City of Wyndham

# Wyndham City Council
# Subdivision Guidelines

**May 2009**

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# 1.0 Development Application/Planning Permit Process

## 1.1 Planning Permit Application for Subdivisions

Any person or company making an application to develop and /or subdivide an area of land within Wyndham City Council will be required to lodge an Application for a Planning Permit. A copy of this application form is available at www.wyndham.vic.gov.au and has also been included in Appendix A.

The standard of documentation to be lodged with the Planning Permit Application is outlined below:

(a) A copy of the title;

(b) A written report including information on:
   i) The subdivision's consistency with strategic plans for the area;
   ii) The number of lots, including the existing supply and demand for lots;
   iii) Lot size details (preferably in table format) including the range of lot sizes and average lot size details;
   iv) Existing road and drainage infrastructure;
   v) The services to be provided;
   vi) The adequacy of community services and facilities such as schools, health facilities and shopping centres; and
   vii) How the subdivision complies with the objectives of Clause 56 and other relevant sections of the Wyndham Planning Scheme.

(c) An approved development plan showing:
   i) The location of the proposed lots;
   ii) The proposed internal road network;
   iii) Public open space and other reserves;
   iv) Community facilities (ie. Schools, activity centres, etc.)
   v) How the subdivision connects with surrounding streets and estates;
   vi) The physical attributes of the land.
   vii) The Gross Development Area – the total site area excluding arterial and sub-arterial road widenings and reserves, drainage floodway reservations and school sites. Estate entry features, plantation and garden reserves are not to be excluded; and
   viii) The Net Development Area – the total site area excluding arterial and sub-arterial road widenings and reserves, drainage floodway reservations, school sites and open space required by Council. Estate entry features, plantation and garden reserves are not to be excluded;

(d) A permit plan drawn to scale showing:
   i) The proposed configuration of lots;
   ii) Any existing or proposed easements;
   iii) Dimensions of boundaries;
   iv) Road reserve widths;
   v) Lot sizes; and
   vi) Adjoining roads.

(e) An overall drainage management strategy (refer to Section 2.6);

(f) A traffic engineering report designating street hierarchy, maximum predicted traffic volumes, traffic management, public transport routes, bicycle routes, typical cross sections and other relevant information; and

(g) Copies of any environmental assessment reports including Native Flora and Fauna and Aboriginal or Cultural Heritage studies, or similar investigations undertaken on the site. Refer to Section 1.4 and Section 1.5 below.

## 1.2 Preliminary Consultation

Prior to preparing a Planning Permit Application, the applicant is encouraged to review the land zoning and overlays to ensure that the subdivision is permitted. It is also necessary to become familiar with any restrictions or requirements of the Wyndham Planning Scheme. For these reasons, it is recommended that preliminary consultation is held with Council's Town Planning unit. It is also recommended to prepare a subdivision permit plan at this stage for discussion purposes. The permit plan should indicate the location, aspect and size of various elements of the development. Refer to Section 1.1 (d) for further requirements of the concept plan.

Please contact (03) 8734 5426 to arrange an appointment.

## 1.3 Environmental Assessment

A permit is generally required to remove, lop or destroy any native vegetation. In the event that native vegetation will be impacted by the subdivision of land, the submission of a detailed flora and fauna assessment is required, identifying significant vegetation (including native grasslands), habitat and habitat movement corridors. The need for such a report shall be determined when a planning permit is being sought.

## 1.4 Heritage Assessment

Any sites of Aboriginal carvings or relics, or sites significant to heritage for other reasons shall be identified in the planning permit application. Aboriginal Affairs Victoria should be contacted on (03) 9208 3333 for details and verification.

The submission of a detailed archaeological assessment may be required to identify any such significance. The need for such a report shall be determined when a planning permit is being sought.

## 1.5 Plan of Subdivision Certification

All subdivision proposals will require an application for subdivision. It will be necessary to contact a licensed land surveyor to prepare the necessary plans and documentation for the certification of a plan of subdivision application.

The plan of subdivision must be in accordance with the approved Functional Layout Plan(s). Refer to Section 3.1.1.

## 1.6 Developer Contributions

In most cases, the process of subdivision will trigger a requirement to pay development contributions as provided for under the Section 173 Agreement. The Section 173 Agreement will have previously been entered into by the owner, and is registered on the title to the property.

## 1.7 Public Transport

The Public Transport Guidelines for Land Use and Development should be considered when planning for land use developments. A copy of these guidelines are available at www.transport.vic.gov.au, or can be requested from the Department of Transport.

It is recommended that consultation is held with the Land Use and Planning Referrals Team at the Department of Transport for large scale developments, prior to submitting a planning permit application.

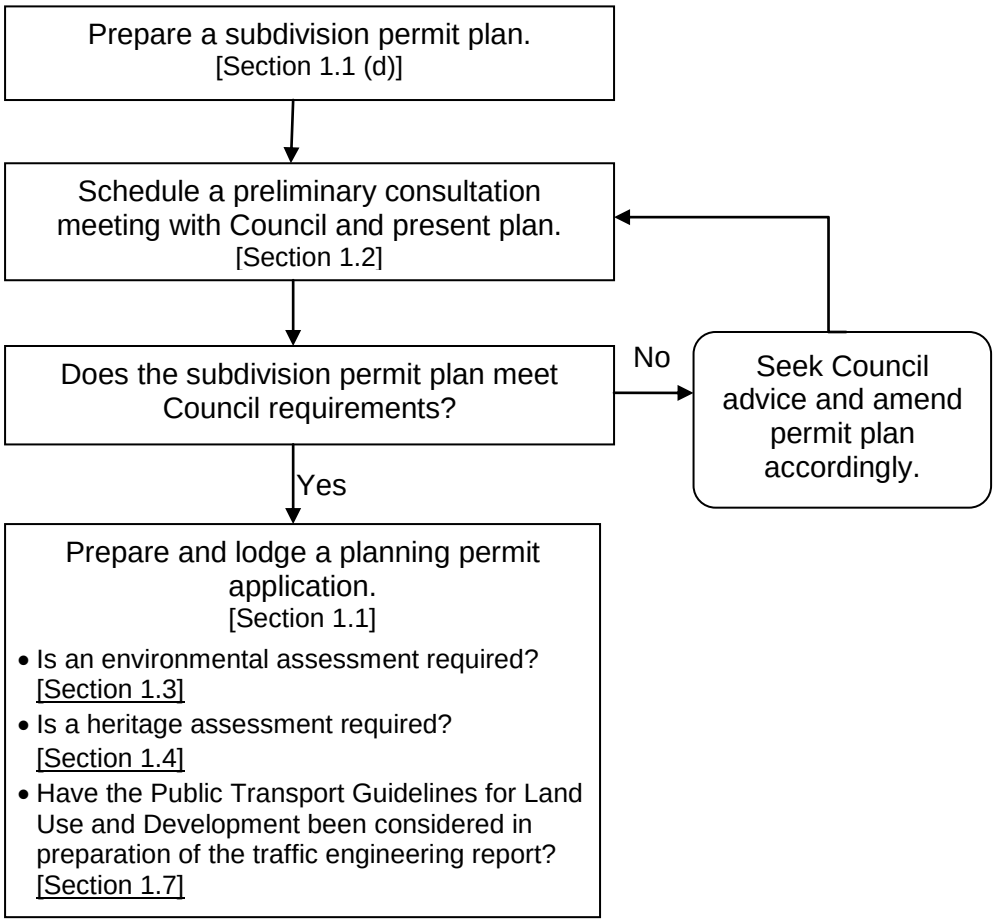


**Figure 1.0 - Planning Permit Application Process**

# 2.0 Engineering Planning

## 2.1 Subdivision Layout

The layout of roads and streets within areas to be subdivided requires most careful consideration. When designing the road layout, consideration must be given to the following:

- Character of the neighbourhood.
- Type of development.
- Permeability of the road network.
- Location of schools, shops and open space.
- Ingress and egress from the subdivision.
- Public transport routes.
- Conveyance of overland flood/gap flows.
- Topography of the terrain.
- Hierarchy of roads.
- Environmental interface

Individual subdivision layout must conform to Council's Structure Plans such as Precinct Structure Plans, Overall Development Plans, Concept Plans, etc. Should no such plan be available for a particular location, the Developer is to liaise with Council's Strategic Planning unit.

