Development Services Attachments
ORDINARY MEETING OF COUNCIL
Wednesday 21 November 2018

FORM B2
B6053
WESTERN AUSTRALIA
TRANSFER OF LAND ACT 1893 AS AMENDED

Date

BLANK INSTRUMENT FORM

RESTRICTIVE COVENANT

(Note 1)

THIS RESTRICTIVE COVENANT is made the PLEASE DO day of NOT DATE 2018.

BETWEEN:

DEREK ROSE GASCOINE of [redacted] and DALE MAREE HARPER of [redacted] (together, the "Subdividers")

AND

SHIRE OF CHITTERING of PO Box 70, Bindoon, Western Australia ("Local Government")

RECITALS:

A. The Subdividers are registered as the proprietors of an estate in fee simple in the land described in Item 1 of the Schedule hereto ("Land Burdened").

B. The Land Burdened is subject to the encumbrances noted in Item 2 of the Schedule.

C. The Land Burdened is situated within the district of the Local Government.

D. The Subdividers have sought and received conditional approval from the Western Australian Planning Commission ("WAPC") by Application Number 156152 ("approval") to subdivide the land to create the Land Burdened.

E. The approval is subject to a number of conditions, including to the following:

2. A restrictive covenant, to the benefit of the local government, pursuant to section 129BA of the Transfer of Land Act 1893 is to be placed on the certificate of title of proposed Lot 101 advising of the existence of a restriction on the land. Notice of this restriction of is to be included on the diagram or plan of survey (deposited plan). The restrictive covenant is to state as follows:

"No buildings and effluent disposal systems are to take place outside the defined building envelope, unless otherwise approved by the local government."

("Condition 2")

F. The Subdividers enter into this Deed to create, to the benefit of the City and pursuant to section 129BA of the *Transfer of Land Act 1893* the restrictive covenant required to comply with Condition 2 of the approval.

OPERATIVE PART:

1. SUBDIVIDERS COVENANTS

The Subdividers for themselves and their successors in title with the intention of binding so far is possible the Land Burdened in the hands of whoever it may come HEREBY COVENANT with the Local Government under and by virtue of the provisions of section 129BA of the *Transfer of Land Act 1893* for the benefit of the Local Government not to construct nor permit the construction of any buildings or effluent disposal systems on the Land Burdened outside of the defined building envelope unless otherwise approved by the Local Government.

2. COSTS

The Subdividers shall pay the costs of and incidental to the preparation, execution, stamping and registration of this Deed and all stamp duties and registration fees payable hereon including all costs associated with the modification or removal of the restrictive covenant created in this Deed.

3. INTERPRETATION

In this Deed:

Reference to the parties includes their personal representatives, successors and lawful assigns.

Where a reference to a party includes more than one person the rights and obligations of those persons shall be joint and several.

Headings have been inserted for guidance only and shall be deemed not to form part of the context.

The Schedule and Annexures (if any) form part of this Deed.

SCHEDULE

ITEM 1: LAND BURDENED

Lot 101 on Deposited Plan 414020 and being the whole of the land comprised in Certificate of Title Volume Folio

ITEM 2: ENCUMBRANCES

1. Restrictive Covenant under s129BA of the *Transfer of Land Act 1893* for the benefit of the Conservation and Land Management Executive Body.

2. Notifications pursuant to s70A of the of the *Transfer of Land Act 1893* as noted on Deposited Plan 414020.

3. Notification pursuant to s165 of the of the *Planning and Development Act 2005* as noted on Deposited Plan 414020.

EXECUTED by the Parties as a Deed:

Executed by DEREK ROSE GASCOINE
In the presence of:

[redacted]

Witness sign

MARIE ANNE ASHTON.

Full name of witness

[redacted]

Witness address

FARM MANAGER.

Witness occupation

[redacted]

Executed by DALE MAREE HARPER
In the presence of:

[redacted]

Witness sign

MARIE ANNE ASHTON

Full name of witness

[redacted]

Witness address

FARM MANAGER.

Witness occupation

The COMMON SEAL of the SHIRE OF CHITTERING
was hereunto affixed in the presence of:

Chief Executive Officer

Print Full Name

Mayor

Print Full Name

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INSTRUCTIONS

1. This form may be used only when a "Box Type" form is not provided or is unsuitable. It may be completed in narrative style.
2. If insufficient space hereon Additional Sheet Form B1 should be used.
3. Additional Sheets shall be numbered consecutively and bound to this document by staples along the left margin prior to execution by the parties.
4. No alteration should be made by erasure. The words rejected should be scored through and those substituted typed or written above them, the alteration being initialled by the persons signing this document and their witnesses.

NOTES

1. Insert document type.
2. A separate attestation is required for every person signing this document. Each signature should be separately witnessed by an Adult Person. The full name, address and occupation of the witness must be stated.

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PREPARED BY:

ADDRESS:

PHONE No.

FAX No.

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TITLES, LEASES, DECLARATIONS ETC LODGED HEREWITH

1._____ Received Items

2._____ Nos.

3._____

4._____

5._____ Receiving Clerk

6._____

Registered pursuant to the provisions of the *TRANSFER OF LAND ACT 1893* as amended on the day and time shown above and particulars entered in the Register.

Landgate

THE GOVERNMENT OF WESTERN AUSTRALIA

FORM N1

WESTERN AUSTRALIA
TRANSFER OF LAND ACT 1893 AS AMENDED

NOTIFICATION UNDER SECTION 70A

DESCRIPTION OF LAND (Note 1)	EXTENT	VOLUME	FOLIO
LOTS 100 AND 101 ON DP 414020	WHOLE		

REGISTERED PROPRIETOR (Note 2)

Derek Rose Gascoine
[redacted]
Dale Maree Harper
[redacted]

LOCAL GOVERNMENT / PUBLIC AUTHORITY (Note 3)

SHIRE OF CHITTERING

FACTOR AFFECTING USE OR ENJOYMENT OF LAND (Note 4)

A mains potable water supply is not available to the lot.

Dated this day of Year

LOCAL GOVERNMENT/PUBLIC AUTHORITY ATTESTATION (Note 5)

REGISTERED PROPRIETOR/S SIGN HERE (Note 6)

Signed [redacted]

in the presence of

MARIE ANNE ASHTON
[redacted]

Signed [redacted]

in the presence of

MARIE ANNE ASHTON
[redacted]

INSTRUCTIONS

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   State the name of the Local Government or the Public Authority preparing and lodging this notification.
4. **FACTOR AFFECTING THE USE AND ENJOYMENT OF LAND**
   Describe the factor affecting the use or enjoyment of land.
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Landgate

EXAMINED

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NOTIFICATION

LODGED BY

ADDRESS

PHONE No.

FAX No.

REFERENCE No.

ISSUING BOX No.

THE COMMON SEAL of the SHIRE OF was hereunto affixed in the presence of _____

PREPARED BY STEPHEN LOWTH

ADDRESS PO BOX 921 HILLARYS 6923

PHONE No. 0417922006 FAX No.

REFERENCE No. 18018

INSTRUCT IF ANY DOCUMENTS ARE TO ISSUE TO OTHER THAN LODGING PARTY

TITLES, LEASES, DECLARATIONS ETC LODGED HEREWITH

1. _____
2. _____
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6. _____

Received Items

Nos.

Receiving Clerk

Lodged pursuant to the provisions of the *TRANSFER OF LAND ACT 1893* as amended on the day and time shown above and particulars entered in the Register.

FORM NT

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TRANSFER OF LAND ACT 1893 AS AMENDED

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LOT 101 ON DP 414020	WHOLE		

REGISTERED PROPRIETOR (Note 2)

DEREK ROSE GASCOINE [redacted]

DALE MAREE HARPER [redacted]

LOCAL GOVERNMENT / PUBLIC AUTHORITY (Note 3)

SHIRE OF CHITTERING

FACTOR AFFECTING USE OR ENJOYMENT OF LAND (Note 4)

A network electricity supply is not avalable to the lot.

Dated this day of Year

LOCAL GOVERNMENT/PUBLIC AUTHORITY ATTESTATION (Note 5)

REGISTERED PROPRIETOR/S SIGN HERE (Note 6)

Signed [redacted]

in the presence of [redacted] JACKSON ARIAS [redacted]

Signed [redacted]

in the presence of MARIE ANNE ASHTON [redacted]

INSTRUCTIONS

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PREPARED BY STEPHEN LOWTH

ADDRESS PO BOX 921 HILLARYS 6923

PHONE No. 0417922006 FAX No.

REFERENCE No. 18018

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LOTS 100 AND 101 ON DP 414020	WHOLE		

REGISTERED PROPRIETOR (Note 2)

DEREK ROSE GASCOINE
[redacted]
DALE MAREE HARPER
[redacted]

LOCAL GOVERNMENT / PUBLIC AUTHORITY (Note 3)

SHIRE OF CHITTERING

FACTOR AFFECTING USE OR ENJOYMENT OF LAND (Note 4)

A reticulated sewerage service is not available to the lot

Dated this day of Year

LOCAL GOVERNMENT/PUBLIC AUTHORITY ATTESTATION (Note 5)

REGISTERED PROPRIETOR/S SIGN HERE (Note 6)

Signed [redacted]

in the presence of MARIE ANNE ASHTON
[redacted]

Signed [redacted]

in the presence of MARIE ANNE ASHTON
[redacted]

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THE COMMON SEAL of the SHIRE OF was hereunto affixed in the presence of _____

PREPARED BY SURVEYLINE SURVEYORS

ADDRESS PO BOX 921 HILLARYS 6923

PHONE No. 0417922006 FAX No.

REFERENCE No. 18018

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Plan Information

Tenure Type	Freehold
Plan Type	Deposited Plan
Plan Purpose	Subdivision

Plan Heading

LOTS 100 AND 101

Locality and Local Government

Locality	BINDOON
Local Government	SHIRE OF CHITTERING

Planning Approval

Planning Authority	WAPC
Reference	156152

Roads

Private Road or Private Right of Way Acquired	No
Road Closure Action	No
New Road or Road Extension Created	No
Road Name Approval Exemption	No

Survey Details

Survey Method	Conventional Survey
Field Records	140612
Declared as Special Survey	No

Survey Certificate - Regulation 54

I hereby certify that this plan is accurate and is a correct representation of the:
(a) * survey; and/or
(b) * calculations and measurements;
[* delete if inapplicable]
undertaken for the purposes of this plan and that it complies with the relevant written law(s) in relation to which it is lodged.

Licensed Surveyor | Date

Survey Organisation

Name	SURVEY LINE CONSULTING SURVEYORS
Address	HILLARYS 6025
Phone	9349 2062
Fax	9349 2167
Email	stephen@surveyline.com.au
Reference	18018

Former Tenure

New Lot / Land	Parent Plan Number	Parent Lot Number	Title Reference	Parent Subject Land Description
100-101	D64693	LOT 14	1820-38	

Former Tenure Interests and Notifications

Subject	Former Tenure	Action	Lots On This Plan	Origin	Endorsement	Comments
	14/D64693			DOC I037657	EASEMENT BENEFIT REGISTERED 8/3/2002.	

New Interests

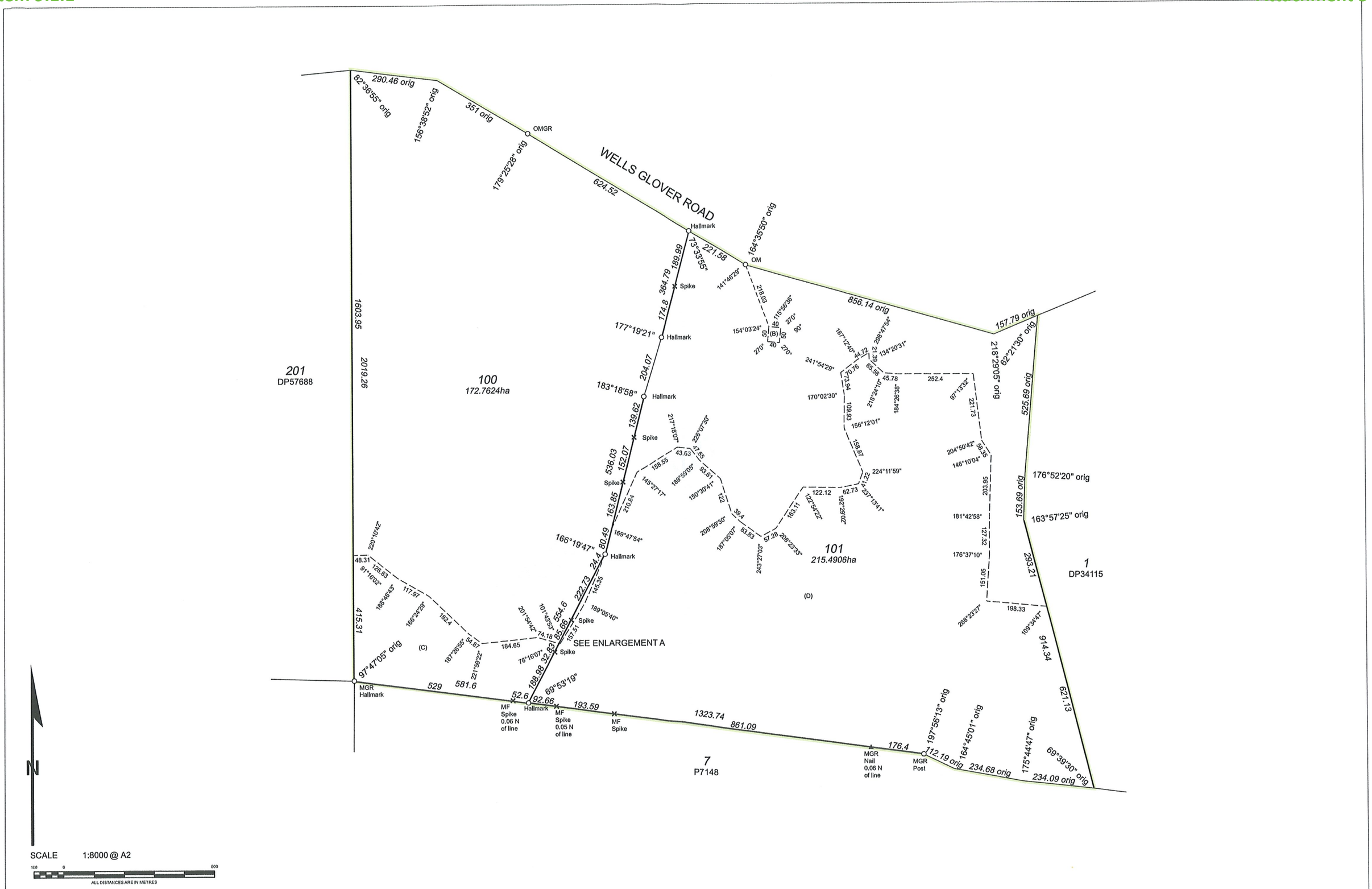
Subject	Purpose	Statutory Reference	Origin	Land Burdened	Benefit To	Comments
(B)	RESTRICTIVE COVENANT	SEC. 129BA OF THE TLA 1893	DOCUMENT	LOT 101	SHIRE OF CHITTERING	No building development outside building envelope (B)
(C)	RESTRICTIVE COVENANT	SEC. 129BA OF THE TLA 1893	DOCUMENT	LOT 100	CONSERVATION AND LAND MANAGEMENT EXECUTIVE BODY	Protection of native flora and fauna
(D)	RESTRICTIVE COVENANT	SEC. 129BA OF THE TLA 1893	DOCUMENT	LOT 101	CONSERVATION AND LAND MANAGEMENT EXECUTIVE BODY	Protection of native flora and fauna

