS Amendment / Concurrent Local Scheme Amendment	Local Structure Plan (1)	Subdivision/ Development	Detailed Area Plan(s)/Design
Structure Planning				
District Structure Plan	*			
Local Structure Plan		*		
Engineering and Servicing				
Preliminary Servicing Report	*			
Engineering and Servicing Report		*		
Geotechnical Investigation (ASS)			*	
Traffic Management				
Transport Issues Paper	*			
Traffic, Vehicular Access and Parking Strategy		*		
Traffic, Vehicular Access and Parking Plan			*	*
Water Management				
Preliminary drainage and fill feasibility report	*			
District Water Management Strategy	*			
Establish monitoring regime	*			
Local water management strategy		*		
Local water management plan			*	
Environment				
Environmental assessment report (opportunities and constraints)	*			
Referrals (Commonwealth) (if required))		*		
Composite noise modelling	*			
Noise management plan (sensitive use interface management strategy)		*	*	*
Flora and vegetation survey		*		
Fauna Survey		*		
Wetland buffer management strategy and plan		*	*	*
Landscaping and vegetation retention management strategy & plan		*	*	*
Ethnographic survey		*		
Miscellaneous				
Lot development design Explanatory Report			*	*
Fire management strategy		*		
Fire management plan			*	*
Developer Contributions & Governance				
Developer contribution strategy		*		
Economic developments Strategy		*		
Community access and facilities strategy		*		

1: Refer to Section 7.2 Prerequisites for Local Structure Planning

Table 2 - Schedule of Planning Requirements





Part 2 - Explanatory Section

1.0 PLANNING AND BACKGROUND

1.1 Introduction and Purpose

The structure plan seeks to provide:

- a) An outline of intended industrial land use for the area
- b) A proposed district distributor road framework including integration with existing and planned future transport infrastructure
- c) An outline of key environmental features requiring further investigation in subsequent stages of the planning process
- d) Proposed interface measures with existing and planned sensitive uses
- e) An outline of servicing issues and requirements
- f) A broad framework for implementation
- g) A district drainage framework

The structure plan is a strategic document that will guide future proposals to amend the MRS, the Scheme and the preparation of local structure plans.

1.2 Land Description

Location

The structure plan area is located within the locality of Mundijong within the Shire of Serpentine Jarrahdale.

The area is located directly 20 kilometres east of the Kwinana industrial area via Mundijong Road. Mundijong Road will provide direct linkage to Kwinana and associated infrastructure, including complementary industries and services.

The extension of the Tonkin Highway along the eastern boundary of the site will provide direct access to a considerable range of destinations within the Perth metropolitan area via the existing highway and freeway transport system. Such destinations include complementary industrial estates, ports, strategic suppliers or input sources, international and domestic airports and workforce. Connection to the transport system will also enable ready access to domestic, interstate and potentially international markets.

Refer Figure 3 Page 11 - Location Plan.

Area and Land use

The structure plan area is approximately 474 hectares. The area is framed by Mundijong Road (south), Tonkin Highway Road reserve (east), Kwinana freight rail (north) and Kargotich Road (west).

The land is predominantly used for the grazing of cattle. The area has been substantially cleared of remnant vegetation to enable grazing. There is also a concentration of rural lifestyle development in the south eastern margins of the area around Pure Steel Lane.

Refer Figure 4 Page 12 - Aerial Site Plan.

Legal description and ownership

Refer Table 3 Page 13- Land Ownership Details and Figure 5 - Land Ownership Plan



Example of possible development

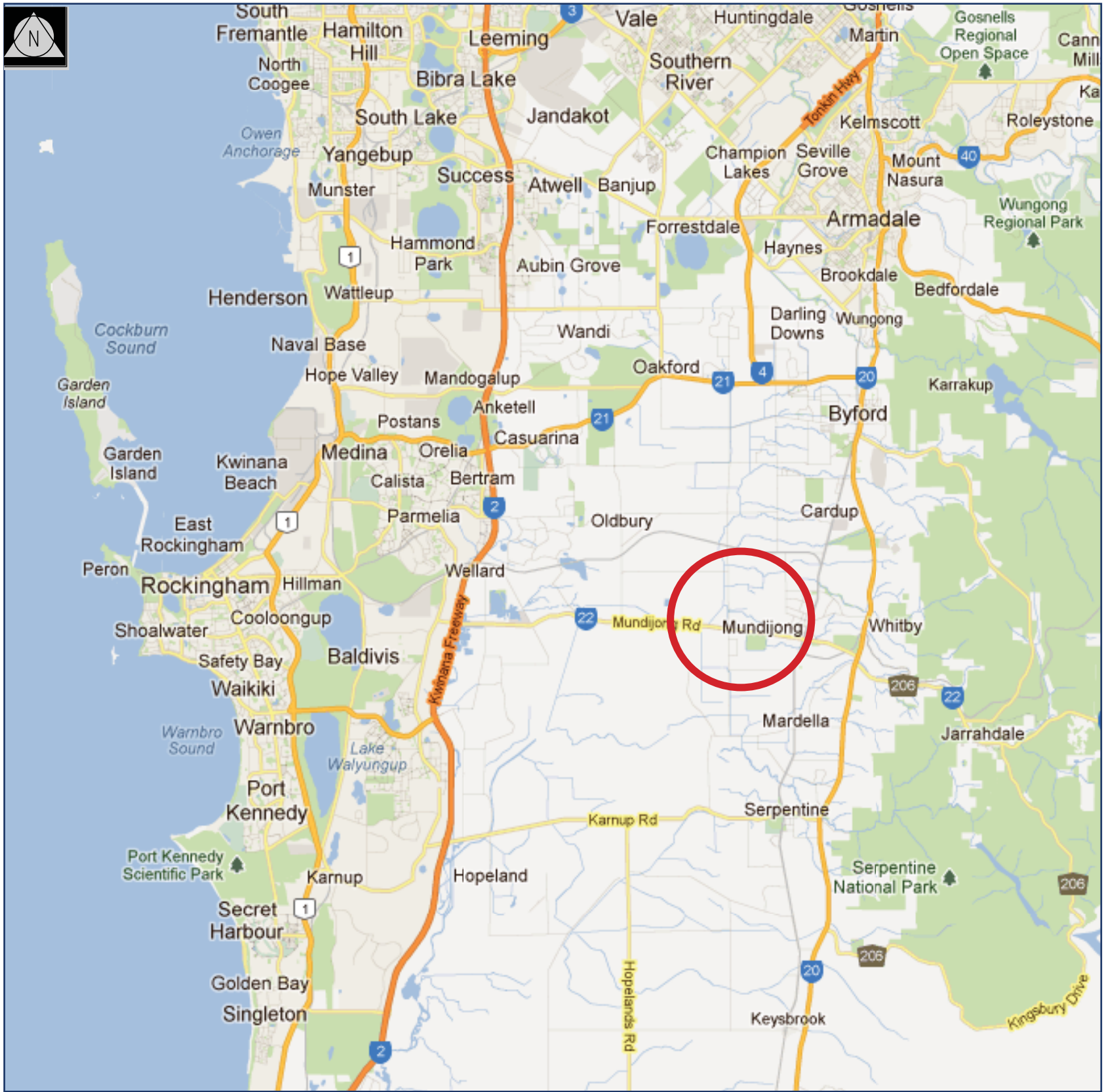


Figure 3 - Location Plan

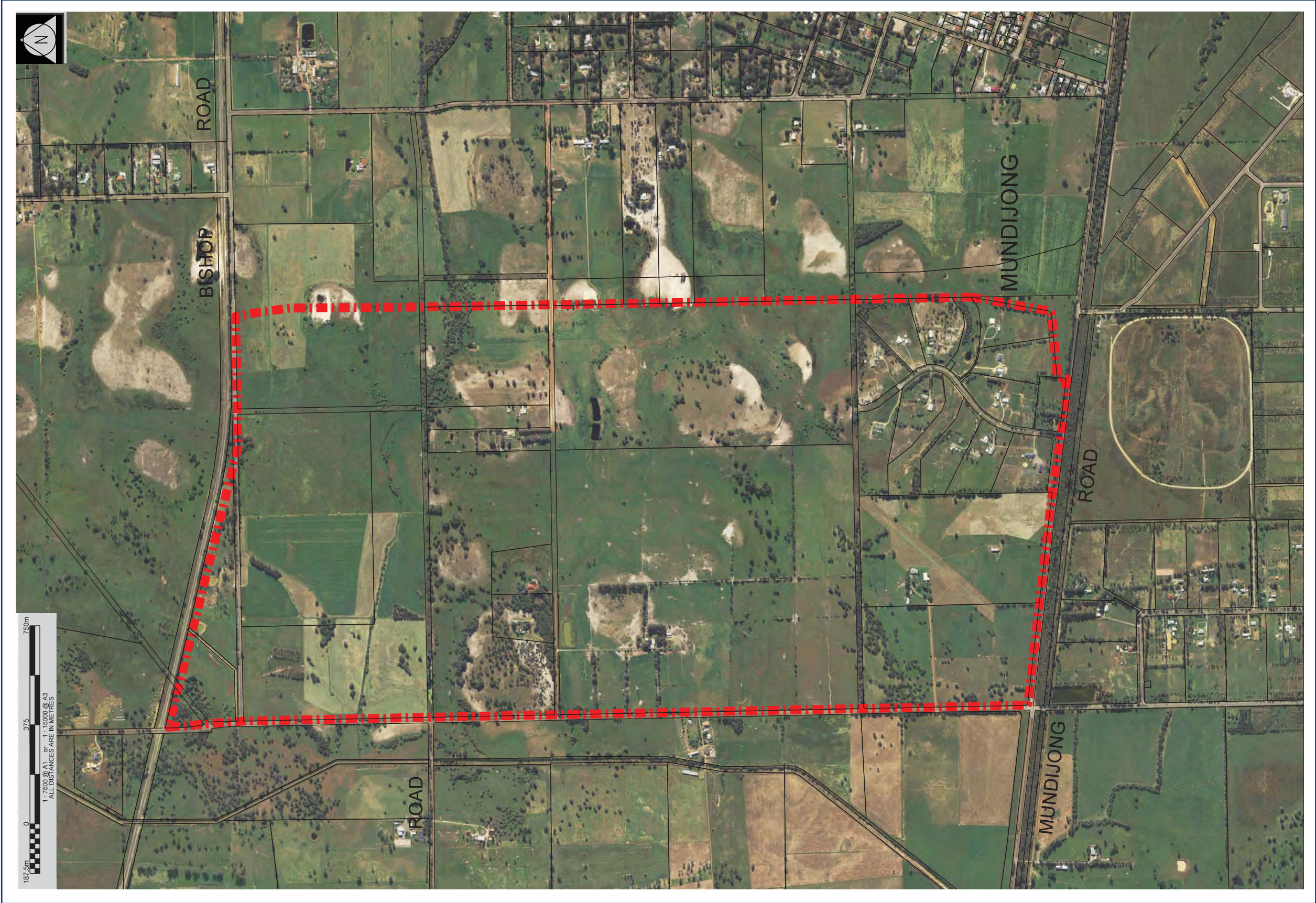


Figure 4 - Aerial Site Plan

1.3 Planning Framework

Zoning and reservations

The land is currently zoned 'Rural' in the MRS. A small portion of the land in the north eastern margins is reserved as 'primary regional road' in lieu of the Tonkin Highway extension and future intersection upgrades with Bishop Road. With respect to adjoining and nearby land the following should be noted:

- a) Mundijong Road, adjoining the southern boundary, is a designated 'other regional road';
- b) The portion of Mundijong Road is also a designated 'bush forever area';
- c) Land adjoining the eastern boundary is designated 'primary regional road' in lieu of the southern extension of the Tonkin Highway; and
- d) The primary regional road reserve allows for future intersection treatment to Mundijong Road and grade separation of the freight rail line.