## 2.2 Traffic Assessment

The submission of a detailed report on the traffic impact of the proposed subdivision on roads both internal and external to the development may be required. The need for such a report shall be determined when a planning permit is being sought.

Council may also request a Road Safety Audit in accordance with Austroads Standards Australia Publication HB 43:2002. This report will be required prior to the detailed engineering drawings being approved.

## 2.3 Road Classification

The classification, function and general composition of roads and streets within any new residential development shall be in accordance with Clause 56 of the Wyndham Planning Scheme, unless otherwise specified. The general characteristics of these road classifications are detailed below:

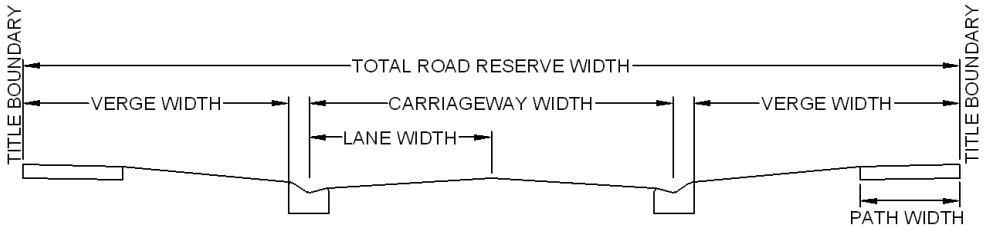


**Figure 2.3 – Typical Cross Section**

### (a) Access Lane

A side or rear lane principally providing access to parking on lots which have another street frontage:

| | |
|---|---|
| Traffic Volume | *300vpd* |
| Carriageway Width & Parking Provisions | *6.0m with no parking spaces provided.* |
| Verge Width | *N/A* |
| Footpath Provision | *Subject to assessment* |
| Cycle Path Provision | *None* |

### (b) Access Place

A minor street providing local residential access with shared traffic, pedestrian and recreation use, with pedestrian priority:

| | |
|---|---|
| Traffic Volume | *300vpd to 1,000vpd* |
| Carriageway Width & Parking Provisions | *5.5m with parking on carriageway – one side.* |
| Verge Width | *8.0m minimum total width*<br>*(reduced to 6.0m for service roads)* |
| Footpath Provision | *1.5m on one side* |
| Cycle Path Provision | *None* |

### (c) Access Street – Level 1

A street providing local residential access where traffic is subservient, speed and volume are low, and pedestrian and bicycle movements are facilitated:

| | |
|---|---|
| Traffic Volume | *1,000vpd to 2,000vpd* |
| Carriageway Width & Parking Provisions | *7.0m with parking on both sides of the carriageway* |
| Verge Width | *4.0m minimum on each side* |
| Footpath Provision | • *1.5m on both sides*<br>• *2.0m in the vicinity of a school, shop or activity centre. Refer to Appendix B.* |
| Cycle Path Provision | *Shared carriageway.* |

### (d) Access Street – Level 2

A street providing local residential access where traffic is subservient, speed and volume are low and pedestrian and bicycle movements are facilitated:

| | |
|---|---|
| Traffic Volume | *2,000vpd to 3,000vpd* |
| Carriageway Width & Parking Provisions | *7.5m with parking on both sides of the carriageway* |
| Verge Width | *4.5m minimum on each side* |
| Footpath Provision | • *1.5m on both sides*<br>• *2.0m in the vicinity of a school, shop or activity centre. Refer to Appendix B.* |
| Cycle Path Provision | *Shared carriageway.* |

### (e) Connector Street – Level 1

A street that carries higher volumes of traffic. It connects access places and access streets through and between neighbourhoods:

| | |
|---|---|
| Traffic Volume | *3,000vpd* |
| Carriageway Width & Parking Provisions | • *3.5m minimum lane width in each direction of travel.*<br>• *4.0m minimum lane width at approaches to and departures from roundabouts and T-intersections.*<br>• *For on-street cycling:*<br>  ◦ *Increase the minimum lane width for kerbside lanes to a minimum of 4.5m where a trafficable carriageway is shared by cyclists, but no dedicated bicycle lane is marked on the carriageway; or*<br>  ◦ *Provide a 1.5m wide dedicated bicycle lane marked on the carriageway. Where a dedicated parking lane is required, the combined bicycle/parking lane must not be less than 4.0m wide.*<br>• *An additional dedicated parking lane or indented parking within the verge must be provided where street parking is required. Minimum 2.3m in width.* |
| Verge Width | *4.5m minimum on each side* |
| Footpath Provision | • *1.5m on both sides*<br>• *2.0m in the vicinity of a school, shop or activity centre. Refer to Appendix B.* |

## (f) Connector Street – Level 2

A street that carries higher volumes of traffic. It connects access places and access streets through and between neighbourhoods:

| | |
|---|---|
| Traffic Volume | *3,000vpd to 7,000vpd* |
| Carriageway Width & Parking Provisions | • *3.5m minimum lane width in each direction of travel.*<br>• *4.0m minimum lane width at approaches to and departures from roundabouts and T-intersections.*<br>• *7.0m minimum carriageway width in each direction of travel where there are two lanes in each direction separated by a non-trafficable central median.*<br>• *8.0m minimum carriageway width at approaches to and departures from roundabouts and T-intersections where there are two lanes in each direction separated by a non-trafficable central median.*<br>• *For on-street cycling:*<br>  ◦ *Increase the minimum lane width for kerbside lanes to a minimum of 4.5m where a trafficable carriageway is shared by cyclists, but no dedicated bicycle lane is marked on the carriageway; or*<br>  ◦ *Provide a 1.5m wide dedicated bicycle lane marked on the carriageway. Where a dedicated parking lane is required, the combined bicycle/parking lane must not be less than 4.0m wide.*<br>• *An additional dedicated parking lane or indented parking within the verge must be provided where street parking is required. Minimum 2.3m in width.* |
| Verge Width | *6m minimum on each side (plus central median)* |
| Footpath Provision | • *1.5m footpath on each side and 1.7m bicycle lanes on the carriageway; or*<br>• *2.5m shared path on both sides and no dedicated bicycle lane on the carriageway.*<br>• *2.0m in the vicinity of a school, shop or activity centre. Refer to Appendix B.* |

### (g) Arterial Road

A road that provides direct access from one district to another. Generally speaking, arterial roads have restricted frontage development and dual carriageways. The location of arterial roads will be determined by the precinct structure plan, or overall development plan:

| | |
|---|---|
| Traffic Volume | *>7,000vpd* |
| Carriageway Width & Parking Provisions | *As required by the relevant road authority (ie. Vicroads and Council)* |
| Verge Width | *As required by the relevant road authority (ie. Vicroads and Council)* |
| Footpath Provision | *2.5 wide shared path on each side or as otherwise specified by the relevant road authority (ie. Vicroads and Council)* |

## 2.4 Road Reserve Widths

Road reserve widths must be sufficient to accommodate the road carriageway, required services with approved clearances, pedestrian and bicycle access, parking, landscaping, drainage and bus routes, in accordance with this manual.

## 2.5 Public Open Space Requirements

In all subdivisions, Council requires the creation of public open space. If there is an approved strategy or plan for a particular area, the provision for public open space shall be in accordance with the provision of that strategy.

Open space areas and facilities should be provided in locations that maximise accessibility for all users. They should not be located on major roads, however there should be good sight lines into an open area from neighbouring streets, houses, schools or other buildings.

All areas of public open space are to be unencumbered by easements. Refer to Section 2.7 for further details on easements in public open space.

## 2.6 Drainage and Flood Prevention

Provision shall be made for the drainage of each allotment and reserve shown on the endorsed plan of subdivision to the requirements of the responsible drainage authority. Provision shall also be made to ensure that run-off resulting from a 100 year ARI flood event does not inundate any part of any allotment.

Wyndham City Council is the responsible drainage authority for all local catchment areas less than 60 hectares. For drainage catchments larger than 60 hectares, Melbourne Water is the responsible authority.

Melbourne Water is also the responsible approval authority for drainage works associated with rivers, creeks and open waterways. For all other minor drainage works, Council is the responsible approval authority.