New Memorials and Notifications

Subject	Purpose	Statutory Reference	Origin	Land Burdened	Benefit To	Comments
	NOTIFICATION (Factors Affecting Use or Enjoyment of Land)	SEC. 70A OF THE TLA 1893	DOCUMENT	LOTS 100-101		A mains potable water supply is not available to the lots
	NOTIFICATION (Factors Affecting Use or Enjoyment of Land)	SEC. 70A OF THE TLA 1893	DOCUMENT	LOT 101		A reticulated sewerage service is not available to the lot
	NOTIFICATION (Factors Affecting Use or Enjoyment of Land)	SEC. 70A OF THE TLA 1893	DOCUMENT	LOT 101		A network electricity supply is not available to the lot
	NOTIFICATION (Hazards or Other Factors)	SEC. 165 OF THE P&D ACT 2005	DOCUMENT	LOTS 100-101		Subject to a bushfire management plan

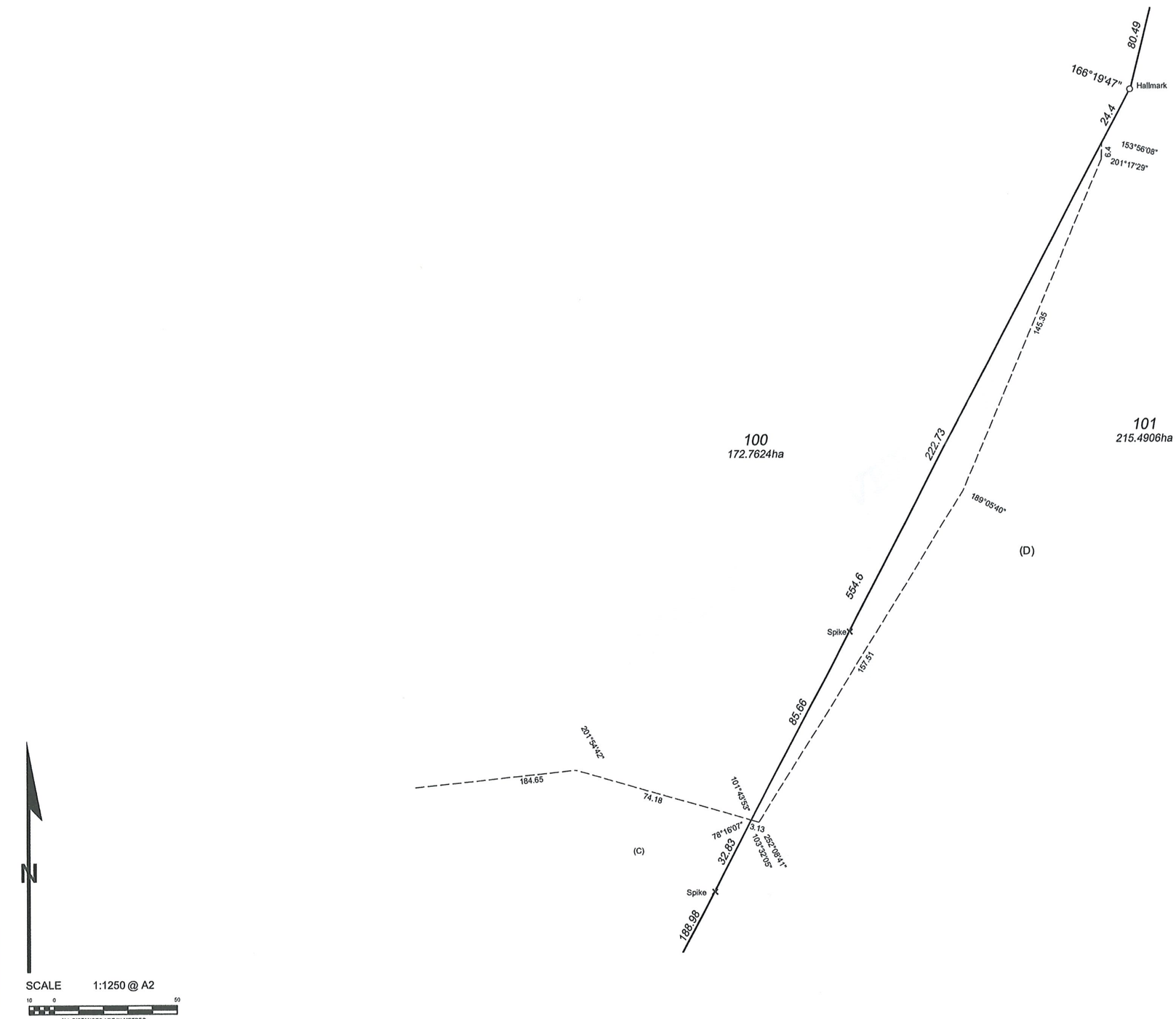
WESTERN AUSTRALIA Landgate Survey Line Consulting Surveyors

ADDITIONAL SHEETS	SHEET		SHEETS	VERSION NUMBER	DEPOSITED PLAN
ENDORSEMENT SHEET	1	OF	3	1	414020



ADDITIONAL SHEETS ENDORSEMENT SHEET	SHEET 2 OF	SHEETS 3	VERSION NUMBER 1	DEPOSITED PLAN 414020

A



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ADDITIONAL SHEETS ENDORSEMENT SHEET	SHEET 3 OF SHEETS 3	VERSION NUMBER 1	DEPOSITED PLAN 414020

Muchea Industrial Park

Design Guidelines

Contents Page

STATUTORY CONTEXT

The Muchea Industrial Park Design Guidelines ('Design Guidelines') have been prepared to guide landowners and assist the Shire of Chittering in achieving a high standard of development within the Muchea Employment Node Special Control Area (MEN SCA) as defined under Local Planning Scheme No. 6 (LPS 6).

The Design Guidelines have been adopted by the Shire of Chittering under the provisions of LPS 6 and have the same status as a Local Planning Policy adopted under the Scheme. The Design Guidelines do not form part of LPS 6 and shall not bind the Shire of Chittering in respect of its consideration of any scheme amendment, structure plan, subdivision application or application for planning approval. This notwithstanding, the Shire of Chittering shall have due regard to the objectives of the Design Guidelines before making its decision in relation to any planning application.

The Design Guidelines are also intended to assist the Western Australian Planning Commission (WAPC) in its consideration of scheme amendment, structure plan and subdivision proposals.

In the event of any inconsistency between the Design Guidelines and the Scheme, the Scheme shall prevail.

BACKGROUND

The Muchea Industrial Park (MIP) comprises an area of 1,113ha within the Shire of Chittering and is located approximately 2km east of the Muchea Town Centre. The MIP was identified in the North East Corridor Extension Strategy (WAPC, 2003) as having potential as an industrial area. Further planning studies have since been undertaken which resulted in the Muchea Employment Node Structure Plan Final Report (WAPC 2011). Subsequently, Amendments 52, 60 and 62 to LPS 6 have included Scheme provisions relating to subdivision and development in the MIP.

There are four primary precincts in the MIP requiring landowner coordination and structure planning to deliver services and infrastructure such as power, reticulated water, roads and drainage, as follows:

- Precinct 1 (North A and North B)
- Precinct 2 South
- Precinct 3 West
- Precinct 4 East

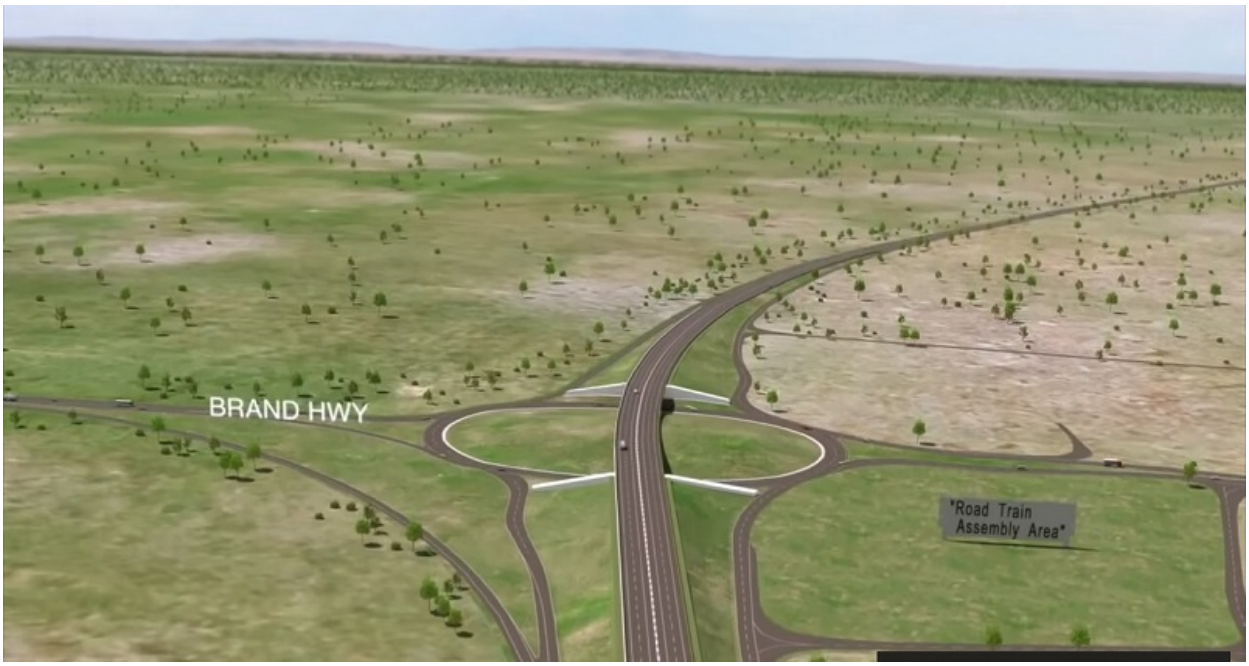
The Muchea Employment Node (Lot 102 Great Northern Hwy) Local Structure Plan 1 which relates to Precinct 1 North A, was approved by the WAPC on 13 October 2017.

Several small lots adjacent to Muchea East Road and Great Northern Highway, being Lots 700, 701 and 352 (previously described as Lots 100 and 101) and 102, M1606, 22, 30, 202, 3 and 201, are exempt from this structure planning requirement, however will be required to apply for development approval prior to development commencing.

In addition to LPS 6 and any approved Structure Plans, the Design Guidelines are intended to be read in conjunction with the Road and Drainage Guidance Note- Muchea Industrial Park, Porter Consulting Engineers (2018). A copy of this supporting document is available from the Shire of Chittering.

In 2016, construction of the Northlink WA project commenced which provides a transport link between Morley and Muchea. The northern section, ending at Muchea, is projected to be completed in mid-2019. Such significant infrastructure contributes to the current demand for industrial land in the MIP.

Main Roads WA has confirmed that subject to technical assessments Restricted Access Vehicles (RAV) up to RAV 10 will be able to use the Great Northern Highway, for access and egress to site, generally in accordance with the WAPC Structure Plan. Further once the upgrades to Great Northern Highway are complete RAV 10 vehicles will be permitted to travel to Muchea where a road train breakdown assembly area will be provided. It is considered appropriate and opportune to cater for this vehicle configuration throughout and where feasible in the MIP.



The MIP area, whilst considered suitable for industrial development, is not considered appropriate for certain industrial land uses that could cause harm to the environment. The Muchea Employment Node Structure Plan Final Report identified the following land uses as 'not permitted':

- Industry – hazardous, mining; and
- Industry – Noxious (Chicken litter fired power plant).

The MIP is located in the Ellen Brook Catchment of which a tributary ultimately leads to the Swan River environs. In this regard, water quality is paramount and developers will be required to demonstrate consideration for both hydrology and hydrogeology in the MIP area at both a catchment and local level.

The visual appearance of the MIP area is important particularly as it is located at the southern gateway to the Shire of Chittering adjacent to major road links including Northlink and the Great Northern Highway.

The MIP will deliver significant productivity benefits to the economy, industry, transport and the local community. Industrial land uses will be considered having ultimate regard for LPS 6 provisions.

1.0 PURPOSE OF THE DESIGN GUIDELINES

The MIP is intended to provide for service based and complementary industrial uses related to transport, livestock, fabrication, warehousing, wholesaling and general commercial use.

The purpose of the Design Guidelines is to ensure a high standard of industrial development that considers provision of servicing infrastructure, visual amenity, traffic access and egress and protection of the Ellen Brook Catchment.

2.0 AREA SUBJECT TO THE DESIGN GUIDELINES

The land identified within the MEN SCA in Schedule 11 of LPS 6 shall be developed having due regard to the Design Guidelines. The area subject to the Design Guidelines is defined by the 'study boundary' relating to the Muchea Employment Node Structure Plan at **Figure 1** and Precinct 1 North A Structure Plan (Lot 102) area approved 13/10/17.