Refer Figure 6 - Page 15 Metropolitan Region Scheme Zoning.

In terms of the Shire's Scheme, the land is included within the following zones:

- a) 'Farmlet' zone; and
- b) 'Rural' zone.

There are two (2) main areas zoned 'Farmlet' within the structure plan area. One is located in the south east and associated with Pure Steel Lane. The area has been subdivided into 4 hectare allotments and accordingly developed for a range of rural lifestyle pursuits. The other area adjoins Kargotich Road. Currently no subdivision approval has been issued for this area, although a subdivision guideline plan did accompany the relevant amendment to include the land within the 'Farmlet' zone.

In addition the Scheme identifies an 'area of natural beauty' (No. 33) which bisects the land east west. The following description is provided in Appendix 13 Page 239:

33. MANJEDAL BROOK

From its source East of Nettleton Road along its length to Kargotich Road.

In relation to areas of natural beauty Clause 7.12.2 of the Scheme states:

A person shall not without the approval of Council at or on a place described in Appendix 13 carry out any development including, but without limiting the generality of the foregoing:

(a) the erection, demolition or alteration of any building or structure (not including farm fencing, wells, bore or troughs and minor drainage works ancillary to the general rural pursuits in the locality);

(b) clearing of land or removal of trees; or

(c) the erection of advertising signs.

The status of Manjedal Brook is later discussed in further detail.

As explained in Part 1 it is intended to concurrently amend the MRS and Local Planning Scheme No. 2. Concurrent amendments pursuant to *Clause 126 of the Planning and Development Act 2005* are only possible where the local scheme includes a development zone with appropriate structure planning provisions.

The purpose and function of development zones is described as follows in Clause 5.17 of the Scheme:

The purpose of the Urban Development zone is to provide for the orderly planning of large areas of land in a locally integrated manner and within a regional context, whilst retaining flexibility to review planning with changing circumstances.

The zone will allow for the following:

- a) Provision of open space and recreation networks, appropriate community services, school sites and other recreational facilities;
- b) Establishment of multiple use corridors for drainage, nutrient control and recreational purposes, in association with the development of communities based on the principles of water sensitive urban design;
- c) Optimisation of convenience in respect of rail, road, cycleway and other transportation means, to and within the communities;
- d) Development of functional communities consistent with orderly and proper planning and the establishment and maintenance of an appropriate level of amenity;
- e) Variety in the range of lot sizes and dwelling types within communities, consistent with a cohesive and attractively built environment;
- f) Provision of retail, commercial, industrial and mixed use facilities to service the needs of residents within the communities, and integration of these facilities with social and recreational services, so as to maximise convenience;
- g) Provision of retail, commercial, business park and industrial facilities to provide local employment opportunity;

The above components will be facilitated by means of:

- a) Establishment of Structure Plans to ensure that development takes place in conformity with those Plans;
- b) Establishment of a mechanism to coordinate the provision of infrastructure for subdivision and development to and within the communities;
- c) Establishment of an equitable method for the distribution, between owners within area, of the costs of nominated infrastructure components required for subdivision and development of the areas into communities; and
- e) Provision of administrative procedures to ensure the expedient and successful execution of the above matters.



Summary

- a) The MRS facilitates significant future infrastructure upgrades of critical importance to future industry, including extension of Tonkin Hwy and the upgrading of Mundijong Road;
- b) In order to facilitate industrial development, the MRS will require an amendment to include the land in the 'Industry' zone;
- c) Suitable development zone and accompanying structure plan provisions within the local scheme to support structure planning and justify concurrent amendments with the MRS; and
- d) Opportunity, via subsequent structure planning, to incorporate Manjedal Brook as an 'ecological corridor' that also continues to provide a valuable drainage function for the district and future industrial development.

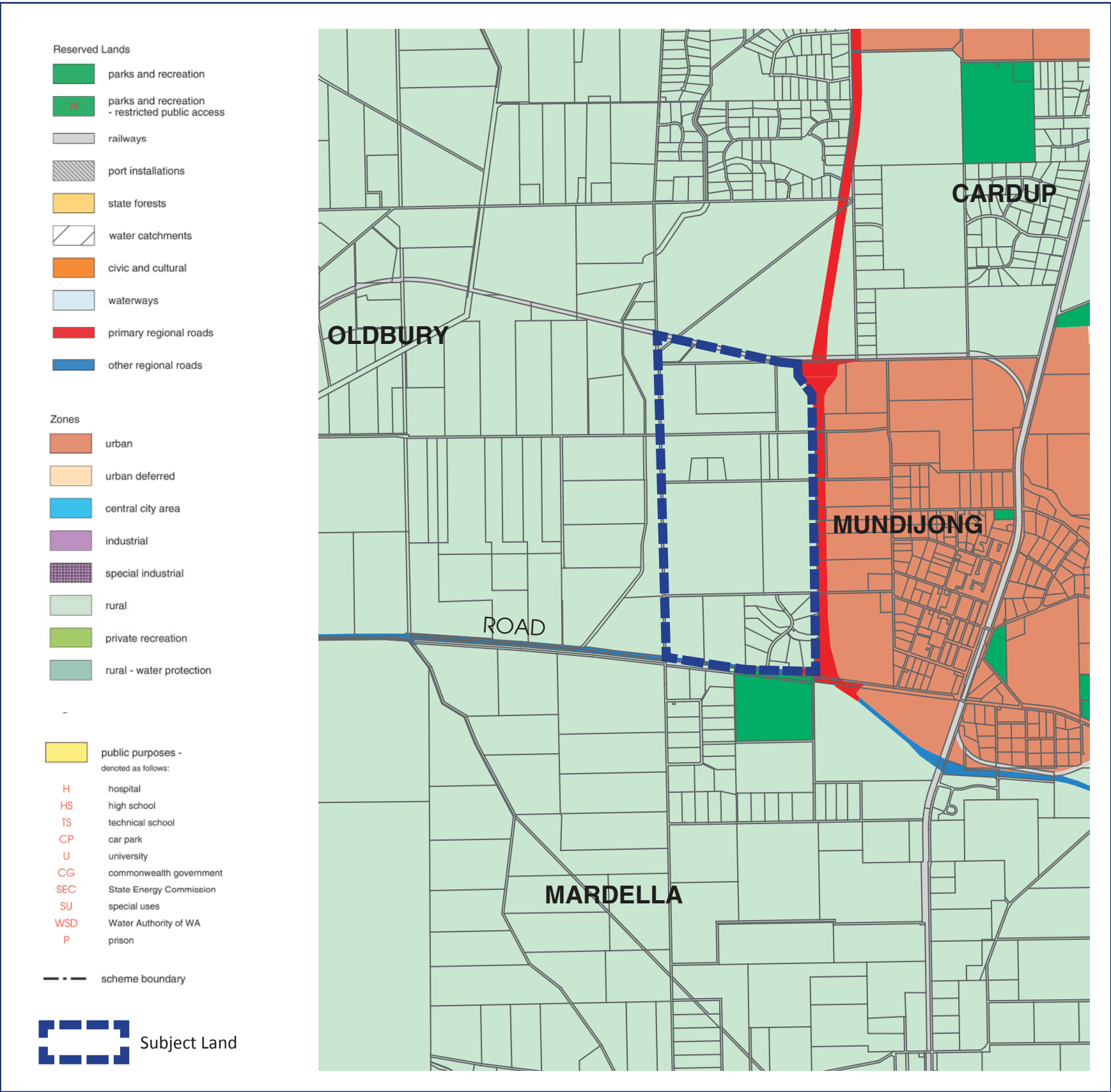


Figure 6 - Metropolitan Region Scheme Zoning

1.4 Regional and Sub – Regional Structure Plan

Directions 2031 and Beyond

In August 2010, the WAPC released *Directions 2031 and Beyond*. The purpose of the document is to guide future development for the Perth and Peel regions. In terms of metropolitan planning *Directions 2031* represents the primary planning document for the metropolitan region including Peel.

The following key points arise from *Directions 2031* which directly relate to West Mundijong:

- a) Identification of West Mundijong as a possible industrial area, although not a 'priority industrial area'
- b) Planned intermodal freight terminal at West Mundijong
- c) Potential additional dwelling yield of 12,500 for Mundijong townsite
- d) Designation of Mundijong town site as a 'District Centre'

The following key points arise from *Directions 2031* which indirectly relate to West Mundijong:

- a) A projected growth in population of 30,000 for Serpentine Jarrahdale by 2030
- b) Employment self sufficiency target of 55%
- c) Identification of Tonkin Highway and Mundijong Road as 'strategic' roads

Perhaps the most significant recommendation of *Directions 2031* relates to the possible intermodal facility at West Mundijong. It states:

An investigation of the suitability of an intermodal freight terminal at West Mundijong, as a strategically important industrial site, will be required. The potential realignment of the Kwinana–South West freight rail line that runs along the eastern boundary of the

proposed West Mundijong strategic industrial area presents the opportunity to develop an intermodal terminal in this area. The West Mundijong site has the potential to become a strategically important intermodal node given its proximity to the intersection point of the rail system and the primary road network

Draft Southern Metropolitan Sub-Regional Structure Plan 2009 (SMSRSP)

In 2009 the WAPC prepared the SMSRSP.