The submission of a drainage management strategy addressing the management of both quantity and quality of stormwater will be required at the time when a planning permit is being sought after. This strategy shall include, as a minimum, information on the following:

(a) Existing site conditions and proposed catchment areas (including external catchment areas);

(b) The location and size of drainage reserves;

(c) The location and size of drainage retarding systems;

(d) Proposed Water Sensitive Urban Design (WSUD) treatments; and

(e) Drainage outlet design (concept).

## 2.7 Easements

In the event that a service is to be located within any part of an allotment, an easement must be created in favour of the relevant authority. The width of the easement is to be determined by the relevant authority.

For all drainage easements, the minimum acceptable width is 2.0m. For combined drainage and sewerage easements, the minimum acceptable width is 3.0m.

Service easements through Council Reserves are not permitted without prior consultation and/or consent of Senior Council Officers. Please note that the developer will be liable for compensation, or the provision of a suitable area of open space in an alternative location, to the satisfaction of Council.

# 3.0 Engineering Requirements

## 3.1 Engineering Plan Submission

Engineering plans and documentation shall be submitted at three separate stages during the design process, in accordance with the following sections.

### 3.1.1 Functional Layout Submission

Preliminary engineering plans are to be submitted to Council's Engineering Services Unit for review and approval. The submission must note any key engineering assumptions specific to the proposed development.

The functional layout submission shall be prepared in accordance with general engineering principals, the planning permit conditions and all other documentation prepared for the site. The submission shall include one hardcopy set of road layout and parking plans showing:

- Layout of roads and allotments with nominated carriageway widths (between invert of kerbs) and nominated road reserve widths;
- Typical road reserve cross sections;
- Functional layout plan of proposed intersections internal and external to the development (scale 1:250);
- Carparking layout plan;
- Vehicle turning movements; and
- Details on staging of the development.

### 3.1.2 Detailed Engineering Design Submission

Once approval of the functional layout plan has been received, detailed engineering design must be carried out in accordance with this manual. This detailed design must be submitted to Council's Engineering Services Unit for review.

The following documentation must be included with the initial submission of detailed engineering drawings:

- One complete set of A1 engineering drawings.
- Overall drainage concept for the entire development.
- A coloured catchment plan showing Q100 for the entire development.
- A coloured catchment plan showing Q5.
- Drainage computations for Q5 and Q100.
- A traffic management report including a road hierarchy plan.
- Geotechnical report and pavement design.
- Water main reticulation plans.
- Sewer main reticulation plans.
- A Certified Plan of Subdivision.
- Copy of current approved Overall Development Plan.

A completed copy of Council's Subdivision Construction Plans Check Sheet must also be included with the initial submission of detailed engineering drawings. A copy of this form is available at www.wyndham.vic.gov.au and has also been included in Appendix C.

### 3.1.3 Final Design Submission

On completion of the final design plans, the design engineer shall provide one (1) set of A1 plans and two (2) sets of A3 plans to Council's Engineering Services Unit for approval. One (1) electronic copy in Adobe PDF format must also be provided.

The designer must also provide a detailed cost estimate, including a schedule of works associated with the stage of development, as shown on the engineering plans.

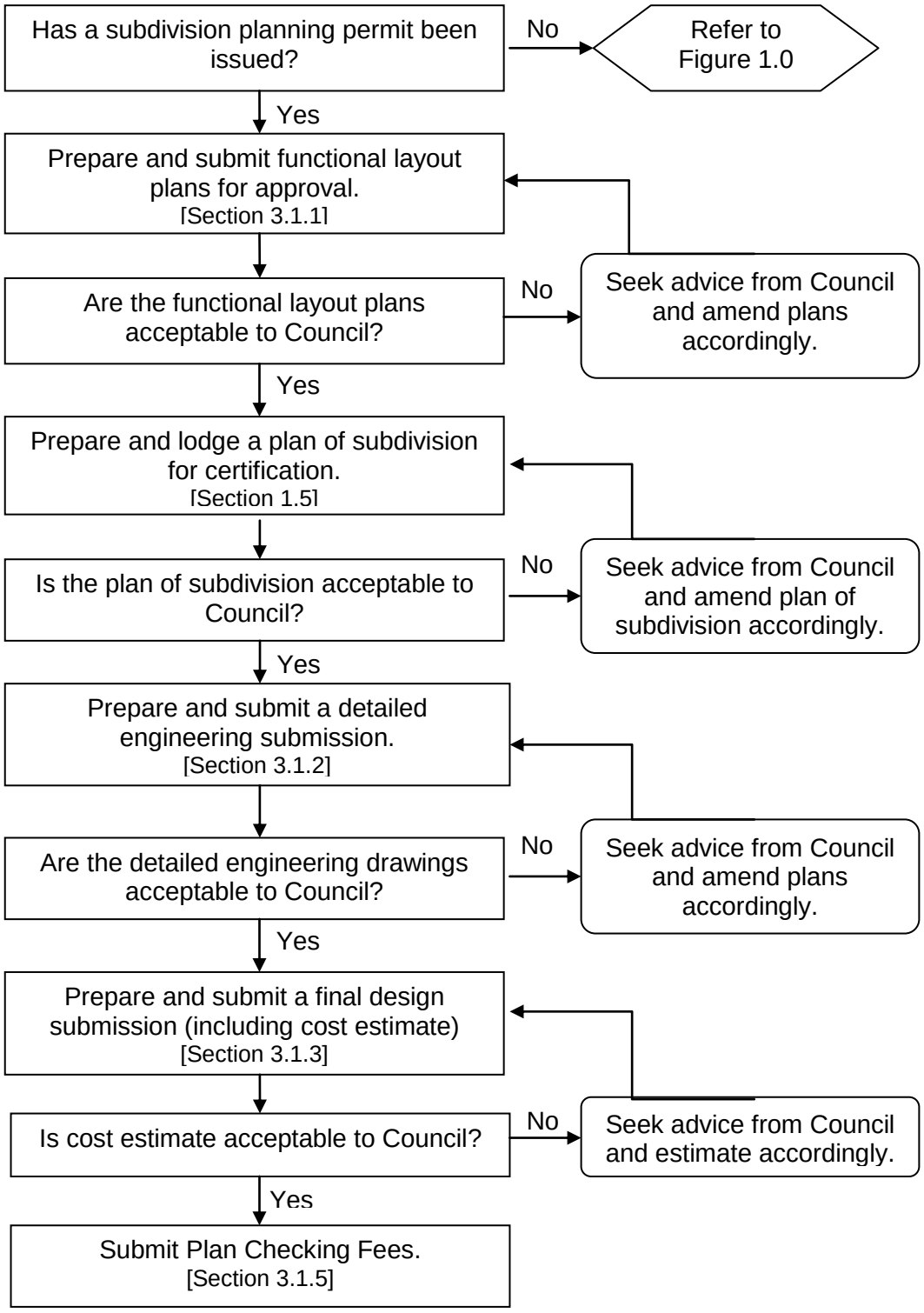


**Figure 3.0 – Engineering Submission Process**

### 3.1.4 Revised Design Submission

Should it be necessary to revise the detailed engineering drawings after Council has issued approval for the final design, it will be necessary to re-submit amended drawings to Council's Engineering Services Unit for approval. All revisions must be clearly identified with revision clouds and appropriately labelled within the title block.

### 3.1.5 Plan Checking Fees

Payment of plan checking fees to the value of 0.75% of the estimated cost of works must be submitted prior to Council issuing construction plan approval.

## 3.2 Presentation

### 3.2.1 Sheet Size

All engineering drawings must be produced in either of the following standard sheets sizes:

- A1
- A3

### 3.2.2 Drawing Scales

Any of the following standard engineering scales shall be used for layout plans, provided that the details of the plan are clear and legible:

- 1:50
- 1:100
- 1:200
- 1:250
- 1:500
- 1:1000

### 3.2.3 Longitudinal sections

For all long section plots (including drainage), a ratio of 10:1 must be applied where the vertical scale is 10 times the horizontal scale applied in plan view.

For example: Horizontal Scale 1:500
Vertical Scale 1:50

### 3.2.4 Cross Sections

For all cross section plots, a ratio of 2:1 must be applied, where the vertical scale is two (2) times the horizontal scale.

For example: Horizontal Scale 1:100
Vertical Scale 1:50

## 3.3 Information to be shown on plans

The design engineer is responsible for ensuring that information on plans is shown in sufficient detail to enable works to be constructed in accordance with Council's standards and specifications.