The Shire may also refer to the Design Guidelines to inform its consideration of any other industrial development within the Shire of Chittering.

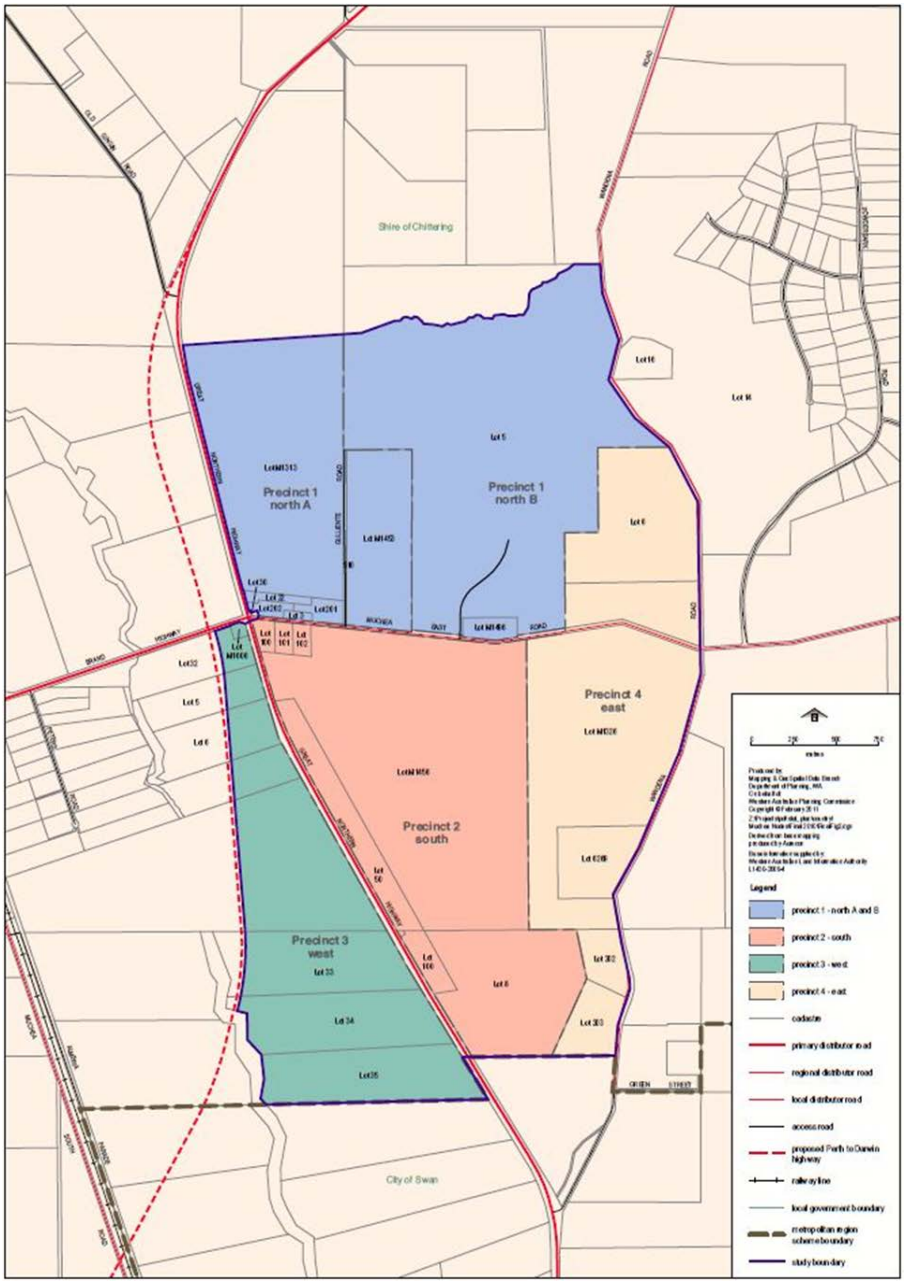


FIGURE 1 - AREA SUBJECT TO DESIGN GUIDELINES

3.0 NON RESIDENTIAL AMENITY CONSIDERATIONS UNDER LPS 6

The Design Guidelines are intended to achieve the following principles set out in clause 4.20 of LPS 6:

a) *the form and scale of the development is to be compatible with surrounding land uses;*

b) *the impacts of the development are to be contained on site and/or suitably managed off-site;*

c) *the impact of the development on the road network and traffic management is to be consistent with the road function and hierarchy;*

d) *adequate provision is to be made for parking for staff and visitors, with separation between staff / visitor parking and service / haulage vehicles;*

e) *buildings are to have co-ordinated or complementary materials, colours and styles, including:*

   i. *doors, windows and building materials that develop a coherent pattern, and are proportional to the building; and*

   ii. *screening of services and areas for waste management and essential services (eg air conditioning units).*

f) *visual impacts to be minimised by the use of vegetation screening, tree retention and building orientation;*

g) *landscaping to be provided, to a minimum of 10 per cent of the site area, using plant species approved by the local government, including provision of shade trees at 1 per 4 car bays;*

h) *the use of front fencing, is to be minimised and where required, fencing to be set back to the building line and behind the landscaped area where feasible, and coloured matt black or other dark tones;*

i) *external lighting shall be designed to minimise light spill and glare on adjoining properties;*

j) *storage of plant and equipment to be screened or remote from public areas, particularly from the street, and provision made on site for a loading bay where the land use requires it;*

k) *use of 'on building' signage where the building addresses the street, and where 'freestanding' signage is necessary it should either be affixed to a front fence, or located adjacent to it at a height that is compatible with the setting.*

4.0 IMPLEMENTATION

All development in the MIP shall comply with the following requirements which may be required by the Shire at Scheme Amendment, structure planning, subdivision or development stage.

4.1 LAND USE AND INDUSTRIAL DESIGN

i) Land use permissibility shall be in accordance with LPS 6 having due regard to any approved Structure Plans applicable to the area.

ii) The design of industrial buildings will be guided by the proposed use and in accordance with any approved Structure Plans. It should be noted that design requirements may differ between the Precincts.

In the event a licensed reticulated water scheme is not provided and connected to the MIP reticulated system, permissible land uses will generally be limited to transport depot, storage, warehouse, landscape supplies. Alternatively, land uses will be in accordance with the appropriate zone as per the LPS 6 Zoning Table.

4.2 SITE PLANNING

4.2.1 Site Cover

Objective

Development will contribute to the desired streetscape in order to create attractive and high quality built form within the MIP.

Acceptable Development Criteria

i) Site Cover will be assessed on a case by case basis, having regard to:

- The intended or preferred uses for the site prescribed under an approved Structure Plan;
- Existing vegetation;
- Lot size;
- Soil conditions, including the requirements of any approved Local Water Management Strategy or Urban Water Management Plan; and
- The requirements of any other management plans prepared in support of a Structure Plan.

4.2.2 Streetscape

Objective

Development is to address and activate the street in order to create an attractive and safe environment within the MIP.

Acceptable Development Criteria

i) Achieving the minimum setback of 6m for the administration, reception, customer and staff areas component of industrial development is encouraged for the purpose of achieving the streetscape objective.

ii) The street setback area (15m) may be used for landscaping, car parking and vehicular access and is not to be used for outdoor storage. Council may approve the street setback area for trade display.

SETBACK	DISTANCE
Primary Street – Office	6m
Primary Street – General Industrial Land Uses	15m
Secondary Street	3m
Rear	3m
Side Setback	3m
Great Northern Highway (rear)	15m

TABLE 1 – MINIMUM SETBACK DISTANCES

4.2.3 Stormwater Management

Objective

Stormwater will be managed appropriately and in accordance with an approved Urban Water Management Plan, to minimise stormwater runoff and impacts on the surrounding land.

Acceptable Development Criteria

Stormwater management requirements should be read in conjunction the Stormwater Drainage Design Guidance Note – Muchea Industrial Park.

i) All storm water management is to be constructed and maintained in accordance with an approved urban water management plan (UWMP).

ii) A stormwater management plan is required to be prepared by a qualified civil engineer and provided at development application stage.

VEGETATED STORMWATER SWALE CONCEPT

4.2.3.1 Lot Drainage

i) The 1 hour 100% Annual Exceedance Probability (AEP) rainfall event runoff shall be treated within respective lots. The use of bio-retention/infiltration areas and swales will be the primary measure employed.

ii) Detain flows from major rainfall events up to the 1% AEP event to limit the predevelopment peak flow rates within respective lots. Expected measures could be in the form of detention/infiltration basins or localised flooding to 500mm below finished floor levels (i.e. to carparks and non-critical areas), with outflows limited to pre-development flow rates.

iii) Design drainage basin areas and swales to avoid creating mosquito habitat with flood storage structures to consider a low flow discharge to prevent prolonged standing water.

iv) Apply appropriate structural and non-structural measures to reduce nutrient loads, typically utilising bio-retention areas, treatment swales, maintenance of drainage structures, removing/sweeping of silt and soil from roads.

v) Finished floor levels to have a minimum 500mm clearance from the 1% AEP water level in drainage structures or waterways.

4.2.3.2 Road Drainage

i) Treat the 1 hour 100% AEP rainfall event runoff from the road reserves within the road reserve boundary. It is expected that the use of roadside swales located in the verges will be adopted to convey runoff to bio-retention areas and storage areas.

ii) Detain flows from major rainfall events up to the 1% AEP to limit the pre-development peak flow rates within road reserves. It is expected that flood storage areas will be provided within road reserves in order to maintain pre-development flows.

4.2.4 Effluent Disposal

Objective

Effluent disposal shall be managed in accordance with Scheme requirements to ensure no adverse environmental or health impacts within the MIP or on surrounding land.

Acceptable Development Criteria

i) Where an on-site wastewater disposal system is proposed –

- Land capability assessment may be required at development application stage to demonstrate the capability of the site to manage wastewater and the suitability of the proposed system;
- The use of fill and drains to achieve the required separation from groundwater is to be limited; and
- A suitable and unencumbered land application area is to be set aside to distribute treated sewage.

ii) Within sewerage sensitive areas, secondary treatment systems with nutrient removal are to be utilised;

iii) Industrial development is to be restricted to 'dry industry' being land uses that intend to dispose of wastewater on site to the environment of a kind and volume ordinarily discharged from a habitable building at a daily volume of less than 540 litres per 1,000m^2 of the site area;

iv) Where trade waste is to be managed and/or disposed of on-site or off-site the associated risks must be identified and addressed, at development application stage including the vulnerability of the receiving environment.

Note: Clause 4.9 of LPS 6 - Requirements for Industrial Zones and Land Uses

4.2.5 Road Design

4.2.5.1 Provision for Restricted Access Vehicles

Objective

The road network is designed to ensure safe and efficient movement of traffic to and from each site within the MIP.

Acceptable Development Criteria

i) All subdivisional roads are to be designed in accordance with a RAV network Strategy required at Local Structure Planning/subdivision or development stage.
ii) To consider and provide for access and egress of restricted access vehicles (Category 10) (RAV10) which includes triple road trains of up to 53.5m in length, unless otherwise approved by both the local government and the Western Australian Planning Commission.
iii) Road reserves widths will be greater where drainage swales are included in design.

(Nb; refer to Road and Drainage Guidance Note- Muchea Industrial Park, Porter Consulting Engineers, (2018) for additional information).

4.2.5.2 Service Roads adjacent to Great Northern Highway

Objective

To provide a high quality development interface to Great Northern Highway.

Acceptable Development Criteria

i) Service roads should be provided adjacent to Great Northern Highway at structure planning stage to enable development to address the highway. Where provision of a service road is not practical, the rear or side of development sites shall be subject to a higher landscaping expectation to be addressed via a landscaping plan at development application stage.

4.2.6 Earthworks

Objective

To ensure that all earthworks are completed in a manner that supports and implements an approved urban water management plan and stormwater management plan, having regard to streetscape objectives of the MIP.

Acceptable Development Criteria

i) Site works consistent with a bulk earthworks strategy prepared and approved at structure plan or subdivision stage.

ii) Site works for cut and fill requirements will be limited at the subdivision stage. Where required, earthworks will be assessed based on proposed land uses at the time of the development application.

iii) Site works should have consideration for onsite native vegetation which shall be retained where practical.

4.2.7 Fencing

Objective

Fencing is to promote passive surveillance of the public realm and ensure safe, attractive and coordinated streetscapes.

Acceptable Development Criteria

i) Use of front fencing, is to be minimised and where required, fencing to be set back to the building line and behind the landscaped area where feasible, and coloured matt black or other dark tones;

ii) Fencing within the street setback area shall be high quality open fencing, being 50% visually permeable (E.g. powder coated garrison fencing) to a maximum height of 1.8m.

iii) Fencing within the street setback shall be setback a minimum of 2m with landscaping in front of the fence up to the property boundary.

iv) Alternative materials including link mesh fencing may be used behind the street setback area.

v) Solid screen fencing will not be permitted in front of the building setback line.

vi) Applications for development on lots adjacent to Great Northern Highway are required to be supported by a Visual Impact Assessment, prepared by a suitably qualified consultant, demonstrating how an appropriate interface to Great Northern Highway can be achieved.

VERTICAL GARRISON FENCING

4.2.8 Landscaping

Objective

Developments are to incorporate quality native landscaping that performs on a functional, aesthetic and sustainable level.

Acceptable Development Criteria

i) A landscaping plan shall be submitted at development application stage which demonstrates the following:
- Use of flora species native to the area;
- Landscaping utilising low water usage plants and grouping of plants with similar water requirements;
- Maintenance and replacement plant program to be undertaken by the owner of the lot;
- Minimum of 2m landscape buffer along the primary street frontage of the lot with allowance for a 1m landscape buffer along secondary street boundary;
- Minimum of 1m landscape buffer on side boundaries from front boundary to the building setback line;
- Shade trees to be provided in the car parking area at a minimum ratio of one tree per four car parking bays; and
- One tree is required every 10 metres of lot frontage.

ii) A landscape plan is required to be prepared and submitted at the development application stage by a suitably qualified professional. It is recommended the Proponent's landscape consultant liaises with the Chittering Landcare Centre in order to plant appropriate landscaping vegetation that has regard for the local environment.

iii) Landscaping shall have regard to the requirements of any Local Water Management Strategy or Urban Water Management Plan (UWMP) applicable to the site.

iv) Landscaping within the road reserve, if required as a condition of subdivision approval, will be maintained by the subdivider for a further two summers following implementation of a landscape plan.