The following key points arise from SMSRSP which directly relate to the investigation area:

- a) Identification of West Mundijong as an industrial investigation industrial area;
- b) Possible re-location of the Kwinana South West freight rail line to follow alignment of Tonkin Highway extension;
- c) Possible extension of Mundijong Road east of Mundijong; and
- d) Planned dwelling yield of 12,500 for Mundijong townsite.

The SMSRSP also established a hierarchy of industrial areas within the sub region which are discussed as follows:

- a) Kwinana designated as a strategic heavy industry area
- b) Latitude 32 established as subsidiary to the Kwinana
- c) Potential future general industry areas at East Baldivis and Forrestdale
- d) The Cardup area for light industry

Economic and Employment Lands Strategy: non-heavy industrial: Perth metropolitan and Peel regions

The Economic and Employment Lands Strategy: non-heavy industrial: Perth metropolitan and Peel regions (EELS) was completed by the WAPC in August 2012. The purpose of the

EELS is to determine demand for industrial land in the short to medium term and ensure that sufficient industrial land is identified and made available in the Perth and Peel region.

The EELS has identified 37 potential industrial areas. Eleven of the sites have been identified as 'priority industrial sites (for investigation)'. The remaining sites, including West Mundijong, are described as 'possible future industrial sites' with the 'potential for future rezoning'.

Despite not being designated a priority industrial site, the EELS states:

West Mundijong ... has the potential to become a strategically important intermodal node, given its proximity to the intersection point of the rail system and the primary road network.

The Department of Planning and LandCorp are currently developing an implementation strategy to progress investigations and ultimately the rezoning of these areas where they are found to be feasible. The preparation of this structure plan forms part of this implementation strategy.

Demand Analysis for Employment Generating Land in Serpentine Jarrahdale

The study was completed in 2009 for the Shire of Serpentine Jarrahdale.

Key findings for West Mundijong:

- a) An additional 150 hectares of land will be required by 2021 to meet projected demand for industrial land
- b) The following sectors offer optimum employment and economic potential:
 - Manufacture of building construction materials
 - Food manufacture
 - Transport

Mundijong Whitby District Structure Plan

The Mundijong Whitby District Structure Plan was endorsed in 2011.

Key implications for West Mundijong:

- a) Identification of West Mundijong as a 'Potential Strategic Industrial Node'
- b) Designation of Manjedal Brook as a 'public viewing area'
- c) Realignment of Kwinana Freight Rail Line to follow alignment of Tonkin Highway extension
- d) Long term future population of up-to 40,000 at Mundijong-Whitby.

Summary

- a) A high level of strategic support for industrial development at West Mundijong embodied in both state and local planning strategies;
- b) Possibility of an intermodal facility at West Mundijong which could be a significant catalyst for industrial development;
- c) A projected growth in population of 30,000 for the Shire of Serpentine Jarrahdale by 2030;
- d) Employment self sufficiency target of 55% and therefore the need to plan for and provide employment generating areas such as West Mundijong;
- e) Identification of Tonkin Highway and Mundijong Road as 'strategic' roads; and
- f) Need for the Shire of Serpentine Jarrahdale and the Department of Planning and the Department of Transport to effectively collaborate regarding future planning at West Mundijong.

1.5 Planning Strategies

Draft Shire of Serpentine Jarrahdale Rural Land Strategy

The draft Rural Land Strategy was adopted for advertising by the Shire in August 2012. The Strategy designates the area as: 'West Mundijong Industrial Area – Future MRS Amendment'.

The Strategy also delineates a buffer around the industrial area, intended to provide separation to future sensitive uses.



Example of possible development

2.0 SITE CONDITIONS AND CONSTRAINTS

Overall the site has been substantially cleared to enable grazing and related farming activity. There is also evidence of smaller lots being used for rural lifestyle uses, including equestrian activity. Nevertheless, small pockets of remnant vegetation or re-growth are present in isolated parts of the investigation area. It is estimated that such vegetation represents approximately 2% of the total investigation area.

Manjedal Brook traverses the structure plan area east-west. In response to farming activity, the Brook has been substantially cleared of vegetation and altered in order to perform a more efficient drainage function.

Refer Figure 4 Page 12 - Aerial Site Plan.

PGV Environmental were engaged to prepare a desktop environmental assessment to support the structure plan (refer Appendix A). The results of the desktop assessment conclude that the potential for industrial development to negatively impact on the bio-physical environment are considered to be low.

The primary environmental consideration will be the potential impacts of industrial development on the existing dwellings adjacent to the site and in some cases within the site. The Department of Environment and Conservation has advised that particular regard will need to be given to potential noise impacts. *Herring Storer Acoustics* were engaged to conduct a noise assessment for potential industry at West Mundijong (refer Appendix B). Their report concluded that certain categories of industry may be developed at West Mundijong and meet the requirements of the relevant noise regulations.

2.1 Biodiversity and natural area assets

Vegetation

The vegetation on the site is 'Completely Degraded' and in small areas 'Degraded' to 'Completely Degraded'. The site does not contain any areas with an intact understorey.

Notwithstanding the significant degradation of vegetation on site the assessment recommends:

- a) Consideration be given to retention of trees in public areas including road reserves, public open space, car parks, entry statement areas and possible ecological corridors; and
- b) Salvaging and relocation of some trees including *Kingia Australis* plants.

It is noted that the Mundijong Road reserve contains threatened ecological communities (TEC) to the south of the road tarmac. To protect these TECs any further construction to provide services or to upgrade this road should be undertaken to the north of the constructed road. Management procedures should be in place to ensure that the vegetation to the south is not disturbed.

Refer Figure 7 Page 19 - Site Conditions and Constraints Plan.

Flora

The report found that there is unlikely to be any declared rare flora and likely to be no priority species present within the structure plan area. It is recommended that no further assessment is required and therefore flora is not an impediment to the development of the structure plan area for industry.

Fauna

The following species listed under Section 18 of the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act may be impacted by development of the site:

- a) Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii subsp. naso*)
- b) Baudin's Cockatoo (*Calyptorhynchus baudinii*)
- c) Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*)

Surveys will need to be undertaken at the local structure planning phase to determine the risk to these species. This will particularly apply to areas that contain Marri trees. Examples include areas to the north of Scott Road on the western end and the lots immediately to the north of Manjedal Brook. Depending upon potential risks to habitat referral may be required to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities pursuant to the *Environmental Protection and Biodiversity Conservation Act 1999*.

To mitigate potential impact on black cockatoos the report recommends that in subsequent stages of planning consideration be given to the retention of Mari and Flooded Gum trees. It is also noted that there is the potential to improve the black cockatoo habitat by planting appropriate species in drainage corridors, open space and road reserves.

2.2 Landform and soils

Overall, the investigation area has the appearance of being flat however the following should be noted:

- a) The land falls from east to west by up-to 10 metres over a distance of approximately two kilometres;
- b) A sandy peak is located in the middle of the site near the eastern boundary. The peak is approximately 27 metres AHD;
- c) The lowest point of the site is approximately 16.5 metres AHD in the south west.

Refer Figure 4 Page 12 - Aerial Site Plan.

Overall, the site does not contain any unique topographical or geological formations and therefore these factors are not an impediment to the development of the site for industrial purposes.

Some of the soil types on the site are prone to waterlogging and ponding. The assessment recommends that surface water management will be required to manage these soil types. To minimise potential for soil erosion to occur the following management measures are recommended:

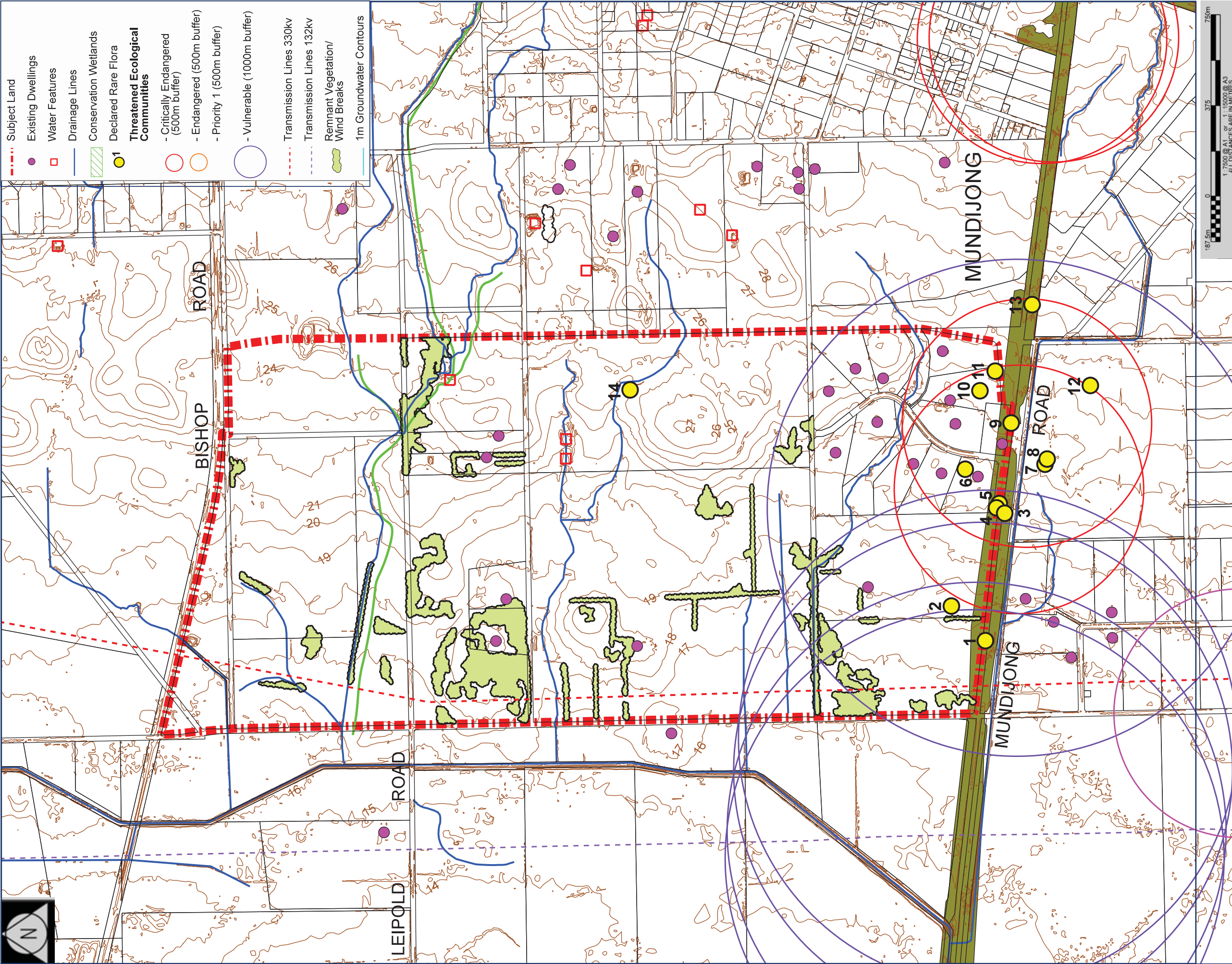


Figure 7 - Site Conditions and Constraints Plan

Ground disturbing activities should be kept to a minimum and carried out 'as required' (in stages) immediately prior to lots being released for sale as part of a 'staged' development of the site;