Information to be shown on plans shall include, but not necessarily be limited to, the following:

- Title block;
- Locality plan;
- Layout and stage plan;

- Detailed plan of each new road (including services);
- Detailed plan of intersections;
- Longitudinal section of each new road;
- Typical cross sections (including service locations);
- Cross sections of each new road;
- Longitudinal sections for each drainage line;
- Pit schedule;
- Pavement composition details;
- Construction notes and details; and
- Adequate horizontal and vertical set-out data to enable construction to occur and be checked.

A detailed description of each of the above mentioned items have been included in Appendix D.

## 3.4 Co-ordinates and Levels

### 3.4.1 Co-ordinates

Map Grid of Australia (MGA) shall be used as the co-ordinate system. All co-ordinates shall be expressed in metres to three (3) decimal places.

### 3.4.2 Reduced Levels

Australian Height Datum (AHD) shall be used as the reference system. All reduced levels and invert levels shall be expressed in metres to three (3) decimal places. Allotment levels in detail plan shall be expressed to two (2) decimal places.

# 4.0 Road Design

The objectives of designing new residential, commercial and industrial streets within Wyndham City Council are as follows:

- To develop a network and alignment that considers the existing network of arterial roads, neighbourhood streets, cycle paths, footpaths and public transport routes.
- To provide an appropriate street environment that appropriately manages movement demand, in accordance with the road classification.
- To provide a speed environment that encourages safe pedestrian, cyclist and driver behaviour, appropriate to the road classification.

Road design shall be based on sound engineering practice following the general principals of The Wyndham Planning Scheme, the Austroads Guidelines and VicRoads Road Design Guidelines, in addition to the criteria outlined within this manual.

## 4.1 Road Classification

The classification of residential streets within any development shall be generally in accordance with Section 2.3.

Ultimate traffic volumes for road classification and road design shall be based upon approved multipliers of existing traffic movements, through traffic, and an estimate of traffic generated by the proposed and future development. Where alternative traffic assumptions are used in the preparation of a Traffic Impact study, details of alternatives shall be provided to Council for approval.

## 4.2 Road Geometry

The geometric design of all roads shall be sufficient to enable emergency service vehicles, waste collection vehicles and street-sweeping vehicles to carry out their functions whilst travelling in a forward-only direction throughout the development.

### 4.2.1 Cul-De-Sacs

A circular turning area shall be provided at the end of all cul-de-sacs. A minimum permissible turning radius of 10.5m shall apply to the face-of-kerb for all kerb types. 'T' and/or 'Y' cul-de-sacs will not be approved.

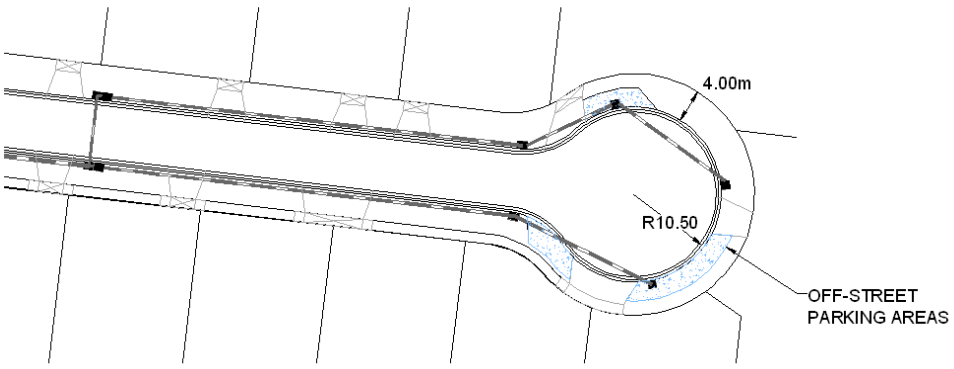


**Figure 4.2.1 – Typical Cul-De-Sac Layout**

## 4.3 Traffic Calming

Traffic management devices such as thresholds, slow points, raised pavements, speed cushions, chicanes and splitter islands should be designed in accordance with the requirements of the Austroads publication Guide to Engineering Practice – Part 10 Local Area Traffic Management (LATM) and VicRoads Traffic Engineering Manual – Volumes 1 and 2.

It should be noted that the current Public Transport Guidelines for Land Use and Development must be considered when designing for traffic management devices along designated bus routes. Council's approval will be required for all traffic calming devices.

Roundabouts shall be designed in accordance with the requirements of the current Austroads publication Guide to Traffic Engineering Practice – Part 6 Roundabouts.

## 4.4 Typical Cross Sections

The standard cross section for new residential streets shall be in accordance with Section 2.3 and Clause 56 of The Wyndham Planning Scheme. Typical service locations for these new residential streets shall be in accordance with Council's Standard Drawings SD8-1 and SD8-1B.

A typical cross section for each street must be included in the detailed engineering drawings and should include the following, as a minimum:

(a) Type of kerb and channel;

(b) Surface details (crossfall) and dimensions;

(c) Footpath details, offsets and dimensions;

(d) Service details and offsets; and

(e) Pavement details.

## 4.5 Footpaths and Shared Paths

Provision for footpaths in new residential streets shall be in accordance with the requirements of Section 2.3 and Clause 56 of The Wyndham Planning Scheme.

The construction of concrete footpaths shall be in accordance with Council's Standard Drawing SD2-1 and relevant Council specifications. All shared paths shall be constructed in accordance with Council's Standard Drawing SD2-3.

## 4.6 Vehicle Access

Vehicle access shall be provided for each lot on the endorsed plan(s) in accordance with Council's Standard Drawings SD4-1, SD4-2, SD4-3, SD4-4, SD4-5 and SD4-6 as appropriate.

## 4.7 Kerb and Channel

Concrete kerb and channel shall be provided for all new residential, commercial and industrial streets in accordance with Council's Standard Drawings SD7-1 and SD7-2.

Mountable or semi-mountable kerbs are not to be provided adjacent to reserves or areas of public open space.

## 4.8 Sub-surface Drainage

Agricultural pipe drains are to be installed behind all kerb and channel, kerb only and edge strips in accordance with Council's Standard Drawings SD7-1 and SD7-2.

## 4.9 Vertical Grading

The maximum grades for all arterial roads shall be in accordance with current VicRoads Road Design Guidelines. All other roads shall be as follows:

| | |
|---|---|
| Desirable Minimum | 0.5% |
| Absolute Minimum | 0.3% (approval required) |
| Desirable Maximum | 10% |
| Absolute Maximum | 20% |

Vertical parabolic curves shall be provided for all changes of grade greater than 1.0%. The minimum vertical curve length shall be 15m. In all cases, vertical curves shall be designed in accordance with the current VicRoads Road Design Guidelines.

Council will not accept reverse fall footpaths or shared paths. Low points within kerb returns at intersections will also not be accepted.

## 4.10 Crossfalls

The minimum and maximum permissible crossfall for all new residential, commercial and industrial streets within Wyndham City Council shall be as follows:

| | Minimum | Desirable | Maximum |
|---|---|---|---|
| Road Pavement | 1 in 40 | 1 in 33 | 1 in 25 |
| Footpath/Shared Path | N/A | 1 in 100 | N/A |
| Naturestrip | 1 in 30 | - | 1 in 10 |
| Median/Outer Separators | 1 in 10 | - | 1 in 6 |
| Batters | - | - | 1 in 6 |
| Vehicle Crossings | 1 in 50 | - | 1 in 10 |

## 4.11 Staged Construction

Where staging of construction occurs, temporary measures must be incorporated as part of the detailed road design to ensure that service vehicle access is permitted throughout the entire road network.

Temporary turning areas will need to be established between development stages until such a time that the road is extended. These turning areas shall be constructed of crushed rock with a minimum turning radius of 10.5m.

Concrete edge strip shall be provided at the end of any length of road that terminates within a construction stage, to prevent edge break of the asphalt wearing course, until such a time that the road is extended. Appropriate "no road" and hazard warning signs must also be erected.

# 5.0 Drainage Design

Provision must be made for the drainage of each allotment shown on the endorsed plan(s) to the requirements of the responsible drainage authority. Each property must be provided with an underground drainage outlet in accordance with Section 5.9.