4.2.9 Signage

Objective

Signage will be sensitively designed and located so as not to detract from the façade or streetscape, and not be excessive in scale or quantity.

Acceptable Development Criteria

The key objective of these provisions is to provide guidance on the design and placement of the common forms of advertising signs within the MIP. Where conflict between the Design Guidelines and other Local Planning Policies relating to signage exists, the Design Guidelines shall prevail to the extent of the conflict where applied within the MIP area.

i) All signage within the MIP shall be subject to Development Approval from the Shire.

ii) A Signage Strategy, being an overall plan for the whole of the development site or area, showing the location, type, size and design of all existing and proposed signs, as well as the outline of any buildings, landscaping, car parking areas, vehicular access points etc. will be required to be submitted upon application for development approval for:

- All new buildings where multiple tenancies are proposed;
- Signs for subdivision or development estates which propose more than ten lots;
- Signage where the total number of signs (existing and proposed) on the site exceeds a total of four.
- Involving a variation to the requirements of this Policy;

The strategy should explain and demonstrate the need for the extent and design of signs proposed, having regard to the objectives of the Design Guidelines and should seek to integrate the signage with the building design, particularly through the provision of signage panels within the building facades.

Recognising that specific uses may not be known at the development approval stage, it is not necessary to include specific signage content in the signage strategy.

Once approved, all subsequent sign applications will be assessed against previously approved signage strategies. Modifications to the signage strategy to permit additional signage will be subject to a further approval and will need to be further justified.

iii) The following provisions apply to all signage applications:

- A proliferation of signage on a property will not be supported;
- Signage will not be supported in any thoroughfare;
- Fencing signage will generally not be supported;
- Signage on entry statement walls may be permitted subject to it providing a clear statement/direction to the primary entry of the business;
- Signage shall not be hazardous to pedestrians on-site due to their location, size and materials;
- Signage shall not advertise activities/businesses on land other than the land which the advertising signage is located (no third-party advertising);
- Signage shall not distract/cause a hazard to traffic as a result of location, size, content and illuminance of signage;
- Illuminated signs shall not pulsate, chase or flash.

iv) Signage on lots with frontage to Tonkin Highway and Great Northern Highway shall be subject to meeting the following additional objectives:

- Signage shall not adversely impact and/or detract from the amenity and vista of the adjacent Highway; and
- Signage shall not detract from the architectural merit of a building(s) where appropriate.

N.B. Signage on land abutting a road under management of Main Roads WA (MRWA) is required to comply with MRWA's *Policy and Application Guidelines for Advertising Signs Within and Beyond State Road Reserves*.

4.2.10 Entry Statements

Objective

To provide guidance for the acceptable design and development standards for entrance signs/statement and to encourage the use of natural material with local themes.

Acceptable Development Criteria

i) Council may require entrance statements in strategic locations within the MIP. Given that the Great Northern Highway traverses the site in some cases, Main Roads WA permission may be required. In some instances lots may require a greater corner truncation to allow area for the entrance statement. The cost of design, illumination and construction shall be borne by the Proponent, if required. Council will contribute "in-kind" to the ongoing maintenance costs of the structure and landscaping following a Proponent maintenance period of 2 years.

ii) Design and materials:

- Encourage the use of Shire of Chittering Logo where possible;
- Masonry walls shall be constructed in dark render or stone;
- "Muchea Industrial Park" with a shire logo or environmental pattern will be encouraged in same material i.e. (stainless steel/iron lettering-laser cut);
- Solar power and low energy lighting is encouraged;
- Native plants are to be used which are endemic to the locality with low water requirements for landscaping;
- Turf is not permitted;
- Anti-graffiti treatment is required on all surfaces.

iii) Development approval and a Building Licence will be required including the permission of Council to locate the structure.

ENTRY STATEMENT CONCEPTS

4.2.11 Parking & Service Access

Objective

Developments will incorporate sufficient on site car parking to be designed and located to minimise any adverse impacts on the streetscape. The design and location of vehicle access points to meet the needs of businesses whilst not compromising safety, building design or drainage swale functionality.

Acceptable Development Criteria

i) All car parking will be provided onsite and designed in accordance with the Australian Standard for off-street parking. It will be paved, kerbed, drained and marked to the satisfaction of the Shire.

ii) Loading and unloading provision is to be made behind the street setback area, marked appropriately and screened from public view.

iii) Driveway access will not be permitted from Great Northern Highway, unless approved by Main Roads Western Australia.

iv) Parking areas and crossovers shall be constructed and drained to ensure stormwater is disposed of on-site.

v) Access shall be provided for loading and unloading of vehicles to the rear including any part of the development where provision is made in the external walls of the building. A paved access way shall be provided unless otherwise approved by Council.

vi) All access ways shall allow for all service and delivery vehicles to enter the lot and return to the street in forward gear with access ways being a minimum 4.5 metres in width for each direction of travel (i.e. two way access is to be 9 metres in width).

Parking ratios are set out in **Table 2 - Car Parking Standards**.

4.2.11.1 End of Trip Facilities

i) Local government may require the provision of bicycle parking and end of trip facilities such as showers, change rooms and lockers in commercial and industrial development.

USE	NUMBER OF CAR PARKING BAYS
Abattoir	1 bay per employee
Animal Husbandry/Intensive	1 bay per employee
Aquaculture	1 bay per employee
Factory Unit	1 bay per employee plus 3 bays for every 50 square metres of retail floor bays
Farm Supply Centre	1 bay per 50 square metres of sales and display area but not less than 5 plus 1 bay per employee
Fuel Depot	1 bay per employee
Garden Centre	1 bay per 50 square metres of sales and display area but not less than 5
Industry-General	1 bay per 100 square metres of GLA plus 1 bay per employee but not less than 6 bays
Industry-Light	1 bay per 100 square metres of GLA plus 1 bay per employee but not less than 6 bays
Industry-Rural	1 bay per 100 square metres GLA or 1 bay per employee, whichever is greatest
Industry-Service	4 bays per 100 square metres GLA
Landscape Supplies	1 bay per 100 square metres of GLA plus 1 bay per employee
Lunch Bar	8 bays per 100 square metres GLA
Motor Vehicle Repair	4 bays per each working bay plus 1 bay per employee
Motor Vehicle Wrecking	1 bay per 50 square metres of sales and display area but not less than 5 plus 1 bay per employee (excludes vehicle storage area)
Motor Vehicle, Boat and Caravan Sales	1 bay per 100 square metres of GLA plus 1 bay per employee but not less than 6 bays
Open Air Display	1 bay per 100 square metres of GLA plus 1 bay per employee but not less than 6 bays
Plant Nursery	1 bay per 50 square metres of sales and display area but not less than 5
Roadhouse	To be negotiated with Council
Salvage Yard	1 bay per 100 square metres of GLA plus 1 bay per employee but not less than 6 bays
Showroom	1 bay for every 200 square metres of floor bay plus 1 bay per employee
Stockyards	1 bay per employee, if sale yard must also include car parking for buyers/agents
Telecommunications Infrastructure	Minimum 1 bay with all parking to be contained on the lot
Transport Depot	1 bay per employee
Veterinary Centre	1 bay per 30 square metres of GLA plus 1 bay per employee
Warehouse Storage	1 bay per employee plus 1 bay for every 200 square metres of floor space

**In the event a land use is not listed or in the event that the Proponent can demonstrate a variation to the above requirements, Council may use its discretion to consider alternatives.*

**This Table is consistent with Councils' Local Planning Policy Car Parking Standards*

TABLE 2 – CAR PARKING STANDARDS

4.2.12 Storage, Refuse and Hard Stand Areas

Objective

Storage and hard stand areas are to be located and constructed to minimise any adverse visual impacts and to protect the amenity of the MIP from dust, run off and contaminated stormwater.

Acceptable Development Criteria

i) Trafficable areas and car parking shall be paved, kerbed and drained. Council may require hard stand areas to be paved, kerbed and drained. Alternatively, Council may consider an alternative standard of construction for hard stand areas subject to provision of a transport assessment and/or engineering assessment which addresses the number of traffic movements, type of vehicles, proposed treatment and maintenance of hardstand, dust management, and drainage management to the satisfaction of the Shire.

ii) Outdoor storage, refuse and hardstand areas shall be located behind the street setback area.

iii) Fencing or walls of similar design feature to the main built form, or alternatively sufficient landscaping is to be used to screen outdoor storage, refuse and hardstand areas from public view.

iv) One or more areas for the storage of refuse is required and shall be screened from the street and enclosed by an approved wall of not less than 1.8m in height. The refuse area is to be accessible by vehicles.

4.2.13 Setbacks to Ellen Brook and Buffers to Sensitive Land Uses

Objective

To protect designated conservation areas, including Environmentally Sensitive Areas, Conservation Category Wetlands and vegetation protection areas from inappropriate impacts associated with adjacent development.

Acceptable Development Criteria

i) In addition to separation distances being considered at structure planning stage, land uses will be assessed at development application stage to determine appropriate setback distances from Ellen Brook and Sensitive Land Uses.

ii) The Shire will have regard to the comments received from referral agencies and the recommendations of the Environmental Protection Authority Guidance for the Assessment of Environmental Factors (in accordance with the Environmental Protection Act 1986) Separation Distances between Industrial and Sensitive Land Uses.

iii) Due regard will be given to State Planning Policy provisions.

iv) If a development may cause off-site impacts, the Shire may require additional information to be provided at development application stage such as environmental impact assessment reports, acoustic or odour reports.

4.2.14 Conservation Area Interface

Objective

To provide a suitable interface between industrial development and conservation areas which protects environmental assets from encroachment by industrial uses and provides effective access for fire management and maintenance purposes.

Acceptable Development Criteria

i) At structure plan stage, roads should be provided at the interface between conservation areas and industrial development sites.

ii) In the event roads cannot be provided, as a minimum, a vegetated swale should be provided at the site boundary between the industrial development site and conservation area and incorporated a local water management strategy prepared in support of a structure plan.

iii) Preparation of a foreshore management plan shall be required at structure planning stage for those parts of Precinct 3 adjacent to Ellen Brook.

4.2.15 Bushfire Management

Objective

Development will be designed and located to take into account fire protection requirements where there is any risk from bush fires.

Acceptable Development Criteria

i) The Muchea Industrial Park is designated as 'bushfire prone' by the Map of Bushfire Prone Areas prepared by the Department of Fire and Emergency Services (DFES). The design and siting of development shall be in accordance with an approved Bushfire Management Plan, where required.

4.3 BUILDING DESIGN

4.3.1 Building Design

Objective

To create high quality industrial developments which provide visual interest, demonstrate a high level of architectural design and contribute positively to the streetscape.

Acceptable Development Criteria

i) The facades of all buildings facing streets shall be of brick, glass, masonry or concrete at floor level.

ii) Buildings shall be designed to address the street, providing a visible and legible entrance for pedestrians and active frontages that contribute to the streetscape. The building façade shall run parallel to the street edge.

iii) Building facades that address the street or other public areas shall be well articulated. Development is to provide variation in building plane, texture, materials and colour to reduce overall building bulk and massing and to create visual interest. Large expanses of blank wall are to be avoided.

iv) Where 'lean to' structures are added to the predominant building they must be appropriately incorporated into the design to ensure a high quality design standard.

v) Servicing of the business shall be conducted at the rear and customer service areas shall be located on the street façade.

vi) Zincalume materials may be used if they are not visible from the street.

vii) Second hand transportable buildings and sea containers shall not be located where they are visible from the street.

viii) Sea container and dome shelter style structures shall generally not be supported.

APPROPRIATE BUILT FORM

4.3.2 Sustainable Design

Objective

Buildings will be designed to achieve excellence in environmental sustainability through innovative design, construction and management. Buildings should achieve reduced energy and water usage rates when compared to a Building Code of Australia base compliant building.

Acceptable Development Criteria

i) Built form shall demonstrate sustainable design principles including;

- Reduced water and energy use;
- Passive solar design by optimising building orientation, shading, natural lighting and cross-flow ventilation;
- Utilisation of natural light through the provision of windows, openings and skylights, designed and oriented to minimise heat gain in summer months.

5.1 GENERAL REQUIREMENTS

i) Development and subdivision applications will, at a minimum, be required to demonstrate compliance with the requirements of any approved Structure Plan, relevant environmental management plans and a transport assessment, subject to the discretion and satisfaction of the Shire.

Environmental management plans may include;

- District/Local /Urban water management strategy;
- Environmental assessment and management strategy;
- Strategic noise assessment and management strategy; or
- Strategic odour assessment and management strategy.

5.1.1 Subdivision

i) Subdivision may require the following management plans being prepared either in support of an application, or to satisfy conditions of approval;

- Flora, vegetation, wetland and waterway management plans (consistent with EPA Guidance Statement No.33 Environmental Guidance for Planning and Development;
- Acid Sulphate Soils site assessment management plan;
- Urban Water Management Plan;
- Geotechnical Report;
- Water supply and wastewater disposal;
- Traffic Impact Assessment;
- Bushfire Management Plan; and
- Construction management plan.

5.1.2 Development Application

i) Development may require the following reports or management plans being prepared either in support of an application, or to satisfy conditions of approval at the Shire's discretion;

- Report on land use separation distances (Consistent with EPA Guidance Statement No.3 - Separation Distances between Industrial and Sensitive Land Uses)
- Dust management plan
- Noise management plan;
- Construction management plan;
- Odour management plan;
- Waste management plan;
- Water supply and wastewater disposal plan;
- Landscape implementation and management plan;
- Urban water management plan/ stormwater management plan;
- Traffic Impact Assessment; and
- Bushfire Management Plan.