- a) Landscaping/stabilising/dust suppression of areas where ground disturbance has occurred should be scheduled to occur immediately after clearing/and or infrastructure construction has been completed; and
- b) Clearing activities have the potential to add clay 'fines' into the drainage channels or the Conservation Category Wetland and the installation of temporary drop-out basins to capture and aid in the settling of clay fines should be considered.

Acid Sulphate Soils (ASS)

The ASS Risk on the site is mapped as being Moderate to Low (<3m from the surface). The WAPC *Acid Sulphate Soils Planning Guidelines* (WAPC, 2009) indicate that "acid sulphate soils are technically manageable in the majority of cases". ASS Investigation and, if required, Management Plans should be prepared at subdivision stage once the detailed design of the site is finalised. This should be undertaken in accordance with the *Acid Sulphate Soils Guideline Series: Identification and Investigation of Acid Sulphate Soils and Acidic Landscapes* (DEC, 2009a) and Draft *Treatment and Management of Soils and Water in Acid Sulphate Soil Landscapes* (DEC, 2009b).

2.3 Groundwater and surface water

Groundwater management will be outlined in the District Water Management Strategy and will be further detailed in the subsequent preparation of Local Water Management Strategies and Urban Water Management Plans for individual local structure plan areas.

Therefore potential impacts on groundwater can be mitigated and managed and does not impede development of the site for industrial purposes.

Surface Water

As for groundwater the management of surface water will be outlined in the District Water Management Strategy and will be detailed in the Local Water Management Strategies and Urban Water Management Plans that will be prepared for each stage of development.

The proposed structure plan has identified two of the drainage channels (one of which includes Manjedal Brook) as potential 'ecological corridors' that will be revegetated and may, subject to further planning, contain some passive recreation opportunities. The corridors should be designed to create a 'living stream' that is incorporated into the eventual subdivision and development on the site. There is the potential to increase the ecological value of the degraded channels through rehabilitation which may provide additional habitat for some species.

Wetlands

A large proportion of the site is mapped as a palusplain Multiple Use Wetland. A portion of Manjedal Brook is also categorised as a Conservation Category Wetland.

The Brook has been identified in the structure plan as a possible ecological corridor which may result in the wetland being rehabilitated as a living stream. At the local structure planning phase, a wetland management plan should be developed for Manjedal Brook. The plan should be prepared acknowledging the following relevant policies and guidelines:

- a) *Attachment B4-5 in Environmental Guidance for Planning and Development – Guidance Statement 33 (EPA, 2008);*
- b) *Guidelines Checklist for Preparing a Wetland Management Plan (DEC, 2008); and*
- c) *Environmental Protection of Wetlands – Position Statement No.4 (EPA 2001)*

The wetland management plan should detail measures to maintain the hydrology and improve the environmental values of the Brook. It should also include rehabilitation measures and outline the methodology to provide the ecological corridor upon development of the site.

Refer *Figure 8 Page 21 - Wetlands and Hydrology*.

Wetland Buffers

The part of Manjedal Brook west of the site is in similar condition to the portion of the Brook east of the site. Planning for this part of the Brook is underway and it has been determined that as a riverine wetland the responsible authority for the Brook is the Department of Water. The Water Quality Protection Note 6: *Vegetation Buffers to Sensitive Water Resources* (DoW, 2006) outlines the manner in which buffer distances are to be measured:

Horizontal buffer distances are measured at right angles to the margins of streams or waterbodies, while buffers are normally circular for water supply wellheads. Where margins to ephemeral waterways are unclear, buffers should be measured outward from grade changes defining run-off channels.

Similar to the portion of Brook east of the proposed Tonkin Highway extension, the wetland has clearly defined banks. On this basis the wetland buffer should be consistent with that to the east of the site. This will be 30m as measured from the top of the bank. The buffer area is partially vegetated however in areas that are completely degraded drainage infrastructure could be placed in the buffer area, consistent with the eastern part of the Brook.

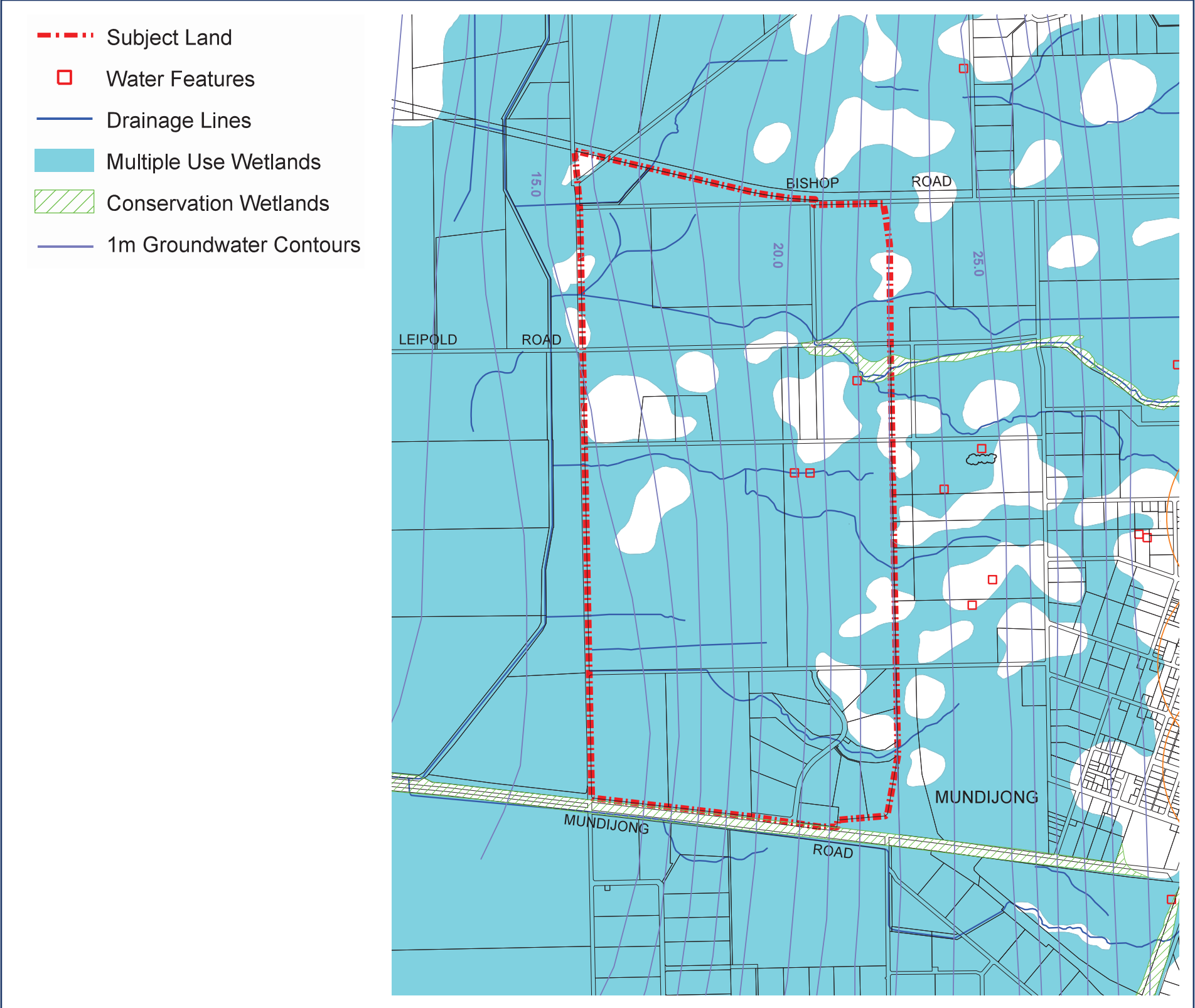


Figure 8 - Wetlands and Hydrology

2.4 Heritage

There are possibly two aboriginal heritage sites near or within the structure plan area.

Site '450' is a registered site and is located near Manjedal Brook near the eastern boundary of the structure plan area. A 'heritage place' is also located approximately 500 metres south of site 450, again near the boundary of the proposed southern extension of the Tonkin Highway.

Ethnographic surveys will need to be conducted at the local structure plan stage to establish their significance and if required what measures should be put in place to ensure their conservation. Subject to survey, the sites may not be located within the structure plan area.

Refer *Figure 7 Page 19 - Site Conditions and Constraints*.

2.5 Sensitive uses / land use compatibility

The structure plan area is adjoined to the east by existing and planned residential uses. Furthermore, there is a preponderance of dispersed dwellings located to the south of the area associated with rural lifestyle or hobby farm subdivisions. Refer *Figure 7 Page 19 - Site Conditions and Constraints*.

The Department of Environment and Conservation's Guidance Statement No 3 prescribes standard separation distances between industry and sensitive uses such as residential. Based on the guidance statement, it is unlikely that some categories of industry could locate within 500 metres of existing planned or sensitive uses on account of their emissions which could include noise, dust, odour or public risk. Such uses may include; abattoirs, brickworks, extractive industry, cement manufacturing and heavy fabrication involving steel or other metals. Nevertheless, low emission industries may locate within this area such as warehousing, logistics, service industry and some categories of light industry.