All stormwater generated within the development must be collected and controlled within the subdivision without detrimentally affecting the general environment, surface and sub-surface water quality, the adjoining land owners and other land owners within the overall catchment area, or encumbering areas of open space.

The following section sets out the requirements for minor and major drainage networks within the municipality. However, it is not intended to prohibit any alternative approaches. Innovative designs may be considered, but not necessarily accepted.

## 5.1 Urban Residential Drainage Design

Drainage of the subject land for residential purposes shall be provided by underground drainage systems catering up to 1 in 5 year storm return periods. Flows in excess of 1 in 5 year storm return periods, up to and including 1 in 100 year storm return periods, must be accommodated within the road reserves, separate channels and/or within the provided drainage system.

A minimum freeboard of 300mm shall be applied between the 100 year storm event flood level and allotment finished surface levels. These levels can be taken as the top of batter levels where a batter exists within the allotment boundary.

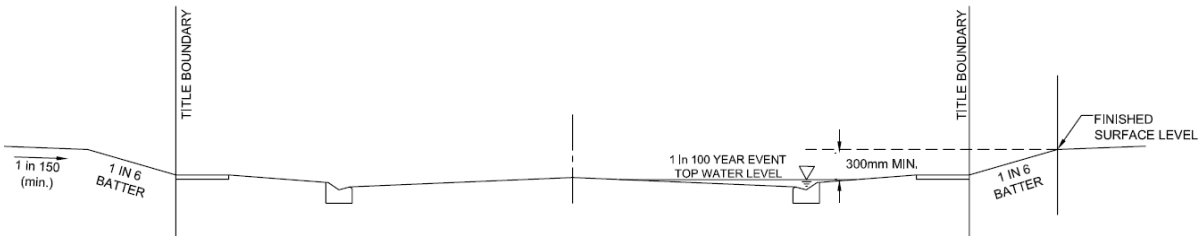


**Figure 5.1 – Floodway Typical Section**

All urban storm water systems must incorporate water quality treatment measures to satisfy the objectives of “Best Practise Environmental Management Guidelines” (CSIRO 1999) to reduce or retain total :-

(a) 80% of suspended solids;
(b) 45% phosphorus;
(c) 45% nitrogen; and
(d) 70% litter / gross pollutants larger then 5mm.

## 5.2 Industrial/Commercial Drainage Design

Drainage of the subject land for industrial purposes must be provided by underground drainage systems catering for up to 1 in 10 year storm return periods. Flows in excess of 1 in 10 year storm return periods, up to and including 1 in 100 year storm return periods must be accommodated within the road reserves, separate channels and/or within the provided drainage system.

All industrial storm water systems must incorporate water quality treatment measures to satisfy the objectives of “Best Practise Environmental Management Guidelines” (CSIRO 1999) to reduce or retain total :-

(e) 80% of suspended solids;
(f) 45% phosphorus;
(g) 45% nitrogen; and
(h) 70% litter / gross pollutants larger then 5mm.

## 5.3 Minor Floodways

Where separate channels are used for flows in excess of the nominated storm event, up to and including 100 year storm events, low flow pipes of capacity up to 1 in 5 year storm events shall be provided within the floodway. A minimum freeboard of 300mm shall be applied between the 100 year storm event flood level and the allotment boundary levels.

A minimum freeboard of 600mm shall be applied between the 100 year storm event flood level and the allotment boundary levels abutting major floodways such as creeks, rivers and purpose built floodways.

For roadways designed to act as floodways, water surface profiles along the roadway shall be computed using appropriate hydraulic models such as those based on Mannings equation with 'n' not less than 0.02. The backwater effect of any flow controls such as overflows of kerbs and/or footpaths must be considered.

100 year ARI flood levels must not exceed 300mm above the kerb invert. Flows within the kerb must be limited in depth and velocity by the following formula:

$$\mathbf{d_a \times V_{ave} < 0.4 m^2/s}$$

where $d_a$ = kerbside flow depth; and
$V_{ave}$ = flow mean velocity

In both residential and industrial situations, where it is impossible to incorporate a drainage overflow facility to protect the properties downstream from flooding, the design must include provision within the underground pipe system to cater for the 1 in 100 year flood events whilst complying with the minimum freeboard provisions. It should be noted that subdivisional layouts which create trapped low points will not be approved.

## 5.4 Hydrology

For drainage systems within Wyndham City Council, stormwater runoff calculations shall be based upon hydrological methods and data contained within the latest edition of Australian Rainfall and Runoff, unless otherwise specified in this manual.

Generally, the capacity of drains shall be determined using the Rational Method:

$$\mathbf{Q = CIA/360}$$

where Q = design discharge ($m^3/s$)
C = run-off coefficient
I = rainfall intensity (mm/h)
A = catchment area (ha)

### 5.4.1 Co-efficient of Run-off

The following minimum coefficients of runoff shall be adopted:

| Catchment Type | 5 yr ARI | 10 yr ARI | 100 yr ARI |
|---|---|---|---|
| Residential Lots | | | |
| <400m2 | 0.53 | - | 0.70 |
| 400 – 600 m2 | 0.49 | - | 0.60 |
| >600m2 | 0.45 | - | 0.53 |
| Reserves | 0.30 | - | 0.50 |
| Dual Occupancy | 0.70 | - | 0.80 |
| Road Reserve | 0.70 | - | 0.90 |
| Industrial/Commercial | n/a | 0.90 | 0.90 |

### 5.4.2 Rainfall Intensity

The rainfall intensity values given in the Intensity Frequency Duration (IFD) curves in Appendix E shall be used.

### 5.4.3 Time of Concentration

The time of concentration for any catchment shall be calculated in accordance with the current edition of Australian Rainfall and Runoff. The minimum time of concentration for any residential allotment shall not be less than 6 minutes.

## 5.5 Staged Construction

Where staged construction occurs, temporary measures must be incorporated as part of the overall subdivisional drainage design to ensure that no building will be flooded by the 100 year flood event, and drainage outlet structures are properly screened for safety.

A free flowing outlet must be provided for all development stages to the satisfaction of the drainage approval authority.

## 5.6 Hydraulic Design

Drainage design shall be based on hydraulic grade line analysis, using appropriate pipe friction and drainage structure head loss coefficients. All pipe sizes are to be computed using a velocity and discharge diagram based upon Manning's equation, with a pipe friction parameter (n) of 0.013.

### 5.6.1 Pipe Velocities

Minimum and maximum velocities within drainage pipes shall be as follows:

Minimum Velocity – 0.6m/s

Maximum Velocity – 8.0m/s

### 5.6.2 Pipe Grades

The first length of any pipe within the road reserve shall not have a grade less than 1 in 100. The first length of any pipe within an allotment shall not have a grade less than 1 in 200.

Anchor blocks shall be provided where the slope of the pipe is steeper than 1 in 6, and the pipe length is greater than 15m.

### 5.6.3 Minimum Cover

The minimum cover to the top of pipe shall be 600mm in the road reserve, and 450mm elsewhere. Pipe classes shall be determined in accordance with proposed cover. It is recommended that loading capacity is verified using PipeClass software developed by the Concrete Pipe Association of Australasia, or similar.

### 5.6.4 Curved Pipelines

Curved pipelines are permitted only where they are of constant radius and in accordance with the pipe manufacturer's specifications.

### 5.6.5 Pit Losses

Pit losses and other head losses are to be calculated in accordance with the current edition of Australian Rainfall and Runoff (ARR). Hydraulic calculations shall include effects of any backwater exerted at the outlet from the pipe system being designed. All drainage longitudinal sections shall show the computed hydraulic grade line (HGL).

All pit bases are to be formed in accordance with Council's Standard Drawings and Specifications.

### 5.6.6 Pit Locations

Grated entry pits (GEP) shall be located as follows:

(a) Adjacent to tangent points where the channel falls towards the intersection;

(b) At low points;

(c) At construction boundaries.

Additional grated entry pits shall be provided where additional capacity is required to necessitate the capture of overland flow, or in large flat areas.

All pits shall be offset a minimum of one (1) metre from vehicle crossings. Inlets shall be shaped in accordance with Council's Standard Drawings, to achieve maximum capture of gutter flows.

The maximum spacing between any junction or grated side entry pit for pipes larger than 450mm in diameter is 90m. Where the pipe is less than or equal to 450mm in diameter, the maximum spacing between pits shall not exceed 70m.