Porter
Consulting Engineers

ROAD AND DRAINAGE GUIDANCE NOTE

MUCHEA INDUSTRIAL PARK

Porter

Prepared for	**Shire of Chittering** 6177 Great Northern Highway Bindoon WA 6502
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Rev F	29/10/2018	S Highman	Shire of Chittering	Steering committee input

CONTENTS

1.0 INTRODUCTION

1.1 Background

The Muchea Industrial Park (MIP) is a proposed industrial area, 1,113 hectares in size and located within the Shire of Chittering. It sits approximately 2km east of the Muchea town centre, with the Great Northern Highway and Muchea East Road dividing the area into precincts as shown in **Appendix A**.

The location of the MIP provides the opportunity to connect to key transport routes including Great Northern Highway, Brand Highway and Northlink WA Stage 3.

1.2 Purpose of this Report

The purpose of this document is to provide guidance to developers and their representatives regarding road, drainage and filling strategies within the MIP as part of any Planning and/or Development Application. The requirements noted in this document are not intended to be an exhaustive list but rather to inform developers of the general expectations.

2.0 SITE CONDITIONS

2.1 Topography

The general site topography of the MIP ranges approximately from 60m AHD to the west, rising up to approximately 140m AHD to the east, and is located within the Dandaragan Plateau and at the foothills of the Darling Scarp (Western Australian Planning Commission, August 2011).

2.2 Soils

The expected soils within the node area include Guildford formation, Leederville formation, sandy soils and laterite (Gozzard J.R, 1982) consisting of:

- Pebbly silt (Mgs1): strong brown, silt with common fines to occasionally course grained, sub-rounded laterite, quartz, heavily weathered granite pebbles, some fine to medium-grained quartz sand of alluvial origin (Guildford formation).
- Sand (S5): very pale brown, medium to course-grained, sub-angular quartz and a trace of feldspar, moderately sorted, loose of colluvial origin.
- Sand (S6): light grey, fine to course, angular to rub-rounded, quartz with some feldspar, moderately sorted, loose, of colluvial origin.
- Siltsone (ST1): white, thinly bedded, well laminated, fine-grained, some large ferruginous concretions and laminae, occasionally micaceous (Leederville formation).
- Laterite (LA1): massive cemented occasionally vesicular; up to 4m in thickness, overlain by a ferruginous gravel set in a clay-sand matrix of residual origin.

The pebbly silt is generally located to the western half of the MIP; with the sands, siltsone and laterite generally within the eastern half.

2.3 Acid Sulphate Soils

Based on the Acid Sulphate Soils risk mapping (Department of Water and Environmental Regulation, 2018), there is no known risk of acid sulphate soils to occur within the MIP (refer **Appendix B**). Nonetheless, this should be investigated early in the planning phase to determine the presence of actual and potential acid sulphate soils or the need to treat dewatering effluent compliant with the governing standards.

2.4 Surface Hydrology

The MIP is located in the Ellen Brook catchment which discharges into the upper Swan River estuary. Four main drainage waterways run from east to west across the site and drains to the Ellen Brook by the western boundary of the MIP. A number of wetlands are mapped within the MIP as shown in **Appendix C**, these shall be accounted for as part of any planning application. Careful consideration is needed during planning and implementation stages to ensure the receiving waters are not impacted by the construction of and ongoing use within the MIP.

2.5 Groundwater Hydrology

Based on the Perth Groundwater Atlas (Department of Water and Environmental Regulation, 2018) the groundwater levels range from approximately 62m AHD by the eastern boundary to 45m AHD by the western boundary flowing towards Ellen Brook.

2.6 Contaminated Sites

A search on the Contaminated Sites Database (Department of Water and Environmental Regulation, 2018) did not identify any known contamination within the MIP. However, there is risk of potential contamination activities resulting from private landfills, cattle dips, poultry farms, fuel and chemical storage areas (Western Australian Planning Commission, August 2011). Further assessments and investigations may be required as part of any application and should be considered early in the planning phase.

3.0 EARTHWORKS AND FILLING

3.1 Geotechnical Investigation

A geotechnical investigation shall be completed as part of all development proposals to identify any potential constraints at the earliest possible stage. The investigation shall be thorough and provide sufficient information to inform authorities and designers on the various site constraints and parameters.

3.2 Earthworks

It is expected that general earthworks will be required as part of a development. This may include the removal of topsoil, shaping of insitu material and importation of fill. The geotechnical investigation shall provide guidance regarding these matters.

Treatment of the existing ground or filling may be required to improve the site classification. Class A and S sites are traditionally accepted within Western Australia. If the intent is to create a development with a lesser classification, additional detailed supporting documentation is required.

3.3 Groundwater Separation

Filling may be required to achieve minimum separation to groundwater levels. Subsoil drainage may be utilised pending the outcome of the development's drainage study.

4.0 ROAD STRATEGY

4.1 Road Hierarchy

The District Structure Plan (**Appendix A**) indicates the higher level road network only. The lower level network is to be developed at the Local Structure Plan stage. Figure 1 below shows the higher level road network around the MIP.

Northlink WA Stage 3 is shown in green, including the grade separated MIP interchange. The Road Train Assembly Area is located to the south east of the interchange. These are under construction and scheduled for completion towards the latter part of 2019.

The current Restricted Access Vehicle (RAV) 7 network is shown in dashed purple. Other higher level existing roads are shown in dashed orange.

The eastern loop road (red) will provide primary access in and out of the MIP. The Structure Plan defines this road as a District Distributor A estimated to carry in the order of 7,000 vehicles per day. This road shall be designed to cater for RAV10 vehicles.

The completion of Northlink WA Stage 3 will alter the traffic flow and composition along Great Northern Highway. Precinct 2 may seek an additional high level road connection off Great Northern Highway (dashed red) however this is subject to Main Roads WA approval.

Precinct 3 gains access off the existing Great Northern Highway via a Loop Road (shown in blue). Similar to Precinct 2, an additional high level road connection for Precinct 3 may be required however this is subject to Main Roads WA approval. It is recommended this road is designed to cater for RAV 10 vehicles. Great Northern Highway is currently classified as RAV 7 however Main Roads have confirmed they will support the upgrade to RAV 10 pending an application and assessment.

Precinct 4 will gain access off the loop road (red) and via the existing Muchea East Road. Precinct 2 planning shall make sufficient RAV allowances off the loop road for Precinct 4.

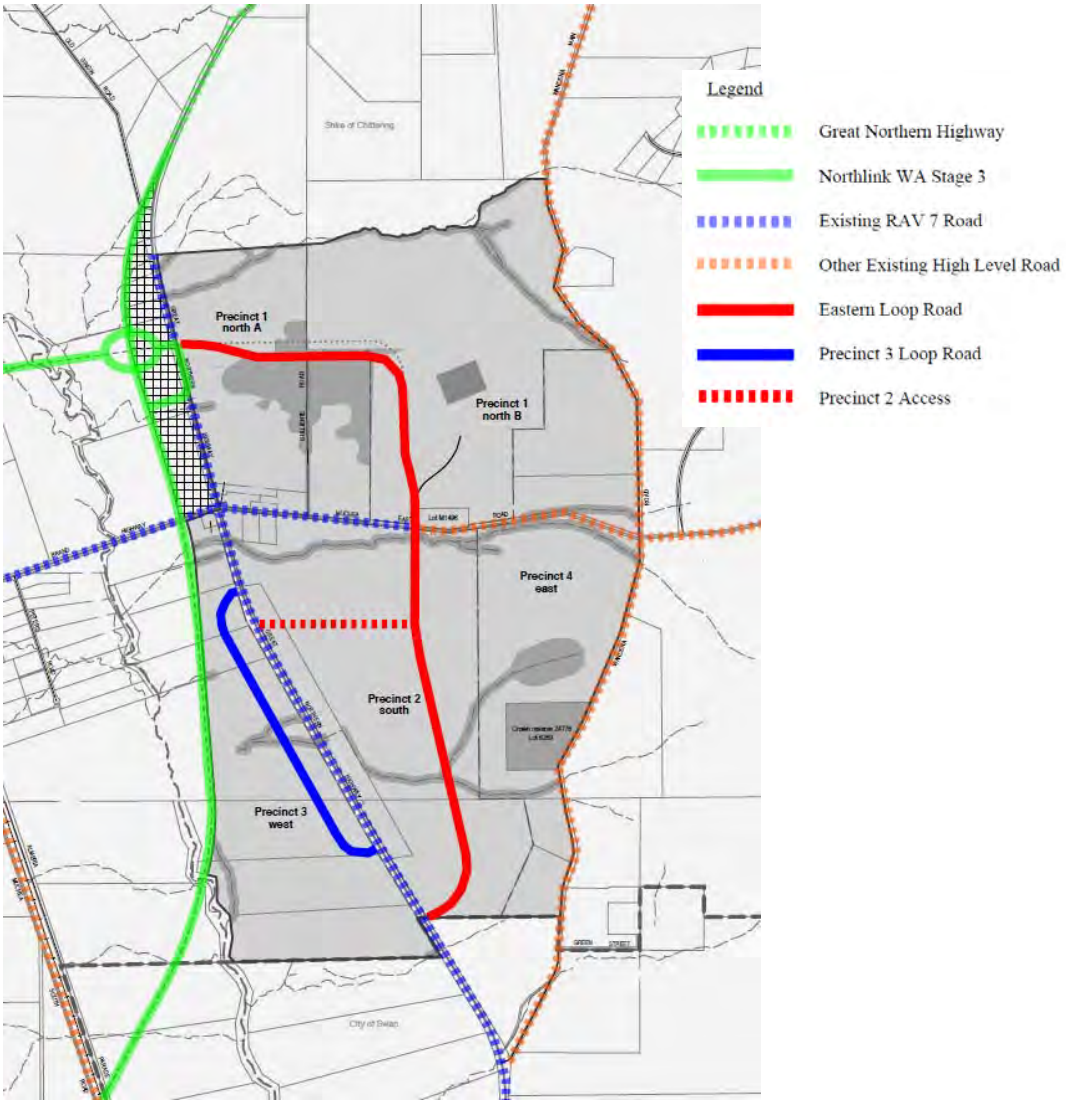

Figure 1 – Higher Level Road Network

4.2 Design Vehicle

The MIP road network shall allow Restricted Access Vehicles. The minimum design vehicle shall be RAV 4.

Consideration shall be given to the intended land use and subsequent number and location of lots within the development area requiring RAV 10 or RAV 7 access. This relates to freight, logistics and other transport facilities. A plan shall be included in the LSP confirming the proposed RAV classification of each road. Sufficient road reserve and pavement widths shall be provided to cater for the design vehicle. Swept path analysis is required as part of a planning application to verify road reserve widths at intersections. As part of the planning process, the developer shall liaise with Main Roads and provide evidence that the road network will achieve the nominated RAV classification.

Figure 2 below shows the higher level road layout with concept RAV classifications. It is expected the ultimate classification of part of Northlink WA Stage 3 and the Perth to Darwin Highway will be RAV 10 however this is subject to future upgrade works to the north (external to the MIP). It is expected the RAV10 classification will extend to the MIP interchange however the timing of this is unknown.

RAV 10 roads are shown in red and RAV 7 roads are shown in green. Other high level roads are shown in blue. Main Roads have confirmed they will support an increase in classification from RAV 7 to RAV 10 (shown as dashed red) for a portion of Great Northern Highway pending an application and assessment. Developers can seek approval from Main Roads to upgrade the RAV classification on other portions of the road network to facilitate access. Works maybe required on these roads to meet minimum RAV requirements.

Subject to the location of environmental and drainage reserves as well as other land allocations, it is suggested lots requiring RAV7 and RAV10 access are positioned adjacent to RAV10 roads. Lots requiring RAV7 access should be placed adjacent to the RAV7 roads. The balance of the MIP can be designed to cater for RAV7 and RAV10 pending vehicle access requirements.

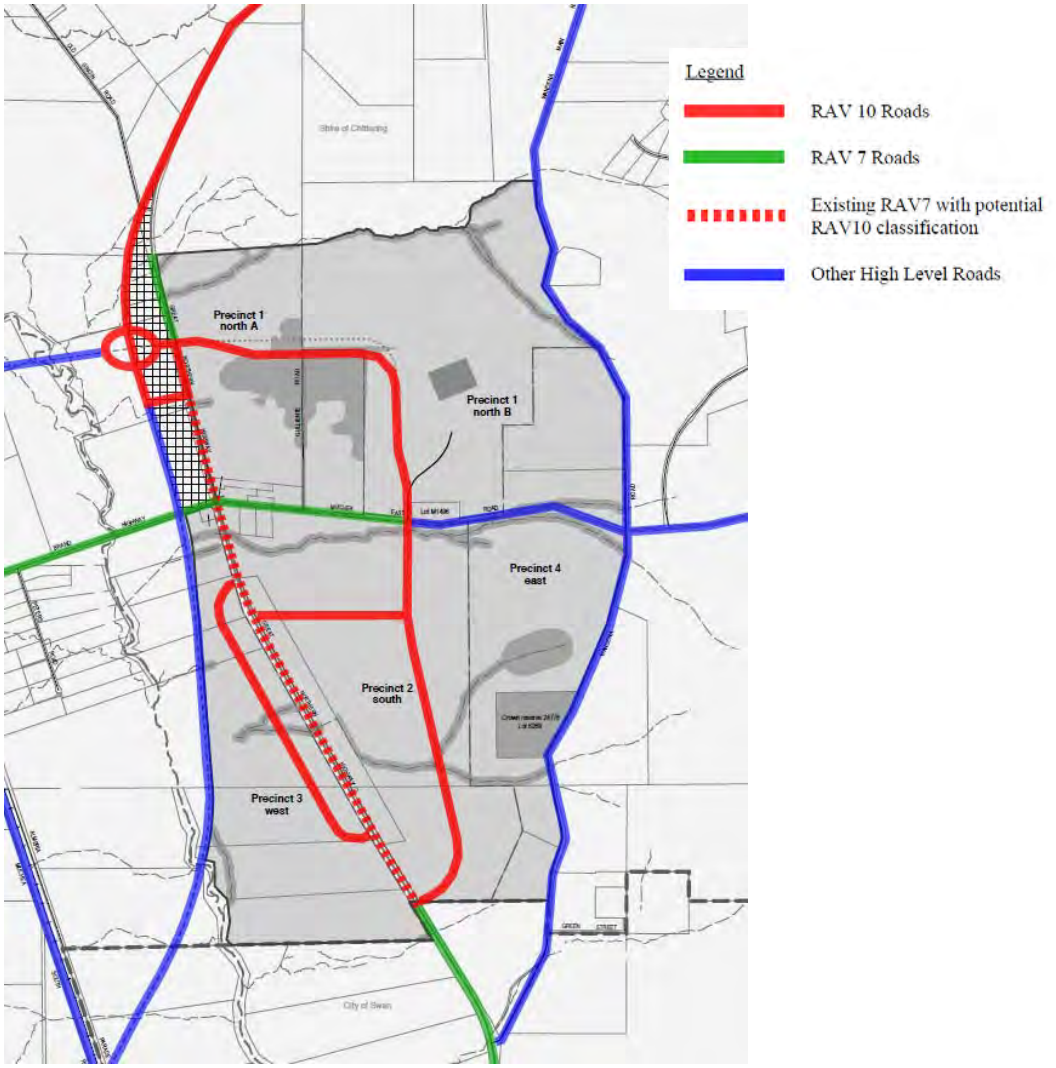

Figure 2 – Indicative RAV Network and Lot Access

Appendix D includes a copy of the Main Roads WA "Prime Mover, Trailer Combinations" which outlines examples of this category of vehicles however it does not necessarily represent all heavy vehicle combinations and their dimensions.