The following should also be noted:

- a) Irrespective of the potential for industrial development to the west, the extension of Tonkin Highway will require installation of associated noise attenuation measures in response to planned and existing dwellings to the East near Mundijong town site. Should industrial development proceed, it is expected that the same measures will also offer the potential to attenuate possible noise emissions from future industry;
- b) There is an opportunity for future structure planning to provide for low emission uses near the eastern and southern boundaries such as:
 - Warehousing
 - Logistics
 - Heavy machinery servicing, distribution and sales
 - Some forms of light industry and service industry use
 - Limited showroom development

2.6 Noise emissions

In preparing the structure plan liaison has taken place with the DEC to establish key environmental factors to consider in the development of the plan. Whilst it is likely that future industry will be low emission in nature, the DEC recommended that consideration should be given to potential noise emissions. Odour, dust and light spill were considered to be unlikely emission risks for the types of industry envisaged at West Mundijong.

Acoustic consultants, Herring Storer, were engaged to determine the feasibility of industrial development given the proximity of existing and planned noise sensitive uses. Their report concluded that future industrial development has the potential to comply with the relevant regulations subject to the following critical factors:

- a) Industrial development being limited to non heavy industry as detailed in the *Economic and Employment Lands Strategy* prepared by the WAPC;
- b) Future individual industrial developments being limited to predicted noise levels of (108dB) in the general industry core and (101dB) in the supporting light industry precincts;
- c) Provision for 'internal buffers' to the eastern and southern margins of the estate to provide sufficient separation from the general industrial core to existing and planned adjoining sensitive uses. The internal buffer should be a minimum width of 500 metres and could be developed for light industry to complement development within the core;
- d) Construction of the southern extension of the Tonkin Highway to act as a further barrier to sensitive uses to the east. The highway provides for both further separation and a 'wall effect' particularly at the intersection of Bishop Road where future highway levels will exceed the natural ground level of the adjoining estate;
- e) Requirement that subsequent local structure plans be accompanied by a noise management plan demonstrating how resultant development will comply with the noise report and the relevant noise regulations; and



State Industrial Buffer Policy

The State Industrial Buffer Policy: Statement of Planning Policy No. 4.1 (SPP 4.1) outlines the WAPC's approach to buffers for industrial areas within the state. Section 3.2 prescribes a requirement for off-site buffers for certain categories of industry including general industry. Appendix 2 provides mechanisms for securing off-site buffer areas.

It is proposed to provide a buffer to the industrial area via the draft Rural Strategy. The draft Rural Strategy designates land one (1) kilometre to the west and north to be retained in the 'General Farming' zone. The zoning largely confines development to compatible rural uses as is presently the case. Although the Scheme would permit the development of one dwelling per lot within the 'General Farming' zone.

The use of the Rural Land Strategy to secure the buffer is supported for the following reasons:

- a) The option of using rural strategies to secure buffers is prescribed as a town planning option in Appendix 2 of SPP 4.1;
- b) The industrial uses envisaged for the estate are non heavy industry;
- c) Further to b), many of the uses are generally low emission industries concerned with logistics; and
- d) The structure plan mandates the requirement for more noise assessments at the subsequent local structure planning phase.

Future subdivision and development will be explored within the buffer as part of the Rural Land Strategy in consultation with the noise branch of the Department of Environment and Conservation, the Department of Planning and landowners.

2.7 Existing dwellings within structure plan area

There are several dwellings or sensitive uses located within the structure plan area. Notably there is a concentration of dwellings off Pure Steel Lane in the south eastern margins

of the area. Such uses are incompatible with industrial development. Refer *Figure 7 Page 19 - Site Conditions and Constraints*.

In the short term, the presence of some dwellings may prevent areas from being developed for industry. Consequently development will need to be staged pending removal or cessation of these uses. Alternatively, proponents may demonstrate control of emissions in a way which allows for interim coexistence of some dwellings and future industry.

Should the area be rezoned, existing dwellings will be afforded 'non conforming use' status and be permitted to continue.

It is known from a recent survey conducted by the Shire that the majority of dwelling owners within the structure plan area support industry and seek to rezone their respective holdings.

2.8 330 Kv Power Lines

Adjoining the eastern side of Kargotich Road are 330 kv power lines. Refer *Figure 7 Page 19 - Site Conditions and Constraints*.

It is not possible to develop the land immediately beneath the lines. Subject to further structure planning there may be some opportunity to incorporate the lines into an integrated infrastructure corridor.

Summary

- a) The land contains very little remnant vegetation on account of clearing for farming;
- b) Nevertheless, at the local structure planning phase proponents will need to assess impacts of development on black cockatoo habitat. Subject to findings, there may be a requirement for referral as per the Commonwealth Environment Protection and Biodiversity Conservation Act ;
- c) Mundijong Road, adjoining the southern boundary, is a designated Bush Forever site. The southern portion of the road contains threatened ecological communities;

d) The noise assessment demonstrates that West Mundijong can be developed for certain categories of industry; and

e) Subsequent local structure plans will need to demonstrate compliance with the noise assessment.



Examples of possible development

3.0 INFRASTRUCTURE PROPOSALS

3.1 Possible intermodal facility and realignment of Kwinana freight rail

The West Mundijong area has been identified as a potential intermodal facility site. Associated with this initiative is the proposed realignment of the Kwinana freight rail to adjoin the southern extension of Tonkin Highway (Refer Figure 9 Page 25 - Infrastructure Initiatives).

Whilst the Shire is committed to industrial development at West Mundijong irrespective of an intermodal facility, the following is acknowledged:

- a) Based upon experience elsewhere in Australia the facility is likely to act as a catalyst or ‘attractor’ of development, particularly related to warehousing, storage and logistics;
- b) Intermodal facilities involving freight rail are vital to enabling more sustainable modes of transport;
- c) Future structure planning will be required to set aside sufficient area for the facility including associated support infrastructure and services; and
- d) The highlighted importance of the intermodal facility in state planning strategies and instruments highlights the inevitability of the facility and in this context the structure plan is robust enough to accommodate such a facility.

The Department of Transport and the Department of Planning, in principle, prefer an eastern location for the intermodal facility adjoining the southern extension of Tonkin Highway in association with the possible realignment of the Kwinana freight rail. Nevertheless, the feasibility of the intermodal facility and realignment of the freight line is intended to be subject to more detailed assessment in due course. Furthermore, the forthcoming *Perth and Peel Regions Freight and Intermodal Plan*, is also likely to have some bearing on the feasibility of the intermodal facility.

Future planning for the intermodal facility, including the realignment of the Kwinana freight rail, is the responsibility of the Department of Planning and the Department of Transport. The Shire is committed to working with the relevant agencies to ensure an optimum outcome for West Mundijong and the community.

3.2 Southern Extension of Tonkin Highway

The MRS provides for the southern extension of Tonkin Highway (the Highway).

The extension is vital to connecting the area to key destination points within the metropolitan area and importantly destinations in the north-west via the Great Northern Highway.

Representatives of Main Roads Western Australia have advised that there are no plans to extend the highway in the next ten years. The program may be reviewed in response to the rate of development of planned residential areas nearby.

It may also be the case that rezoning of West Mundijong will provide a further imperative for the extension of the Highway.

3.3 Mundijong Road

As outlined above Mundijong Road is designated an ‘other regional road’ in the MRS.

The designation allows for upgrading to the status of a sub regional road. Mundijong directly connects the investigation area to Kwinana Freeway to the west and Kwinana beyond.

The SMRSSP also makes provision for the extension of Mundijong Road east of Mundijong town.



Examples of possible development

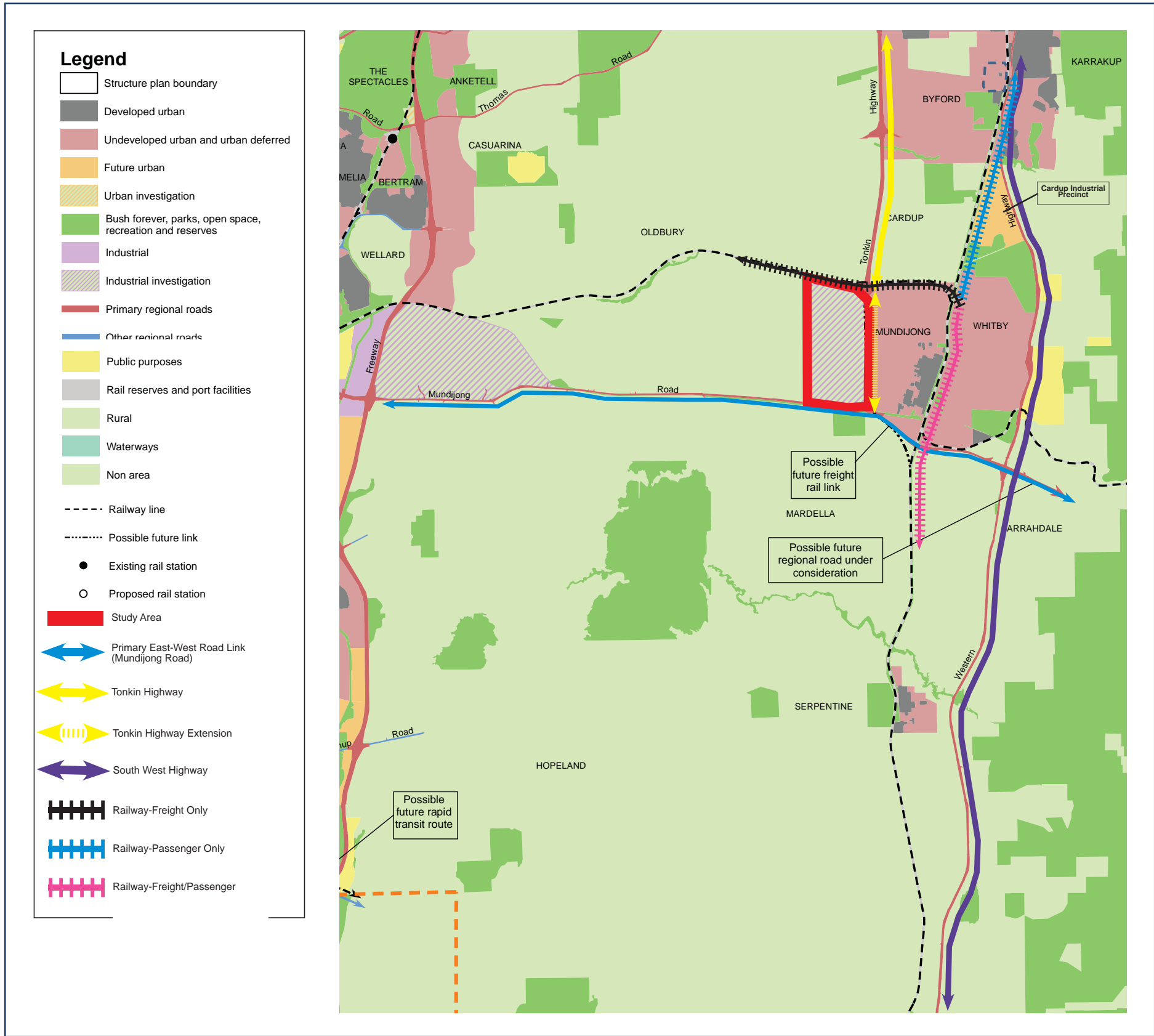


Figure 9 - Key Infrastructure Initiatives

4.0 DISTRICT STRUCTURE PLAN

4.1 Design Objectives

A district structure plan has been prepared for the West Mundijong Industrial Area.