Where necessary, calculations to show hydraulic capacity of pits may be required.

## 5.7 Pipes

All pipes are to be rubber ring jointed (RRJ) reinforced concrete pipes, and must satisfy loading requirements. Backfilling and installation of all pipes is to be in accordance with Council Specifications.

### 5.7.1 Minimum Pipe Size

The minimum pipe size in any subdivision shall not be less than 225mm in diameter. Any pipe within the road reserve shall be a minimum of 300mm. The minimum pipe size servicing any park or reserve shall not be less than 375mm in diameter.

No reduction in pipe diameter will be permitted in the downstream direction for diameters up to and including 750mm. For larger pipes, reduction in diameter may be approved provided that hydraulic calculations verify that velocity limits are not exceeded.

## 5.8 Drainage Structures

Drainage structures shall comply with Council's Standard Drawings for such structures. All pits are to be constructed of reinforced concrete with minimum strength 25Mpa, either cast in-situ or precast where approved.

### 5.8.1 Minimum Pit Depth

The depth of Grated Entry Pits (GEP) can be calculated using the following formula:

**400mm + pavement depth (mm) + 0.5x pipe diameter (mm)**

The absolute minimum depth shall be 900mm.

## 5.9 Property Connections

Property connections shall be placed at an appropriate depth to enable the whole of the property to be drained to this point. All house drains and property connections shall be constructed in accordance with Council's Standard Drawings and Specifications. Minimum depth of cover for property connections shall be 450mm.

# 6.0 Pavement Design

## 6.1 Flexible Road Pavements

Flexible road pavements in Wyndham City Council are to be designed in accordance with Council's Guide to Design of Flexible Pavements for New Urban Residential Streets, prepared by Allan Bowman & Associates Pty Ltd, with a design life of 20 years. A copy of this document has been included in Appendix F.

### 6.1.1 Subgrade Analysis

Subgrade investigation and testing shall be undertaken by consultants who are currently registered on the VicRoads Consultant Registrar for Pavement Design, Rehabilitation & Investigation, in accordance with all relevant Australian Standards, Vicroads Technical Bulletins, Vicroads Manual of Codes of Practice and Vicroads Manual of Testing.

The scope, extent and location of testing shall be undertaken in accordance with Section 2 of the Allan Bowman & Associates Report as an absolute minimum. Results shall be included in the geotechnical report and forwarded to Council for evaluation.

### 6.1.2 Minimum Permissible Design Traffic

To ensure that minimum pavement design standards are met, the minimum design requirements as outline in Section 3 of the Allan Bowman & Associates report shall apply.

### 6.1.3 Pavement Composition

The requirement of overall pavement thickness for all new residential streets shall be determined in accordance with Section 4 of the Allan Bowman & Associates report.

## 6.2 Concrete Street Pavements

Concrete pavements shall be designed in accordance with the Austroads publication "A Guide to Structural Design of Road Pavements", with a minimum design life of 20 years.

## 6.3 Pavement Materials

All pavement materials required for the construction of road pavements in Wyndham City Council shall be supplied, placed and compacted in accordance with current Council Specifications.

### 6.3.1 Recycled Crushed Concrete

Class CC3 Crushed Concrete is accepted for use as a pavement sub-base only where it is placed on an impervious lower sub-base.

### 6.3.2 Non-Permissible Materials

Class CC2 Crushed Concrete is no longer accepted as an alternative to Class 2 Crushed Rock for use in base layers of any pavement composition as suggested in Section 4 of Allan Bowman & Associates report.

Class 4 Crushed Rock or Class CC4 Crushed Concrete are also no longer accepted materials for use within the lower sub-base layers of any pavement composition as suggested in Section 5.5 of Allan Bowman & Associates report.

# 7.0 Public Lighting

## 7.1 Provision for Public Lighting

All roads within the new subdivision shall be provided with public lighting in accordance with the requirements of the relevant Australian Standards. New lighting shall be located outside the clear zones wherever possible, and shall meet the standards for Category V or Category P lighting, as appropriate.

Category V lighting is applicable on roads where visual requirements of motorists are dominant, such as sub-arterial roads. Category P lighting is applicable on roads (and other public outdoor areas) where the visual requirements of pedestrians are dominant, such as local roads and outdoor shopping precincts.

All public lighting must incorporate the use of energy efficient globes (eg.T5).

## 7.2 Non-Standard Lighting

Where decorative or non-standard lighting is preferred, lamps and luminaries must comply with the Public Lighting Service Provider's technical requirements, and be approved by Council. The current Public Service Provider for Wyndham City Council is Powercor.

Please note that Council policy on decorative or non-standard lighting is currently under review and subject to change.

### 7.2.1 Non-standard Lighting Fee

Please note that decorative or non-standard street lighting will attract a Council fee prior to the release of any lots within that stage of development. Please contact the Engineering Services team for further information on the current applicable fee.

# 8.0 Landscaping

All streetscape works including landscaping, tree planting and estate entrance treatments shall be provided in accordance with Wyndham City Council's Subdivision Landscape Works Standards and Practical Completion and Handover Procedures brochure. A copy of this brochure is included in Appendix G.

## 8.1 Landscape Plans

Landscaping plans shall be prepared and submitted to Council's Landscaping and Urban Design Planning Officer for approval, prior to issuing statement of compliance. These plans shall be prepared in accordance with the above mentioned brochure, the planning permit conditions, and all other documentation prepared for the site. The submission shall include one (1) hard copy set of landscape plans showing:

(a) All surface treatments.

(b) The location, height and construction details for any proposed fencing (including fencing treatments abutting native grassland reserves consistent with the approved Environmental Management Plan).

(c) Any entrance features or estate feature retaining walls (entry features must be located wholly within private property or body corporate land)

(d) The botanical name, height and width at maturity, and location of all plants, including tress.

(e) The location of all proposed gardens beds or feature plantings, including construction details.

(f) Any park or street furniture including lighting, BBQ facilities, seating, shade shelters and play equipment.

(g) A works specification, including the method of preparing, draining, watering and maintenance of all planting and landscape areas.

### 8.1.1 Final Landscaping Plans Approval

On completion of the landscaping plans, the landscape designer shall provide one (1) set of A1 plans and two (2) sets of A3 plans for Council's endorsement. An electronic copy in Adobe PDF format must also be provided.

## 8.2 Landscape Works Bonds

Following the approval of landscape plans and detailed documentation, the applicant shall be required to submit an outstanding works bond to the complete value of the proposed landscaping works, including both hardscape and softscape works. This bond may be in the form of either a cheque or a bank guarantee, and will be returned to the applicant upon satisfactory completion of landscaping works.

The applicant is also required to submit a further 25% of the total value of the landscaping works as a maintenance bond. This bond will be held and used to maintain the landscaping works at the end of the agreed maintenance period, should the applicant fail to do so. The bond may be in the form of either a cheque or a bank guarantee, and will be returned to the applicant upon completion of the maintenance period.

All landscaping bonds are to be directed to Council's Landscape and Urban Design Planner.

## 8.3 Practical Completion and Handover Procedures

At the completion of works, the site superintendent must contact Council to arrange an inspection in accordance with Wyndham City Council's Subdivision Landscape Works Standards and Practical Completion and Handover Procedures brochure. A copy of this brochure is included in Appendix G.

Landscaping works bonds will not be released until such a time that all works are completed to the satisfaction of Council. Please refer to Section PCH of the above mentioned brochure.

Prior to the end of the maintenance period, the landscape designer shall provide an electronic copy of the as constructed landscape drawings in both AutoCAD DWG file format and Adobe PDF file format.

# 9.0 Construction

Construction of any works associated with the development must not commence until Council has granted Final Design Approval in accordance with Section 3.1.3, and a pre-commencement site meeting has taken place.

## 9.1 Pre-Commencement Meeting

The Consulting Engineer is to arrange a pre-commencement site meeting with Council's Construction Supervisor, the contractor and the consultants. At this meeting, the following items will be considered. All documentation must be submitted and approved by Council, prior to works commencing. A copy of Council's Pre-Commencement Checklist is included in Appendix H.

### 9.1.1 Environmental Management Plan

An Environmental Management Plan must be prepared and submitted to Council prior to any works commencing on site. The plan shall aim at minimising the impact of construction works, particularly erosion and sediment control.