4.3 Road Reserve Widths and Cross Sections

The minimum road reserve width shall be 20m. Wider reserves may be required for differing RAV classifications and to provide sufficient room for services and stormwater drainage provisions. Typical cross sections shall be provided at the various planning stages to verify road reserves widths. Examples are presented in **Appendix E**.

RAV 10 roads shall have a 40m (minimum) wide road reserve.

Truncations at intersections shall be set about swept path geometry and minimum verge widths.

The minimum road width (face of kerb to face of kerb) shall be 10m. Wider pavements may be required pending horizontal geometry and RAV classification (swept paths, access into properties etc). Pavement width verification shall be documented for developments with RAV 10 roads.

The minimum verge widths shall be 5m. This width may be reduced at intersection truncations pending servicing arrangements and a road safety assessment.

Consideration may be given to a reduction in pavement widths for multiple lane dual carriageways. This is subject to the RAV classification, a road safety assessment and consideration of IPWEA guidelines, Australian Standards and Main Roads requirements.

4.4 General Road Design Requirements

Roads shall be designed in accordance with IPWEA Guidelines and Austroads Guide to Road Design Part 3 Geometric Design. General design requirements for roads within the MIP are as follows:

- The maximum design speed for district and local distributor roads shall be 70 km/hr.
- The maximum design speed for local access roads shall be 60 km/hr.
- The maximum longitudinal grade for a sealed road to be used by RAV 10 vehicles is 5%.
- The minimum longitudinal grade shall be 0.5%.
- All roads shall be drained with sufficient space in the verge for the associated infrastructure.
- Minimum crossfall of 3% except where geometric design requirements dictate that superelevation is required.
- Verges shall have sufficient width to install public utility services.
- Future provision for 2.5m dual use path within verge (typically non swale side).
- Cul-de-sac shall be avoided.

4.5 Pavement Design

All roads shall be sealed (asphalt concrete) to meet the specific loading requirements of appropriate RAV vehicles.

RAV 10 routes shall be designed to accommodate AMMS 3 axle loads (23.5 tonne per axle). The damage caused by increased axle loads is exponential such that a 23.5 tonne AMMS 3 axle will cause almost double the damage caused by a normal 20 tonne axle. Given the increased damage caused by concessional loaded vehicles the pavement should be designed for 190% of the forecast traffic volume over the 40 year pavement life.

4.6 Pedestrian and Cyclist Facilities

Northlink WA Stage 3 includes a series of principal shared paths, shared paths and cycle paths. These run along the eastern side of the Highway and extend to the MIP interchange. Cycling within the MIP should be encouraged however given the nature of vehicles, off road cycle provisions are recommended.

There are no known public transport routes within the existing road network. Due to the transport orientated land uses within the structure plan, it is unlikely that there be a high demand for public transport services. If future development creates such a demand then a pedestrian network within the verge is required. It is anticipated there will be pedestrian attraction to some land uses (reserves, lunch bars etc) within the MIP.

The provision of a 2.5m wide concrete dual use path is required along all roads.

4.7 Intersections

Intersections shall be designed complaint with the IPWEA Guidelines and Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections subject to the RAV clarification.

It is recommended that approval in principle is obtained from Main Roads during the approval phase for the RAV network and intersection geometry to ensure compliance. Specific requirements with respect to intersection design requirements for RAV 10 access can be found within Main Roads WA document "*Standard Restricted Access (RAV) Route Assessment Guidelines, July 2017*. Alternative pavement treatments and markings shall be considered to delineate the additional swept path areas.

4.8 Crossover Requirements

All crossovers shall be to an industrial standard with the general requirements outlined below:

- A minimum width of 6m with a maximum width of 11m at the property boundary with approval from the Shire.
- Wings shall be a minimum of 2m wide on both sides of the crossover but should also be designed to accommodate the specific development's design vehicle turning movements.

Ideally all movements shall be lane correct. Consideration may be given to RAV 7 and RAV 10 vehicles that are not lane correct pending location, traffic volumes and composition.

Drawing 18-6-69/807 (**Appendix E**) shows the typical crossover set out requirements designed for swept paths of a RAV 10 network vehicle.

The location of crossovers shall comply with site access and sight line guidelines.

5.0 STORMWATER DRAINAGE STRATEGY

This section outlines in general terms, the objectives and design criteria for stormwater management strategies whilst being consistent with the principles of water sensitive designs and guidelines presented in Better Urban Water Management (Western Australia Planning Commission, October 2008).

5.1 Groundwater Management

It is expected that the existing groundwater hydrology will be maintained with the following management strategies:

i. Groundwater leaving the site to be the same or better quality than when entering the site. The use of select planting and bio-retention areas to infiltrate minor storm events is expected to assist in reducing the nutrient loads to groundwater.
ii. As the node area is outside of the Water Corporation's current sewer licence area, it is expected that wastewater from lots will be treated via the use of aerobic treatment units (ATU). As part of the detailed design it is expected that an assessment of the lots capability to support ATU's will be undertaken which will consider the soil conditions, clearance to groundwater and environmental constraints specific to the respective lot.
iii. Finished floor levels of buildings to be a minimum of 500mm above the maximum recorded groundwater level. In areas with shallow depth to groundwater earthworks and fill may be required to achieve the required clearance to groundwater.

5.2 Stormwater Management

The stormwater philosophy to be adopted within the MIP is that post-development flows are to be limited to pre-development flow rates with the following management strategies:

i. Maintain the general pre-development inflow and outflow flow paths.
ii. Convey existing arterial flows through the site at pre-development peak flow rates. It is expected that existing waterways and flow paths will be maintained along with conveyance swales within respective lots and road reserves.
iii. The drainage networks are to be appropriately sized to ensure minor roads remain passable for the 10% AEP event.
iv. Treat the 1 hour 100% AEP rainfall event runoff from the road reserves within the road reserve boundary. It is expected that the use of roadside swales located in the verges will

be adopted to convey runoff to bio-retention areas and storage areas.

v. Detain flows from major rainfall events up to the 1% AEP to limit the pre-development peak flow rates within road reserves. It is expected that flood storage areas will be provided within road reserves in order to maintain pre-development flows.

vi. Treat the 1 hour 100% Annual Exceedance Probability (AEP) rainfall event runoff within respective lots. It is expected that the use of bio-retention/infiltration areas and swales will be the primary measure employed.

vii. Retain flows from other rainfall events on each lot to minimise the impact of post development flows.

viii. Design drainage basin areas and swales to avoid creating mosquito habitat with flood storage structures to consider a low flow discharge to prevent prolonged standing water.

ix. Apply appropriate structural and non-structural measures to reduce nutrient loads, typically utilising bio-retention areas, treatment swales, maintenance of drainage structures, removing/sweeping of silt and soil from roads.

x. Finished floor levels to have a minimum 500mm clearance from the 1% AEP water level in drainage structures or waterways.

5.3 Future Studies

It is expected that further studies will be required to support future development and subdivision including, but not limited to, District Water Management Strategies, Local Water Management Strategies, Urban Water Management Plans and geotechnical, groundwater and environmental investigations. The items discussed in this document should not preclude considerations and recommendations in future studies.

The sizing of drainage swales, bio-retention areas, conveyance structures and storage structures, along with the assessment of pre-development flows will be determined as part of these future studies.

6.0 DISCLAIMER

Porter Consulting Engineers provides this document on the condition that the reader, by receiving and reading this document, agrees not to act upon its contents without first satisfying themselves as to its suitability for their purpose.

The reader shall have no claim against Porter Consulting Engineers should any part of the contents be considered incorrect or misleading.

REFERENCES

Department of Water and Environmental Regulation. (2018). *ASS Risk Maps*. Retrieved June 2018, 26, from https://www.der.wa.gov.au/your-environment/acid-sulfate-soils/65-ass-risk-maps

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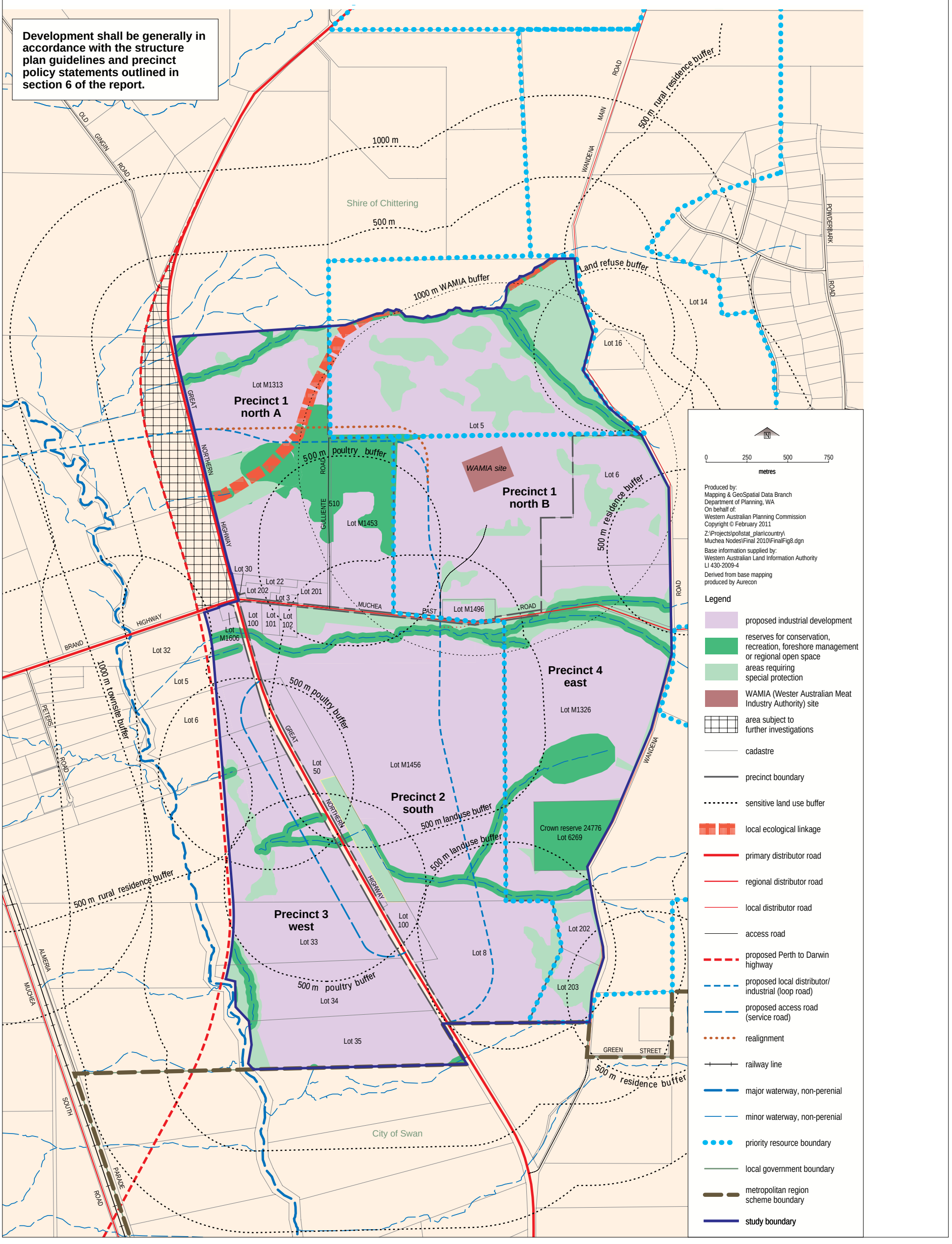
APPENDIX A

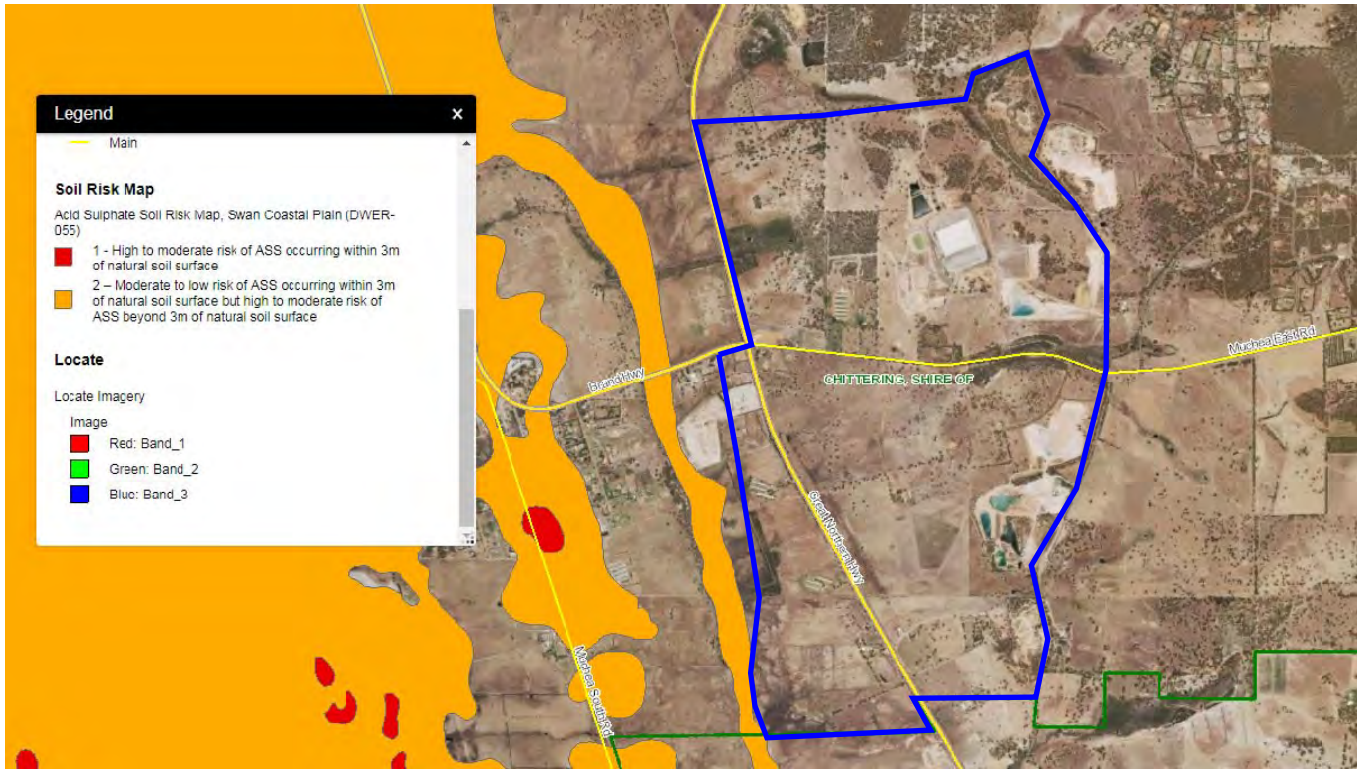
Structure Plan[1]

[1] Western Australian Planning Commission. (August 2011). *Muchea Employment Node Structure Plan.* Final Report.