The design has been influenced by the following objectives:

Industrial land use

- To provide for non heavy industry compatible with existing and planned adjoining land use;

Transport

- Provide for a distributor road network designed to enable efficient movement of commercial vehicles within the Estate and to and from the Estate via the existing and planned district and sub-regional road framework;
- To fully optimize the potential of key transport initiatives, including extension of Tonkin Highway, possible realignment of the Kwinana freight rail and a possible intermodal facility;

Environment & Sustainability

- Creation of ecological corridors with the potential to facilitate drainage, environmental rehabilitation, conservation of wetlands and passive recreation where practical;
- Creation of an accessible centre that meets the employment requirements of future neighbouring and district residential areas;
- Provision for future access to sustainable transport modes, such as a possible freight rail line and associated intermodal facility;
- The need for a comprehensive district drainage framework which balances agency requirements with the objective of realizing the optimum development potential of the land;

Implementation

- Identification of local structure planning areas that facilitate ease of land assembly and balance the need for district coordination with the development objectives of individual owners; and
- To provide for an efficient planning framework enabling landowners to proceed straight to local structure planning and subdivision subject to the relevant approvals.

4.2 Land Use

The structure plan provides for a general industrial core and supporting light industrial areas or precincts to the east and south. The light industrial areas also provide separation from the core area to adjoining residential areas to the east and south.

Based upon previous work it is likely that the core may support the following forms of industry, subject to approvals:

- Agribusiness, including abattoirs, food processing, canneries & breweries;
- General industry, including manufacture / prefabrication of building products and materials;
- Storage and logistics;
- Heavy machinery servicing and sales; and
- Transport and fuel depot.

The core area is intended to be zoned ‘General Industry’. Subsequent local structure planning will serve to clarify the range and types of land use appropriate in the area. Nevertheless, the following local scheme land use classes are envisaged:

- Fuel Depot
- General Industry
- Light Industry
- Trade Display
- Transport Depot
- Warehouse

The core area will be supported by eastern and southern light industry precincts. The uses envisaged include:

- a) Automotive repair and servicing;
- b) Storage and logistics;
- c) Showrooms; and
- d) Rural and service industry.

Subsequent local structure planning will serve to clarify the range and types of land use appropriate in the light industry areas. Nevertheless, the following local scheme land use classes are envisaged:

- Fuel Depot
- Storage
- Rural industry
- Service industry
- Showrooms
- Trade Display
- Transport Depot
- Warehouse
- Motor vehicle sales and repair

4.3 Possible Development Yield

Component	Area (hectares)	Possible Lot yield
General industry core	279	446
Light industry precincts	135	432
Ecological corridors	21	na
Drainage corridors	14	na
Multiple use corridor	25	na
Total	474	878

Table 4 - Development Yield



Based on other comparable estates the following average lot sizes have been assumed:

- a) General industry core: 5000 sqm
- b) Light industry support precincts: 2500 sqm
- c) 80% of the area is developable

Actual lot yields will be established at the local structure planning phase.

4.4 Transport

Road Network

The structure plan provides for two east / west distributor roads and one north / south distributor road. The network is intended to:

- a) Allow for ease of movement of commercial vehicles within the estate and moving to and from the estate;
- b) Provide strong connection to adjoining road network, notably Kargotich Road, Mundijong Road and Bishop Road; and
- c) Assist in defining precincts or local structure plan areas.

A preliminary traffic report has been provided by Cardno. The report recommended upgrades and key intersection treatments as shown in *Table 5 - Road Upgrades* and *Figure 10 - Road upgrades and cross sections*.

Road	Upgrades Widening (ultimate)	Intersection Treatment (ultimate)
Kargotich Road	29.7m eastern side	Light control at intersection with Mundijong Rd and slip lane
Bishop Road	26.2m southern and northern sides	Light control intersection to proposed north / south distributor road and slip lane
Mundijong Road	36.7m northern side	Light control at intersection with Kargotich Rd and slip lane