### 9.1.2 Traffic Management Plan

A Traffic Management Plan must be prepared and submitted to Council prior to any works commencing on site. The Traffic Management Plan shall include (but not limited to) site access and appropriate signing strategies. A "Memorandum of Consent" shall be submitted with the Plan in instances where a reduction in speed limit is required.

### 9.1.3 Truck Routes

In accordance with the requirements of the Planning Permit, all truck routes associated with the development must be submitted to Council for approval. A plan clearly showing the estate name, stage of development, planning permit number and intended routes for all trucks accessing the development site must be submitted to Council for approval, prior to works commencing.

### 9.1.4 Standard Drawings and Specifications

All works shall be constructed in accordance with Wyndham City Council's Standard Drawings and Specifications. A copy of these specifications are available on Council's website.

Where no Council Standard or Specification exists, Consultants may use their own standard or specification subject to the approval of the Manager of Engineering Services.

## 9.2 Council Inspections

The Contractor shall allow Council's Construction Supervisor to inspect and measure any part of the development works in accordance with Council's Inspection and Test Plan. No works are to proceed beyond the nominated hold point without inspection of works in association with this plan. A copy of this plan is included in Appendix I.

The Contractor shall give 24 hours notice to the Construction supervisor when inspection is required. When construction works are carried on outside normal working hours, such as weekends, it will be necessary for the Contractor/Consulting

Engineer to provide Council with 24 hours notice of its intention to work so that necessary arrangements with staff may be carried out.

Costs for inspections outside of normal working hours must be paid for by the relevant Contractor/Consulting Engineer.

### 9.2.1 Maintenance Inspection

At the completion of all works required under the Planning Permit, an inspection shall be arranged with Council's Construction Supervisor. If the Supervisor is satisfied that all works are complete in accordance with the approved plans, the development works will be placed on maintenance. Where there are items requiring further attention, the Consulting Engineer shall be advised in writing, and a further inspection will need to be arranged.

## 9.3 Maintenance Period

The applicant is responsible for maintaining the completed works for three (3) months, or other agreed period, after which the maintenance will become the responsibility of Council.

### 9.3.1 Maintenance Bond

Prior to Council issuing a Statement of Compliance for a stage of development, the applicant is required to submit a bond in the form of a cheque or a bank guarantee, to the value of 5% of the final cost of road and drainage works. This maintenance bond is held and used to maintain the works at the end of the maintenance period, should the applicant fail to do so.

All maintenance bonds will be returned to the developer at the end of the maintenance period, provided that the works have been maintained to the satisfaction of Council, and all documentation has been provided as per Council's conditions of approval.

### 9.3.2 End of Maintenance Inspection

The works shall be maintained for a period of three (3) months, or other agreed period, from the date of the commencement of maintenance. At the end of this period, the Consulting Engineer shall request Council to undertake a final inspection. It shall be ensured that all outstanding items are addressed and completed prior to the inspection. After the works have been satisfactorily maintained, written advice shall be provided to the Consulting Engineer, and Council shall take over the ownership and ongoing maintenance of the works.

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# 10.0 Statement of Compliance

Following the satisfactory completion of all works as required in the Planning Permit, the Manager Engineering Services shall release Council requirements for all road and drainage works, and send written advice to Council's Planning Subdivision Officer.

Separate release shall be issued for Open Space by the Landscape and Urban Design Planning Officer. Please refer to Appendix G for Council's landscaping works handover procedures.

## 10.1 Council Requirements

Prior to Council issuing a Statement of Compliance for a stage of development, pursuant to the Subdivision Act 1988, the Consulting Engineer shall provide the following to Council:

i) Payment of construction supervision fees to the value of 2.5% of the total cost of constructing the works which are subject to supervision;

ii) Payment of a maintenance bond in accordance with Section 9.3.1 of this manual;

iii) Payment of non-standard public lighting fees in accordance with Section 7.2 of this manual;

iv) An electronic copy of all as constructed engineering drawings in both AutoCAD DWG file format and Adobe PDF file format, on CD;

v) As constructed survey accurate asset information in accordance with D-Spec, mapping co-ordinates GDA94, MGA Zn55 and in either of the following file formats:

   i. ESRI Arcview shapefile, or

   ii. MapInfo MIF/MID or MapInfo Native Format; and

vi) Compaction test results in accordance with Council specifications.

It will be necessary that the Consulting Engineer provides a summary of fees and bonds to Council, together with a complete schedule of road and drainage works for approval prior to payment of any such fees.

Where non-standard public lighting fees apply, a public lighting plan approved by the current Service Provider must also be submitted.

# 11.0 Appendices

Appendix A – Application for Planning Permit

# Appendix B – Typical Street Layout Adjacent to a School

# Appendix C – Subdivision Check Sheet.

| |
|---|
| **SUBDIVISION NAME & STAGE NUMBER:** |
| **CONSULTANT:** |

The following completed Engineering package must be submitted to Council to enable commencement of plan checking approval process:

| | **ENCLOSED** |
|---|---|
| **(a) One (1) Set of A1 Size Construction Drawings**<br>Drawings must be complete with layout details, road longitudinal sections, cross sections, intersection details, pavement design, and construction details, set out details, drainage long sections, a pit schedule, service locations, general notes, and any other supporting information. | □ |
| **(b) Water Main Reticulation Plans** | □ |
| **(c) Sewer Main Reticulation Plans** | □ |
| **(d) Drainage Management Plan (Overall Drainage Strategy)**<br>Plan must include coloured catchment plans for each stage and overland flow paths for the entire estate. These must show all external catchment areas intended to be drained through the stage. | □ |
| **(e) Drainage Computations (Subdivision)**<br>• Detailed Q5 and Q100 computations.<br>• Cross sections of roads with major flow paths must be shown with Q100 water levels at all low points. | □ |
| **(f) Approved Traffic Management and Functional Plans**<br>The traffic management plan must include a description of various categories of roads (road hierarchy plan) and approved typical cross sections for each class of road in the Subdivision... | □ |
| **(g) Geotechnical Report & Pavement Design**<br>Based on Wyndham City Council guidelines. | □ |
| **(h) Structural Certification (where applicable)** | □ |
| **(i) Certified Plan of Subdivision** | □ |
| **(j) Copy of Current approved Overall Development Plan** | □ |

I declare that **all** documents listed above have been checked by Senior Staff and **enclosed with this package** of Engineering subdivision plans:-

Name: _____

Signature: _____

Date: _____

# Appendix D – Council Requirements for Engineering Plans

# Wyndham City Council Requirements for Engineering Plans

## 1.0 Title Block

The following information must be included:

- Estate name (including stage number if applicable);
- Council reference number (to be obtained from Council);
- Drawing and revision number;
- Sheet number;
- Schedule and date of amendments;
- Signed design certification; and
- Signed checking certification.

## 2.0 Locality Plan

The locality plan must identify the location of the subdivision in relation to adjacent suburbs, arterial roads, major roads, etc. It must include a north point and appropriate drawing scale.

## 3.0 Layout Plan

For large scale subdivisions, the layout plan should show the relationship of all new roads to each other, and existing roads adjoining the subdivision. Where development is to be carried out by stages, the boundaries of the proposed stages must be clearly identified and labelled on this plan.

## 4.0 Detail Plans

The detail plan for each new road shall include:

- Road reserve boundaries;
- Allotment boundaries (existing and proposed);
- Lot numbers;
- Existing features (trees, services, etc.);
- Design/construction line (centreline or other);
- Chainages (including intersection points, tangent points, etc.);
- Kerb lines and labels;
- Location of footpaths/shared paths;
- Location and details of signs and linemarking (including street signs at all new intersections);
- Location of drainage network;
- Pit numbers;
- Pipe sizes;
- Location of traffic management devices;
- House drains/property inlets;
- Location of vehicle crossings;
- Location of services;
- Easement locations;
- Road names;
- Existing surface levels at lot corners;
- Finished surface levels at lot corners;
- Limits of filling;
- Limits of works;
- Overland flows shown by direction arrow on each allotment; and
- North point.