Development shall be generally in accordance with the structure plan guidelines and precinct policy statements outlined in section 6 of the report.
Precinct 1 north A
Precinct 1 north B
Precinct 2 south
Precinct 3 west
Precinct 4 east
WAMIA site
1000 m
500 m
1000 m WAMIA buffer
Land refuse buffer
500 m rural residence buffer
500 m poultry buffer
500 m residence buffer
500 m landuse buffer
1000 m townsite buffer
Shire of Chittering
City of Swan
Lot M1313
Lot 5
Lot 6
Lot 14
Lot 16
Lot M1453
Lot 30
Lot 22
Lot 202
Lot 201
Lot 3
Lot 100
Lot 101
Lot 102
Lot M1606
Lot 32
Lot M1496
Lot M1326
Lot M1456
Lot 50
Lot 33
Lot 34
Lot 35
Lot 8
Lot 203
Crown reserve 24776
Lot 6269
GREAT NORTHERN HIGHWAY
OLD GINGIN ROAD
MAIN ROAD
WANDENA
POWDERBARK ROAD
GULLIENTE ROAD 510
MUCHEA EAST ROAD
BRAND HIGHWAY
PETERS ROAD
ALMERIA MUCHEA SOUTH PARADE ROAD
GREEN STREET
0 250 500 750
metres
Produced by:
Mapping & GeoSpatial Data Branch
Department of Planning, WA
On behalf of:
Western Australian Planning Commission
Copyright © February 2011
Z:\Projects\pol\stat_plan\country\Muchea Nodes\Final 2010\FinalFig8.dgn
Base information supplied by:
Western Australian Land Information Authority
LI 430-2009-4
Derived from base mapping produced by Aurecon
Legend
proposed industrial development
reserves for conservation, recreation, foreshore management or regional open space
areas requiring special protection
WAMIA (Wester Australian Meat Industry Authority) site
area subject to further investigations
cadastre
precinct boundary
sensitive land use buffer
local ecological linkage
primary distributor road
regional distributor road
local distributor road
access road
proposed Perth to Darwin highway
proposed local distributor/ industrial (loop road)
proposed access road (service road)
realignment
railway line
major waterway, non-perenial
minor waterway, non-perenial
priority resource boundary
local government boundary
metropolitan region scheme boundary
study boundary

APPENDIX B

Acid Sulphate Soils Risk Mapping

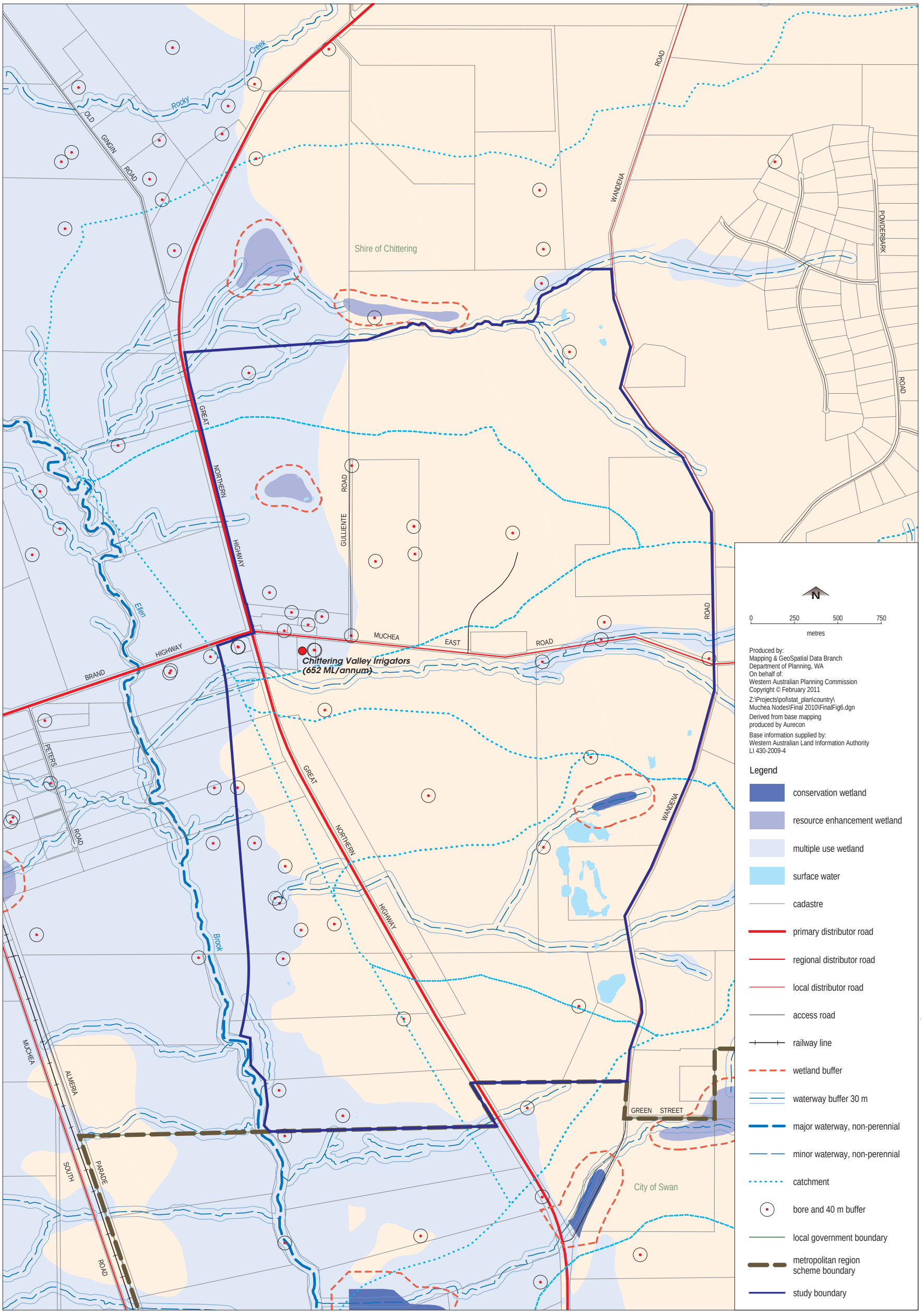


Attachment 2: Acid Sulphate Soils risk mapping for the Muchea Employment Node

APPENDIX C

Waterways[2]

[2] Western Australian Planning Commission. (August 2011). *Muchea Employment Node Structure Plan.* Final Report.



Attachment 3 - Waterways

APPENDIX D

Main Roads WA

"Prime Mover, Trailer Combinations, February 2018, Operating Conditions"

Prime Mover, Trailer Combinations

Heavy Vehicle Services

VEHICLE DESCRIPTION AND CONFIGURATION CHART (RAV) – PRIME MOVER, TRAILER COMBINATIONS EXAMPLES

		Axle Spacing Table	Length (m)	Mass (T) Maximum Permitted Mass	RAV Network
Category 1	(A) PRIME MOVER, SEMI TRAILER TOWING A PIG TRAILER	A	≤20	50	Network 1
	(B) PRIME MOVER TOWING AN OVERHEIGHT SEMI TRAILER	A	≤19	42.5	
	(C) SHORT B-DOUBLE	A	≤20	50	
	(D) TWINSTEER PRIME MOVER TOWING SEMI TRAILER	A	≤19	47.5	
Category 2	(A) PRIME MOVER, SEMI TRAILER TOWING A PIG TRAILER	A	≤27.5	65.5	Network 2
	(B) PRIME MOVER TOWING SEMI TRAILER	A	≤20	47.5	
	(C) B-DOUBLE	A	≤27.5	67.5	
	(D) SHORT B TRIPLE	A	≤27.5	87.5	
	(E) CAR CARRIER SEMI TRAILER	A	≤25	42.5	
Category 3	(A) PRIME MOVER, SEMI TRAILER TOWING A DOG TRAILER	B	≤27.5	84	Network 3
Category 4	(A) PRIME MOVER, SEMI TRAILER TOWING 6 AXLE DOG TRAILER	A	≤27.5	87.5	Network 4
Category 5	(A) PRIME MOVER, SEMI TRAILER TOWING A DOG TRAILER	B	>27.5,≤36.5	84	Network 5
	(B) PRIME MOVER, SEMI TRAILER TOWING A DOG TRAILER AND CONVERTER DOLLY	B	>27.5,≤36.5	84+d	
	(C) B-DOUBLE TOWING A CONVERTER DOLLY	A	>27.5,≤36.5	67.5+d	
	(D) B-TRIPLE	A	>27.5,≤36.5	84	
Category 6	(A) PRIME MOVER, SEMI TRAILER TOWING 6 AXLE DOG TRAILER	A	>27.5,≤36.5	87.5	Network 6
	(B) B-TRIPLE	A	>27.5,≤36.5	87.5	
	(C) PRIME MOVER SEMI TRAILER TOWING A 6 AXLE TRAILER & CONVERTER DOLLY	A	>27.5,≤36.5	87.5+d	
Category 7	(A) PRIME MOVER, TOWING SEMI TRAILER AND B DOUBLE	A	>27.5,≤36.5	107.5	Network 7
	(B) B-DOUBLE TOWING A DOG TRAILER	A	>27.5,≤36.5	107.5	
Category 9	(A) PRIME MOVER, SEMI TRAILER TOWING 2 X DOG TRAILERS	B	>36.5,≤53.5	120.5	Network 9
	(B) PRIME MOVER, SEMI TRAILER TOWING A DOG TRAILER AND CONVERTER DOLLY	B	>36.5,≤53.5	84+d	
	(C) B DOUBLE TOWING A DOG TRAILER	A	>36.5,≤45	107.5	
	(D) PRIME MOVER, SEMI TRAILER TOWING A B-DOUBLE	A	>36.5,≤45	107.5	
Category 10	(A) PRIME MOVER, SEMI TRAILER TOWING 2 X DOG TRAILERS	A	>36.5,≤53.5	127.5	Network 10
	(B) B-DOUBLE TOWING A CONVERTER DOLLY CONNECTED T0 2 SEMI TRAILERS	A	>36.5,≤53.5	127.5	
	(C) PRIME MOVER, SEMI TRAILER TOWING B TRIPLE	A	>36.5,≤53.5	127.5	
	(D) B-DOUBLE TOWING 2 DOG TRAILERS	A	>36.5,≤53.5	147.5	
	(E) DOUBLE ROAD TRAIN TOWING B-DOUBLE TRAILERS	A	>36.5,≤53.5	147.5	
	(F) PRIME MOVER, SEMI TRAILER TOWING A 6 AXLE DOG TRAILER AND CONVERTER DOLLY	A	>36.5,≤53.5	87.5+d	

Example of Axle Groups

Example of Axle Group with An Optional Axle

Optional Axle

NOTES

1. Operators using a category of RAV outlined in this document must operate that RAV in accordance with the OPERATING CONDITIONS and only on the network specified.
2. These diagrams are a visual indication of the vehicle only.
3. Operators must refer to the OPERATING CONDITIONS for the full vehicle description.
4. The height of the vehicle can exceed 4.3 m but MUST NOT exceed 4.6 m when it is: (i) built to carry livestock or; (ii) carrying a crate to carry livestock or; (iii) carrying vehicles on more than one deck or; (iv) carrying a multi modal container or; (v) carrying a large indivisible item or; (vi) When operating with an appropriately licenced over height curtain side or pantechnicon trailer.
5. Maximum height of Pig Trailer must not exceed 3.5m.