Table 5 - Road Upgrades

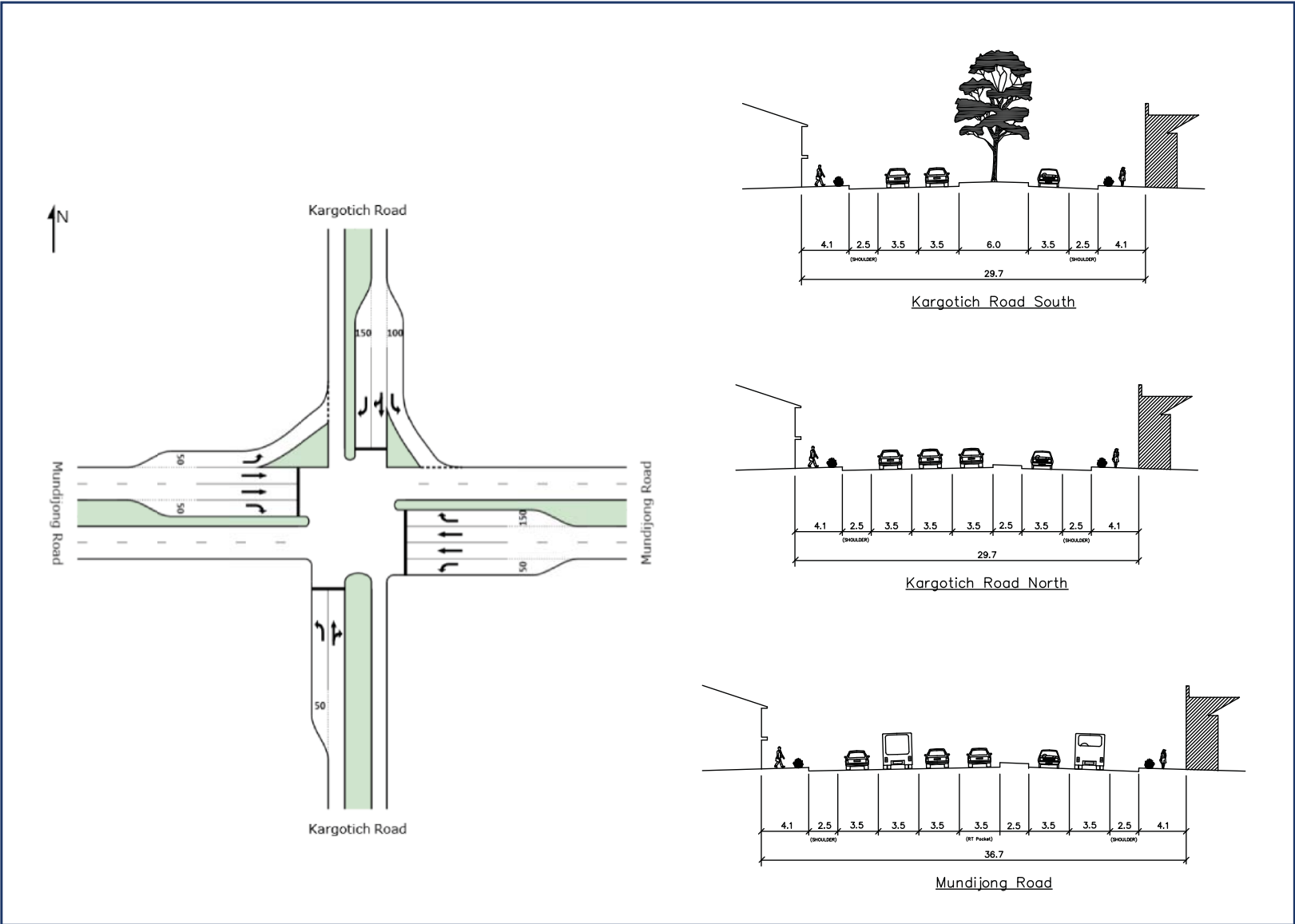


Figure 10 - Road upgrade cross sections

WEST MUNDIJONG INDUSTRIAL AREA
DISTRICT STRUCTURE PLAN REPORT

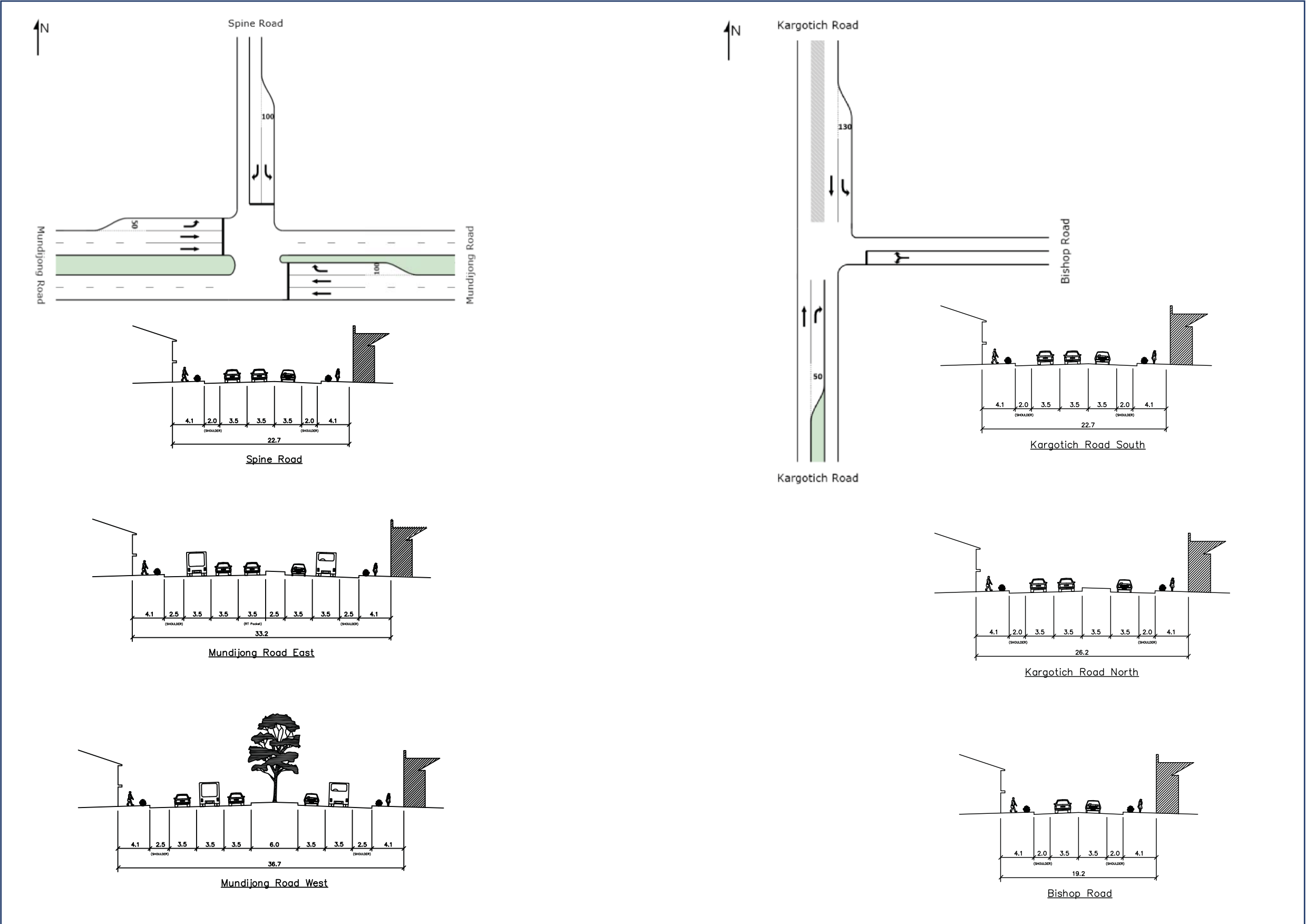


Figure 10 - Road upgrade cross sections (continued)

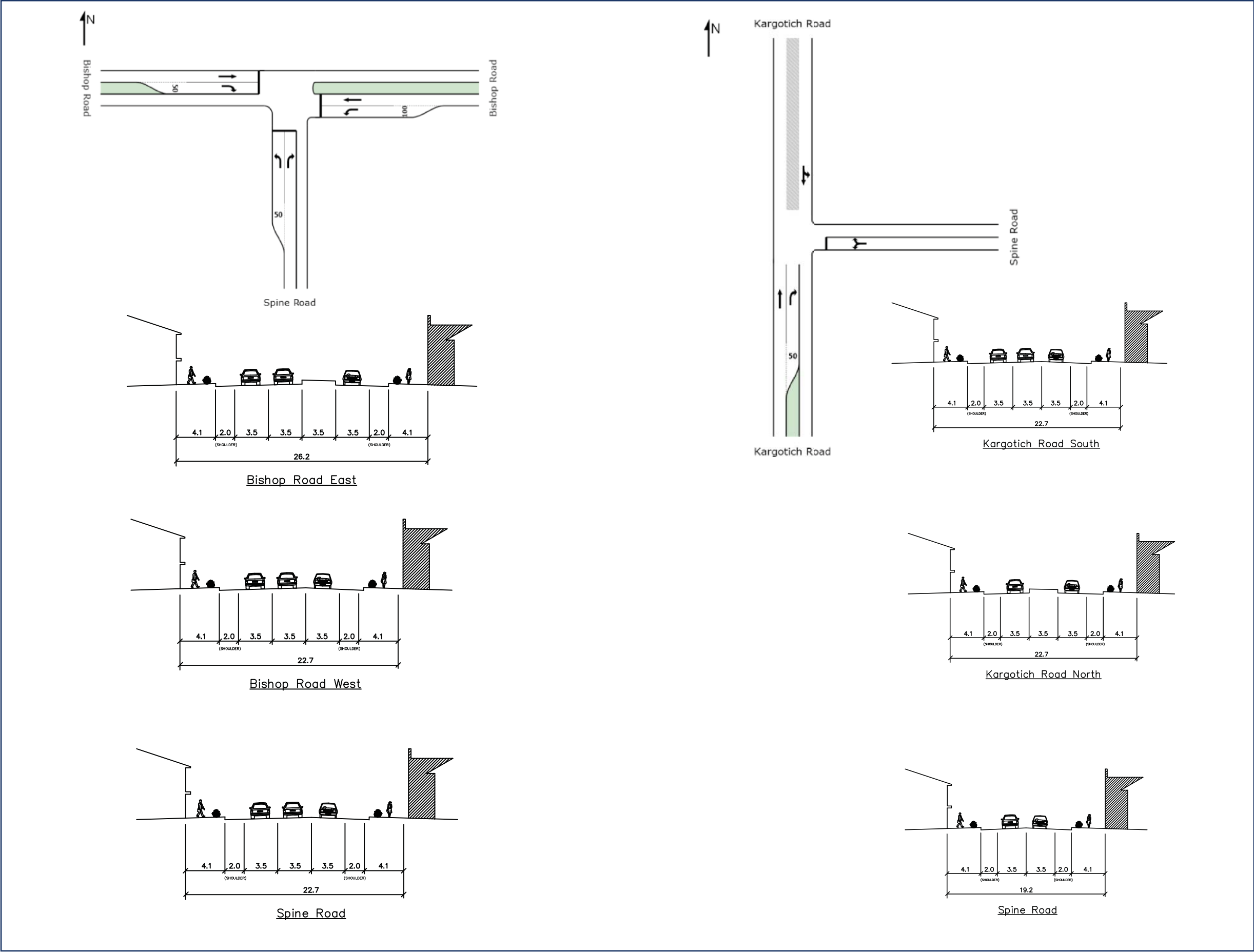


Figure 10 - Road upgrade cross sections (continued)

State Transport Initiatives

Possible Realignment of Kwinana Freight Rail

The structure plan recognises the possible realignment of the Kwinana Freight Rail parallel with the southern extension of the Tonkin Highway. At the time of preparing this structure plan the realignment shown was the preferred option by both the Department of Transport and the Department of Planning. Nevertheless, it is understood that the suitability of the route is to be subject to further investigation by the state government in due course.

Possible Intermodal Facility

As outlined above, various state government planning documents envisage a possible intermodal facility at West Mundijong. Accordingly, the structure plan recognises a possible intermodal facility adjoining the southern extension of Tonkin Highway. The location represents the preferred position for such a facility by both the Department of Transport and the Department of Planning.

Again, it is understood that the suitability of the location is to be subject to further detailed investigation by the state government in due course.

4.5 Ecological corridors

The structure plan provides for two ecological corridors running east / west through the structure plan area. The corridors generally reflect the location of existing drainage channels. The northern corridor also includes Manjedal Brook. A portion of the Brook is also classified as a conservation category wetland.

The corridors will provide a vital role in providing for the channeling of storm water runoff through the site. The ultimate size and form of the corridors will be further refined as part of the local structure planning process and the associated preparation of a local water management strategy.

Subject to further detailed planning, there is the potential for the corridors to be re-habilitated as 'living streams'. Consideration could also be given to passive recreational opportunities, including bridle paths or tracks.

4.6 Multiple purpose corridor

The plan makes provision for a multiple purpose corridor which occupies the area between Kargotich Road and the overhead 330 kv power lines. The corridor serves a number of purposes including:

- a) Principally drainage. Consistent with Western Power requirements retention areas would be located outside the 330 kv corridor;
- b) Landscape treatment, including possible rehabilitation of remnant vegetation;
- c) Possible passive recreation opportunities including bridle and dual use paths; and
- d) Suitable interface to the overhead 330 kv lines.

Details of the corridor will be further refined in subsequent stages of the planning process.

4.7 Buffer

A 1000 metre buffer has been designated from the general industry core.

The buffer has been identified in the Shire's draft Rural Land Strategy. The Strategy seeks to retain the existing 'Rural' zone and the 'Farmlet' zone within the buffer area. The retention of the zones will limit the intrusion of sensitive uses near the general industry core.

At the time of completing the structure plan the Strategy was with the WAPC and Department of Planning awaiting consent for public advertising.

Future subdivision and development will be explored within the buffer as part of the Rural Land Strategy in consultation with the noise branch of the Department of Environment and Conservation, the Department of Planning and landowners.