## 5.0 Longitudinal Sections of Roads

The longitudinal section of each road shall include:

- Chainages;
- Datum level;
- Existing surface levels; - existing building levels?
- Design road centreline levels;
- Lip of kerb levels;
- Design grades and vertical geometry;
- Chainage, label and levels at tangent points; and
- Chainage and levels of grade intersection points;

## 6.0 Typical Cross Sections

A typical cross section for each road shall be shown, including;

- Road reserve width;
- Pavement width;
- Footpath width;
- Pavement crossfalls;
- Type of kerb and channel; and
- Pavement composition.

## 7.0 Cross Sections of Roads

Cross sections shall be shown for a reasonable selection of chainages along each road. Cross sections shall include the following;

- Road reserve boundaries;
- Pavement centreline (or other design/construction line);
- Datum level;
- Natural surface cross section and levels;
- Design surface cross section and levels;
- Pavement crossfall; and
- Batters

## 8.0 Drainage Longitudinal Sections

A longitudinal section of each drainage line shall be shown, including the following;

- Chainages;
- Existing surface levels;
- Design invert levels;
- Finished surface levels;
- Depth to invert levels;
- Distances between pits;
- Pipe grades;
- Pipe diameters;
- Pipe class; and
- Design flow and velocity.

## 9.0 Intersection Details

An intersection detail for each new intersection shall include:

- Road reserve boundaries;
- Allotment boundaries;
- Existing features (trees, services, etc.);
- Chainages (including intersection points, tangent points, etc.);
- Kerb lines and labels;
- Location of footpaths/shared paths;
- Location of signs and linemarking;
- Location of drainage network;
- Labelling of drainage network (pit numbers and pipe sizes);
- Location of traffic management devices, where appropriate;
- Street names;
- Design surface contours

Lip of kerb profiles shall be provided for each new kerb return, including the following information:

- Chainages;
- Datum level;
- Lip of kerb levels;
- Design grades and vertical geometry;

# Appendix E – Rainfall Data

# Appendix F – Flexible Pavement Design Guidelines

# Appendix G – Subdivision Landscape Works Standards

# Appendix H – Pre-commencement Meeting Checklist

# WYNDHAM CITY COUNCIL

SUB-DIVISION: STAGE:
DATE:

# PRE-COMMENCEMENT MEETING

Upon approval of engineering construction drawings by Council, a pre-commencement meeting is to be held onsite prior to any works being undertaken. Representative(s) from the Wyndham City Council, Consultants, Contractors and any other relevant parties are required to be in attendance.

The pre-commencement meeting forms a hold point and works should not proceed until the meeting has been undertaken.

Items to be considered at this meeting will include but not be limited to the following:

1. Introduction of representative(s) of all parties present. ☐

_____ _____ _____ _____
_____ _____ _____ _____
_____ _____ _____ _____
_____ _____ _____ _____
_____ _____ _____ _____

2. O.H.&S. issues to be discussed including the signing of road works as per AS 1742.3, compound location and project sign visible to the public as per SD11-1. ☐

3. Discussion of all Town Planning requirements, conditions and development approval. ☐

4. Discussion Environmental Management Plan and discussion of any major issues, including the identification of parks and environmentally significant areas and/or trees for preservation. ☐

# WYNDHAM CITY COUNCIL

5. Presentation and discussion of the W.C.C. approved Traffic Management Plan including site access points. Provision of Road Opening Permits for works on existing infrastructure to be discussed. ☐

6. Discussion and approval of all truck routes and disposal sites. ☐

7. Discussion of W.C.C. standard specifications and standard drawings. ☐

8. Discussion of W.C.C. inspection and test plan. ☐

9. Discussion of on/off maintenance inspection arrangements. ☐

10. Presentation and discussion of Contractor's works program. ☐

11. Contractors to provide a list of major sub-contractors including contact details ☐

# Appendix I – Inspection and Test Plan

# WYNDHAM CITY COUNCIL

## SUB-DIVISIONS INSPECTION & TEST PLAN

| ITEMS | INSPECTED ELEMENTS OF WORK | INSPECTION HOLD POINTS | W.C.C SPEC. |
|---|---|---|---|
| 1 **Pre-commencement meeting** | Pre-commencement meeting to be undertaken. | Prior to any works commencing. | |
| 2 **Worksite signage** | Worksite to be appropriately signed as per AS1742.3. | Prior to any works commencing. | 160Q |
| 3 **Environmental Management Plan** | All environmental management procedures to be undertaken. | Prior to civil works commencing. | 160Q |
| 4 **Earthworks** | Prior to the placement of fill material, stripping and clearing of the work site. | Prior to fill placement. | 204.10Q |
| 5 **Cast in-situ Drainage Pits - greater than 1.5m** | * Bedding material compaction.<br>* Formwork.<br>* Reinforcing Steel placement. | Prior to pouring concrete. | 705Q |
| 6 **Drainage Pipes** | * Bedding material compaction.<br>* Pipe installation.<br>* Haunching of pipes. | Prior to backfilling drainage trench. | 701.04Q |
| 7 **Rock Beaching** | * Preparation of bedding or underlying surface. | Prior to constructing rock beaching. | 713.03Q |
| 8 **Culvert structures-Base slab** | * Base material compaction.<br>* Formwork.<br>* Reinforcing steel placement. | Prior to pouring concrete. | 626.07Q |
| 9 **Culvert structures-Box culvert units** | * Visual inspection of concrete units.<br>OR<br>* Formwork & reinforcement placement. | Prior to installation of box culverts.<br>Prior to pouring concrete. | 626Q |
| 10 **Concrete works** | * Bedding material compaction.<br>* Formwork.<br>* Reinforcing steel placement.<br>* Jointing. | Prior to pouring concrete. | 801.08Q |
| 11 **Compaction results-Drainage & Sewer trenches.** | * Sewer trench compaction results submitted to W.C.C.<br>* Drainage trench compaction results submitted to W.C.C. | Prior to subgrade inspection. | 706.091Q |
| 12 **Subgrade** | * Subgrade compaction.<br>* Subgrade formation level and shape inspection.<br>* Subgrade proof roll. | Prior to subsequent pavement layer being placed. | 205.05Q |
| 13 **Capping/Subgrade improvement layer** | * Material compaction.<br>* Pavement layer formation level and shape inspection.<br>* Pavement layer proof roll. | Prior to subsequent pavement layer being placed. | 350Q |
| 14 **Pavement Layers-Lower sub base courses** | * Material compaction.<br>* Pavement layer formation level and shape inspection.<br>* Compaction test results submitted to W.C.C. | Prior to subsequent pavement layer being placed. | 304Q |
| 15 **Pavement Layers-Sub base courses** | * Material compaction.<br>* Pavement layer formation level and shape inspection.<br>* Compaction test results submitted to W.C.C. | Prior to subsequent pavement layer being placed. | 304Q |
| 16 **Kerb & Channel base** | * Base material preparation, compaction and compaction test results | Prior to kerb and channel construction. | 703Q |
| 17 **Pavement Layers-Base Courses** | * Material compaction.<br>* Pavement layer formation level and shape inspection.<br>* Compaction test results submitted to W.C.C. | Prior to subsequent pavement layer being placed. | 304Q |
| 18 **Prime or Primerseal** | * Paper protection application.<br>* Sweeping and cleaning of surface to be sprayed. | Prior to Prime or Primerseal application. | 408.08Q |
| 19 **SAMI or Base course asphalt** | * Application of Prime or Primerseal.<br>* Curing of Prime or Primerseal application.<br>* Removal of dust, mud and free material from surface. | Prior to application of SAMI or Base course asphalt. | 407.18Q |
| 20 **Asphalt (Wearing Course)** | * Application of SAMI or Asphalt layer.<br>* Removal of dust, mud and free material from surface. | Prior to application of wearing course asphalt. | 407.18Q |
| 21 **House Drains & Property Inlets** | * Connection into underground drainage. | Prior to backfilling. | 750.09Q |
| 22 **External Works** | * Appropriate permits issued by W.C.C. | Prior to undertaking any works outside sub-division. | |
| 23 **On-Maintenance** | * All works to be completed.<br>* W.C.C. on-maintenance inspection to be undertaken. | Prior to works going on maintenance. | |
| 24 **Off-Maintenance** | * All rectification works to have been undertaken.<br>* W.C.C. off-maintenance inspection to be undertaken. | Prior to works going off maintenance. | |

## 12.0 Attachments

Attachment (i) – Works in Kind Procedure

# Attachment (ii) – Works in Kind Agreement