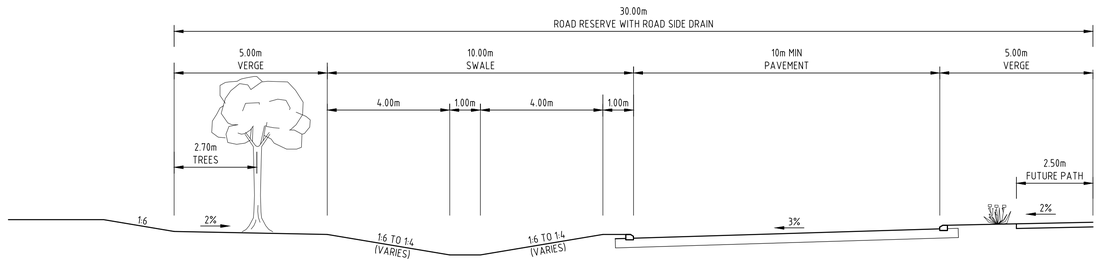
Heavy Vehicle Services
Tel: **138 HVO (486)**
Email: hvs@mainroads.wa.gov.au
Website: www.mainroads.wa.gov.au

mainroads WESTERN AUSTRALIA

APPENDIX E

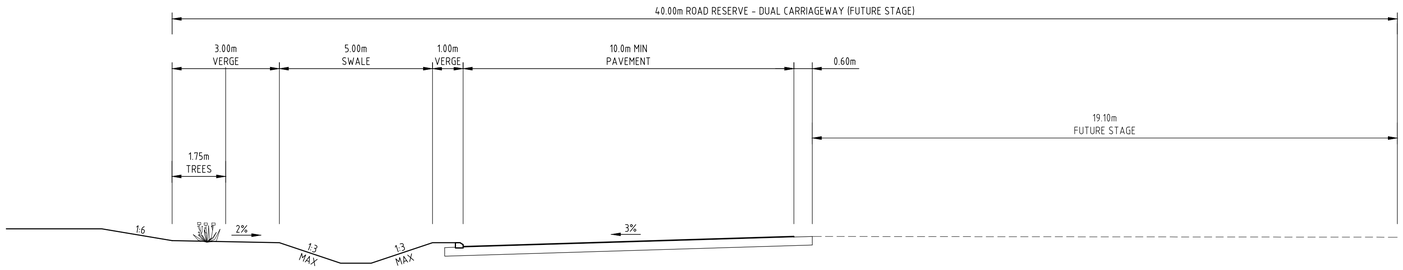
Sample Intersection Drawings

- 18-6-69/800 Rev A -Typical Cross Sections
- 18-6-69/807 Rev A -Crossover Setout



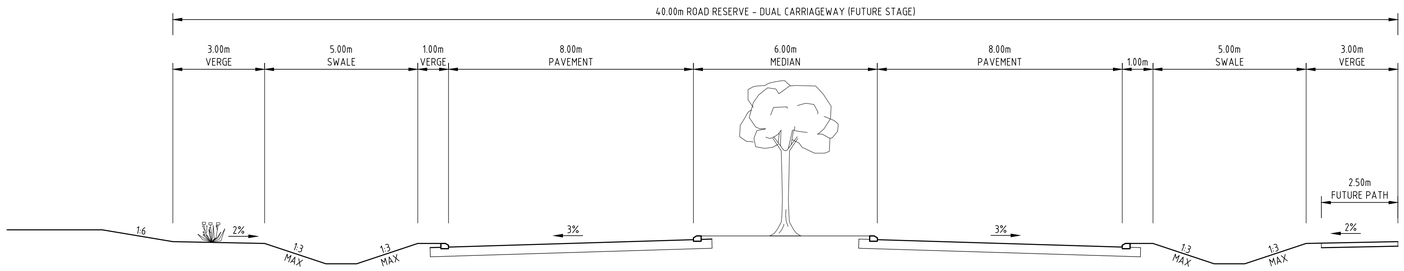
TYPICAL CROSS SECTION OF LOCAL ROAD WITH SWALE

1:100



TYPICAL CROSS SECTION OF LOOP ROAD - STAGE 1

1:100



TYPICAL CROSS SECTION OF LOOP ROAD - FUTURE DUAL CARRIAGEWAY

1:100

PROJECT:

MUCHEA EMPLOYMENT NODE

No.	DATE	REVISION	BY
A	23-7-2018	PRELIMINARY PLOT FOR COMMENT	MJV

Porter Consulting Engineers

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www.portereng.com.au

TVSMO Pty Ltd ACN 070 097 948 as Trustee for the Consulting Engineering Unit Trust trading as Porter Consulting Engineers ABN 78 636 396 385

CLIENT:

SHIRE OF CHITTERING

DRAWING:

TYPICAL CROSS SECTIONS

STATUS: **FOR APPROVAL**

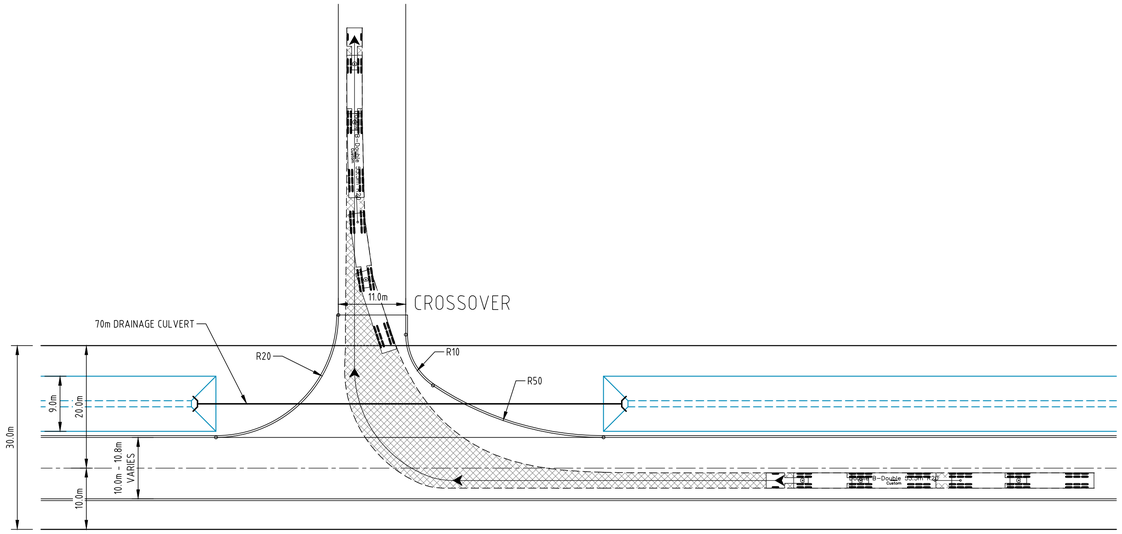
SCALE	1:1000
DATE	JULY 2018
DESIGN	JH
DRAWN	MJV
CHECK	
APP'D	

DRAWING No. **18-6-69/800**

REV No. **A**

ORIGINAL DRAWING SIZE **A1**

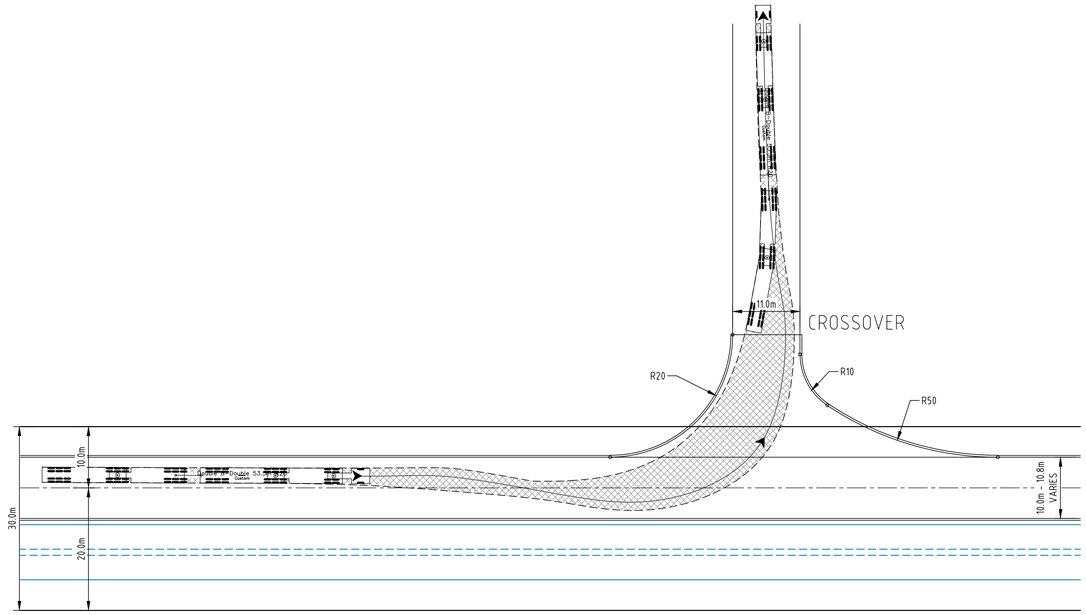
FILE NAME S:\ACTIVE PROJECTS\18-06-069\ACAD\18669-800.dwg



30m ROAD RESERVE - LOCAL ROAD (CARRIAGEWAY ON SOUTHERN SIDE)

CROSSOVER - RIGHT TURN ENTRY

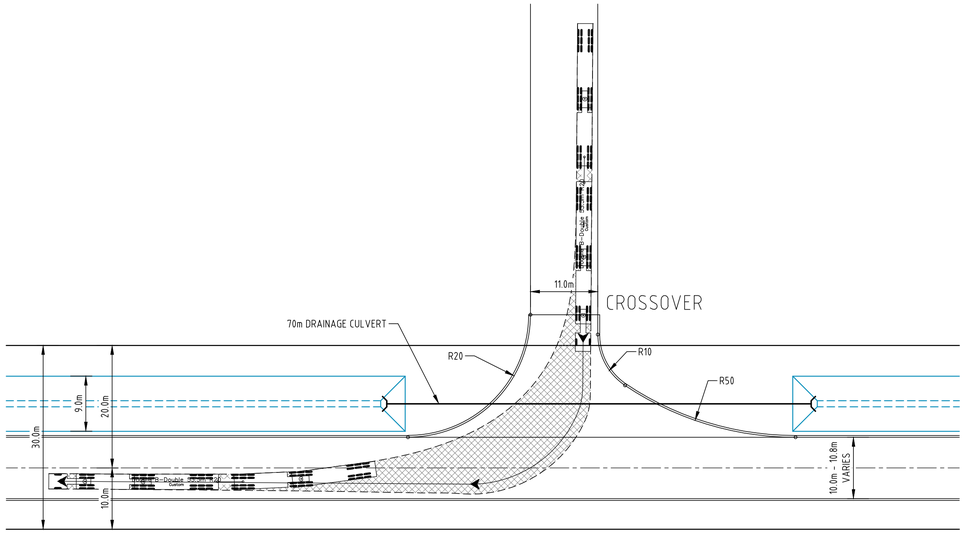
SCALE



30m ROAD RESERVE - LOCAL ROAD (CARRIAGEWAY ON NORTHERN SIDE)

CROSSOVER - LEFT TURN ENTRY

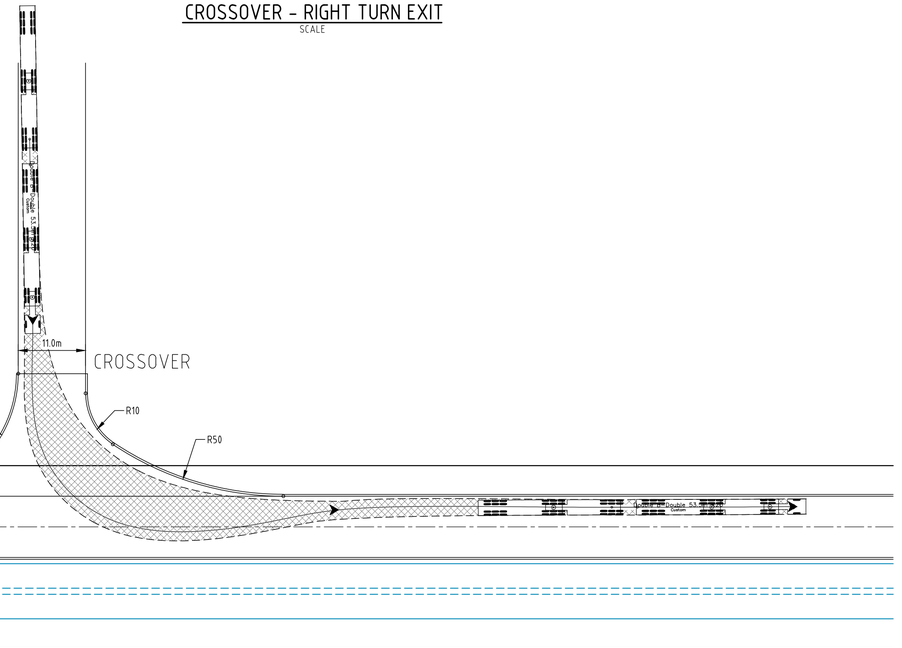
SCALE



30m ROAD RESERVE - LOCAL ROAD (CARRIAGEWAY ON SOUTHERN SIDE)

CROSSOVER - RIGHT TURN EXIT

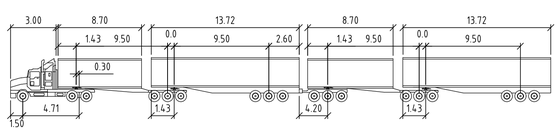
SCALE



30m ROAD RESERVE - LOCAL ROAD (CARRIAGEWAY ON NORTHERN SIDE)

CROSSOVER - LEFT TURN EXIT

SCALE



Tandem Drive Double B-Double 53.5m R20

meters

Tractor Width	:	2.50	Trailer Width	:	2.50
Tractor Track	:	2.50	Trailer Track	:	2.50
Lock to Lock Time	:	6.0	Articulating Angle	:	70.0
Steering Angle	:	14.5			

1:500 0 5 10 20 30

Half Size 1:1000 - SCALE (m)

PROJECT:

MUCHEA EMPLOYMENT NODE

No	DATE	REVISION	BY
A	23-7-2018	PRELIMINARY PLOT FOR COMMENT	MJV

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YUSHO Pty Ltd ACN 010 091 148 as trustee for the Consulting Engineering Unit Trust trading as Porter Consulting Engineers ABN 78 636 396 385

CLIENT:

SHIRE OF CHITTERING

DRAWING:

CROSSOVER SETOUT FOR RAV 10 VEHICLES

STATUS: **FOR APPROVAL**

SCALE	1:500
DATE	JULY 2018
DESIGN	JH
DRAWN	MJV
CHECK	
APP'D	

DRAWING No. **18-6-69/807** REV No. **A** ORIGINAL DRAWING SIZE **A1**

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