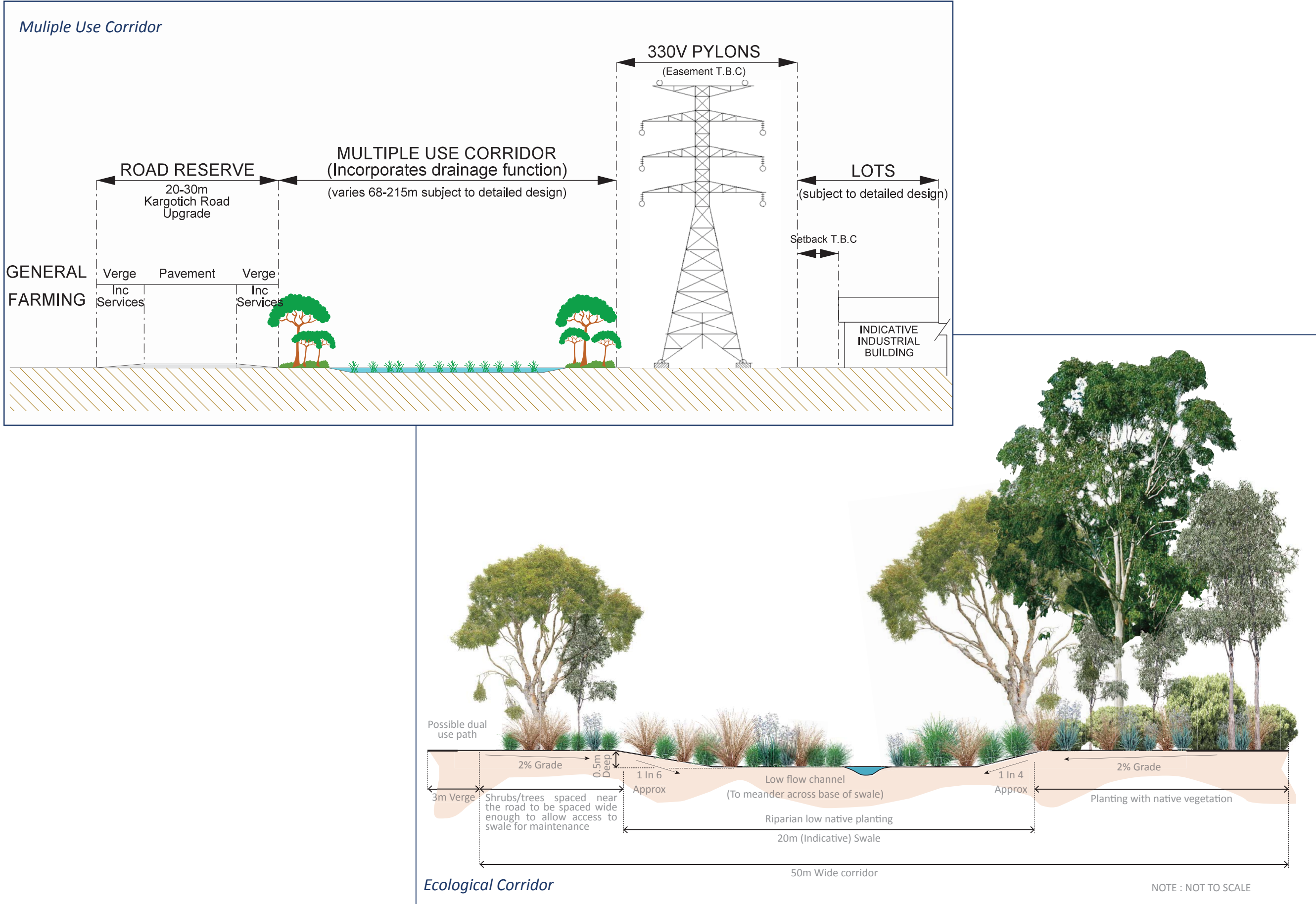


Figure 11 - Indicative Ecological and Multiple Use Corridor Cross Sections

5.0 SERVICING

5.1 Water supply

The Water Corporation has advised that potable water may be accessed from the Mundijong town site. There may be limited capacity for some industrial processing. This source may be able to supply the early stages of development.

The Serpentine trunk main is located approximately one (1) kilometre to the west of the investigation area. Subject to approvals from the Water Corporation, the trunk main may be accessed to provide process water requirements. There will be significant capital expenses related to the supply of the area with larger volumes of standard potable water.

Refer Figure 12 Page 31 - Servicing Plan.

Alternative Water Supply

Subject to further investigation there is the potential to harvest storm water for processing. This approach has been successfully developed at Penfield, South Australia.

5.2 Wastewater

Currently, the subject land is not connected to deep sewerage.

There is some initial planning for a new wastewater pumping station to be constructed to the east of the subject land. Advice to date is that this will not take water from the subject land. Should this change in the future, it is likely the area required for the pumping station and its buffer would increase. The plant would also be uphill of the subject land, requiring pumping of effluent to this point.

At this point in time, wastewater from the subject land is planned to be conveyed to the Woodman Point wastewater treatment plant, (City of Cockburn), via Byford.

The Water Corporation is proposing to install a one (1) meter diameter trunk main within the Mundijong Road reserve. The main will ultimately convey wastewater from Mundijong to the proposed East Rockingham wastewater treatment plant scheduled for completion in 2015.

The future wastewater planning will need to consider the types and flow rates of wastewater that will be generated from the industrial area and the suitability of these for discharge to the Water Corporation's wastewater system. Some industries may require their wastewater to be pre treated prior to discharging to the Water Corporation system. Should an agricultural food precinct be developed, there is likely to be a demand for a wastewater system that can accommodate high flows.

Wastewater Recycling

The Water Corporation is not proposing to construct a wastewater treatment facility at Mundijong, or in the locality. The provision of wastewater recycling would therefore be by private initiative and will be done in conjunction with the Water Corporation. The provision of such a facility can be accommodated on site if and when required. The Water Corporation has also stated:

- a) Relative to other industry, industry at West Mundijong is unlikely to generate significant demand for processing water. On this basis it is unlikely that a business case could be developed and supported for installation of infrastructure to enable re-use of treated wastewater at Mundijong.
- b) Subject to further feasibility, grey water harvesting and recycling by individual industries may still be feasible.

Nevertheless, there may be some potential to develop private wastewater disposal systems. The Shire has engaged consultants to explore the potential of this option. There may be some potential to further explore the potential of such schemes in subsequent stages of planning for West Mundijong.

5.3 Power

The land is traversed 330 kv lines. Western Power has advised that a 'step down' facility will need to be installed to enable reticulated supply for future industry.

There is likely to be sufficient capacity to serve industrial development.

5.4 Gas

There has recently been gas distribution / reticulation infrastructure installed within the Mundijong area to service future residential development.

The existing high pressure gas main located within Soldiers Road to the north at Byford has been extended south to Bishop Road.

Lateral gas mains would be required off this trunk to serve the industrial estate.

Summary

- a) The area benefits from proximity to the Serpentine Trunk main. Subject to Water Corporation approval, there is capacity to the requirements of future industry;
- b) Consistent with good practice elsewhere there is the potential to explore harvesting of storm water for re-use; and
- c) There is currently no deep sewerage infrastructure available at Mundijong. Depending upon demand, there may be a requirement to investigate interim wastewater disposal measures pending provision of infrastructure.

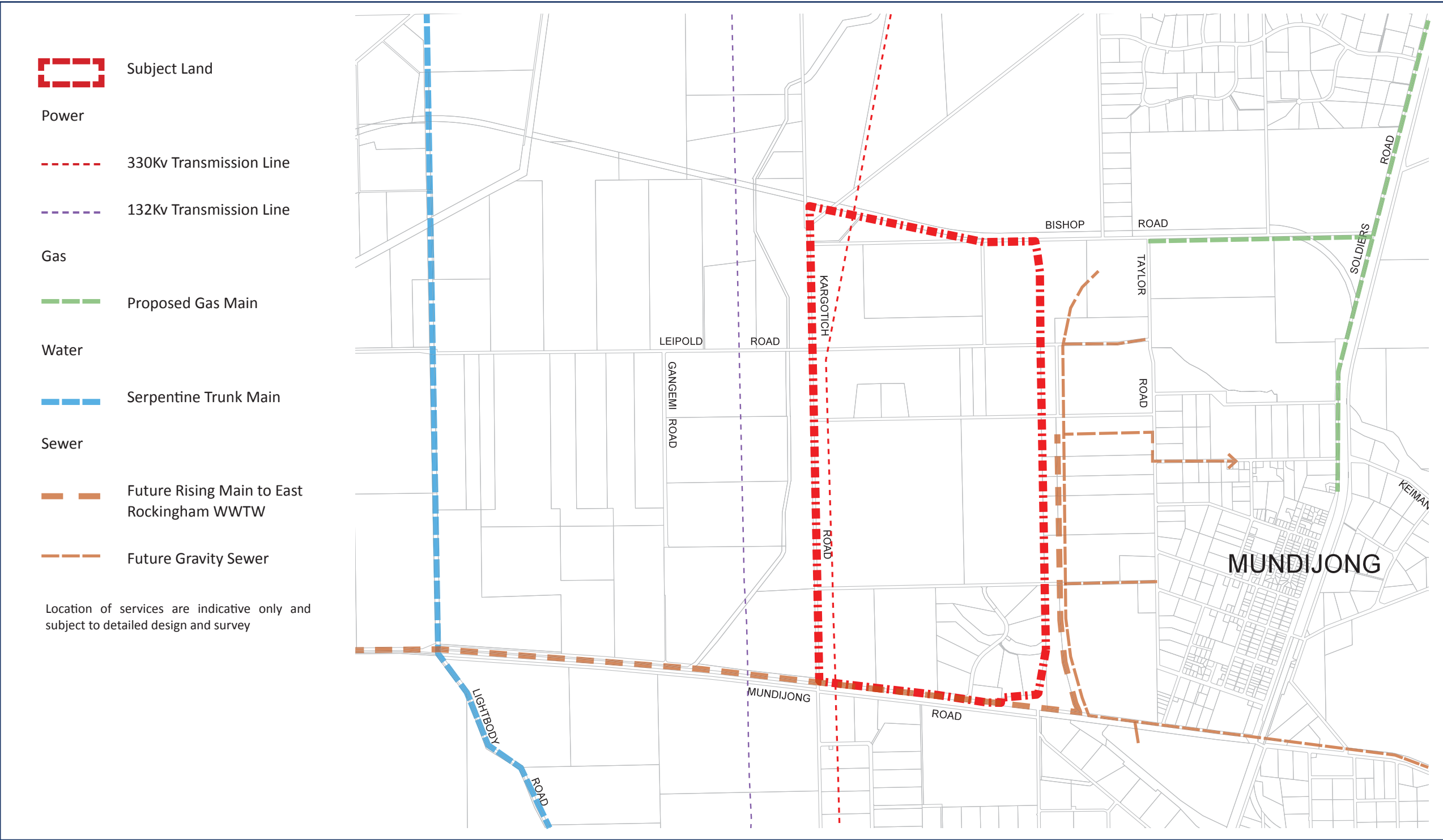


Figure 12 - Servicing Plan

WEST MUNDIJONG INDUSTRIAL AREA
DISTRICT STRUCTURE PLAN REPORT





APPENDIX A

ENVIRONMENTAL ASSESSMENT REPORT – INCLUDING NOISE ASSESSMENT REPORT



WEST MUNDIJONG INDUSTRIAL AREA
DISTRICT STRUCTURE PLAN REPORT





APPENDIX B

DISTRICT WATER MANAGEMENT STRATEGY AND ASSOCIATED DOCUMENTS



WEST MUNDIJONG INDUSTRIAL AREA
DISTRICT STRUCTURE PLAN REPORT





APPENDIX C

TRAFFIC IMPACT STATEMENT

